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THE
JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW

Official representative of THE JEWELERS' LEAGUE *and of* THE NEW YORK JEWELERS' BOARD OF TRADE, *and the recognized exponent of Trade Interests.*

A Monthly Journal devoted to the interests of Watchmakers, Jewelers, Silversmiths, Electro-plate Manufacturers, and those engaged in the kindred branches of art industry.

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Our Eighteenth Volume.

WITH THIS issue THE CIRCULAR enters upon its eighteenth volume. For seventeen years it has been the representative journal of the jewelry trade, and has enjoyed the confidence of those engaged in it to an extent seldom equalled by any trade journal. For all the confidence and patronage bestowed upon it the proprietors are deeply grateful, and at this time beg to renew their assurances that they will in the future, as in the past, honestly endeavor to deserve the confidence reposed in them. It has always been their purpose to make a paper of which the trade might be proud, and while they could have saved much money by adopting cheaper methods, they have each year sought to improve the standard of THE CIRCULAR rather than let it deteriorate. With this issue we make a few changes in its appearance, with a view to improving its typographical appearance, but these are not material, as its mechanical tone was already conceded to be a high one. As to the contents of THE CIRCULAR for the present volume, we can only say that we shall honestly and earnestly endeavor to give our readers a greater amount of entertaining and instructive reading matter than we have done heretofore. Numerous writers on technical subjects will contribute to its columns, while its news departments will always be abreast of the times. Current topics of general interest will be discussed in its editorial columns, while the various other departments will deal with trade matters of current interest. We have made various new arrangements calculated to improve the general character of THE CIRCULAR, but without specifying them we prefer to let them speak for themselves as they appear. During the past year our subscription list was increased to a very gratifying extent, and we trust it will be still further added to during the present year. While THE CIRCULAR now reaches into every city and village in the country, and in addition has a most creditable circulation in foreign countries, we still desire to place it in the hands of every dealer, and also to every intelligent workman the advantages to be reaped from a perusal of the excellent technical articles contributed by experts in its columns. For this reason the subscription price is maintained at $2 per annum, although there is not another magazine in the country of its size and character that does not cost at least twice the money. Wishing every member of the jewelry trade a prosperous year, we promise to exert our best energies to contribute to that end.

Bright Prospects Ahead.

MORE THAN five, if not ten, years have elapsed since those engaged in the jewelry trade closed their books at the end of the year with such a satisfactory showing as they did when 1886 came to a close. We intimated as much in our January issue, but as we went to press the holiday trade was at its height, and dealers could say little more than that their trade had been satisfactory and much ahead of previous years. After New Year's, however, their books were balanced, and the result was even more favorable than they had anticipated. It has been many a year since they have known so active a demand for goods, which commenced early in the spring, and, with a little intermission during the labor troubles, continued brisk during the year, with special activity during the holiday season. One indication that retail dealers enjoyed a good trade and are anticipating a continuance of it, is shown by the fact that where they had ordered holiday goods that the jobbers could not supply, instead of countermanding the orders, as has been customary, they insist on their being filled as soon as possible.

January first being the season for delaring dividends, the great corporations and industrial enterprises of the country made a showing that was a decided improvement over those of the previous year, proof positive of the improvement that was felt in all lines of business. No enterprises showed more marked improvement than did the railroads, their earnings having been exceptionally large, showing that the movement of crops was greater than heretofore, and so made the earnings of the roads more satisfactory. All crops were abundant, and, as they sold at good prices, there is an abundance of money in the hands of the producers with which to supply the necessaries and even the luxuries of life. There is no danger of a stringency in the money market, for the supply of gold at the close of the year was greater than at the beginning, owing to the fact that the balance of trade has been in our favor, and Europe has been pouring gold in upon us in payment for our products and for investment in commercial enterprises. It is reported by the financial papers that the foreign

holdings of American securities was never so great as at the present time, proof positive that the great capitalists of the world have the utmost confidence in the future of this country.

While a most prosperous season is anticipated by the public in general, those engaged in the jewelry trade have every reason to believe that they will enjoy their full share of prosperity during the present year. So believing, most of them are making preparations to meet an active demand for their goods this season, and are now engaged in preparing their novelties for the spring trade. The factories have been running full time and with a much larger compliment of men than usual. If the demand only proves to be equal to what is anticipated, the supply will be ready to meet it. There is comparatively little danger of overstocking the market, for retail dealers have generally permitted their stocks to run down during the dull season, so that when the demand should come they might meet it with new goods of the latest styles, and during all their purchases for the holidays they showed a disinclination to overload themselves. This is sensible, for with the present facilities for obtaining goods at short notice, it is the height of folly for dealers to purchase in excess of a natural demand. With manifestations of unusual activity in every department of trade and light stocks in the hands of dealers, the jewelry trade has every reason to look forward to a busy and profitable season.

Extensive Robberies of Jewelers.

THE NUMBER of jewelers who have been robbed during the last six months is wholly unprecedented in the history of the trade. These robberies have been perpetrated in all sorts of ways, showing a vast amount of ingenuity and boldness on the part of the robbers in many instances. Perhaps the most daring was the one committed in Minneapolis, where the thieves drove in an open sleigh, in broad daylight, to the front of a jeweler's place of business, broke in his plate glass window, seized the goods on exhibition, jumped into the sleigh again and drove off, one of them keeping the crowd back by flourishing a revolver. They succeeded in getting away with several thousand dollars worth of goods and left no clue to their identity behind. They must have carefully studied the situation and counted the chances of escape after the deed was committed. The goods were only displayed in the window in the day time, and in order to get them the thieves were compelled to take desperate chances. They did not hesitate, but were, no doubt, prepared to add murder to their crime if necessary to secure their escape. Several robberies that have been committed by persons pretending to wish to purchase, and then throwing red pepper in the eyes of the salesman, thus blinding him while they escaped with the goods they were looking at, are also indications of the desperate chances which the criminal classes are willing to take to accomplish their purpose. There have been also a great number of burglaries in various parts of the country, the manner in which they were committed showing that the premises had been carefully studied and the plan of the robberies agreed upon in advance. But the sneak thieves, those who enter a store and watch their opportunity to grab a valuable ring or some other desirable article, have been the more active. These are to be found at all seasons and in all places and are greatly to be dreaded by dealers, for their small pilferings aggregate a large sum in the course of a year. If the entire loss fell upon one dealer it would be enough to ruin him for all time, but being distributed among many it is scarcely felt, but is, nevertheless, an important sum to be charged to profit and loss at the end of the year.

Of all the criminal depredators upon the jewelry trade the burglars are the most to be dreaded. In the day time, when customers and other callers are constantly passing in and out and the streets filled with passers, the dealer feels confidence that these, combined with his own vigilance, are sufficient to prevent robbery, although he often mistaken in his fancied security; but after his more valuab goods have been placed in the safe at night and the store locked, t dealer ordinarily retires to his home confident in the security of h property. But this is the time and these the conditions most favorab to burglars. Locks and bolts they make light of, and give an expe "cracksman" an hour or two for uninterrupted work and he wi generally force his way into almost any safe that has yet been devise Safes are good things and no dealer should be without one, for the undoubtedly furnish a great amount of protection, but burglars ar as expert workmen as the safe makers, and what the one does th other can undo, provided he can work at it under favorable cond tions. The fact that conditions are not always favorable to the puts the professional burglars to much inconvenience, and caus them to forego robberies on which they had set their hearts. Stil enough burglaries are perpetrated to make it incumbent on ever dealer to take every precaution possible to prevent them. Not onl should he keep his goods in safes of the very best construction, i order that they shall not yield readily to criminal designs upon them but rather serve to deter any such attempt, but he should also arrang to have his premises watched at night by a private watchman. In the large cities it is customary for the merchants in each block to clu together and employ a night watchman, who is obliged to account fo his vigilance and for every moment of his time during his tour duty. Bars and bolts should be employed wherever possible, mor as an intimidation than for practical effect, for if the burglars mak up their minds to break into a place they will usually find the mean to overcome the bolts and bars, yet these often deter them after they have made their preliminary survey. No precaution that is calculate to prevent robbery is too great for jewelers to take, for the stock they carry are especially tempting to thieves and burglars. From th great number of robberies that have occurred in the past few months it might well be inferred that there were organized gangs of thieve scattered through the country with the avowed purpose of robbing jewelers especially at every opportunity and by any means possible If the total value of the goods that have been stolen from jewelers during the past year could be ascertained, it would amount to a sum so vast as to cause amazement.

There is one means of preventing robberies that has proved very effective and that no jeweler of ordinary prudence can afford to omit, and that is to hang up in his place of business a certificate showing that he is a member of the Jewelers' Security Alliance. This organization, designed for the especial protection of jewelers, has done much good work, both in the way of punishing criminals and recovering stolen goods. When one of its members is robbed by burglars the Alliance takes entire charge of the case, and defrays all the cost of hunting down the thieves and landing them in State Prison if possible. By an arrangement with the Pinkertons, their best detectives are detailed the moment a robbery is reported to follow every clue to the thieves and to spare no effort to secure them. So successful have they been heretofore that a number of burglars are now serving out sentences of imprisonment, while thousands of dollars worth of stolen goods have been restored to their owners through their instrumentality. So unrelenting is the Alliance in its pursuit of burglars, that these gentlemen have come to look upon a certificate of membership in that organization with holy horror and to treat it with wholesome respect. Instances are known where they have abandoned their plans for robbery on learning that their proposed victim was a member of the Alliance and entitled to its protection. They say they are willing to take their chances against any one man single handed, but when a trade is combined against them they do not stand a show, and so had better let it alone. Five dollars a year is the cost of membership, in addition to a single membership fee of $10 on entering, and this is such a trifling sum compared to the advantages derived from it that no prudent jeweler can afford to do without its protection. It is a duty they owe alike to themselves and their creditors, for a successful burglary perpetrated on their premises is liable to drive them

into insolvency, and thus sacrifice the creditors who have sought to aid them as well as themselves. As the Alliance is accumulating a reserve fund, it is anticipated that annual dues will soon be dispensed with. Every consideration of prudence urges dealers to become members of the Alliance, and in these days of many robberies there should be no delay in seeking its protection.

Congress and the National Bankruptcy Bill.

IT IS extremely doubtful whether Congress will pass the national bankruptcy bill at this session, for it is a short session at best, and there are so many other things to be attended to of a more positive political nature, that this measure, so greatly desired by the business men of the country, is not likely to receive favorable consideration. This is much to be regretted, for every day's experience tends to demonstrate more conclusively the necessity for such a law. The report of Dun's Mercantile Agency of failures for the last quarter of last year, show an increase both in number and amount of liabilities over the corresponding quarter of 1885. The number reported was 2,746 for the last quarter of 1886, as against 2,460 for the last quarter of 1885, while the amount of liabilities involved were $37,000,000 against $25,000,000 in the corresponding period of the previous year. Some of these failures were most disgraceful, the bankrupts having deliberately laid their plans months in advance, pushed their credit to its full limit, and then, when all was ready, gave preferences to their relatives and friends to an extent that consumed pretty much all that was left of their estates. These preferences were fraudulent on their face in numerous instances, but, as they were backed up by any number of affidavits, the honest creditors had no redress, but were compelled to sit back and see their goods appropriated by others to satisfy an alleged indebtedness that was purely fictitious.

The jewelry trade had its full share of swindles of this kind, and instances are freely named in the street where insolvents had made preferred creditors of their immediate relatives to the extent of many thousands of dollars for money alleged to have been loaned by them to the bankrupt, when it was morally certain that such preferred creditors never had any money to loan. The preference was only a cover to enable the dishonest bankrupt to convert to his own use the property of his legitimate creditors. Under the lax bankruptcy laws of the several States, such proceedings are not only rendered possible, but are encouraged as against alien creditors, and the public sentiment in some places seems to applaud the man who can thus swindle creditors who are residents of another State. In short, these laws, in some instances, virtually offer a premium for rascality, provided the rascal be a resident and the creditors aliens. Such a condition of things is a disgrace to us as a nation, tends to destroy commercial confidence, and to breed a race of sharpers and swindlers who operate under the guise of business men.

Governor Hill, in his annual message, recommends certain amendments to the bankruptcy laws of this State, whereby any preference of creditors in a case of insolvency shall be prohibited. This would be a good thing so far as failures in this State are concerned, but what is required is a national law regulating insolvency proceedings and making them uniform in all the States, so that the man who, in New York, sells goods to a man in Pennsylvania or Alaska, will be able to command the same remedies against his insolvent debtor in either locality as he would in the State where the goods were sold. Now the creditor is entirely at the mercy of his debtors, and that too many of them are inclined to take every advantage that the law allows is abundantly demonstrated by the record. The difficulties thrown in the way of creditors by State laws is the principal cause of so many failures, and to these same laws may be charged the practice that has grown up of compromising with every bankrupt on his own terms and re-establishing him in business with a clean bill of health and a fresh stock of goods. A prominent jobber conversing on this subject recently said that the absence of a national bankruptcy law cost the jewelry trade thousands of dollars every year, and was the means of enabling many thieves and rascals to establish themselves in it. He said he could name a number of men who, he was sure, had gone into the business solely for the purpose of swindling their creditors after they had worked up a sufficient credit. Jobbers, he continued, soon spot these fellows, but they count on selling them for a few years, gradually reducing their line of credit and then waiting for the crash, hoping to escape with a small loss. These jobbers feel that if they can sell to a dealer advantageously for five or six years, they can stand a loss of one year's sales. They get badly caught sometimes, however, especially if the dealer fails a year or two before the jobber is ready to have him do so. This same jobber said that a man had just failed who had been on his list of "suspects" for some time, and when he sold him his last bill of goods he had made the remark that he never would get paid for them. The man's time to fail had come, but as he had been selling him for several years he could not well refuse him the last bill he wanted; at least, he felt that it was not much greater risk than he had been taking, and so chanced it. He took the matter philosophically, and said that when the man was ready to offer anything in settlement he was ready to accept and "sign off." Of course, such transactions are opposed to public morals and subversive of the legitimate uses of credit, but, under existing laws, business men are compelled to take such chances, and often to go against their better judgment. All business men are willing to take all legitimate business chances and to face every honest loss manfully, even assisting afterwards the very men who have been the occasion of their losses, but it makes it pretty hard on them when the laws combine with rascals for the purpose of robbing the men who are seeking to build up our commercial and industrial resources.

All these abuses of the credit system would be overcome by a wise and judicious national bankruptcy law. Of course, there will be failures as long as men do business, but the swindling feature through which the heaviest losses are now made can be eliminated from them, and debtors made to pay their debts to the full extent of their estates. The Lowell bill, that has been very generally approved by the boards of trade and commercial exchanges of the country, has been before Congress during two sessions; it has been fully discussed and its provisions are very generally understood. Such opposition as has been made to it comes from those quarters that are the most dependent upon the credit system, and that are notorious for their unjust laws protecting debtors. There ought to be enough common honesty among our members of Congress to pass this bill notwithstanding the protests of those who prefer the existing discriminations of State laws. The sentiment of the business community of every section of the country is in favor of the bill, and is on record to that effect; if there is any influence that will induce Congress to enact this bill into a law it should be brought to bear without delay.

Dissatisfied Workingmen.

THE ONLY thing that causes uneasiness among manufacturers or throws any doubts upon the business prospects of the coming season is the attitude of the workingmen. Defeated in the majority of strikes they made last spring under the auspices of the Knights of Labor, the workmen in many lines of business have continued to show a spirit of discontent. This feeling has led to quite a number of strikes during the past year, none of which have resulted favorably to the workingmen. On the contrary, in almost every instance, after losing large sums that might have been theirs if they had continued work, they spent much time in idleness, involving heavy expenses, and then were forced to go back to work at the old

wages and under less favorable conditions than they previously enjoyed. The power shown by the Knights of Labor last spring, and their wanton abuse of it, frightened capital, and employers found that if they consented to yield to the dictation of men who were strangers to the requirement of their business they would be utterly ruined, so in many instances they refused to treat with any representatives of the Knights of Labor. A notable instance of abuse of power on the part of the Knights was offered in the case of a prominent shoe manufacturer of Boston, formerly Mayor of that city. Last spring his men demanded more wages, which he conceded. Then he took a large contract for supplying his products, securing it in the face of such competition that his margin of profit was very small; no sooner was the contract made than his workmen demanded another advance of wages. He was obliged to yield to them or default on his contract, and, as a consequence, he did the work at a loss and was thereby driven into insolvency. As a result, his large establishment was closed and hundreds of workmen thereby thrown out of employment. This gentleman publicly stated that the cause of his failure was the interference of the Knights of Labor with his business, and he also stated that no manufacturer could afford to submit to such interference, for the more concessions made to them the greater were their demands. This was still further demonstrated on the Brooklyn street car lines. In settling a strike last spring, the representatives of the Knights of Labor agreed that certain conditions should be carried out, but in the face of this agreement they again ordered a "tie-up" of the roads in December, notwithstanding the fact that a large number of the drivers and conductors interested were opposed to it. The managers then refused to treat with the Knights, but consented to confer with representatives of their own employees, and thus a compromise was effected. But in almost every instance where the Knights had anything to do with a strike, the result was disastrous to the unfortunate men who imperiled their places at their dictation.

The experience of the past year clearly demonstrates that it is wholly impracticable to unite the laboring men of all trades and all callings in one organization for the protection of the interests of all. When any set of men attempt to regulate the conditions of labor on railroads, in shoe manufactories, in woolen and cotton mills, on street railroads and in all the industries in which men and women are employed, they have undertaken to do that for the accomplishment of which the wisdom of Solomon would be inadequate. In several instances where strikes were ordered last year by the Knights, the men and women interested were entirely satisfied with their places and objected to striking, but the order was issued, and the printing workmen were obliged to yield blind obedience or submit to a boycott, a species of martyrdom that few could withstand. The outrages perpetrated on workingmen by the Knights of Labor have never been equalled in this country by any system of persecution to which they have been subjected in times past. Fortunately they are beginning to find out how they have been imposed upon, and during the last two or three months there have been such dissensions in the ranks of the Knights that a disruption of the order is threatened. It cannot come too soon for the interests of legitimate labor. When the demagogues and non-workers cease to be recognized as leaders, there will be a chance for the able and competent workmen to control their own affairs and improve their condition. But so long as such organizations as the Knights of Labor are recognized by the laboring classes, and allowed to exercise such arbitrary power in such an unintelligent manner, employers cannot but lose confidence in their employees, and regard them with suspicion at all times.

Last year the indications of a prosperous season were almost as promising as they are now; yet the unreasonable conduct of the Knights of Labor, ordering strikes all over the country, changed the whole aspect of affairs, and instead of an active spring business a season of stagnation was experienced. This lasted for several months, until the defeat of most of the strikes was secured. It is to be hoped that similar unreasonable demonstrations will not destroy the prospects for the present season. There is less cause for labor dissatisfaction now than there has been for years, for the reason that good wages are being paid and more workingmen employed. Then, too, the prices of the necessaries of life were never lower than now, so that the purchasing power of a dollar is very much greater than it was a few years ago. In this working world of ours the person who has work at fair compensation is one to be envied, and, in a majority of instances, is more fortunate than the employers, for where there is one successful business man there are nearly a hundred failures, the statistics showing that only two out of every hundred business men are successful, the others making failures with greater or less frequency. While it is unquestionably true that workingmen are sometimes imposed upon by their employers, redress is not likely to be secured by calling upon outsiders; the proper remedy is to be found among those who have the grievance. Employers, as a rule, will consent to listen to their own employees, when they will resent as an impertinence any suggestions or interference from outsiders. If workingmen must combine for mutual protection, such combinations are best as only include persons of the same calling who are working on terms of equality. When shoemakers or cotton spinners undertake to regulate the jewelry or the railroad business they are quite sure to make a mess of it. But the old adage, "let every tub stand on its own bottom," is the best after all, and embodies a principle that, if carried into effect, will give every workman the place and the compensation that his skill and ability, together with his trustworthiness, entitle him to.

The Failure of Jacob Castleberg.

THE FAILURE of Jacob Castleberg, of Baltimore, was one of those events that seemed to require careful investigation, and it is good to note that the creditors have taken such action as is likely not only to protect their interests to the best advantage, but, at the same time, bring to light a condition of affairs that will demonstrate that the suspicions entertained as to the legitimacy of the failure were well founded. When it was announced that he had failed with preferences for a large amount, the New York creditors appointed a committee, consisting of Messrs. S. H. Monell, Wm. A. Copeland and J. B. Bowden to look after their interests. The committee proceeded to Baltimore and began their investigations, soon discovering such a condition of affairs that Mr. Castleberg was induced to raise his offer of compromise first to thirty-five per cent., then to forty and finally to fifty per cent. The committee having received information to the effect that Mr. Castleberg was about to leave the city, employed counsel and began proceedings in bankruptcy against him. When the sheriff undertook to serve a subpœna upon him he could not be found, his son reporting that he had gone to Washington. The committee returned to New York and reported to a meeting of the creditors what had been done, when their action was approved and the proposals for a compromise made by Mr. Castleberg were laid on the table. A resolution was then adopted continuing the committee, and instructing them to take such proceedings in the future as are deemed best calculated to protect the interests of the creditors. Meantime the stock and store are in possession of the assignee, who is selling the stock for the benefit of the creditors. The committee reports that there was no evidence of there being any collusion between the bankrupt and the assignee, a circumstance so unusual as to be deemed worthy of special comment.

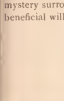
The case of Mr. Castleberg is one that has provoked the greatest amount of indignation in the trade, and there is manifested a determination to sift it to the very bottom in order that the exact facts may be brought to light, and, if there has been any dishonesty in connection with his failure, to have the guilty persons punished to the fullest extent. This is a most hopeful sign and promises well for the future. It is certainly to be hoped that the time has passed when

whoever chooses to do so can make way with his stock and other assets, and then compromise with his creditors on his own terms. This has been the custom in the past, and has been taken advantage of by many rascals who, in almost any other line of trade, would have been prosecuted for fraud and sent to State Prison. These abuses of credit have been pushed to an extent that has cost the trade many thousands of dollars, and it is a good sign when vigorous measures are instituted in a case that has the slightest taint of suspicion connected with it. Without desiring to pass judgment upon the case of Mr. Castleberg before it shall have been judicially determined, we can only say that there were circumstances surrounding it that fully warranted an investigation, and congratulate the trade on at last having awakened to the necessity of taking measures to protect themselves. If it comes to be understood that every failure will be investigated as promptly and thoroughly as this was, there will be fewer attempts at swindling through fraudulent failures. The character of the gentlemen conducting this case is a guarantee that they will protect the interests of the creditors to the fullest extent within the powers conferred upon them. If any fraud has been committed it is their purpose to unearth it, and they will not recommend any settlement that is not based upon a complete surrender of all the assets within the control of the insolvent, and a full accounting for the large stock he should have had on hand when he made the assignment. The more vigor the creditors display in unraveling the mystery surrounding this case and getting a full settlement, the more beneficial will be the effect of their action.

The Jeweling of a Watch.

[BY MORITZ GROSSMANN.]

Continued from page 441.



HAVING GOTTEN beyond the functions of the stopwork, Mr. Grossmann next treats of the jeweling of the watch, and we therefore alter the heading to conform to this subject, changing it from time to time, in accordance with the subject treated.

According to my opinion, our author says, a movement ought to be jeweled throughout. The price of a pair of jewel holes is not so high as to form an obstruction to their use, and especially the pallet holes ought not to be left without jeweling. The angular motion of the pallet is very trifling, it is true, but experience tells us that when grinding any substance the reciprocating motion answers best of all, and the wear of a pivot in its hole is nothing else but a very slight degree of grinding. Beside this, the jeweling of the pallet holes might be thought useful by the diminution of friction, and this is very essential in the lever, the inertia and resistance of which has to be overcome at every beat of the escapement.

For similar reasons the third and fourth wheel holes ought also to be jeweled if the quality and intended value of the watch will in any way warrant the expense.

To have the escapement, that is, the escape wheel and pallet cap, jeweled or with cap jewels, is more a matter of taste than of practical utility. In the case of the balance, with its quick vibration to the extent of about 400°, it is of the utmost importance to avoid the amount of additional friction which would result from the bearing of shoulders against the faces of the holes, and thus the cap jewels of the balance cannot be dispensed with. It will be obvious at the first glance that the pallet and wheel work run under vastly different circumstances. In a movement of the usual arrangement, the pallet makes an angular movement of from 10 to 15 degrees for every vibration of the balance, and the wheel accomplishes, if it has fifteen teeth, 12 degrees of its rotation in the same period. Beside this, their weight cannot be supposed to press so much in the vertical direction, because they are working under a continual and considerable side pressure. But the greatest difference between the position of balance pivots and that of wheel and pallet is, that these latter parts may be made as light as possible, while the balance is, and must be, considerable heavier.

The difference between the friction of a plain jeweled pivot and a cap jeweled one is extremely small. According to a generally established law in mechanics, that, the pressure being the same, the amount of friction is not altered by the extent of the bearing surface, it would be *nil*. But in our case, and especially lubrication is required, the adhesion must be considered. Anyhow, the resistance to the motion of the cap jeweled pivot can only be easier as the ratio of the difference of the bearing surface; and this difference between the surface of the pivot end and that of a properly reduced shoulder is a trifling one. With an angular motion of more than thirty times the extent of that of the wheel and pallet, it acquires, of course, a greater importance, and therefore the cap jewels are indispensable to the balances. I freely admit that there is a little economy of power in the cap jeweled escapement, but I wish only to point out that this very trifling advantage is generally overrated. The fact that a number of the best English watches are without end stones to the escapement, seems to indicate that the English horologists look at this matter about in the way above mentioned.

The employment of a diamond as a cap jewel to the upper balance pivot is a very good practice, because the watch, in its horizontal position, performs with almost all the friction on this pivot end, and the extreme hardness and fine polish of the diamond face will reduce the wear and friction to the smallest amount. It only requires care to select the diamonds, because among those which can be bought in the material shops, there are sometimes pieces defective in the point of polish, and in this case, instead of protecting the pivot, they might prove the means of destruction. In this respect I had a remarkable case in my own practice, which made me abstain from the use of diamond end stones if not expressly asked for.

I had to furnish a pocket chronometer, which gave entire satisfaction to its owner. After six or eight months I was informed that the performance became irregular and a noise was to be heard in certain positions of the watch. It was sent back to me, and on examination I found the upper balance hole worn out to an eliptical shape, so much, indeed, that its diameter was about as 2 to 3. With the aid of a microscope I found a very slight defect in the surface of the diamond cap, and replaced it by another. The hole, of course, was also replaced, and the pivot, which had not suffered in a perceptible way, was a little repolished. The watch, after this, performed as before, but after another service of about six months it was sent back with the same complaint. On examining, I found the upper balance hole in quite the same state. This, according to my opinion, could only be attributed to a microscopic particle of diamond having penetrated into the pivot, where it had been retained, notwithstanding the repolishing, perhaps even by this very operation. After the replacement of the jewel hole and balance staff, the watch has performed many years without any derangement. This shows how carefully diamonds must be selected, and an eye-glass of the greatest power will not be sufficient for this purpose. The difference of friction between a good corundum end stone and a good diamond is, at any rate, very trifling. I therefore do not think it advisable to expose a watch to dangers like the above-mentioned for so slight a gain.

The good and careful execution of the balance hole form the most important point of jeweling of a watch. Not only must they show, like all other jewel holes, an irreproachable polish, but they must be rounded in a proper manner in order to make the resistance in the vertical and horizontal positions equal, or as nearly so as can be done.

It may be considered a good plan to make the balance holes on the conical method in order to give them a greater strength, and to facilitate the entrance of the pivot when putting the balance cock on; but they require great care in their shape lest the adhesion might be increased. Beside this, a cock with its steady pins, made in the way

previously described, render it very easy to put the cock on without injuring the jewel holes.

The setting of the jewels is a matter of very different execution. In some, especially the better class of English watches, the jewels are set in brass or gold settings, which latter are fitted into holes with countersinks and fastened with screws, the heads of which partly intersect the circumference of the setting, while the thread is tapped into the plate and the head of the screw sunk into it so as to be level with its surface.

The advantage claimed for setting jewels in this way is a greater facility of replacing a broken or damaged jewel without regilding the plate or cock. This, however, does not weigh very heavy, because if a good stock of jewel holes is not within convenient reach, it will be easy to find one fitting into the old setting; and, even if this should not be the case, the purpose can be attained by setting the new jewel in a piece of brass wire of suitable thickness. This wire, after being turned exactly concentric to the hole and of a slight taper, is adjusted into the hole in the plate, previously turned out, and then it is cut off at a length a little in excess of what it is required to be. This setting now must be gently driven into the hole in the plate till the proper end shake is attained. The plate or cock is then cemented to a flat chuck and well centered to the hole in the jewel, after which the slope is turned. If the brass setting has been turned to a proportionate size, it will be easily attainable that the slope extends a little beyond it into the plate; and in a plain jeweled watch, if well done, the replacing of a jewel, in the way just described, can hardly be detected.

A movement with plain set jewels is in no way inferior to one with screwed jewels, even, as has been explained, in the very exceptional case of the replacement of a jewel hole. The movement with screwed jewels has a more elegant appearance, but it implies, if not done with the greatest care and discernment, a vast deal of trouble in the manufacturing, and still more so in the repairing. Not only must all the screws and jewels be taken out for thoroughly cleaning the watch and put in again, but the very little thickness in which the screws have to take their hold is a great source of annoyance to the repairer, especially in the English watches, with their thin upper plates of brass, rendered quite soft by gilding, and with screws of rather coarse threads. Any screw failing in its hold has to be replaced by one of the next number of thread, having, by its greater thickness, still less chance of a sound hold, and very often it is necessary to make other holes at fresh places. If, now, the screwed jewel presents the advantage of easy replacement of a broken jewel without leaving any lasting mark of the operation, this small advantage may be considered to be neutralized by the above mentioned drawbacks.

(*To be Continued.*)

GOSSIP OF THE MONTH.

THE statistics of failures that occurred in the United States during 1886, as furnished by the Mercantile Agency of R. G. Dun & Co., show an increase over those of the last quarter of the previous year, but a falling off for the whole year. The total number of failures for the year was 9,834, as against 10,637 for 1885, a decrease of 803. It is a noticeable fact, however, that there were 276 more failures during the last quarter of 1886 than occurred during the corresponding period of the previous year. The amount of liabilities involved in the failures of 1886 were $114,000,000, as against $124,000,000 in 1885. According to the same report there were 969,841 traders doing business in the United States last year, and of these one in 98 failed, while the number of traders in the previous year was 919,990, and the ratio of failures one to every 86. It does not seem possible that so great a number of failures each year is necessary; it certainly is not healthy and indicates that there is a weak spot somewhere in our credit system, that entails such heavy losses each year upon the business portion of the community. Credit must be extended in a reckless and uninquiring manner to many persons who are entirely unworthy of confidence. Many of the failures that occur are known to have been premeditated and fraudulent in their conception and culmination. The jewelry trade sustained its full share of the losses by these failures, and also was duly victimized by the swindlers who took advantage of the faulty insolvent laws to rob the men who had done them the favor to give them credit. There is something radically wrong in the laws that make fraudulent bankruptcy possible, and until a remedy is found business men will continue to be victimized at the rate of millions of dollars every year.

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WE NOTICED the fact some time ago that a large section of the State of Texas had suffered severely from the drouth last summer. Recently there was a convention of county judges held for the purpose of collating the facts regarding the number of persons who are actually suffering from this cause. Twenty-one counties that were affected by the drouth were represented in the convention, and the statistics showed that 30,000 persons were actually in need of food, clothing and fuel, and that many other thousands were without seed for planting this spring. An appeal was directed to be prepared to present to the State legislature and to Congress, representing that $500,000 would be required to relieve immediate want, and the people of the country were entreated to make contributions. Such widespread suffering in Texas cannot fail to restrict trade in that State to a considerable extent during the present year.

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WE HAVE several times noted the fact that the insurance companies in this city had effected a combination, including every company doing business in the city, for the purpose of advancing rates on every description of risk in this vicinity; it also prohibits brokers from dividing their commissions with the insured, and fixes the rate of commission at ten per cent. The matter of rating risks and advancing rates has been progressing with considerable rapidity since last October, and the jewelers have been made to feel what can be done in this respect. In Maiden Lane, rates on goods have been advanced from thirty cents to sixty; provided they are kept in the safe all the time, a rebate is allowed of eighteen cents, making the rule forty-two cents. But if the goods are taken out of the safe, even to show a customer, they are not insured while so exposed. Permission to exhibit the goods carries the rates to sixty cents. In another column a correspondent expresses his views regarding this exorbitant advance in terms that are forcible and will meet with general approval in the trade. It is quite probable that as a result of this arbitrary advance by the insurance companies, a jewelers' mutual insurance company may soon be organized for the purpose of insuring the property of jewelers. There is no reason why such a company should not be a success, and provide insurance for its members at very much lower rates than they now pay. Such companies for insuring cotton, woolen, knitting mills and other factories of a similar kind, have been wonderfully successful in New England, virtually taking away from the stock companies all this class of insurance. These mutuals require a member to make all needful changes in his property to secure the greatest amount of protection from the fire hazards, after which they insure him at about the same rates that the stock companies would charge, but at the end of the year they divide their profits among the members, so that the dividends are equivalent to a very low rate of insurance. These companies have divided as high

ninety and eighty per cent. of their premiums, thus making the cost of insurance ridiculously low. It is conceded that the stock companies have made continuous profits out of the old rates that were charged before the recent combination, and there is no reason for an advance except that the insurance business as a whole has not been profitable for a few years past, and instead of confining the advance of rates to that class of risks that has been unprofitable, the companies declare an advance all along the line. This is unjust to those property owners who have paid their premiums year in and year out without ever calling on the companies to pay for a single loss; but it is on a par with the usual practice of insurance companies that are notorious for their lack of discrimination between risks possessing different degrees of hazard. The question naturally suggests itself, if the insurance of jewelers' stocks is profitable, why should not that profit be realized by the jewelry trade and distributed among those whose property is insured, and thus made to reduce the cost of their insurance? A jewelers' mutual fire insurance company is not only a possibility but a probability.

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THE full bench of the Massachusetts Supreme Court rendered a decision last month that is of interest to all commercial travelers in particular and the public in general to a lesser extent. William Lewis and William R. Wing left Boston for San Francisco in October, 1884, buying sleeping car tickets in a car belonging to the New York Sleeping Car Palace Company. During the night some one abstracted their money from their clothing while they were asleep. Each brought suit against the Sleeping Car Company, and in each case a verdict was given in their favor. The cases were appealed to the Supreme Court, and the decision of that court is calculated to give confidence to travelers, for it sustains the verdicts of the lower courts. Chief Justice Morton, who wrote the opinion in which all the justices concur, after referring to the fact that there are few decisions regulating the liability of sleeping car companies, says:

> The liability must be ascertained by applying to the new condition of things the comprehensive and elastic principles of the common law. When a person buys the right to the use of a berth in a sleeping car, it is entirely clear that the ticket which he received is not intended to, and does not, express all the terms of a contract into which he enters. Such ticket, like the ordinary railroad ticket, is little more than a symbol. A sleeping car company holds itself out to the world as furnishing safe and comfortable cars, and when it sells a ticket it implicitly stipulates to do so. The law raises the duty on the part of the car company to afford protection. While it is not liable as a common carrier or as an inn-holder, yet it is its duty to use reasonable means to guard the passenger from theft; and if, through want of such care, the personal effects of a passenger, such as he might reasonably carry with him, are stolen, the company is liable for it. Such a rule is required by public policy and by the interests of both the passenger and the company.

Another case of recent occurrence was that of Dr. Dwinelle, of San Francisco, who was traveling in the East with his bride, having sleeping car tickets. At some point he was forced to go into another car, and the porter, who had taken up his tickets, refused to give him checks showing that he had paid fare for himself and wife. When he insisted upon it he was beaten by the porter, receiving injuries that laid him up for a long time. He brought suit against the railroad company, but the court held that it should have been brought against the sleeping car company. He had already done so, but had two strings to his bow in suing the railroad company. A few decisions of this nature will teach the sleeping car companies that the traveling public has some rights that even they and their autocratic porters must respect.

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SPEAKING about sleeping car porters, why is it that travelers always feel it necessary to fee them, and to pay them about ten times as much as they would pay any one else for equal service. Ordinarily the most a porter does for the average traveler is to black his boots and brush his clothes as he is leaving the car; the porter expects at least half a dollar for this service, and thinks he is an ill used individual if he is put off with a quarter. The charges for sleeping car tickets are enormous, exceeding the rates charged at the best hotels in the country; the cost of the service rendered by the porter, caring for the berths and the wants of the passengers, is supposed to be included in the price of the ticket, yet so general has become the habit of tipping the porter that these worthies look upon one who does not do it as an outcast, to be blacklisted by their fraternity ever after. So great is the revenue they derive from this source, that instead of demanding wages from the company whose work they do, they are willing to pay for the privilege of doing it in order to secure the opportunity of fleecing the public. Tipping servants anywhere or at any time is a pernicious practice, tending to destroy their usefulness and to make them impudent and overbearing. Under existing conditions, to be a sleeping car porter on a popular train is to insure a fortune to the lucky individual in a few years.

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WE REFERRED in our issue of last month to the fact that a package of goods addressed to Heller & Bardel, of this city, and delivered to the express company at Atlanta, had been lost in transit, and that a settlement with the express company not having been reached, the Safety Fund Association of the jewelry trade had taken the matter in hand with a view to fixing the responsibility for the loss and effecting an adjustment of it if possible. The question of liability on the part of an express company has always been a mooted one, and is dependent largely upon the conditions under which the goods are received by it. It is customary for the agents of the company in receiving packages to require a statement of the value of the contents and to charge accordingly. If the value is understated, it seems unjust for the owner, in case of loss, to claim a value in excess of what he had stated and paid for. In the receipts given by the express companies for packages they attempt to limit their liability, usually to $50. In the United States Court in Ohio, a case similar in many respects to that of Heller & Bardel, was decided early last month. The Van Wert National Bank sent a package containing $10,000 by the United States Express Company to the First National Bank of Cincinnati. The package went astray, and finally, when recovered, the money was gone. The Van Wert bank brought suit to recover, and a jury awarded it a verdict for the full amount with interest. While the thieves were not discovered, the evidence pointed strongly to certain employees of the express company, as was the case with the Heller & Bardel package. It is good to note that the tendency of recent court decisions is to hold to a stricter degree of responsibility all corporations engaged in the transportation business, either of passengers or goods. This is as it should be, for while they insure safe and speedy delivery in either case, they should be held to a literal performance of their public promises by which they obtain patronage.

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NOTWITHSTANDING all the complaints of the workingmen of this country and their dissatisfaction with their condition, a single illustration will show that they are far better off here than in any other country in the world, as regards earnings, thrift and social and pecuniary condition. In the six New England States, the savings banks now hold over one thousand million of dollars deposited with them by the workingmen and women of those States, and representing their surplus earnings. The last annual report of the condition of the saving banks of this city and State, show that they hold five hundred and thirty-four millions of dollars on deposit for one million.

two hundred and eight thousand individual depositors. Ninety per cent. of these depositors, owning ninety per cent. of the deposits, are reported to be persons working for wages, thus indicating that there were at the time of making the report, 1,687,200 workingmen and women, who had on deposit $480,600,000 of their surplus earnings with the savings banks of the State. Aggregating the deposits of New England and New York savings banks, it is found that there are $1,480,600,000 of surplus capital, bearing interest, belonging to the wage workers of seven States. The aggregate for the entire country would run up to an astounding amount. When labor demagogues are howling against capitalists, they might turn their eyes along their own ranks and see if they cannot find there almost as many "coupon cutters" as there are in other walks of life. When the socialistic communists get control, and begin to divide up among themselves the property accumulated by the industrious and thrifty, they certainly will not forget or omit the bank accounts of the "suffering" and "down-trodden" wage workers. The figures here given represent only the cash accumulations of the workingmen and women, and do not include the real and personal property they have acquired, which would be largely in excess of the aggregate of their bank deposits. In no other country in the world can the working classes point to accumulations anywhere approaching in value the amounts here copied from official statistics. There must have been some degree of liberality mixed with the "grinding of the face of the poor" with which the employers, without distinction, are charged, to have enabled those so persistently "ground down" to have made such savings from their "starvation wages."

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THE value of the dry goods imported and entered at the New York Custom House in 1886 was $115,455,605, or about $15,000,000 more than during the preceding year. It was the largest aggregate since 1882. Notwithstanding this large amount the dry goods merchants now report a short stock on hand, and are getting anxious for the supply they are confident will be required to meet the spring demand. All of which goes to show that the prospects for the coming season are regarded generally as being very promising.

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SINCE the smashing of plate glass windows and the robbery of jewelry stores by this means has become popular with thieves, jewelers might well take a hint furnished by the express companies. There was a time when thieves acquired a habit of jumping into express wagons as they were collecting goods about the city, and making away with valuable packages. This induced the companies to fence in their wagons with heavy wire netting, thereby preventing anyone but the driver obtaining access to their contents. These light wagons now go about with impunity, and it is a long time since one of them has been robbed. Wire netting of this kind placed inside a show window would afford satisfactory protection against the window smashers, and would not interfere to any serious extent with the exhibition of goods. A window robbery has to be done quickly, as the breaking of glass always attracts attention, and the wire netting would so delay the robbers that their scheme would prove a failure, even if the glass was broken successfully. Similar wire protection is often seen inside the windows of bankers, where a liberal display of gold and silver coin is made, and affords ample protection to the wealth on exhibition.

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WHEN the Knights of Labor boycotted certain employers in this city last year there was a general outcry against such injustice and eventually the courts imposed severe sentences upon some of the boycotters. A Connecticut judge has just decided that "what is sauce for the goose is sauce for the gander," and has sentenced two railroad officials to pay a fine of $50 each for having blacklisted a workman, and so prevented him from obtaining employment. It was shown that an understanding existed between the two officers, that one would not employ a man who had left the service of the other without his approval. In accordance with this understanding, a workman named Meany had been discharged from one road at the request of the superintendent of the other. The court held that the understanding between the two officers amounted to a conspiracy to prevent workingmen obtaining employment, and was therefore opposed to public policy. As the boycotters have found ways to evade the law and maintain the boycott established by them, so the employers will, no doubt, find means for blacklisting men whom they do not care to employ without rendering themselves liable to fines. But the boycott, by whomsoever invoked, is an un-American method of settling difficulties, is unjust and fraught with great hardships, and should be severely punished when that is rendered possible.

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THE following, which is told as a joke by an Omaha paper, corresponds so nearly to an actual incident of recent occurrence, that it is probable the writer had that fact in mind when he wrote his little joke:

Reward of Virtue—Blinks (jeweler)—Yes, sir; there's no use talking, fair, square, downright goodness pays in this world. I'd been a big sight worse off if I hadn't been born christuhle.

Klinks—Well, you have done some pretty clever things, that's so.

You remember that young chap who worked in my window last week? Well, he got sick and I went right to his boarding house to see what I could do for him. I saved $5,000 by that benevolence.

Eh?

True as preaching. He had that much of my stock under his pillow.

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GOLD and silver mining has not yet become one of the lost arts, although speculative mining stocks have been at a discount during the past few years. The output of the Colorado mines for 1886 is estimated at: Silver, $16,450,921; lead, $5,123,296; gold, $5,087,901; copper, $132,570; total, $26,794,688, an increase over 1885 of $2,362,080. Lake county shows a total yield for the year of $13,750,733, being a gain over 1885 of $1,500,000. During the year the Leadville district sent into the marts of the United States 48,418 tons of lead, 8,166,145 ounces of silver, 36,546 ounces of gold, and 138,535 tons of ore. The value of the base bullion produced was $7,515,148, and that of ore, etc., $6,1355585.

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THE "Buffalo Bill" troupe of Cowboys and Indians that has been giving exhibitions in this section for a couple of years has been phenomenally successful, having had good paying audiences most of the time. The individual members of the troupe, from its illustrious leader down to the equally uncivilized Indians, have a lively fancy for jewelry, and some of them have bought liberally of precious stones and fine gold goods. Many of their purchases are ladies' goods, which the buyers utilize in gaining the affections of many impressionable young women who attend their exhibitions. There have been one or two elopements of romantic and illiterate maidens with the wild red men or their wilder semi-white companions, but no particular harm seems to have been done, the girls getting as good life companions probably as they were entitled to. "Buffalo Bill" him-

self rejoices in several diamonds of great value, and is understood to greatly favor this manner of investing his spare cash.

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Among the sneak thieves who have been arrested recently, there were several who got off on the plea that they were kleptomaniacs. When insanity attacks a person and impels him or her to ignore the laws of *meum* and *tuum*, and to covet his neighbor's goods to the extent of slyly slipping them into his or her pocket, and subsequently selling them to a pawnbroker for cash, there is such method in the madness that it should be restrained in some effective manner. An insane asylum is the best place for such victims of insanity, and if a few who enter this plea were committed to an insane asylum for a few months, their fate would have a tendency to deter others, and there would be fewer kleptomaniacs left at large to prey upon honest merchants.

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"Pearls and Pearling Life; by Edwin W. Streeter, F. R. G. S., M. A. I.," is the title of a very handsome and interesting work on the subject of Pearls, published by George Bell & Sons of London. Mr. Streeter is the author of several works relating to precious stones, and is universally regarded as an authority regarding them. He has also been extensively engaged in the business of Pearling, having had fleets of vessels engaged in that enterprise for several years, so that what he writes upon the subject of gathering pearls is the result of his individual experience. The present work contains a number of illustrations, among them being views of his pearling establishment on the Island of Siassi, in the Sooloo Archipelago, and another of his schooners with the crew at work overhauling the catch of oysters in their search for pearls. The work contains an historical account of pearls, the ancient beliefs regarding them, descriptions of the various pearl-bearing molluses, and a chapter relative to the origin and formation of pearls. The methods employed for taking the pearls at the various fisheries are fully described, and a chapter is given to a description of the famous pearls of the world. The book is full of interest to all lovers of this rare and beautiful gem, containing as it does all the information regarding them that has ever been discovered.

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In the January issue of The Circular we published an account of the transactions of a person claiming to be T. B. Steacy, of Brockville, Ontario, who ordered goods from various firms to be sent by express to Redwood, N. Y., and how he was frustrated in his scheme by the prompt action of the genuine Mr. Steacy, who hastened to Redwood and prevented the delivery of the goods to the individual who was personating him. In the list of persons who, it was asserted, had sent goods on the order of the bogus Mr. Steacy, were several who had been suspicious of him and had declined to send the goods he had ordered. Among these were Tiffany & Co., of New York, and Booz & Co., of Philadelphia. Both these firms had received orders from the imposter but had refused to fill them, hence they had run no risk of being victimized. Tiffany & Co. do a retail business exclusively, making no discounts to any one, and hence would scarcely have been addressed by any regular dealer, and the fact of their receiving an alleged order from Mr. Steacy at once aroused their suspicions. The scheme of the swindler was an ingenious one, and came very near being successful.

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With this, the first issue of Volume Eighteen of The Circular, we commence the publication of a series of Monogram Plates, showing some of the most popular designs for the combination of initials for the formation of monograms. As engraved monograms on watches, plate, and jewelry in many instances, are the fashion at present—a fashion that is not likely to go out of date—these plates will be found of great value to engravers, and also to dealers selling the goods, as they will enable a customer to select the style of engraving that will suit him. Other plates will follow with each issue of The Circular until the range of artistic ingenuity is well exhausted.

Precious Stones.*

By George F. Kunz.

* From advance proofs of the coming 1885 report of the Department of Mining Statistics. Edited by Dr. David T. Day, published by the U. S. Geological Survey. Such corrections and additions have been made as have presented themselves since the article was handed to the department.

IN ADDITION to the report on precious stones in the other volumes, where the subject was treated in detail, the following pages are intended to show the progress in this field during 1885.

Work was carried on at the Mount Mica tourmaline locality, Paris, Maine, during the months of June, July and August of the present year, and one fine ten inch crystal and many fine gems were found. Messrs. N. H. Perry and E. M. Bailey also worked at the Rumford locality for a few weeks with a like result, though some good specimens were obtained.

For two months during the summer of 1885 work was carried on by the Emerald and Hiddenite Mining Company at Stony Point, North Carolina, under the direction of the superintendent, Mr. W. E. Hidden, and with flattering success. A remarkably large pocket, containing fine crystals of muscovite with brilliant crystals of rutile implanted on them, was found and sold as cabinet specimens for $750. While they were working in the soil overlying the rock, nine crystals of emerald were found all doubly terminated and measuring from 25 millimeters (1 inch) to 77 millimeters (3⅛ inches) in length and 42 millimeters (1⅔ inches) in width. This latter crystal is very perfect as a specimen; it is of a fine light green color and doubly terminated. It weighs 83¼ ounces, only one-fourth ounce less than the famous Duke of Devonshire emerald crystal, and is now in the Clarence S. Bement collection, the nine crystals together were held at over $2,000.

Another of these crystals, which is doubly terminated, measures 63 millimeters (2½ inches) by 23 millimeters (⅞ inch), and is filled with large rhombohedral cavities, formerly containing dolomite. As mineral specimens these crystals are quite unique. The only gem which has been cut from this find was found in a pocket at a depth of over 43 feet. In color it is a pleasing light green and weighs 4⅛ karats. No crystal of finer color has yet been found in the United States, and this gem is held by the company at $200.

During the recent mining the largest fine crystal of lithia emerald ever found was also brought to light. It measures 68 millimeters (2¾ inches) by 14 millimeters (⅝ inch) by 8 millimeters (⅓ inch). One end is of very fine color, and would afford the largest gem yet found of this mineral, weighing, perhaps, 5½ karats. This has also been acquired by Mr. Bement. With this were a number of superior crystals and some ounces of common pieces of the same mineral. The owners estimate the worth of this entire yield of hiddenite at about $2,500.

A quantity of quartz filled with white byssolite or asbestiform mineral, which makes very attractive specimens, is valued at $250. On the whole, this is an encouraging find for this line of minerals.

The locality for emeralds referred to in the last volume of "Mineral Resources of the United States," page 739, is only a duplication of the locality described as J. O. Lackey's in the *American Journal of Science*, III. series, Vol. XXVII., page 153.

Hiddenite has also been found during the past year in working the property known as the Morven tract, formerly known as Smeaton's and Lyon's properties, and now the E. A Hutchins' property. "Mineral Resources of the United States, 1883 and 1884," page 739.

Among the fictitious reports of the finding of gems may be mentioned that of the finding of three diamonds and about a dozen topazes in the gravel along the Sangamon river, near Springfield, Illinois.

What is perhaps the finest collection of rough diamond crystals in existence was exhibited during the past year by Messrs. Tiffany & Co. in New York. It consisted of 904 crystals, weighing in the aggregate 1,876½ karats, and was valued at $30,000. This has since been returned to Europe. For description, see "Report of the American Association for the Advancement of Science," 1885, page 250.

At the meeting of the British Association, held at Birmingham, September, 1886, Prof. H. Carvil Lewis read a paper on Diamond-bearing Peridotite," in which he said he had found in Kentucky peridotite similar to that which occurs in the Kimberley mine, and was convinced that a search would reveal the presence of diamonds in that State. Now, as the diamonds in the South African deposits are accompanied by carbonaceous shale which surrounds the mine, and is also scattered through the so-called "blue stuff," in sizes varying from microscopic specks to large detached masses, and forming a sort of *breccia*, so to speak. The theory of the volcanic origin of these pipes was first advanced by Dr. E. Cohen. In the opinion of the writer, the peridotite alone is not sufficient to account for the diamonds, but rather its mixture with the shale. And this carbonaceous shale is present under similar conditions in Kentucky the outlook for diamonds is encouraging. In further confirmation of this view may be mentioned Prof. H. E. Roscoe's discovery of an aromatic hydrocarbon on treating diamond earth with hot water. This hydrocarbon, which he separated by digesting the earth with ether and allowing it to evaporate, was crystalline, strongly aromatic, volatile, burned with a smoky flame and melted at 50° C. It was unfortunate that the quantity of the substance obtained was too small to admit of a full investigation. (Proceedings of Manchester Literrary and Philosophical Society, October 17, 1884, page 5).

A recent London periodical made the statement that any one who found the sapphire and ruby in its original matrix would soon be called the "King of Rubies," and that his fortune would be assured This recalls the fact that Col. C. W. Jencks, of Boston, was the original finder of the true corundum gems *in situ* at the Jencks mine at Franklin, North Carolina; that he obtained from this locality nearly all of the fine crystals in the best American collections. One of the most interesting of his finds is a piece of a blue crystal with a white band running across it, and a place in the center where a nodule had dropped out.* This piece was cut and placed back in its original place, and the white band can be seen running across both gem and rock. Nearly all of the fine gems from this locality mentioned in the two previous reports were also brought to light by his mining. The gems were found here in their original matrix, but they were of such rare occurrence that it was not feasible to mine for them more thoroughly. The corundum mining has proved profitable, however,and is still carried on by Dr. Jencks.

A number of beryls of fine blue color, resembling the Mourne mountain beryls, have been found near Mount Ardery, in the Arkansas valley, Chaffee county, Colorado. One of these was 4 inches long and three-eighths of an inch across, with cutting material in it. The other crystals measured from 1 inch to 1¼ inches in length, and one-fifth to one-third inch in width.

The large beryl mentioned in "Mineral Resources" for 1883 and 1884, has afforded the finest aquamarine of American origin known. It weighs 133¾ karats, and measures 35 by 35 by 20 millimeters. It is a brilliant cut gem, and, with the exception of a few internal hair-like striations, it is absolutely perfect. The color is a deep bluish green, equal to that of gems from any known locality.

Mr. George F. Breed, manager of the Valencia Mica Company, has cut from white beryls nearly 100 aquamarines, ranging from one-half to 4 karats in weight, and of a light blue color, which were found in their mine at North Groton, Grafton county, New Hampshire.

A number of very fine deep golden yellow, blue and green beryls, equaling any ever found, were shown to the writer by Mr. M. W. Barce, of Olean, New York, taken from his mica mine between New Milford and Litchfield, Litchfield county, Connecticut. Some fine blood-red garnets from here were cut into gems. As some parties have sold stones from the same locality stated to be new gems nearly as hard as the sapphire, and said to have come from South America. Since these statement gained currency abroad a correction was deemed necessary. They are undoubtedly American beryls from the above locality.

The finest large phenacite crystal ever found in the United States is the one in the possession of Dr. C. Whitman Cross. It was found at Crystal Park, Colorado, weighs 59 pennyweights 6 grains, and measures 46.5 millimeters in length and 32 millimeters in thickness. Occasional transparent spots are noticeable. Full descriptions of phenacite from Crystal Park and Florissant, Colorado, and of topaz from near Pike's Peak and Devils Head mountain, Colorado, and also of that found in Nevadite at Chalk mountain, in the same State, are given by Dr. Cross and W. F. Hillebrand in "Bulletin No. 20 of the United States Geological Survey, Washington, 1885." Phenacite from the Florissant locality was also described by W. E. Hidden in the *American Journal of Science*, III. series, Vol. XXIX., page 249. These crystals at Florissant were first found by Mr. J. G. Heistand, of Manitou, Colorado.

Thousands of garnet crystals found at ruby mountain, near Salides, Chaffee county, Colorado, have been used as paper weights and sold to tourists. Those weighing a few ounces sell for about 10 cents each, and one weighing 14 pounds was obtained. Regular printed lists running up to 4 pounds weight are sent out with scale of prices attached. They have a chlorite coating which can easily be removed.

The finding in the heart of New York City, in Thirty-fifth street, between Broadway and Seventh avenue, of a garnet crystal as perfect as any ever found on this continent, and weighing 9 pounds, 10 ounces, is of peculiar interest.

A full account of the wood jasper deposit of Arizona was published in the *Popular Science Monthly* for January, 1886, and in the *Scientific American* for January. Several thousands of dollars' worth of this material has been cut into paper weights, charms and other articles of jewelry, or polished on one side for cabinet specimens. At the present time numbers of these articles are being cut and sold to tourists along the line of the Atchison, Topeka and Santa Fé railroad. The base of the *World* fund memorial, presented to the eminent sculptor, M. Bartholdi, was made out of pieces of this wood.

The compact quartzite of Sioux Falls, Dakota, has been quarried and polished for ornamental purposes. It is known and sold as "Sioux Falls jasper, and is really the stone referred to by Longfellow in his "Hiawatha" as being used for arrow heads. This stone is susceptible of a very high polish and is found in a variety of pleasing tints, such as chocolate, brownish red, brick red and yellowish. The polished material has been sold to the amount of $15,000 during the last two years, and polishing works run by water power have been erected, and so ingeniously are they contrived that pillers, pilasters, mantels and table tops can be here as cheaply as anywhere. The pilasters of the German American Bank in Saint Paul, Minnesota, and the columns in the doorway of the Chamber of Commerce building in the same city are of this beautiful jasper. It is likely to become one of our choicest ornamental stones, especially effective in combination with the Minnesota red granite. Its great tensile strength, its high, almost mirror-like polish, the fact that though so highly polished the stone is not slippery, the large pieces that can be

* *London Jeweler and Metalworker* August, 1886.

quarried out, and the pleasing variety of colors, all combine to render this one of the most desirable building stones. Polishing mills have been built of sufficient capacity to polish $100,000 worth per annum, and in view of the unequaled facility with which it can be prepared for use, it could be made into tablets, blocks, columns and tiles with advantage, and employed for fine interior and monumental work or in the more artistic branches of stone work. Some good results have been obtained with the sand blast on polished surfaces.

A remarkable mass of rock crystal was recently sent to Messrs. Tiffany & Co. from North Carolina, 60 miles south of Abingdon, Va. Although it weighed 51 pounds, this mass was only a fragment of the original crystal, which weighed 300 pounds, but was, unfortunately, broken in pieces by the ignorant mountain girl who found it. Still this fragment will furnish slabs 8 inches square and ½ to 1 inch thick. The original crystal, if it had remained intact, would have furnished a crystal ball perhaps 4½ to 5 inches in diameter and almost perfect. A fine 190 pound crystal and a number nearly as large were also obtained. (*American Assoc. Adv. Science*, 1886).

Mr. F. C. Yeomans, of Washougal, Washington Territory, has found quite a variety of fine agates and moss agates at the above locality.

The menaccanite from Cumberland, Rhode Island, is often spotted with white quartz. Mr. E. Passmore, of Hope, Rhode Island, has cut it into oval stones several inches long, which admitted of a fine polish. This quality, coupled with its hardness, makes it a desirable ornamental gem stone.

It may be worthy of mention that the writer found pieces of peridot of sufficient transparency to afford *gems* one-fifth inch long, in the largest mass of the Glorieta mountain, Santa Fé county, New Mexico, meteorite. (*American Journal of Science*, III. series, Vol. XXXII. October, 1886).

The turquoise pseudomorph after apatite from Taylor's ranch on the northeast side of the Chowchilla river, California, has been described by G. E. Moore and V. von Zepharovich (*Zeitsch. fur Kryst. u. Min.*, Vol. X., page 240). The turquoise from Los Cerillos, New Mexico, has been fully analyzed and described by Prof. F. W. Clarke and Mr. J. S. Diller in the *American Journal of Science*, III. series, Vol. XXXII., page 211, September, 1886. Large quantities of this material have been sold, both as specimens and gems. Unfortunately many of those of finest color were found to have been artificially stained. A full series of this mineral has been presented to the National Museum.

Malachite in large masses has been found at the Copper Queen mine at Bisbee, Arizona. One of these masses weighed 15 pounds and others were nearly as large. All were of good enough quality and large enough for table tops.

Mr. F. F. Chisolm states that specimens of what appears to be amber were found in one of the Union Pacific coal mines in Wyoming in 1885, but the tests are not yet completed, so that its authenticity cannot be asserted. He says: "The material which was brought to Denver was hard, highly electric and of a good clear yellow color. Its fusion point was a little low, and the odor of a burning fragment slightly resembled that of burning India rubber. In places the substance occurs 2 inches thick. The exact place of its occurrence has not yet been ascertained." A few of the choice minerals and gems in the collection of Mr. Clarence S. Bement were well described by Prof. Gerhard vom Rath in THE JEWELERS' CIRCULAR, Vol. XVI., No. 12, January, 1886.

Mr. William H. Andrews, of Gouverneur, Saint Lawrence county, New York, has a remarkable collection of 2,200 specimens of polished marbles, serpentines, jaspers, agates and other ornamental stones, principally from Saint Lawrence, Jefferson and adjacent counties. A variety of other minerals are also to be found in this collection, which, though the polishing is mainly the work of Mr. Andrews himself, is one of the most complete series of the kind in the United States.

Popular articles have appeared during the year on North Carolina gem stones by Mr. C. D. Smith; on diamonds by William Wareing Habersham (both of these appeared in *Dixie*, published in Atlanta, Georgia, January, 1886), and an article on how hiddenite was formed by Mr. W. E. Hidden, in *Dixie*, December, 1885.

The National Museum collection of gems, formed by Prof. F. W. Clark, is now one of the most complete for species in the United States, and, as many of the gems are of more than average merit and all can have access to them, this is one of the best opportunities afforded the student in this country. The *Popular Science Monthly* for April, 1886, contains a description of this collection, which, with additions to date, will also appear in the bulletin of the National Museum.

An immense number of small collections of minerals have been sold during the past year, usually consisting of specimens not over ¼ to 2 inches square of a series of some ten to fifty of the principal minerals, or the minerals of a section or of polished and ornamental stones; sets of fifty, selling for from $1 to $5, are arrayed in cases or pasted to boards. The name which is given to them is generally copyrighted. As thousands of these collections are sold annually, the study of mineralogy will surely receive a stimulus.

PRODUCTION OF PRECIOUS STONES IN THE UNITED STATES.

While it is impossible to obtain exact returns of the values of the precious stones found in the United States, it is believed that the estimates given in the following table represent, roughly, the total values and the proportionate values of the several mineralogical species. Gold quartz, the value of which should be more properly perhaps included under the head of gold mining, is added at the close of the list.

Estimated production of precious stones in the United States in 1883, 1884 and 1885.

Species.	1883.			1884.			1885.		
	Value of stones found and sold as specimens and curiosities, or for ornamental purposes only or show structure.	Value of stones found and sold for use as gems.	Total.	Value of stones found and sold as specimens and curiosities, or for ornamental purposes only or show structure.	Value of stones found and sold for use as gems.	Total.	Value of stones found and sold as specimens and curiosities, or for ornamental purposes only or show structure.	Value of stones found and sold for use as gems.	Total.
Diamond	.....	.....	.....	$800	$800	.....	.....	.....	.....
Sapphire gems	$300	$2,000	$2,300	$1,500	$1,500	.....	$500	$500	$500
Corundum	100	.....	100	85	85	.....	25	.....	25
Ruby	1,000	.....	1,000	200	200	500	$1,000	.....	1,000
Beryl	200	300	500	300	300	400	700	250	500	750
Emerald	500	.....	500	.....	.....	.....	.....	1,000	500	1,500
Hiddenite	100	500	600	.....	.....	.....	.....	500	2,000	2,500
Tourmaline	.....	.....	.....	1,500	.....	1,500	.....	1,000	500	1,500
Smoky quartz	2,500	7,500	10,000	2,000	10,000	12,000	2,000	.....	1,000	1,500
Quartz	10,000	1,500	11,500	10,000	5,500	15,500	5,000	1,500	6,500	8,500
Silicified wood	5,000	.....	5,000	15,000	500	15,500	.....	2,500	2,500	2,500
Garnets	1,000	5,000	6,000	1,000	5,000	6,000	500	2,500	3,000	3,500
Anthracite	.....	2,500	2,500	.....	2,500	2,500	.....	.....	.....	.....
Peridot	500	.....	500	2,000	.....	2,000	1,060	3,000	1,500	500	2,000
Pyrrhotestine	3,500	250	3,750	2,500	250	2,750	2,500	250	2,750	2,750
Cassiterite, gem's	10,000	.....	10,000	10,000	.....	10,000	10,000	.....	10,000	10,000
Arrow points	1,000	.....	1,000	1,000	.....	1,000	.....	.....	.....	1,000	1,000
Triobites	500	.....	500	500	.....	500	.....	.....	.....	1,000	1,000
Sagenite, rutile	500	500	1,000	500	.....	500	.....	.....	.....	500	500
Hiddenite gems	500	100	600	500	100	600	.....	.....	.....	300	300
Peridot	50	250	300	100	250	350	150	.....	150	500	650
Thomsonite	250	500	750	250	500	750	750	.....	750	.....	750
Diopside	200	100	300	.....	.....	.....	.....	250	250	.....	250
Agate	1,000	500	1,500	4,000	500	4,500	1,000	.....	1,000	1,000	2,000
Chalcedony	1,000	500	1,500	500	1,000	1,500	.....	.....	.....	.....	.....
Turquoise	5,500	500	6,000	5,000	500	5,500	1,500	.....	1,500	3,000	3,500
Amethystine	2,000	2,000	3,000	2,000	2,000	3,000	500	.....	500	2,000	2,500
Amethyst	2,000	250	2,250	8,000	250	8,250	2,000	100	2,100	100	2,100
Jasper	2,000	500	2,500	2,000	500	2,500	.....	.....	.....	.....	.....
Sunstone	250	200	450	250	200	450	250	.....	250	300	550
Fossil coral	500	250	750	500	250	750	.....	.....	.....	.....	.....
Rutile	.....	.....	.....	.....	.....	.....	.....	750	750	.....	750
Total	47,150	26,300	74,050	74,235	36,650	110,885	29,035	42,850	71,885	37,400	109,285
Gold quartz	40,000	73,000	113,000	40,000	100,000	140,000	40,000	60,000	100,000	140,000	240,000

By recalculating from the *value* of the diamond karat us used in different countries, the equivalents in the metric system, the weights

in the four places of decimals, according to Mr. Louis D'A. Jackson, in his "Modern Metrology," page 377, will be found in the following table:

Weight of a diamond karat in different countries.

Countries.	Weight.	Countries.	Weight.
	Grains.		Grains.
Turin	.9155	Turkey	.2005
Persia	.2035	Spain	.1999
Venice	.2035	Italy	.1965
Austro-Hungary	.2053	Florence	.1965
France	.2039	Commerce	.1965
Portugal	.2039	Arabia	.1944
Brazil	.2058	Egypt	.1922
Germany	.2053	Bologna	.1886
England	.2053	Average weight of diamond karat	.2000
British India			
Holland	.2051		
Russia			

* Gems are generally bought and sold by the weight, called a *karat*, which is equal to about 3-168 troy grains. It is usually divided, however, into four diamond or pearl grains, each of which is 7954 of a true grain. Fractions of a karat are also known as fourths, eighths, sixteenths, thirty-seconds and sixty-fourths. The weight of the karat formerly differed slightly in different countries, and this diversity finally led a syndicate of Parisian jewelers, goldsmiths and gem dealers in 1871 to propose a standard *karat*. This was subsequently confirmed by an arrangement between the diamond merchants of London, Paris and Amsterdam, fixing the uniform value of the *diamond* (?) karat at .205 gramme; 15315 karats=1 troy oz.

IMPORTS.

Diamonds and other precious stones imported and entered for consumption in the United States, 1867 to 1885, inclusive.

Fiscal years ending June 30—	Glazier's.	Dust.	Rough or uncut.	Diamonds or other stones not set.	Set in gold or other metal.	Total.
1867	$906			$1,332,470	$293	$1,338,669
1868	464			1,000,544	1,465	1,002,493
1869	445	$140		1,093,262	23	1,093,870
1870	9,370	71		1,768,324	1,304	1,779,071
1871	597	74		1,562,482	256	1,563,409
1872	2,386	89,309		2,030,183	2,490	2,033,848
1873		60,252	$176,436	2,972,926	326	3,209,940
1874		66,614	144,609	2,156,139	114	2,371,536
1875		32,558	124,040	2,034,309		2,318,907
1876		20,918	182,494	2,409,516	45	2,612,633
1877		45,064	57,033	2,470,316	1,239	2,573,652
1878		36,402	63,237	2,930,462	1,258	3,031,173
1879		18,880	104,153	3,841,333	1,534	3,965,900
1880		40,370	119,207	5,650,911	765	5,811,244
1881		51,400	233,596	8,320,315	1,107	8,606,417
1883		39,753	449,313	8,333,201	2,205	8,824,472
1884		89,698	414,056	8,368,176	1,081	8,196,881
1885	22,208	21,102	367,810	8,719,315	(a)	9,130,435
	11,526	30,466	371,679	5,808,196	(a)	6,049,547

a Not specified.

Imports of substances not included in the foregoing table, 1868 to 1885, inclusive.

Fiscal years ending June 30—	Unmanufactured agate.	Bead and other manufactured articles.	Cameleon.	Bronze jewelry.	Amber.	Amber beads.	Unmanufactured coral	Manufactured coral	Manufactured, mere. Cameo.	Total.
1868								$60,870		$60,870
1869		$70	$269		$417			20,447	$6,408	27,210
1870		1	665		1,435			18,075	2,068	22,172
1871		500	203		1,246			23,823	3,008	28,780
1872	$111	1,320		$1,127	1,534	$395	$13	50,356	2,104	55,037
1873	127	1,284			1,448	1,057	237	36,411	2,200	42,477
1874	520	5,165		57	3,169	715	1,256	33,567	900	45,349
1875	193	1,567			2,509	182	103	32,594	10,439	47,587
1876	370	1,004	(a) 65		12,307	370	718	28,630	8,304	51,396
1877	138	404		26	13,215	1,119	1,150	10,662	16,398	42,112
1878	38	366			17,521	203	147	11,317	19,088	49,680
1879	57	2,256			36,801	8,317	69	8,457	30,641	87,418
1880	460	1,210		5	45,400	1,102	89	2,501	19,714	69,031
1881	901	5,084		125	44,871	4,174	665	16,118	32,106	103,964
1883	14	2,805			31,477	681	1,303	18,883	10,446	65,609
1884		6,100		2,496	36,301	2,692	556	(b)	23,062	71,207
1885	124			6,541	17,722	3,248	659	(b)	49,590	78,284

a Not separately classified since 1877.

b Not specified.

CORRESPONDENCE.

Chicago Notes.

To the Editor of the Jewelers' Circular.

An unusually bright, and expectant spirit pervades the Chicago jewelry trade at the present time—such, in fact, as has not been known since the good times along in 1881 and 1882. The grumbling and discontent which were so loudly and universally expressed about a year or eighteen months ago have faded away to a whisper, and no jobber would now like to be quoted as talking about "dull times" or "nothing doing." That the belief in an approaching "boom" in the jewelry business is well-founded, is evident from the excellent shape in which the trade generally is, the ease with which collections are being made, the prosperity of other staple lines of business, and the confidence which the most conservative and cool-headed jobbers are talking. Every jobber is free to admit that collections are fair, many that they are unusually easy, and some that they are exceptionally good. The present expectant condition of the trade is doubtless largely due to the unexpected increase in the volume and profits of last year's business, but a very casual consideration of the elements that underlie and lead-up-to a revival of trade would show that most of the necessary factors are now present. The country has recovered from the baneful effects of the labor troubles which so disorganized and impeded business last spring and early summer, the law is again respected, confidence is re-established, and capital once more secure in its investments. The result is renewed general prosperity, amply sufficient to augur success to the jobbers assidiously waiting "to catch Dame Fortune's golden smile."

Benj. Allen, one of the most conservative and level-headed men in the business, talks reviving business. He says this bids fair to be a good year, and that collections are much better than at the corresponding period last year. His firm was busily engaged taking stock during the first weeks of January, and the travelers, after having their trunks refilled with full lines of goods, started again on the road about the 25th of last month. Clapp & Davies think business is decidedly looking up, and remark that the trade is feeling well. They are entirely satisfied with the outlook, and receive almost daily excellent reports from their travelling men who went out during the first week of the year. Mr. Schnering, of Otto, Young & Co., reports collections fair, and says the travelers of the house who are out are meeting with cheering success. B. F. Norris, Alister & Co., did an excellent business in Indiana, Iowa, and Minnesota all through the month—the sales being specially big in Minnesota and Indiana. Mr. Alister says his mail is good, orders, constant, and money, easy. Giles, Bro. & Co., agree with all the other big jobbers that things are looking up, while Cogswell & Wallis, Bryant & Burrows, and others, say that trade is opening very nicely, and giving promise of satisfactory returns during the year.

The Blauer Watch Case Co. continues to push an ever-increasing trade; the Towle Manufacturing Co. is doing a nice business in its specialties and silverware; the Gorham Manufacturing Co. is quietly getting its due share of increasing trade; and the Meriden Britannia Co. is being kept busy all the time.

M. C. Eppenstein maintains, with the beginning of a new year, the satisfactory advance he made during 1886. He is putting well-chosen selections of all the newest and best lines of goods on the road, and anticipates even bigger business than last year. His travelers give most encouraging reports of the outlook for the spring trade.

Louis Manheimer gives continued evidence of being one of the most enterprising of recently established jobbers in Chicago. He is fast forging his way ahead, and promises ere long to take rank among the leading jobbers in the city. His travelers all came in early in January, and start out to cover the entire West in the beginning of

February with new lines of goods which were all bought early. Mr. Monheimer says he has found business satisfactory all over during the year, and will never grumble if things keep on in the way they have been doing since he came to Chicago. He thinks the indications very good for the approaching season..

Harry E. Howard, of the E. Howard Watch & Clock Co., feels thoroughly encouraged with the amount of business done by his firm since the opening of the Chicago branch. The year has been, month by month, one of distinct progress, and the Howard Company has done some big jobs in tower clocks and electric dials.

William Alister, of B. F. Norris, Alister & Co., and wife, are at Clifton Springs, N. Y., where they will enjoy a three weeks sojourn. Mrs. Alister has been in rather poor health for some time, and it is to be hoped that she will be much benefited by the change, before returning to her pleasant suburban home at Kenwood.

B. F. Norris, of Chicago, is enjoying excellent health at San Francisco, and finds ample mental and physical exercise in the cultivation of his hobby for building. He longs to draw his partner away for a while from the lake breezes and business cares of Chicago, and give him a taste of the green pens and asparagus and lucious fruits, and eternal sunshine of the Pacific Slope, but contented Mr. Alister is perfectly willing to try another year of the more moderate attractions of the Garden City.

Mortimer N. Burchard, of Simpson, Hall, Miller & Co., left for New York on the 14th of January on a business trip. He reported the Chicago branch as doing an excellent business for the season.

A. B. Towers, the credit man of Lapp & Flershem, was married to Miss Greiner, at Buffalo, N. Y., on the 18th of January. L. W. Flershem, accompanied by Mrs. Flershem and family, was present at the wedding.

The entrance to Messrs. Lapp & Flershem's commodious store on State-street, has been entirely renewed, and with its white marble paneling, tesselated floor, and elegant oaken doors, presents a most attractive appearance. Few customers have as yet come in from the country, but the firm reports that its order trade has been very good. All the travelers are on the road with full lines of goods, including all the latest things in brooch-pins and bracelets, and a brisk trade is confidently expected.

The Excelsior Sign Co., L. S. Grout, manager, is busy manufacturing many new and elegant designs in jewelers' and opticians signs, and the watch clock, and jewelry trades may look out for the cuts in the advertising pages of the March, April, and May issues of the JEWELERS' CIRCULAR. Mr. Grout is packing goods every day, and finds business, even already, ahead of the first month of last year.

Charles Wendell's Sons take a most hopeful view of the situation. They had excellent business last year, and in sending out their travelers on the 17th of January, with nicely selected lines of goods, were looking to a decided increase over last year's figures.

The jobbing firm of Zuckerberg & Felsenthal dissolved partnership by mutual consent on the 5th of January, Mr. Zuckerberg purchasing the interest of Mr. A. Felsenthal. Mr. Zuckerberg will continue business in the old premises under the style of M. Zuckerberg & Co. Mr. Felsenthal will commence business with his brother under the firm name of A. & L. Felsenthal, next door to his old partner at Nos. 168 and 170 State-street, in the rooms formerly occupied by Jacob Salkey & Co., who recently failed.

Stein & Ellbogen are reaching forward for bigger business, and believe they will get it in their general jewelry business and recently established diamond department.

The Waterbury, New Haven, Gilbert, E. N. Welch, Seth Thomas, and other clock companies find the year opening up well in Chicago. Money is coming in easily, and difficulty is experienced in filling the orders that are piled up on their desks.

The Waltham, Elgin, Howard, and other watch companies having agencies in Chicago, give encouraging reports of the volume of business being done, and agree that still brighter times are in store for the trade generally as the year opens up.

The wife of M. C. Fish, a traveler for J. H. Pardy & Co., died of cancer at the Bennett Hospital, Jan. 3. What makes the death additionally sad is that Mr. and Mrs. Fish were only married on the 13th of May last year.

Chicago was again the scene of a most audacious, and unfortunately successful jewelry robbery on the evening of Jan. 11. About 7 o'clock three men drove up in a sleigh to the retail store of H. Von Der Heydt, No. 467 Ogden Avenue, and while one held the door by means of a stick thrust through the handle his two confederates smashed a plate-glass show window with a piece of iron pipe, and snatching two trays containing twelve watches each, rushed back to the sleigh, and hastily picking up their companion who was holding the door of the store, dashed furiously around the corner and escaped along Park-street. Mr. Von Der Heydt happened to be in the store at the time along with his twelve-year-old son, who was behind the counter close to the window which was burglarized. Neither of them noticed the men until the glass came crashing into the show window. Mr. Von Der Heydt at once rushed around the counter to the door, and the man who was crouching behind it ran to the sleigh, leaving the door securely fastened by the stick. Mr. Von Der Heydt in a moment, with the skill which he had acquired through practice in the Turner Hall, leaped through the glass door, and, reaching the ground without a scratch, rushed after the robbers. The scoundrels were too quick for him, however, being already on their way round the corner at a break-neck speed. Strange to say there was not a person on the street at the time, and pursuit was therefore useless. A timid shoemaker on the opposite side of the street was the only witness of the cool robbery. Fearing that the robbers might have revolvers about them, he raised no alarm. The jewelry stolen is valued at about $900, and as the police could not get any intelligent description of the robbers, there is little likelihood of its recovery.

Max Noel, a traveler for J. H. Purdy & Co., of Chicago, came very near being asphyxiated with coal gas at Milo, Ia., while on his last trip. He woke up in the middle of the night in a choking condition, and succeeded in staggering to the door, which he opened, and then fell senseless in the hall-way. The noise of the fall awoke the landlord of the hotel, and after proper restoratives had been applied, Mr. Noel regained consciousness. He now feels no worse for his uncomfortable and perilous experience.

O. C. Retsloff, of Winnebago City, Minn., was in town. He reports thriving business at home.

L. C. Garwood, the well-known jeweler of Champaign, Ill., arrived in Chicago to buy his line of spring goods on the 15th of January.

Frank A. Perry, formerly of Perry Bros., went to travel in the beginning of the year for Enos Richardson & Co., of New York.

A change has taken place in the firm previously known as Perry & Meade. The arrangement by which John Perry, of Perry Bros., was to buy out his brother's interest was consummated in the beginning of the year, and Mr. Meade takes in R. Chester Frost as a partner. The firm will now be known as M. A. Meade & Co.

The manner in which L. W. Flershem acquitted himself as President of the annual banquet of the Jewelers' Association, and the maiden speech of Thomas Davies in responding for the "Guests," were very favorably commented on by the trade, as showing that the young blood of the association possessed both administrative capacity, and readiness of speech.

H. F. Hahn, Z. Oppenheimer, and A. Hirsch were in New York during the month.

A meeting of the Committee of Counsel of the United States Guild, which consists of J. S. Kelly, Abilene, Kas., Oliver Startsman, Iowa City, Ia., W. N. Boynton, Manchester, Ia., and R. S. Mershon, Zanesville, O., was held at the Matteson House, Jan. 20, and business important to the organization was transacted.

J. G. Fuller, of Hamilton & Hamilton, Jr., of New York, spent nine days in Chicago, and was one of the pleasantest guests at the

annual banquet of the local Jewelers' Association. He found business in chains very fairly good, though the season was, of course, a week or two too early, and considers the prospects for the coming season very flattering. Mr. Fuller left for Indianapolis Jan. 14, and after doing a promising stroke of business in the Hoosier Capital, paid a flying visit to Cincinnati on the way home.

Among the familiar New Yorkers around the Palmer House about the middle of January were : E. A. Bliss, of the E. A. Bliss Co., G. W. Parks, of E. I. Franklin & Co., Harry Schofield, of Lincoln, Bacon & Co., and Ned Eaton, of W. G. Hopkins. They all arranged their visits to the Western Metropolis so as to be in time for the annual banquet, at which, as on previous occasions, they were welcome guests. Mr. Bliss left for New York on the limited the day after the banquet in company with John W. Senior, of the CIRCULAR, and a select party of homeward bound Gothamites. Previous to their visit to Chicago, Messrs. G. W. Parks, Ned Eaton, and Harry Schofield made a trip to Des Moines, where they found business unexpectedly good for the season. The trio took in Cleveland en route to New York.

E. J. Rogers, who succeeds J. G. Fuller with Howard & Son, of New York, went to Des Moines on the 12th of January, after having done fair business in Chicago.

W. G. Clark, of Attleboro, tried Des Moines the second week in January, and reported on his arrival in Chicago satisfactory business in his popular line of ladies' sleeve buttons.

J. M. Cutter, the genial and popular manager of the Elgin National Watch Co., took a trip to St. Louis, Cleveland, and Cincinnati towards the end of January, and will arrive in New York in time for the meeting of the National Association of Jobbers.

The pleasant and profitable experience of a trip to San Francisco last spring has tempted a select party of choice spirits to think of repeating the trans-continental pilgrimage to the Golden Gate. The matter has been talked over, and, if everything goes smoothly, the party which, it is anticipated, will include Messrs. J. M. Cutter, of the Elgin National Watch Co., E. A. Bliss, of New York, Otto Heeren, of Pittsburg, R. S. Hamilton, Jr., of New York, and Mr. Sherry, of the Joseph Fahys & Co., will invade 'Frisco along in February.

The Hon. D. J. Ayres, ex-Mayor of Keokuk, Ia., was in Chicago during the second week in February, and took part in the annual festivities of the Jewelers' Association at the Richelieu.

H. Knights, of Chicago, left for a two weeks pleasure trip to New Orleans on the 6th of January, and will visit New York on his return.

Thomas Frothingham, of Providence, found a good demand in Chicago for his white stone goods, and left on the 14th for a trip to Kansas City.

Among the other Eastern visitors who succeeded in carrying off their due proportion of Chicago business were W. Wightman, of R. F. Simonds & Co., of Attleboro, F. D. Heffron, of H. D. Merritt & Co., New York, and Mr. Barrows, Jr., of H. F. Barrows & Co., New York.

G. Clifford Booth, of Fowler Bros., New York, found a ready market for his excellent line of English crape stone goods, and left Chicago Jan. 12, very sorry that business engagements prevented his attending the banquet of the Jewelers' Association, where he was to have been the guest of Caleb Clapp.

D. R. Bratin, who used to be in the retail line at Indianapolis, has recently established a jobbing business in jewelry, watches, tools, and material, in Kansas City, and promises soon to rise to the top rank.

W. A. B.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular :

The season just opening is hardly advanced enough at this time to predict with any degree of certainty as to how prosperous it will terminate to the manufacturers in a financial point of view, but we can speculate on the prospects about the same as the owner of a young colt would who knows his pedigree and good points, who remarks to you that the colt has points and blood in his favor, and should grow to make a fast and fine animal. So do we in a somewhat similar sense predict as far as possible for the year 1887, from certain signs which we think we can see about us, a season of great prosperity, more especially should the war clouds now hovering around certain quarters of Europe develop into a full-fledged war, thereby calling for supplies of every kind from the United States, and making an increased demand for laborers of every calling, who, having plenty of employment, feel that they can launch out into the luxuries of life more than though they had little or nothing to do, when the bare necessities would often have to suffice; when the poorer classes can afford to wear jewelry from the fruits of their labors, the great middle class, the great jewelry wearers of the country must of necessity, according to the difference of their stations in life, expend so much more show with the world at large, is one of the first luxuries indulged in when the means at hand will, in any manner, justify it, and jewelry and fine clothes play each their individual parts and go hand in hand.

The pirates of the trade are now lurking about like so many vultures waiting to see what new ideas will be furnished to them by those whom they follow after and copy in regard to designs and styles for the spring trade, so that about a month or so after the trade commences you may be able to purchase all of the finest and best selling patterns of nearly all manufacturers without regard to style of goods they may manufacture, made by these pirates in the cheapest of plate and brass, this of course forces the manufacturer who furnishes original ideas to always keep far ahead of them by always producing something new, for the reason that as soon as the pirates can finish the same designs, which probably look quite as well for a couple of weeks, for one-fourth the money, the legitimate manufacturer who furnishes a fine grade of goods is forced to cut his prices to be able to compete with this cheap class of inferior goods, which, until they are found to have no merit, may possibly meet with good sales, but they are of necessity, short lived; then for something new again to copy and so goes the story from the commencement of one season to the end of another, always pirating, trying to live by the brains of some one else, who has no protection of his rights. The regular 'job lot" customer has put in his annual appearance in this locality, to gather in any stray unsalable patterns that the manufacturers may deem advisable to close out to him at a bargain, (that is to the "job lot" customer); however, of late it has been thought best to not place too many of such goods in the market through this channel, it is thought to eventually hurt the trade with small dealers, who would otherwise purchase a better paying class of goods from the jobbers, thereby helping the manufacturer ; it would be much better for the manufacturers to melt up their job lots and pocket the loss by charging the difference to profit and loss, thereby always having new goods, instead of placing old patterns at a sacrifice, which, of necessity, takes the place very often of goods which might otherwise be made; this would cause the "job lot " customer to launch out in the regular legitimate business or leave it altogether, which would probably be a well for all concerned excepting himself. The amount of capital invested in the jewelry business has materially advanced from that of a year ago, the fancy prices of just after the war, have, it is safer to say, entirely vanished, never to return, and the concern or persons starting in this branch of business to-day must be sharp and shrewd and have good heads for financiering or they will be surprised to find how soon they run on a snag, which will be simply no bank account; how many of such firms have passed out of existence it is hard to say, as we seldom hear such quoted to us; it is safe to say that where one makes a genuine success there are three who make little or none, although they may not pass out of existence as firms in the directory, they, nevertheless, are struck with dry rot, which is only a question of time before it will get beyond their control. Mr. A. W. Kipling, of the firm of E. E. & A. W. Kipling, has sailed the past month for Paris, to collect new designs and patterns for their trade during the coming spring, and the original idea manufacturer will do well to hold himself "ay ready" for his return.

Messrs. Fred. I. Marcy & Co., have the past week been distributing among the manufacturers their new calendar exgraved by that sterling house of engravers, Messrs. Jno. A. Lowell & Co., of Boston, which is a credit to them for the excellent style of its finish. The past week the manufacturers here have been notified of the failure of the following parties: Charles Kinsman, of Chicago, liabilities, $40,000; assets, about $30,000; Messrs. Fry & Schuber, of New York, giving preferences of first and second classes of about $40,000; some of the creditors in this city do not exactly understand this idea of preferring some and letting others do what they can to protect themselves; there should be a law to govern the preferring of creditors, who are generally friends of the parties interested. D. S. Bedell & Co. are reported here to be in the hands of the sheriff. Failures are beginning to become painfully frequent here, so much so that the manufacturer begins to stop and ask himself the question: Whom am I to extend trust to? The names of the parties referred to will be put on the repudiated or "black list " at the next meeting of the Manufacturing Jewelers' Board of Trade, unless their affairs are settled satisfactorily to the members of whom are their creditors.

The majority of the firms here located have their salesmen on the road west and are now quietly waiting for those long expected orders to come and are wondering whether Uncle Sam has anything to do with their seeming detention by having its mails burned on wrecked mail cars; it may possibly be in some cases, but the sober thinking man says thoughtfully to himself, " I think we have forced the market or at least tried to by about ten days or two weeks. FAIRFAX.

Providence. R. I., January 15th, 1887.

A Complete History of Watch and Clock Making in America.

[By Chas. S. Crossman.]

Number Eight.

Continued from page 454.

THE NEWARK WATCH COMPANY, OF NEWARK, N. J.; THE CORNELL WATCH COMPANY, OF CHICAGO, ILLS.

IT WAS in April, 1863, that the idea of "The Newark Watch Company" was first made known to the public. Mr. N. B. Sherwood, who had been for some time in the employ of Messrs. E. Howard & Co., of Boston, came to New York city and conferred with the firm of Louis S. Fellows & Schell, with reference to starting a watch company. That firm were wholesale jewelers and importers of watches, doing business at 21 Maiden Lane. Mr. Sherwood had an established reputation as a mechanic of no mean order in the horological line; Mr. Fellows was an enthusiast on the watch question at this time. The outcome was the firm decided to enter the arena under the name of "The Newark Watch Company," and Mr. Sherwood was to superintend the building of the machinery, and become superintendent of the factory after they should commence to manufacture watches. A room was first rented at No. 100 Walker street, N. Y. city, in April, 1863. A Roper engine was put in for power, and lathes purchased to make tools with. Mr. Sherwood had six machinists at first, increasing the number soon after; but he was destined to be at the head of this enterprise for a short time only. The firm dispensed with his services after a few months, and Mr. Arthur Wadsworth was called to the position of superintendent. Mr. Wadsworth had been in charge of the watch repair department of the firm for several years but had never had experience in watch manufacturing before. He is an Englishman and says at that time he thought it a little inconsistent that an Englishman, who did not believe in American watches, should be superintendent of an American watch factory. The machinery was, however, carried on to completion and watches turned out under his superintendence.

The works were removed to Newark, in 1864, and located at the corner of Chestnut street and Railroad avenue, in a building which had previously been a hat factory, but which the firm purchased and fitted up for the purpose. The model watch which had not been commenced when Mr. Sherwood left the firm's employ was made by Mr. Wadsworth, and was modeled largely after the James Hoddell, an English movement, which the firm were American agents for. They were all 18 size full plate. The number of employees was constantly increased until watches were turned out in 1867, at which time some fifty operators were employed, a considerable portion of them being girls. About four hundred movements were sold that year, being first made in three grades of key wind, as follows: The "Edward Bevin," named after a foreman in the company's employ; this sold at fifteen dollars, was plain jeweled and expansion balance; next, the "Newark Watch Co.," at twenty dollars, and last the "Fellows," at twenty-five dollars. Then a stem wind called the "Arthur Wadsworth," full jeweled, expansion balance, with an endless screw stem wind arrangement. After a personal inspection of one of these movements, the writer is in truth bound to say that it was a very crude affair; but it must be borne in mind that the "stem wind" was then in its infancy. This was soon abandoned for a sliding bar arrangement, but it was used on only a few movements and laid aside to make room for a new device which Mr. Wadsworth had patented. The movements were now all made stem wind. They were engraved on the top plate, "Wadsworth's Patent Keyless; patented June 19th, 1866," so that if the owner of the watch ever doubted his watch being a stem winder he had only to read the inscription which covered a large portion of the top plate. The mechanism was on the rocking bar principle, similar in some respects to those in use at present.

Mr. Wadsworth also patented a T end mainspring which formed a section of the rim of the barrel, but it was found to be an infringement on the Waltham patent and he was obliged to give it up. It might be said of the barrel that it was another of Mr. Wadsworth's ideas. It came apart near the center, one edge shutting over the other. By this means he claimed to prevent the barrel from ever being sprung by a breaking mainspring. The first movements put on the market had a cam-headed screw for the purpose of adjusting the hair spring stud to the proper position for the spring; but the old style was found to be the more practicable and the new plan was dropped.

The company first used imported dials, but soon began to get them made by Messrs. Gold & Spear, of New York city, and afterward by Williamson & Farnsworth, also of New York. Bottom's hair springs were also used. They used compensation balances in all grades unless otherwise ordered.

The United States Watch Company was also located in Newark, at this time, and competition was consequently sharp between the companies as to getting and retaining their employees, as there were none to be had except those they had educated themselves for their special branches of work.

While credit should be given to Mr. Wadsworth, as superintendent, there are others whose names deserve mention, as they were also largely instrumental in making this watch something of a mechanical success. We refer to Mr. Sherwood, already spoken of at some length, also James Nelson, James McGow and L. C. Wing, who each contributed his respective quota.

The company continued to increase its manufacturing facilities until 1869, turning out, as has been said, four hundred movements in 1867, and in 1868 about one thousand, while in 1869 the product reached fifteen hundred, and the number of employees had reached very nearly one hundred and fifty.

The company had not proved a great financial success; in fact it had involved the expenditure of about $200,000 with a comparatively small return. Consequently they began to tire of the monster and were willing to make any change that promised relief. Suffice it to say, in this connection, that negotiations were entered into late in 1869 with Mr. J. C. Adams, who was then forming the Cornell Watch Company, of Chicago, for the purchase of the Newark plant. These negotiations ended in the ultimate sale of the Newark plant by Robert Schell & Co., the successors of Louis S. Fellows & Schell, to the Cornell Watch Company. The appraisement certified that it was worth $125,000, at a cash valuation, and Messrs. Robert Schell & Co. took stock in the new company for that amount. Its subsequent history is continued under the head of the Cornell Watch Company. It might be said that the Newark building, which was afterward sold, netted the firm a profit of $10,000, so that their real estate venture was a success if the watch business was not.

The Cornell Watch Company, of Chicago, presents a somewhat checkered career for our perusal. Its projectors had a two-fold object in view when they organized the company, viz.: real estate speculation and the manufacture of watches.

The name of Cornell is so closely allied to the history of this company that it may not be uninteresting to give a short sketch of its projector,

PAUL CORNELL,

was born at White Creek, Washington Co., N. Y., August 5th, 1822. Paul soon developed a desire for knowledge, and, in order to raise money to pay his school expenses, he worked on a farm during the summer, and went to school during the winter. He afterwards became a school teacher and in connection therewith he studied law. His first visit to Chicago was in 1845. From thence he went to Joliet, Ills., where he entered a law office and studied two years, after which he procured a license, on June 1st, 1847, and took a stage coach for Chicago; when he landed there he had a small bundle of clothing and a few plain cards inscribed, "Paul Cornell, Attorney-at-Law, Chicago." His small bundle was soon stolen. He soon, however, found a position in a law office, which proved to be the commencement of a prosperous career in his profession which we cannot follow

in its details. In 1854 and 1856 he invested in real estate which rapidly rose in value, and it is in connection with the real estate business that he made his "*debut*" in the watch business. Mr. Cornell was the purchaser of 300 acres of what is now known as "Hyde Park," in the suburbs of Chicago. Naturally he began to figure on the best means of increasing the value of his property. Among other things, he conceived the idea of starting a watch factory, which should form the nucleus of a future village of Cornell, and he at once set to work to put the plan into execution. He was assisted in the project by Mr. J. C. Adams, and in 1870 the Cornell Watch Co. was formed with a capital of $200,000, and officers elected as follows: Paul Cornell, President; H. N. Hubbard, 1st Vice-Pres.; T. C. Williams, 2d Vice-Pres. and M'g'r; J. B. Jackson, Sec'y; J. C. Adams, Gen'l Agent. The Board of Directors was composed of Messrs. Paul Cornell, C. M. Cody, H. M. Hibbard, George W. Waite and Robert Schell. The sale of the Newark company's plant to this company has already been spoken of in connection with the history of the former company.

Thirty acres of land at $70 per acre were sold to the company by Mr. Cornell, who also erected the factory building at a cost of $75,000. He took his payment in stock of the company, thus becoming one of the heaviest stockholders. The site chosen for the factory was in the center of this tract of land of which we have spoken, at what was known as Grand Crossing, formed by the junction of two railroads. At the time the erection of the factory was begun, there was not another house within sight. Mr. Cornell also sold 60 acres of land to the Illinois Central R. R. at a low figure, on condition that they would run accommodation trains out to his village.

The transfer of the Newark property to the Cornell Co. was made in Jan., 1871, but it was not until August of that year that the factory at Grand Crossing was ready to receive the machinery.

Meanwhile the factory at Newark was run by the purchasers, they simply continuing the business of the Newark Co., but in August the machinery, tools, etc. were removed to Grand Crossing and the new factory was started. The organization of the working force was as follows: C. L. Kidler, 1st Sup't, succeeded by C. A. Kendrick, F. H. Wheeler and W. E. Piper, respectively; John Lucas, foreman, plate room; Thomas H. Wheeler, 1st foreman setting up, succeeded by Isaac H. Holmes; Jos. W. Hurd, 1st foreman in balance department, succeeded by Chas. Boland; Mr. Dickinson, foreman flat steel screw; Wm. Farnsworth, 1st foreman jeweling dep't, succeeded by Geo. W. Hines; John Logan, hair spring maker; John Pierson, foreman gilding; J. O. Newton, escapement maker; E. Sandoz, formerly with the Mozart Watch Co., master watchmaker; Messrs. Frank Soper, Alphonzo Jackson, Geo. D. Clark, Chas. R. Bock, Frank Styles, Chas. Peyler and John Penny, who is now at Elgin, were also connected with the company in various capacities.

As there were no houses in the vicinity, a large boarding house was erected a short distance from the factory for the accommodation of the employees. The nearest settlement was then 2½ miles away.

The movement was the same one that had been manufactured at Newark. It had proved almost a failure under that company's management, and the Cornell Company soon found that they had a hard job before them if they were ever to make a successful watch on that model. Mr. Sandoz constructed several models but none of them were ever adopted. The movement was, however, greatly improved by some changes on the escapement. The machinery which had been purchased of the Newark Company proved to be a poor lot and much new machinery had to be built. Reed's patent center pinion was used, for which the Cornell Company paid a royalty.

Eight grades of movements were manufactured, known respectively as the Paul Cornell, H. N. Hibbard, George F. Root, John Evans, C. T. Bowen, E. S. Williams, C. M. Cody and Geo. W. Waite. The Paul Cornell, named after the President of Company, was a full plate, 18 size, patent stem winder, having an expansion balance, conical pivots, ruby end stones, a patent screw regulator and double sunk dial. It was the highest priced watch made by the Company.

The H. N. Hibbard, named after the Vice-Pres., was a full plate, 18 size, key winder, expansion balance and double sunk dial.

The Geo. F. Root was a full plate expansion balance, made both stem and key winding.

The John Evans was named in honor of a prominent Railroad man who was at the time Governor of Colorado. It was thought that the name would give the watch a certain amount of popularity among railroad men. The movement was a full plate, 18 size, expansion balance, key winder. The C. T. Bowen, named after a South Park Commissioner, was a full plate, 18 size, expansion balance movement.

The E. S. Williams was a full plate, 18 size, expansion balance, plain movement.

The company tried to get out a lady's movement, but only two were finished, one going to Mrs. Cornell and one to Mrs. Williams.

Mr. Cornell finally bought out Mr. Schell's interest, paying him $25,000 for it. He also bought out the interests of the various Chicago parties who were interested and became sole proprietor of the plant.

He finally came to the conclusion that the concern was not a huge success and began casting about for a chance to dispose of it. About the years 1873-4, Chinese cheap labor in California began to attract his attention, and he decided that if he could get his factory working in California, with Chinese help, he could make a great financial success of the undertaking. He entered into negotiations with Mr. Wm. C. Ralston, of the Bank of California, which resulted in the transfer of the whole establishment to San Francisco, in the fall of 1874. About sixty of the employees from Cornell went out to the Pacific slope to assist in working out the scheme, and a new company was formed called the Cornell Watch Company of San Francisco, of which Mr. Cornell was a large shareholder. The new company was under a different management, however, and the story of its trials and tribulations will be considered under another head.

At the time of closing up the affairs of the Cornell Company at Chicago, about 120 hands were employed, and watches were being turned out at the rate of 20 per day.

While the Cornell Watch Co. of Chicago cannot be voted a success from every point of view, it had the desired effect of raising the price of real estate in the vicinity, and goes to prove the adage that "It is an ill wind that blows nobody any good."

(*To be Continued.*)

How to Become a Skilled Optician.

[Edited by C. A. Bucklin, A. M., M. D., New York.]

WE HAVE, in our former lesson, made a comparison between a *simple* optical instrument and the human eye. There are constant defects in all simple optical instruments which are also found to exist in the eye, The eye also has constant defects which are not found in ordinary convex lenses, which are due to irregularities in the curves of some one of the refracting surfaces, usually the lens. The defects which are common to all simple optical instruments are best understood by studying them as they occur in lenses. If a ray of sunlight which enters a darkened room through a small opening be passed through a prism of glass, the light is broken up into the colors of the spectrum; if the base is held up the violet color will head the line of color bands, and the red will be the last, which shows that the violet ray was bent the most and the red ray the least. In other words, the violet ray is most easily refracted and the red ray is most difficult to refract. A convex lens, being made up of an indefinite number of small prisms with their bases joined in a common center, has an effect on light similar to a simple prism; it therefore follows that all lenses and also the eye will focus violet rays of light more easily than red rays of light. The error is known as chromatic aberration—it is the only visual defect

which of necessity exists in every eye. Clergymen who study in rooms illuminated by stained glass windows of various colors suffer from weakness of vision due to this defect.

Through this defect the color of objects deceive us as to their relative distances. Artists unknowingly avail themselves of this general visual defect in producing distance on canvas, by coloring an object red when they wish to make it appear nearer independent of the effects of light and shade, and they color an object violet when they wish to retire it.

We will see in a later chapter that the nearer an object is the more divergent are the rays of light which come from it, and consequently the muscular effort required to increase the lens power sufficiently to focus red rays of light, must be greater than that required to focus violet rays of light. This makes it evident that color and distance, independent of light and shade, are interchangeable.

The discussion between Newton and Euler as to whether this defect existed in the human eye, was a warm one for years, but it is not without interest. Newton's belief that the human eye had this defect, and also that it was impossible to construct a lens that was free from it, led to his inventing the reflecting telescope, while Euler's belief that this defect did not exist in the human eye led to his inventing the refracting telescopes now in common use. Without referring to the details of Frannhofer's experiments, by which he not only demonstrated the existence of this error in the human eye, but with which he measured it, I will give you the result of his experiments. At the far point of distinct vision with the eye at rest, a violet object must be *twenty-six* inches nearer than a red object to appear to be at the same distance.

REQUIREMENTS FOR ACCURATE VISION.

In order to see distinctly with one eye, it is necessary that a distinct inverted image is formed upon the surface of the rods and cones. The impression made upon these nerve terminations must he communicated to the brain. Every disturbance of vision depends upon a failure of these requirements.

The lesions of monocular vision may be referred to three principal causes. The first class of cases embrace abnormal or diseased conditions of the optic nerve, retina or brain. Affections belonging to this class are called amblyopia or amaurosis. Obscurities in the refractive media which prevent the passage of light are a second class of lesions called visual obscurities.

A third class of visual lesions are anomalies of refraction and accommodation. These lesions of refraction are to be found in the structure of the eye when in a perfect state of rest. The diseases of accommodation are due to disturbances of the muscular system of the eye.

One look into any eye with an opthalmoscope will demonstrate the existence of any obscurity in the refracting media of the eye. Failing to discover any obscurity, the case must necessarily be one of amblyopia, or it is due to some anomaly of refraction or accommodation. If at *any distance* it is impossible with convex lenses to obtain distinct vision, amblyopia must be the cause of trouble; while, on the other hand, if there is any distance at which distinct vision can be attained by the use of convex lenses, the cause must be due to some abnormal condition of accommodation or refraction.

ACCOMMODATION IN THE EYE.

The various media of the eye form a compound lens system; but, for purposes of illustration, we will consider the whole system as a single lens of a given focus. If rays of light from a greater distance than twenty feet fall upon a convex lens they will be united in one point, which is called the principal focus of the lens, and the distance between the optical center of the lens and this focus is called the focal distance, which, measured in inches, expresses the number of the lens. If rays of light come from a nearer point than twenty feet the rays are divergent when they reach the lens; a portion of the strength of the lens is required in making the rays parallel, while the remaining power of the lens, if sufficient, brings them to a focus. This focus, however, will be at a much greater distance from the center of the lens than the *principal* focus. We therefore have four conditions possible:

1. All convex lenses will focus light at some point providing the rays are parallel when they reach the lens (that is, they come from a greater distance than twenty feet).

2. The origin of the light may be nearer than the focal distance of the lens, in which the lens will not have the power to convert the divergent rays into parallel rays of light; its only effect on the light is to make its rays less divergent; under such conditions the light will never be brought to a focus.

3. The source of light being at the focal distance of the lens, the divergent rays will be converted into parallel rays of light in passing through the lens.

4. The source of light being at a greater distance than the focal distance of the lens, it will be brought to a focus at some distant point beyond the lens. This distance will be inversely smaller as the light is removed to a greater distance from the lens. This last condition, which illustrates so completely the law of conjugate foci, and also the necessity and requirements for accommodation, that it is desirable to experimentally illustrate the action of light under these conditions, to accomplish this we will take two fixed points which we will connect by a number of elastic cords; we will then place a small disk of wood having small notches upon its circumference, dividing it into equal parts; each of these stretched cords are then carefully inserted into these several notches. Allowing one point from which these cords are stretched to be the source of light and the other to be the "focus," it is easily demonstrated by sliding this disk towards the source of light or away from it, that the greater the distance between the lens and the light the shorter the distance between the lens and focus, or the less the distance between the light and the lens the greater the focal distance.

In the normal eye the retina is placed at the exact focal distance of the compound lens system which its various structures form; consequently it is perfectly obvious that when light comes from any distance nearer than twenty feet, the eye must either be able to increase its length or increase its lens system sufficiently to compensate for the change in the direction of the rays of light; to this power of adjusting for distances we apply the name accommodation.

Our next will take up the mechanism of accommodations and the practical demonstrations of its existence in the human eye.

The course of instruction which is to commence January 20, at two o'clock, has been full for some time. There are several who have already qualified to form a second class of six, which will be formed as soon as possible, and the date of commencement will be duly published as soon as the class is full. The course embraces the practical use of the ophthalmoscope for determining obscurities in the refractive media. I believe that good work is the only means of reaching final success, but at the request of some of the students to assist them in becoming introduced, I propose to grant a certificate, handsomely executed, of the following nature: "This certifies that James Brown has received a course of theoretical and practical instruction on optics, as applied to the correction of refractive errors of the eye, and he has passed a satisfactory examination as a skilled optician. Charles A. Bucklin, A. M., M. D., New York, 1887." This certificate may assist one in starting, but I am thoroughly convinced that satisfactory work placed here and there is the only road to financial success.

CASE II.

Age, 29. Sex, male. Occupation, watchmaker, etc. Does not work constantly at bench.

Complains only of eyes tiring with *much* reading or work on watches, engraving, etc.

(*A*)—At 20 feet.
R. E. *nearly* normal; XX letters can scarcely be made out.
L. E. $\frac{1}{4}$.
With both eyes XX can scarcely be made out, but very nearly.
+ lenses make V worse.
— lenses intensify the blackness, but cannot be fairly said to improve V.

(*B*)—At 20 ft. R. E. astig. black lines $\frac{35}{140}$
L. E. " " "
With R. E. somewhat indistinct.
" L. E. very indistinct.
—36 lenses reverse astigmatism.

(*C*)—At 13 ft. R. E. astig. bl. lines $\frac{35}{135}$ } —36 reverses.
L. E. " " "
With R. E. black lines are clear.
" L. E. not quite so clear.

(*D*)—At 8 ft. R. E. astig. b. l. $\frac{35}{140}$ } —36 to 42 reverses.
L. E. " " "

(*E*)—Greatest distance that *all* XX letters can be seen with certainty without much effort.
R. E. 14 ft. } astig. distorts letters.
L. E. 9 " }
Both eyes 14 ft.

(*F*)—Nearest point at which both eyes can at once accommodate 4 inches.
Notice no trouble when using both eyes, because the astigmatism of each is at right angles to the other—and no trouble with R. E. for close work, but believe that keenness of D. V., especially far D. V., might be improved by suitable lenses, particularly when using one eye only, as in rifle shooting, etc.

Neither — nor + lenses improve D. V. of L. E. Why so, when its D. V. is only $\frac{2}{3}$ and its astigmatism seems to be about same as R. E.?

Can see to read very fine print. Only trouble is fatigue and tendency of eyes to get gummy with much reading or fine work. Would not plain cylinder lenses aid for reading and obviate fatigue, and thus tend to prolong good sight? If so, *must* have glasses at any cost.

I append the above clearly written description of a person describing his own case. If he should spend some of his spare time and money in purchasing the necessary appliances to correct visual defects, and experiment sufficiently to become thoroughly familiar with their practical use, he would find the amusement paid well. Cylindrical lenses should remove the entire difficulty complained of.

The second class in optics as applied to the correction of errors of refraction of the eye will begin on February 10, at two o'clock, at 206 West 42d street. The course will be finished in two weeks; it will cost fifty dollars, ten of which must be forwarded with the application to insure good faith. The balance of the fee must be forwarded on or before February 3d, in order that due notice may be given to each student of the failure of the class to form, in which case the money is returned. The ten dollars once deposited will, in case of accident preventing a student from attending, apply as a payment in any class which may form later. There are now five applications and seven enquiries regarding the second class which is forming. Those wishing to fill the remaining vacancy should apply early, as there was considerable hard feeling occasioned by several failing to obtain admission to the first class, owing to the late date of their application. I have perfect confidence in stating that there is no course of instruction given to the world on this subject which is more practical or better calculated to meet the requirements of a thorough optician than this course will be.

Remember that there is now only one vacancy left for the second class, the class is limited to six, and that I cannot, under any circumstances or for any pecuniary consideration, increase the number in each class. I urge upon applicants the desirability of corresponding directly with me upon all matters. Although Mr. Hale very kindly and patiently has replied to all letters, still the correspondence is becoming so extensive that it is rather imposing upon his good nature to expect him to attend to it.

Obituary.

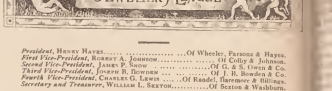
FREDERICK A. GOEPP.

Frederick A. Goepp, a watchmaker of this city, who has for many years made the cylinder escapement a specialty, died on Dec. 20, 1886, at the age of 60 years, after a week's illness with pneumonia. He was born in Russia of French parentage, he worked in St. Petersburg and Paris, and afterwards resided 20 years in England, coming to America with his family in 1880, and soon after entering the employ of Mr. Chas. S. Crossman.

He continued to work for the trade until his fatal illness occurred. He was a good general workman but had made the cylinder escapement a specialty and was excelled by few if any in that. In his death the trade lose a valued and conscientious member of it and his children a kind and loving father.

AUGUSTUS W. SEXTON.

The death of Mr. Augustus W. Sexton, head of the house of A. W. Sexton & Son, occurred at his residence on Staten Island, January 20th. Mr. Sexton was born at Paterson, N. J., Dec. 9th, 1817. While yet a boy he was employed in the commission house of his uncle in this city, but subsequently he entered the employ of Mr. Cox, a dealer in lamps, who had a store in Maiden Lane. It was from a Mr. Beach, who dealt in lamps and jewelry, that Mr. Sexton obtained his first knowledge of the jewelry trade, he being employed by him for a time. In 1841 he was offered a position by Downing & Baldwin as their salesman in the South, which position he accepted. He was very successful as a salesman, and after a few years experience, he was admitted to a partnership in the firm. This firm became known later as Baldwin & Sexton, then as Baldwin, Sexton & Peterson. Upon the retirement of Mr. Peterson and Mr. Baldwin, the firm became A. W. Sexton & Son. During these various changes, Mr. Sexton was a man of enterprise and business energy, of excellent judgment, and at an early day took a prominent place among the jewelers of the city. Upright in his character, of the strictest integrity, he commanded the respect of all who came in contact with him either in a business or social way. He was a consistent member of the Presbyterian church, contributing liberally to the various branches of the church work. The funeral services were held January 22d in the chapel he was instrumental in building about fifteen years ago—Calvary Presbyterian Chapel, at West New Brighton, Staten Island. His business career was marked throughout by integrity and honor, and his example was one that young men may imitate with credit to themselves and the community.



President, HENRY HAYES.....Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON.....Of Colby & Johnson.
Second Vice-President, JAMES P. SNOW.....Of G. & S. Owen & Co.
Third Vice-President, JOSEPH B. BOWDEN.....Of J. B. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS.....Of Randel, Burrowes & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON.....Of Sexton & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
J. R. GREASON.....Of J. Treasom & Co.
CHAS. H. HOWARD.....With Cochran Mfg. Co.
WM. H. JENKS.....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box* 3,444, *P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee, held on January 7, 1887, there were present Chairman Howe, President Hayes, Vice-Presidents Kimball and Johnson, and Messrs. Bowden, Greason, Lewis, Bardel and Sexton.

The Secretary reported the closing of assessments No. 77 to 83, and that the members had responded nobly to the call for fourteen dollars. President Hayes signed the checks for $15,000, for full settlement of claims against the League.

Nine (9) requests for change of beneficiary were granted.

One (1) application was referred for investigation, and the following eleven (11) members were admitted at 8.30 P. M.

C. W. Bain, Norfolk, Va.; G. A. Bantel, W. B. Cohn, Chas. H. Freshney, Morris Green, N. Y. City; Henry Cowan, Boston, Mass.; Isaac Lowengardt, New Orleans, La.; Martin Muller, St. Louis, Mo.; Mark S. Skiff, Salem, Oregon; Wm. H. Thompson, Philadelphia, Pa.; C. M. Wallace, Littleton, N. H.

The next meeting of the Executive Committee will be held on Monday, 13th inst.

The final meeting of the Executive Committee held at the League office on the evening of Thursday, January 13, was attended by the President of the League, the four Vice-Presidents, Snow, Kimball, Kurtzborn and Johnson, and by Mr. Howe, the Chairman, and Messrs. Greason, Bardel, Lewis, Bowden and Secretary Sexton.

The meeting was called to order at 7.41.

Two (2) changes of beneficiary were granted.

W. J. Kriel, of Louisville, Ky., was accepted as a new member.

Messrs. Johnson, Bowden and Bardel were appointed to act as a Reception Committee at the annual meeting to be held on Tuesday, January 18.

A unanimous vote of thanks was given to Chairman Howe by the members of the Committee for his faithfulness, and for the courtesy shown by him to the members.

Meeting adjourned at 9.30.

Tenth Annual Meeting of the Jewelers' League.

THE TENTH annual meeting of the jewelers' League was held at Cooper Union, in the city of New York, on Tuesday, January 18, 1887. The meeting was called to order at 7.45 P. M., President Hayes in the chair.

THE PRESIDENT—Gentlemen, we assemble at the tenth annual

meeting of the Jewelers' League, and the first business in order will be the reading of the minutes.

MR. KIMBALL—Mr. President, as it is the custom that the reading of the minutes be dispensed with on occasions like this, I move you, sir, in order to save time, that the reading of the minutes be dispensed with.

MR. SENIOR—I second the motion of the President.

Motion carried.

The President, Mr. Henry Hayes, then delivered his annual address to the League as follows:

ADDRESS OF PRESIDENT HAYES.

Gentlemen of the Jewelers' League:

A decade of our existence has nearly passed, and, as we cast our glances back over the past history of the League, we see every cause for encouragement and every reason for congratulations upon our present strong, substantial position.

The continued large and increasing membership give unmistakable evidence of the attachment of our members, and the enduring hold it has upon all our associates. For the past year the assessments have been scarcely larger than in some former years, making the cost remarkably small for the amount of insurance paid. Yet we must not expect this phenomenal fact to be continued, for you all know that increasing mortality comes with increased average of age in each advancing year. To provide for this contingency we should increase our Reserve Fund more rapidly than has yet been done, and the most practical, as well as the least burdensome method, will be to adopt the proposed amendment providing for annual dues. Should this be done, the then cost of insurance would be less than one-half the rate charged by ordinary life insurance companies, surely a burden not grievous, but a provision most wise.

And yet we have members who, through misapprehension of the average real expense of insurance or through adverse circumstances, will not be able to continue their payments on the scale required by our present laws. To these men we should extend every opportunity to retain a membership, and in view of these circumstances there is proposed a class of half benefit members, who shall receive an equivalent for payment of one-half our present rates. This seems to me very wise and exceedingly desirable in every way, and should, in my opinion, be promptly adopted. It will also increase the extent and usefulness of the League, by opening the door for admission of many of the trade, who do not need or cannot avail themselves of the benefits of full membership.

The other amendments proposed by the Executive Committee, at the request of many members, are unquestionably calculated to also enlarge the extent and usefulness of our association, to add to its security and simplify the management of its business.

The Executive Committee in their report will present a summary of their work for the past year, so that I need not dwell on the details which will be comprehensively placed before you. This epitome of their work will not reflect a tithe of the labor bestowed upon our affairs by these gentlemen, who have served us so unceasingly, ungrudgingly, and not only unrequitedly, but also at a positive material cost to each of them. Disregarding comfort or convenience, they have given lengthy hours and most scrupulous attention to every detail of the work imposed upon them. In saying they are unrequited I do not begin to emphasize the full meaning of the word, unless it be the merited reward of a conscientious discharge of duty, unacknowledged and so seldom appreciated by those who are most benefitted. To retain the experience and acquire ability requisite for our demands, should be the object of most careful consideration.

With pleasure I refer to the continued devotion of our Secretary and Treasurer in his unceasing and most competent labors, and in the intelligent experience which is given to our best interests. Nor will I refrain from acknowledging the ability and courtesy of his assistants, so well known to every one having business with the office. The thoroughness of the work performed well merits the impartial approbation bestowed by the Examiners of the Insurance Department of the State of New York.

And now, gentlemen, bearing in mind that each cycle of advancing years brings not only additional expense but increased responsibilities, let me urgently solicit your impassioned and careful consideration of the important questions coming before you. Give them fair and impartial thought, and let your legislation result in the adoption of only such measures as will permanently further the usefulness and permanency of the League, and stamp upon our action the indelible impress of prudence that shall reflect undimmed luster on this, our tenth annual meeting.

THE PRESIDENT—The next business in order will be the report, and the first report is that of the Examining Finance Committee, of which Mr. George H. Houghton, of the Gorham Manufacturing Company, is Chairman.

Mr. George H. Houghton then read the report of the Examining Finance Committee which was adopted.

THE PRESIDENT—The next thing in order will be the reading of the Secretary and Treasurer's report, of which you all have printed copies.

It was then moved and seconded that the reading of the report of the Secretary and Treasurer be dispensed with.

THE SECRETARY—Mr. President, before the report is adopted I would like to state for the information of the members who are interested in having this report set clearly before them, that on the first page of the report will be noticed "net decrease in membership, 69." Up to the time of the closing of the last assessment our membership was ahead of what it was at the time of the last annual meeting. Our last assessment was, as you all know, a heavy one, the largest one the League has ever had. It resulted in a temporary falling off of membership. Since the closing of the books for the year some fifteen or sixteen members have remitted, and among the fifteen or sixteen there was one who remitted $70 in order to regain his membership. He was reinstated by the Executive Committee, but not in time to get into this report.

I have no doubt that in the next month the League will regain its full membership, and be able to commence the new year with a membership as large as was commenced with this year.

On the third page will be noticed "balance in the hands of the Treasurer, $8,114.18." That balance is in the Chatham Bank, with the exception of a small amount of cash that is always in the cash drawer. In addition to that money there is in the Reserve Fund to-day, invested and uninvested, but all drawing interest, $48,005.17, so that to-day there is a net fund in hand, with no claim against the League of any kind, of $60,000 and one hundred or so more. We have paid out to date $378,670. (Applause).

THE PRESIDENT—Gentlemen, the motion is before you to dispense with the reading of the Secretary's and Treasurer's report. What is your pleasure?

MR. CHAMPENOIS—I move that the report be accepted.

MR. SENIOR—I second the motion.

Motion carried.

THE PRESIDENT—The next business in order is the reading of the report of the Executive Committee.

Mr. Howe then read the report of the Executive Committee.

CHAIRMAN HOWE'S ADDRESS.

Mr. President and Gentlemen:

At the expiration of ten years of vigor and usefulness, your Executive Committee hand back to you the trust committed to them one year ago, commending to you the statement of our Secretary and Treasurer, printed as usual, that each member may familiarize himself with our present financial condition, and inviting your attention to the following facts:

Your Committee have held 15 meetings, regular and special, during the year, devoting their time and giving their careful attention to every detail the magnitude of the trust demanded.

The changes made in the Constitution at our annual meeting one year ago, establishing graded assessments, have doubtless deterred some from applying for membership, while our new form of application, with its very strict medical examination, has rendered ineligible some applicants who might, perhaps, have passed the old examination. Notwithstanding these facts, we begin the year with a membership of 3,008, have lost by death 24 (although during the year only 23 death assessments have been collected), have expelled 2, have dropped for non-payment of dues 147, have lost by resignation 5, yet close the year with a membership of 2,939, a decrease of only 69 members, which your Committee consider a remarkably good showing.

We have admitted during the year 52 members under 30 years of age, 32 members between 30 and 35 years of age, and 20 members between 35 and 40 years of age, a total of 104, so that our average age to-day is 38$\frac{4}{5}\frac{5}{6}$ years.

The cost of $5,000 insurance for the year just closed to those who were members prior to January 1, 1886, has been only $46, a rate so low as to be phenomenal.

Your present Committee in closing its labors, would repeat and *emphasise* the statement of so many of its predecessors, that members have no reason to expect a continuance of so few assessments during the year, but should expect and provide for a death rate of at least 1 per cent. of the membership, and would recommend to the member-

ship at large the laying aside of $4 each month to apply on this account, sending the same to the Treasurer of the League, to be held by him in trust for the payment of death losses when they occur, in order that a heavy assessment at any one time may not cause the name of any member to be dropped for non-payment of dues.

The Committee would again remind members that their successors will have no power over life and death, but must order assessments for as many deaths as shall be regularly proven and submitted to them at any meeting.

The Constitution very wisely and with absolute justice leaves them no discretion, and that an assessment ordered must close at the office of the League on the day named on the notice. If, therefore, the amount of the assessment is not in possession of the Secretary the member must be dropped. This leaves it optional with the Committee to oblige a new medical examination in reinstating a member and might work great hardship, in addition to leaving his loved ones absolutely without insurance for from one to four weeks before another meeting of the Executive Committee can reinstate him, even if their duty to the membership in good standing should allow them to do so.

Your Committee, fully realizing that the permanency of our League depends upon its Reserve Fund, would urge upon you the necessity of its more rapid increase, and invite your especial attention to the proposed plan for establishing a half benefit class, as well as to the other proposed amendments to the Constitution, the results of much careful study which will be submitted to you with their unanimous and hearty approval.

Gratefully acknowledging the hearty co-operation of our board of examining surgeons, the efficient management of the Secretary and the close attention to detail by his associates, the courtesy of the trade journals and the consideration shown us by the membership at large, we close the record of another successful year.

HENRY HAYES,
W. C. KIMBALL,
AUG. KURTZEBORN,
ROBT. A. JOHNSON,
JAS. P. SNOW,
Ex-officio.

WM. BARDEL,
JOHN R. GREASON,
E. S. SMITH,
J. B. BOWDEN,
CHAS. G. LEWIS,
GEO. R. HOWE,
Chairman.

THE PRESIDENT—The report of the Executive Committee is before you; what is your pleasure in regard to it?

MR. CHAMPENOIS—I move that it be adopted and be accepted.

Motion carried.

At the request of the President Mr William C. Kimball, the first Vice-President, then took the chair.

THE CHAIRMAN *pro tem*—Gentlemen, the election of officers is now in order. The first business before you is the election of a President. Will you be kind enough to make your nominations?

MR. SENIOR—Did I understand you to say that nominations were in order.

THE CHAIRMAN *pro tem*—Yes, they are.

MR. SENIOR—It affords me a great deal of pleasure, Mr. Chairman, to nominate for President of this League a gentleman who has served it faithfully for two terms, and I therefore nominate Mr. Henry Hayes for President of this League for the ensuing year. (Applause).

MR. CHAMPENOIS—I second the motion.

THE CHAIRMAN *pro tem*—Are there any further nominations? There appear to be none.

MR. MANN—I move, Mr. Chairman, that the Secretary be empowered to cast one vote for the election of Mr. Hayes as President of the Association.

Motion seconded and carried.

The Secretary, in pursuance of the foregoing motion, then cast one ballot for Mr. Henry Hayes for President of the League for the next year.

THE CHAIRMAN *pro tem*—It affords me great pleasure, gentlemen, to introduce Mr. Hayes to you as President of your League for the following year.

Mr. Hayes, the newly re-elected President, again took the chair and spoke as follows:

Gentlemen, I am very happy that Mr. Kimball has taken the liberty and the forethought of introducing me. (Laughter). That is rather important. (Laughter). And in accepting this office I certainly thank you most heartily for the very sincere and flattering manner in which you have tendered me this nomination.

I asked you last year to elect a better man but you made a mistake, and this year you have again made a mistake in electing a poor kind of a man. The gentleman, the Senior member of this assemblage, who nominated me for this office has made the remark that I have served two terms, which was true, and he also made the remark that I have "served faithfully," which was false. (Laughter).

The President of the United States, I think, said in the acceptance of his nomination that he did not believe in but one term. In the outset I did not believe in but two, and therefore I regret that Mr. Senior has made this mistake in placing me in nomination again.

I do not propose to detain you with any remarks whatever. So far as any promises are concerned, I do not care to make any promises. I do not care to pay any notes of that kind, but I do want to say that I have attended quite a large number of meetings of the Executive Committee—I guess more than half of them—(there have been more than a dozen) and I desire to express here, in addition to the remarks that I made in my opening address, the obligation we are all under to those gentlemen. Every time there is a meeting called they leave their business to attend the meeting, and then the first motion is to adjourn to a restaurant, and the next is to pay for their own dinner, and the next is to adjourn to the League room and work there until eleven or twelve o'clock at night, and sometimes one o'clock in the morning. They have labored for you very earnestly, and very industriously, and very faithfully, and I am sure I voice the sentiment of every member of the Committee when I say that they would just as leave you would have some one else do the work.

Now we proceed to the election of a third and fourth Vice-President. The gentlemen who advance to the positions of first and second Vice-President will be Mr. Robert A. Johnson, who becomes first Vice-President, and Mr. James T. Snow, who becomes second Vice-President. We are to elect a member to the office of third Vice-President in place of Mr. Robert A. Johnson, who steps forward. I will appoint as tellers Mr. Charles Champenois and Mr. Jacob Strauss. Nominations are now in order for the office of third Vice-President.

MR. PARKES—Mr. President, I would like to nominate a gentleman to the office of third Vice-President who is well known to you all. He has been a hard and faithful worker here ever since this institution started. I refer to Mr. William C. Kimball, whom I now place in nomination for the office of third Vice-President.

MR. KIMBALL—Mr. President and gentlemen of the Jewelers' League, I am very much obliged for the kind remarks that the gentleman made who nominated me, and I am also very much obliged for the honors you have tendered me and for giving me the honorable positions which I have occupied in this League. Whilst thanking you for the same, I feel that it is my duty to decline serving you any longer in this connection. I think that ten years of active service is enough and that I have performed my share of the labors, and while thanking you very heartily for the honor that you have just tendered me I must positively decline to accept the position.

THE PRESIDENT—Mr. Kimball declines, and very positively.

MR. KURTZEBORN—Mr. President, I wish to nominate a gentleman who has worked as faithfully as any member of the League. I nominate Mr. Joseph B. Bowden.

Motion seconded.

MR. ALFORD—I move that the Secretary cast one ballot for Mr. Bowden.

THE PRESIDENT—The motion is before the house that the Secretary cast one ballot for Mr. Bowden.

The Secretary then cast one ballot for Mr. J. B. Bowden for the office of third Vice-President of the League.

MR. BOWDEN—Mr. President and gentlemen, let me thank you for the honor, and, at the same time, say to you that I will serve you to the best of my ability. (Applause).

THE PRESIDENT—There is a vacancy in the office of fourth Vice-President, as Mr. Snow takes the position of second Vice-President.

MR. KING—I would like to nominate Mr. Charles G. Lewis for fourth Vice-President.

On motion the nominations were declared closed, and Mr. Wheeler and Mr. Guttman were appointed as tellers.

After a canvass of the votes Mr. Charles G. Lewis was then declared elected to the office of fourth Vice-President.

THE PRESIDENT—Now we must proceed to the election of a Secretary and Treasurer.

MR. CHAMPENOIS—Mr. President, I nominate the present incumbent. He is a man who is faithful to his duties and a man who is entitled to the honors.

MR. SENIOR—I do not see, Mr. President, why we need have any

change. We have been faithfully served by Mr. Sexton, and there is every reason in the world why he should be nominated and re-elected, and I take pleasure in seconding the motion of Mr. Champenois.

THE PRESIDENT—Are there any other nominations? There appear to be none.

A motion was then made, seconded and carried, that the President cast one ballot for Mr. William L. Sexton, as Secretary and Treasurer of the League for the next year. Mr. Sexton was then unanimously declared elected. (Applause).

MR. SEXTON—Gentlemen, I thank you for the re-election. It is a duty you have performed so often, and you do it always so heartily that it is almost impossible for me to prepare a new speech in acceptance every time.

It is a pleasure to have the tenth annual meeting of the Jewelers' League attended so fully and by so intelligent a class of its members. It speaks more for the success of our highly appreciated and loved League than any one thing that could happen. There is no doubt at all in my mind that the Jewelers' League, notwithstanding the fault-finding and criticism which is sometimes spoken on the spur of the moment, has before it a prosperous future. We know that by the loyalty of its members, by the faithfulness of its officers and by the tone of its correspondence. The Secretary in reading his report alluded to one instance where one of our late members, through straightened circumstances, was obliged to lose his membership. Now this man comes forward with a check for $70 and asks to be reinstated. That is merely a sample of the spirit that inspires nine-tenths of the members of the League to-day.

I thank you again for the honor you have conferred upon me in electing me. I consider it a great honor and will endeavor to appreciate it as such. (Applause).

THE PRESIDENT—We have three vacancies in the Executive Committee. The terms of Mr. Edward S. Smith, John R. Greason, and William Bardel, officers of the Executive Committee, expire.

MR. BAMET—I nominate Mr. William Bardel.

Mr. Bardel unanimously elected by Secretary casting one ballot.

MR. SENIOR—I will nominate for a position on that committee Mr. George H. Houghton.

MR. CHARLES WHITE—I second the nomination.

On the motion of Mr. Champenois the nominations were declared closed.

(The tellers who were appointed announced that Mr. George H. Houghton was elected as a member of the Executive Committee.)

MR. CHARLES WHITE—I nominate Mr. John R. Greason as another member of the Executive Committee.

A MEMBER—I nominate Mr. Henry Abbott.

(Nomination seconded.)

MR. ABBOTT—I withdraw my name Mr. President.

Mr. Greason was then unanimously elected.

MR. BEST—I nominate Mr. William H. Jenks, of Tiffany & Co., for a member of the Executive Committee.

A MEMBER—I nominate Mr. W. F. Corey.

(The tellers then canvassed the votes and made the following report :

Total number of votes	216
A. A. Jeannot	54
Wm. H. Jenks	122
Wm. F. Corey	40

THE PRESIDENT—Mr. Jenks is elected as a member of the Executive Committee.

There is one more vacancy and nominations are now in order.

The following gentlemen were then placed in nomination for the vacant position on the Executive Committee.

Mr. Samuel H. Levy, Mr. George M. Van Deventer, Mr. A. A. Jeannot.

MR. LEVY—I respectfully decline, Mr. President.

THE PRESIDENT—Mr. Levy declines. It leaves Mr. Van Deventer and Mr. Jeannot in the field.

The vote was then canvassed and the following was the result :

Total number of votes cast	211
A. A. Jeannot	105
Mr. G. M. Van Deventer	104
Mr. Stevens	1
Mr. Corey	1

THE PRESIDENT—Mr. Jeannot is elected.

The President appointed as members of the Examining Finance Committee Wm. H. Ball, John C. Day and S. Bass.

Gentlemen the next business in order is "miscellaneous business." Have you anything to present ?

MR. KIMBALL—I move that we proceed to the amendments of the Constitution.

Motion seconded and carried.

THE SECRETARY—I would like to make this statement before we proceed. On this paper which you have before you you will find the amendments proposed and approved of by the Executive Committee. There is an amendment that has been proposed, the very first one that was proposed in January of last year, immediately after the last meeting, that Mr. James D. Yerrington prepared for the limit of eligibility for membership. The Committee have covered that in their proposed amendment and, therefore, it was placed at the bottom of those they proposed.

MR. KIMBALL—Mr. President and gentlemen of the League, the hour is getting late and I will not detain you with any extended remarks on the amendments which the Executive Committee have requested me to introduce before you to-night. I stand before you in a different position than I have ever stood before you since this organization has been formed, and I want to say in introducing the amendments which the Executive Committee present to-night that it is in my mind of the very greatest importance that the members of this League should uphold the officers and the Executive Committee in all their recommendations of this kind and character. The majority of you gentlemen assemble here in this annual meeting once a year. You get full of enthusiasm, and, for the time being, take an active interest in the proceedings. Now, gentlemen, you must consider that the eleven officers of this League have the same enthusiasm during the entire year. They meet together from twelve to fifteen times during the year, they are familiar with all the ins and outs and all the transactions of the institution and I think, gentlemen, that it is of the utmost importance that you should, to as great extent as possible, agree with this Committee in making the amendments which they propose.

During the past year the Executive Committee chose a Sub-committee to prepare the amendments which are before you to-night. This Sub-committee has labored hard. They have spent many hours in turning over these different amendments so as to present them in a way which would be for your interest. These gentlemen have assembled together and they have worked for you and for you only. They have no personal gain in the matter, but it is the welfare of the institution as a whole that they work for, to see that this institution shall continue to be in the future the success which it has been in the past, and I earnestly hope, gentlemen, that you will fully coincide with this Committee in making the amendments which they propose.

We have considered the matter of a benefit which would be less expensive than the regular benefit which we have had during the organization of the League and the one which, in our opinion, wou'd be the most practicable, would be a half-benefit. That is to say, we take a man in for one-half the money and pay his beneficiary one-half the money, and everything connected with that insurance, the amount he receives, and the time, and in fact everything is on a half principle all the way through with but one exception, and that is on the question of a vote, and your Committee has labored hard and earnestly to see if some way could not be provided in order to give him that half vote and it was the unanimous opinion that any other way than the way we have presented it would lead to great confusion and the result is we have arranged this amendment so that any person who has a half-benefit is fully entitled to hold office, but on the question of a vote, the difficulty would be so great that we have been obliged to deprive him of that privilege. In every other respect the new arrangement is for exactly one-half.

That is one of the amendments which we have proposed.

The next important amendment which we have is the question of a quarterly assessment. You gentlemen have heard the arguments that were made last year before you in regard to having a permanent fund. I will not detain you with conveying to you the same arguments we had before. That ground has been gone over very thoroughly, and I can simply say that all institutions of a similar character that I am familiar with have a fund of this kind. They have a quarterly assessment ; some are a great deal larger than the one which we propose, and, gentlemen, there is no question in my mind about the success of our institution with the quarterly assessment. The amount is very small, just a trifle over a cent a day, and if we can have this quarterly assessment for a few years it will put us on a basis that will make our institution lasting.

Now without detaining you any longer I will say in connection with

the first amendment to Article II, Sec. 2, the only changes which we have in that is that the limit of membership shall extend to forty-five. You will see further down on the paper a further amendment to Article V, Sec. 3, that all persons admitted between the ages of forty-one to forty-five are to pay a four dollar assessment. This, gentlemen, is twice as much as ninety-five per cent. of the members are paying, and I think, gentlemen, that it is a money making operation upon our part to take in all the members between forty-one and forty-five years of age that we can get on that basis.

We have also changed in this Article II, Sec. 2, the wording of it so that the Committee will take in those persons residing in a healthy region. We have had those two words added. We thought that would cover the point which we wanted to make, which was this, that at certain times in certain sections in the country, life insurance companies have not thought it desirable to take risks in those places, and it being very hard to distinguish just what those points were and were not, we have left it open to the Committee and we think that by adding the words "healthy region" it would cover the case.

We have also added near the close of that article the words "nearest birthday" instead of having it "of that age."

Now, Mr. President, I move you that we amend Article II, Sec. 2, to read as follows: "Any man of good moral character and good "general health, not over forty-five nor under twenty-one years of "age, residing in a healthy region, who is now and has been for one "year immediately prior to the date of his application engaged in the "jewelry or kindred trade, is eligible to membership in this League. "The age shall be reckoned as that at the nearest birthday at the "time the application is acted upon by the Executive Committee."

The amendments referred to by Mr. Kimball in his remarks were opposed by Mr. Ryan, Mr. Mann, Mr. Frank, Mr. Karelson, Mr. Hoffman, and was advocated by Mr. Kimball, Mr. Howe and Mr. Strauss, and after a long discussion and on motion of Mr. Frank the amendments referred to were tabled.

Mr. KIMBALL—I move you Mr. President that we amend Article XII, Sec. 4, and Sec. 5, as follows:

"The Trustees aforesaid shall deposit all moneys received under "this article in an incorporated bank or trust company to the credit "of the League, and whenever these deposits, with their accretions "of interest, shall amount to a sum sufficient, the same shall be in- "vested by the said Trustees in United States Government, New "York State, New York City, or New York County Bonds, which "shall shall be registered in the name of the League, and deposited "in some depository approved by the said Trustees; such moneys or "securities to be withdrawn from the said bank or trust company "depository in the same manner as moneys from the special assess- "ment fund are or may be authorized to be drawn."

Our object in presenting this amendment is to have our funds all in the same character of securities. The Constitution as it stands now provides that they shall be invested in Government bonds, but we find that it is impossible for us to invest our money in Government bonds so as to get much more than two or two and a quarter per cent., and by passing this amendment it would give us an opportunity of investing it in New York State, New York City, or New York County Bonds.

One of our other sections here provides that our money shall be invested in the same way.

The amendment referred to was seconded and adopted.

Mr. FRANK—Mr. President, there are here a series of amendments offered by Mr. Rothschild to which the Executive Committee have not given the smile of its approval, nevertheless Mr. President they have for their object the promoting of the best interests of the League and are purely of a beneficial nature. The following is one of the amendments proposed by Mr. Rothschild to the Constitution. "Article V, Section 2, strike out all after the word membership, second word, fifth line from the bottom."

INSERT: Section 3. "But any person who has been a member in "goood standing for two years or more, and fails (for the first time) "to pay an assessment, shall have his name carried on the books of "the League as a lapsed member for six months from the date of the "closing of such assessment, and should he die during such six "months his beneficiary or beneficiaries shall be entitled to one-fifth "of the death benefit, which shall in no case exceed one thousand "dollars; and special provision shall be made for the payment of this "extra benefit, as hereinafter provided for."

(Here Mr. Rothschild's letter in advocacy of the amendment was then read to the members of the League.)

In moving to amend the Constitution by striking out all after the word "membership" in Article V, Sec. 2, and insert what I have just read, I wish to state the purpose of doing so. As Mr. Rothschild so pertinently stated in his letter, we have to look for the increase of our association to the workbench and to the workshop, and the amendment which is proposed provides that if a man should fail to pay his assessments he shall have his name carried on the books of the League as a lapsed member for six months from the date of the closing of such assessment, and should he die during such six months he shall be entitled to one-fifth of the death benefit, which shall in no case exceed one thousand dollars. That, Mr. President, simply entails on each member here an assessment of fifty cents.

NOW, I am sure that when I appeal to the charity of the members here they will readily advocate the passage of this amendment.

And I am sure that if a case of desolation were presented to you you would very willingly put your hand in your pockets to pay for the support of a poor workman, and I am also sure that the workmen themselves, true to their traditions, would be first to hand over a half a dollar for the purpose of paying the beneficiary of a lapsed member. That is all that Mr. Rothschild asks. Surely a man who cannot pay his assessment must be poor indeed, for the last thing that a man will do is to let his insurance go, and I think that it is our duty that we should take this upon hand by the hand for six months and insure for him, in case of his death during that time, that he will get one thousand dollars. I am sure that there has been no proposition brought before this League that was so beneficial in its intents, and so humanizing in its effects, and therefore hope, Mr. President, that this first amendment, of the series which must follow in order to incorporate it in our Constitution, will pass.

Mr. YERRINGTON—Mr. President, this gentleman, Mr. Frank, has just defeated to-night an amendment by which, if carried, would have done as much good for the poor man who insured in our institution as the amendment which he now advocates. I allude to the amendment in regard to the limit from forty-one to forty-five years of age. He, by his course this evening, cuts off from the benefits of this organization twenty-five per cent. of the clerks and of the workmen and everybody connected with the watch and silverware trade throughout the United States. Now he appeals to our charity. Taking into consideration the course he has pursued here this evening I do not see any consistency in his moving the adoption of the amendment proposed by Mr. Rothschild.

The proceedings were then cut short by a motion to adjourn.

The Jewelers' Security Alliance.

President, DAVID C. DODD, JR.
First Vice-President, AUGUSTUS K. SLOAN.....Of Carter, Sloan & Co.
Second Vice-President, HIRAM HAYES.....Of Wheeler, Parsons & Hayes.
Third Vice-President, DAVID UNTERMYER.....Of Keller & Untermyer.
Treasurer, W. C. KIMBALL.....Of Strange & Brother.
Secretary, C. C. CHAMPENOIS.....Of Champenois & Co.

EXECUTIVE COMMITTEE.

J. B. BOWDEN, *Chairman*.....Of J. B. Bowden & Co.
C. G. ALFORD.....Of C. G. Alford & Co.
GEO. W. PARKS.....With E. J. Franklin & Co.
F. KROEBER.....Of F. Kroeber.
N. H. WHITE.....Of N. H. White.
CHAS. G. LEWIS.....Of Randel, Baremore & Billings.

EXAMINING FINANCE COMMITTEE.

GEO. H. HOOKSTY.....Of Hoobstyl & Sons.
CHAS. F. WOOD.....Of Chas. F. Wood.

Counsel, HON. ALGERNON S. SULLIVAN.

For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 3377. 170 Broadway, New York.

The regular monthly meeting of the Executive Committee was held at the Alliance office on Friday, 14th inst. There were present

Vice-President Hayes, W. C. Kimball, Treasurer, and Messrs. Lewis, Alford, White, and Secretary Champenois.

The following applicants were admitted to membership:

Wm. Carpenter, Salida, Col.; Eberhart & Young, South Chicago, Ill.; Chas. Garratt, Hot Springs, Ark.; H. Z. & H. Oppenheimer, 25 Maiden Lane, N. Y. City; Lewis H. Robie, Williamson, N. Y.; Isidor Roescher, Memphis, Tenn.; Warner & Parker, Bridgeport, Conn.; A. Milne & Co., Newark, N. J.

COMMUNICATIONS.

[The Circular is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

NOTES BY THE WAY.

A representative of The Circular made a trip to Chicago last month, stopping at different places on his way. The following are some of the notes he sent back for the information of ourselves and our readers. He says:

Leaving New York at night, I arrived in Pittsburg next morning at 7 o'clock. There I called upon Heeren Bros. & Co., meeting Mr. Otto Heeren of that firm, who showed me every attention possible, his hospitality including an elegant dinner at the Club. In relation to business, he reports the fall and holiday trade as the most satisfactory they have ever had, and the reports thus far received from their customers in the interior are of the same satisfactory character. The sales have been made up of small pieces in jewelry but large in quantity and of a better class of goods.

There was an effort made on the part of the jobbers here to secure an agreement with the city retail trade by which they, the jobbers, would agree not to retail any goods if the retailers would agree to buy their movements and cases from these jobbers. These goods being staple and their price regulated by the National Association, the jobbers here could sell them as cheap as anyone, and they therefore did not think they asked anything unreasonable in making this request. Still the retail trade refused to accept their overtures.

Mr. J. O. Slemmons, of Hodge, Slemmons & Co., Mr. Hill, of Goddard, Hill & Co. and Mr. Barrett, of C. B. Barrett & Co., each reported the same condition of trade as Mr. Heeren.

My next stop was at Cleveland, and here the trade is entirely satisfied with the fall and holiday business. Mr. Sigler, of Sigler Bros., said they had an elegant business. This firm carries everything that a jeweler needs, and is composed of live, enterprising gentlemen.

The firm of J. M. Chandler & Co. has dissolved, Mr. Chandler continuing the business at the old stand while Mr. Sumner with his two brothers commence business on the opposite side of Superior street, under the firm name of Sumner Bros. Julius King reports a very much increased business and efforts are being made to still further increase it. Bowler & Burdick also received their share of business.

Leaving Cleveland in the evening, I reached Cincinnati the following. I found this place no exception to the general rule of largely increased business. Both Mr. Galbraith and Mr. F. Duhme, of Duhme & Co., assured me they had a very successful business, and in more expensive goods than usual. Mr. Hellebush was, as is unusual for him, very enthusiastic over his success, and claimed both in his retail and wholesale stores, to have done the largest business of his life. He was taken sick about Christmas, threatened with pneumonia, but I am glad to state has now entirely recovered. Mess. A. J. Plaut, informed me their business was by far the largest they have ever had and the outlook was very satisfactory. They propose to largely increase their lines this season to meet the demands of their customers.

A. G. Schwab & Bro. report the same condition of trade and will still farther push their business this season through The Circular, and by every legitimate means suggested by their progressive ideas.

The annual meeting of the Cincinnati Jobbers' Association was held at the Burnet House, Wednesday evening, January 5th, the following members were present or represented: Frank Duhme, of Duhme & Co., L. Homans, of Homans & Co., J. Voss, of J. S. Voss & Son, A. Plaut, of A. & J. Plaut, Jos. Becker, with The Dueber Watch Case M'f'g Co., H. Hahn, H. Peck, S. Amberg, of Amberg & Co., A. & M. Schwab, of A. G. Schwab & Bro., A. Herman, of D. Schroeder & Co. C. A. Nolting, of Lodwick & Nolting, the following were represented by proxy: Clemens Hellebush, G. A. Schultz, and Jos. Fahys & Co. The President and Vice-President both being absent, Mr. A. Herman was elected to the Chair. After transacting the routine business the important event of the evening was taken up, the election of officers for the ensuing year. This resulted as follows: Messrs. W. Oskamp, President, A. Plaut, Vice-President, L. Homans, Secretary, D. Schroeder, Treasurer, and W. A. Moore, member of the Board of Directors. This concluded the business portion of the meeting, after which came the attack upon a cold supper prepared in the best style of the Burnet House. Two hours of pleasant social intercourse then ensued and a general feeling of friendliness by all towards all. Speeches appropriate to the occasion were made by several of the prominent members present, viz.: A. G. Schwab, A. Plaut, Frank Duhme, T. I. Zimmermann, and others. Mr. Herman presided with credit to himself and the Association. The bewitching hour of midnight arrived before the meeting adjourned.

I met here doing missionary labor G. C. Booth, representative of Fowler Bros., Geo. Parks, of E. I. Franklin & Co., Harry Scofield, of Lincoln, Bacon & Co., W. Wightman, of R. F. Simmons & Co., Ned. Eaton, with W. G. Hopkins, Hancock, of Hancock, Becker & Co., Cahoone, of Schott, Cahoone & Co., and W. G. Clark, of W. G. Clark & Co. They all report business very fair.

Cincinnati can now boast of one first-class hotel. Since the Burnet House has been remodeled and refitted it is truly first-class in every particular, and is evidently appreciated; I judge from the number of travelers in the trade who make this house their home while in Cincinnati. Zimmermann having been a traveler on the road for many years before going into the Hotel business evidently struck some pretty tough Hotels and has tried to remedy all the defects he has experienced in his line in the Burnet House.

I have taken so much space here, and being exhausted from my travels and labors, I must defer my notes regarding Chicago to another occasion. J. W. S.

INSURANCE COMBINATIONS.

To the Editor of the Jewelers' Circular.

You recently notified the trade that the insurance companies of this city had formed a combination to advance rates, and said that the jewelers would soon feel the weight of this combination. Your predictions have been verified, for the insurance rates have been advanced in a most outrageous manner. I chanced to be in the office of a manufacturing jeweler a few days since in Maiden Lane, while an insurance broker was arranging with the proprietor for some renewals of insurance upon his stock. The ratings for stock of this character in Maiden Lane have been very much increased of late, and the proprietor of the establishment referred to, took advantage of the opportunity presented for indulging in some very caustic remarks regarding the lack of discrimination displayed by the Metropolitan Association of underwriters in rating manufacturing risks. He was extremely outspoken in expressing his views, and the broker seemed to concur entirely in his denunciation of the injustice of the new ratings. The jewelers, as a rule, carry their stock in large safes ranged against the walls of their offices; these are divided into drawers to hold the different classes of goods, and the safes are of the very best construction. In front of the safes are the tables or counters upon which goods are displayed. In the wholesale establishments the entire stock, as a rule, is kept in the safes, except only for such portions of the time during the day as buyers are making their selections. The rates for insuring these goods has recently been advanced from thirty to sixty cents. If, however, the goods are kept continually in the safes, a rebate of eighteen cents is allowed, making the rate forty-two cents for goods in safes. If the owner takes the goods out of the safe to show to customers, or for any other purpose, they are not insured while so removed, unless the rate of sixty cents is paid. Many dealers have paid a small advance on the regular rate to secure permission to exhibit goods during business hours, and a clause in the policy has conveyed such permission. Now, however, the rates including such privilege are just doubled.

The manufacturer referred to proceeded to elaborate on the absurdity of this by showing that it was the universal practice of the manufacturers and wholesale dealers to keep all their goods in their safes at all times. The safes were specially constructed for this purpose, certain drawers being provided for each distinct style of goods. This was for their own convenience and protection. A customer coming in to buy a bill of goods is waited on by a salesman, who pulls out

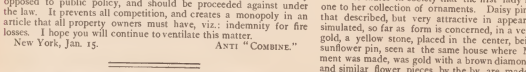
the drawers of the safes as they are wanted, returning each one promptly as it is used. Instructions to the salesmen require them to return promptly to the safe the various drawers as they are withdrawn. The manufacturer claimed that there was no more risk attached to exhibiting goods upon the counter than there was to having them in the safe with the doors of the safe kept constantly open during the daytime. These drawers are made of wood, and, while the safe doors are open, are exposed to the dangers of fire as much as any other portion of the office fixtures, and the clause of the policy preventing the withdrawal of these drawers from the safe to the counter, is an absurdity. In case of fire occurring in the building, employes in each office are instructed to return all goods to the safe at once, and promptly close and lock the doors. Nothing but an explosion would catch them with goods out of the safe. This manufacturer maintained that a difference in rate between goods on exhibition by the wholesale dealers in this manner and goods in the safe, was an absurdity. He accordingly gave orders to his broker to omit the clause in his policies hereafter, as he preferred to assume that portion of the risk himself to paying such a price for insuring it. He also instructed him to reduce his line of insurance, so that he would only have to pay the same amount of premium that he had been paying before the advance in rates.

This gentleman said: This combination of insurance companies to advance rates, without any sort of discrimination or equity, is extremely discouraging to property owners, and unless there is a revision of the present tariff within a short time, the jewelers in Maiden Lane and vicinity will organize a mutual company of their own to carry their own risks. Such a scheme has already been talked of, and we know that it is feasible and would be a great saving to us. The trouble is that the men who are sent around to inspect our premises and to fix the rate, know nothing about our business nor the methods by which it is conducted. They simply see that we have stocks of great value, and they charge accordingly. They would get more money from us—a great deal—if they were reasonable in their rates, as we should be inclined to patronize them much more liberally than we now do. I have paid a great many thousands of dollars for insurance and never had a loss by fire.

"Why," he said, it costs me more to insure my goods that are kept here in the safe, not one per cent. of them being on exhibition at any one time, than it does to insure the trunks of my travelers on the road. While traveling, their goods are subjected to all the hazards of steamboats and railroads, combustible hotels and pretty much everything else, yet a loss of travelers' goods by fire is an extremely rare occurrence. Here, however, where we provide to the best of our ability against every possible hazard, we are charged a most exorbitant rate. We simply cannot stand it. The great bulk of the jewelry trade is transacted in Maiden Lane, Broadway, John and Nassau streets, in a good class of buildings, well protected. Special night watchmen stand guard over the premises, and we claim that there are no risks of equal value in New York city that are so well protected or that have paid such liberal profits to the fire underwriters. Now, however, that they have formed a 'combine,' they take advantage of us in this way by advancing rates upon lines that have paid them good profits at the old rates. We are made to suffer because of the losses they have sustained in other classes of risks. The idea of forming a mutual company among the jewelers is not a new one by any means, and is likely to be carried into effect before a great while."

I was so impressed with the justice of this presentation of the case, that I repeat it for the benefit of your readers. There are laws for the prevention of conspiracies, and it seems to me that this combination of insurance companies to fleece the community is most decidedly opposed to public policy, and should be proceeded against under the law. It prevents all competition, and creates a monopoly in an article that all property owners must have, viz.: indemnity for fire losses. I hope you will continue to ventilate this matter.

New York, Jan. 15. ANTI "COMBINE."



A Lady's Rambles Among the Jewelers.

For evening wear, gems are set in a variety of ways. Very beautiful are the sprays of gems, and flowers, and foliage, strongly mounted, for the purpose of attaching and securing them on any part of the toilet desired. Bars of diamonds upon which a series of clusters are mounted form an attractive evening ornament. In this connection it may be well to mention again the jeweled fly ornaments that do away entirely with pins, having a mechanical contrivance hid away in their bodies by which the precious flies are made to grasp and keep fast hold of any object to which they may be applied—whether it be a lady's coiffure, the dainty lace about her neck or heavy folds of drapery. A great improvement has been made in these fly ornaments since they first were introduced. Encouraged by the success of the pioneers in this direction, the manufacturer has spared no pains to perfect this ingenious invention. The specimens seen lately had delicate wings of gold in open lace work pattern, thickly set with glittering gems. The butterfly is a favorite model for these ornaments, though other flies and winged insects are simulated. The manner of adjusting these ornaments is simple enough. One picks up a fly by catching its wings between the thumb and forefinger, gently presses these back, and, placing the ornament where it is desired to have it remain, looses the hold on the wings.

* * * * * *

Fly pins of the usual kinds, with opal bodies and diamond wings, or with gold bodies and enameled wings, are as popular as ever, not only for brooches but on scarf pins. The same statement holds true of all sorts of flower pins. Brooches of plain Roman gold, simulating a single flower, represent a popular pattern in all gold jewelry. The new brooch described last month, of concave form with a diamond in the center, is attracting deserved attention, as are the ear rings made to match it.

* * * * * *

There is little that is new to be said concerning bracelets. These are now standard articles, and patterns that met with favor during 1886 are likely to be repeated for the spring trade. The flexible bracelet is perhaps the most popular sort until one reaches the more expensive ones, where fine gems are employed in their setting, where the wire or knife edge bracelet becomes a favorite. In the ornamentation of many bracelets there is a decided tendency toward the same styles seen in brooches. For instance, there are daisy bracelets, or bracelets that owe their ornamentation to a jeweled daisy. In the same manner the chrysanthemum becomes alike the model for brooch or bracelet.

* * * * * *

The mention of the daisy brings to mind the fact that daisy pins are just now quite the rage, Mrs. President Cleveland having shown her approval of this flower, as represented in the jewelers' handiwork, by wearing one herself. The ornament worn by Mrs. Cleveland is indeed a "daisy" in the popular acceptation of the word. It represents in size the natural flower, the petals being made of small but exceedingly clear white diamonds, while the yellow center is represented by a superb yellow diamond. The sale of these gem daisy pins, it need hardly be said, has become excellent since it became known to ladies in society that the first lady in the land has added one to her collection of ornaments. Daisy pins of lesser value than that described, but very attractive in appearance, have the petals simulated, so far as form is concerned, in a very realistic manner in gold, a yellow stone, placed in the center, being the only gem. A sunflower pin, seen at the same house where Mrs. Cleveland's ornament was made, was gold with a brown diamond in the center. These and similar flower pieces, by the by, are made with a view to their performing the threefold purpose of brooch, pendant and hair pin, a very convenient arrangement where the lady is not possessed of a superfluity of gem ornaments.

* * * * * *

A very effective brooch seen was formed of three gold wheels, set here and there with diamonds, rubies and sapphires, and facetiously termed by the manufacturer who designed it, the "three wheels of fortune." Another attractive brooch was composed of three diamond crescents gracefully interlocked.

THE Limoge enamel brooches previously described and mounted in a circle of brilliants or an antique setting of silver, continue in favor, as do the miniature brooches already described. When these are not encircled with gems, they are in a framework of gold or silver of antique form or design.

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THE fashion in ladies' finger rings has undergone but little, if any, change since this subject was last considered in THE CIRCULAR. The old time hesitation about wearing many rings at one time is a thing of the past, gone, jewelers trust, never to return. Ladies are now wearing their rings as they do other articles of jewelry, *ad libitum*. So beautiful are most of the finger rings made nowadays, that even an embarrassment of riches in this direction can hardly be called coarse or common. The settings to gem rings remain light, graceful and unobtrusive in character, while fancy rings are, for the most part, in graceful patterns. Cluster rings continue small, and afford a pleasing change from those set around the finger and from solitaires.

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A LIGHT gold shank having overlapping ends set with gems continues a favorite style. A modification of this style presents two differing stones, placed one above the other, slightly slanting, the hollows left on either side being filled in by two small diamonds, from which the gold circle seems to radiate. The form last described, which is of French origin, has been adopted of late for the engagement ring by those who were anxious for a change; the two important stones in the ring being a pearl and a diamond.

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THE sapphire, which continues a fashionable stone, is much used as a central stone in cluster rings. A new ring seen contained a single sapphire of superb color set as a solitaire, with the exception that small but well cut diamonds were set round the ring on either side of it, presenting the appearance of a brilliant circlet with a sapphire in the center.

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SMALL seal rings are much worn by ladies with large hands, said rings being very becoming ornaments. One sees here occasionally the band rings, which are quite popular on the other side of the water. These are very simple in form having sometimes only the wearer's initials upon the front.

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THAT class of men termed "good dressers" by tailors in New York city, and designating such as give much consideration to all points respecting the etiquette of dress, are again wearing two finger rings. The fashion for some years past has been only one ring, but the increased use of jewelry among the fair sex has not been without its effect on the lords of creation, and one of the signs that denotes a greater profusion of jewelry on the latter's part is this wearing of two rings. To follow the exclusive style, one of these rings ought to be set with one or more rare gems, unless, indeed, the wearer is possessed of a fine seal ring. The second ring is fanciful in design and without gems, as a braided gold or silver ring, or a ring of platinum and gold wrought in some curious device.

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GEMS are set low in men's rings, a favorite style being a heavy gold shank, somewhat broadened on top, in Roman or bright finish, and with one or three stones imbedded therein. It is usual to have gems of differing hues, as a diamond, a sapphire and a ruby. With this combination the finest and largest one is employed as the central one. Seal rings are worn by both sexes, being especially patronized, however, by men. The style is for rings of medium to small size. There are many fanciful rings in stock now for men. In these are much seen linked, chain and knot patterns. Gold or silver wire, loosely braided or knotted together, and forming on top a double or an elongated knot, constitutes rings that are just now largely patronized. There is quite a fancy in these rings for an association of platinum and gold.

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THE growing popularity of jewelry among men is observable in both shirt studs and scarf pins, articles that, by the way, do not seem in the least to conflict. Up-town houses that cater to an exclusive fine trade, have in stock small gem studs for evening wear. Sometimes these are tiny diamonds, again they are sapphires, rubies or opals. An extreme style seen in stock, but, so far as known, not usually adopted, consists of three gem studs of differing colors. Diamonds, which have been sparingly worn the past few years by men, have appeared not only in studs but in scarf pins, the style being in the latter cases a fancy piece made up of small stones, as a diamond horseshoe or crescent. The subject of studs would hardly be complete without making mention of those in which the gems are set in clusters, the cluster being, of course, quite small.

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AS REGARDS scarf pins, except the mention that has been already made, there is little new to be said. These are out in a bewildering variety of style, and are largely patronized by both sexes regardless of the one for which they were designed. All kinds of birds in gold and gems are in favor as scarf pins, the plumage of birds being admirably imitated in enamel and diamonds. The little fly pins are as popular as ever.

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WHAT was long ago prophecied in THE CIRCULAR has come to pass, viz., smaller watches for ladies, with dial and case more or less decorated. In the finer goods the semi-hunter case is the preferred one, and there is a strong tendency to Louis XIV. styles in the decoration of both dials and cases. A very pretty watch is one showing a blue enameled dial with gold numerals and hands. Enameled cases are much used, and there is a disposition to ornament with gems again. A popular case is a gold one with a clover leaf in the center, set with three different colored stones. The raised wire work is used with good effect on both gold and silver watches, and, in this connection, it may be told that artistic silver watches are much carried by both men and women.

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AS REGARDS watch chains for ladies, it is safe to say that the popular Queen chain is good for some time to come, although new

applicants for favor are in the field. The coffee bean Queen chain, as the name signifies, is made up of a string of gold enameled coffee beans, and serves for the time being as a novelty, though it can hardly be classed among things that have come to stay. The Empress chain, described in detail last month, leads in new chains out for the spring trade, and will doubtless find many patrons without interfering with the present popularity of the Queen. The watch pin, it would seem, is likely to figure, not only on the Empress, but on the little fancy vest chain, in place of the ordinary bar; at least, these little vest chains, with very pretty flower and other pins attached, have been seen during the past month in the cases of retail dealers who keep abreast with the times.

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THE rage for fancy and jeweled hair pins for ornamental hair dressing continues, and pins and two pronged combs are out in all fashions and shapes. Many of these are mounted on yellow or dark tortoise shell; others on prongs of gold or silver. The ornament that appears upon the top of the pin varies with different manufacturers. A scrolled diamond bow of the Louis XV. period is one ornament; another takes on Renaissance patterns, imitating the fine designs of the 15th and 16th centuries. Many of these hair ornaments, however, are in patterns purely of the 18th century, such as knots, bows, garlands, butterflies and the like. Small diamonds are much used in these hair ornaments; sapphires, rubies and other stones are also employed. These pins are frequently sold in pairs, and afford a charming finish for the present style of coiffure. Gold pins surmounted by large gold balls, with and without gems, are exceedingly popular, as are old silver ones of the same description.

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THE process of silver deposit on wood, while no longer new, is nevertheless all the while adding novelties to the silversmith's stock in way of original effects of finish and variety in pattern. New cane and umbrella handles recently seen, show, some of them, effects in finish quite equal to wrought metals. The large patronage of these silver deposit handles appears to prove their superiority over the old cheap and light silver heads. The former are certainly more enduring than the latter, in addition to furnishing more massive and richer effects.

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A NOVELTY that had a big run in this city during the holiday season and likely to prove popular for a long time to come, is fine carriage and riding whips with silver handles that simulate the leather braided handles in all save color. These decorative whips afford, at one and the same time, a handsome and useful present, equally appropriate for birthdays or other presentation gifts.

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IN SILVERWARE, Queen Anne styles prevail to a large extent. *Repouss'*, in both white and bright finish, is also seen, as is etching and oxidizing. Indeed, there appears no prescribed styles, wide license being given both in matters of forms and finish, though it ought to be mentioned that, for the most part, low forms prevail. The bright finish promises to have a run this spring, and will doubtless, in the year to come, prove a favorite style. The fluted pattern, both alone and in combination, is exceedingly popular.

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THE afternoon tea set, christened "jubilee set" by the English manufacturing firm that placed it on the market, and designed to commemorate the Queen's jubilee, is of the fluted Queen Anne style, and in that peculiarly graceful form characterizing much of the old English silver. It is elaborately chased in appropriate designs, such as a thistle, shamrock, etc. On the lid of the various pieces appears a design simulating the imperial crown.

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A NOVELTY in spoons are those which have their designs traced in delicate colored enamel. On specimens of the Medici pattern thus treated, the design was outlined in blue enamel while the raised work was finished in gold, the bowl of the spoon being also lined with gold. This enamel finish is being applied to after-dinner coffees, dessert, ice cream and other fancy spoons.

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THE desire to decorate dining room and table with suitable fancies in way of ornamental pieces is on the increase, being no longer confined to fine houses in cities, but prevailing all over the country. Every lady wants now not only several decorative lamps, but candelabra and candlesticks of pleasing design. When they can afford it these pieces are of silver or silver plate, silver being the preferred material, but candelabra and candlesticks of copper, brass or iron find numerous patrons, and come, for the most part, in patterns equally artistic and decorative with the silver articles. The newest styles in candelabra furnish movable arms, which allow of various ways of grouping the lights on a table. There is an increased demand for single candlesticks, not only for the dining room but for bed rooms as well. A pretty fancy that appears to have taken well is that of simple decorative candlesticks to place in front of each guest's plate at the table. Some of these are furnished with fanciful and colored shades, so adjusted that the shade lowers itself as the candles burns low so as to be always over the blaze.

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THE fairy lights described in previous numbers of THE CIRCULAR, also the miniature lamps, with silver and cameo glass bowls and colored shades, appear to be as popular as ever, the candles in no wise interfering with them.

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DECORATIVE lamps keep their hold on the public favor, being not only ornaments but very comfortable additions to parlor, boudoir and library. Wherever books and journals are found in a house there should be lamps trimmed and burning, for it was long ago demonstrated that he or she who reads by gaslight will soon impair the sight. Fashionable folk, perhaps, think more of the pleasing effects produced by the subdued lights from colored shades than of the benefits derived from a clear, steady light to the eyes, but there remains a big majority who understand the value of a well trimmed lamp with a duplex, Rochester or other good burner, outside of any beauty said lamp may possess. The consequence is a permanent and steady demand for lamps, which manufacturers and importers have met with a bewildering variety. Many of these lamps are exceedingly

artistic, both as regards their decoration and their shape. There are some beautiful examples in enameled copper, as are there also in old and oxidized silver. There are also many beautiful lamps with decorative porcelain bowls, and among these is conspicuous the aventurine ware previously described. These lamps are, some of them, costly, but there are also extremely attractive ones which are being sold at popular prices, and these are excellent additions to any jewe'er's stock.

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ALLUSIONS have several times been made to the increased demand for leather goods mounted with silver. Pocketbooks, card cases, blotters, portfolios and purses are popular objects when mounted with old silver carvings in elegant designs. Sometimes the corners alone are decorated, while at others they are bordered all round. Very beautiful are the articles ornamented with enamel upon silver in Moorish and Oriental colors, presenting in appearance a handsome illumination upon the kid surface. Occasionally these leather objects are decorated with little gold flowers or insects in *repoussé* work, and occasionally a Christian name or initials hand written or cut out in gold, appear upon it. Many colors are expressed in these leather goods, such as gray, brown, verdigris, porcelain, blue and a cream of leather, very attractive when bordered with old silver carving. There is also a very pretty deep claret leather which is quite fashionable at the present.

ELSIE BEY.

The Tenth Annual Banquet of the Chicago Jewelers' Association.

THE TENTH annual banquet of the Chicago Jewelers' Association was held at the Hotel Richelieu on the evening of January 12, L. W. Flershem, President of the Association, in the chair. Nearly 120 gentlemen, including guests and members of the Association, were received in the parlors of the hotel, at 7.30 P. M., by Messrs. Benj. Allen, John M. Cutter, H. M. Carle, W. F. Tompkins, A. L. Sercomb, H. F. Hahn, H. H. Butts, Grove Sackett and Mortimer N. Burchard. The members of the Banquet Committee, who were also most assiduous in their attention to the association guests, were F. E. Morse, Chairman, J. V. Ridgway, Secretary, and Messrs. Thomas Davies, O. W. Wallis, R. A. Kettle and L. W. Flersheim, ex-officio. The banquet hall was most tastefully and attractively decorated with a profusion of floral designs and fine works of art, and pleasing selections of music were discoursed during the evening by the Neapolitan Mandolin Orchestra.

The following is a complete list of the gentlemen present: Otto Young, Max Young, E. V. Roddin, Gen. L. N. Stiles, Lyman J. Gage, Rev. Geo. C. Lorimer, Rev. Samuel Sole, Frank B. Wilkie, Franklin MacVeagh, Jno. R. Walsh, W. A. Giles, S. H. Hale, Hon. A. F. Seeberger, Abner Hurd, W. W. Wilcox, J. W. Senior, O. L. Deming, H. A. Pierce, Benj. Allen, Albert Wisner, E. A. Bliss, W. B. Clapp, Caleb Clapp, Thos. Davies, Thos. Rudd, E. R. Frost, J. R. Richards, C. S. Shepherd, Geo. W. Parks, Harry Schofield, Geo. C. Booth, Edwin B. Eaton, Geo. Bohner, Geo. Woodland, J. H. Fairchild, W. A. Barclay, O. W. Wallis, Thos. Cogswell, J. F. Talbott, T. Evans, Jr., E. B. Butler, E. A. Manheimer, Thos. M. Avery, Wm. G. Prall, Jno. M. Cutter, Jas. H. Moore, O. W. Ruggles, Wm. H. Moore, J. G. Fuller, Geo. Hunter, Wm. H. Cloudman, C. D. Peacock, Morris Berg, H. H. Butts, L. Manheimer, O. G. Fessenden, C. K. Giles, J. V. Ridgway, J. M. Parshall, J. B. Norris, E. K. MacGillivray, Jno. J. P. Odell, Harry Howard, M. G. Linsley, Otto H. Oppenheimer, A. M. Weinberg, W. H. Allen, L. I. Lake, M. A. Mead, W. F. Tompkins, Geo. W. Church, Wm. Purcell, M. N. Burchard, David J. Ayres, Geo. R. Thorne, E. W. Burchard, J. B. Mayo, Chas. H. Penny, S. H. Crane, Jno. R. Scott, Chas. F. Happel, W. W. Thatcher, H. S. Peck, H. F. Hahn, Jos. Spiegel, J. Bernstein, L. W. Arnold, A. E. Bentley, M. C. Eppenstein, F. Thearle, H. M. Carle, Chas. Seaman, J. P. Drake, W. H. Gleason, C. R. Matson, H. D. Galpin, L. W. Flershem, Curtis H. Remy, Adolph F. Oppermann, Peter Lapp, Douglass Hoyt, Albert L. Sercomb, Justin H. Meacham, Edward F. West, W. M. Allister, F. E. Morse, Chas. E. Bunker, G. P. Titus, Noah Clark, R. C. Frost, Jno. F. Morse, L. W. Frost, W. H. Wilson, Kenneth Barnhart, D. G. Gallett, E. Wendell, Grove Sackett, Julius Schnering.

When the guests had all assembled in the banquet hall, the President, Mr. L. W. Flersham, before bidding them be seated, said:

A year ago, when we celebrated our ninth annual banquet, the business outlook was anything but favorable. The close of the year found the country in prime condition. Trade had revived, confidence in public securities grown. The only trouble with finances, a rare one, an excess of money, and 1887 comes in with the business interests in so promising a condition that I propose we call this a thanksgiving dinner.

The menu, which, it is needless to say, was excellent in all particulars, was as follows:

MENU.

Blue Points Sur Coquille. QUEEN'S SHERRY.
Cream of Celery.

Hors D'œuvre Variés.
Kennebec Salmon, Sauce Riche. HAUT SAUTERNE.
Pommes de Terre Lorette.
Filet de Boeuf, a la Talleyrand.
VOSLAUER GOLDBECK CABINET, GREEN LABEL.
French Peas. Spinach au Velouti.

Punch Rosa Bonheur.
Partridge sur Canape au Cresson.
VEUVE CLIQUOT, DELBECK EXTRA DRY.
Lettuce Salad. Mayonnaise.
Terrapin en Caisses, a la Baltimore. POMMARD.
Bombes Napolitaines.
Corbeilles de Nougat a la Renaissance.
Petit Fours. Fruits. Fromages. CHARTREUSE.
Segars. Cafe. Cognac. KIRSCHWASSER.

Letters of regret were read from the Hon. Robert T. Lincoln, George C. White, Jr. of New York; Henry Hayes, the Hon. Frank Hatton, Seth Thomas, Clemens Hellebush, Cincinnati; Merrick, Walsh & Phelps, St. Louis; E. Jaccard Jewelry Co., St. Louis; Edson G. Keith, Chicago; S. A. Rider, St. Louis; G. W. Marquardt & Sons, Des Moines; Max Meyer & Bro., Omaha; J. J. Sands, Chicago; and S. W. Snow, Chicago.

When dinner had been completed, the President made the following address:

Gentlemen:

There are men who can talk hours upon anything, others who can talk hours upon nothing. Not possessing either of these happy faculties, I must confess that I would feel more comfortable as a listener than as the presiding officer at this, our tenth annual banquet. Besides, it seems to me I have nothing interesting to say. The aims and statistics of our association, the members all know, as they hear them regularly at our monthly meetings; our guests would find them dry subjects to listen to; and out of courtesy to the gentlemen who are to respond to the toasts I must not touch upon any of their topics.

Perhaps I may be pardoned if I dwell for a few moments upon our own branch of trade, and call it, with true Chicago spirit, a great ship, deep freighted with mechanism, invention and art. I understand it is the belief of many that we deal mainly in the useless and ornamental; that only when money is plenty can there be a demand for our goods. But let me say that we keep pace with other branches of trade in good and dull times. Causes which disturb other lines of business depress ours in like degree and no more. Now, let me tell you, gentlemen of this association, and you, gentlemen, who are here as our guests, that during the year which has just closed the sales of diamonds, watches, clocks, tools, watch materials and other goods handled by those represented by this association reached

$13,000,000, and these figures were only exceeded by ten other lines of business. A few comparisons will suffice to show you the importance of the business in which we are engaged, and the position we occupy in this mercantile center. The sale of millinery were six millions; ours over twice as large. Drugs and chemicals, six and a half millions; ours just double. All kinds of fish, including oysters, five and one-half millions; ours nearly two and one-half times as much. We exceeded the sales of hats and caps, fur included, by over three millions; crockery and glassware by nine millions; coal oils by seven and one-half millions; books by over half a million, and many other lines of merchandise by figures as large and larger. I believe I have fulfilled my promise not to encroach upon any of the toasts of the evening, and thank you for your attention.

The first toast, "Politics," was happily responded to by Gen. I. N. Stiles, who said in substance as follows:

Mr. President and Gentlemen:

When you invited me a year ago to attend your annual banquet I felt greatly complimented, and when this year the invitation was renewed I felt that you had done me a great kindness. I have had an opportunity through your invitation of, in some degree, living over to-night what we passed through so delightfully a year ago. I call to mind the ringing toasts and clear-cut sentences, and the admirable treatment which our friend Mr. Gage gave to the silver question. I call to mind the philosophic efforts of our friend, Deacon Bross, to play the role of a young man and respond to the toast, "The Ladies." Nor do I forget, nor will any of you forget who heard him, the delightful words, the joyous, eloquent sentences that fell from the lips of our most eloquent friend, Rabbi Hirsh. All this I have enjoyed greatly, but what has that to do with politics? I will tell you after a while. Not only did I enjoy the evening, but I had a second, another enjoyment when I went home, and a day or two after that visited our old friend, whom you certainly all knew, and told him the story of that dinner, Bell Chambers; and you who remember him remember what a royal good fellow he was. He was a royal good fellow in a better sense than that in which that term is sometimes used. A man of the kindest appreciation of art in all its forms, a man of clear head and great business capacity, yet with a heart as tender and as sensitive as a woman's, who loved music and art in all its various forms, who loved a good story and who died as bravely as any soldier dies. Two years before his death Bell told me that he could not live a year, that the doctors told him he could not go through the year; said it as calmly as I am telling you now. And almost up to the time of his death he continued cheerful and bright, enjoying a good story and singing a good song himself. Within a week before he died I called upon him and he said: "General, I have got a good story for you, and it is original, it is genuine; I have got the papers right here in my pocket." Said he: "My nurse, the fellow I had attending to me, you know, or rouge, it seems has been a professional nurse in Canada, and at one time he acted as an assistant in an insane asylum which contained a great number of patients, and among them a young Irishman who was all daft and all wrong on the subject of religion particularly. He gave out on one occasion that he was going to preach; the attendants humored him and improvised a pulpit, making the necessary arrangements to accommodate him. He ascended, looked out upon the audience, opened the Bible and read the first text his eye happened to rest upon, 'And the Lord repented himself that he had made man.' And looking out over the audience, said he: 'And looking over this crowd, dom'd well he might. (Loud laughter). I shall never forget the heartiness with which Bell told the story, and this was within a week before he died.

That has not much to do with politics. I did not know, however, till I came here this evening that I was to speak, and did not know the topic I was to speak on, of course. A great deal may be said about politics. Theoretically the system of politics is to aid in the administration of law, the protection of persons and property and all that sort of thing; but practically we find that many of our evils are charged up to politics, and this is particularly true of those evils which manifest themselves in our large cities. Do you realize how much of the difficulties that we encounter in the way of good government, cleanliness, good order, something near good morals, are brought about by politics? How difficult it is to control certain classes of people in large cities by reason of politics. Take the law-breaking class, take that class which toil not, neither do they spin, yet are arrayed in purple and fine linen, who do not work, who contribute nothing to the public good and bear none of the honest burdens of life, and whose presence is a constant menace to peace and good order. That class of people are found in every large city, and that class of people are tolerated for the sake of politics. They join and help elect the officers whose duty it is to bring the law to bear upon them, and in turn for this they get immunity. We have no trouble in enforcing the law against Chinamen, dogs, women and children because they cannot vote. (Laughter). Let a Chinaman light his opium pipe in a cellar, and forthwith there comes down a platoon of police, and the next morning we are told that an opium joint has been raided; and little washee-washee and his companions get together and open a little game of bungaloo, which, I believe, is a kind of poker game, in which one of them plays from Saturday night, through Sunday and until Monday, and wins or loses six or seven cents. Perhaps the next morning after the game is opened, the strong arm of the law is brought to bear upon Mr. Chinaman. He is taken around to the office of Justice Meech, or some other Meech, and the proprietors are fined for gambling. (Laughter). But take another class of our gentry; they are taken before the justice and they are fined, but for what? Disorderly conduct. No fine for gambling. A third time sends them to the penitentiary. It is not difficult; therefore, to understand the wisdom of imposing a penalty for disorderly conduct rather than for gambling. That is one of the great many things that stand in the way, through politics, of the proper enforcement of the law. You tickle me and I'll tickle you is the maxim in politics. You stand by me until I am elected and I'll stand by you after I am elected.

Now, as I have not come in here loaded with a speech on politics, I'll tell you a good story as a substitute. I've got three of them, in fact. You recollect the story two years ago at the last presidential campaign. You know there were three parties in the field, all active and zealous, and the Prohibition party, without, of course, the slightest hope in the world of electing its man, pushed their ticket as much zeal and apparent confidence as did the others. You recollect the situation. There was a good story told on each party, and if you have the patience I will tell them to you briefly. The story upon the Prohibition party is that an epidemic broke out on shipboard and carried off the captain, the two mates and one or two other officers, and left the ship without a commander. The passengers were mostly Americans, and after the true American fashion concluded the best way to select the commanding officer of the ship was to do it by ballot. They accordingly opened a poll. There were two candidates only, so far as they knew, and each of the candidates received an equal number of votes; but one vote had been cast by a tall, close-buttoned, clerical-looking gentlemen for some one whose name was not familiar to anybody upon the ship, and they called upon him, since there was a tie, to cast his vote for one or the other of the two that were tied, so an election might be declared. He said no, buttoning his coat still closer. He had looked the ground over carefully; he knew that one of these candidates was a very profane swearer, and he had been told that the other was in the habit of getting drunk; "and, as for myself, I prefer to continue to vote for a good man that I know, who is on shore." (Loud laughter).

You recollect the position taken by the great Republican party in the last campaign. It was this: that having been in the control of the government so long a time, having taken the country through so many perils and vicissitudes, it was not at all strange there had grown up a system of corruption and trouble of one sort and another that needed correction, and that that party would attend to the correcting part. The navy was to be rebuilt, the tariff was to be revised, civil service reform and various other changes brought about in the interest of reform, all within the party. The story told to illustrate their position is that of the County Commissioners of Posey County, Indiana, who met to consider the question of building a new jail, and, after due deliberation, passed the three following resolutions:

"*Resolved*, First, that we build a new jail.

"*Resolved*, Second, that we use the material of the old jail with which to build the new one.

"*Resolved*, Third, that we continue to occupy the old jail until the new one is built." (Loud laughter and cheers).

The third and last one, and I am nearly through, and it is 11 o'clock. A gentleman riding along the highway in New England, in the country where they have stone walls, saw three boys at work trying to get a woodchuck out from under one of those stones. He took in the situation at a glance, dismounted from his horse, got a forked stick and twisted it into the woodchuck, as old New Englanders know how to do, pulled him out, got him by the tail, held him up before the boys and said: "Which of you boys is entitled to the woodchuck? What are your politics, boys? "I am a Republican, bet your life." Said one boy, "I am a Democrat." "What is yours?" "Prohibition, sir." "Now, boys, the boy who gives me the best reason for his politics shall have the woodchuck. Why are you a Prohibitionist?" "Because I believe in standing up for the right. I believe in putting down the enormous evil of intemperance, and wiping out, to some extent, the poverty, crime and misery that is caused by the drinking of alcoholic liquors." "Good," said he, "good. Why are you a Republican,

my hoy?" "Because I believe in the party that saved the Union, struck the shackles off of four million slaves, the party of progress and great moral ideas." "Good; why are you a Democrat?". "Because I want the woodchuck?" (Loud and continued laughter and applause).

Lyman J. Gage, who responded to the toast "Society," was introduced by the Chairman as "a gentleman who needs no introduction, he having been with us so often on occasions like this that we ought almost to vote him an honorary member. He welcomes many of us (when we have notes to meet), let us now welome him."

Mr. Gage said:

I feel it my first duty to make my acknowledgments to your committee, and through it to your Association, for the kindness and courtesy which I have again received at your hands. Having said this I find myself much in the position of a certain colored preacher who was called to preside over a flock which had long been divided in their views on some questions of theology. The elders of the society waited on him on his arrival and told him that they would like to hear from him on the next Sabbath upon the controverted text. He appeared in the pulpit, but was very much disposed to avoid the embarrassment which might arise to him from taking either alternative; and after the preliminary exercises he read his text, and: "Now, brethern, I desire that all of you who understand this text and its meaning should arise." And they all stood up; whereupon he said: "It would evidently be a work of supererogation for me to go into any exposition of this topic or this text, with which you are familiar. We will sing the 103th Psalm and receive the benediction." His audience escaped. But during the week some of the brethren came and waited on him and said that there was evidently a misunderstanding; that the expression on the subject last Sunday was hardly in accord with the views of all of them, and they still wished he would speak upon that topic. When the society again assembled on the next Sabbath, he again read the text, and said: "I again desire to know how many of you think that you understand the subject involved in this text?" And not one of them rose up, when he said: "If you are such a lot of stupid heathens that you don't comprehend a simple theme like this there would be no use in my trying to enlighten you. Let us sing 'Old Hundred" and receive the benediction." Both parties in that transaction had this advantage, at least: he was saved from exposing his ignorance, and when they were through with that experiment they knew as much as they did before. I cannot escape so easily. It is easy to ask questions and it is easy enough to guess at answers.

What is society? It is a field where all the appetites and passions that show man to be akin to the animal are illustrated. It is a stage where vanity and folly bedeck themselves for the admiration of vain and foolish eyes. It is an object ever fresh for the humorist, and at which the keen shafts of the satirist are ever thrown. It is an association of weakness and wickedness, of strength and virtue. It is a panorama of crime, a never-ending scene of heroism. All that is base and brutal can here be found. All that is noble and sublime can here be distinguished. It is the arena where man has diplayed his highest qualities. All the virtues and all the vices are here dramatized. Over its folly and weakness the cynic sneers. Over its wretchedness the philanthropist weeps. Over its virtue and its heroism the angels smile. Who can understand it?

It has taxed the wisdom of all the wise, both ancients and moderns. Moses, the law-giver; Adam Smith, the economist; Henry George, the last reformer, have each been perplexed and baffled by it. In its comprehensive sense the subject embraces all others. Society can be known or comprehended only in all its relationships; and to what does it not stand related? Or by what is it not affected? All forms of industry; all theories of finance; all edicts of government; all influences of religion; all customs of men; every element of human nature enter into and help make up that composite whole we call Society. It what labaratory, or by what social chemist, can this great whole be reduced, and the several elements which constitute it be separately determined, and their relative value stated? The man able to do this has not yet appeared; and if he were at hand, an after-dinner hour would not be chosen for his long and difficult experiment. But, if the subject be so great as to pass our comprehension, if it be so subtle as to defy complete analysis, we may get partial views, and indulge in partial estimates.

I am aware that they are nuuerous who profess a complete comprehension of all the evil, as-well as all the good, that enters into the social structure, and are ready with new systems to replace the old. There are others —happily not numerous—who, looking from some height so lofty as to turn the brain, pronounce the structure wholly bad, and propose to destroy it to its foundations. They forget that society is of no man's making, nor the product of any conventional agreement. While socialism dreams of an impossible reaction, and murderous men preach rapine and ruin, the wise man—rich or poor—will rejoice that the sun of the nineteenth century shines upon his head. If he be an individual component of this great social structure called America, he will be glad and thankful that his feet tread a soil where individual liberty is fully secured; where more than anywhere on earth—with the highest incentive to personal effort—the three great principles of liberty, equality and fraternity are the most fully recognized. Do not misunderstand me. I do not deny that there are existing abuses, nor affirm the perfectness of our society. We shall never have a perfect society, except through the perfection—both in intelligence and in virtue—of the individuals who compose it; and the day when that condition will be realized is yet far distant. Ignorance, vice, poverty and wretchedness will long be familiar to the eyes of those who shall look upon human society. Tornados, shipwrecks, earthquakes, disease and death will perhaps forever afflict the children of men. But that man is a poor observer who does not see in our rapidly developing social life powerful and healthful agencies at work. The status of the intelligent laborer is becoming more exalted. The great fact of our human brotherhood is more fully recognized; the sympathies of the powerful for the weak and unfortunate more positive and prononnced. Public sentiment is growing more humane. Education, that angel that raises man from a brutish life to the exercise of his splendid intellectual powers, is becoming more and more diffused. It is amazing that, in the rush of population into this new world, where material results are the first necessity, we should already see such promising fruits. Out of the heterogeneous elements which now compose our body politic there will result a strong and noble society. In the early generations shead of us race prejudices will be broken down. The blood of the Saxon and the Celt, the Dane and the Slav are to be commingled in that nobler form, the future American. With the courage of the Norsemen; with the hardihood of the Slav; the lightness and flexibility of the Celt; the philosophical insight of the German; the music and poetry of the Hebrew race, all things will be possible to that future society. With the assimilation of races there will be a consolidation of ideas; a purer public sentiment will prevail, more powerful in its effect than statute laws. Political corruption will diminish or disappear. The individual strong in wealth and power will be held as unworthy and ignoble if he does not use both his wealth and his influence in the broad service of that society from whose bosom he has drawn the nourishment that has made him strong and great. In this hour of friendly greeting and pleasant reunion let us each try to appreciate the valuable equality of the social structure of which we form a part. Let us try to make it better by every means of self-improvement, and let us unite in believing that the fondest hopes of those who have fought for it like Washington, of those who have toiled and suffered for it like Lincoln, may in the fullness of time meet with complete realization.

The President in introducing the Rev. Dr. George C. Lorimer, who responded to the toast of "Art," said it seemed appropriate to call upon one to respond to such a theme, who, by reason of his life-work, had reached the very summit of artlessness.

Dr. Lorimer said:

I am placed somewhat as the Apostle Peter was in the porch of the temple that was called "beautiful," for I am to speak to you on the subject of Art; and like the apostle addressing a class of men whom Calrisle would say were men of precocity, I have to say that "Silver and gold have I none, but such as I have I give unto you." Your association is not an old one, and yet your craft belongs to one of the oldest of the great guilds of Europe. In the 14th century in England, and prior to that time upon the Continent, the guild of goldsmiths was one of the foremost, and became bankers of Kings, the patrons of genius and the promoters of art. It is upon the latter form of human achievement in connection with your own special work that I desire to say a few words this evening. Balzac tells us, according to your programme, that art is "nature concentrated." If the passage simply means that art is nature in miniature, the gathering of various forms and objects of nature, producing perhaps a new combination and a striking unity, reduced from the vast proportions in which we behold these forms around us, the definition may pass unchallenged; but if you are going to stop there, I think it is exceedingly questionable. Art is more than a concentration of nature, more than a reproduction. It is the interpretation of nature. Back of all forms there is an invisible something striving to assert itself. There is a divine thought that is looking through it, and that speaks to the divine in man. A photograph is a fac-simile, a dead reproduction of that which the sun has painted. A portrait by a man of genius is something more than that. It gets at the man's soul, and the painter is able to produce in that which comes his brush at least suggestions of the character that lies behind the face. Cousin tells us that the essence of art is in expression, and Plato

claims that it is the ideal that is coming to us along the line of the real. But whatever form of language we may adopt, we may rest assured that art is something more than a mere counterpart. Art is the realising of light, and the bringing forth of the hidden qualities and properties, especially the spiritual functional element that presides and reigns everywhere. A diamond is as much a diamond before it is cut as afterwards; and yet you want to so cut the diamond, to so bring out its hidden light, as to show what it is. Now there is the light spiritual in every human being, and in everything in the universe, from the star that shines above you to the flower that buds at your feet. There is light in everything, and it is the genius of the artist that releases that light, that so cuts and fashions and shapes it as to cause its lustre to break upon you. Oh, art is something more than concentration. It is the interpretation of the subtle, the recondite, the hidden symmetry and glory that lies back of the human form, imprisoned in the human soul, and back of all shapes and forms that make up this great and physical universe of ours.

During the "Renaissance" nearly all the leading painters and sculptors and architects served at least a partial apprenticeship to goldsmiths. They entered the employment to acquire accuracy of execution, to study delicacy of design, and to become familiar with the purest of all forms. These goldsmiths, when called upon to furnish either a drinking cup for a banquet, a medal for a soldier, an altarpiece for a church, a sword for a warrior, a chain for a king, a ring for a prince, sought the most curious and elaborate designs and bestowed upon their work most infinite care and skill; so that to-day those of us who have visited Europe have been charmed by the exquisite work, especially that which has been lavished upon stone. In the Paris Exposition that had a most charming and curious stone, representing a shepherd caring for his sheep, and the work was so admirably executed, and the artist had availed himself so skilfully of the colors of the stone that the tint of the fleece upon the sheep, and the wood of the shepherd's crook, and the hue of the skin upon his face had all been brought out of that one stone, just as a painter from his various dyes and hues might impart them to the canvass. So you can see how your craft would naturally stimulate art and artists, because of its very close relation to the production of art objects. I do not see why your guild should not become pronounced promoters of art, its earnest friends and advocates, and by your taste in your department, seek to promote and cultivate that taste throughout the entire community. In doing so, I need not remind you that one of the first conditions is that everything that comes from your hands, purporting to be artistic, should be real. In other words all veneering and all shoddy, and all "brummagem," everything of that nature, is fatal to the highest conceptions that we have of art. We are a new city, and our community bears a great many marks of freshness. We are sometimes exceedingly fresh. (Loud laughter.) We are particularly so in regard to our ideas of art. I do not blame Chicago for the lack of art galleries, and schools of art, for she is a very young city, and never in the history of the world has art been developed until a city has taken upon itself some hundreds or more years of growth and development, because art culture implies a certain degree of leisure, and likewise a considerable amount of wealth. Remember, we have been burned over once, and have had to fill up our sail once or twice. We keep continually digging up our streets for the sake of preserving the health of our city. But while I say this in mitigation, there is no reason why there should not be a new departure, and why we should not realise the danger we are in, in a great commercial city of becoming thoroughly materialistic. Mr. Storrs used to say that the only object of interest we had to show to a visitor was the stock yards, and that rather palled upon a man's taste after he had been there several times. (Laughter.) We have, however, in some of our more recent buildings advanced toward a purer style that certainly deserves commendation; but we do need art galleries and art schools; and the younger men among you ought to make it a matter of supreme importance to lend your influence towards the cultivation of clear, pure, distinct ideas concerning the growth of art in the great metropolis of the West. I have read of a Roman Consul, who, after the overthrow of Corinth, handed over many of the conquered city's treasures to some soldiers who were returning to Rome, with the condition that if they lost or destroyed them, they would have to put just as good objects in their places. He evidently had an idea that such works of art could be manufactured with great ease, and his conception was just about as crude and misleading as that of the old lady and her daughter, who in visiting one of the galleries in Europe came to a magnificent bronze of the wolf suckling Romulus and Remus. After looking at the fine work of art the daughter said, "Mother, what is that?" The mother replied, "Why, my dear child, dont you know what that is?" "No, mother," responded the daughter, "what is it?" "Why, my child, that is Romeo and Juliet suckled by the wolf." (Loud laughter.)

I tell you we want to feed on something more than hog and homing, and something more even than terrapin, of which I never ate any until to-night. (Laughter.) We want to feed on something that will touch the mind and soul, and develop the spritual qualities and forces of mankind. We need here a university that would develop not only a higher education, as understood among scholars, but likewise connected with it a great art centre that should outrival Boston in all of its schools of design, and place our city where, if it ever becomes an art center, it ought to be, ahead of every other city on this continent, and every other city of the world. (Applause.)

As regards art culture, I would say that there is such a thing as urging art so earnestly that the fact may be overlooked that art culture, without ethical culture, may actually become the means of degradation to a community. We may degrade art, and art may be used to pander to the vices. Look how Cellini, a renowned artist in your own life, was a man of violence, blood, and assassination, and even went so far as to abuse one of his poor female models that he had at his mercy in his studio. Art does not refine, but art needs to be balanced by the ethical qualities. There must be an equipoise between the elements of art-culture and the elements of ethical culture. Let us throw around art the strong arm of virtue, and then it will refine, humanize, elevate, and will lose its blighting, deadening, soperific power that has too often and too painfully been felt in the history of the world. Art is immortal. Opening one of the old Etrusean tombs some years ago they found the bodies of princes and kings, and in the tombs were golden lamps, as beautiful as any that your skill could devise. As soon as the breath of day penetrated the tomb, the bodies of the princes and the kings turned to dust and disappeared, but the lamps did not turn to dust. They remained indestructible and continue to this day. Ah, you, and myself, and all of us, who are laboring in the great cause of social upbuilding, shall turn to dust. A little while, and we too shall pass with the innumerable host into the beyoud. Happy shall we be, if we go with the tread of the conquerer, feeling that what we have been called upon to do has been well done. O, your art will survive you. Ages shall come, and generations shall sweep over your footprints; but art shall survive, its beauty shall charm, its sublimity shall sway and thrill, and its sweet tones shall lull to sleep, or its more thrilling blasts shall rouse to deeds of nobleness those who shall come after you. (Loud applause.)

The Rev. Dr. Sale, who was next called upon to respond to the toast "Cultivation," said substantially as follows:

There was a time in the history of pulpit oratory among the people, one of whose descendants I happen to be, when there was no such thing as preaching a sermon in the vernacular. Preaching a sermon was a most unusual thing among the Jews up to the beginning of this century, but twice a year the rabbi was called upon to admonish and exhort his hearers. When it came into fashion to preach in German in Germany, (and that was the land from which reform and advance took its beginning) a man of great fame named Dr. Leopold Zuntz was the first to attempt to preach in German before an orthodox congregation, and, of course, an innovation of that kind was looked upon as heresy, as a step in the wrong direction. After his sermon he asked one of the wags of the congregation how he liked it, and he replied: "I am afraid to give you my opinion, as you may not like it." Said Dr. Kuntz, "I know you are a wit and I won't feel hard at anything you may say to me." The wit replied: I dreamed last night that I passed from the earth to heaven, and that I was admitted before the throne of God; and after I had passed the gates a physician comes and knocks for admission. He was admitted. After him came a lay priest of the Catholics, and he was admitted upon producing his credentials. He had been a good member of society, and had done much good in attending the sick, and administering the consolations of religion. Then came a lawyer. Strange to say, he was admitted. (Laughter.) Then came a famous preacher, a rabbi, and being asked who he was and what he had done he said, "I am a Jewish preacher, a doctor of philosophy." The old man at the gate shook his head somewhat incredulously, and told him that he did not know what that was—a Jewish preacher and a doctor of philosophy at the same time. He would have to ask Lord God Almighty, and he went in and presented the case of the doctor of philosophy. The Lord said that he was puzzled, that he didn't know what a Jewish preacher and a doctor of philosophy was, and he said, "Go back and ask him what he has done." The old man at the gate carried the message back, and the reply was, "Well, I've preached philosophy, I've tried to improve my fellow human beings and this world." "So" says the gatekeeper, "then you've been trying to improve the world, have you?" He goes back to God and tells him, and God says, "Now, what a piece of impudence for a preacher to try and improve this world, trying to interfere with me. Tell him to go back, and stay out there, until the first man

comes along whom he has improved." "And," said the wit, "he is still there to this day." (Laughter and applause.) And I believe that we will all remain sitting there unless, according to our station and powers, we contribute something towards that higher life, cultivation of the mind, intellectual culture.

A look at the world's history shows that nations and individuals have been estimated according as they contributed towards the intellectual and moral advancement of mankind. We would sink beneath the level of the brutes unless we cultivated that which makes us akin to the gods, and fanned the spark of the infinity in our minds into a flame that warms and illumines our being, and the life of the community of which we form a part. Who are the kings in this world? Are they those who bear the hereditary title of kings and princes, or are they such men as Newton, Voltaire, Kepler, Copernicus, Bacon? Cultivation is not only the lot which has fallen to man, it is his privilege, his birthright, his duty, for upon ideas the world is built and formed, and your own fraternity of jewelers symbolizes this truth in the fact that they themselves date back to one of the most ancient crafts that were addicted and adapted to the cultivation of the arts, whose purposes were cultivation, betterment, ennoblement of the human race. Look at Germany. Her greatness consists in the fact that she has devoted the best part of her strength to the cultivation of the ideals of life. The broad foundation on which the liberty, equality and justice of our own country stands, is the general education, the general demand, and cry for enlightenment all over the land. We must not think we are made complete in one day. We cannot accomplish everything in this country. But art and science must come, else wealth's possessions are of no value whatever. They crumble into the dust from which they sprang. for "Dust thou art, into dust returnest," is the word that applies to all things that have no souls in them.

Culture and cultivation make all men alike, bringing out that universal stamp of the divine which is impressed upon every human face. Ignorance, lack of culture and cultivation, make men fiends, divide brothers, set countries at war with each other, and arouse the furies of prejudice, sectarian and ingrain hatred, while enlightenment, culture and cultivation tear down the habitation of prejudice and hatred. The crown of our culture is true humanity, true manhood.

Steadman H. Hale was then called upon at a moment's notice to respond to the toast, "The Newspaper," as Mr. Franc B. Wilkie, to whom the task had been assigned, pleaded short notice and indisposition. Mr. Hale said:

I am of the opinion that you have singled me out simply because I have been sitting next to the proposed speaker, and am supposed to have imbibed all his knowledge upon a toast taking in so grand and comprehensive a topic as "The Newspaper." You have probably all noticed these parties walking down the street with a sign over their backs. Whatever I may have to say upon this subject will bear the same relation to what Mr. Wilkie might have said as that kind of advertising does to the newspaper. I am a weak advertisement of your craft, and if I am, I certainly am proud of it. Twenty years spent among you I consider a great deal better than 20 years spent among the newspapers. I don't believe that any class of merchants are more indebted for their prosperity to the newspapers than you are. You all use printer's ink freely—some of your customers say too freely—but without it you would be *nil*.

I believe there is no subject grander than the subject you have given me to speak upon. The gentlemen who have preceded me have spoken first upon "Politics." What would politics be without the newspapers. People would not know anything about it. The next subject was "Society." We all read of society in the newspapers. Everything is reported, even to the Colin Campbell scandal. "Art," we all know, would die a natural death if it were not that it was bolstered up by the great metropolitan press. "Cultivation"—what is cultivation? A few gentlemen with a literary turn of mind cultivate their minds by reading scientific theology, history and a few novels, but to the great masses of men the daily paper is cultivation. (Loud applause). It meets all their demands. What time has the business man to read of theology, of the arts, and of society, except as he catches it on the street car in the morning in the daily paper? And so you may follow down through all the toasts except the last.

Our business, we know, is all done through the daily press or its equivalent, printers' ink. While I am happly to have been connected with the jewelry interest, I am also proud of the fact that at one time in my history I was connected with the press—was the "devil" in a printing office (Laughter). I could go on and make quite an extended speech upon this subject if I had the notes which I know are in Mr. Wilkie's pocket, but he has not offered to give them to me at all; and so, gentlemen, with the simple remark that the press is all powerful for good, as for evil, and with the hope that it may forever use its influence for the good, I will bid you good-night. (Applause).

Franklin MacVeagh, who was intoduced by the President as "one of our ablest business men," responded to the toast "Business." He said:

I am accustomed to being envious of General Stiles and Mr. Gage, having appeared with them on more than one occasion before public audiences. I was especially envious of them this evening when they acknowledged that they had been invited last year to your banquet, and that they knew all about what was expected of them. I came here with very insufficient knowledge of what this occasion was to be, and I am free to confess to you that even if I had been called upon very early in the evening. I should have had nothing whatever worthy of attention to say.

The sentiment which you have annexed to this toast says that the three cardinal things in business are knowledge, time and temper. I fancy that that must be true also of a speech as well as business, or it would not be given to me here as a suggestion. Now, I have to confess to you that I don't have the appropriate knowledge. I need not remind you, Mr. Chairman, in view of the fact that the club itself has had no chance at all, and that it is very appropriate that the last speaker should have a fair chance, that not having the knowledge I also have not the time. That leaves but one thing for me to preserve, and that is your temper. That I shall proceed to do by asking you to excuse me from any further remarks.

There is but one sort of objection to make to this sort of response to a toast, and that is that it is likely to bring upon you a perfect shower of invitations to all the banquets that are to come. (Applause).

Thomas Davies, who responded to the toast "Our Guests," spoke as follows:

Mr. President and Gentlemen: I suppose I am to speak for the association, and am thankful for the honor of being called upon to respond to this very appropriate toast. It is, however, a mistake to select me, because I am utterly incapable to fittingly follow the honorable gentlemen who have preceded me, or to properly say to you, our guests, how much we appreciate your presence at this our 10th Annual Banquet. We have listened to words of eloquence, instruction and pleasure, and I am sure the opinions and sentiments expressed, and suggestions offered, will give us all in our daily business and social lives food to eat and water to drink for our hungry and thirsty minds. Deeply engrossed in business there can be no doubt in regard to the benefits from our visit here with you this evening. I do not think it is generally known that our trade is exacting and severely practical. Added to unusual risks, there is a vast multiplicity of detail, and we find but little time to devote to art, science, literature or society. It may be safely said that we are well fed, clothed and housed, and you only need to look around and notice the number of fat, cheerful, and good looking men for proof of this, but jewelers as a rule work too hard and do not seek or indulge in the pleasures of life they are entitled to. Let me say to justify this assertion that considering the ability, capital, and experience employed, the volume of business in dollars and cents, we probably have less social enjoyment than any other class of men of corresponding ability, capital, or experience. While claiming considerable importance, and our worthy president has told you how important we are, but if there is any doubt about it, kindly think of the goods we handle, the staples of watches, clocks, etc., the needs of the ladies, weddings, anniversaries, and holidays, we art too apt to forget our duty to the world, to each other, and to ourselves. I hastily speak of these things in order to stir up the members of our calling and to show you, gentlemen, how much good you do us by your grace, favor and sociability. Eminent in politics and the law, in religion, banking and business, we are honored to-night, and we ask you to remember we are sociable, and that we try to be good fellows. Please put it down to our credit that we perfectly feel this evidence of good will, that we desire your continual friendship, and in turn we will ever maintain and raise the dignity, importance, and prosperity of our business, individually and collectively. Gentlemen, I am obliged for your attention.

When the applause after Mr. Davies' speech subsided, the President said:

Now, unless one of our craft is skillful enough to make the clock strike the hours that are gone, we will adjourn.

The banqueters then quietly dispersed, all hands remarking that the banquet was, in point of interest and enjoyability, the most successful in the history of the association.

Mr. Max Freund sailed for Europe in the *Gallia*.

Mr. I. Stern, of Stern Bros. & Co., left for Europe in the *Werra*.

Mr. S. Fox, of Fox Bros. & Co., Cincinnati, O., sailed for Europe in the *Saale*.

Mr. Joseph F. Chatellier has removed from No. 48 Maiden Lane, to No. 6 State street.

C. H. Doe & Co., Jewelers, of Fall River, Mass., made an assignment early in January.

Mr. John S. Atchison has moved his steam lapidary works from 49 John street to 105 Fulton street.

Mr. Maurice L. Powers will, this season, represent the firm of Falkenau, Oppenheimer & Co. on the road.

Mr. J. B. Knowlson has been appointed New York Agent of the Southington Cutlery Co., No. 16 Maiden Lane.

Mr. A. Hodenpyl, of the firm of Hodenpyl & Sons, sailed for Europe in the interests of his house on Jan. 15.

The firm of J. E. Henneman & Co., of Union, S. C., has been dissolved. J. E. Henneman will continue the business.

Kallmeyer Bros., of Providence, issued to the trade a very neat holiday greeting, handsomely printed in several colors.

Mr. George Reynolds, who last year represented Charles S. Pine & Co., has made an engagement with D. F. Carpenter.

The annual meeting of the Manufacturers' Association of Movements and Cases will be held in this city February 7th.

We call attention to the advertisement of the "Ideal" Watch Case which is put upon the market to meet a popular demand.

Mr. "Sol" Kaiser, well and favorably known in the trade, has made arrangements to represent Louis Strasburger & Co. in the West.

Mr. Chas. R. Botsford, formerly with the Courvoisier-Wilcox Manufacturing Co., has made an engagement with Mr. Chas. Glatz.

The annual meeting of the National Association of Jobbers in American Movements and Cases will be held in New York, Feb. 8th.

Messrs. H. Muhr's Sons call the attention of the retail trade to the new sign which they propose to send to all dealers handling their thimbles.

The firm of Reed, Daily & Bettman, of Minneapolis, has been dissolved, Mr. P. H. Bettman retiring. The firm will hereafter be Reed & Daily.

The firm of Rupp & Held has been dissolved and superseded by the firm of A. Held & Co., which will continue business at the old place in this city.

Clarke, Black & Co., of Providence, have opened a New York office at No. 176 Broadway, where they will exhibit full lines of goods of their manufacture.

Mr. G. C. Hudson, formerly with Hamilton & Hamilton, Jr., has made an engagement with H. F. Barrows & Co., and will represent that firm for the present season.

Mr. H. C. Haskell has just introduced a large variety of new designs of society and class pins, also the tohoggan pin, which is made in a number of different styles.

Mr. A. A. Black, of Whiting, Kansas, was recently robbed of a quantity of jewelry, watch cases, chains, plated-ware, etc., and offers a suitable reward for the capture of the thieves.

Mr. H. B. Smith, of the firm of Alfred H. Smith & Co., sailed for Europe during the month just passed. This house is constantly receiving fresh invoices of beautiful diamond goods, and of precious stones of every variety.

The Brooklyn Watch Case Co. have made extensive alterations in their office, No. 40 Maiden Lane, with a view hereafter of shipping all goods from there instead of the factory in Brooklyn.

William Coombs, formerly with J. B. Bowden & Co., will represent M. Fox & Co., in the West, during the coming season. Mr. G. B. Tobey, formerly with M. Fox & Co., has left their employ.

Mr. Paul Ellenberg, of J. G. Willeke & Co., Springfield, Mo., sailed for Europe in the steamer *Elder*. He spent a few days in New York previous to his departure, and will remain abroad until midsummer.

Mackinney, Smith & Co., of Providence, have opened an office at No. 50 Bromfield Street, Boston, in charge of Mr. George Medbury, where they will cary a full stock of their solid gold imitation diamond jewelry.

We desire to contradict the rumor that Mr. D. V. P. Cadmus has severed his connection with the firm of J. B. Bowden & Co., he is still employed by that firm, and will visit his friends as usual in their interest.

Mr. William Fenton, who has had a large experience and has an extensive acquaintance in the trade, has been appointed manager of the Eastern office of the New Haven Clock Co., located at 7 Franklin street, Boston.

The firm of E. W. Reed & Co., of Fort Collins, Colorado, has been dissolved by mutual consent. Mr. Orton, who learned the jewelry business with the old firm, will succeed them and carry on the business at the old stand.

We are pleased to announce that J. T. Scott & Co. have done a very successful business during the last year, and wish them a continuation of their success. They are careful and prompt in their attentions to the trade.

Mr. Jacob Stern, of Stern & Stern, was recently married in New York to Miss Rose Sonheim. The happy pair made an extended bridal tour through the South, carrying with them the best wishes and congratulations of their many friends.

Mr. J. G. Fuller, one of the most popular salesmen in the trade, has made arrangements with Hamilton & Hamilton, Jr., to represent them on the road this season. His many friends will congratulate him upon securing such a popular line of goods.

Albert Lorsch & Co. have purchased from Wm. Daue & Co., of Providence, their entire stock of precious and imitation stones. Charles Reed, who represented Wm. Daue & Co. in Providence, will, hereafter, represent Albert Lorsch & Co.

Eugene MacDonald, formerly with F. G. Whitney & Co., will represent Mr. John T. Mauran in this city and as traveler during the present season, in place of Mr. Richard L. Salisbury, who retires after eighteen years' service with the house.

The interference that has been pending a long time in the patent office, between J. C. Harrington and H. C. Lindol, relative to an invention in spirally wound bracelets, has been decided in favor of Mr Harrington. Notice to this effect is given to the trade.

M. A. Ruger & Co., of Elmira, announce that Mr. C. W. Drake has assumed charge of the finances of the house, having an office at No. 32 Nassau street, and duplicate invoices should be sent him. Mr. M. A. Ruger still has charge of all other details of the business of the firm.

An understanding has been reached among the manufacturers of clocks by which the prices of clocks will be advanced to rates from which adequate remuneration may be expected. All the clock companies have signed the agreement except the Seth Thomas and the Terry companies.

At the recent meeting of the stockholders of the Trenton watch company, the following named gentlemen were elected directors for the ensuing year: Messrs. J. Hart Brewer, John L. Murphy, Lawrence Farren, Samuel K. Wilson, Theodore W. Burger, Gen. W. S. Stryker, and W. F. VanCamp.

Mr. S. B. Mann, for many years associated with Messrs. J. T. Scott & Co., has been appointed the general Eastern Agent of the Rockford Watch Co. He has secured offices at No. 11 Maiden Lane, where he will soon be situated so as to make comfortable any of the trade that favor him with a call.

Mr. M. S. Weand, for many years with Morris & Co., of Philadelphia, has engaged with S. F. Myers & Co., of this city, and will travel for them the coming season. The engagement of Mr. Weand makes seven travelers this firm has on the road, and they may be expected to cover the country pretty thoroughly.

Mr. R. J. F. Roehm, senior partner in the firm of Roehm & Son, of Detroit, met with a serious accident recently, through falling on the icy sidewalk. An examination showed that he had fractured both bones of his left ankle, and as he is well advanced in years, the accident is likely to incapacitate him for quite a while.

Mr. E. H. Tappan, of the firm of Tappan Bros. & Co., has sold his interest in the firm to Mr. Geo. Berry, formerly of Hugo, Berry & Co. The firm will hereafter be known as Tappan, Berry & Co. They have leased a shop in the Robinson building, in Attleboro, and will add a general line of ladies' jewelry to their business.

The firm of J. M. Chandler & Co., Cleveland, O., has been dissolved, Mr. Charles E. Sumner retiring from the firm, the latter, associated with his two brothers, has formed a new firm, and will conduct a general jobbing business under the firm name of Sumner Bros., while Mr. Chandler continues the business of the old firm.

Mr. J. A. Hardy and H. B. Hayes have formed a co-partnership for the transaction of the jewelry business at Pittsburgh, and will be located at No. 533 Smithfield street. Mr. Hardy has for many years been connected with the house of W. W. Wattles, and Mr. Hayes had charge of the watchmaking department in the same house.

Mr. Louis Strasburger and family, and Mortimer L. Strasburger sailed direct for Paris January 15, in the steamship *La Gascogne*. Mr. Strasburger will attend to the foreign business of his house, remaining abroad a greater portion of the year. He will also attend to the watch factory of Byron L. Strasburger, at Chaux de Fond.

Mr. Leopold Lippmann, of St. Louis, was robbed Jan. 18 in a mysterious manner. Shortly after 6 o'clock a case of great value, filled with diamond ear and finger rings, was abstracted bodily, and carried away almost under the vision of the proprietor. The robbery, in fact, was conducted so skillfully that the owner knew nothing of it for some time.

It is reported that Mr. James Knowles, with S. F. Myers & Co., lately inherited quite a fortune through the convenient death of an uncle in Brisbaine, Australia, with whom he had been a favorite in his youth. Mr. Knowles is in no way discomposed by his good fortune, but will continue to travel for the firm throughout the South as usual.

Mr. T. N. Theus and his brother, S. E. Theus, have bought the business of Mr. S. P. Hamilton, of Savannah, Ga., and will continue the business under the firm name of Theus Brothers. Mr. T. N. Theus has been connected with Mr. Hamilton for over twenty years, and his brother has been a traveler in the South for the Gorham Manufacturing Company.

Mr. John Tyler, of Dayton, Ohio, failed some time since in consequence of sickness. His creditors became satisfied that his was a case deserving of sympathy, so effected a compromise with him that enables him to go on with his business. Mr. Tyler is said to be a most excellent workman, and to be highly respected by those who know him best.

We are informed by Mr. L. W. Sweet, of the Cheshire Watch Co., that the recent introduction of their movement cased in 10 k. filled cases is meeting the universal approval of the trade, and the company are compelled to enlarge their facilities to supply the demand. Their nickel watch is still as popular as ever, the increasing demand of which is exhausting all their capacity. New cuts of this movement will be shown in THE CIRCULAR for March.

Albert Lorsch & Co. sent out a very handsome and useful New Year greeting in the shape of a neat memorandum tablet, made of imitation ivory. Front and back are handsomely printed advertisements of the firm, while four blank pages are left for memorandums. As these tablets can be readily cleaned after using, they can be used indefinitely. A yearly calendar is also printed on the back of the tablet.

The firm of Fry & Schieber, importers and dealers in jewelry, musical instruments, etc., of this city, made an assignment to Peter Hershfield, giving some twenty preferences aggregating $40,479, the largest of which are to Bernard J. Fry, $9,642; Rudolph Wyman, $3,000; Trangott, Schneider & Co., $3,000; and Leo Cohen, $2,000. The firm was formed in the summer of 1879, with a capital of $2,000.

The Self Winding Clock Company, of No. 17 Murray street, in this city, has issued a very handsome catalogue showing the various forms in which their clocks are presented to the public. The illustrations show numerous designs of cases, suitable for any and all purposes, and some of them are highly ornamental, and all of them desirable. These clocks wind themselves automatically, and are also excellent timekeepers.

The jewelry store of T. P. Bedilion, of Pittsburg, was closed recently by the Sheriff on execution issued on confessed judgment against him aggregating $37,394 in favor of Joseph U. Rose, for use of Hannah Bedilion, and one judgment for $3,200 in favor of G. B. Barrett, wholesale jeweler. Mr. Bedilion refused to say what causes led to his failure. He had been in business for many years, and was highly respected.

Some time ago the jewelry store of H. J. Sevy, at Battle Creek, Mich., was robbed of goods valued at $1,500. Three men were convicted of the crime and are now serving their sentences in prison at Jackson. Mr. Sevy had an interview with them lately, when they told him where the goods were concealed. Search was made, but the goods had been removed. It is supposed that some other thief who was interested in the robbery had removed them unknown to his fellow thieves.

The Seth Thomas Clock Company announces that it will open a store in St. Louis during the present month, and will keep on hand there a full line of their goods from which the jobbing trade can make selections. The St. Louis store will be in charge of Mr. Joseph P. Holland, who has occupied a confidential position in the New York store for many years. Mr. Holland has an extensive acquaintance in the trade and will be warmly welcomed as manager of the St. Louis branch store.

Mr. Henry Zimmern, of 8 Maiden Lane, has patented a new watch movement holder, a diagram of which appears in our advertising columns. The improvement for which Mr. Zimmern has obtained letters patent is: That in the holders at present in use, the movement is only secured in its proper place with considerable difficulty, while in Mr. Zimmern's patented holder the movement drops into its place and is secured at once with a single touch. The same device can also be used for any article of jewelry with the same facility.

A well dressed young man entered the jewelry store of Carl Reiche, at Union Hill, N. J., recently, and asked to look at some rings. A tray of them being placed before him, he watched his opportunity, and suddenly dashed out of the store with the tray in his possession. Mr. Reiche gave chase, and as he was gaining on the thief, that worthy turned and fired at him from a revolver. Mr. Reiche returned the compliment, but neither of the shots did any damage. A policeman having joined in the chase, he also fired at the flying desperado, and fortunately put a bullet in his leg, bringing him down. He was game to the last, however, and again attempted to shoot the officer at close range, and would have inevitably killed him had the cartridge exploded. A little judicious clubbing brought him into subjection, and he was made a prisoner and held to answer for the robbery and attempted shooting. He gave his name as Charles Coleman, and his residence as New York. The tray of rings was recovered.

The death of Mr. John Roach, who was President of the Chalmers-Spence Co., of New York, well known manufacturers of asbestos goods of all kinds, left a vacancy which was filled by the trustees of the company on the 24th inst., by the advancement of Mr. Robert H. Martin, the former secretary and business manager. Mr. George E. Weed still holds the position of treasurer, while Mr. C. H. Van Nostrand, the former managing clerk, has been made secretary of the company. The business of this company is steadily on the increase.

A thief, giving among other names that of Stanley Martin, was recently employed as an agent to sell goods by A. H. McClintock, of Philadelphia. At the close of his first day's work he went to the house of his employer to report his success, and during the temporary absence of Mr. McClintock from the room, Martin abstracted a valuable lot of jewelry from a bureau drawer and made off with it He was subsequently arrested and told where he had left the goods in a liquor saloon, and they were recovered. Martin was held to answer.

We are pleased to confirm various rumors of dame gossip to the effect that, during the month of February, Mr. George W. Parks, who has for several years been associated with E. I. Franklin & Co., will assume the duties of placing on the market the goods manufactured by Howard & Son. His success can be somewhat measured by the efficient manner in which he has conducted the affairs of his late employers, and affords striking evidence of his popularity. Howard & Son are to be congratulated upon securing the services of such a representative.

The Elgin and Waltham Watch Cos. both issued during the past month new price lists, making material reductions in the prices of their movements. This does not imply that there has been any deterioration in quality, but the high standard attained is still maintained. The companies are enabled to make the reductions because of the improvements they are constantly making in their machinery, whereby the cost of production is lessened. The Waltham Co., according to the system inaugurated by them some time ago, will rebate the retail trade.

The annual meeting of the New York Jewelers' Board of Trade was held at their rooms Tuesday, January 25th, at which time the following officers were elected : Frank H. Richardson, president ; David Keller, 1st vice-president ; William Bardel, 2d vice-president ; Wm. Smith, treasurer ; and the following named gentlemen to compose the board of directors : Messrs. William Smith, Joseph Fahys, Leopold Stern, Sigmund Lorsch, William Bardel, Louis Kahn, F. Kroeber, George Courvoisier, D. Keller, S. F. Myers, F. H. Richardson, Aug. Oppenheimer, and E. J. Scofield.

Mr. William Ungerer, of Philadelphia, was robbed Jan. 22 of a tray containing rings valued at $200. A young man was looking at some rings, and having selected one that he desired to purchase, Mr. Ungerer was wrapping it up for him, when he suddenly seized the tray and rushed out of the door. A confederate blocked the door so that pursuit was delayed, and the thief got away with all the rings in the tray. Mr. Ungerer was robbed of two watches in the same manner some time ago, and then had a spring attached to the door so that he could close it if the game was attempted a second time, but on the recent occasion he forgot to work the spring.

The New Year starts off in a most satisfactory manner for manufacturers and dealers in every branch of the jewelry trade. In our visits through the past month to the trade in general, we found the expression one of universal satisfaction with the present conditions of trade, and the outlook for the future. Watchmakers have had an unprecedented demand for movements, and the case makers have been kept busy making cases for them. Manufacturers of all kinds of jewelry have been running their factories full time, and employing more men than they have done in years before, while the jobbers have handled more goods during the past two months than during a similar period for five years past. Every one feels jubilant, and there is not one dissenting voice as to the bright outlook for the spring trade.

When Emil Dahlheimer & Co., of Cincinnati, failed a year or so ago, it was found that they had preferred friends and relatives as creditors to a considerable amount. The Eastern creditors were not satisfied with the condition of affairs presented, and began suits to recover the sums due them. The cases have been dragging along in the courts, being hotly contested at every point. On January 12th, however, suits were determined in their favor to the following amounts : The E. Howard Watch & Clock Co., $1,057 ; Julien Gallet & Co., $1,534 ; Herman J. Muller, $421 ; Peter H. Leonard, $644.

Albany papers of January 9th announced the intended removal of Mr. Henry Rowland from that city to New York. In an interview with a reporter Mr. Rowland said that although he carried a large stock of goods and offered almost everything that the people of that city were likely to want in his line, he found that they did not appreciate home enterprise, but when they wanted goods came to New York for them. Consequently, he proposed to move to the metropolis in the hope of securing a fair share of the trade of Albany. He proposes to make the change about the first of May, and will meantime sell off his stock at reduced prices.

Just before the holidays, E. F. Kelley opened a jewelry establishment at No. 619 Fulton street, Brooklyn. Having been connected with J. W. Grant & Co. for some time, he succeeded in securing credit for several thousand dollars worth of goods. He still retained his employment in the city, leaving his wife to run the Brooklyn establishment. There seemed to be no reason to suspect that all was not right until one Saturday morning recently when it was discovered that Kelley, his wife and all the goods had disappeared. The loss to the trade is estimated at about three thousand dollars, distributed in small sums among a number of victims.

The Pan Handle Railroad Company has issued an order to all its employees to the effect that they must carry only such watches as are good timekeepers. Every three months each employee is required to send his watch to the office for examination, and if a competent examiner pronounces it outof order, or untrustworthy, the owner must have it placed in satisfactory condition or get another watch. The examinations are made at the expense of the railroad company, but each man must pay for the repairs to his watch. This order is in the interests of the public, and other roads might follow this example with profit alike to the public, themselves and their employees.

H. T. Cook & Co., one of the oldest jewelry firms in Toledo, Ohio, made an assignment Jan. 13, for the benefit of their creditors. The preferred claims amount to between $20,000 and $30,000, among which are the claims of several New York jewelers. The cause of the failure is said to be the diversion of trade from Toledo to other points during the past few years, whereby the firm was left with a considerable stock of goods that have gone out of style. The head of the house, also, has been seriously ill for some time, and unable to give his attention to the business. It is hoped that when he recovers he will be able to make arrangements to continue business. The liabilities are placed at about $60,000 and the assets at less than $40,000.

The store recently occupied by Henry Muller, as a retail jeweler, of South Amboy, N. J., was well filled a few days since with expert locksmiths and representatives of New York firms who had met for the purpose of opening the safe left locked by Mr. Muller at the time he departed from Amboy to spend the night in the city. All clustered about the expert and manifested much anxiety but the lonely wife. She apparently took no interest in the proceedings. When the combination was reached the door swung open and out upon the floor dropped a piece of German silver in the shape of a medal. Upon its face were engraved these words; "Remember Me." The keepsake was taken by Stern Brothers & Co. This constituted the contents of that valuable safe. The wife, when told, said "too bad," and picked up one of her six children and went to knitting on a German smoking cap. So far his liabilities amount to $3,000. The "Remember Me" medal is all he has left in the way of assets.

We call the attention of the trade to the six pages of advertisements in this issue of THE CIRCULAR, of B. & W. B. Smith, the well known decorators and finishers of interiors for commercial houses. They present views of the establishments of the Gorham Manufacturing Company, the Whiting Manufacturing Company, Reed & Barton, and Mitchell, Vance & Co., which were fitted up by them entirely. They also illustrate some special features of their furnishings, and present a long list of references, among which will be found the names of many prominent houses in the trade. The Messrs. Smith have, within a few years, developed a special industry in the fitting up of elegant establishments, and have not only made a financial success of it, but have acquired a national reputation for their artistic designs and the high character of their work.

Two thieves, giving the names of Jacob Brown and Louis Hecht, were arrested in Baltimore recently through the vigilance and persistency of Louis Schlarb, a salesman in the employ of Welsh Brothers. The two young men had called at the store at different times to look at goods, and on one occasion had ordered some to be sent to a street number that was found to be spurious. On their next visit to the store the clerk recognized them, and watched them closely, but they departed without buying anything. Convinced that they were thieves, Mr. Schlarb followed and saw them enter the store of J. Castleberg, where they also looked at goods without buying. Schlarb followed them about for some time, and finally called the attention of a detective to them, and he took them into custody. On searching them several scarf pins were found in their possession which had been stolen from Welsh Brothers and Mr. Castleberg. They were held to answer for the larceny.

Some of the Canadian manufacturers are complaining of the treatment that they have received at the hands of the customs authorities at Detroit. The manufacturers have made some very attractive goods, called winter sport goods, and the dealers in St. Paul had ordered liberally of them for the winter carnival in that city. When the goods arrived at Detroit they were seized by the United States Customs authorities, appraised by local dealers at double the invoice price, and the manufacturer fined for making a false invoice. It was in vain that he showed that the invoice was correct according to his catalogue, and the prices charged the buyer; he either had to pay the fine or lose his goods. Supposing that the matter had been made clear to the authorities, a second invoice was sent, and these were also seized. The matter has not yet been settled, but as the winter carnival does not last for ever, the probability is that few Canadian goods will be sold in St. Paul this winter.

A very clever fraud was perpetrated at New Haven about the middle of January by two New York sharpers, a male and a female. They arrived in New Haven and announced that they were about to engage in the jewelry business, having already ordered a large stock of goods. The man gave his name as Orlando F. Root, and at once leased a building and engaged workmen to decorate and alter it for a mammoth jewelry store. He deposited $1,000 in the Mechanics bank, and $500 in the city bank. The couple next selected elegant apartments and ordered furniture, etc., with which to adorn them. Inquiries began to arrive at the bank from dealers in New York and Boston relative to Root, and the answers were to the effect that Root kept accounts with them, and was making extensive preparations to go into business. The answers seemed to be satisfactory, for soon after several cases of jewelry arrived for Root. These he took into a sleigh himself, alleging that he was going to put them in a place of safety until his store was ready. He then drove to the banks and drew out his deposits, and getting his female companion, they left the city by an early train for New York. It is stated that the goods they got away with were worth from $12,000 to $15,000, but this is merely surmise, as no one saw the cases opened. Detectives have been looking for the couple, but without success. One Boston firm, it is stated, was victimized to the extent of $5,000, and desiring to know something more, sent a representative to New Haven to make enquiries regarding Mr. Root, but he arrived just after the departure of the train with that worthy on board.

About the middle of last month W. B. Vick, of Richmond, Texas, while in Houston, became suddenly insane. Saturday evening Vick left the hotel to visit some friends and failed to return during the evening. Sunday afternoon he was seen by two hunters five miles from the city on the prairie, but ran from them and disappeared in the tall grass. Sheriff Ellis, with trained hounds, started out after him. At a late hour the party returned with the object of their search. When Vick left the hotel he was well dressed, had plenty of money and a valuable watch. When found he was without a hat, coat, watch or money. His shirt and pants were in rags, his face and hands badly bruised and torn by underbrush. When found he was standing under a tree talking to an imaginary friend. He was surrounded and captured, tied hand and foot and brought here and placed in jail for safe-keeping. He talks incoherently, imagining that bloodhounds and men are pursuing him. He is well known in Houston in Masonic circles and was kindly cared for.

David E. Markstein, who was arrested recently and held to answer a charge of swindling. He was indicted in February last, but escaped, and the detectives have been looking for him ever since. He pretended to represent the Manhattan Watch Club Company, of New York, which carried on operations in a similar manner to what Ludwig Hess did, whose case is described elsewhere. The whole scheme of selling watches and jewelry on the club plan is a swindle, and also a violation of the lottery laws. Markstein was held to answer. Several of his victims are ready to appear against him. He represented that the watches he was disposing of were worth $15 apiece, and that members of the different clubs would each get one by paying one dollar a week for forty-five weeks. His practice was to make his collections each week until he had obtained thirty or forty dollars from his victim, and then he would disappear. Investigation showed that there was no such watch company, and so several of his victims had him indicted. He probably will not attempt his little game in New York again.

Frank Stewart, a jeweler of Chicago, was arrested last month charged with receiving stolen goods. Two young thieves had been arrested charged with having committed some fifteen burglaries within a short time. At one place they stole quite a number of wedding presents, and some of these were found in Stewart's possession and fully identified. The thieves were named Guy Wemouth and Freddie Howe, and Wemouth testified against Stewart. He said that Stewart knew him to be a thief and burglar, notwithstanding which he bought goods of him. He said he took him the wedding presents and told him just where he had stolen them, and then Stewart gave him $15 for them. The detectives who made the arrests testified that Stewart denied ever having seen the goods, but subsequently surrendered them. On the examination, the counsel for Stewart asked to be put on the stand, and he testified that he had known the accused for many years, that he was a church member in good standing, and a man of irreproachable character. Notwithstanding this certificate of character, the magistrate held Stewart to answer the charges made against him.

The Scientific American of January 22d describes a night clock recently brought out by W. C. Vosburgh Manufacturing Co., of Brooklyn and Chicago, the well known manufacturers of gas fixtures. It is a combination embodying a night, day and medicine clock, as well as a nursery lamp. Much thought and labor has been expended both in this country and abroad to produce a practical and inexpensive night clock. This invention provides it in a very simple and practical way. To the hour arbor of the movement is attached a disc of metal, and upon this metal disc rests an opaque glass globe having the hours, halves, and quarters thereon. This is made to revolve once in every twelve hours, and the stationary hand or pointer attached to the base indicates the time. Inside the globe is placed a lamp or taper, which, when lighted, illuminates the globe and yields a mellow and sufficient light in the room at night. The adjustable medicine pointer correctly indicates the desired interval between doses. This in these combinations is produced an article which is valuable in the sick room, the nursery, and for general use in every family. The advertisement will be found on another page of this issue.

The Boston Merchants' Association recently entertained and banqueted a large number of distinguished guests, and on the day following, at the invitation of Mr. E. C. Fitch, President of the American Waltham Watch Company, the Boston gentlemen, with their guests, visited the factory of the company at Waltham. A special train conveyed them from Boston, the party being in charge of Messrs A. Shuman, W. Lewis and J. J. Henry. Among the guests were U. S. Senator Eustis, of Louisiana, Congressmen Morrow, Hepburn and Herbert, Ex-Governor N. P. Banks, Colonel Stearns, of the Governor's staff, and Messrs. Endicott, Richards, Lowell, Cumner, Ames, Proctor, and numerous others. On arriving at the factory, the party was received by President Fitch, who made them welcome, and accompanied them in a tour of inspection through the factory. They were astounded to find 2,500 intelligent American men and women engaged in this one industry, and at the arrangements made for their comfort and convenience. They were delighted at the various forms of machinery shown them, some of which, working automatically, seemed to do its work with human intelligence. After the sight seeing was concluded, the party returned to the office, which had been converted into a banqueting hall, where they were regaled with an elegant and bountiful repast. The inner man satisfied, speech making followed, when the strangers gave full expression to the wonder that filled them upon seeing how American genius and perseverance had built up an industry that gave employment to so many persons, and at the same time conferred so great a blessing upon the people at large by placing an article of necessity within the reach of all. Senator Eustis related how, when he visited Switzerland, it had taken him seven days to obtain a permit to visit a silk factory, and when he finally got inside, they would not show him anything of importance; but here in this factory, they not only invited visitors, but threw everything open to their inspection, and rewarded them for investigating by banqueting them right royally. At the conclusion of the speeches, three cheers were given for the American Waltham Watch Company, after which the party returned to Boston.

The Committee of Counsel of the United States Jewelers' Guild met at the Matteson House, Chicago, Jan. 20, to consider the advisability of having the guild stamp transferred directly to the guild, and take action on the establishment of additional centers for the distribution of guild goods. The title to the stamp has up to the present time been vested in Mr. W. N. Boynton, of Manchester, Ia., but since the incorporation of the guild last June, it has been felt that the organization should assume full control of its stamp. After two days' discussion and consultation with an attorney, action was taken relieving Mr. Boynton of the responsibility which he has borne for years as custodian of the stamp, and placing it in the hands of the guild as an incorporated body. In order to forever prevent the stamp from being prostituted by being placed upon goods of inferior quality, the deed of transfer has been made to embody restrictions and conditions which prohibit the giving of the stamp to any manufacturer who shall not furnish a good and sufficient bond, guaranteeing the quality of the goods so stamped. It is further provided that all goods bearing the guild trade mark must also bear the actual quality stamp, and the private mark of the manufacturer. No goods so stamped shall be furnished to any jewelers not members of the guild, or of some of the affiliated auxiliary State associations. Arrangements were also made for providing and placing in the hands of the trustees a fund sufficient to at all times employ efficient legal talent when necessary, to enforce the observance of the foregoing conditions, and the terms of any contracts entered into by the guild. Considerable time was spent in discussing the desirability of creating additional distributing centers to facilitate the distribution of guild goods, and New York, Pittsburg and Cincinnati were decided on as being the most suitable points. The claims of St. Louis, Kansas City, Minneapolis and Cleveland were not overlooked, and it is thought that ere long San Francisco will be made a distributing center. Power was given to President Boynton, subject to the approval of the committee, to arrange for the establishment of distributing agencies at the first-mentioned three cities, but should he fail to come to satisfactory terms with representatives there, it is probable that agencies will be located in some of the other cities referred to.

Messrs. J. L. Roy and Paul Douglas, constituting the firm of J. L. Roy & Co., of Omaha, were not so successful as they hoped to be when they absconded from that city with their entire stock of goods. The firm had been engaged in business only since last fall, and is said to have been buying liberally of late of diamonds and other high priced goods. On Monday morning, Jan. 3d, when the clerk came to open the store he received a New Year greeting in the shape of a note signed in the name of the firm, announcing that as their business had not been a success, they were reluctantly obliged to return to Canada, their native land. Investigation showed that they had left the city on Jan. 1, taking with them three trunks containing jewelry estimated to be worth from $15,000 to $20,000. These trunks were checked to Windsor, Canada, and the hint given in the note left by the absconding firm was sufficient to enable the detectives to trace the property. Two of the trunks arrived safely at Windsor, where they were seized at the instance of the Bank of Commerce, of Omaha, and a lawyer named Cavanaugh, who had a claim of $1,600 against the absconders. These two trunks are said to contain about $10,000 worth of goods, but what became of the third one has not transpired. The goods left behind by Roy & Co., consisting of clocks, musical instruments and the cheaper grades of jewelry, were at once attached by local creditors, but it is insufficient to satisfy their demands. The liabilities of the firm are stated to be about $30,000. Douglas, who is believed to have been engaged in other transactions of a similar nature, had capital amounting to $20,000 when he went into business with Roy, and deposited $5,000 with the Bank of Commerce as a starter, but at the outcome the bank was a victim in consequence of having honored overdrafts for the firm. But for the note left behind by this pair of worthies, no clue would have been found to their destination or the disposition of the goods.

When Ludwig Hess, alleged manager of the Manhattan Watch and Jewelry Company, of Brooklyn, recently caused the arrest of M G. Bierman, for larceny, he little thought that the outcome of the matter would be his own arrest. Hess advertises to sell watches and jewelry on the club plan, a number of persons paying at the rate of about a dollar a week each till each had been supplied with a watch, or such article of jewelry in lieu thereof as he might desire. He had runners out canvassing for victims, and there appears to have been quite a number of these. The "funny part" of the business lay in the disposing of the watches by lottery, a drawing being made, according to the prospectus, each week, till every member of the club had been provided with what he wanted. Bierman became a member of one of the clubs, and paid his instalments until he had invested $25, when he told Hess he had rather exchange his chances for a diamond ring. Hess showed him a diamond ring which, he said, was worth $125, and Bierman agreed to pay that in instalments of $10 a week, the amount that he had already paid being credited on the account. He took the ring, but Hess was not satisfied, and demanded more money in advance. Then Bierman had the ring valued, and found that it contained a flaw, and was not worth anywhere near the amount Hess asked for it. He therefore concluded not to pay any more money to Hess and to keep the ring till he got back the $25 he had already paid. Then Hess had Bierman arrested on a charge of stealing the ring. The case came up before Justice Walsh for examination, when it was shown that the facts were as here briefly recited. One of the circulars issued by Hess was presented to the court, setting forth how the goods promised were distributed by lottery, and the case against Bierman was promptly dismissed. Then the surprise came for Hess when the judge announced that he had a complaint against him for obtaining goods under false pretences and for violating the lottery laws; the complaint being sworn to by another person who had been victimized by him. Hess and his counsel expressed great indignation at this phase of the case, but the judge held Hess in $500 bail to answer. E. P. Burns, one of the ropers-in for Hess, was also held in a similar sunt for examination. To say that they were surprised at the turn things has taken but mildly expresses their astonishment.

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JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW

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A Monthly Journal devoted to the interests of Watchmakers, Jewelers, Silversmiths, Electro-plate Manufacturers, and those engaged in the kindred branches of art industry.

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The Business Outlook.

WE ARE among that rather numerous class that anticipates a most excellent trade for the coming season. The outlook is promising in all directions, and reports from every section of the country indicate that there will be an unusually active demand for goods from this time forward. We do not form our judgment simply from reports in the jewelry trade, but from information gathered as to business in general. Trade reports in all lines of goods show a steady improvement in the demand, and indicate that manufacturers and dealers are preparing for a brisk trade. Indeed, unusual activity was shown last month in all branches, and the February trade is said to far exceed that of any February in many years. Several manufacturing jewelers whom we interviewed on the subject, stated that their February trade was in excess of their most liberal anticipations and they saw no reason why it should not be kept up. At least, they are making their preparations for a continuance of the present activity, and should they be disappointed in their expectations they will be caught with a liberal supply of goods on hand. We do not apprehend that they will be disappointed, unless something unforseen intervenes to change the present outlook. A gentleman who has traveled in the trade for many years, having returned recently from an extended trip, says that he is confident that there is going to be a lively trade this spring, but what he is fearful of is that in their anxiety to take advantage of favorable conditions, the jobbers will overstock the retail trade, and so injure their future business, possibly driving some retailers into bankruptcy, by loading them down with more goods than they can either sell or pay for. He said that he sees that tendency already cropping out, and would warn jobbers against permitting their travelers to sell too heavy bills to small dealers. In notoriously dull seasons one of the chief reasons usually assigned for the dullness is the overstocked condition of the market, yet so great is the eagerness of all hands to sell goods, that they will repeat the overstocking process at every opportunity. It is too much to expect any dealer to attempt to limit the orders of a good customer, but they might abstain from urging any one to buy in excess of his prospective demand; the dealer who only disposed of $5,000 worth of goods last year ought not to be persuaded to buy $10,000 worth this year.

This is a good time also to exercise discrimination in the matter of giving credit and try to weed out the number of those dealers who are doing business entirely on the capital of the jobbers. A man ought to have a little something of his own invested in his business, and not depend entirely upon the good nature of his creditors. But it is doubtful if there is ever any reform in this respect, for the trade goes right along year after year selling to men regarding whose solvency they are in doubt, but are content to take the chances. Failures are numerous, but still the indiscriminate giving of credit continues, every one being afraid that if he refuses to sell a person some one else will, and so the one who refuses will lose his trade. Thousands of dollars worth of goods are sold every year when the seller is in doubt if he will ever get his money. Such abuses of the credit system tend to propagate failures, and to induce swindlers to take advantage of the good nature of the trade. If the looseness that characterizes this matter of giving credit could be eliminated, the number of costly failures would be greatly reduced and the legitimate dealers many thousands of dollars better off. Why would it not be a good idea for the Board of Trade to take action looking to a better and more uniform practice regarding the subject of credits? With the promise of a prosperous season at hand, every effort possible should be made to secure all the advantages that can be gathered from such improvement in the conditions of trade.

The Strikes of Labor Against Labor.

REMEMBERING the disastrous effects of the strikes of a year ago upon general business, it is not without considerable apprehension that business men have witnessed the recent strikes in New York and vicinity, together with other indications that the mischievous Knights of Labor are determined, if possible, to repeat those trade disturbances this year wherever any encouragement is offered them by the workingmen. The strike of last month originated with the coal handlers, who asserted that their employers were contemplating a reduction of wages and they accordingly struck for an increase. At the same time the officers of the Old Dominion Steamship Company employed a force of men to go South to take the places of colored men who refused to work on Sundays, but the difficulty having been

arranged with the colored men, those engaged in New York were set to work here, whereupon the old hands struck. As the employers showed no signs of yielding, the Knights of Labor called out the longshoremen, the stevedores, and all laborers engaged in handling either freight or coal at this port hoping by this means to force public sentiment to compel the instalment of the coal and freight handlers. In obedience to this most unreasonable call, some 30,000 men voluntarily abandoned their work and remained in idleness for several weeks. The supply of coal ran short, and many manufacturing establishments were forced to shut down for lack of fuel, thus throwing numerous other workingmen out of employment, while the poor people, who are unable to lay in a supply of coal, suffered because the dealers were unable to furnish it to them. Even coal that had been purchased by charitable persons for gratuitous distribution among the poor, was stopped by the strikers who refused to permit it to be loaded into carts. For nearly a month the commerce of this port was greatly interfered with by the strikers, who not only refused to work themselves but would not permit others who were willing to work to take their places. There were a dozen men ready and anxious to fill every place vacated by the strikers at the old rate of wages, but the Knights of Labor threw every obstacle in their way, going to the extent of assaulting and maiming the new men whenever they could find an opportunity for so doing. The entire police force of the city was kept constantly on duty, and but for their presence there would unquestionably have been serious riots. But the strikers were unable to cope with the great numbers of new men who were seeking work, and eventually the employers had all the men they wanted, and soon got their affairs to running smoothly again, while the strikers found themselves entirely shut out, the employers generally refusing to discharge their new men or take back their old ones on any terms. Finally, after having lost some three weeks time and wages, the strikers found their efforts to coerce the employers entirely fruitless, and then came a break when every man sought to find employment again. Their old places being filled, they had to hunt around for new ones, and very few of them were able to place themselves as advantageously as they were before the strike.

While the strikers, urged on by their reckless leaders, call these strikes a rising against the exactions of capitalists and monopolists, they are in effect nothing more nor less than strikes of organized labor against unorganized labor. Organized labor says, substantially, "we will not work, and we will not permit unorganized labor to take our places; being united, we will persecute all who attempt to do our work, even to the extreme of taking life if necessary." Unorganized labor is largely in the majority, but because it is unorganized, it is unable to protect itself, and meet violence with violence, so the pitiable spectacle is presented of workingmen combining and resorting to extreme measures to prevent other deserving workingmen from doing the work that is offered them at rates of compensation they deem satisfactory. These men have families to support, and their right to earn their living is as unquestioned as is that of the strikers, and that is the great principle that has got to be recognized in this country; if there must be a conflict between striking rioters and the law and order elements of society to establish this principle, the sooner it comes the better it will be for all concerned. It is time the American people were deciding definitely and for all time, whether they will consent to be dominated over by such an order as the Knights of Labor, and submit to have their commerce obstructed and business brought to a standstill to further the interests of a few non-working demagogues and "walking delegates," who batten on the earnings of honest labor. In this last strike, as in those of last year, a large majority of the strikers were called out against their better judgment and against their will; they had no grievances to complain of; they were satisfied with their wages and with their treatment, but they were "ordered" out to support other strikers in entirely different lines of labor. With an utter disregard for the general welfare, the Knights of Labor are willing to subject the public to any amount of hardship and loss in order to carry their point. They even threatened to call out the employees of the elevated and surface railroads in order to force the coal companies to concede the demands of their strikers. The despotic power wielded by the leaders of the Knights of Labor is dangerous to the country, and full of peril to every community. Every right minded man must take ground against it, and that journalist who fails to denounce it is recreant to his duty. The jewelry trade was a great sufferer last year because of the serious set-back given to general business by the strikes of the early spring, and the members of it cannot fail to be interested in the labor disturbances that occur, even though they are entirely outside their line of business. Business men must make common cause against the common enemy that is found in the organization of the Knights of Labor.

The Fire Insurance Combination.

THE COMBINATION among the fire insurance companies of this city to advance rates, to which we have referred on several occasions, but more particularly last month, is becoming more and more aggressive as it gains strength. The success that has attended it in this city has inspired the companies to adopt the same plan in other cities, and Philadelphia is preparing to put a similar compact into effect at once. An interview which we printed with a prominent manufacturer in Maiden Lane showed how his rate on stock had been advanced one hundred per cent. this year over what it was last year, the charge being sixty cents where it was formerly thirty. Mr. W. W. Mansfield, of Portland, Maine, writes to say that the rate on his risk, which is regarded as a good one, is seventy cents. He approves of the idea we put forth, of the organization of a jewelers' mutual insurance company, and wants to be counted in if such a company is organized. There is no question that the stock companies have made large sums insuring the jewelry trade during the past few years, and the money that has gone into their pockets might just as well have been kept in the trade. The plan of mutual insurance has been wonderfully successful, the New England mill mutuals having virtually obtained control of the mill and factory insurance of the country, much to the disgust of the stock companies. Indeed, such a hole have they eaten into the premium receipts of the old companies, that the latter concede that they have got to adopt the methods of the mutuals to compete with them for the class of business they insure. The plan of the mutuals is to put every risk in as good condition as possible to avoid fire, and to provide reasonable means to extinguish any that may occur by accident, then to charge about the same rates as the stock companies, but at the end of the year to divide all the net earnings among the members, thus bringing their insurance much below the cost in the stock companies. The mill mutuals have returned an average of over sixty per cent. for many years past, thus providing the cheapest insurance ever known on mill risks.

Several years ago a charter was obtained by several of the leading jewelers of this city for a mutual insurance company, but the organization has, we believe, never been perfected. Now would seem to be a good time for putting it into operation. With the insurance companies combined to make the good risks pay for the poor ones, and those that do not burn to make good the losses incurred from those that do burn, the jewelers would do a wise thing by making a special class of their risks, putting them in as good fire proof condition as possible and then insuring them themselves. There is not a doubt that a large amount could be saved to the trade every year. The losses by the burning of jewelry establishments, factories or stores, is not very great, while the rates charged for insurance are out of all proportion to the hazards. The success of the New York "combine" has encouraged local boards in all sections of the country to advance rates, and there is not a jewelry establishment in the land that will not have to pay more for insurance during the present year

than it did last year. The profits on this business might just as well be applied to reducing the cost of the insurance as to swelling the plethoric treasuries of the insurance companies.

One point about the insurance compact is that it shuts out all competition among companies; they are all pledged to maintain a cast iron schedule of rates, and any one cutting the tariff is liable to a heavy fine. In two or three States bills have been introduced in the legislatures to prevent such combinations for fixing insurance rates, on the ground that the practice destroys competition and is a combination opposed to public policy. Should any such laws be enacted the companies would find some way to evade them, so that the only protection the public can find is in the organization of companies outside of the combination, as has been and is being done in many lines of industry. We hope to see the jewelers form a mutual insurance company for their own protection at an early day.

Facts for Workingmen.

THE OFFICIAL statistics that have been compiled regarding the strikes of last spring present an array of facts that should be studied by every workingman in the country. We have before us the statistics regarding sixty-seven of those strikes, which included most of the serious ones that occurred. In making the compilation, where several industries were subjected to strikes to support a strike originating in one of them, they are all counted as one strike; for instance, the building trades are grouped together, including carpenters, masons, bricklayers, etc., so that these sixty-seven strikes probably embrace over a hundred labor outbreaks. The figures show that 444,315 workingmen and women were engaged in and affected by these sixty-seven strikes; the average length of time they were out of employment was five weeks and three days each. The causes given for these strikes are: For higher wages, for management of factories, for uniform wages, right to discharge, against non-union men and for shorter hours. In no single instance was the strike wholly successful, but in one or two cases where the strike was for less than ten hours for a day's work, the employers consented to try the experiment, but after a few months went back to the old plan. In every instance where the Knights of Labor interfered the strikes were absolute failures, thus showing conclusively that the average employer will not submit to outside interference with his business; while he might be willing to make concessions to his own employees, he will not do so when the demand comes from those who know nothing about his business, yet assume to dictate to him how he shall conduct it. This is a fact that workingmen may well ponder. Their self-constituted leaders, the dictators at the head of the Knights of Labor, made a failure of every attempt to better the condition of their followers, simply because the methods adopted by them are un-American, and opposed to the spirit of our government, and especially offensive to all who believe in individual rights. The time lost by the strikers in these sixty-seven strikes varied from one day to six months, the average being five weeks and three days for each man, woman and child, who indulged in the luxury of striking. It is not too much to assume that each of these strikers earned while at work ten dollars a week, so that each one lost on an average $55, making for the 444,315 strikers a loss of wages that they might have earned equal to nearly two and a quarter millions of dollars. To this loss to the workers must be added the amounts they spent during their voluntary idleness when they were consuming their capital and running into debt. The loss to the employers does not figure here, but that was very great, not a small portion of which the workers had to make good in some way. In nearly every one of these strikes the Knights of Labor had a hand, either directly or indirectly, and many of them were made without a grievance to be redressed, but in blind obedience to the orders of the Knights, as the strikes of this year were. The outrages perpetrated by this organization against honest labor, and the despotic power it exercises over its members, is worse than anything ever known in history. The workingmen of the country should take these matters into serious consideration, and ponder the question as to whether or not they are ready to go on yielding blind obedience to leaders who have utterly failed to do them any good, but, on the contrary, have worked them much moral and pecuniary harm.

In this connection we append the report of an interview with Mr. Simon Muhr, of Philadelphia, which was recently printed in the *Tribune* of this city.

One of Philadelphia's active young men is Simon Muhr, who is a manufacturing jeweler. "Are we ever to find a Napoleon to bend these workingmen or to head them off?" he asked, at the Fifth Avenue Hotel yesterday, and then remarked: "Manufacturers with whom I come in contact are watching the course of labor affairs with great anxiety. Most of those who talk with me are getting their business in shape where they can put up the shutters and go fishing if necessary. In the last year I have gone through an experience with the six or seven hundred men in our establishment such as I do not care to undergo again in a lifetime. We have always looked on the people in our employment as members of a great family. If any of them are sick we have a physician who is engaged by the year to look after them. If there is a christening the parents would feel slighted if we did not take notice of it. I presume there have been fifty children named after me in the last three or four years. I am a director in an orphans home, where I have been able to secure provision for orphan children of our mechanics, and we have always made provision for destitute families where death or illness has occurred. Now, I have grown up in the business with these employees. They were like companions to me until a year or so ago. When I went through the shops they were all glad to see me. But what a change since these labor organizations have been at work among them! There is no change in me. But when I go down through the rooms now the men look away. Their eyes never meet mine as in the old days. They avert their heads. There is a feeling of antagonism. I understand it well enough. They have been out to their assembly meetings where they have heard speeches about monopolists and hard taskmasters, and men who grind the faces of the poor. I am to them the type of what they have heard denounced by the glib-tongued talkers in their meetings. I am the grinding taskmaster. Why, rather than be thus regarded by the men who have grown up with me as companions in business, I sometimes feel that I would like to burn the factory down and go to grubbing for my own living."

Pursuing the same subject further Mr. Muhr spoke of the tyranny in the labor organizations, and said: "Occasionally there are men among the mechanics who recognize the dangerous change that is taking place in the relations between employer and employed. I have in mind one of my foremen. He was taken up by us as a boy, given work, encouraged to become skilful, advanced through his own ability and quickness, and finally made a foreman at a good salary. He came to me recently in much distress of mind, saying that he was being sorely pressed to join the Knights of Labor. His life was actually being made miserable for him. He declared that he felt that such a move was in antagonism to his employers, and that he owed them such a personal debt that he could not take the step. I was obliged to advise him for his own good to join the Knights, because, as I told him, if he should refuse they would speedily pick quarrels with him, secure grounds of complaint and then demand his discharge on threat of a strike. Where will all this end? Who knows? I only know it is going from bad to worse."

Affecting the Jewelers' League.

SOME RECENT serious frauds perpetrated by managers of assessment life insurance companies, and the well known fact that others have been organized purely for speculative purposes, has induced the Superintendent of Insurance to submit to the legislature a bill which is calculated to bring all organizations that contract for benefits upon the assessment plan under greater restraint, and subject them to a closer supervision. The bill is now before the legislature, and the probabilities are that it will become a law. As we read it, its provisions apply equally to what are known as fraternal societies, like the Jewelers' League and the assessment companies that do a general business. Heretofore the fraternal societies have been exempt from official supervision and have not been required to make reports to the Insurance Department, but the following section

of the proposed law seems to put these societies on the same basis as the general assessment companies.

SEC. 5. Any corporation, association or society which issues any certificate, policy or other evidence of interest to, or makes any promise or agreement with its members, whereby, upon the decease of a member, any money or other benefit, charity, relief or aid is to be paid, provided or rendered by such corporation, association or society, to the legal representative of such member, or to the beneficiary designated by such member, which money, benefit, charity, relief or aid are derived from voluntary donations or from admission fees, dues and assessments, or any of them, collected or to be collected from the members thereof, or members of a class therein, and interest accretions thereon; and wherein the paying, providing or rendering of such money or other benefit, charity, relief or aid, is in any degree or manner conditioned upon the same being realized in the manner aforesaid; and wherein the money or other benefit, charity, relief or aid so realized is applied to the uses and purposes of such corporation, association or society, and the expenses of the management and prosecution of its business, shall be deemed to be engaged in the business of life insurance upon the co-operative or assessment plan, and shall be subject only to the provisions of this act.

Other sections of the law provide that every organization doing business on the assessment plan, must specify in their policies or certificates a fixed sum to be paid to the beneficiaries of the person insured, and that the society must provide an emergency fund equal in amount to the maximum benefit contracted to be paid, and whenever this emergency fund shall become impaired, the Attorney General shall take proceedings to protect the members and wind up the society. No new assessment company can be formed until at least 200 persons have contracted to take at least $500,000 of insurance and paid one assessment in advance. It also provides that if a death claim remains unpaid for thirty days the Superintendent may make an examination of the company, and, if he shall deem it proper so to do, to take proceedings to close it up. There is no requirement of solvency or ability to carry out contracts that the League has not already provided, and it can well afford to submit to the other provisions because of the need for such restraints upon other organizations of a similar nature. The bill is most excellent in the interests of the public, affording needed protection against a class of speculative companies that is becoming altogether too numerous. If all the benefit societies and assessment companies were as sound financially and as well managed as the League, and carried out their contracts as promptly, there would be no need for restrictive legislation, but since so much rascality has been developed under the guise of assessment insurance, the Superintendent does a wise thing in suggesting laws that will tend to prevent the public from being swindled in the future. The League can well afford to submit to a little supervision because of the necessity for it that exists in other quarters.

The National Association of Jobbers.

THE NATIONAL Association of Jobbers in Movements and Cases held its annual meeting in this city last month, beginning on the 8th and extending over three days. The business before the association was the election of officers, hearing their reports for the year passed and discussing new propositions for the further protection of the retail dealers. The old officers were re-elected, as follows: President, Henry Hayes, of Wheeler, Parsons & Hayes; Vice-President, Herman F. Hahn, of H. F. Hahn & Co., Chicago; Secretary and Treasurer, James H. Noyes, of Aikin, Lambert & Co., of New York. The reports submitted and the discussions that followed indicated that the work of the association had been prosecuted with vigor during the past year, and that the results obtained were highly satisfactory, the condition of the jobbing trade having been materially improved by the action of the organization, while the interests of the retail dealers in general had been promoted to an extent even greater than had been anticipated. The objections that had been encountered when the association was first organized and the doubts regarding it, have given place to confidence and satisfaction in the light of accomplished results. All questions that have arisen have been met with patience and in a spirit of conciliation by all interested for the purpose of securing the greatest good to the greatest number. In all the discussions that took place at the meeting, the dominating idea was that jobbers should and would do all in their power to protect the interests of the retail trade in handling movements and cases.

A meeting of the Casemakers' Association was in session simultaneously with that of the Jobbers, and a full and free interchange of views was had relative to the subjects under discussion. No radical changes in the policy already laid down in both associations was proposed, but suggestions derived from experience were made relative to the future, some of which will be put into effect. The proceedings of both associations, sitting individually or in joint committee, were characterized by the greatest harmony and unanimity of purpose, all members being actuated by the single idea of doing all in their power to improve the condition of the trade in general. Selfish and purely personal interests were laid aside, and the unanimity that prevailed has given the associations a new lease of life, which, it is to be hoped, may be long prolonged. When the Jobbers' Association was first formed, there were many who predicted that it would be used as a means of oppressing the retail dealers and efforts were made to excite a prejudice against it, but the wise and judicious course pursued by it thus far has demonstrated that it is one of the most effective instrumentalities the retail trade has ever had for the protection of its interests.

Through the courtesy of the officers of the Mutual Life Insurance Company, the meeting was held in the elegant offices of the directors of the Mutual, in the new building of that company on Nassau street. These rooms are the most elegant in the lower part of the city, and the Mutual is exceedingly liberal in permitting them to be used for public meetings as well as for various trade associations. This company believes in cultivating all classes of persons by means of a generous courtesy displayed on all occasions.

Lives of Celebrated Horologists.

GERBERT, POPE SYLVESTER II., THE REPUTED INVENTOR OF THE WHEELED TIMEPIECE.

THE TENTH century of our era is generally credited with being the epoch in which the wheeled timepiece was invented, and Bishop Gerbert, who afterward became Pope Sylvester, is reported as being its inventor. Gerbert, one of the most intelligent men of his age, was born at Aurillac, in Auvergne, France, in the early part of the tenth century. He was educated in the monastery in his native village, but went early to Spain, where he learned mathematics, and afterward to Rome. He was appointed abbot of the monastery of Bobbio, where he taught with much distinction and success. He next went to Rheims, and became secretary to the archbishop at this place, who was deposed and Gerbert was elected in his stead. The deposition, however, was afterward declared illegal and the archbishop restored.

At the opening of the following remarks, the 15-year old emperor, Otho III., of Germany, had sent a letter to Bishop Gerbert, asking him to become his tutor. Otho III. was the son of Otho II., who died while the former was still a child, leaving his wife, Theophania, together with a council, to rule the empire. Gerbert accepted the proffered position, and, in the fall of 994, he went to Germany to assume its duties. He instructed the youthful emperor in the sciences of the day, and history mentions that he constructed for him an astronomical globe, which he covered with horse leather, and a sun dial, for which purpose he took exact observations of the Polar star.

On account of this sun dial, Gerbert was subsequently credited with being a magician, and the reports spread about him would naturally

lead to the conclusion that he was the inventor of the timepiece with wheels and even with balance. The description of it, however, left by the old chronicler, Ditmar, and Gerbert's own explanations confirm those reports. Gerbert became famous for extraordinary astronomical learning and he fully deserves an honored place in the history of horology, because his is the first name recorded as having constructed a time measurer, but it is nowhere stated that he was its inventor.

Sun dials had existed since time immemorial, and it is but natural to suppose that they date from the time when mankind had sufficient sense and sufficient incentive to divide the day into a certain number of units, calling into aid the apparently most reliable auxiliary—the sun. All uncivilized nations thus divide the time of day, and this division is all-sufficient as long as they remain in this state. Even at the present day, among civilized nations, the time of the sun, as indicated by dials, notches, marks, etc., serves as frequently to meet appointments, engagements, etc., as that of the clock or watch. Who does not call to mind the well known "noon mark" on the farmer's house or porch, by which the horn is sounded to summon the hands in the field to dinner? It can safely be asserted that this time is more correct than 95 per cent. of all clocks owned by the country population. Nothing is more arbitrary, therefore, than to credit a certain century, or a certain individual of one of the ancient nations with having invented the dial, the clepsydra or timepiece propelled by wheels, as a measurer of time, and it may be asserted with as good a show of reason, that its construction was progressive; one generation adding one wheel, a next adding another, etc., until the clock was complete.

We find sun dials, more or less exact, among the ancient Hindoos, Egyptians, Chaldeans, Persians, Greeks and Chinese. The same is true of the hour-glass and clepsydra. All these were the simplest natural result of man's first rude endeavor to divide the time into approximately uniform portions. When Vitruvius says that Ktesibus, of Alexandria, who lived about 140 years B. C., invented the clepsydra, he credited him with having constructed a piece of mechanism which doubtless had been known for ages to other nations, and which was the first step toward turning to account the regular periodical dropping of water from some receptacle. The ancient Egyptians used their obelisks as gnomons, the Greeks used the hour-glass in their public meetings, and it is fairly well established that P. Cornelius Scipio Nasica carried the clepsydra (two Greek words: *klepto*, I conceal; *hydor*, water) to Rome, 150 years B. C., and which, it is said, was in use among the ancient Chaldeans.

In the *Acta S. Sebastiani Mart.* is mentioned a clock of the prefect Chromatius of Rome, which showed the planetary system and indicated the position of the principal stars at certain periods. The contrivance had no automatic motion, but was actuated by hand.

The *Chronicon Turense* of 867 mentions the timepiece which the celebrated Caliph Haroun al Raschid, sent as present to his no less celebrated contemporary Charlemagne. This historical fact is beyond dispute, as the Arabians of that age were a highly cultured people, excelling in architecture and art and science. The timepiece disappeared soon after, and to judge from the fragmentary description, it was either a clepsydra or hour-glass, which performed various artistic tricks. Such timepieces became quite common several centuries afterward. The history of that age speaks in eulogistic terms of above mentioned timepieces and it is but natural that it should have been considered a piece of mechanism bordering on the marvelous, as the nations over which Charlemagne reigned were densely ignorant, an account of the migrations of the tribes occurring under him. The history of horology, in fact, of all mechanical arts, is enveloped in perfect darkness, and the first authentic mention of the kind is that Gerbert constructed a sun dial, regulated by astronomical observations, about the year 1000. It is probable that the art of horology was prosecuted to a certain extent in the monasteries, which were at that time the seats of arts and sciences, and through which nearly everything that is valuable has been transmitted to us of former ages. This is mere presumption, however, and all we know is that the Benedictine Gerbert constructed a sun dial for his imperial pupil.

Little more need be said of him. He followed the young emperor Otho III. to Italy, where he became bishop of Ravenna. The Pope, Gregory V. died soon afterward, and on the recommendation of the emperor, Gerbert was elected Pope, February 9, 999, taking the name Sylvester II. His reign was of short duration, and is noteworthy from the fact that he issued the first call for the crusades. He died May 12, 1003, it is said of poison. He was a man of rare acquirements for his age, and as his contemporaries could not understand him, he was universally believed to have been a magician. But his preserved writings show that he was a magician only with scientific means and agents, and still to-day his geometry is worth reading on account of its clearness and its sound reasoning. He is also believed to have been acquainted with Greek, and, perhaps, with Arabian. Of all his works, which were numerous, his letters (printed by Du Chesne, in the *Historians of France*) have attracted most notice from their bearings on the history of an obscure period.

The Genesis of the Diamond.

IN AN interesting communication under this title Prof. H. Carvill Lewis gives in No. 193 of *Science* an apparently satisfactory theory of the structure and origin of the diamond-bearing necks of South Africa and of the genesis of the gem in that region. The discovery of undecomposed peridotite as the original form of the puzzling blue ground confirms the suspicion long entertained by my friend, Prof. Henri Goraix, and myself, that very slight analogies, if any, exist between the South African and Brazilian diamond-fields, in the latter of which we have, as we think, traced the diamond to its original matrix. Communications on the subject will be found in the *American journal of science* for February and July 1882, by myself, and in papers by Professor Goraix in the *Comptes rendus de l'académie des sciences* and *Bulletin de la Société géologique de France* of 1884.

The main points of these papers may be briefly summarized as follows. The diamond region about the city of Diamantina, in the province of Minas-Geraes (the oldest and best-known diamond-field of Brazil), consists geologically of very ancient and profoundly disturbed metamorphosed strata, which may be divided into three groups: 1°, wholly crystalline rocks, gneiss, mica-schists, etc.; 2°, less perfectly crystalline rocks, unctuous schists, quartzites (itacolumites), iron ores (itahirites), and limestones; and 3°, quartzites. The first two groups form the nucleus of the mountainous diamond-bearing region, No 2 greatly predominating over No. 1. No. 3, which in hand specimens (and often in the field as well) can only with difficulty be distinguished from the quartzite of group 2, with which it has up to the present been very generally confounded, lies in undulating folds over the upturned edges of Nos. 1 and 2, and at times passes to a conglomerate including fragments of both the older groups. The geological age of these groups is undetermined, but the newest of them can scarcely be younger than the Silurian, and, if not older, belongs more probably to the earlier than to the later part of that age. The eruptive rocks thus far recognized in the diamond district are granites, diabases, gabbros, and serpentinous rocks, which very probably were originally peridotites. It should be remarked, however, that the latter are apparently far less abundant than in the region farther south in the same mountain-range, in which diamonds are only found rarely, or, over large areas, not at all.

The greater part of the diamond-washing, being in river-alluviums or in gravel-deposits on the uplands, gives no clue as to which of the three groups or of the associated eruptions may have furnished the gems. A few of the upland gravel-deposits are evidently decomposed but undisturbed conglomerates belonging to group 3. The

famous Grao Mogol locality described by Helmreichen, Claussen, and Heusser and Clary, where diamonds are found embedded in a hard quartzite with a conglomeritic character, belongs also, in my opinion, to this group; the diamond entering, like the other elements, as a rolled pebble. Professor Goraix, however, who has had the advantage of a personal examination of the locality, refers the diamantiferous rock to the quartzites of group 2, and admits the possibility of the genesis of the gem *in situ*, though he does not insist very strongly on this point. The difficulty I have often experienced in distinguishing the quartzites of the two groups one from the other, even when they are in juxtaposition in the same section (as I believe Professor Goraix admits them to be at Grao Mogol), leads me to the apparent presumptuousness of maintaining my opinion against that of so acute and conscientious an observer.

At a single locality, Sao Joao de Chapada, the miners have penetrated deeply the decomposed but undisturbed schists of group 2, extracting the diamond from a decomposed vein-rock from which Professor Goraix took out, with his own hands and with all possible precaution against error, several of the precious stones, after I had expressed to him the opinion that it was the veritable matrix of the diamond. Three veins of somewhat different character have been recognized. One is of quartz with plates of specular iron, to which the diamantiferous *barro* (clay) adheres. This last is an earthly mass rich in iron, which gives, on washing, an abundance of microscopic tourmaline. This last circumstance, with the abundance of iron, suggests a comparison with the peculiar auriferous veins of quartz, pyrites, and tourmaline of the vicinity of Ouro Preto in the same geological horizon, and in very similar conditions. The other veins are without quartz, and consist of a lithomarge-like clay charged with oxides of iron and manganese, which, as Professor Goraix states, bear a strong resemblance, both in composition and geological occurrence, to the topaz and euclase bearing veins of the vicinity of Ouro Preto. These veins are coincident with the bedding, or nearly so. Besides quartz and tourmaline, they carry iron and titanium minerals (magnetite, hematite, rutile, and anatase), amorphous chloro-phosphates of some of the rarer elements (cerium, lanthanum, didymium, etc.) and, almost certainly, euclase.

The observations at this place exclude completely the idea of peridotite or other eruptive rocks. The diamond at Sao Joao de Chapada, and presumably at other Brazilian localities, is a *vein mineral*, and the conditions of its genesis (unless we admit the hypothesis of a subsequent deposition of carbon, which is uncalled for by any of the observations thus far made) must have been such as were favorable to the segregation of iron and titanium oxides, phosphates of rare elements, and certain silicates, such as tourmaline and presumably topaz and euclase. The hypothesis of a genesis through the reaction of eruptive masses on carbonaceous schists is here as inadmissible as would be that of a vein formation for the South African mines. If the origin of the carbon is to be sought in the rocks traversed by the eruptive or vein masses containing it, it is not without interest to mention that the schists of the veins in which the Sao Joao mine is excavated frequently contain graphite, though at that particular locality they are too much decomposed to enable one to determine whether it occurs there or not. It may be stated, that, in the other diamantiferous regions of Bahia, group 2 occurs either at the mines or in sufficient proximity to have furnished the diamonds. In the Bahia fields the precious stones appear to have come mainly from a conglomerate which, as it lies in the prolongation of the same range, is presumably identical with group 3 above described, and, like it, rests on a base of unctuous schists, itacolumite and itabirite. The Goyaz fields and those of Bagagen in western Minas seem to be similar to those of Diamantina, though perhaps lacking the upper quartzite. To the west of Diamantina, in the San Francisco valley, diamonds are washed from the *débris* of a conglomerate presumably of upper Silurian or Devonian age, but containing pebbles of the Diamantina rocks. In the province of Parana the immediate origin is in a Devonian conglomerate, and this is also apparently the case with the diamantiferous placers of the province of Matto Grosso.

The Brazilian and African diamond-fields thus indicate two very distinct modes of occurrence and genesis for the gem,—one as a vein mineral accompanying oxides, silicates, and phosphates; the other as an accessory element in an eruptive rock. In the last number of the *Bulletin de la Société géologique de France*, M. Chaper presents a third mode of occurrence as the result of his observations in an Indian diamond-field. He satisfied himself that the gem occurs there, along with sapphires and rubies, in a decomposed pegmatite, having taken out two diamonds, two sapphires, and three rubies from an excavation made in that material. The circumstance that all these stones were found during the preliminary work with pick and shovel, whereas nothing was found in the washing, would, notwithstanding M. Chaper's confidence that no deception was practised, seem to the practical diamond-miner to be extremely suggestive of *salting* very inartistically done. The occurrence of remnants of a sedimentary formation of a conglomeritic character in the neighborhood of the old washing examined suggests another explanation for the occurrence of the gem in placers resting on a bottom of granite rock.

ORVILLE A. DERBY.

Museum nacional, Rio de Janeiro, Dec. 16.

Artificial Rubies.

THE following is a translation of an article that appeared in the "Moniteur de la Bijouterie et de L'Horlogerie," November 8th, 1886: At the meeting of the council of the Syndicate of Working Lapidaries, the question of the artificial rubies was discussed, which has so startled the commercial world. In consulting the report of Mr. Friedel, mineralogist, who had been commissioned by the syndicate of merchants of precious stones to examine the rubies, it is surprising the length of time this learned man has taken to come to a very vague conclusion.

After having had in his possession the specimens of artifical rubies, cut and polished them, and also with the knowledge of the opinion given by the lapidaries that the composition was made by fusion, it is indeed surprising that no mention of an essay in his report having been made by fusion, which had immediately convinced the chemist.

An American mineralogist, Mr. Kunz, undertakes to demonstrate that the said rubies are destined to have the same appreciation as rubies, having the same color, weight and hardness. The workman says, rolled gold plate has all the appearance of gold, but can be immediately detected by those who are accustomed to handle and work gold. An artist will recognize at once a chromo lithograph from an oil painting; the same can be said of the artificial ruby, which although having the same appearance as the genuine stone, differs from it by the brilliancy of its polish, the warmth of the stone to the touch, by its globular interior conformation, and notwithstanding the best composition, imitating the ruby, which it will never acquire without the aid of nature. We think well to follow our appreciation with that of Theodore Critten, author of a "Treatise on the Art of the Lapidary, 1868:" "The Lapidary more than any other knows at sight, the precious stones, by the touch, the color, the form, the size, the defects, etc. In case they have any doubt as to the genuineness of the stone, they have the wheel which tells its hardness; that is why lapidaries who daily handle stones, never use an instrument in examining or estimating them." It thus is in every circumstance where practice is more in use than *theory*.

This, I think, warrants a reply, since it has also appeared on this side of the water recently. The rush of holiday business alone has prevented me from replying.

M. Chriten's book is a very valuable one, especially from a lapida-

rian point of view, and is one that will always be used for reference on this subject, but when it comes to the scientific part I beg leave to call attention to the following statements in regard to the ruby.

We find on page 127, M. Chriten says that the ruby is octahedral, not hexagonal, which it really is. He speaks of the ruby Balais, which is a variety of spinel, as being harder than the spinel, making a distinct gem of it simply because the color has misled him and from the form given, octahedral, he confounds the ruby with the spinel. These are statements that he would not have made had he been a mineralogist.

In regard to M. Friedel, he was informed that the disputed stones were the result of the fusion of a number of small stones; this, to any one who has done the great amount of original and valuable experimental work in this direction which he has, must have seemed very absurd to say the least. He knew that they were the result of some direct process and not the result of fusion of a number of stones; since if rubies are fused a substance is produced having a specific gravity of 3.45, while that of the true ruby is 4. This substance is really another form of corundum and not at all like these artificial stones. My paper was printed in "Science," Oct. 8, 1886, and reprinted in THE JEWELERS' CIRCULAR, and other journals before the decision of the lapidists, and in regard to artificial rubies I said that they were about the hardness of the true ruby but a trifle more brittle, which I had proved by a careful test.

The color of the stones examined was good, but not one was so brilliant as a fine ruby. In regard to their value I said: these stones show the triumph of modern science in chemistry it is true, and there may be some who will be willing to have the attainable; there are others who will always want what the true ruby is becoming to-day, the unattainable.

One will be the production of man, the other nature's handiwork; I recognized the first artificial stone that I saw; what lapidary could do more?

In regard to the relation of the science of mineralogy to that of gems, I admit that there are few mineralogists that pay any attention to the latter subject. It is a special field, but it is the mineralogist who has made it a science. Any one who doubts this need only refer to the early writers on the subject; just before mineralogy became a science could there have been greater confusion? Yet, lapidaries had used the lap for centuries. It was a mineralogist, Vauguelin, who first taught the cutters that the diamond had a cleavage and how they could avail themselves of it. It has been a mineralogist in every case, who has exploded the many artificial diamond discoveries, and it was a mineralogist who gave to the artificial ruby its true place and showed that it was not a rival of the true ruby. Can any living lapidary, providing he has never seen the identical stones named before, so that from their cut he could recognize them? Take the following ten stones, all white, and cut the same size and having mixed them up, name them, viz.: quartz, topaz, sapphire. beryl, spinel, zircon, tourmaline, phenacite, garnet, euclase? I doubt it; or the following yellow stones: sapphire, chrysoberyl, zircon, tourmaline, topaz, quartz, beryl, spinel, spodumene, garnet. It is here that the gem mineralogist comes in, for no matter what the color, he can identify each one as he tries it without comparing it with others. Yet I doubt whether any lapidary, even with the aid of his wheel and trained eye, and having all ten before him for comparison, could succeed in naming more than one half correctly unless by a lucky guess; as yet, I have not seen a single article by a lapidary on the subject of these stones, which gives a description of them clear enough to be of any benefit to the trade.

In conclusion I beg leave to say, that it is an undoubted fact that a large number of these stones were cut by some lapidaries and sold as rubies; as such they were purchased. Why did the lapidaries allow their clients to buy 600,000 to 800,000 francs worth of these stones if their artificial character was so easily recognized? Did they know that they were cutting artificial (not imitation) stones? If they did who were they that would be parties to a swindle such as the Syndicate de Diamant et Pierres Precieuses declared it to be? This is what the mineralogist would like to know. Have they laid themselves open to the charge of connivance at fraud, or were they deceived and are now endeavoring to conceal their blunder?

GEORGE F. KUNZ.

Pearls and Pearl Fisheries.*

BY ENGINEER M. WEBER.

[These advance proofs were kindly furnished us by the United States Fish Commission from their *Bulletin*, Vol. VI, No. 21.]

MANY mussels cover the inside of their shell with a layer consisting of animal membranes and carbonated lime. Thereby a peculiar luster is produced on the inside of the shell, which is called mother-of-pearl. A smaller portion of this secretion often forms excrescences shaped like drops or kidneys, which either are embedded more or less firmly in the inside of the shell, or lie loose in the soft parts of the animal, especially in its so-called beard. These are what are generally known as pearls.

The formation of mother-of-pearl is doubtless a natural process taking place in certain mussels. The formation of pearls, on the other hand, is ascribed to accidents, and probably is caused by a sickness of the mussel, or by some wound inflicted on it. This view has been reached by noticing the circumstance that, when the shells are large, and the inside smooth, clean, and without any holes, so that the mollusks can fully develop, pearls are but rarely found; while the formation of pearls is very frequent when the shells are irregular. Sometimes hundreds of pearls are found in the last-mentioned shells; but frequently scarcely one of them possesses any commercial value.

Real pearls are found only in bivalves; but a useful product is found in some univalves. The products of the following varieties are known in commerce:

(1) *Avicula margaritifera.*—Which produces the most valuable pearls, but whose shell is worthless.

(2) *Meleagrina margaritifera.*—Principally valued on account of the mother-of-pearl. The shells are often 6 to 18 inches long. Its pearls are also of great value.

(3) *Strombus gigas.*—The conch-shell of the West Indies.

(4) *Tridacna gigas.*—The giant clam, with opal white pearls of a subdued luster.

(5) *Pinna squamosa.*—With black and red pearls.

(6) *Placuna placenta.*—Translucent, with lead-colored pearls.

(7) *Ostrea edulis.*—The common oyster.

(8) *Mediola vulgaris.*—The horse-mussel.

(9) *Turbinella scolymus.*—The chank-shell; pale red pearls.

(10) *Turbo olearius marmoratus.*

(11) *Turbo sarmaticus.*

(12) *Haliotis* (different varieties).—Found in the North Sea, New Zealand, the Cape of Good Hope and Japan.

(13) *Anodonta hercules.*

(14) *Alamodon, Unio, etc.*—Found in Scotland, Ireland, Lapland, Bohemia, Bavaria, Saxony and Canada.

The sea pearl fisheries are principally confined to the Persian Gulf, the coasts of Ceylon, the Eastern Archipelago, Australia, the lagoons of many islands in the Pacific, and to Central America.

Fresh water pearls have, as a rule, but little luster, and are consequently of no great value; although one occasionally finds pearls having a value of from 50 to 70 crowns [$17.40 to $18.76], and sometimes even of 1,800 crowns [$482.40]. For a while the Scotch pearls enjoyed a great reputation. From 1761 to 1764 more than 180,000 crowns [$48,240] worth of pearls are said to have been brought to

* "*Om Perler og Perlefiskerierne.*" From the *Norsk Fiskeritidende*. Bergen. Norway, October, 1886. Translated from the Danish by Herman Jacobson. An excellent reference in this connection is to the chapter on Pearls and the Pearl Fisheries, in P. L. Simmonds' Commercial Products of the Sea.

London from the rivers Tay and Isla. During the dry summer of 1862 a surprising quantity of pearls was found in Scotland. The average value of these pearls varied between 40 and 45 crowns [$10.72 to $12.06], but those valued at 100 crowns [$26.80] were also quite frequent. Statisticians estimate that the total value of pearls found in Scotland, in 1865, was 216,000 crowns [$57,888]. Since that time pearls have advanced considerably in value.

During the summer months the Arabs carry on a sort of pearl fishery on the coast of the Red Sea. They catch the mollusks and lay them in the sun, so that they may open quickly. Jedda is the principal place where these fisheries are carried on. The exportation of mother-of-pearl from Jedda *via* Alexandria annually amounts to 1,200,000 pounds avordupois, half of which quantity goes to Birmingham.

The pearl fisheries in the Persian Gulf, especially on the coasts of the Island of Bahrein, are also in the hands of the Arabs. The best beds are said to be on fine white sand and in clear water. Nearly 5,000 boats are employed in these fisheries, and their annual value is estimated at 1,080,000 crowns [$289,440]. Beds of pearls are found at various depths as far down as 18 fathoms. The general depth at which they are found is, however, from 4 to 8 fathoms. The season lasts from April to September. Most of the shells are brought to the little harbor of Lingah; thence a considerable quantity of mother-of-pearl is shipped direct to London, only a small quantity going to the continent of Europe. Many pearls, especially those of a yellow color and those having a complete cone-shape, are sent to Bombay. Bagdad is a considerable market for white pearls. The shells which come to England from Persia are mostly small and have a subdued luster; but as a rule they bring higher prices than the Panama and Tahiti shells. The annual quantity imported is rarely less than 300,000 pounds. The total value of the pearls exported from the Persian Gulf during 1879 was 7,500,000 crowns [$2,010,000].

The Ceylon pearl fisheries are carried on on the west coast of Ceylon, in the Gulf of Manaar, south of the island of the same name, and also on the west coast of India, near Tuticorin. The beds lie in groups. One of these is opposite the town of Arippu, and comprises the so-called Paria-par, Paria-par Karai, Cheval-par, Kallutidel-par, and Modaragam-par. The famous Karaitivu bed is opposite the town of that name. Other well known beds are the Karakupanai-par, and the Jekempedai-par. All these beds lie at a distance of at least 6 to 8 miles from the coast, and at a depth of 5½ to 8¾ fathoms from the surface. They have a rocky bottom protruding from the sand, and are exposed to the currents of the sea. The beds are under the supervision of an inspector appointed by the local government, which has the exclusive working of them. The laborers and divers are natives, who as payment receive 25 per cent. of all the pearls they find. Experience has shown that few pearls, and these of little value, come from mussels which are not older than five years. During the fifth and sixth year the value doubles, and in the seventh year it becomes fourfold. The pearls are not fully matured if they are taken out too soon; and on the other hand, the animal dies, if the pearls remain too long in the shells. For these reasons pearl fishing is prohibited at certain periods.

Up to the year 1863 there was no system in these fisheries The results were as follows:

Years.	Crowns.	Equivalent in United States currency.
1796–1809	9,314,658	$2,496,328
1814–1820	1,618,360	433,721
1828–1837	4,088,376	1,095,585
1853–1860	2,114,172	566,598

In 1863 there were caught on twenty-two fishing days 11,695,000 pearl-oysters, yielding pearls to the value of 918,324 crowns [$246,110.83]. The next fisheries were in 1874, when 1,700,000 pearl-oysters yielded 182,160 crowns [$48,818.88] worth of pearls. In 1877 there were caught on thirty fishing days 6,850,000 pearl-oysters, yielding pearls to the value of 341,136 crowns [$91,424.45]. The yield in 1879 was unusually good, as twelve fishing days yielded 7,650,000 pearl-oysters. In 1880 the fisheries lasted from March 19 till April 2, and during these eleven days 11,000,000 pearl-oysters were caught. In 1881 as many as 60,000,000 were caught, yielding pearls to the value of 1,080,000 crowns [$289,440]. These fisheries are now carried on according to a well-regulated system. The divers receive their wages as soon as they reach the coast.

When the pearls have been gathered, they are classified in the following manner:

(1) "Anie," pearl-eyes; that is, pearls of perfectly round shape and pure luster.

(2) "Anathorie," that is, pearls which have a slight defect in either of these respects.

(3) "Masengoe," pearls which have defects in both these respects.

(4) "Kalippo," pearls which are flat, and have other great defects.

(5) "Korowel," faulty pearls, especially double pearls.

(6) "Peesal," misshaped pearls.

(7) "Codwee," misshaped pearls of tolerably fine form.

(8) "Mandongoe," split pearls.

(9) "Kural," very small misshaped pearls.

(10) "Thool," seed-pearls.

In sorting the pearls they are first passed through a row of baskets, 10 or 12 in number. The eighth basket in the row has 20 holes, and the pearls which do not pass through these are said to have the "twentieth measure." The following baskets have 30, 50, 80, 100, 200, 400, 600, 1,000 holes, etc., and each basket has its special name. After the pearls have been sorted in this manner, they are weighed, and their value is noted.

China has pearl fisheries near Pakhoi. The beds are divided into four districts which lie between the south coast of the peninsula of Pakhoi, the island of Weichow, and the peninsula of Leichow. In 1875 these fisheries yielded pearls to the value of about 162,000 crowns [$43,416]. Cochin China carries on an extensive trade in mother-of-pearl, most of which comes from the Bay of Tirwar. On the north coast of Japan considerable quantities of *Haliotis gigantea* are caught, which is highly prized by both the Japanese and Chinese.

The Philippine Islands produce large quantities of mother of pearl. In 1877, 155 tons were exported; in 1878, 152 tons, valued at 307,314 crowns [$82,360.15]; in 1879 the yield amounted to 288,810 crowns [$77,401.08]. The entire region from the island of Tawi-Tawi and Sulu to Baselan is one continuous bed of pearl-oysters. Here the Malays and Chinese fish in common. The Sulu fisheries, near Tawi-Tawi, are, according to the statement of an Englishman, Mr. Moore, the largest and most productive of all the pearl fisheries in the East Asiatic seas. The pearls which are caught here have always been famous, and the mother-of-pearl is distinguished by its yellow luster, which makes it suitable for many purposes. Laubuan is the principal market for the products of Sulu. In 1868 the value of these pearl fisheries was 207,972 crowns [$55,736.50]; in 1870 it fell to 102,348 crowns [$27,429.26]; and up to 1878 it fell still more. Macassar is the principal market for the natives from Bayos. In the Kau Bay there are found pearl beds belonging to the Sultan of Ternate. Pearls and mother-of-pearl are found near the island of Aru, and are brought to market at Debbo. The principal place where these fisheries are carried on, however, is Blakong Tanah, opposite the island of New Guinea; and these are really the most important fisheries in the entire archipelago. The yield in 1860 amounted to 133,000 crowns [$35,644]. The island of Timpr also has pearl beds; but their yield is not very considerable.

The most important pearl fisheries in Queensland are in the hands of Sydney capitalists. The fisheries are carried on by Malays, who dive to a depth of 6 fathoms. The pearl-oyster from Torres Strait generally weighs from 3 to 6 pounds, and sometimes as much as 10 pounds.

The value and weight of the mother-of-pearl exported from Queensland was as follows:

Years.	Weight.	Value.	Equivalent in United States currency
	Pounds.	*Crowns.*	*Dollars.*
1874	2	216	1,166 76
1875	11,200	24,080	130,032
1876	188,600	361,970	1,954,638
1877	356,800	677,984	3,661,113
1878	336,000	964,682	5,209,282

The pearl fisheries on the northwest coast of Australia employ a large number of Malays and natives as divers. The fisheries last from the end of September till the end of March. It has not yet been possible to ascertain the extent of the beds; it is supposed, however, that they extend as far as the Gulf of Carpentaria. The fisheries are carried on for the shells, but frequently yield pearls of considerable value. These shells are the best which are known. They weigh from 1½ to 6 pounds a pair. The export duty is 72 crowns [$19.30] per ton. The oldest fisheries in West Australia are carried on in Sharks Bay. The shells which are caught here are those of the *Avicula margaritifera*. They are very thin, but their inside surface is transparent and has a beautiful pearl-like luster. At present they fetch a good price at Havre. Formerly they were but little esteemed on account of their thinness, and for this reason they were taken principally on account of their pearls. These have a brilliant luster, although they are not larger than a pea. The oysters are caught with a wire drag-net, which is drawn across the beds, and which piles them in a heap; thereby the mollusk is killed, and the shells are easy to open. The West Australian pearl fisheries increase from year to year. In 1874 mother-of-pearl was exported to the value of 1,060,707 crowns [$284,269.48], and pearls worth 108,000 crowns [$28,944]. In 1876 there were exported to London 140 tons, and to Singapore 67 tons, the price varying from 4,500 to 4,840 crowns [$1,206 to $1,297.12] per ton. Recently the English papers have reported the discovery of pearls and mother-of-pearl near New Zealand.

Diving for pearls is one of the principal employments for the natives of the Pacific Ocean. Here, likewise, mother-of-pearl is the principal object of the fisheries. The oysters live in large colonies, close together, and are firmly attached to each other; they are attached to the bottom by a ligament or band, starting from their body and running through the shell. In the live animal this band is of a dark green, and sometimes gold-bronze color, and the fishermen can tell from its color whether the shells contain pearls or not. The shells reach their full size when they are seven years old. The average weight of the empty shell at that time is about 1 pound, and the length varies from 10 to 18 inches. When the animal has reached maturity, it tears itself loose from the stones, opens its shell and dies. The shells are then covered with corals and parasites. They become worthless and the pearls are lost. These mollusks also have a number of enemies, the most dangerous of which is a kind of *Scolopendra*, which opens the shells and eats the mollusks. All grown mussels are, moreover, infested by crustacean-like parasites, which penetrate into the shells and there lay their eggs.

After the oysters have been caught and brought ashore by the divers, they are sorted. The shells are opened with a steel knife. A skilled hand can open a ton per day, and not miss a single pearl. The mother-of-pearl is laid in a shady place, that the colors may not fade. When there is a famine, the mollusks are eaten by the natives. The pearls are generally found in the place where the band before mentioned starts. In shells where many pearls are found, they are generally small and misshaped. Occasionally pearls are found loose in the shells. These are always of a very fine quality, perfectly round, and often very large. But there is hardly one in a thousand oysters which contains such pearls. The natives often lose them, owing to the careless way in which they open the shells.

Fine and calm weather is most favorable for pearl fishing. The divers wear no special suit, but simply rub their body with oil, so the sun may not blister their skin. They remain under the water one to two minutes, and bring up oysters from a depth of 20 fathoms. They rarely go to such a depth, but the finest oysters are found there. Thus in many fishing-grounds, which were supposed to be exhausted, a great many pearl-oysters are found in deep water.

In the Southern Pacific, pearl fisheries are principally carried on near the Navigator's Islands in the Tuamotu Archipelago. Many of these fishing-grounds are partly and some are entirely neglected. Thus the Island of Manihiki twenty years ago yielded 100 tons of shells in eighteen months; but since that time no pearl fisheries have been carried on there. The Hogolen Lagoon is also known as a vast unexplored pearl-oyster bed. So far the Tuamotu Archipelago is said to have produced 25,000 tons of mother-of-pearl, valued at 18,000,000 crowns [$4,824,000]. Nearly the entire quantity goes to Tahiti, to be exported thence. In 1873 2,000 tons of shells were exported; the pearls having a value of about 140,000 crowns [$37,520]. In 1878 Tahiti exported 591 tons of shells, valued at 638,280 crowns [$171,059.04], and pearls valued at 108,000 crowns [$28,944]. In 1879 there were exported 470 tons of shells, valued at 507,600 crowns [$136,036.80], and pearls valued at 72,000 crowns [$19,296]. In 1875 an export duty of 30 crowns [$8.04] per ton was levied; this duty, however, was abolished in 1878, and since that time the exportation has again increased.

On the islands of the Pacific the pearls are classified as follows:†

(1) Pearls of a regular form and without faults; in value, those weighing a decigram, are worth about 2.7 crowns [$0.72]; those weighing from 1½ to 2½ grams are valued at from 1,800 to 2,600 crowns [$482.40 to $696.80].

(2) Round white pearls of great luster; 30 grams containing 800 pearls, would be worth only 72 crowns [$19.30]; while the same weight in 50 pearls would be worth 1,080 crowns [$289.44].

(3) Irregularly formed pearls, not without faults; 30 grams of this kind would be worth 55 to 75 crowns [$14.74 to $20.10], according to their condition.

(4) Pearl-bulbs, which are found attached to the shells; 30 grams are worth from 25 to 36 crowns [$6.70 to $9.65], according to their regularity of form and brilliancy.

(5) Seed-pearls, which are worth from 36 to 55 crowns [$9.65 to $14.74] per pound.

Mother-of-pearl fetches from 25 to 50 öre [6½ to 13½ cents] per pound. The principal markets for pearls from the Pacific are Hamburg, Amsterdam, London, and St. Petersburg.

Besides the pearl-oyster, there is often found in the lagoons of the Pacific Ocean a kind of *Venus* shell, which often contains pearls of great value. The fishermen do not look for these pearls at all, but it is presumed that it would pay to examine these shells more systematically.

In the Pacific there is found another pearl-producing mollusk, whose shells greatly resemble those of the common oyster. They are always found attached to rocks, invariably one by itself; and they are quite rare. Their pearls are always perfectly round, with a fine luster and a gold color, of about the size of a pea.

The Central American pearl fisheries are carried on on both sides of the Isthmus of Panama. In the Bay of Panama are located the Pearl Islands, of which San José is the most important, yielding every year from 800 to 1,000 tons of mother-of-pearl. In 1869 the English imported pearls valued at about 800,000 crowns [$214,400] from New Granada and St. Thomas; while the average annual yield of the Panama fisheries is about 500,000 crowns [$134,000]. In the lower part of the Bay of Mulege, in the Gulf of California, and near Los Coyntes, pearls of great value have been found. It is generally supposed that a row of pearl beds extends from the Gulf of Darien to California. In the last-mentioned bays, and on the coasts of Costa Rica and Central Mexico, pearl fishing has long been a remunerative employment. The principal fisheries on the Mexican coasts are carried on between Mulege and Cape San Lucas. Near the Islas tres Marias and in the neighborhood of Acapulco the fisheries are not

† See Simmonds' Commercial Products of the Sea, p. 425 (Part III. Chap. III).

most so important. The molusks found are *Meleagrina margaritifera* and *Haliotis rufescens.*

The fisheries are carried on from July till October; during the rest of the year storms and cold weather prevent fishing. Diving suits are generally used. The mother-of-pearl from the Gulf of California is white, with bluish-black or yellow bands. The fisheries were carried on to such an excess that the size of the shells decreased from year to year; fishing is therefore now permitted only every fourth year. The California shells are sent almost exclusively to Hamburg, whence they go to England, Austria, and France. The largest quantity goes to Paris, but a great deal also to Frankfort on the Main. The entire California fisheries are said to produce from 600,000 to 700,000 pounds of mother-of-pearl per annum. In 1879 Costa Rica exported 3,540 pounds. In the same year Panama sent pearls to the value of 126,000 crowns [$33,768] to the New York market. Guayaquil, in 1871, exported 13 to 14 tons of mother-of-pearl. In the Bahamas the snail fisheries form an important industry. The pearls found in them are rose-colored, yellow, or black; the first mentioned alone possess any value. The market for these pearls is Nassau, in the Bahamas; and it frequently happens that a pearl fetches as much as 400 crowns [$107.20]. The average annual yield is 180,000 crowns [$48,240]. In the State of Ohio pearl fisheries are carried on in Little Miami River. The season lasts from June till October. Men and boys wade in the river and bring up the pearl-oysters with their feet. The shells are opened with a knife; and seldom are more than 2 pearls found in 300 oysters. Pearl fisheries are also carried on in the rivers of Norway, Bavaria, and Bohemia.

Among famous pearls we will mention the following:

The largest pearl known is owned by Mr. Hope, a London jeweler; it is two inches long, has a circumference of 4½ inches, and weighs 93.3 grams. In the Persian Treasury there is said to be a pearl which Shah Sofi bought in 1633 for 1,100,000 crowns [$294,800], and which measures 1 inch in diameter. In the Collection of the Zofima Brothers in Moscow, there is a pearl weighing 27⅞ karats. Philip II. of Spain, in 1579, received from Panama a pearl, valued at 2,000,000 crowns [$536,000]. An Indian pearl of extraordinary size, weighing 126 karats, was in the possession of Philip IV.

Silvering and Silver Plating.

SILVERING BY DIPPING IN A COLD BATH.

S THE bath is cold it is always ready for use, and the deposit is finer and more unalterable, because only chemically pure silver is deposited, without any admixture of subsalts. The bath is formed of bisulphite of soda, to which is added nitrate of silver, until it begins to be dissolved with difficulty. It is, therefore, with a double sulphite of soda and silver that the cold silvering by dipping is effected. Bisulphite of potash, ammonia and other alkalies may be substituted for the bisulphite of soda, but the latter is to be preferred, because its preparation is cheaper, more easy and better known.

The bisulphite of soda for cold silvering is prepared as follows: Put into a tall vessel of glass or porcelain, water, 10 pints; crystalized carbonate of soda, 10 pounds; pour a little mercury into the bottom of the vessel, so that the glass tube carrying sulphurous acid gas, which has to be placed into it, may not be stopped by the crystals formed during the operation. Arrange an apparatus for the production of sulphurous acid gas, and let the washed gas pass through the vessel holding the carbonate of soda. Part of the soda is transformed into sulphite of soda, which dissolves, and a part falls to the bottom as bicarbonate. The latter, however, is transformed into sulphate of soda by a continuous production of sulphurous acid and the carbonic acid escapes. When all has dissolved, continue the passage of sulphurous acid until the liquid slightly reddens blue litmus paper, and then put the whole aside for twenty-four hours. After that time some crystals are found upon the mercury, and the liquid above, more or less colored, is the bisulphite of soda for silvering. The crystals are separated from the mercury, drained and kept for gilding baths. They are not suitable for silvering. The liquid bisulphite of soda thus prepared should be stirred with a glass rod to throw off the carbonic acid which may still remain. The liquor should then be again tried with blue litmus paper; if it turns a deep red, add a little carbonate of soda for neutralizing the excess of sulphurous acid; if red litmus paper becomes blue there is too much alkali, and more sulphurous acid gas should be passed through the liquid, which is in the best condition when litmus paper becomes violet or slightly red. This solution marks from 22° to 26° Beaumé, and must not come into contact with iron, zinc, tin or lead.

The next step is to prepare with it the cold bath for dipping. A stoneware or glass vessel is about three parts filled with the liquid bisulphite of soda, a solution of nitrate of silver in distilled water of medium concentration is gradually added, while the bath is continually stirred with a glass rod. A white flocculent precipitate of sulphite of silver is produced by stirring; this is dissolved by the bisulphite of soda. The silver solution is added so long as the precipitate readily disappears and stopped when it becomes slow in dissolving. This bath is always ready to work, and instantaneously produces a magnificent silvering upon copper, bronze or brass articles which have been thoroughly cleansed and passed through a weak solution of nitrate of binoxide of mercury, although this last operation is not absolutely necessary. According to the length of time of the immersion, the bath will give a very fine whitening by silver as cheap as any of the other described processes. A bright silvering specially adapted for setting jewelry, or a setting with dead buster, still more durable, without electricity and in the cold. The loss of silver is made good by additions of nitrate of silver. When the proportion of bisulphite is not sufficient to dissolve the metalic salt, add some bisulphite of soda to restore the bath to its primitive state. Silver is slowly deposited upon the sides of the vessel; this may be dissolved in nitric acid for further use.

Solution of Silver or Gold for Silvering or Gilding without the aid of a Battery.—One ounce of nitrate of silver is dissolved in one quart of rain or distilled water, and a few crystals of hyposulphate of soda are added, which form a brown precipitate soluble in a slight excess of hyposulphite. Small articles of steel, brass or German silver may be silvered by dipping a sponge in the solution, and rubbing it over the surface of the article to be coated. A solution of chloride of gold may be treated in the same manner and applied as described. A more concentrated solution of either gold or silver may be used for coating parts of articles which have stripped or blistered, by applying it with a camel's hair pencil to the part and touching the spot at the same time with a thin clean strip of zinc.

Silver Electro-Plating Bath:

Water	2½ gallons.
Cyanide of potassium, pure	17½ ounces.
Pure silver for cyanide	8¾ ounces.

The composition of commercial cyanide of potassium is exceedingly irregular. The pure, or No. 1, contains from 90 to 100 per cent. of real cyanide, and is especially employed for gilding and silvering baths. No. 2 contains from 60 to 70 per cent. of real cyanide; it is the article prepared by Liebig's method, and is used for electro baths of copper and brass. No. 3, which marks from 55° to 60°, is for scouring and preparing baths, and for photographic operations. 1. Put in a porcelain dish, holding one quart, pure granulated silver 8¾ ounces, pure nitric acid, of 40° Beaumé, 17½ ounces. Heat by charcoal or gas. The dish should be supported by an iron tripod, and not in direct contact with the fire. The acid rapidly attacks and dissolves the silver, with an abundant production of yellow nitrous vapors, which must not be inhaled. When the vapors have disappeared there remains a liquid more or less colorless, according to the proportion of copper held by the commercial silver, which is seldom

entirely pure. The heat is then increased in order to evaporate the excess of acid, which escapes in white fumes. The material in the dish swells up and dries, and, without a further increase of heat, melts like wax. The dish is then removed from the fire, and, being held with a cloth, the molten mass is made to flow upon the sides, where it soon solidifies. The fused nitrate of silver, lunar caustic, is more or less white or gray, according to the purity of the silver employed. When perfectly cold turn the dish upside down, and, by a gentle tap on the sides, the mass is detached. 2. Dissolve the nitrate of silver in ten or fifteen times its weight of distilled water; hydrocyanic acid poured into this solution immediately produces an abundant white precipitate of silver. A sufficient quantity of prussic acid has been employed, when, by adding a few drops of it to the clear liquid, no precipitate or solidity appears. Throw the liquid upon a filter of calico stretched on a wooden frame, whereby the cyanide of silver remains on the cloth, while the solution, with the nitric acid and excess of prussic acid, passes through. Wash the precipitate left upon the filter two or three times with pure water.

Clock Repairing.

CONSIDERABLE part of the life of the country watchmaker, says a correspondent in one of our European exchanges, is spent in repairing and cleaning clocks, so that a few practical remarks on this subject may perhaps be of use to some who may not have the advantage of being able to refer to an experienced workman when in a difficulty. Occasionally even good workmen are non-plussed, an instance of which occurred only a few days before writing. A fine chime clock by a good maker was sent to him with a message "that it stopped sometimes, and the chimes persisted in getting wrong;" it had only recently been in the hands of a good workman, who had passed it as correct. On examination the correspondent found the quarter gathering pallet split right through the boss, consequently when the train was stopped by the tail of the gathering pallet engaging with the pin in the rack, the pallet opened and allowed the square on the arbor to rotate, thus throwing the chimes into confusion. On taking the clock to pieces and opening the barrels, he found, as he had anticipated, that several of the inner coils of the springs were lying close round the barrel arbors, proving that the springs were exhausted or set; this accounted for the stopping which occurred toward the end of the week. The correspondent mentioned this instance simply to show how easy it is for even an experienced workman to be deceived unless he pursues a methodical course in examining for faults.

The course that I have always followed has been: After taking the movement from its case, removing the hands, dial, minute cock, and bridge, to try the escapement with some power on, and note any faults there. Next remove the cock and pallets—putting a peg between the escape wheel arms to prevent it from running down—and carefully let down the spring; you will meet with a difficulty here sometimes; if the spring has been set up too far, and the clock is fully wound up, it may not be possible to move the barrel arbor sufficiently to get the click out of the ratchet. In many old clocks there will be found a contrivance to meet this difficulty. It is simply a hole drilled at the bottom of and between the great wheel teeth directly over the tail of the click, so that it is possible to put a key on the fusee square and the point of a fine joint pusher through the hole, release the click, and allow the fusee to turn gently back until it is down. This is a great convenience sometimes, and it is a wonder that it is not still done. Having let down the spring, try all pivots for wide holes, and if it is a striking clock, do the same with the striking train, paying particular attention to the pallet pinion front pivot to see if it is worn, and the rack depth made unsafe thereby—also seeing that none of the rack teeth are bent or broken. Having noted the faults, if any, I take the clock to pieces, and look over all the pivots, and note those that require repolishing. Finally I take out the barrel cover and see to the condition of the springs; as I have already referred to the appearance of a spring when it is exhausted or soft, I need not do so again here.

In most cases, some repairs will be required to the pallets, as these nearly always show signs of wear first; if they are not much cut, the marks can be polished out without much trouble—and for this purpose you will find that a small disc of corundum, about three inches in diameter, mounted truly on an arbor, and run at a high speed on the lathe, will be of great assistance; finishing off with the iron or steel polisher and sharp red stuff. If you have to close the pallets to make the escape correct, see that the pallet arms are not left hard, or you may break them.

If the pallets require much alteration, or you have to make a new pair, use any one of the tools found at the material stores. After making any alteration in the pallets, you will generally find it necessary to correct the depth. Should it only require a slight alteration, probably it will be sufficient to knock out the steady pins in the cock, and screw it on so that it can be shifted by the fingers until you have the depth correct, then screw it tight and broach out the steady pin holes, and fit new pins. The repairer will occasionally meet with a pallet arbor that has been bent to correct the depth. This is a practice that cannot be too strongly condemned, as it throws an unequal pressure on the pivots, and causes them to cut rapidly. If much alteration in the depth is required, it may be necessary to put in a new back pallet hole; this can be made from a piece of hollow bushing, broached out and turned true on an arbor, and to a length equal to the thickness of the plate. It is not safe to rely on the truth of this bushing, unless it is turned on an arbor first. The hole in the plate is now with the round filer drawn in the direction required, and opened with a broach from the inside until the bushing enters about half way. Of course, in finishing broaching the hole, you will roughen the extremities to form rivets. Drive the bushing in, and rivet it with a round-faced punch from the outside, reverse it, and rest the bushing on the punch, and rivet the inside with the pane of the hammer; remove any excess of brass with the file, chamfer out the oil sink, and stone off any file marks; finally opening the hole for the pivot to the proper size. Of course, if you have a depthing tool that will take in the escape wheel and pallets, it will be quicker to put them in the tool, fill up both holes with solid bushings, and replant them.

The repairer will also very frequently meet with a scape pinion that has become so badly cut or worn as to be useless, and one cannot always purchase a new one of the right size; in this case, it will be necessary to make it from the wire which can be obtained of every size at the tool shops. In sectoring the pinion wire to the wheel, bear in mind that it will become slightly smaller in filling up. As perhaps some workmen may not have had any experience in making pinions, I will briefly describe the process; but considerable practice is required to make good shaped pinions quickly and well.

A piece of pinion wire of a slighly greater diameter than the pinion is to be, when finished, is cut about one-eighth of an inch longer than required, and the position of the leaves or head marked with two notches with a file. The level portion of the wire that is not required is now carefully filed down on a filing block, taking care not to remove any of the arbor in so doing; a center is then filed at each end true with the arbor, and these centers turned true through a hole in a runner or center in the throw. If this has been carefully done, the pinion will be nearly true; it is now set quite true, and the arbor and faces of the pinion turned square and smooth. The pinion is now filed out true, using a hollow-edged bottoming file for the spaces, and a pinion rounding file for the sides of the leaves. In using the bottoming-file, the pinion is rested in the gallows tool and held in the fingers of the leaves, when finishing, to keep them flat. The file marks are now taken out with fine emery and oil; the polishers that I always have used for this purpose are pieces of wainscot oak, about a quarter of an inch thick, five inches broad,

and six inches long, used *endway* of the grain. One end is planed to a V-shape, to go between the leaves, and the other cut into grooves by rubbing it on the sharp edges of the pinion itself, which speedily cuts it into grooves to fit. The pinion is rested, while being polished, in a block of soft deal, which allows it to give to the hand, and keep it flat.

When the file marks are all out, the pinion is ready for hardening. Twist a piece of stout binding wire around it, and cover it with soap; heat it carefully in a dead fire, and quench it in a pail of water that has been stirred into a whirlpool by an assistant, taking care to dip it vertically. Having dried it, it is covered with tallow and held over a clear fire, until the tallow ignites; it is allowed to burn for a moment, and then blown out and allowed to cool. The leaves are now polished out with crocus and oil in the same way that they previously were with emery. Now, if the pinion is put in the centers and tried, it will probably be found to have warped a little in hardening. This is corrected in the following manner.

The *rounding* side of the arbor is laid on a soft iron stake, and the *hollow* side stretched by a series of light blows with the *pane* of the hammer, given at regular intervals along the curve. Having got the leaves to run quite true by this means, turn both arbors true and polish them with the double sticks—these are simply two pieces of thin boxwood, about three-eighths of an inch wide and three inches long—fastened together at one extremity and open at the other; between these the arbor is pinched with oil and fine emery, and they are traversed from end to end, to take out the graver marks.

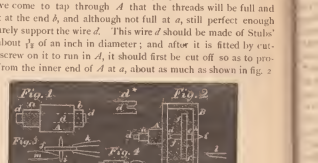
The brass for the collet, to which the wheel is riveted, is now drilled, broached, and turned roughly to shape on an arbor. The position on the pinion arbor is marked with a fine nick, and the collet soldered on with soft solder and a spirit lamp, taking care not to draw the temper of the arbor when doing so. Wash it out in soda and water, and polish the arbors with crocus, turn the collet true, and fit the wheel on. If the pinion face is to be polished, it is now done, the facing-tool being a piece of iron about one-sixteenth of an inch thick, with a slit in it to fit over the arbor with slight friction, and using oilstone dust first, and then sharp red stuff.

Generally, cut pinions are used for the centers, and in this case the body of the arbor is sufficiently large to allow the front pivot to be made from the solid arbor; but in some movements, particularly those used for spring dials, the center pinions are made from pinion wire in the manner just described; but for the front pivot a hollow tube of hardened and tempered steel is soldered on to the arbor. This piece should always project sufficiently far through the pivot hole to allow it to be squared to receive the friction spring which carries the motion work. In cases where this pivot is much cut, it is best to remove this piece and substitute a new one, and as these pinions are very long and flexible, some difficulty will be experienced in turning this pivot unless some form of backstay is used to support the arbor, and prevent it springing from the graver.

Lathes and Lathe Work.

BY THE MODEL WATCHMAKER.

WE FINISHED in January number the description of how to make split chucks. In the present article I propose to describe a method of making a special chuck for restoring the worn pivots of lever clocks. We seldom have to do much to such clocks except repoint the pivots to the balance staff. These wear rapidly, and soon the clock first loses motion, and finally stops; and the only remedy is to repoint the pivots, and the clock is as good as ever. The chuck I am about to describe will enable any person who uses a live spindle lathe to make such repairs very quickly. It is adapted for use either with an American or Swiss combination lathe. I shall describe how to apply it to an American lathe, and from this description a person can readily see how to adapt it to any live spindle lathe. We take a piece of heavy brass wire, such as we would use for a wax chuck, only it is well to have it a little heavier than we would use for an ordinary wax chuck. We turn one end down as shown at *a*, fig. 1, of the piece of heavy brass wire *A*, and cut a thread on it to screw into the lathe chuck which holds our wax chucks. After the piece *A* is screwed into the lathe chuck, we turn the part *b* and also cut a screw on it. This last screw can also be like *a*, except it need not be quite as long. The screw at *a* should be extra well fitted because it will have to be screwed into, and taken out of the lathe chuck many times, and it is important that it should go back true every time. After the screw is cut on *b*, we center and drill a hole through *A*, as indicated at the dotted lines *d*, fig. 1. Through this hole works a screw center for holding one end of the balance staff as shown in fig. 2. It is not necessary a full and perfect thread should be cut the entire length of *A*, but it is essential it should fit the outer end of *d* firmly at *b*. If we broach out the hole in *A* from the end *a* with a slightly taper broach, we will find when we come to tap through *A* that the threads will be full and perfect at the end *b*, and although not full at *a*, still perfect enough to securely support the wire *d*. This wire *d* should be made of Stubs' steel, about $\frac{1}{8}$ of an inch in diameter; and after it is fitted by cutting a screw on it to run in *A*, it should first be cut off so as to protrude from the inner end of *A* at *a*, about as much as shown in fig. 2



It is well to square this end so an ordinary bench key will turn it. The opposite end of *d* at *b* should now be carefully centered, and a small hole drilled in it for about $\frac{1}{16}$ of an inch; this little hole is turned to a conical countersink as shown magnified at diagram *d**. The use of this center and countersink is to secure and hold the inner end of the balance staff *c*, as shown in fig. 2. For holding the outer end of our balance staff *c* we screw on to *b* a stirrup shaped piece *B*, as shown in fig. 2. This stirrup-shaped piece (which will henceforth be termed simply *B*, or piece *B*,) can be made of hard brass, cast to near the form and size, or it can be made up of pieces put together, but the pieces forming *B* need never come apart after once being joined except to unscrew at *b*. For we will need two or three sizes of *B* to accommodate different length of balance staffs. After *B* is finished we screw it on *b*, and put the whole device into the lathe and center with a graver on our tool rest, and drill a hole for the pivot *i* to pass through. After this hole is drilled it is turned out to the form indicated at the dotted lines, that is conical, with the cone opening inward to fit the balance staff shown. For boring or turning out this hole we should use a small pointed tool shown at *f*, fig. 2. If we find it necessary we can put bushes into *B* at *b*, to fit different sizes of staffs, but it is seldom necessary, as all we need is to restore the mere tip of the balance staff for not more than $\frac{1}{8}$ of an inch. Such a bush for *B* is shown separate at *b** and *b***. In using this device we select a piece *B* adopted to our balance staff, screw it on to *b*, retract *d* until the pivot *i* will go into *h*, then screw *d* forward and force *i* firmly into *h*; put the device into the lathe, and turn up *i*, and polish or rather smooth it, leaving the polishing for a subsequent operation. I did not deem it necessary to say that the pivots of the old staff should be softened; they need not be softened except to a blue so we can turn them. After one end

is turned, we reverse ends and turn the other. The pivots should now be re-hardened. This is easily done by holding the staff over a tumbler of water when a jet of flame from a blow is directed on one of the pivots as shown in fig. 3, where *D* represents a tumbler of water, *k* a pair of tweezers, *i* the pivot, and *m* the jet of flame from the blow pipe. As soon as the pivot is red hot it is dropped into the water. This process is repeated with the other pivot. The pivots need no running down, but should be polished by putting the staff into the lathe again and using a slip of oil stone to remove any little scale or roughness. A polish more than what a slip of Arkansas stone leaves is quite unnecessary. I have a boy working on clocks who uses such a chuck, and he screws in a new bush at *h* almost every time he repoints a pair of pivots. The way he does, is, he has a piece of brass wire about $\frac{1}{8}$ of an inch in diameter, and on this wire is cut a screw for two or three inches, which will exactly fill the hole tapped into *B* at *h*. He screws in the end of the wire until it comes flush with the inside of *B* on the line *n*. He then saws off the wire as close to the outside of *B* as he can and not mar the outer face of *B*, centers, drills and turns out his bush to fit his pivot in one-fourth the time I have been describing it. The lathe he uses is an old one but quite good enough for clock jobs, still as I encourage all efforts toward accuracy I permit him to do it, although I do not deem it exactly necessary. The bushers shown at diagram *A** and *A*** are intended to screw in but they have a flange with a slot as shown, and go in from the inside using a little disc of metal about as large as a silver 5-cent piece in the slot *t* to force them home. The wire or center *d* should be hardened at the end where the drilled center and countersink is, and also where it is squared for the key, but to harden the entire length of *d* would endanger springing it. In making such a device, if we concluded to make it of pieces put together, it would be well to make them of hard brass, shaped as shown in fig. 4, *s* being made of thick hard sheet brass and *r* of hard brass wire.

In other columns we make some comments on the recent strikes in this city, in consequence of which thousands of persons were thrown out of employment for weeks, and finally resumed work, when they were not displaced by new men, without having gained a single point. A more senseless, uncalled for and wicked strike, inflicting, as it did, untold suffering upon many poor and innocent persons, was never instigated, not even by that irresponsible and reckless body known as the Knights of Labor. This strike affords another illustration of the utter recklessness of the leaders in this organization, who, to show their power, are willing to sacrifice any number of their members who blindly and slavishly obey their orders. In these recent strikes, scarcely any of the strikers had grievances of any kind—they were satisfied with their employment and with their wages and did not want to strike. but they were ordered out to aid other strikers under the mistaken idea that the greater the amount of suffering imposed upon the community, and the more the commercial and industrial interests of the city could be injured, the greater would be the pressure brought to bear on the employers to concede the demands of the strikers, and the quicker the Knights would carry their point. The effect of calling out so large a number of workmen in sympathy with a few strikers was the very reverse of what the Knights anticipated, for public sentiment, that always upholds any legitimate demand of laboring men, was crystalized against them, and the employers were strengthened in their refusal to deal with the strikers. This strike gave special emphasis to the fact that employers will not be dictated to by any organization of workmen composed of outsiders who know nothing of the conditions of their business. Of the thousands of men engaged in the recent strike, many will be forced to withdraw from the Knights of Labor before they can get their old places back, and all will have to apply as individuals, for in no instance would the employers consent to take them back in a body. Indeed, they could not-do this without being guilty of the grossest injustice to the new men who had come to their aid when the strikers quit work. This is another instance added to the numerous ones that have occurred heretofore, that goes to show that wherever the Knights of Labor have interfered in any labor demonstration they have invariably brought disaster to the cause they espoused. Employers are usually willing to consult with their own men as to any grievance they may have and to adjust them on an equitable basis, but they most naturally resent any interference with their business by outsiders.

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The editors of "Brudstreets'" have been at considerable trouble to get at the statistics of the last strike, and they estimate that the amount of wages directly sacrificed by the strikers from January 11 to February 10, is $2,650,000, and indirectly, $350,000, making a total of $3,000,000 lost to the working classes, or, rather, to those who struck. The losses to employers and others affected by the strike are estimated at $4,000,000, making a total of $7,000,000, of direct loss, while the injury to the commerce of New York is estimated at $25,000,000 in addition, which is rather a large sum for workingmen to be responsible for, in return for which they have nothing to show but the discreditable fact that they voluntarily bowed their heads to a worse phase of slavery th an was ever known anywhere—the slavery of intelligence to the will of a few labor agitators and demagogues.

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As we were going to press with our February number the annual meeting of the Jewelers' Board of Trade was held, but too late for us to get a report of the proceedings for that issue. The report of Secretary Condit was an interesting document, giving in detail the work of the Board for the past year. The Bureau of Reports is one of the most important adjuncts to the Board, and during the year nearly 6,000 reports were sent out to the members relative to trade matters of importance to them. The Board has a list of over 5,000 dealers, regarding whom members can receive information at any time. In the matter of collections the Board did good work for the members through its numerous agents in all sections of the country. The Failure and Assignment department was kept actively employed, and numerous meetings of creditors were held to protect their interests. In all matters relating to failures and assignments the Board takes a most active part,obtaining all information possible regrding delinquents and imparting it to the members. Another important feature of the year's work was sending out information regarding the operations of persons whom there was reason to suspect of sharp practices, and the trade was saved some heavy losses by reason of this information. Mr. Condit has made a most efficient Secretary, and the committee of the directors pays a deserved compliment to his intelligence, capacity and industry. The Board of Trade has thus demonstrated its value to the trade by the practical manner in which it has handled the various matters that have come before it, and one cannot peruse the annual report without being convinced that it is an organization deserving the support of the entire trade.

WHILE the Board of Trade has efficiently supplied a "long felt want" in the trade, there is another void which should be supplied without unnecessary delay, and that is a Jewelers' Club. The formation of clubs down town in special industries is now becoming very general, and the jewelers ought not to be behind their neighbors. Several business men's clubs are to be located in the reconstructed building of the Equitable Life Insurance Society, corner of Cedar street and Broadway. On the fifth floor a suite of rooms is being elegantly fitted up for the Lawyers' Club, and on the floor above the Underwriters' Club will have its home. In the latter will be placed the Walford insurance library, the largest library of its kind in the world, which is the property of the Equitable Society, and to this the Equitable will add its own library, which is quite extensive. The lawyers are also to have a library. Each club will have a restaurant, with private rooms for small parties, and will be served from the extensive restaurant that is to occupy the basement of the building, at reduced prices from what will be charged in the public restaurant. These clubs will afford members an opportunity of taking their lunches at a quiet place, amid pleasant and elegant surroundings, with a certainty that they will meet there congenial members of their own profession with whom they can discuss the news of the day or matters of special interest to themselves. The jewelers ought to have a similar club, where the members of the trade can meet on neutral ground and lunch together. At present they are to be found at the public restaurants and lunch counters, bolting the badly cooked and not altogether appetizing food there to be found, hurrying through their meal in a most unwholesome manner, more because they lack congenial companionship than because there is any necessity for haste. Then, too, the prominent feature of all the public restaurants is the bar, and the atmosphere surrounding them is laden with the combined odors of spirits and beer that are far from contributing pleasure to delicate stomachs. There are plenty of jewelers in Maiden Lane and vicinity to form a large and numerous club, and if it did nothing else but furnish them appetizing lunches in pleasant and attractive surroundings, it would be worth all it would be likely to cost, and much more in the matter of health. It would also be a convenience to have such a place to take visitors from out of town when they are here to buy goods, and it becomes judicious to show them a little attention. Should such a club secure a large and convenient suite of rooms, they could be made to serve for all the other organizations in the trade, each of which might contribute its share towards paying the rent. The idea of such a club is by no means a new one, but has not been pushed because of the lack of accommodations, but now that there are so many large buildings being erected down town, it would be a good time to give practical effect to it.

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THE robbery of jewelers continues to go on without any apparent diminution from month to month. Never in the history of this journal has it been called upon to record so many losses to the jewelry trade by robberies as during the past year. As the number of criminals is constantly increasing, the greater the number of persons who are on the lookout for opportunities to do their nefarious work, and so many more ingenious minds are at work evolving new methods for appropriating feloniously the property of others. Jewelry establishments present special attractions to the criminal classes, and every professional thief, whatever his special method of "getting in his work," devotes more or less study to devising the best means of converting to his own uses the goods so conspicuously displayed in jewelry stores. The class of criminals most to be feared by dealers consists of expert burglars, as they work at night when there are few persons abroad to molest them, and their success has demonstrated that they are equal to overcoming almost any obstacle opposed to them. Locks and bolts do not deter them, and burglar proof safes are seldom found to be proof against their skill and modern tools. Burglars have lately given proof that they are very desperate, and not only ready to take great risks, but are also prepared to defend themselves, even to the extent of taking life if necessary to prevent their capture. They put a very cheap estimate upon the value of human life, and would not hesitate to kill a man if he interfered with their plans. Quite a number of dealers have suffered severe losses of late at the hands of burglars, and self-interest should impel all who have goods at risk to adopt every precaution available to prevent being similarly treated. Bolts and bars and strong safes are essential to this end, but in spite of these, robberies continue to occur. The individual dealer is seldom able to follow up the bold operators who have robbed him, for to do it successfully involves an expenditure of time and money which, coming on the heels of the loss of his goods, he can ill afford. As a consequence the thieves escape with their booty, and with it secure capital with which to continue their operations. Here is where the Security Alliance comes in and supplements the work of the individual. When a member of that organization has been robbed by burglars, the Alliance immediately takes full charge of the case, employs the best detectives in the land, and never gives over the pursuit of the thieves until they are arrested and such goods recovered as have escaped destruction. It is well known by burglars that Pinkerton's detectives are in the employ of the Alliance, and that any person who holds a certificate of membership therein has the right to call upon the detectives to prosecute those who have broken into his premises at any moment. So thoroughly have the detectives done their work, so unrelenting have they been in the pursuit of thieves and so energetic in their prosecution to conviction, that burglars have a wholesome respect for the certificates issued by the Alliance. It is a fact established by the admissions of the burglars themselves, that several of them had recently laid all their plans to rob the store of a large dealer in the West, had appointed the night when it was to be done, when they saw hanging on his wall a certificate showing that he had just secured membership in the Alliance, and they at once abandoned their plans. How many other such instances have occurred cannot, of course, be known, for burglars seldom tell of their plans; but there is evidence that the members of the Alliance have enjoyed wonderful immunity from the depredations of burglars. It is fair to attribute their escape from loss to the impression made upon the burglar class by the activity and persistency shown by the Alliance in their prosecution. With half a dozen of their number now paying the penalty of their crimes by serving long sentences in State Prison, their companions have imbibed a wholesome fear of those who never relax in their efforts to punish those who rob members of the Alliance. While burglaries are so numerous and the perpetrators of them so desperate, no dealer can afford to be without this protection.

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THE Interstate Commerce bill having been passed by both houses of Congress and signed by the President, is now the law of the land, and the doctrine is thus laid down that Congress is willing to assume the power conferred upon it by the Constitution, to "regulate commerce between the States." Heretofore it has been strenuously maintained that each State was supreme in the matter of commercial transactions occurring within its borders, and this position is conceded where such transactions are completed within the limits of any given State, but where commercial transactions extend over several States, it is declared by this act that its regulation is solely the province of the national government. At least, that is the inference to be drawn from the fact that Congress has interfered in relation to the transportation of freight and passengers by railroads crossing several States. The present law is generally regarded as being only an entering wedge to future legislation, which shall undertake more in detail the regulation of interstate commerce by the federal government. Then, if this point be conceded, the claim will be made that if Con-

gress has a right to regulate commerce, it has also the right to regulate those articles that enter into commerce, and to prescribe rules and regulations for the protection of the public. It may eventually come about that we shall have laws regulating the manufacture of all articles that are subjects of interstate commerce, prescribing penalties for misrepresentation and fraud regarding the quality of goods, preventing adulterations of food products, and even prohibiting robbery in the production of articles of luxury—requiring, for instance, that eighteen karat gold shall be eighteen karats fine, and not ten karats. Such laws would revolutionize our productive industries to a most wonderful extent, and the community at large would be greatly benefitted. But the public would reap no greater advantages from laws prohibiting adulterations and misrepresentations than would those manufacturers who are desirous of doing an honest and legitimate business. In the jewelry trade, for instance, if fraud and misrepresentation were prohibited, and all goods had to be be made of honest metal, there would be nothing left for those disreputable manufacturers whose profits are made through deteriorating the quality of their goods, and making them of metal inferior to what their face calls for. We have always maintained that Congress had a right, under its power to regulate commerce between the States, to prescribe a standard for wrought gold goods, for flour, liquors or any other article that forms a part of interstate commerce, and we should not be surprised if it exercised that right at no distant day. It will be a good thing for the legitimate jewelry trade when it does so.

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One benefit that the trade will derive at once from the interstate commerce bill when it goes into effect, will come from the enforcement of that clause regarding the "long and short haul" over which there has been so much discussion. It prohibits any railroad from charging more for carrying passengers and freight short distances than it does proportionately for long distances. For instance, if one wishes to go to Buffalo, the company can only charge a *pro rata* rate on its rate to Chicago, instead of about two thirds as much to Buffalo as to Chicago. This will be a great advantage to travelers, who are required by their business to buy tickets for places at short intervals on their route at exorbitant prices. On the great through lines there are many places intervening between terminal points where the road has no competition, and hence charges very high rates for passengers and freight to these points; under the new law the rates will have to be proportionate to the through rate. This will save many a dollar to those trade missionaries who are required to stop at every place on a long line of road. It will also affect them favorably in transporting their extra baggage, for which they are now required to pay exorbitant prices to points where there is no competition. But the railroad companies do not like this feature of the new law, and declares that it is calculated to break them up in business. Well, if the present companies cannot live under such wholesome regulations, they had better offer their franchises at auction, and they will have no difficulty in finding purchasers who will take their chances under the law.

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A Correspondent of a foreign journal goes into raptures over what is claimed to be the most magnificent sapphire in the world which is the property of a noble Russian family. It is described as being over two inches in length, a inch and a half wide, and its color as being a rich azure. According to the correspondent, this peerless gem a few years ago was in the possession of a Parisian jeweler, when one of the Rothschilds offered a million and a half of frances for it, but the offer was refused. It is mounted as a hrooch, surrounded by diamonds, a smaller sapphire forming a pendant to it. Some of our enterprising buyers for American importers of precious stones ought to make a special effort to secure this prize, for it would be more highly appreciated in America than any where else.

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Wells, Fargo & Co., have long been regarded as authority on the production of the precious metals in this country, and the annual statement prepared by Mr. Valentine for them are accepted as authority by all statisticians. Their late statement makes the output of precious metals of all kinds for 1886 valued at $103,011,761, which includes the productions of British Columbia and the west coast of Mexico. This is over $13,000,000 in excess of the production of the previous year. But Mr. Valentine does not include in his report all the precious metals that find their way into the United States, as a considerable finds its way here from Mexico, by railroad that does not enter into his calculations. For instance, while he credits Mexico with only about $2,000,000 of silver, the Bureau of Statistics give our imports of silver at $15,000,000. The increase in the gold production last year was $3,167,668 and of silver $7,620,252 over the production of 1885. During the past year the price of silver reached the lowest point on record, the average for bullion during the year being 45d per ounce. From this average price it appears that the value of the bullion in a standard dollar is only about 75 cents—a nice little swindle on the people perpetrated by the government.

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President Cleveland did a very wise thing when he vetoed what is known as the "dependent pension bill." Had this bill become a law it would have multiplied the number of pensioners for the government to provide for an hundred fold, and every camp follower, sutlers' assistant and officers' servant that was in the army would have been an immediate applicant. It provided that anyone who had been in the army and was now or might become incompetent to support himself, should have a pension of $12 a month, and that anyone who was dependent upon the services of any soldier should likewise be entitled to a pension. The bill was offering a premium to incompetency, and for perjury and fraud, and would have saddled the country with a load of taxation that it is now impossible to contemplate. Senators and Members of Congress, anxious to conciliate the soldier element in their districts had not courage to oppose the bill, and so it passed, but President Cleveland, ignoring all political considerations, vetoed the iniquitous measure. The writer of this paragraph had five years hard service in the war, and believes in pensioning such of the soldiers of the war as received honorable wounds or lost their health in the service, but not in providing for all the bummers and camp followers that hung about the army to its constant discredit. Most of the soldiers of the war entered the service from motives of patriotism, but Congress has been trying ever since the war closed to put a mercenary value on their patriotism, and tempt them to become pensioners on the government. No soldiers that ever wore uniform have been treated with the degree of liberality that this country has treated the soldiers of the army of the rebellion, and they would be satisfied with what they have received if the claim agents would let them alone. President Cleveland is entitled to a great amount of credit for sacrificing popularity to justice and a sense of duty to the people.

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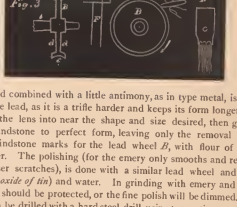
There is no cessation of the complaints of retail dealers regarding the selling of goods to outsider by jobbers and manufacturers, and

the bazaar dealers who make leading features of jewelry are growing more numerous. This evil has reached such proportions that merely complaining about it will not remedy it. Dealers have got to make up their minds that there are certain persons who will sell goods to all comers, without inquiring whether they are in the trade or not, and devise some way of offsetting the evil. Just what they can do it is impossible for us to suggest, but we are of the opinion that each locality will have to meet the difficulty in its own way and according to the circumstances governing the case. We regard it as unfortunate that the jewelry trade should have drifted out of the legitimate channels to the extent it has, but the fact must be recognized that one branch of the trade has encouraged the upbidding of an extensive and very active competition for another branch to contend with. How the jobbers who sell to outsiders can expect the regular dealers who are their customers to pay their bills promptly, is more than we can understand, when they are taking the most effective means possible to deprive them of the customers on whom they depend for the wherewithal with which to pay their obligations. It is one of those problems that time alone can solve.

Advice to Watchmakers' Apprentices.

BY A MAN WHO HAS SPENT TWENTY YEARS AN THE BENCH.

IN REPAIRING spectacles and eye-glasses in this day we find many special lenses ground to a formula. Such lenses are necessarily expensive, and should be treated with extra care to prevent scratching and changing. By changing I do not merely mean substituting one lens for another; the care extends farther the same position of the individual lens to the eyes for which it is suited must be preserved. A safe way is to cement tissue paper on a lens we have to handle much. If we should have to grind the edges of the lens to fit new frames; tissue paper cut to near the size of the lens, and centered fast with shellac dissolved in alcohol until as thick as ordinary mucilage will thoroughly protect it. At fig. 1 is shown a lens, and the dotted line indicates about the size of the tissue paper to be applied. This method not only protects the glass from scratching, but by simply marking the paper attached *R* and *L*, we know which eye it is (right or left). In fact, tells us all we want to know, top, bottom, which side of the lens goes outward, etc. For all ordinary purposes, then, paper stuck fast with gum arabic (mucilage) is quite sufficient, even when a lens has to go to the grindstone. The writer has seen so many cases of harm coming to special lenses, that he earnestly recommends using the protection described, and he sincerely believes that those persons (workmen) who may be required to pay 5 or 6 dollars for a special lens will agree with him. The gum and paper protection is so quickly applied and removed that all prudent workmen can well afford to use it. While the subject of grinding is mentioned, it is well to speak of grinding to exact sizes. A lens should fit perfectly, not straining the frame, nor yet be loose to endanger falling out. In fitting by grinding it is difficult to judge perfectly when the lens is reduced to exactly the right size, by simply pressing the joint together with the fingers; but if we use a pair of cutting pliers, as shown in fig. 2, we can close down the joint perfectly and judge of the security of the lens by taking the part indicated by the dotted lines surrounding the *A* with the thumb and finger, and feel if the lens is secure. We occasionally get to repair eye-glasses in which the mountings are applied to the lenses by holes drilled directly through the glass. This style is fast falling into disfavor; yet we get them occasionally, and it might be well to speak briefly of their repair. Broken lenses, split out at the holes used for mounting, are the usual trouble. In such cases a new lens is the only cure. The requirements in a new lens are, first to grind and polish the lens on the edges, and then to drill the holes for attaching the nose piece, handle and catch. The writer described a method of polishing the edges some months since, but for small jobs, like the one we are describing, lead wheels used with an ordinary polishing lathe is about the best arrangement for this purpose, except one has a special spindle fitted up, which would hardly pay for any person not a practical optician. Still we have a good many cases of spectacles which have or should have lenses with polished edges; consequently it is desirable to be "*fixed*" so as to do it. Concave lenses, especially, are far nicer in skeleton frames set in a groove ground into the glass than when the glass is ground to a beveled edge. We will first consider how to grind and polish the edges of a lens, then tell how to groove it. In using a lead wheel, it is well to make it about 5 inches in diameter and 1 inch thick. As such wheels, if made solid, would be unnecessarily heavy, we should cast it so it will be shaped in section as shown in fig. 3, where *B* represents the wheel, and *b* the lathe arbor or screw spindle of a polishing lathe. The recesses at *d d* can be cast in, but the concave edge at *c* is first turned



in. Lead combined with a little antimony, as in type metal, is better than pure lead, as it is a trifle harder and keeps its form longer. We first cut the lens into near the shape and size desired, then grind it on a grindstone to perfect form, leaving only the removal of the rough grindstone marks for the lead wheel *B*, with flour of emery and water. The polishing (for the emery only smooths and removes the coarser scratches), is done with a similar lead wheel and putty powder (*oxide of tin*) and water. In grinding with emery and water the glass should be protected, or the fine polish will be dimmed. The holes can be drilled with a hard steel drill, using turpentine to moisten the drill. It is best to drill from both sides, letting the holes meet in the middle; this will prevent splintering. When grinding with emery and polishing with putty powder, the lens should be kept moving with a sort of swinging motion to favor an even rounded surface. The concave surface of the lead lap *B* at *c* will also favor this result. The lap or wheel *B* does not require a very rapid motion. One of the important points in using a lead lap is to keep the emery supplied to the groove *c* in the wheel *B*. One of the best devices which has come to the notice of the writer is shown at *D*, fig. 4, and also separate at diagram *D**. It is simply a small piece of ½ inch board, shaped as shown, with about 4 holes at *f*, through which a number of strings of soft wrapping yarn are drawn to form a brush or mop to hold the emery and water. We stir up 3 or 4 tablespoonsful of flour of emery in a tumbler of water, and dip the mop *e* into this mixture of emery and water and place it as shown in fig. 4, letting the lead wheel revolve in the direction of the arrows. The mop *e* not only serves to apply the emery and water, but also prevents an excess, and does away with splashing almost perfectly. The piece of board *D* is simply laid on any convenient support like *F*, when a pin, as at *f*, will prevent it (*D*) from being dragged off by the wheel *E*. Such a mop can be used for some time without wearing much. As soon as the supply of water and emery begins to fail, *e* can again be dipped into the tumbler. The lens to be ground is held as shown at *E*. When polishing, the lead wheel is changed and also the mop *e*, as it is important in all processes of polishing to avoid any grit such as emery; no matter how fine it is ground it will leave scratches behind it. Simply washing the lens *E* will clean it; but have a separate lead

wheel for grinding and polishing. Such lead wheels, using coarser emery, will do a very good and rapid job of rough grinding of lenses for fitting; but they are not as good as a grindstone, only in some places one has not the room for a large grindstone; in such cases use a lead wheel 10 inches in diameter, or a wood wheel with a lead band or hoop cast on. The great objection to a wood wheel is it swells and distorts the lead band, making the wheel run untrue. In grinding lenses, which are ultimately to be grooved for skeleton frames, we grind the edge convex and polish it, leaving the groove for a subsequent operation. The test of good workmanship in polished edge lenses is a rounded and polished edge, free from any flat unequal spots. Grooving the edge is done with a copper wheel and an equalizing guide, to be described in my next communication.

Fashions in Jewelry

A Lady's Rambles Among the Jewelers.

The new goods out for the spring trade prove conclusively that large ornaments are coming into fashion again; that brooches are a favorite and leading style in neck pins; that bracelets and bangles can hardily be made fast enough to meet the demand for them; that ladies' watches, while decreased in size, are more showy in effect than before for some years; that finger rings are gaining in size; that watch chains are no longer made after one pattern; that earrings are at last a good selling article, and that both men and women are wearing jewelry in greater profusion than before in eight or ten years.

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Brooches, which are a leading article, not only in the finer classes of jewelry, but right on down to the rolled gold and fire gilt—present this spring in many instances, the quite round and oblong forms, which characterized the old time brooches, or breast pins, as these massive pieces were also termed. These round pins, show a variety of finish; sometimes they are of bright gold, with a star cut in the centre and a diamond or other gem set therein. Often they show a chased surface. Sometimes they are an open-work medalion in which appear platinum decorations or small stones. Again the brooch takes on the form of a concave plaque and is delicately finished in bead work.

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But the brooches of to-day are by no means confined to regular round shapes, they take on a great diversity of forms and afford, therefore, a wide field for selection. An effective design in brooches is that which forms around one half of the brooch, a crescent decoration either of gems or enameled flowers, in which is set a round medalion, consisting sometimes of a miniature painting, sometimes of filigree work dotted with gems, and sometimes of a Limoges enamel picture.

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Exceedingly attractive brooches, that gain their models from French jewelry, are miniature paintings mounted in a gold or silver framework in Louis XV. and XVI. pattern. A pretty brooch is made of a round coil of gold rope, in the centre of which swings a pendant in antique pattern. Gold broaches in elaborate renaissance design, and set with colored stones, makes an ornament suitable for either brooch or pendant.

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It is a fact worthy of special mention, that despite new patterns which have come to the front in considerable numbers, insects and flowers continue to be favorite models for the workers in precious metals and gems. All winged insects figure more or less in the new brooches, especially such as employ gems in their settings. The wings furnish such an admirable background for the setting of small diamonds, while the bodies of the flies afford an equally advantageous disposal of oval shaped fancy stones. Topazes, opals and sapphires, are much used in these fly pins. Some are of large size, when they act in the capacity of brooch pendant or ornament for the hair. Some are small, and suited to the requisites of a scarf or bonnet pin.

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Numbered with beautiful flower brooches is one that represents a large lilly in diamonds, with golden anthers. The wild rose is a favorite flower in jewelry. One seen with bright gold leaves, was a perfect copy of nature's rose as regarded the form, the petals being curved and turned to a nicety. Occasionally the wild rose is even more literally copied by means of enameling.

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The clover leaf continues a favorite pattern in brooches, and is sometimes produced in enamel with a long curving stem. A single flower, by the by, with a long graceful stem affords a stylish and fashionable pin.

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Numbered with other realistic subject copied in brooches and other neck pins, is the feather. A silver pin that was quite effective, simulated a fluffy feather on which lay a tiny Limoge picture. In this connection it may be well to describe some imported aigrettes for the hair, seen during the past month. One of these consisted of an aigirette of white ostrich feathers with a superb diamond butterfly settled in its center. In another a diamond humming bird was fixed in the midst of a bunch of blue plumes.

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Paris novelties in way of neck-pins that serve to diversify the jewelers stock, but not likely to gain great popularity, are brooches that represent in gold, a visiting card, on which appears in diamond points the initials of the wearer. Decidedly French too, are crescents of gold, with the circular space filled in with a landscape or other picture in colored enamel. Of French origin are the pins that simulate birds of gay plumage, though our own manufacturers are making these in considerable numbers.

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Coming back to home productions, a new gem brooch worthy of mention, is composed of three gem-set crescents, gracefully inter-

flocked. Another effective brooch, consists of three gold wheels with a different color stone set in the hub of each. The sunflower pin, by the by, is a favorite, and is very effective when the petals are of gold and a brown diamond rests in the center of the flower.

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A new gold brooch destined to become popular, has a counter-sunk center which is surrounded by a curved outer edge; inside appears a knot of gold wire in which rests a diamond. A fancy pattern that is taking well is one which simulates a lace collar in pierced gold work, with a little cravat bow of pearls in the front.

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Before dismissing the subject of neck-pins, a word must be said about scarf-pins, now so indiscriminately worn by men and women, not only in neckties and bodices, but as ribbon and bonnet pins. A new idea in this direction is that of a series of pins, including six, eight or even more, each one of which, in tiny gems, represents a letter of the alphabet. Sometimes these letter-headed pins spell out a name, again it is the word "Souvenir" that is formed when they are grouped together to fasten on a lace fichu or a corsage bouquet.

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Not only have large and ornate patterns in brooches come in again, but necklaces, both with and without pendants, are being made, sold and worn in large quantities; necklaces that do not depend on precious gems for their popularity, but on fine workmanship and artistic patterns. An effective pattern and one often worn over a velvet band is of gold or silver in flexible form, and with little pendants hanging from the main part; the larger portion of the design comes immediately in front and then tapers off towards the sides and back. A necklace of this description seen, with turquoise drops for pendants, was decidedly effective. Colored stones are used to advantage in these ornaments. It need hardly be told, however, that when money is no object the favorite gems for necklaces are now, as ever, diamonds and pearls.

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Very pretty necklaces of gold are out this spring in fret-work balls. These necklaces, while simple and comparatively inexpensive, are decidedly effective and will doubtless have a run.

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There is a large demand for silver necklaces of slender construction, to be worn over velvet bands. A circlet of forget-me-nots in blue enamel, or tiny dasies in white enamel, are very effective when mounted on dark velvet neck ribbons. The fashion continues for both gold and silver bead necklaces, and then there are silver necklaces and dog collars in quite elaborate pattern, and closely fitting about the throat.

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A necklace in favor with quite young ladies consists of a simple gold chain at the back and sides, while the front is composed of gold tassel-like pendants set with turquoise or small pearls.

Pendants are, if possible, more worn than ever, and as has before been told, a gem-set ornament not unfrequently serves one time as a brooch, and another as a pendant. Excepting that these ornaments are growing in size along with the brooches, there is little that is new to be said about them. A novelty seen, was in Renaissance design, with a little diamond wheel in the centre, which, through some hidden mechanical contrivance, revolved rapidly, showing off the gems to good effect.

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The lavish use of jewelry has again brought about an increased demand for watches; nor is this all, there is an increased demand for watches in decorative cases. During the several seasons that jewelry was, so to speak, under a cloud, watches, representing a staple article, were, of course, worn by both sexes for the sake of convenience, but not at all for show, consequently these timepieces were for the most part in plain cases. Now all is different; not only are good time-keepers desired, but ornaments are required as well. It need hardly be told that our watchmakers and jewelers, ever on the alert to please the public, have gotten out for the spring trade a widely diversified stock in this direction. Importers too, have been busy, and there lies to-day in the show-cases of our leading New York houses, some of the most costly and beautiful watches ever before placed on the American market. The imported ones copy largely the watches worn by court celebrities in the times of Louis XV. and Louis XVI. American manufacturers have expended on their watch cases no end of ingenuity and fine work. So, taking the present stock with its foreign and home productions, fastidious indeed, must be the woman who cannot find exactly what she wants in this line. It is not possible to enumerate even the numerous styles of decoration to be found on the cases to-day of watches designed for ladies' wear, much less, attempt a full description. Mention must be made, however, of a few of the leading styles in the finest classes of watches. An exceedingly rich effect is gained in open face case, the backs of which are thickly set with small diamonds of uniform size and brilliancy, so that no gold shows. These watches have blue enameled dials, with gold hands and gold numerals. A chain admirably adopted to wear with the above style of watch is formed of two strands of exceedingly small links fastened together by a slide covered with diamonds, and terminating with swivel at one end and bar at the other, both set with diamonds.

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Small watches in slightly bulging cases, and having open faces, are just now in great demand. Many of these show cases elaborately enameled in colors; again the cases are etched; sometimes appears elaborate chasing, and yet again the cases are quite plain. Small semi-hunter cases, which, by-the-by, are decidedly fashionable, are many of them gem-set. When set with fine gems, plain gold cases are provided, in which to place the more gorgeous watch, when a plain one is desired; an arrangement that affords two watches in one.

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A very beautiful watch is one, on the case of which appears a picture in Limoge enamel surrounded by a wreath composed of gold leaves, thickly dotted with flowers represented by turquoises and pearls. It may be of interest to know that the chain made to accompany this watch is a short one, in what is familiarly known as the fancy vest pattern; only, instead of terminating with a bar, there is a small pin attached, on which appears a picture in Limoge enamel similar to the one on the watch case, and like it, surrounded by a wreath of turquoises and pearls.

A DECIDED novelty is a watch case, in the back of which is set a sardonyx cut in intaglio, after the fashion of an elegant seal ring, or the seal in a watch fob.

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THERE are many exceedingly attractive watches in less expensive cases; such, for instance, as one in a chased case on which appears a graceful sprig of blue forget-me-nots in enamel.

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QUITE new in way of watches for mourning are those in semi-hunter cases of gold, enameled with black, and having black dials on which appear the numerals in white. The chains made to wear with these mourning watches are in queen pattern, and show alternate links of gold and black enamel with an enameled cube or ball for pendant.

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A WATCH CHAIN for ladies wear, that borrows ideas from both the new "Empress" and the old favorite Queen, is quite short, with a swivel at one end for the watch, while at the other is a small, but decorative pin, from which depends a short chain terminating with a ball. One of this style of chain seen, had a seal in place of the ball for a pendant.

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A CHAIN for gentlemen, to be seen in the retail houses uptown that cater to a fine trade, is a double one with swivel on one end for a gold pencil, and on the other for the watch; while from the bar in the center swings a short chain, to which is attached a seal or an antique coin.

⁂ ⁂ ⁂

THERE is an increased demand for Roman gold chains for ladies' wear. While the Queen remains popular, many other watch chains are seen, being for the most part modifications of the fancy vest chain. As has been before told, there is quite a disposition to watch-pins on the chains, in place of a bar. These pins are, many of them, quite beautiful, and, as a rule, show the same style of finish and decoration as appears on the watch cases. Quite a number of vest chains for ladies wear have been seen the past month made of two strands of fine gold wire connected by one or more slides. A pleasing pendant seen on a Queen chain, simulated, in gold and pearls, a basket of eggs.

⁂ ⁂ ⁂

EXCEEDINGLY popular for both sexes are the woven and braided watch chains. These show a diversity of pattern; some are long links of braided gold wire, while others are delicate woven ropes of gold. This woven work presents continuous links that require no solder in the production of an entire chain. Quite new are the woven bracelets that show a bright gold band beneath their flexible meshes. These bracelets possess furthermore the improvement of an extension snap that recommends itself to all who see it. The manufacturers of this woven and braided chain work have introduced for the spring trade, a combination bracelet, that is deserving of mention not only because it is ingenious but because it is also convenient and economical, affording as it does a pair of bracelets and a dog collar in one article. There is also an attachment that converts the dog collar into a drop necklace.

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RINGS are not only worn in great profusion but are, in many instances much more showy in effect than formerly. While small clusters are preferred by many ladies, large clusters appear; so do large settings in other forms. A unique ring, and at the same time decidedly decorative one, is made with an over-lapping shank, each end of which is finished with a square block of small diamonds in the center of which appears a large colored stone. This pattern provides a setting—or top-piece—to the ring that occupies nearly all the space on the finger below the second joint. Another oddity, in form of a ring with over-lapping ends, is one in which is set a diamond, cut in the ordinary style, with a fancy stone that furnishes a perfect cube of color. Colored pearls, for which there appears to be a large demand—are much worn in finger rings, a favorite design being a large fine jewel surrounded by small but fine diamonds. The opal, it need hardly be told, is largely employed in rings as the center stone for a round or oblong cluster. An effective ring seen recently was set with a diamond shaped turquoise of exquisite color, surrounded by a border of brilliants.

⁂ ⁂ ⁂

BRACELETS are worn more than ever, and are out in a great variety of design. New ones show a limoge enamel picture surrounded by pearls. A pretty conceit in way of a bracelet was a flexible one of rubies, divided by glittering lines of diamonds.

⁂ ⁂ ⁂

No revival has, perhaps, brought greater joy to the jeweler's heart than the one that makes earrings again fashionable. The new spring goods include increased numbers of these ornaments, not only in exclusive fine goods but in the cheaper grades as well. In fine jewelery, there is a decided fancy evinced for colored pearls, especially those of large size, for earrings. Large gray pearls are prized for the purpose. A pair seen were set with a diamond at the top of the pearl, so as to conceal the gold hook. Sapphires, emeralds and rubies are much used as the center stones for cluster earrings; these are as a rule encircled with diamonds. Screw earrings are still worn, so are flower earrings. Open work balls, carved balls, bright balls are all favorites. A new pattern consists of little balls of gold, surrounded by a band of bead ornamentation.

⁂ ⁂ ⁂

AS REGARDS sleeve buttons, there is not much that is new to be told. Both styles are in demand, here both are made. The sleeve-links appear to be rather smaller than were those of last year and there is a tendency to cross match these. Some very pretty single buttons are mounted with onyx and sardonyx seals. Buttons with counter-sunk centers and carved outer-edges are new attractions.

⁂ ⁂ ⁂

THE moonstone continues to keep its hold on the public favor. In finer classes of jewelry it appears for the most part in the form of balls. Very pretty rings seen were simple gold wire ones finished at

the top with three moonstone balls so set as to form a triangle. Gold wire bracelets, similarly set, were equally pleasing in effect. Moonstone balls also appear in scarf and bonnet pins. There are some very pretty necklaces made of continuous blocks of moonstone ringed together with silver settings.

THE moonstone jewelry in gold-front goods, for a popular trade, presents some very clever designs. Numbered with these are brooches in the center of which appear moonstone heads dressed in toboggan caps. Deer hound heads, of moonstone, sets for neck pins are new in this line of goods and it is thought will sell well.

WHITE stone goods are out in all the new patterns. As it is worthy of note that the number of brooches are greatly on the increase. A large number of the rolled gold and gold front neckpins are made in the round and oval shapes, instead ofin bars as formerly.

So long as fashion prescribes the wearing of crape and bombazine in times of mourning, so long will there be a demand for mourning jewelry. As in years past, in exclusive fine goods, black onyx and pearls, and black enamel and pearls, constitute the favorite materials for mourning jewelry. It is quite a matter of taste whether one selects black onyx or black enamel jewelry, for both are desirable and fashionable, and both are out in new and pleasing designs. In second mourning, hematite still furnishes the popular material and consequently hematite jewelry is shown along with other sorts in all the desirable patterns.

CRAPE STONE jewelry, while comparatively new, represents one of the most popular inventions in black goods, being now known over the entire country. It is needless to say that this jewelry is out for 1887 in new patterns—some of the brooches are especially pleasing in design, and the same may be said for ear rings of crape stone, for which there has appeared an increased demand.

ELSIE BEE.

History of the Thimble.

BY HERMAN BUSH.

ANENT a bi-centary celebration, held in October, 1884, at Amsterdam, in honor of the inventor of the thimble, introduced by Nicholas van Benschoten, a gallant young goldsmith, and made in the first instance for the protection of the finger of his fair and industrious lady-love, and its origin, like many other things, attributed to Dan Cupid, a search has been instituted amongst European Industrial Old Records to find a priority of the existence of this little useful article, and the following notes are the result, which is, beyond doubt, fully authenticated.

In the year 1568, appeared at Frankfort on the Main, Germany, a book, entitled : "Eygentliche Beschreibung Aller Stände auff Erden, Hoher und Nidriger Geistlicher und Weltlicher, aller Künsten, Handwercken und Händeln, etc." illustrated by the renowned German Artist of the second half of the sixteenth century, Jost Ammann, and verified by the well-known German National Poet, Hans Sachs, in which we find a direct allusion to the "Fingerhüter" or Thimble-maker."

The illustrations of the thimble in this old book are exactly like the thimbles now in use, and fully known to every one engaged in sewing by hand.

The verses are here produced in the Original Old German, with a free translation annexed.

"Aus Messing inach ich Fingerhüt
Blechweiss, werden im Feuer g'lüt,
Thun in das Eysen 'nein getrieben,
Damach Löchlein derein gebleh'n.
Gar mancherley Art, eng und weit
Für Schuster und Schneider Cereit.
Für Seidensticker und Näterin,
Des Handwerck's ich ein Meister bin."

TRANSLATION.—Of brass I make Thimbles by cutting disks annealed in the fire, and then forced hollow into an iron, afterwards provided with little sinks. I make them of various shapes, narrow and wide, for cobblers and tailor, ready at sight, for silk-embroiderers and seamstress, and divers trades. I supply and bless.

As seen in the verse, even "*various shapes*" of thimbles were known at that remote time. The making is described by forcing annealed disks of brass plates into an iron form, by which the hollow is produced, the sinks for taking hold of the head of the needle were made with small punches.

Jost Ammann's masterly "Beschreibung Aller Stände." "Description of all handicrafts," has recently been reproduced in fac-simile by Dr. George Wirth, in Munich, Bavaria, and can be highly recommended to all connoisseurs of old industries and curious manipulations.

The famous Amsterdam goldsmith, Nicholas van Benschoten and his alleged original invention and manufacture of the "*finger-protector*"—thimble—for his sweetheart, can therefore have reference only to the one made by him in this instance, and probably more likely to the artistic embellishment of the thimble which the gallant young man presented to his affiance on her birthday.

Yet a far more remote and equally reliable record gives the thimble, this little unpretending, yet for our industrious ladies indispensable, auxiliary an older existence. In one of Adalbert von Keller's published Shrove Tuesday-plays of the fifteenth century, he makes the jolly peddler of haberdashery, "*Yankee Notions*" announce to the crowd around him :

"Ich han gut Schnur für- Unterhemd,
Auch hab ich Nadeln, Bürst und Kämm
Fingerhuet, Taschen und Schächtel viel
Heftlein und Häklein wie man will."

TRANSLATION.—I have good tape for the chemise, and likewise needles, brushes and combs, *thimbles*, bags and boxes many, handles and hooks, as you may like for any.

This is, however, not yet the oldest allusion to the thimble, which it appears was already known in the twelfth century.

In the Royal Library at Wiesbaden, Germany, is a manuscript of the thirteenth century, which contains literary extracts by the Saincted Hildegard, composed in the twelfth century. In these curious literary collections we find a compilation of 900 words, with a translation in an unknown language. Amongst the words mention is made of the "Fingerhuth"—thimble—which is called "Ziriskanz" in the strange translation.

During the recent excavations at the site of the old cities, Herculaneum and Pompeii, in Italy, which in the year 79 A.D., were overwhelmed by a fearful eruption of the volcano Vesuvius, tiny metal cups were discovered, which by their shape and size could hardly have answered another purpose than a protection of the finger whilst engaged in sewing.

In England, the thimble must have been known and used for a considerable period, as we can trace a certain John Lofting, established as a manufacturer of thimbles at Islington, London, in the year 1695, named in a classified list of trades published in that year.

In recent years numerous attempts have been made to overcome

the almost universal complaint that every shopkeeper selling thimbles is only too familiar with, that silver thimbles are not as serviceable as desired, by having too little resisting power when brought into daily use with the needle; stone ends have been introduced, and steel ones also, each in turn been condemned, as they were found to be useless to the great majority of wearers who use the side of the thimble only.

To meet these objections, an idea was conceived by a practical manufacturer of silverware in England, by Mr. Charles Horner; to make a thimble on the principle that may be best described as an *Armour Plated* Silver Thimble, which is made of three separate parts, closely wedged together; the inner and outer parts being silver, and the intermediate steel; of an average weight of 4 dwts., being 3 dwts. of silver to 1 dwt. of steel. They are all three struck up together by special machinery made for the purpose, producing a solid resisting power against impenetrability of the needle that justifies the statement of "Armour Plated," and are for durability unequalled and pre-eminent.

These thimbles are made in all the different sizes, every one plainly numbered, as are required for the fingers of children or adults, and may be had either in plain finish or richly chased, and engraved in various designs.

RECENT PATENTS

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of December 14, 1886.

354,278—Bracelet, Clasp. K. Wallinger, New York, N. Y.

354,122—Clock. B. F. Flint, Cincinnati, Ohio.

354,346—Clock, Calendar. S. W. Ralph, Wacca, Ohio.

354,525—Clocks, Circuit Breaker for Electric. V. Himmer, New York.

354,283—Watch Regulator. P. H. Wheeler, Columbus, Ohio.

354,083—Watch, Stem Winding and Setting. J. Bechner, Chicago, Ill.

354,084—Watch, Stop. J. Bechner, Chicago, Ill.

Issue of December 21, 1886.

354,716—Bracelet. S. D. Mason, Attleboro Falls, Mass.

354,666—Watches, Combined Dust Ring and Case Spring for. S. L. Stufft, Scottsdale, Penn.

Issue of December 28, 1886.

355,077—Ear Rings, Ear Wire for. L. Dreyfus, New Orleans, La.

355,144—Watch Crown Cores, Device for Capping. A. C. Dalzell, Newport, Ky.

355,093—Watch Regulator. J. C. Lavesseur, Milianah, Algeria.

Issue of January 4, 1887.

355,461—Clock, Twenty-four Hour. E. W. Morton, White Plains, N. Y., Assignor to A. McCullough, Ontario, Canada.

355,434—Clock Winding Attachment, Electric. J. Broich and A. E. G. Liebke, Brooklyn, N. Y.

355,404—Clock Winding Device. L. Lefevre and H. Pallut, Paris, France.

355,624—Clock Works. Manufacture of Shafts and Pinions for. C. Stahlberg, LaSalle, Ill.

355,509—Watch Movement Box. C. K. Colby, Brooklyn, N. Y.

355,576—Watch Safeguard. S. C. Watts, New York, N. Y.

355,493—Watch, Stop. A. Lecoultre, Brassus, Vaud, Switzerland.

Issue of January 11, 1887.

356,069—Clock, Primary Electric. V. Himmer, Assignor to Standard Electric Clock Company, New York, N. Y.

355,820—Clocks, Circuit Breaker for Primary Electric. V. Himmer, Assignor to Standard Electric Clock Company, New York, N. Y.

355,752—Watch, Stem Winding. J. Bachner, Assignor to Himself and G. A. Harmount, Chicago, Ill.

356,021—Watch, Stem Winding and Setting. W. H. Wells, Springfield, Illinois.

Issue of January 18, 1887.

356,423—Cuff Button. F. J. Patten, Fort Sidney, Nebraska.

356,189—Timepieces, Escapement for. R. J. Clay and W. Hanson, Jersey City, N. J., and Brooklyn, N. Y.

356,134—Watch, Stem Winding and Setting. F. J. Johnson, Aurora, Ill.

356,362—Watch, Stop. A. F. Goy-Blanc, Geneva, Switzerland.

Issue of January 25, 1887.

356,605—Clock Alarm, Electric. M. M. Smith and F. P. Jones, Buffalo, N. Y.

Issue of February 1, 1887.

356,802—Mainspring Winder. J. Starke, Waltham, Mass.

356,862—Watch Crowns, Manufacture of. C. H. Yarrington, Assignor to Cheshire Watch Company, Cheshire, Conn.

357,006—Watchmakers' Material, Case for. G. Hoffmann, Lebanon, Ill.

Issue of February 8, 1887.

357,358—Button, Collar. L. Baer, San Francisco, Cal.

357,373—Clock, Programme Alarm. E. Cushing, San Francisco, Cal.

357,398—Watch Balances, Machine for Drilling, etc. A. E. Marsh, Newton, Mass.

357,395—Watch Case. J. C. Landmann, Eureka, Nev.

357,195—Watch Case Pendant. C. K. Giles, Chicago, Ill.

357,399—Watch Protector. M. Marx, New York, N. Y.

357,333—Watch Regulator. A. Platt, Brooklyn, N. Y.

357,210—Watch, Stem Winding. E. Kuhn, Brooklyn, N. Y.

357,322—Watch, Stem Winding and Setting. J. Johnson, Baton Rouge, La.

A Complete History of Watch and Clock Making in America.*

[By CHAS. S. CROSSMAN.]

Number Nine.

Continued from page 16.

THE CORNELL WATCH COMPANY, OF SAN FRANCISCO, AND THE CALIFORNIA WATCH COMPANY.

AS WAS stated at the close of the history of the Cornell Watch Company, of Chicago, Mr. Paul Cornell concluded to dispose of the Chicago Company's plant, and this he succeeded in doing in the latter part of 1874, the Cornell Watch Company, of San Francisco, being the purchasers of it for $100,000. The new company was formed with a nominal capital of $250,000, with officers as follows: Mr. Wm. C. Ralston, cashier of the Bank of California, President; Oliver Eldridge, Vice-President; James Cox, Secretary; and the Bank of California, Treasurer. The name of the Cornell Company was still retained, as Mr. Cornell was one of the stockholders, and still retained the general management of the company's business affairs.

The employees, to the number of sixty, made contracts with the

* Copyright by Chas. S. Crossman, 1885.

new company and arrived in San Francisco Dec. 3, 1874, after having endured a trip, the pleasures of which were not apparent to many of them, as the transportation which the company had provided was not in Pullman palace cars.

Owing to poor management the employees were idle for about six weeks after their arrival in San Francisco, but as their contracts dated from the time they left Grand Crossing the loss was on the company. They did not erect a factory building in San Francisco, but rented part of a large building on 4th street, between Harrison and Bryant streets. It had formerly been used as a carriage factory, but was, at this time, occupied by the West Coast Furniture Company.

The main part of the building was of brick, 3 stories in height, having a frontage of 60 feet on 4th street, with an L built of wood which ran 150 feet through to Bryant street.

The Furniture Company continued to occupy the L part while the Watch Company occupied the main or brick portion. The factory opened in San Francisco with J. L. Kidder, Superintendent, and the following named gentlemen in charge of the various departments: John R. Bigelow, master watchmaker; and H. A. Kendrick, master mechanic; Frank Styles was foreman of the pinion room; John Lucas, plate room; C. M. Brown, pinion finishing; W. E. Piper, flat steel and screw making; Alphonzo Jackson, jeweling; Chas. Borland, balance making. Mr. Borland was soon afterwards drowned in the bay with two others while out fishing. Thos. Pierson, gilding; Albert Troller, springing and finishing. The movements were the same as those made at Chicago, with the one exception of having a solid pillar plate instead of a false plate. The company also adopted the use of numbers instead of names for their movements. The numbered movements were engraved, "Cornell Watch Co., San Francisco," and had a small number on the barrel bridge for dealers to designate the grades by. About an equal number of key and stem wind movements were produced. The company, after they got fairly started, had about 100 operatives and made on an average 15 movements per day, which they sold directly to the retail trade.

Right here a word is in order with reference to the "famous strike," caused by the introduction of Chinese cheap labor. It had been the intention of the company to employ Chinese labor in some branches of the work, but the employees raised strenuous objections. The strike virtually took place before the Chinamen were employed and when only the machinery was set up. Being told by the management of the company that Chinese would be employed as soon as the factory was in running order, the employees struck. The strike lasted ten days. A compromise was the result, by which it was agreed that the company should only employ Chinese labor to do the rough work around the factory.

No Chinamen were therefore employed, except two or three as porters, and one or two on the "flat steel job" in the most menial capacity. The employees objected even to a Chinese porter, and the Mongolians did not lead a happy life there. One of them was laid out by a large box falling down stairs on him, and another had his hand injured in the freight elevator by its being drawn up too quickly. It was, in fact, too lively for them and they soon left. None were employed after that, and the idea of employing Chinese cheap labor to make watches soon died out. At the time of the strike, however, several watch companies in the East were offering the employees good wages and assistance to return, and this, doubtless, had its effect in gaining the day so easily for them.

The company built considerable new machinery and made a fine exhibit at the Mechanics' Fair in 1875. This fair, which is held in San Francisco every year, it may be said, is one of the "institutions" of the Pacific Coast and is very largely attended. The company had quite a number of lathes in operation during the Exposition. The exhibit was arranged by and placed in charge of Mr. J. K. Bigelow. The company were handicapped to quite an extent for want of capital, but managed to pay their employees up to November, 1875, when Mr. Ralston, the famous bank cashier, committed suicide. He had been the mainstay of the whole concern, and his death brought matters to a sudden crisis. A reorganization was effected a few days after, a Mr. Godly being elected President.

An examination of the affairs of the company showed a bank account overdrawn to the amount of $78,000, together with other obligations amounting in all to $100,000. The directors at once proceeded to settle up the affairs of the company, and in order to meet the deficiency assessments were made on the stockholders. The movements on hand were disposed of to dealers who would buy them, but, it must be said, they were not popular with the trade on the Pacific coast. The Cornell Company virtually died with Mr. Ralston, the new President merely assisting in settling up the affairs of the company.

As the company now possessed no capital they were forced to suspend operations. This was done the middle of January, 1876. At this time the new management found themselves indebted to the employees for salary from the time they assumed control of affairs, viz., about ten days after Mr. Ralston's death. They managed, however, to pay two weeks' wages to the operatives in cash and the balance of the amount in watch movements. Those who had movements enough could raise money to get "back to the States," but those who did not had to be content to remain.

A new company called the California Watch Company was soon organized, composed in part of the stockholders of the defunct Cornell Company, and in part of new ones taken in. Conspicuous among the new stockholders were Messrs. N. W. Spaulding, a manufacturer of circular saws; A. Romelsberg, H. T. Graves, cashier of Masonic Bank; A. W. Collins, who became Business Manager, and V. Hageman, of Oakland, who was made General Selling Agent. Mr. Cornell was not connected with this company. He returned to Chicago. Mr. Spaulding was elected President, Mr. Irving Scott, Vice-President, and Mr. Graves, Secretary and Treasurer. The Board of Directors consisted of the officers together with Messrs. Peter Donohue, Oliver Eldridge, and A. Romelsberg.

The California Company had a nominal capital of $250,000. It was indeed principally on paper, the amount paid in being small.

The new company began to cast about for a suitable location, and first thought of settling at San Leandro, as they had offers of pecuniary assistance from that quarter, but they finally decided on Berkely, where the State University is situated. It was one of the suburbs of the City of Oakland. Some of the residents of that locality had formed a company called the Berkely Land and Town Improvement Association, and among the stockholders of this company were found some to subscribe towards a fund for erecting a watch factory, which was at once commenced. The company occupied the 4th street building meantime.

By the month of March, 1876, the new building was sufficiently completed to occupy the machine shop, which was moved from the old Cornell factory to Berkely. The remainder of the building was completed in a few weeks. The factory was of red wood, 125 x 40 feet, three stories high. It was well lighted, and finely located on the San Pablo road, overlooking the Bay of San Francisco; a most delightful spot, as the writer can attest. The building cost $20,000, the amount being subscribed in part by the residents of Berkely, and those interested in the Land Association, 80 acres of land were also donated by this company.

The movements were, of course, the same as those made by the two Cornell Companies, except the engraving. The California Company also made a general line of cases, both gold and silver. They bought a nice line of machinery for the purpose, which they commenced to operate before their removal from San Francisco.

Owing to the small amount of capital which had been paid in, the company soon found themselves in financial straits, and were unable to pay their employees in money, so they adopted the plan of paying them in watches of the company's make, and in orders on various stores in the city of Oakland, the workmen trading the watches, and orders to the merchants for dry goods, groceries, etc., as best they

could. The writer recollects towards the last, that it was not unusual for workmen to come into the house where he was at that time employed in San Francisco, and offer the watches to the proprietors at half their former price ; but few of the dealers cared to take hold of them. That had been the company's greatest trouble from the start. The watches were not popular with the trade "on the coast," and there was no other outlet for them.

One person was found, however, who believed in California watches. It was Mrs. Higgins, who kept the Post-office at Berkely, and also a small grocery and provision store. She did a thriving business, trading "turnips for turnips," thinking she would be able to realize largely on her investment. Finding no sale for her horological accumulation, she commissioned her husband to dispose of them. Mr. Higgins, who was captain of a sailing vessel, thought he could find a market for them, and took them to Australia, but he met with no better success, and was obliged to bring them back. At last accounts they still remained in the Higgins family.

One of the old employees of the California Company said that while they had script of the company he did not restrict his wife as to household expenses, provided she was able to pay in script for anything she purchased.

The merchants, however, refused to take the orders, and work at the factory was brought to a close early in the summer of 1876. The company had been building new tools and machinery from the start, and at the time of closing, were just about ready to manufacture watches on a larger scale.

The factory was closed at the time we have just mentioned, and the machinery then laid idle in the Berkely factory until January, 1877, when Mr. Albert Troller bought the unfinished material, leased the building and machinery for four months, and proceeded to finish up the watches in process of manufacture, he having obtained a contract from Messrs. Glickauf & Newhouse, of San Francisco, by which they agreed to take all the movements as soon as completed. By May 1st, he had nearly all the material worked up, and he moved to San Francisco to finish up, as at the date just mentioned the mortgage on the factory, held by Mr. Peter Donohue, who had advanced money to finish it, fell due, and the subscriptions and land given by the Berkely Land Association had been made conditional upon the factory running a certain length of time, which feat had not been accomplished, so the land and building reverted to the Land Company. They paid the mortgage and took possession of the property, including the machinery as well. They held the latter for a long time, but finally sold it to the Independent Watch Company, of Fredonia, N. Y.

The opening of the factory during the four months was a great boon to many of the old employees, who had been obliged to stay in California, and in many instances take up occupations quite foreign to their former one. They were now able to return East. The building was used as a shoe factory after it passed back into the hands of the Land Company, and the State Legislature annulled the charter of the California Watch Company, and thus it became a thing of the past, and the eventful career of the Newark—Cornell—California Watch Company was forever ended.

(To be Continued.)

COMMUNICATIONS.

[The CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

FIGHTING OUTSIDERS WITH FIRE.

To the Editor of The Jewelers' Circular:

Enclosed please find check for two dollars for the renewal of THE CIRCULAR as I could not do without it. I see a good deal complaint by the retail jewelers of dry goods and fancy goods dealers interfering with their trade. I have had here the same trouble. Irresponsible drummers have been coming up here and selling to every merchant and peanut store they can find, and what I have done is this : I quit buying from those wholesale houses who sold to outsiders and then to get even with the merchants here I laid in a nice stock of stationery and perfumery, also Christmas goods and toys of all kinds, and I must say that I made those storekeepers so sick that they have had enough of jewelry.

As to profits, I am selling this extra stock a good deal lower than the stores and still make a good profit, while stationery is something which almost everybody uses, even the children, while much is consumed in the schools. I try to supply them all.

We have here the same trouble with those high-toned drummers who are selling to everybody and don't care whether the man is good or not.

A traveler for a silverware manufacturer came through here and sold in my town to a grocery store and then to a rival of mine close by. I happened to be out of town; from the dealer in codfish he got his money, but the grocer is so sick of silverware that I think the traveler will never be able to sell him another bill. As to my rival, I think he didn't pay a cent for his goods. I can cite lots of instances of this kind but I try to get even with them all

Respectfully yours,

Fort Jones, Jan. 3d, 1887. L. FEIBUSH.

OUTSIDERS AND THE HOLIDAY TRADE.

To the Editor of the Jewelers' Circular:

We renew our subscription to THE CIRCULAR with pleasure, and inclosed please find cash in payment for the coming volume, No. XVIII.

While trade was quite favorable with us for the past year, yet it would probably have been much better, especially so during the holiday season, were it not that at that time every dry goods and clothing house in town, besides some grocers and a book store, put in more or less of jewelry, silverware, clocks and watches, crockery houses doing the same. We certainly appreciate this state of things, and in imagination see our store converted into a bazaar where you not only find the regular jeweler's goods, but fit yourselves with suits of clothing, buy your crockery and lamps, get your St. Louis flour, sugar, tea, coffee, etc., while, at the same time, one might purchase food for the mind by an investment in the book line, from a six cent almanac to a fine edition of poems, and silks, linens, cottons, woolens, toboggan suits, underwear and notions would help to fill up.

Now, dear CIRCULAR, isn't it pleasant to contemplate? "Free country, you know." "Survival of the fittest" doctrine abroad. Many remedies are suggested, but too much doctoring oftener kills than cures. We don't suggest, we only know that this state of things is brought about more by meddling jobbers and avaricious manufacturers than by the storekeepers themselves. We note that a firm in Providence, R. I., who claim to be a square wholesale jobbing house, have several cases of watches, clocks, jewelry, etc., on sale under cover of dry goods, clothing, grocer and book houses in this town. Is this wholesaling, please? These goods are not bought, but are the property of the above named house and sold at retail on commission. Is such a house a member of the Watch Case and Movement combination? If not, it seems to us the combination either do business loosely or some one in the combination plays into their hands, for it don't seem possible to us that they can have any standing in the combination, as they are not strictly jobbers in watches and jewelry, but carry fancy goods, shirts, cigars and tobacco, clocks, jewelry, watches, etc. If you have any means of knowing whether they belong to the combination or not we would, through THE CIRCULAR, like to know. We don't care to be mentioned outside of yourself, but we know of their tricks which are simple as those of the Heathen Chinee whose smile "was childlike

and bland." They gobbled up one jewelry store here last spring, and, while the jeweler lost his business, his creditors, who furnished his last stock, lost their accounts, which went into their man under mortgage sale. Truly the way of some wholesale houses in doing a jobbing business excites our admiration.

E. W. B. & Co.

[The above communication comes to us from a well known jeweler in Rhode Island, but, as requested, we withhold his name and address. We also withhold for the present, until we can further investigate the matter, the name of the Providence firm which he gives in full. The character of the writer of the letter is a guarantee that his statement of facts is correct, but it is only fair to let the other side be heard if the firm implicated desires to assume the responsibility of so doing. —Ed.]

A JEWELERS' MUTUAL INSURANCE COMPANY.

To the Editor of the Jewelers' Circular:

Your article in the February number in relation to insurance of jewelers' stocks I find very interesting, and I hope it will also prove profitable. The last sentence in the article says that "a jewelers' mutual fire insurance company is a probability." I sincerely hope this is so, and if a company of this sort is formed on a sound basis I shall be glad to insure my stock in it.

You speak about 60 cents as being a high rate. My location here is considered a first-class risk and we pay 75 cents.

If anything toward forming a company is done will you kindly inform me about it?

W. W. MANSFIELD.

Portland, Me., Feb. 4, 1887.

KIND WORDS DULY APPRECIATED.

The following are among business letters recently received by us, and the writers will please accept our thanks for their kind expressions of good will.

"Enclosed find postal note for subscription to your valuable journal. We find many items of instruction and would not be [illegible] to our double the amount. Yours truly [illegible] BARSS & SON."

"Enclosed I send two dollars for which please send me pay for THE JEWELERS' CIRCULAR. It is the best journal I ever saw, and as long as I can raise the two dollars I am bound to have it. I have taken it now over eight years and cannot well do without it. I am yours truly,

R. H. WITHEREL."

"We must give credit where credit is due, especially in your case. We feel most flattered at the many replies we receive from readers of your most excellent magazine. It must reach every jeweler in the United States. It goes without saying our card will be continued in THE CIRCULAR indefinitely. Yours resp'y,

M. ZINEMAN & BRO."

"I recently purchased several volumes, back numbers, of your journal, and found so much information, both practical and historical, as well as keeping up with the times, that I regret not having subscribed years ago. Please find enclosed two dollars ($2) for first subscription. Yours, etc. R. M. GIBBS."

Mr. A. M. Mossman, of Hudson, Mass., renews his subscription and says he would not be without it for anything.

"Please find enclosed my $2 for THE JEWELERS' CIRCULAR for 1887. 'The History of American Watchmaking' is worth to me many times the year's subscription. I remain very truly,

W. T. IRVINE."

A Kansas subscriber writes: "Please find enclosed postal note for which please continue my subscription of THE CIRCULAR one year. I would not be without it if it cost $5.00 per year."

Still another Kansas dealer says: "Please find enclosed postal note for $2.00 for THE CIRCULAR for 1887. It is the *best* paper for the jewelers in the world according to my way of thinking."

"I have the pleasure to inform you that at a meeting of the Executive Committee, held at the Alliance office February 11, a vote of thanks was tendered to The Jewelers' Circular Publishing Co. for their able article, relative to the Alliance, in the journal of last month. Yours resp't'y, C. C. CHAMPENOIS, *Sec.*"

LONG OR SHORT FORKS.

To the Editor of the Jewelers' Circular:

By long and short forks we mean to distinguish those, the length of which contains the diameter or rather the semi-diameter of the table roller a greater or less number of times. Thus we call a short fork one which is 3 or 3½ times the length of the semi-diameter of the table roller, and we would call a long fork one which is 5 or 6 times the length of the semi-diameter of the table roller. In both instances the table roller is to be measured from the staff hole center to the radial center of the jewel pin, and the fork from staff hole center to that point in slot where it comes in contact with jewel pin. Supposing the pallets acting with long and short forks having the same impulse angles, say 5° on each side, then the short fork as stated above would give from 30° to 35° impulse to balance and the long fork would give from 50° to 60° impulse to balance. The first point which forces itself upon our observation is the disparity between the unlocking and impulse angles of the two, as shown by the balance, *i. e.*, by the angular motion traversed, for we have to suppose that the unlocking angle, as between wheel and pallet, is about the same or as short as possible in both instances. Presuming this to be the case, the unlocking of the escapement by means of the long fork is easier, but of longer duration, while that by means of the short fork is harder, but of shorter duration. But as the most acute resistance in unlocking the escapement is felt at the beginning, the unlocking by means of the long fork would have an advantage over that by means of the short fork, where the stronger impact would make an unfavorable impression on the balance pivot or pivots, and affect position unfavorably and very unevenly in watches with unequal motive power, or a gummed barrel during the twenty-four hours running. But in both escapements, with long and short forks, are proportioned in their other parts, as they should be, there is still a further advantage in favor of the long fork by the pallet staff pivots having less pressure, and therefore less friction on account of the larger escape wheel, making the unlocking easier on that account, and this is quite important.

Another point in favor of the long fork is shown by the following argument: Most lever escapements can be brought to a stand still on the unlocking faces of the pallets by an immoderate increase of the motive power, showing thereby that the unlocking resistance of the escapement is not in proportion to the impulse force, and the former is too great. But as the long fork lessens this resistance by making the unlocking easier and of longer duration, instead it shows a move in the right direction, which has a tendency to make the motion of the balance more uniform with a varying motive power (a going barrel), and therefore more isochronous, regardless of any condition of the balance spring.

Furthermore, as the long continued impulse on the balance by means of the long fork for 50, 60 or more degrees, has the effect to accelerate the motion of the balance more and more during the progress of the impulse, the retarding of the motion of the balance by the unlocking resistance of the escapement is more likely to be neutralized, and we are more likely to come near a perfect isochronism by means of the hair spring in adjusted watches. Adjusters of watches will readily see this, as the unlocking of the escapement is their great bugbear.

We will next discuss the advantages of the short fork, the advantages of the one being the disadvantages of the other.

It is a well known fact that all watches having the lever escapement have a tendency to gradually go slow or lose on their rate on account of the oil on the escapement, and it is principally on this account that the chronometer escapement excels the lever escapement. This tendency is more pronounced the longer the escape wheel

lingers on the pallet faces during the running of the watch. Therefore, watches with lively motions are desirable and will perform better or keep their rate better for a long time than those with short motion, and it is a standing rule that the contact between the balance and the escapement should be of as short a duration as possible to avoid the oil influence as much as possible. This is in favor of short forks or a short impulse angle and quick beat. But in order to derive the full benefit from them, it is indispensably necessary to have all the details of the escapement executed in the most perfect manner, as a deep locking, too much drop or carelessly fitted pivot holes (either any one or all of them) would neutralize any advantage which we might have a right to expect from a short impulse angle or a quick beat, and a short motion with a short fork is no better and not as good as a large motion with a long fork, where the extent of vibration would more than equalize matters. It has always seemed to me to be a popular error to assert that a quick beat, or, say, an 18,000 beat train, should go better on a railroad than 16,200 beat train, as the latter is more easily isochronized. Of course, a good deal always depends on the general construction, extent of vibration and weight of balance, or, as the French would say, "le tout ensemble."

February 1, 1887. H. REINECKE.

A VALUABLE ADDITION TO ANY LIBRARY.

To the Editor of the Jewelers' Circular:

In view of the communication in December number of THE CIRCULAR, "Cordial but Somewhat Personal," would beg leave to state that in his enthusiasm the subscriber did make it appear somewhat personal and was too sweeping in assertions, for there are many able and accomplished workmen, doubtless, who are not subscribers yet. THE CIRCULAR would form a valuable addition to the library of any student of the trade, old or young.

Very respectfully yours, F. C. BRODIE.

Vancouver, January 29, 1887.

How to Become a Skilled Optician.

[EDITED BY C. A. BUCKLIN, A. M., M. D., NEW YORK.]

IN OUR last article we proved the absolute necessity for accommodation as a requisite for distinct vision when objects are brought near to the lens system of the eye. We will now prove by a simple experiment its existence in the eye, and then, without going into the stormy discussions which are constantly taking place, we will draw from this experiment what is evidently the only logical conclusion regarding the mechanism of accommodation.

EXPERIMENT.

If you allow the light of a candle, which is held two feet in front, and two feet to the outside of the patient's right eye, to fall upon a moderately dilated pupil, you will, by observing from a point two feet in front and two feet to the inside of the right eye, three little reflected light spots of various sizes. The first reflex will come from the cornea—the second will come from the anterior surface of the crystalline lens—the third reflex will come from the concave surface of the vitreous, as it fits the convex surface of the lens. This last image is seen very deep in the eye, it is the smallest, and coming from a concave surface it is inverted. During this examination the eye has been adjusted for the distance, if we now cause the attention to be fixed upon a near object, the reflex from the anterior capsule of the lens becomes smaller and approaches nearer the corneal reflex, while the posterior image changes but little. It being a well known fact that a convex mirror reduces the size of reflected images as its convexity increases. This decrease in the size of the reflected image from the anterior capsule of the lens when the eye is fixing for near objects demonstrates the fact that the anterior surface of the lens must become more convex. When muscular effort is brought into action in the eye we are accommodating for near objects, an active contraction of the ciliary muscle simply relaxes the suspensory ligament on all sides of the lens, but does not come in contact with the margins of the lens. It therefore follows that the lens from its *elasticity* must increase its power when the suspensory ligament is relaxed. I am thoroughly convinced in my mind that this is the only rational explanation of this wonderful phenomena termed "accommodation." Range of accommodation is usually expressed by the difference between the extreme far point and the extreme near point of distinct vision for small print of a given size.

The range of accommodation is divided into positive or absolute range of accommodation, bi-nocular range of accommodation and relative range of accommodation. Positive accommodation means the greatest range which is possible by the use of one eye. Bi-nocular accommodation means the greatest range of accommodation which can be obtained by the use of both eyes. Relative accommodation means the greatest range which can be brought out while both eyes are fixed on the same object. Two eyes being fixed on a given object, the strongest concave lenses which can be placed before the object and still have vision distinct at the point of fixture, represents the positive position of the relative range of accommodation. The eyes being both fixed at the same point the strongest convex glass through which both eyes can see distinctly at the given point of fixation, represents the negative portion of the relative range of accommodation.

Taken together the values of these two glasses represent the entire range of relative accommodation. By using this method any point of fixation may be selected, and as we measure both ways from this point and add the results, the entire range of relative accommodation is obtained. It is necessary for the young optician to understand these distinctions in order that he may readily comprehend conditions which *will* be described at a subsequent time.

We have *defects of accommodation*, which are entirely distinct from *defects of refraction*. The former always being a defect in the ciliary muscle or the elasticity of the crystalline lens. The *defects of refraction always depend* upon a faulty construction of the eye ball, although in nature they become thoroughly mixed in causing weak vision, still a distinct understanding that they are of an entirely different nature, is necessary to a clear understanding of the subject The general confusion existing in many minds on the subject of hyperopia and presbyopia is rooted deep in the minds of opticians, who consider presbyopia as the opposite condition of myopia.

Accommodation is the voluntary muscular action which causes an eye to become adjusted for near objects, and it is entirely independent of any possible fault in the structure of the eye.

EMMETROPIA is a term which indicates that eye is of proper length and shape.

AMETROPIA is a term which covers all refractive conditions and indicates that the eye is not of proper length and form.

It is thus seen by the above definition that an *emmetropic* eye may be a blind eye while a ametropic eye may have good vision, consequently the term normal eye does not apply to an emmetropic eye.

Under *accommodation* we have the following defects: *Presbyopia* a stiffening of the lens, owing usually to old age. Paresis and paralysis of the accommodation, the former meaning a partial loss in the power of the ciliary muscle, the latter meaning a complete loss of power in the ciliary muscle. Under *ametropia*, a term which embraces all refractive conditions, we have hyperopia, myopia and astigmatism.

Hyperopia is caused by the diameter of the eye ball being too small. When it is associated with *presbyopia*, the lenses required for reading not only represent the defects which are due to the old age, but also represent the correction for both defects added together. Myopia is caused by a stretching process which causes the diameter of the

globe to become too long. It will be thus seen that hyperopia is the opposite condition of myopia. When myopia exists that glass will usually be dispensed with till the requirements of age are greater than the degree of myopia. Also when myopic persons begin to wear convex lenses for reading, they will require lenses which are much weaker than those required by other persons of the same age who are not myopic. Astigmatism is a visual defect which is somewhat complicated in its nature, and at the proper time it will be considered in a special chapter.

The first class ever instructed systematically and practically in this city upon the subject of optics, as applied to meet the requirements of skilled opticians, finished their course of instruction on February 3. It consisted of Geo. Applegate, of Trenton, N. J.; Geo. Ludwig, of Chambersburg, Pa.; Terressa Freeman, of Blosburg, Pa.; Sam'l Harman, of Philadelphia; Willis Hopkins, of Havana, N. Y.; E. H. Ayres, of Elmira, N. Y.; and Robert Taylor, of Cedar Rapids, Iowa.

Each of these students surprised me with the rapidity with which they became familiar with the practical details of this grand subject, optics as applied to the explanation and correction of visual defects. They passed a very satisfactory examination, and wrote a thesis on some special topic connected with this subject. Both the examinations and the essays were better than I ever saw from any class of medical students who had not followed this special subject for a greater time than one year. There is not a student in this class who can not use the ophthalmoscope fairly well. They can diagnose any variety of cataract at sight, and decide as to its stage of development and its complicated or non-complicated nature. The second class will probably finish on February 24. The third class, it is hoped, will commence during the first week of March.

I append a sample of some twelve letters I have on my desk, and answer this one as an answer to all.

"Dr. Bucklin—Please inform me when and where the instruction in optics is to be given, also if one can find board and lodging at a convenient place, and whether this course will thoroughly fit one to adjust lenses, and meet other practical difficulties which may arise in the business of an optical dealer. Yours,

Jules Wendell & Sons."

A second letter inquires: "Can the work be done in the time? Namely, two weeks."

I answer: 1. The instruction is always given at 206 West 42d street, where the students meet the first day before selecting a board ing place. I urge them to board together if possible, thus forming a quiz class. The amount of time spent in these two weeks in becoming familiar with this one subject, is greater than the amount of time spent in any medical school upon this subject in two years. Having been a student in this special subject in Austria, Germany, Switzerland, England and America, I have taken the methods which my experience teaches me to be most successful in imparting practical knowledge rapidly to students. I lecture upon a subject in the plainest possible language. I examine the students very thoroughly on that subject the following day. I send them home to study on the subject and appoint one of the class as quiz master. I then produce a patient having the defect lectured upon, and require them to find out what the trouble is. I make them experiment in determining the nature of all kinds of cylindrically combined lenses. I assure you that at the end of the two weeks they know more about defective vision and how to correct it than any optician in the world. This kind of practical instruction gives to young men in a short time ideas which I have spent years and thousands of dollars in collecting, and it certainly opens up to many much brighter prospects for the future in a field which has been but poorly occupied. I firmly believe that the seven students who finished their course of instruction on February 3, are the seven best opticians in America.

We will publish in the April number of The Circular an essay on muscular asthenopia, written by E. H. Ayres, of Elmira, N. Y.

I am informed that some over-zealous persons have attempted to include respectable optical dealers in the list of disreputable persons requiring regulation by legislation.

The information comes to me as follows: Senate Bill No. 45, and Assembly Bill No. 129, to regulate licensing and registration of physicians, etc., the 6th section of which (lines 9, 10, 11, 12) makes it a misdemeanor to fit spectacles without being licensed as a physician. I have sent for a copy of the bill. I hardly think that any man in his right senses would try to legislate away the right of a skilled optician to follow his vocation. If the bill should read that it is a misdemeanor for one fitting spectacles to represent himself as a physician the bill would be a good one for the legitimate optician. As it now stands *I urgently advise every reader interested in the optical trade in this* State to write to his assemblyman and senator calling their attention to the outrageous provisions of the bill, in which it is desired to legislate away from thousands of persons their right to follow a calling which they have followed for years. To avoid any mistake it is better urgently to request the defeat of this bill, allowing the enthusiastic mind who constructed it to construct another which does not cast a slur on a reputable class of men.

This bill finally asks that opticians be enjoined from following their usual legitimate occupation. As the bill stands it is a dangerous one, and *every one must use his personal influence to defeat it.*

The knowledge of the contents of the above bill was discovered from a circular sent to all opticians. I have sent for the bill and find that there is not a word of truth in the circular I received. The bill is a good one and will prevent the traveling opticians in this state from attaching the name Doctor to their name without the proper authority to do so. I think the bill rather favors the resident optician.

CORRESPONDENCE.

Trade Matters in Providence and Vicinity.

Editor of the Jewelers' Circular.

The amount of sales for the month of January to the average manufacturer were very satisfactory, the increase in some cases being from twenty (20) to thirty (30) per cent over those for the same month during 1886. Although jobbers were very conservative in placing orders for spring goods, the outline of business transacted was greatly increased; but for the present month the prospects are not so encouraging, and the concern that has not carried forward from January a long line of unfilled orders with which to commence the business of the month, may get left at the quarter mile post, and distanced altogether on the home stretch. Unless business begins to brighten up soon, and the strike troubles settled, so that the general business of the country can proceed more smoothly than for the past few weeks, causing a state of uncertainty amongst the jobbers to the propriety of buying more goods in the unsettled state of affairs throughout the country.

The bright prospects of the month of January would certainly seem to warrant a better trade than is being experienced at present by the manufacturers in general; of course some few houses have all the orders they could reasonably wish for when they have a specialty on some one thing, but the majority of them are looking with longing eyes and eager faces for the orders which are not forthcoming, and are wondering whether they will reap enough profit from the spring's business to pay for a month's outing during those red hot days which are so sure to come along during the month of June and July, or those fearful dog days in August, when the manufacturer in an overheated, unpleasant, stuffy factory prays to be on the seashore at Newport or Long Ranch, or possibly away up in the White or Adirondack mountains casting his lines in pleasant and retired places for those

beautiful speckled trout which one finds so plentiful, or possibly he may care more for a short trip across the pond to Europe, if for nothing else only the invigorating sail of a couple of weeks or more. Certainly the effects could not be ill, unless paying tribute to old Neptune too often might make him so.

The idea of the jobbers buying goods for the fall trade, say about August 1st instead of the first or middle of July, is not a bad one if all the manufacturers would agree to it in case of its being satisfactory to the jobber, but the trouble would arise from some over zealous party to get ahead of his competitor, would break over the bounds, and violate the agreement in the same style as do the trunk lines of railroads, and so break up the whole affair which, if lived up to, would be a very good thing for all concerned. Not until something of this kind is gotten up can the manufacturer, without neglecting his business affairs or leaving them to the care of subordinates who care more for their own interests oftentimes than they do for those of their employers, and take every advantage offered them by their absence to absent themselves from their duties, and slip around the corner to throw the dice for drinks with the dispenser in a white jacket behind the bar, and have a quiet little debauch all on their own account. Some take in quiet little excursions to Coney Island of a pleasant afternoon during the heated term when the Governor is away you know, and may be found regaling themselves in luxurious elegance at the "Manhattan" or Brighton, and wrestling hard with such pleasant palate tickers as sherry cobblers, mint julips, etc., and listening to the inspiriting airs of Levy's soul stirring music, expect to get even a short relaxation during the heated term, which is hardly the case in any other branch of business however small it may. One hasn't to look around very much to find out the reason for the quietness in business circles to-day, the labor strikes, bad weather, and the undecided state of affairs in Congress in regard to the settlement of the fisheries question with Canada, all have their effect on the general business of the country, to make it as it is found in almost all lines. Collections are very quiet with the manufacturers as with all classes of business, as the bank balance and clearances readily show: for instance, New York declined $8,000,000 as compared with a gain of $158,000,000 in total clearings for same week in 1886, showing that the amount of business transacted was considerably decreased to say the least, and apparently from no other causes than those mentioned above.

The past week Chief Powderly, of the Knights of Labor, called a meeting at Newark, N. J., for the purpose of forming a branch society of the jewelers to join the organization, but as to what success he met with it is hard to tell outside of the society, but it is to be presumed that his success was indifferent, as those engaged in the jewelry business are of a more enlightened class of men than the majority of the Knights of Labor, such as longshoremen, coalminers, etc., and are well paid, and moreover satisfied so that Mr. Powderly will find it very much of an uphill job to inveigle many that call themselves first-class jewelers into the organization of the Knights of Labor, as they fail to see any benefits to be derived from joining it. On the other hand they would be subject to assessments at any time to carry on any strikes that might be ordered by Mr. Powderly, whether their branch ever went on a strike or not.

Mr. R. A. Kipling arrived home from Paris last week, per the fine French line steamer *La Bretagne*, and brought several new novelties.

The creditors of the bankrupt firm of Messrs. Sampliner, Alder & Co. have this week received a dividend of ten (10) per cent of their claims through the Manufacturing Jewelers' Board of Trade, and Messrs. Fry & Schuber have offered through the same source to compromise claims of its members for twenty-five (25) per cent. and the committee having the investigation of their affairs in charge, in their judgment recommended a settlement on this basis as the best that can be effected.

The Manufacturing Jewelers' Board of Trade held its annual meeting on January 31st. Secretary Emery presented his third annual report, which proved to be very satisfactory to the board of directors and members of the association. The amount of business transacted during the year just closed has been very heavy. The number of members at present on the active list is one hundred and six (106) and steadily increasing. FAIRFAX.

Providence, R. I., February 15th, '87.

Our Foreign Correspondence.

BIRMINGHAM, England, January 31, 1887.

To the Editor of the Jewelers' Circular:

Now that the annual stock-taking indulged in at this period of the year by the majority of houses in the jewelry trade is finished, we can tell with certainty the amount of trade done during the last year.

Most houses are very well satisfied with the amount done; the badness of trade in first half of year has been fully compensated for in the rush of the last three months. Some people complain, but there are always those who are either too lazy or too conservative to go with the times, and, as a consequence, gradually lose their trade, certainly slower in this old country than in a new one, but still surely.

And what are the year's prospects? will be asked. Decidedly much better than they have been for years; the jubilee year of our Queen's reign will bring a large accession of orders, and, in addition, the report of trade from all parts of the country are very good; nearly every trade has plenty of orders in hand with good prospects of more, and should the Australian orders return to their former size, as seems probable, the jewelry trade will see a better time than it has done for many years.

The approaching jubilee year of our Queen's reign is influencing the style of jewelry worn at the present time very largely. Excepting in the very best diamond work there is scarcely a new pattern that has not something about it so that it may be called "jubilee." There are even jubilee chains and rings; in the former a medallion is usually introduced with Her Majesty's head on, or sometimes its only claim to being "jubilee" is that it has a crown for a pendant. The only device that can be found for a "jubilee" ring is putting a crown on the shoulder as an ornament, as cameos of all kinds are so much out of fashion that even the magic word "jubilee" would not sell one.

The number of different patterns in "jubilee" brooches is legion, especially in silver. The principal ornament used is a crown with the dates 1837–87 on; some very nice brooches are made with "V. R." arranged as a monogram in raised letters, lapped bright, and the dates underneath. Again the royal standard or the Union Jack, and sometimes the two together, enameled in colors, are largely used.

Even the rose, thistle and shamrock are used and dubbed "jubilee," and sometimes the shamrock is omitted as an emblem of the discontented state of the "Sister Isle."

It is difficult to say what would not sell if only put on a card with the word "jubilee" printed on it in the royal colors.

In colored gold goods the taste is much better, and, as a consequence, more difficult to please. One of the best patterns is a fichu or bar brooch, with a medallion of the Queen's head for center ornament, set off with a few pearls and some pretty lapped scroll work carried along remainder of brooch.

The diesinkers have not had such a run of trade for years, in spite of the keen competition which has caused many of them to employ travelers, the majority have been working all the hours the men would consent to, and the most enterprising firms have had to employ three sets of stampers, working in stretches of four hours each, so as to keep the stamps going continually.

In "jubilee" medals the number is so great, that were I to enter on the subject I should have to write for several hours.

The fashion for solitaires is still gaining ground to the almost total collapse of the bracelet trade, and the American hinge back solitaire is selling in increasing numbers in common qualities.

The universally known firm of J. S. Birch & Co., of New York,

have taken proceedings in the Court of Chancery to validate their patent key, and having done so have granted licenses to G. E. Walton & Co., limited, and Vale & Sons, of this town, to make same.

The validity of this patent in England has been a disputed point for some years past, and has led to it being made here by a number of makers, some of whom have made horrid rubbish. The setting of this on a proper footing will not only do good to the three firms mentioned above, but by securing uniform good quality and a fixed price to the trade at large.

SOLITAIRE.

Free Hand and Mechanical Drawing.

BY EXPERT.

THE writer proposes in this communication to take up the promised subject of patents and how to obtain them. The latter part of the sentence is intended to be the theme, *i. e.*, how to obtain them. There seems to be a feeling abroad that there is some mystery about obtaining a patent, which requires the services of a lawyer, a man skilled in legal technicalities, and also that certain individuals have more facilities for examining the records at Washington than others. This is a great mistake; you or I or any man is afforded every opportunity to examine records and drawings of all patents issued, and such examinations are the ones patent attorneys advertise to make for a fee of $5. Now the writer has obtained many patents for others, and a few for himself, and speaks from a thorough knowledge of the subject, and will go on and give his convictions of the best method to pursue to obtain a patent, and secure an invention. We will first consider Caveats. The word means *beware*, and is meant to secure an inventor while experimenting on an invention. My experience prompts me to say to inventors "*beware*" how you put $10 into a caveat, for this is the fee independent of fees for preparing papers and drawings. Any person writing to the patent office for a book of forms and instructions, will have one sent free of charge. I wrote "instructions" above; this is hardly what I mean; the book is rather one stating what is required, also the rulings of the office. A few words more about caveats. Many inventors allow themselves to be led to false impressions about the novelty and usefulness of these inventions, getting inflated in regard to the value, etc., and bring themselves to think all they have to do is to secure the invention and obtain a patent, and their fortune is made and become at once a millionaire. This is a great mistake, for it leads to all sorts of trouble. There is no doubt of the truth that the encouragement to inventors by low patent fees, and the protection given by our laws to inventors, has done much to making us the prosperous people we are. Still it is better to temper our hopes with prudence, and not because we may conceive a novel idea, which our biased judgment, aided by equally biased friends, lead us to see such rainbows of promise for the future tempt us into foolish expenses. I have known several instances of persons having inventions, spending money they were ill able to spare to pay patent attorneys fees, and caveats fees, and wasting months and even years perfecting an invention which, when they came to make regular application for a patent, find their invention anticipated by perhaps 25 years. Here is a chance to make some valuable suggestions to inventors. Perfect your invention, get it in working order, for you cannot patent a mere idea, it must be a practical application of an idea. And even then, in 9 cases out of 10, the very points the inventor considered of the greatest moment, were really of minor importance. If any man had told Elias Howe, the inventor of the sewing machine, that all of his patent which was of any value was passing the shuttle through the loop formed by the double threads of the needle, he undoubtedly would have either been very angry or laughed at the statement. Still this was exactly the case. I said above we could not patent an idea, so we cannot; but in this case Howe patented the idea, applied in a broad sense, and was so held when the test was made in the Wheeler & Wilson case, where the loop of the needle thread was passed around a bobbin. I give the above in illustration. As I said before, perfect your invention; weed out, so to speak, the weak points, then make application for your patent somewhat after the forms given in the book of instructions spoken of above. The papers required are, 1st, a petition, make this out according to the form given in the book, substituting your own name and residence for the fictitious ones given. 2d, specification, this is simply a perfect description of the invention and how it is made; avoid prolixity and unnecessary words, but still describe minutely all the working parts, as you may find subsequently that you are entitled to even more than you claim; in such a case, you can, if your patent is a valuable one, procure a re-issue with amended claims. In making out your claims at the end of the specifications, be sure and claim all you think you are entitled to, for you may be sure the examiner will cut them down small enough. Claims you can modify at will, after a decision by the examiner, but it is difficult to amend a specification, except to make some thing obscure, plain. There is a great point in claims—you have described your invention perfectly, you claim for it *all* its merits, the matter goes into the hands of the examiner, he compares your invention with others of its class, and he finds several of your claims conflict with existing patents, your case is rejected; the examiner gives the grounds of rejection, citing the patents which conflict, giving date and number of patent so conflicting. Now you know exactly what you have to meet. You can send for any patent since 1868, and for a fee of 25 cents receive a copy of specifications and drawing, or you can buy 20 cards, each of which will entitle you to a copy. In this case you pay but 10 cents each for copies of specifications and drawings. Very likely you can so amend your claims as to get your patent through. If, however, you see that as you have so constructed your machine and described it, that there is no hope, set yourself to thinking if you have novel points enough about your invention to entitle you to a patent; if so, modify the conflicting parts in such a manner as to be free from the interference, and make out a new specification, and probably you will come through all right. But this fact ought to comfort you, that no matter who the patent attorney was you employed, if you should employ one, you would not stand one in twenty of getting your patent on the first application. One thing you should make up your mind to, and this is, you will be treated with all (and more) courtesy, and given every show for your rights that any patent lawyer in the United States would have. No man, lawyer or not, has superior advantages at the patent office; true, in a preliminary examination, he might be able to get at facts or points quicker than one unaccustomed to the place; but after all is said and done, the matter has to go to the examiner, and then Mr. Patent Attorney has to stand back and await the decision; he can't hurry the matter, or get a more favorable decision than you or I. Again, a patent attorney frequently works for contingent fees, that is he guarantees a patent, if he gets no patent, he gets no fees. In such cases it is only natural for him to get a patent which reads all right up to the claims, and here the whole end of the matter is; you have a patent, but it is valueless, for it claims nothing that is important. Because a patent is rejected is no reason for abandoning the invention as again illustrated in the Howe Sewing Machine. Howe was at a stand still, the slack of the thread which was required to permit the shuttle to pass through was making loose and tangled stitches; at this juncture I. M. Singer came into the field and patented the little spring over the needle bar called a "*take up*" (it took up the slack thread), and made as much or more money than the original inventor. We have dozens of inventions now lying in the patent office practically dead, for some one to come along and help them out in a somewhat similar manner to Singer inventing the take up. The drawings are not so very difficult to make; the main points to observe are to make the drawings with India ink as black as possible, on heavy white Bristol board. Avoid shading as much as possible. Make the individual parts as large as the margin will permit. We have now the petition, specification with claim and drawings; to this add the oath and our papers are complete. The points in the oath are to state that you are the orig-

inal inventor, whether the invention has been patented in a foreign country, and if you are a citizen of the United States. The book gives the form of oath. When you make out your own papers you only need pay a fee of $15 when filing your application; then when the patent is granted you pay the final fee of $20. The size of paper for drawings must be 10 by 15 inches. The drawing proper is 8x13, leaving a margin of exactly one inch all around. It is with no desire to beat "*the honest fox*" of a patent lawyer out of his fees I advise the course given above, but I know many inventors can afford to pay $15 who do not feel able to pay $75 or $100, and consequently many valuable inventions are lost to the inventor and the world.

A Demand for Good Quality.

To the Editor of the Jewelers' Circular :

When the question of the fraudulent character of goods is being discussed, the statement is often made that the manufacturers debase the quality because the jobbers and retail dealers require it. I suppose that if the jobbers and retail dealers were to ask the manufacturers to go out and commit highway robbery they would do it with equal alacrity. It does not seem to be a matter of conscience with them in any respect, but they consent to mark ten carat goods with an eighteen carat stamp solely to accommodate some one else, and to enable them to defraud their customers. Of course, the manufacturer does not make anything by the operation, it is purely a matter of accommodation ! What nonsense such talk is. Manufacturers debase and misrepresent their goods simply to make money for themselves; and they do not care a continental rap for the retail dealer except as his patronage puts money in their pockets. But I do not believe that any number of retail dealers desire these debased goods. I know that I can do better and make more money on goods whose quality I feel warranted in guaranteeing to my customers. What do my customers know about the manufacturers ? Their names are unknown to them, and carry no weight whatever when named in connection with the quality of goods. I have had my customers say to me repeatedly, "give me an article that you can recommend yourself ; when you tell me that it is made by Jones & Robinson, well-known manufacturers, whose names are supposed to be a guarantee, it means nothing to me, for I do not know but they may be bunco steerers or sawdust swindlers ; but if you tell me the goods are genuine I shall believe you and buy on the strength of your reputation. "It does not speak well for a dealer that he has to quote someone else on authority in a community in which he has spent years and is doing a business that is supposed to be honorable. I know that for one I do not want goods that are fraudulent; that claim to be one thing and fall far short of it in reality. I handle some cheap goods, but I can sell them just as well if they are honest on their face as though they misrepresent their quality. The manufacturers are mistaken if they imagine the majority of dealers prefer debased goods; I prefer to handle fine goods, that have intrinsic value and that I can sell on honor, I can make a better profit on them than on the cheap goods, and there is some satisfaction in handling them. Dealers, of course, want to buy their goods as cheaply as possible, but I am certain that those of my acquaintance do not want quality sacrificed for the sake of securing low priced goods. All they want is to make sure that they are getting goods at as low rates as the same goods are being sold to other dealers. The debasing of the quality of goods has come about through manufacturers trying to undersell each other, and when one found that his neighbor was selling at a less profit than he was willing to, then he cut the quality of his wares and made up his profit by saving metal. The retail dealers have sins enough of their own to answer for without being held responsible for those of the manufacturers. Instead of the dealers begging them to cut the quality of their goods, my experience leads me to think that the retail dealers, having being often deceived themselves, would very much prefer that all goods should be precisely as represented. Give them honest goods at uniform prices and they can safely be trusted to look out for their own profits. For one, however, I protest against being made *Parteps criminis* in the sale of fraudulent goods and then being told that I solicited the fraudulent manufacture. Let every tub stand on its own bottom, and the manufacturers father their own shortcomings as regards debasing the quality of their goods.

J. L. B.

The National Association of Jobbers in American Movements and Cases.

THE above named association held its second annual meeting on Tuesday, Wednesday and Thursday, February 8th, 9th and 10th in the Directors' Room of the Mutual Life Insurance Company which had been placed at its disposal. The regular routine business of the annual meeting was disposed of by the election of Henry Hayes, President; H. F. Hahn, Vice-President, J. H. Noyes, Secretary and Treasurer, and the discussion of the reports of officers and various matters of minor interest. The principal feature of the meeting was the consultation entered upon between the Jobbers' Association and the Association of Manufacturers of Movements and Cases, which was being held simultaneously. There were important matters growing out of transactions of the past year to be discussed, and settled between these two associations, which are so intimately indentified with each other in the matter of business.

A proposition from the Manufacturers' Association was received by the Jobbers, intended to bring about a better understanding as to their relations to each other, and the methods of conducting business in the future. These resolutions were in the main satisfactory to the Jobbers' Association, but one which proposed that all questions relative to membership in the Jobbers' Association should be submitted to a committee of six, consisting of two manufacturers of movements, two case makers and two jobbers, gave rise to a prolonged debate. Finally a conference committee of five prominent jobbers was appointed to consult with the manufacturers in reference to this, and their report was received on the second day of the session. It was found that the manufacturers were very strenous upon the point of having representation on the committee of membership, and another lengthy discussion ensued relative to this point. It was eventually conceded, however, and Mr. L. W. Flershem of Chicago, and Mr. David Keller of New York, were chosen to represent the Jobbers' in the committee.

The negotiations between the two associations were spread over the three days of the session, during which time representatives of the movement makers and of the case makers had their say at the jobbers meeting, and the jobbers, through their confidence committee, gave full expression to their sentiments at the convocation of manufacturers. There was apprehension for a time that it would be impossible to arrange the differences between them, but the counsels of the more conservative members on each side prevailed, and the agreement, as set forth in the resolutions of the manufacturers, was ratified.

After adopting a resolution of thanks to the Mutual Life Insurance Company for the use of its very elegant rooms for the meeting of the association, that body adjourned *sine die*. It was largely attended by representatives from New York, Chicago, Cincinnati, Philadelphia, Boston, St. Louis and other cities.

The American Watch Case Manufacturers' Association.

AS intimated above, this association held its meeting simultaneously with the meeting of the jobbers. The following officers were selected :—President, Joseph Fahys; Vice-President, C. M. Thorp ; Treasurer, F. R. Appleton, and Secretary. J. R. Gleason. The manufacturers of movements gave notice of their withdrawl from the association and its name was therefore changed as above to include only

manufacturers of cases. The chief business of the session was the preparation and submission to the Jobbers' Association of the resolutions heretofore referred to. In addition to the resolution asking for representation on the committee of membership, the following were adopted :—

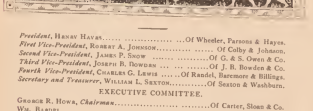
Resolved, That all silver and base metal watch-cases having gold crowns shall be charged at twenty-five cents extra for ladies' and fifty cents extra for gentlemen's.

Resolved, That this association as a body recognize all members of the National Association of Jobbers in American Watches, but reserve to themselves individually the right to refuse to sell direct.

Resolved, That the manufacturers assembled do hereby agree that the discounts allowed by them shall be the same upon goods sold for export, excepting Canada, as for those for use in the United States ; and that exporters shall make affidavit that the goods bought for export are for that purpose only.

Resolved, That we continue the special five per cent to Canada heretofore allowed on all combination goods.

The following named gentlemen were then appointed as representatives upon the committee on membership of the Jobbers' Association :—E. C Fitch of the American Waltham Watch Company, J. M. Cutter of the Elgin Watch Company, Joseph Fahys and C. D. Rood of the Hampden Watch Company. These with L. W. Flersheim and David Keller from the Jobbers' Association constitute the committee on membership in the Jobbers' Association. It was provided that this committee should employ a secretary whose salary shall be paid by the two associations jointly. The Case Makers' Association then adjourned *sine die*.



President, HENRY HAVES..... ..... Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON..... Of Colby & Johnson.
Second Vice-President, JAMES P. SHOW ..... Of G. & S. Owen & Co.
Third Vice-President, JOSEPH B. BOWDEN ..... Of J. B. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS .....Of Randel, Baremore & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON.....Of Sexton & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
J. R. GREASON.....Of J. R. Greason & Co.
GEO. H. HOUGHTON .....With Gorham Mfg. Co.
WM. H. JENKS .....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box 3,444. P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee of the Jewelers' League, there were present the Chairman, Geo. R. Howe, President Hayes, Vice-Presidents Johnson and Bowden, and Messrs. Bardel, Greason, Houghton, Jenks, Jeannot and Sexton.

There were four (4) changes of beneficiary granted.

One (1) application was rejected.

Two (2) applications were referred.

The following eight (8) applications were accepted.

Geo. Darden, Wilmington, N. C.; Adam J. Guth, Akron, Ohio; Emanuel Jacobson, Syracuse, N. Y.; Wm. G. Pollock, Alvin L. Strasberger, Isaac H. Weinberg, New York, N. Y.; Theo. E. Todtmann, Oakland, Cal.; Z. F. Vaughn, Dallas, Oregon.

The Secretary renewed his former proposition in reference to the compensation of the Secretary and Treasurer, and at his request the Executive Committee decided to place the sum at 3½ per cent. instead of 5 per cent. for the year 1887, the surplus over and above 3½ per cent. to go to the Contingent Fund.

Obituary.

MR. J. W. J. PIERSON.

THE announcement in the daily papers of February 16th, that Mr. Pierson had died on the previous day at his home at Cranford, New Jersey, was a surprise to his large number of friends in the trade. It had been known that he was in ill health for several months past, but his death was wholly unanticipated. Mr. Pierson was born in this city fifty-eight years ago, and in early life learned the jewelry trade with Downing and Baldwin, and became an expert workman. Being of an adventurous disposition, however, on the termination of his apprenticeship, he started out for himself to see the world, stopping first at Charleston, South Carolina, where he engaged in the clothing business for some time. From here, he went to Portland, Oregon, continuing in the clothing business and made a very extended acquaintance throughout the Pacific coast. Finally he located in San Francisco, where he remained for a number of years, returning to New York in 1869. He then met Mr. E. Howard, of the E. Howard Watch and Clock Company of Boston, and made an arrangement with him to become the New York representative of the house, and located as their agent at No. 15 Maiden Lane. For seventeen years and upwards, he was the New York representative of this house, continuing in that position through the various changes that were made in the company until January 1, of the present year, when ill health compelled him to tender his resignation and seek rest for a time. Mr. Pierson travelled extensively in connection with the E. Howard Watch & Clock Company, and was probably more widely known in connection with the Tower Clock business than any other person in the United States. He was for many years, a director in the Jewellers' Board of Trade, and connected intimately with the various trade organizations. His illness took the form of pneumonia, and he died February 15th, after but four or five days' confinement to the house. He was buried on Friday the 18th, his funeral being attended by a large number of business and personal friends. He leaves a widow and three children.

Mr. Pierson was an energetic, active, capable man, to whose executive ability the company he represented was largely indebted for its prosperity. Of a genial, social temperament, bright and witty in conversation and in repartee, he made friends easily and retained them permanently. He was a great favorite among traveling men as well as the heads of business houses, and the fact that he was full of anecdotes and descriptions of adventures as a traveling man made him popular with all classes. He had that rare faculty of adapting himself to his company and his surroundings, which few men possess in so high a degree. He could be the dignified business man, or the jovial, hearty, hail-fellow well-met, as circumstances required, but he never forgot his business interests or the interests of his employers, and was constantly on the alert in their behalf. Few men are more sincerely mourned by a large circle of attached personal friends, than Mr. Pierson will be. He was loved alike for his strong individuality as well as for the genial and social characteristics of his nature.

BRONZE COATING ON IRON, ETC.—In order to cover articles of iron and brass with a durable, antique bronze coating, 100 grains of protosulphate of nickel and ammonia, 100 grains of hyposulphate of soda and 50 grains sal ammoniac are dissolved in 10 quarts boiling water, and the well cleaned metallic articles are laid in at once. After a few minutes they have assumed a handsome lustrous bronze color. By a prolonged exposure in the bath, sustained at a heat of from 70° to 80°, cast or wrought iron articles have become handsomely coated with sulphide of nickel, but they must be made lustrous again by cleaning, since they have become mat in color. The bath may be used again until its bluish-green color has disappeared as well as the hydroxide of iron.

TRADE GOSSIP.

We desire to call the attention of the trade to the two pages of artistic and beautiful monograms which we print in this issue of the Circular. Here are samples of engraving of initial letters in the Renaissance, Louis V., Florentin and Moderne styles. The present designs in combination of initials from A–I to A–P, graceful, tasteful and elegant, from which any individual desiring such a combination can make a selection to suit his taste. We have been at a good deal of trouble and expense in securing these designs, confident that they would be not only valuable to the trade, but thoroughly appreciated, furnishing, as they do, such beautiful examples of initial combinations. In our issue for February, we published one page of similar monograms by the same designer, and so many letters of commendation and approval have reached us, that we have resolved to present two pages in future until the entire series is exhausted. When the series is complete, it will present combinations of initials suitable for almost any monogram that may be selected, so that any engraver or designer can make such modifications of them as his customers may desire. Monograms in jewelry are now exceedingly fashionable, especially with gentlemen, who ornament their watch cases with their initials in artistic combinations—watch charms, seal rings, scarf pins, etc., in almost endless variety. Engravers encounter considerable difficulty in getting up artistic designs, and they cannot fail to appreciate these examples thus furnished gratuitously to our subscribers.

M. B. Messler succeeds A. M. Drake, Canton, Ills.

John Webb has moved from Carlisle to Lonoke, Ark.

Simons & Case succeed M. J. Simons, Coldwater, Mich.

Hendricks & Porter succeed G. D. Hendricks, Tipton, Ind.

P. A. Lefreu has removed from Weaverville to Redding, Cal.

R. L. Fox has moved from St. Matthews to Graniteville, S. C.

J. W. Lansing has moved from Centre Junction to Onslow, Iowa.

P. H. Seewald has moved from El Paso, Texas, to Las Vegas, N. M.

M. A. Thayer & Co. have purchased the business of E. W. Beebe, Toma, Wis.

Edward W. Button & Co. succeed Edward W. Button, Bridgeport, Conn.

W. S. Tanner has purchased the business of D. W. Evans, Carrollton, Ga.

S. P. Hosmer succeeds the firm of Hough & Hosmer, Tecumseh, Mich.

Edward Beardsley has purchased the business of F. B. Satterthwait, Ottawa, O.

Henry Rempe has purchased the business of W. W. Chamberlain, Dunmore, Pa.

Thomas Vaughan succeeds the firm of Hawksford & Co., Los Angeles, Cal.

J. D. Webber has purchased the business of T. F. Memmen, Minouk, Ills.

Edward W. Knowlton succeeds the firm of Knowlton & Conant, Malone, N. Y.

The firm of Lodwick & Nolting, Cincinnati, O., has been changed to Chas. A. Nolting.

Doering & Robinson have purchased the jewelry business of F. S. Rounds, Annistown, Ala.

The firm of Butler & Reber, Dighton, Kansas, have dissolved. J. R. Butler will continue the business.

Mr. J. N. Bonnet, of Mulford & Bonnet, sailed for Europe on the steamship *Saale* early last month.

The firm of Wright & Wallace, Red Cloud, Neb., have dissolved. The business will be continued by L. H. Wallace.

The firm of Keller & Bro., Allentown, Pa., has been dissolved. The business will be continued by Edwin Keller.

Mr. C. L. Abry, agent for the Vascheron & Constantin watch, will remove from 63 Nassau to 41 and 43 Maiden Lane.

Mr. M. A. Myers, of the firm of S. F. Myers & Co., is spending a few weeks in Florida to obtain much-needed rest.

The firm of Parsons, Bagley & Oberreich, La Porte, Ind., have dissolved. Bagley & Oberreich continue the business.

Mr. Charles Jacques has removed from 23 John street to the store formerly occupied by Le Boutillier & Co., No. 2 Maiden Lane.

The firm of A. Joralemon & Co., of Newark, N. J., has been dissolved, and the business will be continued by Mr. A. Joralemon.

Mr Robert Marshall, has removed from Athens, Pennsylvania, to Chattanooga, Tenn., where he will continue in the jewelry business.

The new commander of the Grand Army of the Republic, department of Rhode Island, is Mr. B. L. Hall, of the firm of B. L. Hall & Co.

The Legislature of Maine has passed a law adopting the Eastern standard time to be applied to all the State, county and town official business.

Joseph P. Wathier & Co., of Chicago, offer the trade a very full and carefully selected assortment of watches and jewelry of all kinds for the spring trade.

Mr. W. F. King, of the firm of King & Eisle, of Buffalo, is spending some time in Florida this winter for pleasure and relaxation from the cares of business.

Corn & Clark, having bought the stock of the late New York Optical Company, are offering special inducements to the trade, and will send sample line on application.

Mr. C. G. Lewis, of Randel, Baremore & Billings, who has been dangerously sick with pneumonia for sometime, has recovered and is once more on duty, a fact which his many friends will be glad to learn.

Mr. Joseph A. Dudin, for nine years with Tiffany & Co., and subsequently with the Gorham Manufacturing Company, has engaged with the Towle Manufacturing Company, and will represent them in the west.

Phelps & Bartholomew, of Ansonia, have purchased the tools and plant of the Yale Clock Company. These were advertised to be sold at auction, but before the date of sale, were purchased by the above named firm.

Dealers will find some new and beautiful designs among the "W E. W. & Co." goods, prepared especially for the spring trade, consisting of brooches, ladies' collar buttons, mounted with colored stones, bands, etc.

H. Muhr's Sons, of Philadelphia, are about to open an office in Antwerp, which will be under the charge of Mr. G. H. Antoine, who sailed last month on the steamship *Noordland* for the purpose of representing this house abroad.

Jobbers should not fail to see the line of gold goods shown by Kirby, Mowry & Co., of Providence, which includes a full line of white stone and gold jewelry in ear drops, lace pins, studs, collar buttons, scarf pins and brooches.

The Geneva Non-Magnetic Watch Company has recently received a large invoice of their watches direct from their factory at Geneva. Among them there are fine complicated watches, ladies' and gentlemens' watches for ordinary wear and in all varieties of cases.

When Frank Ficie, the Brooklyn jeweler, died last month, no one knew the combination of his safe, and, as a consequence, a locksmith was summoned, but his efforts to open it were unavailing. It was finally blown open with powder in true burglar style. It contained upwards of $50,000 of goods of all kinds.

Early last month two thieves entered the store of Alexander Ballantyne, at Germantown, and asked to look at some rings. Suddenly one of the men seized the tray, containing about $200 worth of rings, and ran to the street. His companion blocked the door with a piece of wood to prevent pursuit, and so succeeded in escaping with the goods.

Joseph Fahys & Co., having discontinued the manufacture of their inlaid initial cases, because of the growth of other departments of their business; S. F. Myers & Co., purchased their entire stock of gold initial cases and now offer them to the trade. The stock consisted of some six thousand cases in Junior dust proof, Senior dust proof and screw bezel styles.

The firm of Sandford & Cook has been dissolved in consequence of the ill health of Mr. Cook, which necessitates his going abroad for a time. The firm is reorganized under the same designation, Mr. F. H. Cook leaving $12,000 in the business for a limited term as a special partner.

The creditors of John Wilsons' Sons have unanimously accepted the proposition made hy them for a settlement of their indebtedness. The firm has decided to go out of business, and their entire stock is now being closed out with that end in view. The store and basement occupied by them is now for rent, and is regarded as a desirable location.

Among the victims of the recent terrible railroad disaster in Vermont was Mr. Louis Combremont, of No. 23 John street, representative in this country of Perrenoud & Brodbeck, of Chaux de Fonds, Switzerland. He was precipitated over the embankment with the derailed cars, but fortunately escaped with only a few bruises where so many lost their lives.

Mr. James Hedges succeeds to the business heretofore carried on under the firm name of Wm. S. Hedges & Co. The senior partner, Mr. William S. Hedges died in January, but the partnership terminated by limitation almost simultaniously with his death. Mr. James Hedges the brother of the partner naturally takes control of the business, and will continue it at the old number under the same firm name.

The jewelry store of Mr. G. C. Muir, at Burlington, Iowa, was entered by burglars early last month and robbed of watches and jewelry estimated to be worth $2,000. Mr. Muir slept in his store, but having an engagement in the evening, returned to the store about nine o'clock, only to find that the burglars had been there and completed their work. They had gained an entrance through a small window opening on a back alley.

The Geneva Non-magnetic Watch Company, and Payne, Steck & Co., have secured offices together at Nos. 177–179 Broadway, which they have fitted up in elegant style, and with true artistic taste. The floors are inlaid and all the fixtures are novel and attractive. In a seperate room set aside for making adjustments, they have set up a Howard regulator of the most approved make. They will be happy to have the trade call upon them.

Frederick Ryerson, a journeyman jeweler employed in Newark, but residing at Irvington, a short distance from Newark, has been in the habit of taking stock and tools home with him and doing his work at home. Recently while returning home with a small satchel containing goods worth about $60 and tools worth about $30, he was assaulted by highwaymen who knocked him senseless with a sand bag and made off with his satchel and goods.

Mr. James Hagen, of Miller Bros., has been suffering for some time with a peculiar disease in one of his eyes. After continued treatment his physicians decided that the eye would have to be removed. The operation was performed February 22 very successfully, and Mr. Hagen speedily recovered from its effects. He is still in the hospital, but expects to be out soon. His many friends will sympathize heartily in his trouble, and wish for him an entire restoration to health at an early day.

The annual meeting of the Hampden Watch Co. was held Feb. 3. Officers elected: C. D. Rood, President and Treasurer; C. D. Rood, H. J. Cain, F. N. Leonard, J. C. Dueber and A. Bagg, Directors. Mr. Dueber was very urgent in having the factory removed to Canton, Ohio, the people there standing ready to give the company $50,000 in case the removal is made, and at a meeting held later it was decided to move the works to Canton.

Oelenheimer & Zimmern, whose interchangeable initial rings have become so popular in the trade, have recently introduced a raised initial locket, constructed on the same principle of interchangeability. Dealers who have found so much advantage from this style of ring will appreciate the convenience of lockets which also permit of the ready exchange of initials, thereby rendering it unnecessary for them to carry so many in stock as heretofore.

Messrs. Robbins & Appleton call the attention of the trade to their crescent gold filled watch cases. These are made to fit all American full plate movements, while a special size is made to fit the Waltham three-quarter plate movement. These cases have acquired a deserved popularity in the trade because of the excellent character of their workmanship and their adaptability to the requirements of the general demand for such goods.

The following testimonial speaks for itself: "We have completed our course in practical optics with Doctor Bucklin. We are all delighted with the thoroughly practical nature of the instruction, and we are convinced that it is possible, under his instruction, to become a skilled optician within the short space of two weeks. Edward H. Ayres, Robt. P. Taylor, Sam'l Harman, Geo. W. Ludwig, W. L. Hopkins, Teressa A. Freeman, Geo. F. Applegate."

The jobbing house of Bourquin & Co., of Louisville, made an assignment to W. P. Lincoln, of that city, on February 7. The firm consisted of Francis J. Bourquin, of New Albany, and Adolph Poraratz, of Louisville. The assets are said to exceed $20,000, while the liabilities are only about $15,000. The failure is attributed to dull trade and a surplus stock of unavailable goods. It is thought that the creditors, who are mostly in the East, will receive their claims in full.

The annual meeting of the Relief Association of the American Watch Company was held last month. The report of the Treasurer showed that the receipts had been $3,399.50; the expenses $3,708; number of beneficiaries, 207. There is a surplus on hand amounting to $1,281.08. Two assessments were omitted during the year. The officers elected for the ensuing year are: C. C. Byam, President; J. S. Baker, Vice-President; L. C. Lane, Treasurer; C. J. Russel, Secretary; Visiting Committee for the year: Mrs. M. S. Miller and Messrs. Hammond and J. M. Taylor. Since the organization of the association it has paid out $28,000.

Attention is called to the new lines of jewelry ready for the spring trade, and on exhibition at Fowler Brothers. An entirely new line with this firm is represented in their moonstone brooches, scarf pins and bracelets. The brooches especially show attractive designs. The new round pins in white stone jewelry are equally desirable as regards pattern and workmanship. It need hardily be told, that these new goods do not in the least conflict with the firm's specialty, crape stone jewelry. The present stock of crape stone ornaments is, if possible, more desirable than was last year's, including as it does a greater variety of patterns. The new brooches and earrings are particularly attractive.

The directors of the Jewelers' Board of Trade held their first annual meeting at their rooms, No. 41 Maiden Lane, on Tuesday, February 15, and elected the following committees for the ensuing year: Finance Committee—Messrs. S. F. Myers, of S. F. Myers & Co., L. Stern, of Stern Bros. & Co., and A. Oppenheimer, of Oppenheimer Bros. & Veith. Membership Committee—Messrs. S. Lorsch, of Sussfeld, Lorsch & Co., L. Kahn, of L. & M. Kahn, and F. Kroeber. Arbitration Committee—Messrs. Jos. Fahys, of Jos. Fahys & Co., David Keller, of Oppenheimer & Keller, W. Pardel, of Heller & Bardel, E. J. Scofield, agent of the Elgin National Watch Co., and W. Smith, of W. Smith & Co.

Mr. Reuben A. Thompson has made an engagement with Glorieux & Woolsey, and will hereafter represent them on the road.

Mr. Harry J. King, a well known jewelry traveler, has engaged with Isaac A. Alling & Co., and will travel for them this season.

Mr. P. E. Witherell, of Attleboro, has purchased the interest of the Hayward estate in the business of Hayward & Witherell, and will hereafter have sole charge of it in future.

Mr. P. H. Bettmann, formerly in business in Minneapolis, has made an engagement with Lindsley & Inman, of Attleboro, and will travel in the West for them this season.

B. Lawrence, an optician, of Montreal, failed last month, with liabilities exceeding $60,000, his creditors mostly residing in England. Outside speculation is said to have been the cause of his failure.

Mr. W. C. Parks, for the last five years a representative of Stanley Bros., will succeed his brother, George W., as agent for E. I. Franklin & Co. George W. Parks will hereafter represent Howard & Son.

Dealers in optical goods should send for the Illustrated Catalogue just issued by John Scherdig & Co., 43 Maiden Lane. It contains an importers' price list, the value of which to dealers is obvious at a glance.

E. Ira. Richards & Co., are offering their best quality goods in many lines at reduced prices. Their usual large line of novelties for the spring are now coming out, consisting of Queen vests, bangles, lever buttons, drops, lace pins, scarf pins, &c. &c.

Mr. Fred. L. Marcy has achieved a most enviable reputation for making collar and sleeve buttons in an almost endless variety of desirable and attractive patterns. His latest stiffened post collar button is claimed to be the strongest and most durable button of its kind in the market.

Mr. Berry, of the firm of Hugo & Berry, having retired, the firm will hereafter be known as J. N. Hugo & Co. They are engaged in the manufacture of a general line of plated jewelry, but make lace pins, bracelets and buttons a specialty.

H. F. Barrows & Co. have added to their large variety of plated chains a full line of inlaid chains, which cannot fail to be popular. Dealers will find these a very attractive line of goods to handle, being something new and entirely novel.

J. P. Stevens & Co., of Atlanta, Georgia, send out a novel advertisement in the shape of engraved views of the exterior and interior of their new store. The illustrations indicate that it is not only a very handsome establishment, but that it is well stored with rich and attractive goods.

Mr. A. K. Sloan, of Carter, Sloan & Co., is noted in the trade for getting up new and taking goods. This time it is a boy. Mother and child are doing well, and the proud and happy father is so as to be about with all his customary activity. Congratulations are in order.

Albert Lorsch & Co. are about to occupy much larger and more convenient quarters in Providence. They have leased offices at No. 151 Broad street, which gives them seven windows in the front, and they propose to fit up the premises in a manner to make it the most attractive jewelry establishment in that city.

Mr. W. H. Burton, lately on the road for Aikin, Lambert & Co., having taken a life partner has located in Chicago, and assumed charge of their office in that city. Messrs J. A. Hudson, P. E. Robinson; C. G. Megrue, Jr., S. N. Jenkins, W. F. Duryea, W. A. Farrell will represent A. L. & Co. on the road this season. Mr. Jenkins remaining at home for a time before going on his trip.

T. Steele & Son, the well known jewelers of Hartford, who have been in business since 1836, being about to retire to engage in other business, offer their entire stock of goods, lease of premises and all their elegant fixtures at a bargain. Their store is located on one of the most prominent thoroughfares of Hartford, and is regarded as the best stand in that city.

Mr. W. F. A. Woodcock, of Circleville, Ohio, writes: "I have a complete set of THE CIRCULARS from the first number printed, and do not care to part with any of them. An old friend has written to me asking me if I can get him the numbers containing "Excelsior's" articles. Any one having the numbers containing these articles and desiring to part with them are requested to write to me, stating price or communicate with THE CIRCULAR."

The Pairpoint Mfg. Co. have opened a branch salesroom at 220 Sutter street, San Francisco, Cal., and Messrs. Peter B. Simons & Son are to act as selling agents. G. J. Corey, Southern agent of the Pairpoint Mfg. Co., is making a tour of the Pacific Coast trade in the interest of his company, and, when the trip is completed, will return to his Southern trade. He reports a brisk trade and a good opening for his goods.

Rogers & Brother have secured the elegant store in the fine new building now being finished in Courtlandt street by the Metropolitan Telephone Company. The building is one of the finest of the down town structures and will contain all the modern improvements. The store of Rogers & Brother will extend from Courtlandt to Dey street, they having acquired additional premises in Dey street in order to accommodate their immense business. Their removal will take place as soon as the new store is ready for occupancy.

The sale of the stock and fixtures of Jacob Castleberg, of Baltimore, in the interest of his creditors, made favorable progress up to the last accounts we received from there. The goods were selling at satisfactory prices, and it was believed that they would realize the full amount at which they were appraised by the committee. The committee representing the creditors at the sale were Messrs. S. H. Monell, Wm. A. Copeland and J. B. Bowden, who have been untiring in their efforts in the interest of the creditors.

A boy named Frederick Menard, who was in the employ of Robbins & Appleton in their Chicago office, about two years ago disappeared with something like $200 worth of watch cases. He was recently captured, having been away from the city during the intervening time, and was held to answer for the theft. At the examination, his counsel intimated that he expected to show that the boy had been robbed, and, becoming frightened, had run away. The magistrate nevertheless held the lad for trial. His brother is under indictment, charged with having robbed a jeweler in Chicago of jewelry of considerable value.

At the recent annual meeting of Soldiers and Sailors Historical Society at Providence, the principal event of the evening was the reading of a paper of personal reminiscences of the war by Captain T. W. Manchester, a well-known traveller in the jewelry trade. The Captain related how he started out in the war with a determination to win the silver stars of a brigadier general, but the jealousy of his superior officers or adverse fate kept him vacillating between the stripes of a non-commissioned officer and the undecorated uniform of a private till about the close of the war, when he was made a Captain in the colored engineer regiment. His paper was filled with humor, and was received with much applause.

Professor Rees, of Columbia College, lectured before the Academy of Science a few evenings since in the law building of the college. His subject was "The Great Telescopes of the World; their construction, powers and limitations." The discourse was illustrated with lantern views and was of a popular character. Professor Rees discussed the development of reflecting and refracting telescopes in an entertaining way, compared the advantages and disadvantages of each, and declared in conclusion that both kinds had, in his opinion, attained the highest possible standard of excellence with the present mechanical facilities. The audience filled the large class rooms and included Mr. Chittenden, secretary of the society, professor Stevens of Brooklyn, Miss W. H. Edgerton, who was recently made a Ph.D. by Columbia and a galaxy of rosy-cheeked maidens, the astronomical class of Miss Reed's school, who seemed much interested in the learned dissertation of the popular lecturer.

Mr. C. L. Tiffany walked into his office as firmly and as actively on the morning of February 15, as he did fifty years ago when he founded the great jewelry house. He was agreeably surprised to find beside his desk a beautiful floral design fully 3 feet high, which had been placed there by his many well-wishing employees as a remembrance of his 75th birthday.

The annual meeting of the Manufacturing Jewelers' Board of Trade, of Providence, took place on Monday, January 31. The following officers were elected for the ensuing year: President, D. Wilcox; first vice-president, Fred. I. Marcy; second vice-president, J. L. Sweet; treasurer, John A. McCloy; secretary, George E. Emery; finance committee, E. S. Horton, R. S. Hamilton, Jr., and N. B. Barton. The board of directors for the ensuing year will be asfollows: Dutee Wilcox, Fred. I. Marcy, J. L. Sweet, John A. McCloy, R. S. Hamilton, Jr., Wm. M. Fisher, W. R. Dutemple, W. H. Wade, D. S. Spaulding, S. E. Fisher, E. S. Horton, A. Bushee, N. B. Barton, E. I. Franklin, George L. Vose, H S. Dorchester, Hiram Howard, James J. Horton, T. E. Carpenter, T. I. Smith.

The Waltham chronographs have certain characteristics well calculated to bring them into high favor with all who have occasion to use an instrument of this kind. In the first place they are substantial and trustworthy timekeepers, while their mechanism to start, stop and fly-back is so simple in construction and so strong and durable, that they stand in high favor with dealers, who find that they sell readily. A notable feature of the Waltham chronograph is that all its parts are exposed to view, none of them being hidden under the plate or dial. Any of the fifteen or twenty pieces that go to make up the chronograph attachment can be duplicated, like any other of the Waltham works, which is a great advantage, as all dealers understand.

Mr. Grunwald, who gave up the banking business in Utica some time ago because certain charges of usury made against him interfered with his business, and afterwards blossomed out as a dealer in diamonds and watches, suddenly disappeared from that city about the middle of last month. Simultaneously his stock was found to have gone also, together with certain articles belonging to customers that had been left with him. There had been a supposition abroad that Mr. Grunwald was wealthy, but the manner of his departure dispelled this belief and also cast serious doubts upon his general integrity. It was ascertained that a trunk belonging to him had been sent to Rochester, but it was suspected that he had come directly to New York.

A daring robbery was perpetrated last month in Montreal, by which Mr. R. W. Stoddart lost about $4,500 of diamond rings. About 6 o'clock in the evening, when the streets were thronged with men and women returning from their work, three men approached the show window of Mr. Stoddart's place, and while one of them fastened the door to prevent anyone getting out, another smashed the show case window, while the third reached in and secured a glass case in which the diamonds were exhibited. The thieves got away before pursuit could be entered upon. In breaking the window the blow also broke the glass case containing the diamonds, and in their flight the thieves dropped one or two of the gems which were recovered.

Mr. Joseph K. Nye, who is interested with his father in the manufacture of watch oil, has spent a considerable portion of the winter at St. Albans, Vt., experimenting in refining oil in that cold climate. He took with him over 400 gallons of oil, and having set up his appliances, he proceeded to press and refine it. The temperature fell as low as 45° below zero during his stay, and temperature of the oil never rose above zero during the whole process of refining. It is believed that this process will prevent the oil being chilled after use in any climate, however cold. The necessity of providing an oil that would not chill led to this experiment of refining it in a remarkably cold climate. Tests to which it was subsequently subjected demonstrated that the experiment had been entirely successful.

A circular issued by the officers of the Retail Dealers' Protective Association, of this city, for the regular quarterly meeting to be held at Cooper Union Lecture Room, February 24, presents anything but a cheerful view of the progress that association is making. It represents that only about 100 retail dealers out of the thousand or more in the city have become members, and lectures the non-members vigorously, representing that unless they join there is little hope for righting the wrongs from which the retail trade suffers at the hands of the wholesale dealers. The circular contains the usual arraignment of jobbers for selling to outsiders, and accuses them of recently inducing dry goods houses to carry full lines of watches, clocks and jewelry. The meeting was called for a date that prevented us from obtaining an account of the proceedings for this issue, as our paper was already prepared for the press.

In the case of Thomas P. Bedilion, of Pittsburgh, who recently failed after confessing judgment in favor of his wife, several Eastern creditors entered suit against him to set aside the judgment, and obtained a temporary injunction. Later, when the case came to be heard before the court, a decision was given discontinuing the injunction. It is understood that this was at the request of the attorneys representing the creditors, who preferred to prosecute the case in another form. During the proceedings, Judge Stowe expressed the opinion that a law should be enacted compelling a person who transferred any property to his wife to publish that fact in the newspapers that his creditors might know what he was doing. At present a man may make such conveyance without even recording it till it suits his purpose to do so, and then it becomes a preferred claim. The creditors, in this instance, propose to test the legality of such transfer of their property.

Mr. Benjamin Barton, of Alexandria, Va., died recently at his residence near that city. Mr. Barton was born in Alexandria in 1803, and lived there all his life. He learned the trade of watchmaking, becoming an expert workman and mathematican. Early in life he engaged in business for himself, and was uniformly successful. He became a prominent and leading citizen, a director in the bank and also of several other local corporations. It was due to his financial ability and business capacity that the bank of which he was a director met all its obligations during the war, paying every depositor in full, notwithstanding the fact that the bank lost heavily. He was one of the original members of a steam fire engine company that was organized sixty years ago, when hand engines only were used. He was president of the company for over forty years, and at the time of his death he was one of the aldermen of the city. The local papers contain obituary notices of the most eulogistic character, and referred to him as being a citizen whose example all young men may follow with safety.

A young French Canadian named Etienne de Timanville, alleged to have a right to the title of Count, was recently employed as a salesman in the establishment of Mr. Anthoine, at Lewiston, Me. He dressed elegantly, drove livery teams frequently, and generally lived like a rather fast man about town, although his salary was but $6 a week. He accounted for his means by saying that his relatives in Canada sent him money to live on, and that he worked only to keep his mind employed. His employer, however, began to miss goods and suspected his handsome clerk who, being accused, confessed to having taken goods worth $155. His friends interceded in his behalf, paid for the goods, and Mr. Anthoine gave him another trial. But a short time elapsed, however, before he was detected at his old tricks and again confessed to his peculations. This time he was discharged, but it was not long before he cultivated an intimacy with the clerk who had taken his place, and then goods began to be missed again. Again the young Frenchman plead guilty, and promised to make good the loss as soon as his friends could be heard from. Then he tried to escape from the town, but was followed by a detective who arrested him at Portland and took him back to Lewiston, where he was consigned to jail to await a trial. The value of the goods he disposed of is about $500.

On the first of May next there will be quite a flitting of jewelers from the vicinity of Maiden Lane towards Union Square. Among those who will make this radical change are Miller Brothers, who have secured offices in the building occupied by Reed & Barton. C. W. Schumann will occupy the rooms now held by Sypher & Co., at the corner of Broadway and Seventeenth street, but will also retain his present store at No. 24 John street. He expects to occupy the new store about the middle of the present month. William Riker will have rooms on the second floor of the same building a little later. Howard & Cockshaw will be accommodated in rooms over Jaques & Mareus. There are rumors of other firms being about to make a move up town this spring, but the above are all we have heard who have definitely selected new locations.

Mr. H. T. Cook, of the firm of H. T. Cook & Co., of Toledo, died in that city at the close of January. On January 13 this firm made an assignment, which was noticed in THE CIRCULAR of last month, owing largely to the long continued illness of the head of the firm, which illness resulted in his death as stated. Mr. Cook was born in Boston in 1826, and, having learned the trade of watch making, removed to Toledo in 1848, where he engaged in business, and soon built up what was apparently a most prosperous trade. Some years ago he became embarrassed but managed to pull through his trouble but the load he then assumed is believed to have hastened his death. Mr. Cook was highly respected in the community in which he spent the greater portion of his life, and was prominent in the Masonic fraternity. He carried $20,000 of insurance upon his life in favor of his wife. The work of closing up the estate is progressing satisfactorily, nearly all the creditors having accepted their offer of 25 cents on a dollar. There is a prospect that the business will be resumed by William Cook and William Walcott.

Mr. Samuel Hammond, a veteran and well known watchmaker of this city, died recently at his home in Ridgefield, N. J. Mr. Hammond was an Englishman by birth, and, having learned his trade in that country, came to New York over fifty years ago. He located in Wall street, in the building now known as the Custom House, but when that was occupied by the government, he took a store under the Atlantic Mutual Insurance Company, opposite his old quarters. Mr. Hammond was regarded as one of the most expert watch repairers in the city, and he had a very large patronage from business men down town. He was extremely conscientious about his work, and would never permit a watch to leave his place until it ran to suit him. He was also an expert in diamonds and other precious stones, and his customers who wanted such were always sure to find in his place a stock of the choicest gems to select from. His stock of jewelry was selected with great care, the various articles composing it being chosen more for their intrinsic value than for their salable qualities. He knew his customers, and would never offer them anything he could not conscientiously recommend. For several years past Mr. Hammond was a sufferer from painful infirmities that finally required surgical treatment, from which he never recovered. Mr. Hammond was seventy-four years of age, and leaves a widow and seven children, three sons and four daughters surviving.

The following dealers visited New York during the past month: Geo. H. Richards, Jr., Boston, Mass.; O. C. Gantor, Pittsburgh, Pa.; H. C. Cohn, Rochester, N. Y.; D. C. Pereival, Boston, Mass.; A. Paul, Boston, Mass.; W. H. Zinn, Boston, Mass.; C. F. Morrill, Boston, Mass; A. Lewis and M. S. Liberman, Syracuse, N. Y.; W. B. Musser, Lancaster, Pa.; A. Lesser, Syracuse, N. Y.; S. Kind, Philadelphia, Pa.; L. W. Flershem and Thomas Davies, Chicago, Ill.; D. F. Conover, Philadelphia, Pa.; H. C. Hurlburt, Philadelphia, Pa.; C. Hollinshed, Philadelphia, Pa.; H. Kohn, Hartford, Conn.; F. A. Whitney, Boston, Mass.; G. C. Allis, Birmingham, Conn.; C. H. Osgood, Lewiston, Me.; J. Doggett, Kansas City, Mo.; C. L. Guild, Buffalo, N. Y.; W. P. Sedgwick, Bath, N. Y.; M. Goodman, Memphis, Tenn.; C. K. Giles, Chicago, Ill.; M. C. Ellis, Toronto, Canada.; Julius King, Cleveland, Ohio.; W. G. Ellis, Toronto, Canada.; E. F. Segsworth, Toronto, Canada.; C. F. Heintz, Buffalo, N. Y.; H. Rowland, Albany, N. Y.; R. H. Galbraith (Duhme & Co.,) Cincinnati, Ohio.; J. J. Joslin, Denver, Col.; W. Oskamp, Cincinnati, Ohio.; A. Anderson, Toronto; Ont.; E. Lehman, Denver, Col.; H. Rudisill, Altoona, Pa.; B. Altheimer, St. Louis, Mo.; C. D. Hosley, Springfield, Mass.; George Dumer, Milwaukee, Wis.; J. Gilowsky, Milwaukee, Wis.; A. Gernsbacher, New Orleans, La.; J. Barr, Toronto, Ont.; I. P. Libby, Washington, D. C.; W. F. Tasker, Toronto, Ont.; M. Kingsbacher, Pittsburgh,. Pa.; Adolph Meyer, Omaha, Neb.; J. R. Armiger, Baltimore, Md.; A. Weinberg, Chicago, Ill.; D. H. Buell, Hartford, Conn.; Joseph Block, Buffalo, N. Y.; D. Thompson, Hamilton, Ont.; A. Murphy, Tyler, Tex.; Thomas Marshall, Toronto, Ont.; C. Duhme, Cincinnati, Ohio.; Otto Heeren, Pittsburgh, Pa.

When the failure of D. N. Freeman & Company of Atlanta, Georgia, was announced, Mr. J. C. Freeman came to New York and endeavored to make settlement, but, owing to the reluctance of some of the creditors to sign the agreement, his efforts miscarried. A committee of the creditors consisting of Messrs S. H. Monell, and C. G. Alford, was appointed to proceed at once to Atlanta and make the best settlement possible in the interests of the creditors. The committee arrived in Atlanta on February 15th, and immediately proceeded to investigate the affairs. The books of the firm subsequent to the retirement therefrom of Mr. J. P. Stevens, to the 1st of February, 1886, could not be found. From that date, however, the books indicate a series of misfortunes in management and a great shrinkage in the business, for which the committee do not regard any of the present partners responsible. It was found, also, that the inventory presented by Mr. Freeman in New York was more in the nature of an estimate than an actual inventory, and that, had his offer been accepted, it would not have been consummated. It was found, also, that the expenses had been very heavy, while the Fall business was light; also, that Mrs. Iverson, who was supposed to have been a partner in the business, could not be held, as she had acted in ignorance of the laws of the State in signing partnership and other papers, and, also that she had not taken out the necessary papers as a trader in her own name. It would have been impossible, therefore, to have reached her private estate, and had the attempt been made, it would only have complicated matters still further, involved an expensive litigation, and the end would not have been reached for several years. The committee in their report express the belief that the impression that the Freeman estate was quite large was entirely erroneous. The committee found itself involved in a variety of legal complications, resulting from the determination of certain local creditors to press their individual claims to a culmination, and, also, because of the legal difficulties arising from the attitude of Mrs. Iverson. This lady, however, voluntarily rendered every assistance in her power to the committee, and eventually conceded to them as much, if not more than they could have extorted from her at the end of long and doubtful legal proceedings. Her attorney, also, Mr. A. H. Cox, under her direction, aided the committee to the extent of his power. The committee say: "The action taken by the attorneys for Henry Carter and others threatened total ruin to the claims we represented, the peculiar laws of Georgia appearing to leave no rights in an insolvent business to either the debtor or creditors, and placing the entire assets at the mercy of the Court, the receiver and the attorneys." By prompt and diligent action, however, making some sacrifices and many concessions, the committee succeeded in making a settlement which will yield, it is believed to all creditors between forty and forty-five cents on the dollar, as soon as the consent of all is obtained. The terms will be one-third cash, one-third, six months, one-third, December 30th, 1887, with the satisfactory endorsement, the time notes bearing six per cent interest. Two chattels mortgages for $12,000 were for bona fide loans, and were held by the men who were determined to secure their money, the president of the bank having recently demanded diamonds as collateral in addition to his chattel mortgage. No indication of fraud or of a desire to cause a loss to the creditors was ascertained by the committee. The com-

mittee succeeded in getting possession of the stock, which was purchased by Mr. J. C. Freeman of Freeman & Crankshaw, at a price which the committee regard as the utmost that would have been paid for it by anyone. Mrs. Iverson and Mr. D. N. Freeman assisted him to the utmost of their ability in making those settlements. The assets figured at New York cost, without depreciation for old goods or the value of tools, was estimated in the neighborhood of $35,000. In submitting their report to the creditors, the committee is confident that it will be to the interest of all to accept the proposition submitted by them, and urge the creditors to approve of it at the earliest possible moment.

David Kline, of Denver, Colorado, who failed some time ago, has been indicted because of the peculiarities of that transaction. It is asserted that he made fraudulent representations as to his assets and liabilities, both to the mercantile agencies, the Jewelers' Board of Trade and to individuals of whom he ordered goods. It is also alleged that on the strength of these misrepresentations, he bought about $25,000 worth of goods in New York, and then concealed them by sending them to Leadville where he had a branch establishment. When he failed he gave a chattel mortgage on his goods and transferred most of his other property, the goods mortgaged, however, being scarcely sufficient to meet the $5,000 claim for which the mortgage was given. What becomes of the large amount he purchased in New York is a problem the creditors are anxious to have solved. The claims of the Eastern creditors have been placed in the hands of local attorneys, who have filed attachments aggregating over $20,000 in amount.

A presentation was recently made by a number of the members of the jewelry trade to Mr. F. J. Allen, proprietor of the Astor House, in recognition of his hospitality, so generously extended to them in July last, on Jewelers' Day. The presentation consisted of a series of resolutions, handsomely framed, reciting the fact that Mr. Allen is one of the most genial and accommodating of landlords, and that he takes especial pains to make things pleasant for the jewelers who make his house their headquarters during their presence in the city. The resolutions were signed by fifteen gentlemen well known in the trade, and were duly presented by a committee selected for that purpose. At the conclusion of the ceremonies Mr. Allen invited the committee into his private room, and there gave further demonstration of his hospitality in a manner that seemed to be peculiarly satisfactory to those present, his guests contributing to the enjoyment of the occasion by reciting anecdotes and stories.

In almost all of the marriages which take place at Castle Garden a policeman is obliged to act as best man to the bridegroom. This is because these weddings are a kind of leap year observance in which the man is wooed, and in which the Castle Garden detectives lend their official influence to the lady's suit. Detective Groden has been at Castle Garden a good many years, has witnessed a great many weddings, and has had the privilege also of kissing the bride. In the Catholic marriage service a ring is indispensable, and often in the hurry of an enforced wedding bridegrooms have neglected to provide the requisite. Detective Groden, in fact, has had, many times, to hunt up a ring to the delay of the nuptials. Seven or eight years ago it occurred to him that a property ring, so to speak, would be a convenience, and so he bought one that had all the appearance of gold. That it is really base metal he regards as a matter of no consequence to the brides who wear it for a moment. It is a ring, and it is big enough for the finger of any bride. When Mr. Groden bought this plain plated imitation wedding ring, he said to himself that this circlet was likely to make a romantic history for itself, and so he laid it away in his desk and kept a record of the number of times it was used, and the names of the contracting parties whose nuptials were solemnized with this same ring. Marriages are reasonably frequent at Castle Garden, and, during the seven or eight years that this ring has been in use, have averaged nearly one a week. A wedding on Wednesday was the 354th in the history of the ring, and the gilt has not yet worn off.

The foremen of the various departments of the E. Howard Watch and Clock Company recently formed an association among themselves for mutual improvement, calling it the Foremen's Association of the E. Howard Watch and Clock Company. Saturday evening, February 12, they gave their first annual banquet at Young's Hotel, in Boston. The entertainment was given in one of the elaborate parlors of the hotel, which was fittingly decorated in honor of the occasion. The tables were adorned with a profusion of flowers, and were bountifully spread with an enticing variety of viands. The President of the association, Mr. James Holden, presided, and, after justice had been done to the *menu*, introduced the several speakers in a happy manner. Among those present were Samuel Little, President of the E. Howard Watch and Clock Company, C. J. Hayden, Treasurer, Albert Howard, General Superintendent, Rufus Carr, Superintendent of the clock department, W. B. Larned, Superintendent of the watch department. The foremen, to the number of twenty five, occupied seats at the table. When the cigars were brought in, President Holden introduced the declamatory exercises by briefly referring to the organization of the association, and said that during the twenty-five years he had been connected with the business, this was the first time he had ever met the foremen all together. He was confident that the organization could be made a power for good in the interest of both the members and their employers. President Little, of the Watch Company, complimented the members on having perfected such an association, and thought the company was to be congratulated on having such an intelligent body of men in charge of its various departments. He said the company had been prospered of late, and its business condition was better than ever. He spoke of the pleasant relations that existed between the officers of the company and their employees, and hoped they might continue uninterrupted. Superintendent Albert Howard spoke of his thirty years of labor in the interests of the company, and related many incidents that occurred in that time. He thought the association had an opportunity to promote the welfare of the business and of the employees, and he hoped it would rise equal to the occasion. Remarks were made by several of the other foreman, and the occasion was most enjoyable and successful in every respect.

A meeting of the creditors of Jacob Castelberg was held in the rooms of the Jewelers Board of Trade on January, 24th., and a committee appointed with power to act for the creditors. A report of this meeting was circulated by the Secretary of the Board of Trade, accompanied by a request for proof of claims in such a way as to apparently lead many creditors to suppose that the Board of Trade constituted the authorized representation in adjusting such settlement as might be made. This misunderstanding was further promoted by the later action of a self-constituted committee who were endeavoring, at Mr. Castelberg's request, to obtain a postponement of the advertised auction, it being claimed by them that the four weeks which had elapsed since the first notice was not sufficient to enable Mr. Castelberg to present a formal offer to the committee, his original offers having being rejected by the creditors and later withdrawn by his attorney. We therefore publish the following official letter from the Board of Trade to the committee, which will clear away all misunderstanding.

New York City, Feb. 21, '87.

I am directed to say that the Board of Trade can neither confirm nor oppose the action of your committee in the Castelberg matter The Constitution of the New York Jewelers Board of Trade, in Article VII., provides for the recommendation by the Board of Directors of a basis of settlement in certain cases, and provides certain steps necessary to be taken in order to acquire such recommendation. In the Castelberg matter none of these steps have been taken; therefore, the Board of Directors can take no official action until brought before them as provided by the Constitution. This case is one for individual action only, and the Secretary is requested to explain the matter to each party who has sent their claim to the Board of Trade and given them the option of endorsing the action of the committee, empowering them to act for them or not, as they see fit.

Yours respectfully,

H. M. Condit, Secretary.

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THE
JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW

Official representative of THE JEWELERS' LEAGUE *and of* THE NEW YORK JEWELERS' BOARD OF TRADE, *and the recognized exponent of Trade Interests.*

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Our Monogram Illustrations.

WE PRESENT with this issue two more pages of illustrations of monograms in continuation of the series entered upon in the February number of THE CIRCULAR. So complete a series of monograms as this will be when completed has never been published in any journal heretofore. The cost of the plates to us is an important item, but, as we have had frequent applications for something of the kind, we were convinced that they would prove valuable to the trade, and hence entered upon the publication of them. The series, when completed, will embrace combinations of all the letters of the alphabet in styles of different historic periods—Renaissance, Louis XV., Florentine and Moderne. We give two pages, with forty-eight designs to a page. It will be noticed that the artist has commenced with the letter "A," and has combined it with every other letter in the alphabet in each of the four styles referred to, so that any engraver can find in the series any combination of letters that he may desire for a monogram. In our March issue we concluded the "A" combination, and the plates this month continue with the letter "B" in all the combinations of the alphabet. It will be noted that the several styles of lettering are preserved throughout, and that all of them are neat and graceful. A customer desiring a monogram engraved on a watch, locket, ring or any other article, will be hard to please if he cannot find in these examples something satisfactory.

In response to an application for a combination of letters not yet reached in our publication, we beg to say that we are unable to furnish any of them out of their regular order. The designer has prepared them with a view to their consecutive publication, and we cannot deviate from the order in which they are given. It will be noted that the combinations follow each other in regular sequence, and their reproduction in that order is a matter of mechanical necessity so far as their publication is concerned. From letters we have received relative to these monogram plates we are confident that they are wanted in the trade, and we advise every subscriber to THE CIRCULAR to carefully preserve the entire series for future reference. They can only be obtained in connection with each issue of THE CIRCULAR, and it will soon be impossible to supply any missing numbers.

Stamp of Quality Desirable.

WE HAVE always maintained that wrought gold goods should bear a stamp, which should not only indicate their quality but should be a guarantee thereof. We have always recognized the obstacles to the general adoption of such a stamp, which obstacles are due to the almost mechanical impossibilities of stamping all classes of gold goods, but there is no reason whatever why gold cases should not be so stamped. At present consumers have no guarantee whatever as to the quality of goods they are buying. They may bear the stamp of an individual maker and also a stamp indicating the fineness of the gold, but as the use of such stamps is optional with the manufacturers, and as no penalties are attached to misrepresentation of quality, such stamps are of no value whatever to the purchasers unfamiliar with the character of the manufacturer whose stamp is affixed to the case. If instead of this indiscriminate use of individual stamps, the manufacturers of gold cases would come together and form an association for their own protection and the protection of the public, and adopt a stamp to be placed upon all cases manufactured by the members of such association, the public would soon learn to distinguish the goods so marked and have confidence in them. It would be an easy matter to form such an association. There are comparatively few manufacturers of cases, and these are mostly men of character and standing, who desire to do right and serve the public faithfully. Entertaining such ideas of their responsibilities as business men, it would seem to be a simple matter for them to come together and organize an association, and arrange for the mutual use of an association stamp indicative of quality. But should an agreement be made, it would be necessary to provide a fund for necessary expenses, and to secure this, a royalty should be charged for the use of the stamp, and penalties for violations of the agreement, for without a penalty for its misuse, the agreement and the stamp adopted would be of very little value. It would seem to us that an association of the manufacturers of gold cases might, after adopting such stamp, provide for the employment of a commissioner or representative who should have power at any time to visit the factories of the members, inspect their

cases, assay them from time to time, and in case he found that the stamp of the association was being improperly used, to report the offender for discipline by the association. The penalty should include heavy fines for every unjust use of the association stamp. While there should be no attempt on the part of the association to dictate to manufacturers what should be the quality of their procucts, yet it should have power to see that whether the cases be 8, 10, 12, 14, 16, or 18 carats fine, they should be stamped in accordance with the facts and sold for their actual value. The complaint among the trade and among purchasers is not so much against cheap grades of cases, for there is a legitimate demand for them, as it is against misrepresentation of quality—ten carat cases being stamped 14 carat, and gross misrepresentation and even positive fraud entering into the handling of such goods. Dealers are no better protected in this respect than the general public, for they are no better able to detect deterioration of quality without applying tests, than are the public. The Hall mark used in England is accepted by the trade and by all purchasers as a positive guarantee of the quality of the goods upon which it is affixed, and while we have nothing in this country assimilating in character to the Hall mark, it is evident that the manufacturers themselves must maintain public confidence in the character of their goods, and this we believe can be done by a combination such as we have suggested and thus positively guaranteeing the quality of their goods.

That there is a demand for goods of the highest quality is conceded by all familiar with the trade, but the trouble in catering to such demand lies in the fact that there has been so much fraud practiced by the manufacturers and dealers in cheap and bogus goods, so made and stamped as to represent better goods, that the public has to a large extent lost confidence in all goods assuming to be made of gold. The case makers as much, if not more, than any other branch of the trade has suffered in this respect, for it is a well-known fact that the deception practiced in the manufacture and sale of gold cases has been something simply astounding. As a consequence, all the manufacturers have been brought under suspicion, and it behooves them, as they value their future success, to adopt some measure to restore the public confidence in their productions. To this end the adoption by them of a combination stamp of quality would conduce more than anything else that could be devised. With such a stamp of quality adopted by the manufacturers, the dealers would not have to become the guarantors of every article sold, but, on the contrary, the public once being familiarized with the stamp of such an association it would become requisite in the trade that all gold cases should be so marked. It would in a very short time become as familiar to the purchasing public as the Hall mark of England, and cases not so stamped would find but a slow sale. We have heretofore and frequently pointed out the manner in which dealers and the public are defrauded by certain unscrupulous dealers and manufacturers, who put forth goods not of the quality represented, and in various ways debase the quality of their goods, but it is not necessary to here repeat all the "tricks of the trade" from which so many legitimate manufacturers suffer. They have to stand the odium cast upon the trade because of the derelictions of these unscrupulous manufacturers. The sure remedy for all this would be the adoption by honest dealers of a stamp of quality to be affixed, under proper conditions, on all gold cases manufactured by them. While we object to combinations in any line of industry on general principles, we should be very glad indeed to see a combination among the gold case makers for the adoption of a stamp of the character suggested, because we are confident that such a course would tend to benefit the trade. We are equally confident that such a stamp once introduced to the public, by makers of gold cases, there would spring up a demand for similar markings on all kinds of gold goods, for once let the public be educated to know that there is a stamp indicative of quality, and which is a guarantee against misrepresentation and fraud, and there would go up a demand for a like certificate regarding the character of all goods made of the precious metal. In the absence of laws governing such matters, the trade should for its own protection, and for the preservation of its good name, adopt measures for themselves to take the place of laws. Custom is sometimes stronger than legal enactments.

Organized Robbery of Jewelers.

IT IS, PERHAPS, too much to say that the burglars and thieves of the country have formed a combination to rob jewelers on every possible occasion, but the great number of such robberies that have occurred during the past few months, leaves no other conclusion reasonable than that they have come to recognize the fact that a jewelry store usually offers greater inducements for the practice of their nefarious operations than any other establishment in the same locality. The number of robberies of jewelry stores within the past year would run well up into the hundreds if a correct list of them could be made, and we venture the assertion that no other particular industry can show a record of one-half as many. It is natural that this should be so, for the goods carried by jewelers are usually of great value, are not bulky, are no better protected than any other class of stocks, while the pawnbrokers and the melting pot offer unusual facilities for disposing of the proceeds of a robbery. Every dealer in the country owes it to himself to provide every possible safeguard against the depredations of the criminal classes, and we presume that they all think they do provide all that is necessary. But the fact remains that, in spite of all precautions, the robbery of jewelers is still apparently on the increase; so much so that we despair of keeping track of them.

The manufacturing and wholesale trade appreciate the difficulties which beset the retail dealers in this respect, and some time ago perfected an organization to aid them in their contest with professional burglars. This organization is the Jewelers' Security Alliance, to which we have made frequent allusion in previous issues. Recognizing the fact that when a jewelry store has been burglarized and the owner despoiled of his stock, he is not likely to have the heart or be in a condition to follow up the robbers with the utmost vigilance, the Alliance proposes to supplement his efforts, if he is a member, and to leave no stone unturned to capture the robbers and recover the stolen property. It is, in fact, an association of jewelers for mutual protection. Arrangements have been made with Pinkerton's detective agency, in accordance with which whenever a member becomes the victim of burglars, the best detective ability in the country is at once set to work to trace down and capture the guilty persons. The Alliance assumes the entire expense of the chase, capture and prosecution of the thieves, and has been so unrelenting in its efforts to put these depredators out of the way, that half a dozen notorious jewelry robbers are now serving sentences in the States Prisons. It is their purpose to bring upon those who prey upon the jewelry trade such swift and condign punishment as to deter others from attempting it. As we have remarked, this is a mutual organization for the protection of its members; there are no expenses outside of those incurred in the prosecution of depredators upon the trade; all the officers give their services gratuitously, and are always ready to devote as much time to its affairs as may be necessary. Appreciating the advantages that members have already derived from it, we are desirous of seeing its membership so extended that every dealer in the country will enjoy its protection. It costs but little each year to maintain a membership, but the small sums each individual pays in enables the Alliance to prosecute its work with vigor. No dealer can claim immunity from burglars; he may have escaped their attentions for years, which is all the more reason for anticipating an early call for them. Even the banks, which are supposed to be burglar proof, cannot escape the sharp eyes and sharper work of the professional burglars, and the stock of the average jeweler offers far less obstacles to be overcome

than the average bank. We have become thoroughly impressed with the important part the Alliance has assumed in consequence of the large number of robberies of jewelers that have occurred of late, and we earnestly urge every reader of THE CIRCULAR who is not a member to send in his application at once.

More Stringent Measures with Insolvents.

EVENTS of recent occurrence within the trade seem to indicate that there is a determination to take stringent measures in all cases of insolvency to compel the delinquent debtor to deal honestly and fairly with his creditors. In years past so much laxity has been displayed in compromising with every one who found it either necessary, or expedient to fail, that the idea has gone forth that the jewelry trade had rather compromise with an insolvent debtor at twenty cents on the dollar than to receive one hundred cents on the dollar from a man who runs an honest business. This laxity has cost the trade many thousands of dollars, and has also encouraged many unscrupulous persons to engage in the business with preconcerted plans of failure in view. It has only been necessary, heretofore, for a dealer to come to New York and say to his creditors that he was unable to pay them in full, offer what he thought he could afford, and thus effect a compromise of his liabilities for a few cents on the dollar. Every creditor seemed not only willing, but anxious to "sign off" his claims, and to exhibit by his alacrity in so doing his anxiety to receive new orders from the same person. It has been an easy matter for a dealer proposing to fail to make his near relatives preferred creditors, transfer to them the better part of his assets, and, after being released by his creditors, resume business with a better stock of goods and better credit than he had before his failure. Since the first of January there have been several important failures where these tactics of the insolvent did not work as satisfactorily to him as had been hoped or as had been the rule in the past. On the contrary, when the debtor has come forward with his statement and his offer of compromise, there has been manifested a disposition to put ugly questions, and to subject the individual to considerable embarrassment in answering them. There have been those who "wanted to know, you know," and who would not be satisfied without personal investigation. As a consequence, in several instances, committees of creditors have taken the matter in hand, proceeded to the scene of delinquency, and by persistent investigation, have unearthed the small African that was concealed in the woodpile. The result has been that the preferred creditors have disgorged their ill-gotten gains, and the over-smart debtor has been obliged to increase his payments in order to secure his release. Our columns have contained the particulars of some of these settlements, and it is unnecessary to particularize them here, but they tend to show that the trade proposes to look for its own interests a little more sharply in the future than it has in the past, and that insolvents, hoping for their clemency, will need to come before them with clean hands. We have heard this determination very emphatically expressed of late, and we are assured by certain ones that they will never "sign off" a claim again without a thorough investigation having been made by the creditors. The good work done by the Board of Trade in keeping itself informed regarding black sheep or suspected persons, has made it possible for members of the trade to act with greater intelligence in insolvency cases; and being associated together in that organization makes it easier to obtain united action than it ever was before. When a class of merchants is so liberal in the matter of credits as is the jewelry trade, they ought to have unusual protection against those designing persons who would take advantage of their liberality. We hope this is to be so in the future, and that the losses to the trade by bad debts will steadily decrease from this time forth.

While there is a determination to investigate all cases of insolvency very thoroughly, there is no occasion for the dealer who has had a bad business, and is, in consequence, unable to meet his obligations, being apprehensive that he will meet with anything but the greatest consideration at the hands of his creditors. They are always full of sympathy for an unfortunate man, and will do their utmost to put him on his feet again; but for that other class, that comes forward with guile in its heart and a cheap compromise in its hand, there will be but little mercy. The manufacturers and jobbers in the jewelry trade are willing to take any reasonable business chances—indeed, they are more accommodating in the matter of giving credit than almost any other class of merchants—but that does not furnish a valid reason for expecting them to join hands with swindlers, and aid them in reaping a harvest of wealth from their crimes. Unwittingly they have, in many instances in the past, given countenance to some stupendous frauds perpetrated by insolvent debtors, but from present appearances they are not likely to do so in the future. No honest debtor can object to a thorough investigation of his affairs, and the other kind should be forced to submit to it. To weed out those dealers who do not expect to pay their debts dollar for dollar is to relieve the retail trade of a kind of competition that is ruinous to them and against which they cannot be expected to make headway. When it comes to be understood that every failure in the trade will be searchingly investigated by a committee of creditors, and that there is little hope for fraud to escape detection, it will be greatly to the advantage of the retail dealers who seek to do a legitimate business and expect to meet every obligation at maturity.

The Government Buying the Trade Dollars.

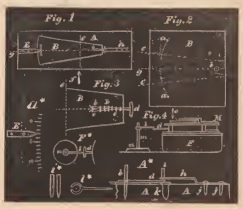
A BILL WHICH passed both houses of Congress at its recent session and received the signature of the President, provides: 1. That trade dollars, not defaced, mutilated or stamped, shall, on presentation to the Treasury or any Sub-Treasury, be redeemed, dollar for dollar, in standard silver dollars or subsidiary silver coin. 2. That the period of such redemption shall not extend beyond six months after the enactment of the law. 3. That the trade dollars thus redeemed shall not be re-issued, but shall be coined into standard silver dollars. 4. That the trade dollars thus purchased by the government shall not be counted as any part of the silver bullion which, under the silver law of 1878, is required to be purchased each month for coinage into standard silver dollars. This law puts an end to the discussion of the trade dollar question, the silver men and the speculators in silver having carried their point in inducing the government to buy up the issue of this bastard currency that was never intended to take the place of actual money, but was designed originally as a medium of circulation in China and for swindling Chinamen. But that particular chicken soon came home to roost, for speculators soon bought up the fraudulent dollars in China and flooded this country with them, thereby making enormous profits. But after a time the business community refused to accept them at any price, and since then pressure has been brought to bear to compel the government to redeem them. Then the silver men, who have a bonanza under the law that compels the Treasury Department to buy silver bullion at the rate of two millions of dollars a month and coin it into standard dollars, were fearful that if the government bought up the debased trade dollars the amount so purchased would be deducted from the amount of bullion it was required to buy, so they antagonized the trade dollar bill. But at last a compromise was agreed upon, and the silver men and the trade dollar speculators struck hands upon the bill above referred to, which requires the government to purchase the trade dollars without deducting the amount so purchased from the amount of bullion required to be purchased monthly. The amount of trade

dollars subject to redemption under the provisions of this bill, is about $36,000,000, a greater portion of which is in China, but the time within which they can be presented is sufficient to enable the speculators to buy them up and get them over here. It is not believed that more than $6,000,000 of them are in the country at present, but five times that amount will be redeemed before the time expires. Already notice has been given to the Treasury Department for the redemption of several millions, and within a week after the law went into force offers of about three millions had been filed. The alacrity with which these trade dollars are tendered for redemption shows that the speculators have been assured of the ultimate passage of their bill, and stood ready with bags full of the bogus money to pour into the Treasury as soon as it should become a law. While the whole thing is a job and a swindle of the worst character, it is a good thing to have the question definitely settled, and these infamous coins put out of the way where they can no longer be used to rob the honest industry of the country. The standard dollars are bad enough, being worth somewhere approximating their face value, and the faith of the government is pledged for their redemption, which was not the case with the trade dollars. But all legislation relative to the coinage of silver plainly indicates that the owners of silver mines regard the government as their best customer, and, by means of their votes and their lobby, are determined to make it purchase their products whether they are required or not. As the laws now stand, the government is obliged to purchase and coin into standard dollars $2,000,000 a month of silver bullion, and, in addition, to purchase and re-coin trade dollars to the value of probably $20,000,000 during the next six months. As things now look, these silver kings, who seem to have their clutches on the throat of the government, are determined to make silver the standard of our currency and to drive out gold, leaving that to become an article of merchandise instead of the solid standard of value upon which our currency should be founded. With silver the standard and gold demonetized, further demoralization of our financial system would scarcely be possible. The time is bound to come, however, when the people will recognize that this whole silver business is a stupendous job, conceived and maintained in the interests of the owners of silver mines, who can afford to spend millions of dollars in securing such legislation as provides them a market for their products, the equal of which could not be found on the face of the globe. When the people once get fairly aroused on the subject, there will be such a revolution in our financial affairs as will tend to make silver one of the cheapest commodities in the market.

Problems in the Detached Lever Escapement.

BY DETENT.

FOR DIVIDING the index to the little device for testing the angular motion of a lever fork, we, of course, will have to resort to something quite simple and inexpensive, as in all probability we should never have occasion to use it again. We cannot well divide the index closer than to degrees, as even this will make our divisions less than $\frac{1}{16}$ of an inch; still, with these divisions, we can judge of ½ a degree with a good deal of certainty. For our temporary dividing machine we take a piece of ½ inch board (some soft wood) 2 inches wide and 6 long; on this we arrange the parts as shown in fig. 1, where *A* represents the ½ inch board and *B* a piece of card board divided into 14 degrees. To make the card board *B* we take a heavy firm piece of Bristol board 4 inches square, as shown at *B*, fig. 2. We make a puncture with a needle of about the same size as a pallet staff (which would be a No. 5 or 6) at *b*. From this puncture (at *b*) we sweep the curve *a a*. Of course, our dividers, which sweeps this arc *a a*, contains just 60°, as has been explained in former communications. We set off the 60 from *a* to *a* and divide it into 6 equal parts as shown. Of course, each of these parts contain 10°, and it makes but little difference which of the 6 spaces between *a a* we select to divide into 10 equal parts representing degrees. The arc *a a* should be swept with a pair of dividers set at 3 inches, and the arc shown at diagram *A** is swept with dividers set at this space. The two supplementary spaces shown above 0 and below 10 are added to measure my arc of pallet action above to. The card board is now cut out to about the form indicated at the dotted lines *c c*, fig. 2. Our next care is to attach the device shown and described in the January number of this journal, to the bit of card board we have just divided. At fig. 3 is shown the little steel arc *d* to be divided, and a portion of the card board *B* as if cut on the dotted line *c*, fig. 1. It would not be amiss to say fig. 1 is ¾ the actual size and fig. 3 the real size. To attach the measuring instrument *D* (shown in January number) to the card board, we place a No. 5 needle in the puncture at *b* and apply *D* as if to a pallet staff; we now, with a fine needle and thread, sew *D* fast to the card board precisely as watch hands are attached to a card. After *D* is sewn fast to *B*, we take some shellac dissolved in alcohol until quite thick and paint over the stitches shown at *c c*. Next dry the shellac over a lamp, and we will find *D* and the card board *B* firmly united. It will be seen that the arcs *d* and *a* have a common center at *b*, and if we divide *d* from the spacing we have made on the card board are *a a*, the divisions on *d* must be correct. If the device *D* is on the



upper surface of the card board *B*, the steel index *d* will lie a little above the surface of the board *A*. At diagram *A** is shown an edge view of fig. 1 as if seen in the direction of the arrow *f*. At *h*, diagram *A**, is shown a needle thrust through the common centers of *D* and *B* into the board *A*; on this needle the card board index will turn freely, moving *d* proportionately. The next thing needed is something which will space *d* off as we move our pasteboard index *a a*. To do this we take a piece of, say, No. 20 mainspring, about an inch long, and bend it so if seen edgewise it will appear as shown at *h*, diagram *A**. We soften the piece of spring *h* so we can bend it, and also drill and tap a hole at *i* which will admit a short piece of No. 5 needle, which is shaped into a sort of cold chisel as shown (magnified) at diagram *i**. The opposite end of *h* from *i* has two holes punched, into which are driven two short pieces of common toilet pins as shown at *j j*, diagram *A**. The piece of spring *h* holds the punch *i* over the little index *d* as shown. Underneath *d* is placed a small wood screw *k* screwed into the board *A*, until the head is nearly on a level with board *A*. Indeed, the screw head rises just enough to compensate for the thickness of the card board *B*. On this screw head *k* the index *d* rests, serving as a stake or anvil on which *d* rests, when *i* is struck a light blow with a small hammer, making sharp indentations to represent degrees. If all the arrangements are made as directed and the point of *i* properly hardened, the marks will be clean and distinct, enabling us to judge of even ¼ of a degree. For reading off the degrees on the paper index *a a*, a

short piece of pointed mainspring, as shown at *E*, diagram *a**, and fig. 1 is used. This bit of spring also serves by friction to hold the paper in place, as well as to perfectly mark the degree. After the parts described are in position, the point of *E* is set over the first mark on *a* and the bit of needle *i* struck a light blow; then the index *a a* is moved another degree when the blow on *i* is repeated, and so on until the 14 degrees are transferred to *d*. The only *nice* or delicate point in this is to make the index *d* soft enough to receive the marks, and yet have the clamping jaws of *D* for clasping the pallet staff hard enough to be elastic. But after the attention is called to it, this is easy enough to accomplish by drawing the temper of *d* a little lower than the rest of *D*. The degree marks at 0, 5 and 10 can be extended so as to make these points conspicuous; but there need be no figures as shown in the cut. These were only used to illustrate. Now for using our instrument in testing an escapement. We take a disc of metal (say of brass) about ¼ of an inch in diameter and from an eighth to three-sixteenths thick; into this we insert a steel pin about ¼ of an inch high. The disc *m* and pin *n* are shown in fig. 4. The pin *n* is smooth and of the same size from end to end, to allow the index hand *l* to be moved up and down to correspond to the index *d*. This index hand is simply a Swiss hour hand filed open on one side of the socket, as shown at diagram *l**. At diagram *l** is shown a view of the index *d* and index hand *l*, attached to the stand *n* as if seen in the direction of the arrow *o*, fig. 4. In testing an escapement we take a movement and remove the hair spring, putting the balance back in place; then put the device *D* shown in cut to January number, on the pallet staff, letting it (*d*) extend outward. We now lay the movement down on a movement box as shown at *F*. We place the index hand *l* so it is situated as shown in fig. 4 and diagram *l**. If the movement shown at *M* is wound, the balance (without a hair spring) can be turned until a tooth escapes; and we can leave a tooth resting on either pallet as we please. We will suppose we take our movement and bank up to the drop, as has been described in former articles, and leave a tooth resting on the entrance pallet; we place the movement as shown in fig 4; we next set the hand *l* so it points to o on the index *d*. We now move the balance so we get the watch to escape, when the index *d* will move past the hand *l* to 10 degrees on the index *d*, if the pallet action is all right. We have now got our testing device in working order, and in our next communication tell how to measure exactly the lock and impulse angles.

How to Become a Skilled Optician.

[Edited by C. A. Bucklin, A. M., M. D., New York.]

I TAKE GREAT pleasure in publishing an essay written by one of my students, E. H. Ayres, of Elmira, N. Y. The essay is upon the most difficult subject connected with defective vision. Mr. Ayres' entire knowledge of optics, as applied to the correction of refraction and accommodation, has been gained during a private course of two weeks. He has treated the subject with credit to himself.

The second class has finished their course of instruction. It consisted of Lyman Thompson, Cherry Valley, N. Y.; W. P. Sedgwick, Bath, N. Y.; T. J. Morrow, Holyoke, Mass.; Henry Aürnhammer, Newark, N. J.; Otis W. Bailey, Calais, Me.; Chas. Prentice, N. Y. City. The essays written by these students demonstrated that they had a thoroughly practical knowledge of the subject of optics, as applied to the correction of errors of refraction and accommodation.

The *third* class commenced March 10; the following are the names of the students who have joined the class: Ewing Smith, Nashville, Tenn.; L. F. Guyott, Malone, N. Y.; A. R. Vanderbilt, Amsterdam, N. Y.; H. C. Sammis, North Port, L. I.; Philip Zoellner, Portsmouth, Ohio.

The *fourth* class is expected to form on March 31.

The *fifth* class will commence April 21, should the requisite number of students apply. From a pure desire to have all students successful, financially, in all towns under ten thousand inhabitants I refuse to take but one student during the first year, and I use my utmost influence to prevent two students from ever settling in a town of less than fifteen thousand inhabitants.

Some of the students of the first class are meeting with remarkable financial success.

As one application from a given town blocks any more students from coming from that town, those who earnestly desire to become skilled opticians should apply early. Ten dollars should accompany the application to insure good faith; the balance should be paid seven days before the class commences. The necessity for this is evident. I must have time to notify all students of a failure of the class to form.

MUSCULAR ASTHENOPIA.

BY E. H. AYRES, ELMIRA N. Y.

Muscular asthenopia is a condition of the eyes in which one or more of the muscles fail to perform their proper functions. This state causes a disturbance in the muscular equilibrium of the two eyes, so that they converge with difficulty at any near point and very often at any far point, thus causing weak vision.

There are six muscles which move each eye ball, viz.: the internal rectus, which moves the eye inwards; the external rectus, which moves the eye outwards; the superior rectus, which moves the eye upwards; the inferior rectus, which moves the eye downwards; the superior oblique, which moves the eye downward and outward; and the inferior oblique, which moves the eye upward and outward.

The action of the internal recti muscles is to draw the eyes inward, and the action of the oblique muscles, acting together as to turn the eye outward, is to draw the eye so the two sets of muscles act in direct antagonism to each other. The motion inward is greater than the motion outward, and the motion downward greater than the motion upward, so there is an increased tendency for the eyes to converge when looking downward, and an increased tendency to diverge when looking upward.

These six muscles, when they work harmoniously, allow the eye to rotate around any axis passing through the center of motion, which is a fixed point in the eye, and also direct the optic axis toward the object to be seen. So when the muscles of each eye are normal and thus work in unison, there is an equilibrium established between the two eyes so they will converge upon the same point, near or far. This is called the point of fixation. The rays of light from the point of fixation will strike the same relative point upon the retina of each eye simultaneously, thus carrying but one impression of the object seen to the brain. If one of the muscles of the eye is too weak, the eye ball is pulled in the direction of the stronger muscle on the opposite side of the eye, or, if one of the muscles has a preponderance of strength, then the eye is pulled too far in that direction. This is called muscular insufficiency, or the lack of power to converge upon a fixed point.

For example, if the internal rectus is too weak the eye ball will be drawn outwards, or, if the external rectus preponderates, convergence will be difficult.

Now, every point on the retina locates rays of light as coming from a certain direction. Rays of light from an object which strike a given point on the fovea centralis, or yellow spot, are located in the brain as coming from straight ahead. Rays of light striking the retina directly to the left side of the yellow spot, will be located as coming from a direction to the right of the eye. When muscular insufficiency exists, the optical axis of each eye is directed in a different direction, and rays of light from the same object will strike the retina of each eye on relatively different points. The harmonious relation of the two eyes is thus destroyed, and the impression of a

confused or double image is carried to the brain. To illustrate the above, if the external muscle of the left eye preponderates in a person, the following effect can be shown: When he is told to look straight ahead at a candle 15 feet distant, the impression of its form and shape will fall upon the center spot of the right eye, and consequently his sight will locate the object as straight ahead. But the left eye being drawn out, the impression will fall upon the retina to the left of the center spot. And if the preponderance of the external rectus be considerable he will see two objects, one straight ahead which his right eye sees, and one across to the right which his left eye sees; the image to the right being the fainter of the two.

All persons who have weak vision from this defect have muscular asthenopia. It may result from severe illness or disease, paresis of one of the muscles, continuous and severe strain, or it may be hereditary. It is found sometimes in an emmetropic eye, sometimes in a hyperopic eye, but most often in a myopic eye. Persons who suffer from muscular asthenopia complain of their eyes becoming easily fatigued, of pain in the eyes and forehead when doing close work, of difficulty in converging on near objects and of confused and double vision. If such a person should come to us for relief we would test his eyes for lateral displacement in the following way: We seat him about 15 feet from a lighted candle, and put a red glass in front of his left eye and a prism of 8°, with the base directly upward. If there is no insufficiency, the red image will appear directly under the white image. If he sees the red image to the right, his right or left eye is affected or turned out, and we determine which eye is affected by moving the light to the right side. If the images come together it will be the right eye which is affected. If they move apart it will be the left eye which is affected. The amount of insufficiency can be measured by the degree of prism required to correct it. If the insufficiency is 10°, two prisms of 5° before each eye, with the bases turned exactly inward, will correct it. So we can correct such cases as above with prisms. There are also other cases (though rare) in which the superior, recti, and the inferior, oblique, are affected. When the superior oblique or inferior oblique is alone affected, an object will appear slanting to the eye. Nothing can be done for such cases, unless they are of recent date, when complete rest and medicines may effect a cure. In vertical or lateral displacements where the insufficiency is too great to be overcome with prisms, an operation called tenotomy may be performed by a skillful surgeon, which often meets with the most satisfactory results. A description of this kind of treatment lies entirely outside of our text. We now come to muscular asthenopia as found in the emmetropic eye. A person may have weak external recti and not suffer from asthenopia. In such a case if they cannot overcome more than a prism of 2° or 3° with the base turned out, their eyes very often have a certain steadfastness of look easily recognized by an expert. When they wish to look to one side they will turn their head. If the external recti were paralyzed double images would be seen. If the internal recti were paralyzed crossed images would be seen. The first would be a case of convergent squint, and the second a case of divergent squint. We have already shown under previous head how to detect and correct this. Muscular asthenopia is frequently found combined with hyperopia. When these two errors are found, the internal muscles and the accommodation of the eye act so closely in relation to each other, that very often, if we equalize the action of the muscles with prisms, we relieve a great amount of strain. Suppose we test a hyperopic person with test type and find their manifest hyperopia very slight indeed, the glass to correct it giving no relief at all. We atropine the eye and find a large amount of latent hyperopia (say the test shows $\frac{1}{8}$) which glasses we give. Still he returns to us complaining that he cannot read without fatigue, and that there is an unpleasant feeling of tension in the eyes. As there is no obscurity nor astigmatism, we suspect muscular asthenopia and make our test, finding such to be the case. We then put on prisms of 4° each, bases in combined with a $\frac{1}{8}$ convex lens when he has no further trouble. We find muscular asthenopia most frequently in myopic eyes. Myopic eyes, owing to the nearness of the far point of distinct vision, require a higher degree of convergence when fixing upon objects. In addition to this, the form of the eye being longer, it requires more muscular effort to move the eye. It may happen that there is no muscular asthenopia in a young person who has myopia, but, as the myopia progresses rapidly, the time may come that the far point of distinct vision is so near that it requires most energetic muscular exertion to fix both eyes at this near point. We will close by giving an instance of a lady who does considerable literary work. To lose the use of her eyes would cause her to lose her vocation. She consulted an oculist in New York who carefully measured her myopia and found it to be $\frac{1}{8}$. She, however, can not read through these glasses. In fact, all concave glasses make reading more difficult. To use her own words, she can see better without any glasses, but she tires easily. By closing one eye the asthenopia disappears, because there is then no requirement for convergence. Muscular asthenopia certainly existed, but as she could not use concave glasses for near vision, simple prisms of 4°, bases in, were given her. This acted like a charm and she went away happy. Sometimes concave glasses may be so placed as to produce sufficient prismatic effect to relieve muscular asthenopia caused by slight muscular defects.

I publish the following letter as it teaches to opticians a most practical lesson which can not be learned from books, and which requires years of experience to learn.

February 17, 1887.

Dr. Bucklin:

My attention has been called lately to two cases of converging squint in children under six years old, and I am certain that in both cases it is due to hyperopia. I offered and recommended tests and glasses, but that was the last of either case. Of the first case (a girl) I learned that the family physician had forbidden glasses as ruinous to the eyes of one so young. Another case of strabismus, in a young boy, was taken to five different physicians in the place, and they all agreed that the use of glasses would be ruinous to the eyes of a child. They advised waiting till the eye "was set."

Last week one of these reputable physicians, a graduate of two colleges and practitioner of 30 years, sent a lady to me with well-marked iritis and adhesion to lens in both eyes. This case was sent with instructions to "please fit with glasses."

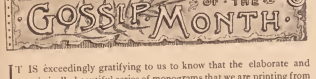
This is one of many cases from over twenty reputable physicians. What do you think of it?

Family physicians have thoroughly gained the confidence of their patrons. The influence of the family doctor is invaluable to the skilled optician if with him, but it will also prevail where the opinion of the doctor is opposed to the optician. The writer of the above letter has shown the most profound ignorance of human nature, a knowledge of which is absolutely necessary to succeed in any calling. If the writer had said to the person having a cross-eyed child, I will see your doctor about that child. I think, with his help, we can cure the child. Next, he should have carefully explained to the doctor that the child, in addition to having an eye so short that he could see at a distance through his grandfather's spectacles, had also a weakness of the muscles which a tonic of iron would help, then explained to the doctor that it is impossible for such a child to see distinctly without looking cross-eyed, and with the glasses on it would be impossible for the child to see distinctly without trying to look straight; he should also tell him if he would prescribe the tonic and advise the use of proper glasses he could probably cure the strabismus. Such management would have shown a great head. This little bit of diplomacy would fasten that doctor to him for the rest of his life.

In the case having well-marked attachments of the iris to the lens, he should have explained to the doctor that these adhesions took place at some previous period when the iris was inflamed, and also told him that the books all said that persons having such eyes should

be treated energetically for syphilis or rheumatism. The optician should have given proper glasses, if any were of service; if not, he should have given colored glasses and turned the patient over to the doctor, after having requested him to look into the affair. I can confidentially state that all the text books in his office would have been investigated, and when he convinced himself that the suggestions were right, he would think well of them without ever telling him about it.

Never tell a confidential friend one word about the affair.



IT IS exceedingly gratifying to us to know that the elaborate and artistically beautiful series of monograms that we are printing from month to month is being appreciated by the trade. We have received many letters of commendation, and numerous new subscribers have sent in their names, requesting to be supplied with the back numbers of THE CIRCULAR containing the first of the series. When these monogram plates are all printed, our subscribers will be in possession of a volume of monograms that would cost them in book form, provided it could be so obtained, not less than fifteen or twenty dollars. There are but few artists who would take the trouble to design such a series of initial letters, representing six different styles, thus giving to an engraver perfect and elegant copy to work from in furnishing his customers with monograms. Any one at all familiar with printing will see at once that the production of these plates subject us to very great expense, as the designs have to be reproduced on metal plates from which we can print. The paper on which they are printed is fine and heavy, selected with a view to the removal of the plates from the volume and permitting their being put into an album or scrap book by their possessor. We would suggest that subscribers obtain what are called ready binders, which are so arranged that sheet after sheet can be placed between covers, thus keeping them clean and ready for reference at a moment's notice. The series embraces every letter in the alphabet arranged in combination with every other letter, in six different styles, and he will be a hard customer to please who cannot find in this series a monogram that will satisfy him. We shall print each month two pages of these monograms until the series is complete. To non-subscribers who would like these plates, we will say that by sending us $2 for one year's subscription to THE CIRCULAR during the present month we will date their subscriptions from April 1, and send them gratuitously the February and March plates, thus giving them the full series of monograms. We venture to say that the trade will never have such another opportunity for obtaining a full set of artistic initials as is here offered. They were designed by M. Fougeadoire, a Parisian artist of note, who has published them in elaborate book form, few of which have reached this country. As presented by us, the cost is reduced to absolutely nothing to our subscribers.

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THE suggestion made by us last month that the reconstruction of the Equitable Life's magnificent building on Broadway offered unusual facilities for the formation and location of a Jewelers' Club has taken root, and efforts are now being made to give force to the idea. Armed with THE CIRCULAR, some gentlemen identified with the trade called upon Mr. Hyde, President of the Equitable, and talked over the matter with him. He at once fell in with the suggestion, and designated an elegant suite of rooms in the building that would be especially adapted to this purpose and gave them the refusal of it, at the same time promising to aid them in organizing the club in any way possible. A committee was at once formed to present the subject to the trade and ascertain how large a membership could be secured. Responses have been received from a large number, all favoring the plan and submitting their names for membership. There seems to be no reason why the jewelers should not successfully organize a club down-town as well as the lawyers and the insurance men, both these special lines of industry having already organized clubs with a numerous membership, and secured rooms in the Equitable Building. A Jewelers' Club thus located would be headquarters for the trade, both local and transient, offering a place both convenient and elegant for members to take their friends or customers to get dinners or lunches. But the great advantage would be found in having a place for the members of the trade to get their daily lunch. At present they haunt the restaurants and lunch counters, where they bolt a hasty and ill-prepared lunch among unsavory odors and unappetizing surroundings. To this haste and discomfort with which they swallow their lunches, members of the trade can trace pretty much all the dyspepsia and other ills with which they are afflicted. The clubs in the Equitable Building will have their own private dining rooms, furnished in superb style and with elegant surroundings in every particular, while meals will be served at reasonable prices from a restaurant in the basement of the building, connected with the club rooms by dumb waiters. Mr. Hyde says that this restaurant is to be the finest, largest and most complete establishment of the kind in the world, and that, while it will be open to the general public, the clubs will have the preference both in the matters of service and prices, meals being served in the club rooms at a reduction from the prices charged in the public rooms. The Equitable Building is conveniently situated to accommodate the trade, occupying the entire front on Broadway between Liberty and Pine streets, and running through to Nassau street. On the ground floor there are avenues opening into each of these streets, thus virtually making so many new thoroughfares for the use of the public. The rooms designed for the Jewelers' Club are on the seventh floor, near the other clubs mentioned, and will be divided so as to give reception rooms, reading room, a dining room, and offices for the business uses of the club. Members could drop in here for their lunches at any hour with a certainty of meeting a friend to enliven the time while taking their meal, discussing phases of the business and getting "pointers" for future use. It would make a convenient rendezvous for buyers when in town, and might, also, be made headquarters for the various organizations in the trade—in short, the Jewelers' Club, if finally formed, is bound to be the nucleus around which will gather all other features of interest to the trade, at the same time providing a place of resort that will be exceedingly popular. Other industries are recognizing the advantages of having these down-town resorts, and the stock brokers, produce brokers, the leather dealers in "The Swamp," to say nothing of the well-known Down-Town Club, have found the advantage of having a place of daily resort in which they can meet together for chat and gossip, to say nothing of getting a good meal that does not presage an attack of indigestion, dyspepsia or nightmare. Appearances at present indicate that the movement for a Jewelers' Club will be successful, and certainly it ought to be, for we know of nothing better calculated to promote good-fellowship among members of the trade than an opportunity to meet on neutral ground and talk over matters, and cultivate more intimate relations with each other of both a business and social nature.

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WITHIN the past five years there has sprung into existence in the United States an organization known as the Knights of Labor, which, though originating in well-meant but mistaken ideas

as to progress and philanthropy, has developed into a gigantic evil. It seeks to accomplish nothing less than the absolute enslavement of labor of all kinds, and to degrade the skilled artificer to the level of the common laborer. If left unhindered to pursue its course it would ultimately subject all classes of workingmen to the tyrannical will of men unknown and unlearned in aught but distorted notions of the great social problems, and responsible not even to public opinion, much less to public authorities. At the beck and call of these men, who pass their lives in what, to them, is only idleness and pastime compared to the work they would have to accomplish to earn their daily bread in their proper station, skilled artisans and unskilled laborers are expected to throw up their means of earning a livelihood and cast aside all the opportunities for profitable employment they have helped to create. And for what? The history of this organization, as far as it has gone, is a history of failures, small successes and very unimportant results to the workingmen, while its unreasonable exactions and blind and arbitrary proceedings have tended to alienate public sympathy from the great army of workers, so necessary to the welfare of the community, and whose well-being is a fruitful source of thoughtful consideration of all thinking men. But experience has demonstrated that all arbitrary and unreasonable exactions on the part of any class is sure to react to the injury of that class, and history is but repeating itself when the existing conditions indicate that the life tenure of the Knights of Labor is drawing rapidly towards a disastrous close. The mandates of its officers, as proved during the recent strikes in this city, are distasteful to intelligent workingmen, and subjected them to heavy pecuniary losses as well as to the loss of their opportunities for earning a living. Unwillingly they obeyed the orders of their leaders, leaving employment where they were receiving satisfactory wages and kind treatment, ostensibly for the purpose of aiding others in a senseless strike and forcing employers to grant unreasonable demands, but really for the purpose of enabling these leaders to show their power, and prove to workingmen that they were doing something to earn the large salaries that are paid them. To carry their point these leaders have shown a willingness to utterly crush the workingman, to drive those who do not fall into line with them from shop to shop under opprobrious titles, and force them either to the wall or into the organization. When the infamous bands of ku-klux ravaged the South, scourging and killing white men and black for their political opinions, the world looked on aghast, wondering when civilization would arouse itself and put an end to such atrocities. Finally the government interfered and brought the ku-klux to trial and punishment, as a consequence of which many of the depredators were consigned to States Prison. Yet the ku-klux never committed greater outrages than have been perpetrated by Knights of Labor in their efforts to control the labor market, and prevent honest industrious men from earning their livelihood.

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WHILE the government has not yet seen fit to interfere to prevent these outrages, the courts have not hesitated, on every occasion when they have been called upon to pronounce upon the subject, to denounce the Knights of Labor as an illegal, law-defying organization, and the acts perpetrated in its name as criminal outrages deserving of swift and severe punishment. Certain leaders of the organization having been arrested for conspiracy, the court holds that the charge is a good one, and that the accused persons are subject to the penalties provided by law for those who conspire to injure the business of another. In another case a striking Knight was sentenced to three months in the penitentiary for calling non-union workmen "scabs," and thus striving to create a breach of the peace. We recently printed certain statistics showing that every strike in which the Knights of Labor participated last year proved a disastrous failure, costing the workmen interested in them millions of dollars and the loss of permanent employment—the strikes that have occurred thus far the present year have been even more disastrous than were those of last year, for in not a single instance have they gained their point, but the workmen have been sufferers to a greater extent than ever before. All this has tended to work dissatisfaction with the organization, and appearances indicate that it is now far gone in the stages of dissolution. The leaders have, to use a common expression, "played it for all it was worth," and the rank and file are beginning to find out that it does not pay to hire master workmen, walking delegates, etc., at big salaries to lead them into trouble, involving loss of wages and loss of employment.

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IN COMMENTING upon the numerous strikes that occurred a year ago, we then said that the result would be that the injustice of the demands of the workmen and the outrages perpetrated by them in their efforts to prevent employers filling their places, would inevitably arouse a public sentiment in opposition to the workingmen, and force employers to combine for their own protection: that if such combination were made it would lead to a declaration that no Knight of Labor who had been engaged in a strike should be employed until he had renounced that organization. This prediction is being literally fulfilled. During the recent strike of stevedores and freight handlers on the steamship docks, the strikers endeavored to prevent their places being filled by non-union men, but the employers had little difficulty, with the aid of the police, in getting all the men they wanted, and then, when the strike was declared off, they refused to take back their old men under any conditions, and these were obliged to seek employment in other quarters where they were not known. Other employers who have suffered at the hands of the strikers take the same ground whenever it is possible, and retain all competent men whom they have engaged to take the places of strikers. The Knights of Labor have gone upon the assumption that the industrial pursuits of the country could not get on without the labor they control, when the fact is that for every Knight of Labor there are ten men who do not belong to that oppressive organization, who are only too eager to find employment. The Knights are beginning to learn the truth of that old saying that there never was a man so useful that some one else could not fill his place. The foreman of one of the great daily papers of this city once demanded an increase of wages, and intimated that the business could not get along without him. The manager said to him: "This paper will exist and flourish long after both you and I are dead, and the moment any man thinks his services indispensable then is the time to get rid of him." So the foreman found himself out in the cold and never was employed on that paper afterwards. There is a little moral attached to this incident that neither employers or workmen should be long in finding out.

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ON TWO or three occasions the Supreme Court of the United States has declared unconstitutional those State laws that impose a special tax in the way of a license fee upon commercial travelers. Early last month it had occasion to repeat that decision in a case coming before it that originated at Memphis. A salesman had been arrested and fined for selling goods without having paid the so-called "drummers' tax." The salesman appealed, and finally the case came to the United States Supreme Court, where it was held, as in previous cases, that a State has no right to levy a tax upon salesmen from another State that is not shared equally by the merchants of that State. This court having ruled at least three times to the same effect, it ought to be time for the States having such laws upon their statute books to cease attempting to enforce them. Such laws exist in Dela-

ware, Maryland, Virginia, North Carolina, Alabama, Louisiana, Texas and Colorado, and a very handsome revenue is derived from the enforcement of the tax, which, of course, comes out of the pockets of the merchants of other States who seek to do business in them. The Supreme Court says that all such laws are unconstitutional because they are discriminating. It is estimated that the revenues of Virginia will be decreased to the extent of $50,000 a year by the relinquishment of the "drummers' tax," and the other States named will suffer proportionately. The Traders' and Travelers' Union have asked Congress to pass a bill declaring such laws unconstitutional, but that body has not done so, evidently upon the theory that the decision of the Supreme Court is sufficient. But the trouble with this lies in the fact that the decisions thus far given deal only with the special statute of a particular State, and the others will go on enforcing their own statutes until they in turn are declared unconstitutional, thus involving prolonged litigation. Meantime, travelers would be forced to pay the tax. A proclamation by Congress prohibiting the collection of such tax in any State would at once afford the protection required. But as Congress does not seem inclined to pass such a law, we would suggest to the Traders' and Travelers' Union that they make a test case in each of the States named. Have some traveler pay the tax under protest, and then bring suit against the authorities who collected it for repayment and for damages. If the traveler would submit to a little imprisonment before paying the tax, his bill for damages could be made of good size. Such suit could be brought in the United States Court and a final decision reached without very great delay. The decision would finally be in favor of the salesman, and when these greedy States once found that the enforcement of their obnoxious laws involved them in heavy damages, they would become dead letters on their statute books. Possibly the general circulation of the Supreme Court decision throughout the States having such laws might tend to the enlightenment of the State judges, so that they would dismiss any cases that might come before them. Or, possibly, the legislatures of those States might be induced to repeal the laws. One thing is pretty sure, and that is that petty officers of the law will continue to annoy traveling salesmen, and compel them to pay the tax until some effort is made to secure the recognition of the Supreme Court decisions on the subject.

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ONE of the chief events in art circles last month was the exhibition and sale of the A. T. Stewart collection of pictures, bric-à-brac, statuary, bronzes gold and silverware, etc. The rooms of the American Art Gallery, where the collection was exhibited, were thronged with lovers of art and collectors of bric-à-brac, who found many things to admire and more to criticise. With the exception of a few very fine and costly paintings, the collection was not remarkable in this respect, except as demonstrating that enormous wealth does not always bring a critical taste to its possessor. The paintings and bric-à-brac bore the general appearance of having been selected by dealers who had unlimited orders to get together a lot of nice looking things, and did not impress one that they were representative of the individual tastes of Mr. A. T. Stewart. There were some fine examples of gold and silverware, but nothing to excel the goods on daily exhibition in the salesrooms of our leading manufacturers. Still, they were examples of superior workmanship and the designs were generally good. If Mr. Stewart had given a general order to a silversmith to obtain silver and gold ware for him, the dealer executed his order in good form and fairly earned his money, which can hardly be said of those who selected the paintings. It had been expected by many that Mr. Stewart would leave his collection as a nucleus for a public art gallery; perhaps it is as well that he did not; it is better to have it scattered than maintained to educate the rising generation to false ideas in art. There have been many exhibitions of the collections of private individuals, who made no pretensions to great wealth, that were far superior to that of Mr. Stewart, from an art standpoint, and considered in their entirety. Omitting a few famous paintings, and the collection could be equaled in almost any of the leading picture stores.

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AN IMMENSE clock has recently been put up in the Board of Trade building in Chicago, the works of which are said to be the most perfect reproduction of the works of the famous Westminster Palace clock of London, that has ever been attempted. Some changes and improvements in the mechanism were necessary to adapt it to commercial purposes, but otherwise the reproduction is said to be exact. It is constructed of iron, bronze and steel, and weighs ten tons without the bell, which will add about 4,500 pounds more to the weight. The pendulum alone weighs 750 pounds. The hammer that strikes the bell weighs 80 pounds. The dials are ten feet ten inches in diameter, and the clock work is below them, the bell being above, or 250 feet above the ground. The pendulum occupies two seconds in swinging one way.

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ACCORDING to Bradstreet's, there were in January and February of this year 166 strikes, involving 99,300 workmen, all of whom were out of employment for a considerable time. Out of 43, involving 23,522 workmen, had been settled March 1st by compromise, the workmen surrendering most of their demands, the greater part of these being the shoemakers of New England. Up to March 1st, 96 of the strikes had failed entirely, and the 59,777 men engaged in them had returned to work on the old basis or had found other employment. The remainder had not been settled at the beginning of the month when the figures were made up. This only goes to confirm the previous record, which shows that wherever the Knights of Labor interfere in behalf of the workmen, they only lead them to defeat and disaster.

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IN OUR March issue, we called attention to the fact that a bill, introduced in the legislature at Albany at the instance of the Insurance Superintendent, for the regulation of the business of assessment insurance, while intended to apply only to such associations as make a regular business of life insurance on the assessment plan, was so worded as to apply to all benefit and fraternal societies, and might affect the Jewelers' League. This bill is known as the Baker bill, having been introduced by Mr. Baker, and it has evoked the earnest opposition of the advocates of the assessment system. We spoke of the bill as being desirable in its general features, but needing some amendments in order to protect those assessment societies that are doing a legitimate business and paying their claims in full. The country, and this state in particular, is overrun with weak, if not fraudulent, assessment companies, that are organized for the sole purpose of providing salaries for their promoters. Recently, one of these went into liquidation, whereby $60,000 of accumulations were transferred to the pockets of the men who had wrecked the company, while the members were left with neither funds nor insurance. This case was the occasion for the introduction of the bill in question, the Superintendent being determined to prevent such frauds in the future, and, at the same time, compel the managers of such companies to cease doing business under false pretences. The

main features of the bill were intended to prevent the organization of companies in the future, except upon a basis that would give security to their members, while another was intended to make existing companies pay, in the event of the death of a member, the full amount named in his certificate of membership, upon which basis he had paid assessments. These features we regard as just and equitable. As most of these companies are organized solely as business enterprises, their promoters should be compelled to have in hand sufficient funds to enable them to pay such claims against them as may be legitimate and honest, precisely as they would have to do in any other business venture, and precisely as the old line life companies do. But the benevolent societies, that are in no sense business undertakings, are not managed for money-making purposes, but are economically conducted in the interests of their members, are entitled to be placed in an entirely different category. When the Insurance Committee of the legislature granted a hearing to the opponents of the Baker bill, Superintendent Maxwell expressed his willingness to accept an amendment that would exempt the benevolent societies from the operation of the bill in case it became a law. Such an amendment would remove any objections the friends of the League might have to the measure. The friends of the assessment system, however, raised so many objections to the bill, and urged them with such vigor before the committee, that it is doubtful if it is even reported to the legislature by them. Whoever has a membership in any of these societies will recognize the importance of having some further restraints imposed upon the officers, who are now at liberty to make assessments when they please, dispose of the money as they see fit, and scale down claims whenever they can bulldoze a beneficiary to take less than his certificate calls for. There are several assessment societies in this city that have been in existence several years, that have seldom paid a claim in full, generally taking advantage of the beneficiary, usually a widow, to settle with her for fifty cents on the dollar. When a person pays assessments on a $5,000 certificate he naturally expects that $5,000 will be paid to his beneficiaries when his certificate becomes a claim, and he cannot be satisfied with the character of his insurance unless he knows his company pays claims in full. Not only is the public entitled to protection in respect to these speculative companies, but the honest assessment and benevolent societies also want protection, as they are looked upon as being part of the assessment system. From the present outlook, it is doubtful if the bill referred to can pass the legislature; it certainly cannot unless it is materially amended.

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OUR predictions that the spring trade would be excellent have been very generally realized, and reports thus far show that the trade in general is satisfied with their orders thus far this year. January and February were both good months for business, and while there was a little falling off in March as expected, it was, nevertheless, considerably better than the March trade of last year. Nothing has yet occurred to discount the general anticipations of a remarkably good year's business, and manufacturers and jobbers are making preparations for a large fall and holiday demand for their goods. The country is in a highly prosperous condition, and in every line of commerce and industry unusual activity prevails. The iron industry, which is usually taken as the criterion, is enjoying a degree of activity that it has not known in many years before, due largely to the fact that railroads have resumed the work of construction, and other great enterprises are being energetically pushed. The dry goods trade, according to published reports, is especially sanguine regarding the fall trade, and is making preparations to supply a large demand for goods. In every direction these hopeful signs are to be noted, and from these we gather the impression that it is also going to be a good year for the Jewelers, for it is in the seasons of general prosperity that manufacturers and dealers in luxuries [illegible] their harvest.

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THE death of the Rev. Henry Ward Beecher, March 8th, removed one who has been a most conspicuous figure among the nation's greater orators for the past forty years. He was a leader of the people, as well as a clergyman of the first rank, and one who could play upon the feelings of his hearers as an expert harpist plays upon the strings of his instrument. He was by all odds, the most distinguished citizen Brooklyn has known at least during the present generation, and that city did honor to his memory by the magnificent display made at his funeral. Citizens of all classes and all degrees viewed his body as it lay in state, enveloped in flowers, in the church where he had done so much for humanity during his pastorate, and such crowds assembled at the hour of his funeral, that overflow services were held in five other churches. Few men have done more for their fellow men than Mr. Beecher, and few have been more honored at their death by their fellow citizens, a fact that shows the appreciation he was held in his life long home. Now that he is dead, many persons are relating incidents regarding him, and his passionate love for rare gems has been noted by the press. Mr. Beecher's fondness for jewels is well known. F. C. Manvel, a jeweler in Maiden Lane, and clerk of Plymouth Church, said the other day: "Mr. Beecher did not care for the intrinsic value of gems, but for their beauty of color. He cared much more for opals, sapphires, rubies and amethysts than for diamonds. He had no liking for stones that had been cut for intaglios and cameos. He used to say of such stones. 'Oh, what a pity! they have been ruined.' "Form and color appealed to him most strongly. He used to say that he liked the sapphire better than the opal, owing to the fact that the color was richer. He had several fine specimens which he carried about with him most of the time. He used to come to my store and rummage by the hour among the precious stones, and he would do the same thing at other jewelers' shops. When in Boston, Chicago or San Francisco, he used to do the same. He told me that one of the regrets with which he left London was that he could not bring with him an especially fine amethyst. He did not wear jewels often. He had a fine aquamarine set in a ring, which he sometimes wore in the pulpit of Plymouth Church. And he had a splendid opal which he used to wear when away from Brooklyn. But he was averse to making any display of precious stones. He enjoyed their wealth of color and seemed to find inspiration in them. He used to say that when tired it rested him to look at gems. He did not have a large collection of them, but a choice one. He prized the best specimens and bought what suited his own taste. He seemed to know what he wanted and could tell the value of a stone at once. Without special training he was an expert in gems."

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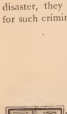
THE burning of the Richmond Hotel at Buffalo on the morning of March 18, and the loss of several lives in consequence, was one of those terrible disasters that ought not to be possible in the present age of civilization. The fire was discovered shortly after three o'clock in the morning on the first floor, and the night clerk promptly sounded the alarm gongs on each floor, but before the sleeping guests could get out of their rooms, the flames had seized upon the elevator shaft and spread throughout every floor. The halls were soon crowded with frantic men and women seeking some means of escape, but, as they were unfamiliar with the means of egress, their chances for life were very slim. Many jumped to the roofs of adjoining buildings, more were taken out of the windows by the firemen, but a number perished in the flames. When the firemen

reached the scene, so many inmates of the hotel appeared at the windows shrieking for help, that the chief ordered the men to pay no attention to the building, but to concentrate their exertions upon saving life. Considerable difficulty was experienced in raising the long ladders by reason of the net work of electric wires that hung about the hotel, a telephone cable especially delaying them. Among the guests of the hotel were a number of traveling men for Eastern houses, including several representatives of New York jewelry houses. All of these escaped with their lives, but all had thrilling experiences and one or two were severely burned. All goods and samples, except such as were in the safes, of the traveling men were lost. It is shown since the fire that there were few, if any, fire escapes attached to the hotel, and if this is true, the owner is liable for damages and may be prosecuted criminally. The Richmond is described as having been one of the most flimsily-constructed hotels of the day, no attempt having been made to secure fire-proof construction and nothing provided in the way of fire protection. When the flames broke out they followed the elevators and other openings, and appeared almost simultaneously on every floor of the building. It is possible to make elevator shafts fire-proof, and to so enclose them that flames entering them at the base cannot escape except by an outlet at the top. Had the elevator of the Richmond been so protected, it is probable that every guest in the building would have been able to escape. This disaster serves as another illustration of the many perils that surround those men who make a business of traveling. Arriving at a hotel at night, they are too anxious to retire and secure rest to observe their surroundings particularly, and the probability is that few of them ever take the trouble to ascertain the means of escape from the floors on which they sleep. They ascend by the elevator to their rooms and know of no other means of reaching them. Transient inmates of a modern hotel are almost entirely at the mercy of flames that may break out in the night. This should not be so, and it would not be if the legislatures of the several States would enact such building laws as the safety of the public demands, and local authorities would see them rigorously enforced. Experience has demonstrated that property owners will adopt no more safeguards against fire than the law compels them to; they can insure an old combustible building as readily as they can a fire-proof structure, and, as the last is more costly to build, they are content with the cheaper construction, trusting to the insurance companies to make good any loss they may sustain. Every property owner should be compelled to carry part of his own risk, and this would he the effect if the law prohibited any insurance company from paying more than three-fourths of a proved loss resulting from a fire occurring on the premises. If property owners were assured that they would have to stand their share of any loss occurring from a fire originating on their premises, they would have some incentive to adopt proper safeguards against fire, to pay for fire-proof construction and to exercise proper care over their property. There will be a rigid investigation of the Richmond Hotel fire, and if the owners are shown to have violated the law in respect to construction, fire escapes, or in any way contributed to the peril of the risk and consequently to this terrible disaster, they should be made to bear the full penalties provided for such criminal neglect.

The Jeweling of a Watch.

[BY MORITZ GROSSMANN.]

Continued from page 6.



OWEVER, the screwed jeweling may be improved in such a way as to make it much less liable to failure. There is not the slightest necessity for counter sinking the screws in the upper plate; they might, without the least detriment to their functions, have flat heads rounded at the top, which only serve to hold the jewel down in its place, thereby reserving the whole thickness of the plate for the hold of the screws. The jewel setting might be dotted as usual, for always having it in the same place in its sink, which is not without importance; and if it should be thought necessary to insure this position of the jewel, even against careless repairers, who might not pay any attention to the dotting; this might easily be attained by drilling a very small hole in the bottom of the countersink into which a pin might be driven, and for the reception of which the jewel setting ought to have a small groove.

THE FUSEE.

In the period of the recoil escapement, the invention of the fusee was undoubtedly one of the most important steps toward perfection in time keeping by portable instruments. The old vertical watch is to such a high degree under the influence of the variations in the intensity of the moving power that it hardly deserves the name of a timekeeper, if not provided with a mechanism for equalizing these irregularities. The vertical escapement was superseded by the dead heat escapement, especially the cylinder escapement. One of the principal features of this latter is, that the locking and lifting takes places at equal distances from the center of the balance. The friction on the locking, therefore, is considerable, and acts during the greater part of the vibration. These circumstances have the effect that, with any increase of the impulse power, there is a corresponding increase of friction at the locking. This friction, it will be obvious, acts in a corrective way, and if the proportions of the escapement are well chosen, it is in a surprisingly small degree influenced in its time-keeping by any irregularity of the moving power. The duplex escapement works under similar circumstances, while the detached escapements, which have no correctional friction, may enjoy the independence of their time-keeping only by a judicious arrangement of the balance spring.

To begin from the time of the clear establishment of these facts, a rather different course was taken by the leading horologists in the different centers of horological manufacturing. The French and Swiss, with their practical endowment, immediately took advantage of this changed situation, and simplified the movements by dispensing with the fusee and its appendices. This step, together with some other circumstances, was the base on which the Swiss manufacture largely developed itself; because by these means they were able to produce a cheap watch of convenient and even delicate dimensions, and still satisfying the common demands of life.

The English, on the contrary, kept to the traditional fusee movement, even under so vastly changed conditions, and even now, notwithstanding a number of advocates of the going barrel have sprung up amongst them in the latest period, the majority still adhere to the belief that the fusee is an indispensable characteristic of a truly English watch. The consequence of this conservative inclination is a well-maintained superiority of time-keeping in their better class of watches, but a gradual decrease of demand for the inferior qualities, and which, in fact, have ceased by degrees to be a marketable article.

[Mr. Grossmann next enters into a lengthy comparison between the fusee and the going barrel movement, and finds that, at least for the purposes of civil life, the going barrel, as at present constructed with all care, fully complies with all demands made upon it. We again quote him in the following]:

The respective positions of barrel and fusee in all the English fusee movements is also irrational and ought to be inverted. The latter position of the fusee would save a considerable amount of friction on the pivots, without a loss or disadvantage on any other side.

The pressure acting on the pivots of the fusee in the English movement is, by this defect of construction, the highest attainable maximum. Diagram 1 represents the fusee wheel and center pinion. In order to ascertain the pressure on the pivot, it must be supposed that the point of contact between the wheel and pinion at *f* is the fulcrum of a lever, on the other end of which *g*, the power transmitted

by the chain, is acting. It requires no proof that the pressure on the fusee pivot *c* is equal to double the power exerted at *g*. With the other plan of construction illustrated by diagram 2, the fulcrum is the same at *f*; the power acts very near it, and the pressure at the pivot *c* will consequently amount to about a quarter of the power exerted at *g*. The difference of pressure in the two cases spoken of is as 8 to 1; and, as the friction is in the ratio of the pressure, the advantage to be attained by this modification is considerable, though it must be remembered that the difference of pressure in the two cases is greatest when the chain acts at the bottom of the fusee and diminishes toward

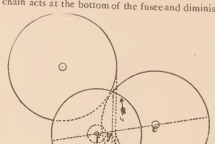


FIG. 1.

and which is due to Julian Leroy, has not found any followers in England, the country of the fusee movement. It has been employed so much the more by French and German makers.

The stopwork in a fusee movement is an absolute necessity. Even if the chain had an abundance of length, it would find no room for any superfluous coils on the fusee and on the barrel. The continuation of the winding beyond the useful extent for which, without the stopwork, there would be no control, would result in undue strain of the top of it; but even there it will be about as 4 to 1. It is surprising that this arrangement, the advantage of which is beyond any doubt,

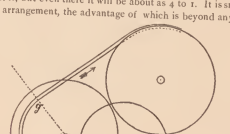


FIG. 2.

the spring in the unlocking of the chain. The usual stopwork in fusee watches is too well known to require description. If well executed, its action takes place in a right angle and offers any desirable safety and soundness. This stopwork, however, would not be applicable for a fusee movement described just now. There it requires a modification which, at the same time, improves and simplifies it. This modified stopwork has to resist to a tractional strain . . . . . .

[Having given about the principal views of our author, we omit further details as not being of interest in this country, and resume at]

THE STEM WINDING MECHANISM.

This complement of the modern watch so much in demand now, and, it must be confessed, at the same time so useful and agreeable, is getting so much in favor that its manufacture and construction is well worth saying a word about.

The stem winding mechanism is much more than a mere toy or a convenience to the wearer. It is useful in many directions. In the first place, it affords the possibility of winding a watch and of setting its hands at any time and in any place, because these operations do not require the opening of the case, while the winding or setting of any other watch must be done while the body is perfectly at rest, and is impossible in a carriage or on horseback, or even when walking. It cannot be done except under cover and at a place free from dust, while a stem winder can be treated in the open air without any fear of rain or dust. All this is more than a mere convenience, because it insures the continual service of the watch during a voyage, when the wearer seldom finds a moment of rest for winding his watch, and in these rare moments may forget to do so or may have forgotten to take the key with him; and it is sufficiently acknowledged that a watch is doubly important when you are traveling.

Another advantage may be expected from the employment of the stem winding mechanism, and, I venture to say, it is also a very important one. The rotary motion required for winding a stem winder takes place in a plane vertical or at right angles to that of the balance. This is a complete guarantee against the detrimental effects of the bad, but very frequent, habit of the wearers of watches, of moving not only the key, but also the watch, when winding it. This practice, it will readily be understood, involves a sudden rotary motion of the movement in the plane of the balance, and which is repeated ten to twelve times, until the operation of winding is completed. If, in the best case, this careless treatment does not result in direct injury to the acting parts of the escapement, it causes, at least, deviations of rate in a lever watch by violent banking; and those irregularities, which nobody can account for, often discredit a watch in the opinion of its owner, and often ascribed to a want of skill or care of the repairer to whom it has been intrusted.

A very important consideration of the stem winding mechanism is the greater durability of the cases, and their interior remaining better preserved from injury and deterioration. The oft-repeated opening wears the rims and joints of the case, and, besides, there is a necessity of not too hard shutting for the case of a key winding watch, which caution does not exist with regard to a stem winder. This latter may shut more closely, and thereby protect the watch more efficiently against dust, etc. The necessity of opening the case of a key winding watch, at least once every day, admits the direct entrance of dust. The key, also, in a majority of cases, is a very active agent for the introduction of filaments and impurities of all kinds, owing to the bad practice of carrying the key about in a waistcoat pocket, which nobody thinks of cleaning.

For the purpose of studying and comparing the different stem winding mechanisms, it will be indispensable to classify them into certain groups, lest the great variety of these contrivances could not be conveniently inspected. The greatest part, and, in fact, almost all stem winding watches, may be divided into two principal categories. 1. Those with which the setting of the hands is done by devices arranged on the winding arbor and shifting on the same. 2. Those who accomplish this result by means of a rocking plate. The last mentioned class, indispensable for fusee watches, is of a more delicate nature and requires a more careful execution. The former, therefore, is more resorted to, especially in Swiss watches. In considering this first kind of stem winding mechanisms, a subdivision may easily be established between those where the hands are set by pulling the winding knob a little outward, and those provided with a push-piece for putting the hands in motion.

(*To be Continued.*)

Galileo, the Reputed Inventor of the Telescope.

IT IS A singular fact that the names of the inventors of many of our most important, or, as the Germans call it, "epoch-making" inventions have been forgotten. We have, for instance, the art of printing claimed by three countries, the invention of the telescope claimed by half a dozen men, the invention of clocks, of

watches—by no one knows whom—and several other inventions. It may be claimed that the eras of these inventions date back to remote centuries, and the names of the inventors have been forgotten in the lapse of time. But when we come down to our own age we have the art of telegraphy, which, opponents of S. F. Morse say, was invented at an earlier period, although he invented the apparatus for the transmission of dots and dashes, constituting letters and took out a patent simply for the apparatus and the letters, leaving the transmitting wire open to piracy. We next have the telephone, for which there are seven claimants, beside Professor Bell. It is as irrelevant, however, to go beyond our task to-day of inquiry in how far the invention of the telescope pertains to Galileo.

His own claim, and the merit due him clearly appears in the following extract of the answer given by him in the *Saggiatore* to Padre Orazio Grassi, a Jesuit: "The share of credit that may be due to me in the invention of this instrument (the telescope), and whether I can reasonably claim it as my own offspring, I have expressed in my *Avviso Sidereo*, which I wrote in Venice. I happened to be there when the news reached me that a Dutchman presented Count Maurice with a glass, by means of which things far away appeared just as clearly as if they were quite close at hand, but without any details being mentioned. Upon hearing this I returned to Padua, where I was then living, and pondered over this problem, and the first night after my return I found it out. The following day I made the instrument. After that I immediately set to work to make a more perfect one, which, being completed six days afterward, I took to Venice, where so great a marvel attracted the attention of almost all the principal gentlemen of that republic. Finally, upon the advice of one of my dearest patrons, I presented it to the prince in presence of the college. The gratitude with which it was received, and the esteem in which it was held, are proved by the ducal letters which I have still preserved, since they bear witness to the generosity of His Serene Highness in confirming me for life in my lectureship of the studio of Padua, with double the pay of that which I had had beforehand, which, in its turn, was more than three times what any of my predecessors had enjoyed. These facts, Sig. Grassi, did not take place in a forest or in a desert; they occurred at Venice, and if you had been there then you would not have put me down simply as a foster-parent of the invention. But, perhaps, some one may tell me that it is no small help toward the discovery or solution of any problem, to be first of all apprised in one way or another of the truth of its conclusion, and to know for certain that it is not an impossibility that is being sought after; and that, therefore, the information and the certainty that the telescope had already been made were of such use to me, that in all probability I should never have made the discovery without them. To this I answer that the help given me by the information I received, undoubtedly awoke in me the determination to apply my mind to this subject, and that without it I should very likely never have turned my thoughts in that direction; but beside this, that I cannot believe that the notice I had had could in any way render the invention easier; and I say, moreover, that to find the solution of a problem already thought out and expressed requires far greater genius than to discover one not previously thought of; for, in the latter case, chance can play a great part, while the former is entirely the work of reasoning. We know that the Dutchman, the first inventor of telescopes, was simply a common spectacle maker, who, by handling by chance, glasses of various kinds, happened at the same moment to look through two, the one concave the other convex, placed at different distances from his eyes, and in this manner he observed the effect which was produced, and thus invented the instrument, but I, warned by the aforesaid notice, came to the same conclusion by dint of reasoning; and since it is by no means difficult to follow, I should like to lay it before you. This, then, was my reasoning: this instrument must either consist of one glass only or of more than one glass; it cannot be of one alone, because its figure must either be convex or concave, or compromised between two parallel superfices, but neither of these shapes alters in the least the objects seen whilst increasing or diminishing them, for it is true that the concave glass diminishes and that the convex one increases them; but both show them very indistinctly, hence one glass is not sufficient to produce the required effect. Passing on to two glasses, and knowing that the glass of parallel superfices has no effect at all, I concluded, therefore, that the desired result could not possibly follow by adding this one to either of the other two. Hence, I restricted my experiments to combinations of the other two glasses, and I saw how this brought me to the result. Such was the progress of my discovery, in which you see of how much avail was the knowledge of the truth of the conclusion. But Sig. Sarsi or others believe that the certainty of the result affords great help in producing it and carrying it into effect. Let them read history and they will find that Archites made a dove that could fly, and that Archimedes made a mirror that burned at great distances and other admirable machines. Now, by reasoning on these, they will be able with very little trouble and very great honor and advantage, to discover their construction, but even if they do not succeed they will derive the benefit of being able to certify themselves, that the ease of fabrication which they promised themselves from the pre-knowledge of the true result was much less than they imagined."

We must add that many of the principal persons in Europe were anxious to have Galileo's telescopes, and that he sent presents of them to the Grand Duke of Tuscany, to Prince D. Antonio de Medici, the Elector of Bavaria, the Emperor Mathias, Cardinal Borghese, the Queen of France, the King of Spain and a number of other potentates; he also sent some to Holland, whence Constantine Huygens writes in 1637, that it was impossible to find artificers in that country having skill enough to make telescopes of sufficient power to observe the satellites of Jupiter.

The principal discoveries made by Galileo by means of his telescope, in chronological order, are as follows: He first of all observed the cause of the lunar spots, recognizing in them the effect of shade produced by the heights which must exist upon the moon, and thus proving that it was covered with mountains and table lands, and he pointed out the way for determining their heights. He likewise perceived that the secondary light transmitted to us from the moon proceeds from the reflection of the solar rays from the surface of the earth to that of the moon.

Directing his telescope toward the Milky Way, he was the first to certify the fact that it was composed of myriads of stars.

On the 3d of January, 1610, he discovered that three secondary planets revolve round Jupiter; on the 13th of the same month he found the fourth. He named these satellites the "Stella Medicee." He showed that they, in revolving round Jupiter, underwent eclipses, just as our moon does. He determined the length of their rotations, a year, which would be of great utility for finding the longitude of any place. In the month of August, 1610, while observing Saturn, he noticed that it appeared to be continually accompanied by two planets, which touched it at the extremities of the same diameter, so that he called it *tricorporeal*. In the same month he first saw the spots on the sun, determined the direction of their motion, and, with happy intuition, compared them to terrestrial clouds. On the 30th of September, 1610, he found that Venus changed figure like the moon, so he called it *horned* (*la falcata*).

He likewise observed Mars and its phases, and reasoned admirably upon the comets.

Taking his stand upon these observations, Galileo embraced, maintained and defended the system of Copernicus, so that he had to undergo the cruel persecutions of Rome, which compelled him to utter that recantation, at the end of which he broke out into the now celebrated exclamation, "*Eppur si muove!*" ("And yet it moves!")

Size of Jewel Hole.—A jewel hole should be two ten-thousandths of an inch larger than the pivot that works in it.

Silver and Silver Plating.

Continued from page 47.

THIS CYANIDE of silver is put into the vessel intended for the bath, and stirred with the 2½ gallons of water. The cyanide of potassium is then added, dissolves it, and also dissolves the cyanide of silver, thus giving a solution of a double cyanide of silver and potassium. Those who employ small baths, often renovated, may substitute for the cyanide of silver the chloride or the nitrate of this metal. In the latter case, the quantity of cyanide of potassium should be increased. Such baths will be prepared as follows:

1. The nitrate of silver is prepared in the manner indicated heretofore, and 5¾ ounces of it, nearly equal to 3½ ounces of pure silver, are dissolved in 2½ gallons of water. 2. The cyanide of potassium No. 1, about 8¾ ounces, is then added. Stir to facilitate the solution; filter the liquor to separate the iron contained in the cyanide. This operation may in some cases be dispensed with, because the iron rapidly falls to the bottom of the bath and the solution becomes limpid. The proportion of cyanide of potassium employed is more than is required for dissolving the silver, as 1½ parts of good cyanide are sufficient for one part of silver; but unless there is an excess of cyanide of potassium the liquors do not conduct electricity well, and the deposit of silver is granulated and irregular. The silvering is effected with a battery, and with baths either warm or cold. The latter method is generally adopted for articles which require great solidity. The hot process is used for small articles, and is preferable for steel, iron, zinc, lead and tin, which have been previously electro-coppered.

The hot baths are generally kept in enameled cast iron kettles, and the articles are either suspended or moved constantly about in them. The preliminary cleansing in acids, and passing through the mercurial solution are necessary. A somewhat energetic current is needed, especially when the articles are moved about in order to operate quickly. There is too much electricity when the articles connected with the negative pole of the battery become gray or black, and produce many bubbles of gas. A platinum, large wire or thin foil anode, is generally preferred to the soluble anode of silver employed in cold baths, but the solution is rapidly impoverished. In hot silvering baths the separate battery is often replaced by a zinc wire wrapped around the articles. The points of contact of the two metals are black or gray; but the stain disappears by plunging the object into the liquor for a few moments, after which it has been separated from the zinc and carefully scratch-brushed.

Instead of separate batteries, a simple apparatus may be made of glass, porcelain or stoneware vessel holding the bath, and in the center of which is a porous jar filled with a solution of 10 per cent. of cyanide of potassium or common salt. The cylinder of zinc, immersed in this porous jar, carries a larger circle of brass wire, the cross diameters of which are soldered to the zinc. This brass ring projects over the bath, and the articles suspended to the ring by slinging wires hang down into the bath. At the beginning the operation goes on rapidly and the deposit is good; but, after a time, the solution of zinc traverses the porous cell and impairs the purity of the bath. An impoverished hot bath is reinvigorated by addition of equal parts of cyanide of potassium and silver salt. It is necessary to replace the water in proportion as it is evaporated. When the silver baths, rapidly deposit metal without the aid of electricity it is a proof that they are too rich in cyanide or too poor in silver. A deposit effected under such conditions is rarely adhering, especially when upon articles previously coppered, because the excess of cyanide dissolves the deposited copper, and the silver which takes its place may be removed with the finger.

The remedy consists in adding to the bath only enough silver salt and no more, so that a piece of copper will not become sensibly silvered in it without the aid of electricity. The cold electro-silvering baths generally employed for electro-plating such articles as table-spoons or forks, are contained in large rectangular wooden troughs lined with gutta percha, or made of riveted wrought iron. They are sufficiently high to allow about four inches of liquid above the immersed object, whose distance from the bottom and sides should be nearly the same, to give a regular deposit of metal at both extremities of the object. The upper ledge of the trough carries two brass rods all around, which do not touch one another, one above the other, so that other metalic rods being put across will rest upon the higher or the lower rod, but not both at the same time. Each rod is connected with one of the poles of the battery by conducting wires, the points of contact of which should be perfectly clean. The rod which supports the articles to be silvered is connected with the negative pole, represented by zinc in most batteries; and the other supporting the anodes is attached to the positive pole, which is carbon with Bunsen's elements, copper for Daniell's and platinum with Grove's cells. A certain number of spoons and forks fixed to a rod by means of copper wires, are cleansed at the same time, and the rod is placed upon the negative conducting rod of the trough. Then, facing these articles, hang upon the positive conducting wire of the trough another metalic rod, to which the soluble silver anode is attached like a flag. Next comes another series of spoons and forks, faced by another soluble anode in such a manner that each row of spoons and forks is between two anodes. The articles to be silvered all rest upon the negative conducting rod, and the soluble anodes upon the positive one. This disposition is for obtaining an equal deposit upon all the pieces. The objects require turning upside down during the operation, in order to prevent a thicker deposit on the lower parts, as the richest part of the solution is the densest, and therefore lies near the bottom of the trough. The denser layers being richer in metal, deposit it more abundantly upon the direction which they follow, and form grooves which cannot be filled by the lighter and poorer currents. It is, therefore, advantageous to keep the objects in constant motion. In this case the frame supporting the articles does not rest upon the trough, but is suspended above the bath and receives its motion from a small eccentric or other motive power.

The silver deposit will adhere strongly if the articles have been fully amalgamated in the solution of nitrate of binoxide of mercury, and have remained in the silver bath from twelve to fifteen hours, according to the intensity of the current. The silvering will be the better and finer as the intensity of the current is weaker, up to a certain limit. A sufficient quantity of silver may be deposited in three or four hours, but the result is not satisfactory, and the burnishing is very difficult. When the articles have acquired a film of silver, they are sometimes removed from the bath and thoroughly scratch-brushed, cleansed in alcohol, or preferably in a hot silvering bath, thence again passed through the mercurial solution and finished in the former cold electro-bath. This first scratch-brushing, which is not always necessary, obviates the tendency of certain alloys to assume a crystalline appearance and corrections imperfections of the cleansing process. Electro-silvering baths do not generally work so well when freshly prepared as when they have been used for a certain time; the deposit is often granulated, bluish or yellowish. It is therefore desirable to mix a portion of old liquors with those recently prepared, or new baths may acquire an artificial age by boiling them for a few hours, or adding to them one or two thousandths of aqua ammonia.

To Prevent Electro-Silver Plating Turning Yellow by Contact with the Air.—This change of color is due to the deposit, by galvanic action, of pure silver, and of a sub-salt, the sub-cyanide of silver, which is rapidly decomposed and darkened by light. It is, therefore, necessary to remove the sub-cyanide of one of the following methods: 1. The articles are left immersed in the bath for some time after the electric current has been interrupted, when the sub-cyanide of silver is dissolved by the cyanide of potassium. 2. Having smeared the objects with a paste of borax, they are heated in a muffle until the salt fuses and dissolves the sub-cyanide. This process anneals and

and botches. Why, my dear jewelers, don't you know that you have them "where the hair is short," if you only thought so? If you would only spend as much time trying to make it warm for outsiders and botches as you do in sitting in your lonesome stores kicking, when you die you would have no enemies to forgive for they would all have been starved to death. "H. W." asks, "If the true watch-maker who has been working hundreds of years to bring about what has been done, etc., is to be drowned out by a man who has never worked a day at the trade?" Say, "H. W.!" If you were a whale, would you allow a rat to come into your own element and drown you? If you would, I think the rat would be excusable, don't you? If an outsider puts in a line of the goods you handle, buy the same thing and sell at cost; make it unprofitable for him, and he will quit. No man is doing business for his health. Let me give you a case in point. My neighbor, the hardware man across the street, bought a dozen clocks about a year ago; I heard of it and went into his store to look at a gun—(see?)—The next week I had an exact duplicate of his stock of clocks, and was offering them at cost. When a customer came in to look for a timepiece and mentioned the bargains at the hardware, I said: "Oh! yes, I have some of those if you want that kind of a clock," and gave him prices. It almost always ended by my selling him another make at a good profit. It is unnecessary to say that the hardware man still has eleven clocks in stock, and calls quite often to sell them to me at cost. But I say: "Oh! no," you paid too much for them. I am selling for what you *paid*. Take off 20 per cent. and I'll take them." I'll get them yet at those figures, and he won't buy any more either—no money in it you know. I'll bet on a jeweler every time against an outsider, if the jeweler is "up to snuff."

About the botches. They are easy enough. There have been nine here in the past four years. There is only one here now, and he is awful tired.

The catalogue nuisance is the worst. Every jeweler ought to make a protective association of himself and refuse to patronize firms that send them outside the trade, and the thing will work out its own solution. It will not pay to make large expensive catalogues for outside trade alone. I don't blame a jobber for selling to an outsider if he buys more goods and is better pay than the jeweler, for then it becomes a question which is the jeweler? I'll write again some time if this don't get me into trouble. W. E. W.

Michigan, March 18.

To the Editor of the Jewelers' Circular:

I am a subscriber to and a close reader of THE CIRCULAR. Am in the retail jewelery business; have been in business more than twenty years, never had a fire, never have failed, always paid one hundred cents to every dollar. I have read with much interest the many articles in THE CIRCULAR, *pro* and *con*, written by both retailer and manufacturer of jewelry. I side altogether with the retailer; to show the craft why I will quote a few facts, and I could fill every page in THE CIRCULAR with the same matter. Last fall a lady came to my establishment; asked to see me; one of my clerks told her I was very busy in the workshop. She sent word to me she only wanted to see me a few minutes, and I went in the salesroom. She, the lady, fetched out of her satchel a paper with squares laid out for advertisements. Would I give a card to help her church along, as her church was going to hold a fair to raise money; the advertisement would only cost $5? After a few minutes talk, I saw if I did not give her the advertisement she would be displeased, so I gave her the card and the $5 and away she went much pleased, and I went back to my shop to finish the job.

There is a jewelry manufacturer in this city that I have purchased $2,500 of jewelry from in the past eighteen months and paid for same. During the last holidays the above lady whom I paid the $5 to purchased a diamond brooch. Did she come to me? No, she did not come near me, but went to the jewelry manufacturer who I paid the $2,500 to, and she purchased from him and he sold her the brooch.

Last week an agent who travels for a silver jewelry house came to me to sell me what he could, and while I was picking out a line of silver jewelry I saw a pretty silver pin. I asked him the price, he told me two dollars. I told him that was a big price as the thing would not weigh over 10 pennyweights. I put the same in the scales and it weighed 9 pennyweights, 15 grains. I told the agent at that rate the maker made more than the retailer, and he, the drummer, had the cheek to tell me the maker ought to make more to make up for the losses by failures. I ask is it right, is it justice, is it honest, to ask me to pay for the dead beat who starts out in the first place and intends to pay 10, 20 or 30 cents on the dollar, and less if he can.

I don't wonder the retailers and the manufacturers are at loggerheads, and the manufacturers have brought the trouble on themselves by wanting to sell as manufacturers, as jobbers and as retailers. I have more to say in the near future. FAIR PLAY.

March 16.

The Jewelers' Security Alliance.

President, DAVID C. DODD, JR.
First Vice-President, AUGUSTUS K. SLOAN.....Of Carter, Sloan & Co.
Second Vice-President, HENRY HAYES.....Of Wheeler, Parsons & Hayes.
Third Vice-President, DAVID UNTERMEYER.....Of Keller & Untermeyer.
Treasurer, W. C. KIMBALL.....Of H. F. Barrows & Co.
Secretary, C. C. CHAMPENOIS.....Of Champenois & Co.

EXECUTIVE COMMITTEE.

C. G. ALFORD, *Chairman*.....Of C. G. Alford & Co.
J. B. BOWDEN.....Of J. B. Bowden & Co.
GEO. W. PARKS.....With E. I. Franklin & Co.
J. T. SCOTT.....Of J. T. Scott & Co.
N. H. WHITE.....Of N. H. White.
CHAS. G. LEWIS.....Of Randel, Baremore & Billings.

EXAMINING FINANCE COMMITTEE.

JOS. STERN.....Of Stern & Stern.
CHAS. F. WOOD.....Of Chas. F. Wood.

Counsel, HON. ALGERNON S. SULLIVAN.

For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 3077. 170 Broadway, New York.

A meeting of the Executive Committee was held at the Alliance office on Friday, the 12th inst., attended by President Dodd, Vice-Presidents Sloan, Hayes and Untermeyer, Treasurer Kimball, and Messrs. Alford, White and Secretary Champenois.

Applications for membership were received from the following firms, who were admitted into the Alliance:

Chas. W. Freeman, Scranton, Pa.; R. & L. Friedlander, New York City; A. J. Hood, Brick Church, N. J.; Merry & McVitty, Norwalk, Ohio; M. C. Motch, Covington, Ky.; Theo. F. Rude, Cuba, N. Y.; C. W. Skiff, Westfield, Mass.

Gossip of the Month.

THE Broadway railroad steal promises to bring a good many persons to grief. There are the Aldermen who received bribes to grant the franchise to the railroad company, the men who paid the bribes, and the Philadelphia capitalists who, after the investigation began, bought the road in the belief that, as they were third parties, they would be regarded as innocent purchasers, but the transaction is so transparent that it will scarcely be sustained by the courts. Nevertheless, the experiment has demonstrated that a road in Broadway is a necessity; it has been running but a short time, but we doubt if there is a single resident of the city who would like to see it removed and the street cars replaced by the lumbering, awkward and inconvenient old stages that were tolerated so many years after their usefulness had passed. The probability is that the Legislature

will annul the existing charter, and authorize the Mayor to sell the franchise to the highest bidder. If this is done, the city will realize several millions of dollars for privileges that the Aldermen sold for their own private gain for a comparatively trifling sum. Whatever may be the outcome of the investigation, the business men of the city cannot dispense with a railroad in Broadway.

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That was a plucky express messenger out West who was killed in his car recently by robbers while defending the treasure committed to his care. The robbers forced their way into the car, killed the messenger, robbed the safe and escaped with booty amounting to $20,000 or $30,000. When the train reached the next station the tragedy that had been enacted was discovered, with evidence that the messenger had made a most desperate resistance. Among the property secured by the robbers and murderers were several packages reported to contain jewelry. The messenger died like a hero, and the express company should see that the wife and children who are thus deprived of their natural protector are properly provided for during their lives. An appeal to the business community would meet with a hearty response from men who are quick to recognize a fidelity that is true to the death. The messenger could have saved his life, no doubt, if he had consented to surrender the keys of the safe, but he preferred to lose his life defending them. Such fidelity is deserving of a public monument.

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Speaking of monuments, the American people do not seem to take very kindly to monumental methods for spending their money. The attempt to raise a large and apparently unnecessary sum for a pedestal for the Bartholdi statute has been prosecuted with vigor for several years, yet the desired amount has not been secured, but the failure to do so has made the committee having the matter in hand a laughing stock, and the liberality of New Yorkers a by-word. The subscriptions to the Grant monument fund have not yet reached $120,000, although the very extensive committee selected was confident of securing a million dollars in almost no time. The trouble with both these schemes is that their promoters had altogether too enlarged ideas; they wanted the whole earth and the fullness thereof, and a mortgage on the universe besides. The statue of Liberty Enlightening the World is a good thing to have, but hardly worth the price the people have been asked to pay for it; a monument to General Grant is something everybody will be glad to see erected, but no sane person would approve of paying a million of dollars for it. General Grant's memory is dear to every American citizen, but American citizens are too utilitarian in their ideas to put so much money into a structure that can serve no useful purpose. The appeal in behalf of General Hancock's widow was more promptly responded to, because it was more modest, and was for a benevolent purpose that every one could comprehend. If the Grant monument committee expects ever to complete its work, it will have to reduce its estimates and submit its plans to public approval. The public will not send in its money blindly, but when plans for a monument have been secured, the money will be forthcoming to build it, provided the cost is kept within reasonable limits. The American people are so decidedly practical that they do not approve of large expenditures for purely ornamental purposes.

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The freight blockade in the West, caused by the strike of railroad employees, wrought great hardship to the merchants of St. Louis and other western cities on the lines of the roads involved in the controversy. For many days not a pound of freight was permitted to pass through St. Louis either way, and thousands of freight cars were side tracked in the freight yards and in the suburbs of the city. Roads that had given no offence to the strikers were obstructed, because, in order to move their trains, they were compelled to use for a short distance the track of the road that had caused the strike. Business in St. Louis almost came to a standstill, merchants being unable to either receive or send out goods, and their country customers were turned in other directions. The loss of trade to that city was immense, and there are apprehensions that the loss is a permanent one, for trade once diverted is difficult to recover. Other cities that have had the benefit of this increased trade temporarily will use their utmost endeavors to retain it, and St. Louis is sure to be a loser to a considerable extent. Cities further West and South suffered even more severely, comparatively speaking, for competition between rival places is more active, and the ones that were not disturbed by the strike are likely to be permanent gainers by this diversion of trade. Chicago merchants are reported to have felt the effects of the blockade considerably, and to have experienced a considerable falling off in the volume of their business; even in this city there was a perceptible shrinkage in orders from the West and Southwest. Merchants were reluctant to order goods that were liable to be tied up if not lost in a railroad blockade; indeed, one dealer in the trade told us that he had orders for goods that he would not ship, being unwilling to take the risk of their being lost or possibly destroyed by some outbreak of the strikers. The great railroad strike at Pittsburg a few years ago, when the freight buildings and much freight were burned, are still fresh in the minds of the public, and a repetition of these disturbances is always possible when strikes of railroad employees assume such magnitude as they did then or have now. What is to be the outcome of these labor demonstrations it is impossible to predict, but that they seriously disturb the business of the country is painfully evident. Many think that it is the duty of Congress to pass laws that will prevent interference with the transportation facilities of the country, but it is difficult to see how Congress can compel laboring men to work against their will, or make railroad trains to run without men to operate them. The labor problem is one of great magnitude, and its solution will require the exercise eventually of the highest wisdom the country can command, and the greatest patience on the part of the people, lest what is now the protest of labor against the tyranny of capital take on the form of communism, and devotes itself to the destruction of property, and, possibly, of life.

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The lenses for the largest refracting telescope in the world are now being completed in the workshops of Mr. Alvin Clark, the eminent telescope maker, in Cambridgeport, Mass. This telescope is being made for the Lick Observatory, of California. The two circular disks of glass that go to make the lens, are said to be worth $25,000 each, and if they should be destroyed in the finishing processes, they could not be duplicated under many months. They were cast in Paris, the order having been given five years ago, but the failures in casting them were so numerous that they were only received by Mr. Clark in September last. When finished the lens will be thirty-six inches in diameter, six inches wider than the one be recently finished for the Russian government. Since receiving the disks Mr. Clark and his sons have been constantly at work upon them, but do not expect to have them completed much before fall. These two lenses weigh about 700 pounds. The work of polishing them has now reached that stage when the removal of a few grains of glass too much in one place would ruin them. The polishing is done by rubbing with the hand, upon which rouge is smeared, thus forming a polishing substance finer than the finest emery. Some idea of the power of these lenses may be formed from the statement

of an astronomer, who says that gazing at the moon, 240,000 miles away, through this telescope, that xxxx orb will be brought to within less than one hundred miles of the observer. The Lick Observatory is located on the peak of Mt. Hamilton, and is a bequest to California by James Lick. Mr. Clark, the veteran telescope maker, whose success in the production of lenses is unrivalled, is now eighty-two years of age, and on the 25th of March last he and his wife celebrated the sixtieth anniversary of their marriage.

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There is a dealer in the Lane who is somewhat noted as a joker: he has a salesman who has been with him a great many years, and who is also fond of a joke. These two often measure wit together, and nothing will please either more than to get the best of the other in repartee. About the first of January the salesman thought he ought to have an increase of salary, and delicately broached the subject to his employer. He is a single man, but contrives to spend all he can earn. On this occasion he represented that he must have more salary to enable him to live. "Why, it costs me $2,500 a year just for living expenses," he said. "Too much, Charley, said the other, "too much altogether; it ain't worth it— it's a great waste of money. Stop living and save it." We still see Charley on the street, but whether he got the raise or not he does not say.

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In our March issue we made mention of the terrible bereavement that had befallen Professor Waldo in the loss of his wife, under peculiarly distressing circumstances. He writes us that he has been directed to take a trip to Europe for a few weeks for his health, and will continue his contributions to our columns from abroad. Our readers will miss his valuable papers, but under the circumstances will, we are sure, bear the deprivation patiently. We hope to hear from him next month, and certainly not later than our June issue.

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By the time this number of The Circular reaches our readers we hope to be settled in our new offices, No. 189 Broadway. The building where we have had headquarters so many years has been made almost untenable by the encroachment of ambitious neighbors, who have erected a modern high office building alongside of it that towers heavenward. Our new location is central for the trade, and our offices are finished off in a convenient and desirable manner. We shall have better facilities for receiving our friends, and we extend a cordial invitation to one and all to give us a call. Dealers from out of town are especially urged to drop in on us when in the city, and we will do what we can to facilitate their business and promote their comfort.

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When burglars, sneak thieves and New York Aldermen are loose in the community, it behooves every honest man to look carefully after his pocketbook and other portable property. We have frequently called attention to the advantages offered jewelers by the Jewelers' Security Alliance, which has done so much to bring to justice thieves who made a specialty of robbing jewelers. The thieving fraternity has been taught a most wholesome respect for the membership certificates of the Alliance, and where one of these is displayed in a jewelry store, the thieves are wont to pass by and seek other opportunities for practicing their depredations. The object of the Alliance is to punish thieves who rob its members, and when a loss is reported, the best detectives in the country are selected to hunt down the criminals and recover the stolen property. So energetic have the officers been that a long time has elapsed since a member was robbed. The Alliance, it should be remembered, bears all the cost of this work, and can afford to spend money more freely to accomplish its object than any individual who has just been robbed will feel inclined to do. The cost of membership is so trifling that no retail dealer ought to hesitate a moment about joining—the question is not "can I afford to join," but "can I afford not to join." The criminal classes are recruiting rapidly, and honest men are required to adopt every practical safeguard for the protection of their property, and among the best in the jewelry trade is the Safety Alliance.

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The sinking of the Cunard steamship *Oregon*, off Fire Island, on the morning of March 14, was one of those mysterious events that come occasionally to startle the whole civilized world. In the clear starlight of early morning, when within a few hours of her destination, she was run into by a schooner, which sank with all on board almost immediately. The iron hull of the *Oregon* was broken in, and the water rushed in beyond the possibility of control. Preparations were at once made to leave the sinking ship, and the 900 or more persons on board were transferred to vessels that had come to their assistance. Not a life was lost, or anyone seriously injured. Very soon after the last person left the steamer, she went to the bottom with her valuable cargo. This is the season of the year when our importers are receiving large consignments of goods from their European buyers, and the fastest steamers are selected for conveying the more valuable goods. Several diamond importers had large consignments of precious stones on board the *Oregon*. As is customary these were in the special custody of the purser, and he succeeded in saving them all. An interesting question will be presented as to whether they are to be treated as salvage, or as special deposits in the custody of the purser. A deputy United States Marshall took possession of them at the instance of the North German Lloyds Steamship Co., but they were again released upon the owners filing bonds, and the case will thus come before the United States Courts for adjudication.

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In December last, a certain lawyer in a prominent southern city, in a spirit of revenge, undertook to impugn the business reputation of a well-known and perfectly solvent jeweler. He ascertained the names of some of the houses in New York with whom the jeweler dealt, and then wrote them letters saying that their customer was insolvent and was selling his goods for whatever he could get and was also putting stock away out of the reach of his creditors. He warned them that if they wished to secure their claims against him they should write to him (the lawyer) at once and he would attend to the business for them. Of course it created quite a stir in this city where the dealer bought largely and where his standing had always been good. Some firms naturally got badly scared, and among them was one of our large diamond houses with whom the jeweler in question had been dealing for about 14 years. They sent one of their agents at once to the gentleman and demanded an immediate settlement of their account, not taking time to inquire into the merits of the case or even regarding the character of the lawyer who had so kindly sent them their information. But as the agent had his explicit instructions from his house, he stuck strictly to the letter of them, and the dealer settled with him at once. Before the New York man had left the city, however, he found out that he had been victimized by the kind favors of the lawyer to the tune of about $700,

and no doubt his house now mourns the loss. To set matters straight with the balance of the trade (as it was a very serious matter and the first intimation the dealer had of the doings of the lawyer) he immediately proceeded to take an inventory of his stock, real estate, etc., and the sworn report of the same, which he sent on to the New York Jewelers' Board of Trade, showed such a large balance in his favor that comments were unnecessary. The affair was simply one of blackmail on the part of the lawyer, and had not the dealer taken the matter in hand as he did would have given him considerable trouble and annoyance. This is a somewhat unusual case, but similar ones are not unknown to the trade. There are "shyster" lawyers everywhere ready to resort to any means to make money, and levying blackmail is a favorite game for them to play. Had the case of this lawyer been presented to the bar of his city, there is no doubt but he would have been properly punished. We have been furnished with all the names of parties to this transaction, but as no means were taken to punish the guilty person, we are not at liberty to publish them. In a case of this kind, the jewelers should make common cause against the maligner of one of their number, and use the full power of their organizations to secure his punishment.

Sale of the Silverware of the Morgan Collection.

ELSEWHERE we have spoken of the silverware in the famous art collection of Mrs. Mary J. Morgan; appended is a list of the principal articles, together with the prices realized for them. The entire collection of silverware brought only about one half what it cost Mrs. Morgan. Such a wealth of rich goods being thrown on the market all at once, it was hardly to be expected that full prices would be offered for them:

Set individual salts and spoons, shell designs	$ 120
Tete-a-tete set, "Niello" copper inlaid	120
Compote, peacock design, repousse	660
Wine carriage, repousse, ram's-head handle	140
Set tea pot, sugar, creamer and bowl, repousse	160
Antique plaque, repousse, "Music and Poetry"	100
Liqueur flagons, Oriental, repousse	300
Claret tankard, repousse and chased	155
Pair wine coolers, tub shaped	160
Vase, Oriental design	115
Pair candlesticks, English pattern	100
English Queen's coin tankard, with inscription	675
Bureau set, hammered surface	112
Antique kettle, repousse, chased stand and lamp	155
Salad dish, oval shape, relief ornament	137
Pair oval vegetable dishes, flat chased parcel gilt	140
Oval entree dish to match above	100
Pair round vegetable dishes to match	150
Vase, cylindrical, Japanese, repousse, 12½x4½	100
Square tray, repousse and chased, 12x12	105
Black coffee pot, repousse undercut	290
Creamer and sugar bowl to match	285
Terrapin dish, hammered, water finish	175
Claret jug, Oriental design, hammered	115
Antique plaque, diameter 15½	120
Center piece, figures and shields in relief, 24x15x8	247
Old English coasters, grapevine pattern, royal crest	410
Claret jug, walrus shape	132
Wine cooler, Grecian pattern, repousse chased	187
Large vase, hammered and repousse, 13½x5½	140
Tankard, body ivory tusk, dragon handle	300
Tankard, Indian hunting scenes, repousse	120
Center dish, for flowers or fruit, repousse, 26x18x7	720
Large plateau to match, mirror in repousse chased, 26½x18	365
Epergne with dish stand, by Tiffany, 12¾x30	370
Roast beef dish, chrysanthemum pattern, 24x17	190
Meat dish to match above, 22x15½	155
Meat dish to match above, 20x14	145
Meat dish to match above, 18x13	130
Meat dish to match above, 16x11½	$ 135
Pair Roman dishes to match, diameter 13 inches	250
Entree dishes to match, oval, 16½x9, two pieces	200
Compote dishes to match, four pieces	360
Sweetmeat trays to match, four pieces	160
Salt stands to match, four pieces	110
Antique plaque, repousse, classical subject, 15½x11½	105
Tea service, Oriental repousse chased	2,800
Hot-water kettle to match above	600
Finger bowls, repousse chased, pierced, gold finished	675
Plates to match above	675
Compote dishes, repousse chased, chrysanthemums, pierced, medallions	320
Center piece, 6 branches, repousse and chased, 48x21x17	825
Ewer and basin, Oriental, repousse, etc	210
Jar, with cover and top handle to match	145
Pair candelabra, 12 lights, old English, repousse, 28 in	820
Pair candelabra, 9 lights, similar to above, 21 in	345
Russian after-dinner coffee spoons	330
After-dinner coffee spoons to match	210
Game knives and forks	445
Sconces, bold repousse pattern	160
Candelabra, 6 lights, North American Indians, figures by St. Gaudens, 32x17	3,500
Antique plaque, round and deep, repousse, chased, dia. 16	100
Large wine cooler, Oriental repousse, birds, 8¾x23	600
Pair candelabra, 9 lights, height 21, spread 18 in	770
Candelabra, Roman design, 20 lights, tall pedestal, 68x23	8,100
Large group, "The Buffalo Hunt," by R. Monti, 1873, 23x25x16	800
Lamp, silver and other metals, cornucopia	240
Plaque, repousse and Niello, on stand, diameter 20	300
Plaque, repousse, "Night," diameter 13½	175
Plaque, "Hen and Chickens," diameter 13½	150
Plaque, bowl, repousse, "North American Indian," 15x9¾	175

To Recover the Silver from Stonings.

THE SILVER contained in the stonings of large silversmith establishments is quite important, and most assuredly worth the trouble of the foreman or superintendent to see that the metal is all recovered. We will, at this early stage, say that it can be effected simply with nitric acid; but that this manner of recovering is the best and most reliable of all is doubtful, and can easily be tried by the party interested.

We have seen very little published on this subject—we mean, of course, anything reliable, and, in fact, we have invariably seen this important subject treated with a certain superficiality. It is of very little assistance to the silversmith to read in random publications that the silver may be recovered from stonings by the use of nitric acid if it is not stated how much of each shall be taken, or how he shall go to work to recover it. The writer has purposely experimented on this subject, and the following is the result:

The stoning is from time to time taken out of the vessel used for the purpose, and passed through a small-holed wire sieve into another vessel, half filled with water; in this manner the pieces of pumice stone, coal and blue stone are kept back. The sediment is left to stand over night in this second vessel; next morning the supernatent water is poured off; some of the lighter, black deposit may also pass away; let it go, as it contains no silver. If it is summer the stoning is set out in the sun to dry; if winter it is to be dried with artificial heat. When thoroughly dry it is glow-heated in appropriate pans; this process is to be recommended, because the mass becomes very concentrated thereby. Then take for each 6 pounds stonings 3½ pounds pure nitric acid, of the usual strength. The stonings are placed into a large stone or earthenware vessel, which fill not higher than barely one-half; pour upon the former the indicated weight of nitric acid, and cover the vessel.

After twenty-four hours pour in sufficient soft hot water that the stonings are reduced to a thin paste. The vessel is left in this con-

Our Foreign Correspondence.

BIRMINGHAM, March 7th, 1887.

To the Editor of the Jewelers' Circular:

The tremendous rush of work in jubilee jewelry is now over and many makers have cause to lament that they ever made any, as the first rush was so exceedingly great it was anticipated by many that there would be a very large trade done until the day of the celebration, June 20th. In consequence of this, dies and tools were made of all kinds of ugly and unreasonable designs, great quantities were struck, and many makers have a large stock of finished and a still larger one of unfinished goods left on hand, of no value but for the material in them. But some cautious, shrewd makers have no doubt made money by the craze, as they have taken orders from samples and had a factory organized in such a manner that they could be executed next day.

Although in genuine jewelry, *i. e.*, all gold and silver work, the jubilee craze has resulted in almost universal disappointment and loss. There has been a large trade done in silver fronted jubilee brooches, solitaires, etc., but this is done almost entirely through drapers and fancy goods shops. In many cases a brooch is seen in a jeweler's shop marked 5s. or 6s. and a few doors off in a draper's, an article precisely similiar is marked 2s., the first one being all silver, the latter only silver front.

In talking with a retail jeweler a few days since, the question was asked, "when do you think I shall begin to sell this jubilee jewelry." The retailer in question had a large stock of it and a good show in his window, but so far had sold none. The correct reply to be given would be, "never, because the drapers are doing it all."

One firm who make principally silver fronted goods, have over 40 gross jubilee brooches on order, whilst the better class makers have very few orders indeed.

The fashions in jewelry are undergoing very rapid changes; six months since the fashion was for ladies to wear chains of three, four, and even five rows with five or even more slides on them; it then changed rapidly in favor of the American fashion, viz., the Queen chains. These latter have lasted about three months and once more the fashion returns to the Albert, one inch longer, the previously but very fine light chains of usually two rows with one very small mount on. Whereas in the old chains anything however ugly so long as it had a massive look sold. In the new ones, all parts must be small, neat, pretty as possible, and if it has a French look about it so much the better.

Enameled goods are also the present rage. This fashion has been largely stimulated by the jubilee jewelry: as in this the various national shields and flags, enameled in their correct colors have been largely used. The progress made in this art since last fashionable, ten years ago, is very encouraging, the intense brilliancy and beautiful tone of some of the colors used is delightful to look at.

During the first eight weeks of this year, no fewer than nine wholesale jewelry houses stopped payment, the results to the trade being most disastrous. It is estimated that Birmingham jewelers are actually losers to the extent of £70,000, taking into consideration everything they may get by way of dividend. The last and largest of these is Joseph & Sons, of St. Paul's Square, Birmingham, and Place d'Armes Square, Toronto. Their liabilities are £50,000, and the first offer made was 8s. in the £, afterwards increased to 10s.

General dissatisfaction is expressed at the way the balance sheet has been prepared, and many makers refuse composition at all except from the hands of the official receiver in bankruptcy.

SOLITAIRE.

TO LUBRICATE STEEPLE CLOCKS.—It is advisable in winter time to lubricate steeple clocks with petroleum which resists freezing. At the same time it has the advantage that it dissolves the resinous oil, which then runs out of the bearings and can be wiped off.

Repairing Swiss Watches.

A GUIDE to the springer in selecting a proper spring, says Mr. Ganney, in his excellent series on repairing Swiss watches, a number of which were published in THE CIRCULAR, the weight of the balance is used. When new work is being sprung, the springer associates certain sizes and weights of balances with springs of a certain number and strength, but the repairer can only guage by lifting up the balance by the eye of the new spring, and noting its elongation by the weight. Springs are now too cheap to make as wanted, and the wire is not kept as a material as formerly; but the old method of making a spring, by drawing the wire into a spinel with a point of a joint pusher, and working the spring and pusher entirely with the thumb and forefinger, is very useful in setting the outer coils of old springs into shape again. Springing tweezers are made with the points concave and convex, so as to close or open the turns of the spring, as may be required; a spring blueing-tool is also very useful, or an ordinary blueing-pan, with the spring under a piece of glass, and a weight on it to keep it flat, will do. After blueing the spring, and letting it cool before removal, it will come out quite flat; the other operations connected with the spring, such as making a new stud, and properly fitting the index pins, are very simple and obvious, yet in no point of the watch is so much carelessness exhibited as in these; being simple jobs, they are supposed to want, and, indeed, get little alteration.

The hairspring collet often gives trouble, owing to bad fitting, and want of freedom of the cock and the screw heads of index piece. I usually put my watches in beat by moving the collet with a fine screw driver or drill in the slot, without shifting the stud out of the cock, resting the cock on the board paper, and simply drawing the balance a sufficient distance to get at the collet. I find out of beat a greater source of stoppage than anything else, and suppose the trouble and danger attending frequent removal of spring and balance the reason it is neglected, and devised this plan to save trouble, and ensure accuracy of beat. With English sprung arbor watches it is a very much easier plan, as a bar of the balance, when the cock is removed, may be held by a stout pair of tweezers to free the bottom hole, and the alteration made at once by moving the collet. I earned a good fee in a minute or two by this plan of putting a watch into perfect beat, which the owner declared had never gone a month without an occasional stoppage, though he had had it in the hands of all the best men he could find in London for a number of years, who all said it was a first-class made watch, but none had been able to cure it. Thinking it useless to look for ordinary faults, as the watch seemed in perfect order, and all that a watch ought to be, I simply wore it, as I took it on the no cure no pay principle; and when it stopped, going on again before it could be opened, I noticed that it had very low angle pallets and rather strong lockings, and appeared very slightly out of beat on the second or discharging pallet. This was altered and it was put slightly out of beat on the other pallet, as the friction on the second pallet is that which necessitates the oil, and is known as engaging-friction, the surfaces opposing each other as they engage in work. The watch has given perfect satisfaction ever since, showing the importance of slight errors, and that one small error may be made to compensate another. Watches being out of beat are not very noticeable when fresh oiled and clean; but as the dirt and difficulties accumulate, the effect is very striking, and where escapements are unequal, the spring may be shifted to make the conditions more equal in performance.

The condition of the jewels in Swiss work is of some considerable importance, and if the repairer aspires to be a good jeweler, considerable practice with the lathe and mandrel will be necessary. If it is only desired to replace holes from a stock kept for that purpose, the holes can generally be replaced without much trouble, raising the edge of the setting at one side, to allow of the insertion of the jewel, and securing it in position by rubbing the setting well over the

stone with a well burnished rounding-center in a handle ; a strong and fine pointed arbor will do to raise the edge for the insertion of the stone. Where a setting is too badly injured to hold a stone properly, an English hole with brass setting may be fitted in a chamfer, or soldered in ; loose jewels may always be tightened with a rounding-arbor or center, and should always be tried for tightness, as troublesome variations of depth and freedoms are caused, which often escape observation.

To make a cock to the escape wheel—often on account of its being very much turned to free the teeth, it is liable to accidents—it is first desirable to get a sound slip of brass well hammered. Having drilled the screw hole and filed it to the proper shape, it must be firmly screwed down, and the steady-pin holes drilled through ; the drill fitting the hole in the plate easily, the opening of the holes in cock and plate must be carefully done, and the steady pins well fitted, or the cock is useless. The top pivot hole must now be made in the mandrel or uprighting tool ; then an old upper plate should have some shellac melted on it, and placed in the mandrel ; the flame of a spirit lamp, or other heat, applied, the cock is placed on it, and centered from the pivot hole ; the slide-rest cutter is then used to turn the inside of the cock perfectly flat, and the slot, to free the wheel teeth, is cut a sufficient depth. When removed, the next thing will be to make the wheel the right height by filing away the superfluous brass, then to free the cock of the balance, and try the escapement, and send it for jeweling. If desired, the jeweler will do all the turning and mandrel work. If finished off with water, Ayre stone or buff, the cock will be more durable than when gilt. If not convenient to send the cock, theholes should be plugged with a fine wire, and a hole made the same as a verge hole, with a fine drill and a bottoming broach, with end well burnished. This kind of hole will give better results than a common jewel hole, if properly made, and is in use in all the original escapements of the inventor of the horizontal (cylinder) escapement, George Graham. A good inside chamfer must be made to hold the oil ; this kind of hole will also do good service for the balance holes, and is preferable to making shift with any cracked or bad jewel hole, if the points are well rounded and burnished.

It is much to be regretted that watch jewelers do not contribute more to the literature of the art. There is a good opportunity for any enterprising young jeweler to gain fame and business by descanting on the various qualities, and means of judging the quality and value of jewel holes, and showing in what way value is imparted, so that those who want to patronize this art may do so without discrimination. To most watchmakers, one jewel hole is much the same as another, unless it is cracked, and yet there is as much difference in watch jeweling as watch pivoting ; the one, in fact, being a counterpart of the other. There seems to be some secret understanding among watch jewelers not to impart information, as applications to those noted for enterprise *on other matters of intelligence* for information by means of lectures for the Horological Institution, and its contributions to literature, have been refused, on the ground of injuring the interests of that branch. If watch springers and pivoters were as reticent in proving the points of excellence in their specialties, they would get very few high-class jobs or large fees, if buyers were not made to understand the difference between springing a watch for sixpence and six guineas. Saunier's valuable work, though very copious and full on all other subjects, gives very little information on the subject ; or is it that very little can be said of cutting one stone with the dust of a harder one? The stone-mason rubbing marble into shape with sand and water illustrates the primitive idea ; the ruby-hole maker, cutting his hole with the next hardest substance, diamond and diamond dust, shows the other extreme of the same process.

Oiling Chronometer Escapement.—Under no circumstances apply oil to the chronometer scape wheel teeth, as it would be followed by most pernicious effects of adhesion.

[The Circular is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

The Jobbers' Association.

To the Editor of The Jewelers' Circular:

Glancing over The Circular I saw your comment on the recent meeting of the National Association of Jobbers, etc. You say that "the interests of the retail dealers in general had been promoted to an extent even greater than had been anticipated," and further on that "the dominating idea was that jobbers should and would do all in their power to protect the interests of the retail trade in handling movements and cases." Will you kindly (providing I am not imposing upon you) inform me either by letter or in your next issue, what these jobbers have done to protect or promote the interests of the retail dealers? Is it perhaps that most of these gentlemen (by no means all of them) are only too willing to sell a single watch to any outside party, no matter who it may be, at any price, wholesale or retail, or is it that the present state of things is, that any peddler, (whom I do not consider a legitimate retail dealer) who carries one or two watches in his pocket, can buy American watches at exactly the same figure as an established dealer who uses $10,000 or $12,000 worth of goods a year and perhaps spends say $1,200 to $1,500 yearly for advertising these very goods? Chas. Hartdegen.

Newark, March 4th, 1887.

[If our correspondent is sure of what he says, he should furnish to the Secretary of the Jobbers' Association, the evidence showing what jobbers are selling goods as he describes. The rules of the Association are very strict in this respect, and it has not hesitated to discipline members who have violated them. We believe the association has been of great benefit to the retail trade by cutting off from the jobers' list, many retail dealers who previously enjoyed advantages over their competitors, for the reason that they could buy their goods at jobbers' prices for their retail trade solely. Other dealers, who had to pay jobbers' profits, could not compete with these preferred retail dealers. The outside trade has been greatly restricted through the action of the association, and in various other ways that body has worked in the interests of the legitimate retail trade. It was not to be expected, however, that all the reforms desired could be effected immediately, but if the trade in general will co-operate with it and seek to strengthen its hands, it will be able to do much more than has yet been accomplished. When violations of the rules of the association become known to any member of the trade they should be reported, for without such co-operation the abuses our correspondent complains of cannot well be corrected.—Ed.]

Compliment to the Circular and Mr. Crossman.

To the Editor of the Jewelers' Circular:

I have always recognized that The Circular was the best trade paper printed in this country, but you have seldom printed anything of more real practical value to the trade in general than the very beautiful pages of monograms that came with the February and March numbers. I have often had occasion to engrave monograms, and found it exceedingly difficult to suit some of my fastidious customers. Having these monograms to show them there is little doubt of being able to satisfy them at once. Each plate of these that you print is worth more than a year's subscription. Two years ago I was abroad for a pleasure trip, and while in England I tried to find a book of initials and monograms that I could utilize, but was unable

to do so—in fact I was assured that no such work had been published. To have my favorite magazine now supply me gratuitously with just what I want and was willing to pay liberally for, is more than could have been expected. I showed these to two different jewelers from neighboring places, and they were eager to become subscribers to THE CIRCULAR. I presume they have sent in their names before this.

While I am writing, I want to thank Mr. Crossman for the very interesting series of articles he is writing on clock and watchmaking. While we have all been close observers of the progress and development of the watchmaking industry in this country, I presume there are not half a dozen men in the trade who could give a history of the various stages of its development, or a consecutive history of the individuals and firms who have spent so much time and money in bringing that industry to its present stage. Mr. Crossman is doing a good work for the present generation of watchmakers, but his work will be even more fully appreciated by other generations than it is now. One cannot but admire the pluck and perseverance that induced the promoters of watchmaking by machinery to persevere in their efforts in spite of all the discouragements they encountered, and the lack of faith with which their labors were witnessed by their contemporaries, many of whom were ultimately to be greatly benefitted by the success of these "cranks," as the inventors would be termed to-day. Mr. Crossman's history of these early struggles of those men of genius appears to be as accurate as it is terse and graphic.

G. H. M.

Syracuse, N. Y., March 15.

INSURANCE COMBINATIONS.

To the Editor of the Jewelers' Circular:

Your editorial in regard to the combination of insurance companies to raise rates was timely and just, but you must not suppose that the trade in your city are the only sufferers. On the contrary, the combination extends to pretty much every city in the country, and to all lines of trade. Granting that the insurance companies have been losing money for several years, as they claim, it is not because they have not charged property owners high enough rates, but because they have been extravagant in their management. The statistics printed by the Insurance Departments show that the losses consume but about fifty per cent. of the premiums they take in while expenses eat up about forty-five per cent. on the average, leaving only about five per cent. to be divided among the stockholders. I am willing to concede that capital that is exposed to such risks as is insurance capital, should make liberal returns to its owners, and would grant that five per cent. is not enough; but the fact is that the largest of the stockholders in the companies are also officers of them, and as such receive large salaries, in many instances reaching extravagant sums. I know it to be a fact that in some of the companies the salaries are not really fixed, but at the close of the year, instead of declaring dividends, on a liberal basis, the salaries are fixed to eat up the accumulations. This is a politic thing for them to do, for in some States, corporations are taxed upon the value of their stock, and that is determined by its dividends. But the heaviest items of expense is the commissions paid to agents and brokers. This has ranged anywhere from fifteen to fifty per cent., and the brokers have been able to divide this with their customers. But the new order of things limits the broker's commission to ten per cent., and prohibits any dividing with his customer. The result of this is that the companies pay an average of fifteen per cent. less for the business than they did a year ago, and at the same time are raising rates. In my case, for instance, there was formerly a fixed rate which I paid, less one-half the broker's commission, this rebate amounting to seven and a half per cent.; now I get no rebate from the broker, and my rate has been raised fifty per cent., making an advance of nearly sixty per cent. in the cost of my insurance. This is an outrage that could only be committed by reason of this combination of insurance companies which, in my judgment, is an unlawful conspiracy against the interests of the public, and one that might well command the attention of the grand jury. It absolutely prevents any competition among the companies, for they have all signed the agreement, and bound themselves to maintain the rates established. If this is not a combination opposed to public policy, it would be difficult to say what is. Several state legislatures have before them at the present time bills declaring such combinations to be unlawful, and it seems to be a good subject for legislation. If these companies, by destroying competition, are permitted to establish a monopoly of the insurance business, there is no fixing a limit to their exactions; if they raise rates fifty per cent. to-day, there is nothing to prevent them from raising them one hundred per cent. more to-morrow. I like your suggestion that the jewelers should organize a mutual company to insure their own risks. The stock companies have made large profits out of the jewelry trade, for they have had but few losses to pay, and these profits might just as well be kept within the trade. Other industries have their insurance companies, and there is no good reason why we should not. I will cheerfully subscribe to such an organization, and place all my insurance with it.

New York, March 20. C. R. G.

TOOL FOR FASTENING ROLLER JEWELS.

To the Editor of the Jewelers' Circular:

Having been benefitted so much by the many good suggestions appearing in THE CIRCULAR, I deem it but right that I should add my mite towards the fund of information. For fastening a roller jewel I have made a little tool which I find very convenient. It is made of a small piece of brass plate, say one inch long by one-quarter of an inch wide with a slit lengthwise. Fasten this plate to a handle three inches long, made of iron wire, with a rivet. To use, heat the brass plate, then lay your balance on with the table roller flat on the plate, the end of staff and the roller jewel extending through the slit. When the shellac has melted see that the roller jewel is in correct position before the shellac hardens. J. M. B.

THE ADJUSTING OF LARGE AND SMALL WATCHES.

To the Editor of the Jewelers' Circular:

When we speak of adjusting watches, we are generally understood to mean adjusting to temperature and position or isochronism, whichever may be the proper term. In what I am going to say about the adjusting of large and small watches, I mean to speak only of position, adjustments, or adjustments to isochronism, and I will have nothing to say about the adjustment to temperature, though the latter may, perchance, be the most important of the two.

In adjusting watches to position, or in isochronizing the vibrations of the balance to all the conditions which a watch may be subjected to, we have to deal pre-eminently with the following factors, while there are others which it may not be necessary to mention in discussing the subject from the proposed standpoint:

1. The escapement.
2. The balance spring.
3. The momentum of the balance.
4. Friction.

The most perfect isochronism could, no doubt, be produced, could we have a balance which could vibrate without any friction whatsoever, but in all watches made the balance can only vibrate on resting points or pivots, and its vibrations can only be kept up by its receiving an occasional impulse by means of the escapement; and here we encounter at once one of the worst enemies to a perfect isochronism, *i. e.*, "*friction.*" This friction is, therefore, twofold. 1. The friction of the pivots, and 2. The friction caused by the balance coming in

contact with the escapement. Of these frictions, the first is constant and the second is intermitting.

What means have we to overcome these frictions?

1. The momentum of the balance.

What is momentum? Momentum is weight multiplied by velocity. A steamship weighing 3,000 tons and moving at the rate of 2 miles per hour, has double the momentum of a steamship weighing 300 tons moving at the rate of 10 miles per hour, because 3,000 tons weight multiplied by 2 miles velocity is equal to 6,000, while 300 tons weight multiplied by 10 miles velocity is only equal to one-half or 3,000. In a watch balance, momentum is represented by the weight of its rim near its outer edge, multiplied by the velocity at which a given point in this rim moves in a given time and at a given distance. The proportions of the size, or, rather, of the weight, of the arm or arms of a balance, have a good deal to do with the momentum of a balance, as will be readily understood.

2. The balance spring. The balance spring is to the balance what gravity is to the pendulum, and it exerts a continuous influence which tends to bring the balance back to a point of rest, and it overcomes the inertia of the balance in this respect, and in so doing becomes instrumental and auxiliary to unlocking the escapement, overcoming with the co-operation of the momentum of the balance, the pivot friction and the intermitting friction of the escapement.

It will be seen at a glance from the foregoing, that the most perfect isochronism attainable can only be had by reducing the pivot and escapement friction to a minimum, by the greatest mechanical skill and by the most intelligent manipulation. And the larger the machine the more perfectly we can carry out the details of its construction. (Of course, there is a limit to everything). Hence the size of a ship's chronometer.

When we consider that in making the best 18-size pocket watch movements, we make the balance pivots often as small as 0.004 of an inch and escapements to match, and we present the question whether we can reduce sizes and frictions proportionately to a 6-size watch, the answer must be an emphatic "No." The pivot and escapement friction in so small a watch, therefore, becomes such a preponderating factor, that the isochronizing of the vibrations of the balance thereof must be at best but a crippled job.

In speaking of small watches, we must include in the list some of the complicated watches, such as repeaters, etc., where the want of space and a limited motive power admit of only a small train and escapement and balance to match, and it was with one of these that I had my first experience.

I cannot conclude my communication and convey the impression that what I have said is all that ought to have been said; and, if circumstances will permit, I hope to be able to refer to the subject again incidentally, treating it from an entirely different standpoint.

New York, March 18, 1887. H. Reinecke.

Kindly words for the Circular.

We append a few extracts from business letters received last month.

"For economy's sake I had planned to do without The Circular, but find that I cannot get along without this old friend each month. Please continue to send it. I enjoy The Circular when it has such articles as the last issue had, on 'Long and Short Forks.'"

Yours, etc. W. C. Bryant.

"I enclose an order for two dollars, for one year's subscription for The Jewelers' Circular and Horological Review, commencing with the April number. Please send me the February number, as I want the monogram designs that began in that issue."

"Enclosed please find $2, my subscription to The Circular for the coming year. I don't see how any jeweler can keep house without it."

"Enclosed please find $2 to pay my subscription for '87. The Circular is quite essential to my peace and happiness."

"You will please find enclosed check for your very valuable Circular. I have been taking it nearly ever since it was first issued, and it is so very valuable, I cannot afford to do without it. The more I see of it the better I like it."

"Enclosed find $2 for my subscription to The Jewelers' Circular. The monogram plates are a good thing, especially to a beginner like me."

"With this find enclosed postal note for two dollars, subscription to The Circular for one year. Would you favor me with the advance copy of 'Elsie Bee's' articles for publication in our local paper?"

[Glad to send the "Elsie Bee" proofs to any dealer who will use them.—Ed.]

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*A Complete History of Watch and Clock Making in America.

[By Chas. S. Crossman.]

Number Ten.

Continued from page 59.

The United States Watch Company.

The United States Watch Company was conceived and organized in 1863, by the firm of Messrs. Giles, Wales & Co., a firm composed of Mr. Frederick A. Giles, Mr. Fayette S. Giles, Mr. Wm. A. Wales, and Mr. George C. F. Wright, who at this time did a large and prosperous watch and jewelry business at No. 180 Broadway, New York City. Mr. F. A. Giles, it may be said, was the moving spirit in the new project. Like several other companies of the time the United States Company was the outgrowth of a popular demand for American watches. The firm handled Swiss and English watches quite largely, but the demand for American watches was constantly on the increase, and the facilities for manufacturing them were scarcely equal to the demand; in fact the only two companies at this time was the American Watch Co., of Waltham, and the E. Howard Co., of Boston, the Newark Company having only commenced to build machinery. Messrs. Giles, Wales & Co., had been a prosperous house, and had made a considerable amount of money during the war. Thus the firm found themselves in a position as they thought to successfully carry out a project of this kind, so they decided to embark in the enterprise. Before the actual formation of the company they rented a room with power on Hamilton St., Newark, N. J., and employed Mr. Jas. H. Gerry from Waltham, as master mechanic. Mr. Gerry engaged ten machinists from the Waltham Machine Shop, and early in December 1863, they commenced the manufacture of tools with which to make the machinery for the new company. Friends of the firm who had capital at their command, and who had meantime become conversant with the enterprise, were willing to take stock in the company which was organized in the summer of 1864, with a capital of $500,000. Messrs. Giles, Wales & Co., putting in their tools, patents and their good will for $200,000, one of the patents being the one which Mr. Giles owned on the opening in the top plate by which the action of the escapement could be examined while the plates were together. The firm also put in a valuable stem-wind patent; they also took $75,000 in stock besides. They thus became the owners of $275,000 of the capital stock. The remaining stock was taken in blocks of $5,000 or less by various parties. Among the stockholders appear the names of Mr. A. S. Hatch, of Fisk & Hatch, Bankers; Mr. J. Abner Harper of Harper Bros., Publishers; Mr. William S. Wise, also of Harper Bros.; Mr James A. Alexander of the Ætna Fire Insurance Co.; Mr. S. M. Beard, Tea Merchant; Mr. Stephen Linington, Importing Grocer; Mr. A. H. Wallis, Lawyer, and Mr. Henry Randel of Randel, Baremore & Billings, Diamond Importers, all of New York City; Mr.

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G. A. Reed, a Comb Manufacturer of Deep River, Conn., and Mr. Sylvanus Sawyer, of Fitchburg, Mass, also took stock in the company. Mr. Giles was elected President, and Mr. Wales Secretary and Treasurer, both holding these offices during the existence of the company. The Board of Directors was composed of Messrs. F. A. Giles, W. A. Wales, A. H. Wallis, Geo. C. F. Wright and S. M. Beard. Twenty-three acres of land situated at Marion, N. J., a suburb of Jersey City, were bought at $1,000 per acre. Work on the factory building was commenced in August, 1864. It was built in the form of a *T* with center buildings, east, west and south wings. It has a frontage of 253 feet of iron and glass, with back walls of brick, except the south wing which is entirely of brick. The center building is 40x53 feet and four stories high, the east and west wings 40x100 feet and three stories high, and the south wing 53x75 feet, three stories high. The center building together with the east and south wings belong to the company, but the west wing was the property of Messrs. Giles, Wales & Co. The company had really more room than they needed in their own building, but Mr. Giles thought they would need more, and was anxious to have it all built at once, his idea being to sell the firm's part of the building to the company when they might need it. This sale, however, never took place. The building was completed in the summer of 1865, at a cost of $125,000, and the machinery was moved at once from Newark to the factory. Meanwhile "The Marion Building Company" was formed as a district organization from the United States Watch Co., with a charter of its own granted by the State of New Jersey. Mr. F. A. Giles was President, and Mr. Wright, Secretary and Treasurer, and General Business Manager of the company. A circular was issued with reference to the improvements that would be made. Grand walks and drives about the company's grounds figured conspicuously among the attractions. A park was laid out between the buildings and the railroad, and old trees transplanted, too old in most instances to live. A fountain was also another attraction. The company built the Marion House in 1866, at a cost of $17,000. It was a four-story wooden building with sleeping rooms, dining rooms, etc., and was for the use of the operatives in the Watch factory. This house afterwards formed the wing of the St. James Hotel, a large five-story wooden building, also erected by the Marion Building Co., at a cost of $66,000. They also built a Superintendent's house at the corner of Broadway and Giles Street adjoining the hotel. The house was first occupied by Mr. W. H. Learned who had succeeded Mr. Gerry as superintendent. The Building Company had also projected a canal to run from the Hackensack River through to the railroad near the factory, where they anticipated building grain elevators so as to make it a shipping point. This, however, proved too gigantic a scheme for them and the idea was abandoned.

But returning to the Watch Company, after they had settled in their new quarters, they commenced making parts of watches in real earnest. They were of course obliged to educate the greater part of their operatives and this necessarily made progress a little slow at first but after a few months they began to look like a veritable watch factory. Mr Gerry was Superintendent, as that was the end in view when he was engaged, viz., to make him superintendent of the manufacture as well as master machinist.

It may be said of their machinery in this connection that it was constructed on the most approved plan, all the improvements known at that time having been brought into requisition. Mr. Gerry had with him at this time the following named foremen in charge of the various departments: George Hart, plate room; Leonidas Murray, pinion making; John Gardiner, pinion finishing; William Sheppard, flat steel work; E. S. Gerry, escapement making; D. B. Gerry, stem wind parts; Frederick Lowell, motion work; H. J. Cain, balance making; H. J. Lowe, finishing room; John Pray, carpenter. Messrs. Henry and William Rose were engaged from England to make dials at first, but were soon succeeded by Edgar A. Hull, now foreman of the dial painting room at Waltham, and L. H. Carpenter.

A few jewels were made at first by Wm. Smith, but later the company imported their jewels with the holes drilled, and did their own finishing and polishing. This work was mostly done by John Eaves an English jewel maker. Bottom's hair springs were used during the early years of the company's existence, but later, John Logan was engaged to make them. The Breguet form was used in some of the finer grades, but for the most part the springs were flat.

The model watch was made by Mr. Baldwin, a watchmaker at that time in the employ of Messrs. Platt Bros., of New York City. The escapement was straight line and equi-distant locking. The first movement the company produced was called the Frederick Atherton, this being Mr. Giles' first and Mr. Wales' second given names. It was put on the market late in the summer of 1867. At the stockholders' meeting, the latter part of July of that year, a few of these movements were shown as the first production of the company. They were 18 size full plate gilt movements, having exposed pallet jewels and expansion balance.

Owing to some dissatisfaction which had arisen between Mr. Giles and Mr. Gerry, the latter resigned his position as superintendent at the time just mentioned, and was succeeded by Mr. Wm. H. Learned, of Waltham. At this time about fifty persons were employed in the factory and the movements just alluded to were being produced at the rate of twenty-five per day.

Soon after this the matter of an increase in capital began to be agitated. The company after getting under way in the new factory, had found themselves in need of more money. Some of it had in the meantime been obtained by bonding their real estate, but the greater part had been furnished by Messrs. Giles, Wales & Co. They had absolute faith in the ultimate success of the enterprise, and did not hesitate to put in money to the full limit of their ability. If they made a mistake on this point, it was one of judgment and not of intention. At this time they had put in over $200,000, besides their original stock. As a result the capital was increased to $1,000,000, the full limit allowed by the charter, the firm taking the new issue of stock for the company's indebtedness to them; the remainder was disposed of to various parties.

The process of damaskeen finishing was at this time quite a trade secret, and Mr. Wilmont was engaged in St. Imier, Switzerland, by Mr. F. S. Giles, to superintend this branch of the work, as they wished to give this finish to gilt movements as well as to nickel, which they were soon to make. He remained with them a year, the length of the time for which he had contracted. The company had in the meantime built damaskeening machines, and were now able to turn out the work in larger quantities than they had under Mr. Wilmont's contract. He went to Waltham, and afterwards to Elgin for a short time and subsequently returned to Switzerland, in the interest of Messrs. Tiffany & Co., of New York City. Mr. Chas. Berlin and Mr. Walter Farnsworth did the nickel finishing for the company after Mr. Wilmont left. Mr. Berlin was the first to discover the wet process, and he further improved the process for doing the work by the adoption of an ivory disc in place of the wooden one previously used. During the superintendence of Mr. Learned, the "Fayette Stratton," "Geo. Channing" and "Edwin Rollo" grades were gotten out in the order named. The "Fayette Stratton" was a nickel full plate 18 size straight line movement and was named after Fayette Stratton, formerly of Messrs. Giles, Wales & Co., but at that time he was not connected with the company, having disposed of his interest and gone to Switzerland to reside. The "George Channing" was an 18 size full plate movement with nickel top plate, barrel bridge and cock. It was named after George Channing Fuller Wright, the "Co." of the firm. The "Edwin Rollo" was a full plate 18 size lever movement, made in brass and was named after Edwin Rollo Pratt a salesman for the firm. It was gotten out to compete with the P. S. Bartlett movement.

On June 14th, 1869, Mr. Learned was relieved of the superintendence of the factory, and was transferred to the setting-up room. He remained there until August, and then severed his connection with the company. He sued them for the balance due him on his contract

which was for five years. After carrying the case to the Full Bench and later to the Court of Appeals, he secured judgment for the amount of the contract. It seems, from a pamphlet which was published soon after the suits took place, and which gives the full testimony that the company did not think him competent as a superintendent and so made the change mentioned, but he was able to vindicate himself. Mr. H. J. Lowe succeeded Mr. Learned, and remained until the company's failure. At this time, Mr George Hart was made master mechanic. From 100 to 125 operatives were employed at the close of 1869, and about 100 movements per day were being turned out. The company were at work on a high-priced movement called the "United States" at the time Mr. Learned left. It was brought out by Mr. Lowe late in that year, and was a nicked ¾ plate 16 size gold train movement. It contained 19 ruby jewels, 3 pairs of conical pivots, Breguet hair spring hardened and tempered, compensation balance, and was closely adjusted to heat, cold, position and isochronism. It was finely finished in damaskeen and frost work, and was the highest priced movement made in the United States. It listed at $175.00. Other movements were brought in rapid succession under Mr. Lowe's superintendence; they were the "A. H. Wallis," "Henry Randel," "S. M. Beard," "John Lewis," and Wm. Alexander. Most of them were nickel, and some were made in 18 size only, while others were made in ladies' sizes as well. The later grades which the company produced were the "Chas. G. Knapp," Asa Fuller, J. W. Deacon and G. A. Reed, the first named being made in ladies' size only. And now, with just a word with reference to the patents the company used, we must hasten on to the final closing scenes of thier eventful career. Reference was made to their patent opening in the plate for inspecting the escapement. This was the distinctive feature of this company's movements. Their Stem Winding device was on the rocking bar principle. The distinguishing feature of it being that the click and yoke spring were all in one piece. The company were making a desperate struggle to make the watches a success both from a commercial and mechanical point of view, and, from the latter standpoint, it was in many respects a success, as they made a great many fine running watches. The greatest defect in them seemed, however, to be in the excessive size and weight of the balance, but it must be borne in mind that many of the finest grades of Swiss watches of that time had large balances, and gave fine results, and their construction was excepted as correct in principle. Experience has, however, taught the American companies that a smaller balance is in many respects preferable. From a financial point of view the company was not a success. It got to be an elephant that absorbed a great amount of money and finally forced them to make an assignment, in 1875, to Wm. Mcirhead of Jersey City, N. J. The assignee, however, allowed the factory to run on under the patronage of Messrs. Giles & Wright. Mr. Wales having retired from the firm and gone to Auburndale, Mass., to organize the Auburndale Watch Company. The name was changed to the "Marion Watch Company" as a title, but this was never a corporate name. The prices of many of the grades were put at a much less figure, but it proved a losing venture for the firm, and they were obliged in the end to go into bankruptcy. The factory was still kept going, however, as Mr. Giles still had hope for the future of the enterprise. He interested Mr. W. H. Elias, of New York City, who furnished money for the pay roll and agreed to take pay in movements. He also found it was not a profitable venture and became dissatisfied. About 4,000 movements were made under this latter arrangement, which towards the last ran down to a very low standard of workmanship, as many watch makers who have had them to repair will readily attest. The factory finally closed in the spring of 1874, as the bondholders foreclosed the mortgages. The machinery was subsequently disposed of to various parties, Messrs. Hart, Sloan & Co., of Newark, N. J.; The Fredonia Watch Company, of Fredonia, N. Y.; and the Fitchburg Watch Company, of Fitchburg, Mass., being among the principal purchasers. The bondholders realized a very small percentage on their original investment, but the stockholders realized nothing whatever. The firm of Giles, Wales & Co., however, were the heaviest individual losers, as they owned $783,000 of the $1,000,000 in stock at the time of the company's failure. It is but justice to these gentlemen to say that they struggled nobly for success which they certainly deserved, and which they attained in business as a mercantile firm before they went into the manufacturing. It was their great success in this direction first, which perhaps somewhat inflated them with the idea that they would be equally successful as the managers of a great manufacturing enterprise, but which resulted in financial disaster. Mr. Wright subsequently engaged in the watch and diamond trade at 15 Maiden Lane, New York City. He died in February, 1883, at the age of 42. Soon after the closing of the company's affairs, Mr. Giles removed to Montague, Mass., broken in health. He died there in 1880 at the age of forty-six years. Mr. Wales, after a short connection with the Auburndale Watch Co., returned to New York City, where he now resides.

(*To be Continued.*)

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of February 15, 1887.

357,885—Clock System, Electric. T. J. Zoller, Louisville, Ky.
357,906—Watch, Pendant Stem Winding and Setting. D. H. Church, Newton, Mass.

Issue of February 22, 1887.

358,339—Bracelet. E. W. Dillon, Assignor to Daggett & Clap, Attleboro, Mass.
358,055—Clock Case. F. E. Morgan, Assignor to New Haven Clock Co., New Haven, Conn.
358,342—Jewelry, Back and Front of Articles of. D. F. Adams, Providence, R. I.
358,402—Watch and Clock Pinions, Facing. W. B. Learned, Assignor of one-half to E. Howard Watch and Clock Co., Boston, Mass.
358,403—Watch Case. C. F. Morrill, Boston, Mass.
358,020—Watch Guard. T. G. Daily, Boston, Mass.
358,193—Watch Rack. J. E. Ganse, Brownsville, Tenn.
358,207—Watches, Click Spring for. B. Lecoultre, Senties, Switzerland.
358,208—Watches, Safety Pinion for. B. Lecoultre, Senties, Switzerland.

Issue of March 1, 1887.

358,720—Bracelet, Catch—E. P. Beach, Assignor to H. & E. Unger, Newark, N. J.
358,433—Button, Collar. H. S. De Solla, Decatur, Ill.
358,754—Clock or Watch Dial. J. Singleton, St. Louis, Mo.
358,424—Watch, Stem Winding. J. Bachner, Assignor to Himself and G. A. Harmount, Chicago, Ill.

Issue of March 8, 1887.

358,882—Button or Stud. F. W. Richards, Attleboro, Mass.
359,229—Clock. J. Pallweber, Salzburg, Austria-Hungary.
358,997—Clock Winding Mechanism. A. F. Valon, Assignor to F. Valon & Co., Geneva, Switzerland.
358,832—Ear Ring. L. F. Brooks, Boston, Mass.
358,925—Watch. F. Fitt, Chaux-de-Fonds, Switzerland.
358,885—Watchmakers' Tool. J. B. Rose, Canton, Ohio.
358,969—Watch, Stem Winding. L. C. Favre, Cormoret, Switzerland.
359,093—Watches and Chronometers, Compensation Balance for. C. A. Paillary, Geneva, Switzerland.

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For further information, Application Blanks for Membership, By-Laws, etc., Address
P. O. BOX 3877. 170 Broadway, New York.

A special meeting of the Executive Committee was held at the Alliance office on the 4th inst., attended by Vice-Presidents Sloan and Untermeyer, W. C. Kimball, Treasurer, J. B. Bowden, Chairman, and Messrs. Alford, Lewis, White, Kroeber and Secretary Champenois.

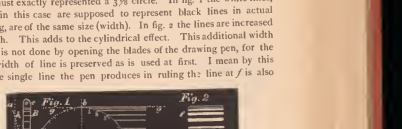
The following applicants were admitted to membership during the month:

Cowan & Co., Asheville, N. C.; Blythe & Lehman, Denver, Col.; Brunner Bros., Cleveland, O.; Hardy & Hayes, Pittsburgh, Pa.; Leiter Bros., Syracuse, N. Y.; Pollak Bros., Kansas City, Mo.; D. E. Shoup, East Liverpool, Ohio; Chas. Wyman, St. Albans, Vt.; W. A. Wiseman, Park City, Utah.

Free Hand and Mechanical Drawing.

BY EXPERT.

I SHOULD HAVE added to my last communication that in the present ruling of the Patent Office a model is seldom required; intelligent description, with well executed drawings, being ample in almost every instance to make any invention perfectly understood. In former description of the manner of making mechanical drawings, there was one point promised which has been put off from time to time, but now occurs a time when such knowledge should be given, as it is often needed in drawings for the Patent Office. And this is lines to represent a cylindrical surface. When I was describing the best method of producing parallel lines to represent a flat surface, I made mention of shading a cylindrical surface but did not describe the manner of doing it. To represent a cylindrical surface, the lines should be wider apart in the center and gradually close together as they seem to pass over the rounded surface; nor is this all; the black lines should, at the same time, widen. To do such work without any guide but the eye and experience is not so difficult as would seem at first thought. For, in reality, it is much easier to shade a cylindrical surface with lines than to rule lines over any considerable flat surface exactly the same distance apart. In making drawings for a patent, it is well to make them as large as the prescribed margin will permit, and, if more space is required, add other drawings. For one of the greatest troubles the office has with drawings made by inexperienced persons is the lines are too fine and close, and this leads to trouble in the photographic reproduction and necessary reduction. At fig. 1 is one of the best methods for guiding the **T**-square in ruling lines to represent a cylinder. We will suppose the line *a a*, fig. 1, represents the edge of a drawing board; on this drawing board we place a piece of drawing paper and draw the circle shown at *A*; we divide this into a convenient number of spaces as shown. One feature in the circle *A* should be observed, and this is to have the divisions of *A* an equal number, and the spacing should commence on the line *b b*, which is parallel with the edge of the drawing board. We place near the edge of the board a narrow strip of thin brass, as shown at *B B*, fastened with two tacks *c c*. We now place our **T**-square against the edge of our drawing board on the line *d d*, and, of course, when it corresponds to the edge of the circle *A*, it also corresponds to the first point of the division at 1. We rule the first line of the shading, which corresponds to the small figure 1 of the cut, and also to the dotted line *d d*; we also make a firm sharp mark on our thin brass strip *B* as shown. We continue the ruling until the lines 1, 2, 3, etc., are produced as shown, copying them on the brass strip *B B* as shown. We should make circles 3, 4, 5 and 6 inches across, varying by ¼ of an inch, and copy on narrow brass plates like *B* for use. It is not necessary we should have a plate *B* for every size of cylinder we wish to shade. As, for instance, we wish to shade a cylinder 3⅜ inches across, we would take our plate (*B*) 3¼, and by slightly modifying the lines make it answer our purpose just as well as if we had a plate which just exactly represented a 3⅜ circle. In fig. 1 the white lines, which in this case are supposed to represent black lines in actual drawing, are of the same size (width). In fig. 2 the lines are increased in width. This adds to the cylindrical effect. This additional width of line is not done by opening the blades of the drawing pen, for the same width of line is preserved as is used at first. I mean by this that the single line the pen produces in ruling th: line at *f* is also



used to rule the lines at *e*. About the best way to proceed is to rule the lines across the face of the cylinder of the same size, and to correspond to the spacing on the plate *B*, and, after the ink in the lines is perfectly dry, increase the width of the lines by re-ruling. The lines should be so made as to produce the effect of shade and reflection. In practicing such drawing it is well to use India ink not quite as thick as the Patent Office exacts. The kind of ink put up in bottles by Windsor & Newton, London, is black enough to practice with, and, as I have remarked before in these papers, learn to do your work rapidly, then you can use ink as thick as is required by the Patent Office. In using the spacing guides *B*, it is not necessary the cylinder to be shaded should be at right angles to either edge or margin of the drawing board; by using a **T**-square with a movable head parallel lines like those shown at figs. 1 and 2 can be ruled at any angle. We can also, by setting the plate *B* at an angle, make the spacing correspond to any width of cylinder we wished to line. In the lining shown at fig. 1 the cylinder is supposed to extend from the dotted lines *d* to *g*, but if we set at an angle as indicated at the line *h h*, if we then used *B* as a guide we would only rule a cylinder of the width from *d* to *f*. The reader will see that by means of only a few guide plates like *B* he can rule a cylinder of almost any width. Sometimes in procuring a patent, after we have made an application and find exactly what we have to meet, it is as well to abandon our first application and apply entirely new wording to our specification to avoid an interference we found to exist on our first application. This course is cheaper than to pay expensive patent attorney's fees. Sometimes we have to show globular surfaces; in such cases we have to use a drawing (ruling) pen and dividers combined; such instruments are common enough, and the same general remarks apply as are given above. The principal point to be observed and guarded against is to secure a perfect center for the divider point at the

center. About as good a method for this is to take a very small dressing or toilet pin and drill a small hole in the head as shown at *i*, fig. 1. The pin should be cut so that only about ¼ of an inch is attached to the head; this is forced through the paper into the drawing board and affords a secure rest for the point of the dividers as we sweep the lines as at *k*. We can soon learn to swell and enlarge the lines to represent the shading of a globular surface, or the reverse, a concave. As a rule, avoid all shading lines in making drawings for the Patent Office as much as possible. A shaded outline, that is, an outline which has a heavy line on one side, adds a neatness to the look of such drawings. The puncture in the paper made by the very small pin at *i*, can be entirely concealed by touching the hole after the pin is removed with a fine pointed pencil brush loaded with Chinese white, just to fill the hole. In lettering such drawings, letters which the parts can be made with one stroke of the pen similar to those used in this cut. As, for instance, in an *A*. The heavy bar is produced with one pen stroke, the front hair line at another, and the horizontal lines each by a stroke. Letters which are made by picking and adding, especially with thick India ink, seldom look well.

Prompt Work by the Castleberg Committee.

ON MARCH 11, court papers were filed in this case to authorize the payment of a first dividend of twenty per cent. The entire contents of the store were successfully disposed of by the auction the latter part of February, which realized an actual advance over appraised values. But for the delay in holding the auction a larger sum would have been obtained. The delay referred to resulted from the petition of a small number of creditors, whose views in regard to a compromise differed from those entertained by the committee and a majority of the trade, and the effect was an interference with the action of the committee, which occasioned a loss estimated at between one and two thousand dollars.

The real estate and open accounts yet remain in the Trustee's charge, and it is understood that a second dividend will follow as soon as practicable. A confident feeling exists that other assets will be recovered, but on this point the committee refrain from speaking definitely. What became of the sixty thousand dollars' worth of goods that were never paid for is, however, an interesting question, and unless a full showing is speedily presented by Mr. Castleberg, a determined effort will be made to solve the mystery.

The creditors were fortunate in having their interests in this important case entrusted to resolute gentlemen. The energy of the committee is to be most highly commended, and they are supported, as they deserve to be, by the best sentiment of the trade.

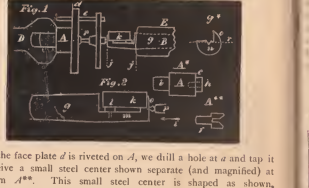
From all we learn, Mr. Castleberg is not only at present retired from the jewelry business, but entertains slight prospects of ever engaging in it again. This is as it should be and sets an encouraging example.

The proceedings under the insolvency petition were announced for trial some weeks ago but have been obstructed from time to time, and were finally set for Wednesday, March 23. It is expected that the outcome will be greatly to the interest of the creditors.

Lathes and Lathe Work.

BY THE MODEL WATCHMAKER.

SINCE THE general introdnction of the American lathe, there is no place where the watchmaker who has ever used a bow lathe feels the loss of this tool so much as in the restoration of pivots. Hardly a week goes by a busy watch repairer but he has a case of balance pivots being set up, that is, the ends of the pivots are riveted in the hole jewels, and frequently so much so that it will require a sharp effort to remove them from the jewels. This result comes usually from the use of thin gold cases for full plate watches. In such instances the damage is not enough to warrant the putting in of a new staff, but the pivot or pivots require "doctoring up." And the the American lathe does not seem to be the tool required—in fact, is not the best tool for this purpose. The old style bow lathe, or, rather, the Jacot finishing lathe is the instrument we need. Many workmen do not know how to use one, and even those who do have either sold or laid the tool to one side. I propose in this chapter to describe a little attachment for an American lathe which permits us to realize all the advantages of a bow lathe and avoid some of the bow lathe's faults. I do not offer it as a turning lathe, but simply a device for burnishing a pivot which has become rough or cut. We all know the action of a Jacot pivot lathe; we have two supports for the staff; one of these supports holds its pivot securely while the other lies in a **V**-shaped notch, while it is manipulated with a very fine file or a burnish. Now, what we wish to accomplish is to furnish a support precisely like a Jacot lathe, and yet take advantage of a continuous motion in one direction, and do it in connection with an American lathe. In the first place we will conceive it is a pivot to an ordinary balance staff for an American watch we wish to burnish. We will first describe the change we make in an American lathe to accomplish our object. The device complete is shown in fig. 1, and consists of a brass chuck *A* which screws into the wax chuck holder *D*. This brass chuck is shown separate at diagram *A**, where *A* represents the brass chuck and *b* the screw which screws into the steel lathe chuck *D*. At *c*, diagram *A**, is turned a seat for a small face plate about ⅞ of an inch in diameter. The brass chuck *A* should be screwed into the lathe when the shoulder at *c* is turned.



After the face plate *d* is riveted on *A*, we drill a hole at *a* and tap it to receive a small steel center shown separate (and magnified) at diagram *A***. This small steel center is shaped as shown, the part at *f* screwing into the brass chuck *A*. The outer end at *h* is drilled with a hole large enough to receive any pivot, and then countersunk to receive the end of a staff. It will be seen by inspection of diagram *A*** that the countersink at *h* is large enough to receive the square shoulder at the foot of any staff; but we have a few exceptions in the top pivot to watches undersprung. We have, however, but few watches of the lever kind but what this tool will receive and perform the work satisfactorily; for where we will find one watch for which it will not do the work, we will have a hundred it will be just the tool for. In fig. 1 at *E* is shown the dial spindle of an American lathe, and at *g* a steel piece representing the dead center. This dead center is fitted up precisely as a dead center to the ordinary bow lathe, with a **V**-shaped notch in which the pivot lies while being burnished. Hitherto the trouble in getting up such devices to use in a live spindle lathe has been to keep the staff in place while the burnish file was removed to examine the work; but in this case the staff is held lightly but securely in place whether the burnish file is being used or not. We will not describe the mechanism for holding the staff in position until we describe in detail the back center shown at *g*, fig. 1. At fig. 2 the back center *g* is shown enlarged to give a better idea of the details. To those persons who are accustomed to use the bow lathe I would say, it is only a very nicely made center, such as is used for burnishing pivots in a bow lathe. But to

those who propose to make such a tool I would say, it is made of a piece of Stub's steel wire large enough to make a back center, and turned to nicely fit the dead spindle *E* and extend out farther than we would need for an ordinary dead center. I mean by this, let the distance between the dotted lines *j j* be about 3/8 of an inch, and the part *B* which goes into the dead spindle be extra nicely fitted so that *g* will not shake or become loose. The part which protrudes of *g* (shown between the dotted lines *j j*) is shaped as shown in fig. 2, which is a side view. At *m* a little more than one-half is filed away to afford a place for the guide screw *l*, which supports the burnish file *k*. At diagram *g** is shown an end view of *g* seen in the direction of the arrow *i*, fig. 2. The dotted line *r* is supposed to represent the line of the axis of the lathe, and the **V**-shaped notch at *n* is the recess where the pivot to be burnished lies. The lip or projection *o* shown in fig 2 and diagram *g** serves as a guide for the edge of the burnish file shown at *k*. Underneath one edge of *k*, at *l*, is a hardened steel screw head; the object of this screw head is to adjust the flat face of the burnish file to the pivot. It is only seldom we need to change the screw, as the size of American balance pivots are so near alike in size. In fitting up the **V**-shaped notch *n* we should be extremely careful about the "*lining*." I mean by this that the **V**-shaped notch should lie exactly in the axis of the lathe or as near as practicable. As good a way to accomplish this practically in this case, is to turn a pivot of about the usual size and leave it in the chuck you turned it in, and fit up the piece *g* so that as the pivot stands in the live axis it will just go into the **V**-shaped notch as you advance the dead spindle and not be strained. As will be explained in my next communication, the method of holding the staff is elastic to a certain extent, and will accommodate itself to any slight inaccuracy. As, for instance, we put a balance staff into our device to burnish the top pivot. The top pivot as held would run true, but, at the same time, appear to be a very trifle above the **V**-shaped notch; but as soon as we applied our burnish file the pivot would press easily into the **V**-shaped notch, with no strain or tendency to bend to the balance staff we were correcting.

The British Parliament and Hall Marking.

IN THE House of Commons on March 4, Mr. Kimber asked the Secretary to the Board of Trade whether his attention had been called to the case of Messrs. Robbins & Appleton, agents in this country of the Waltham Watch Manufacturing Company, who, having an order for Australia for 400 Waltham watches, and having the movements in their possession and desiring to have them cased in this country, unhall marked, but, in American style, marked "Sterling, $\frac{925}{1000}$," applied to the Goldsmiths' Company for permission to have the order executed; whether such permission was refused on the ground that it was illegal for any watch case manufacturers in the United Kingdom to be exempted from the compulsory obligation of assay and hall marking; whether, as a consequence, the order had to be executed in America, to the loss of English watch case makers of an order for 400 cases, and an estimated loss of 10,000 cases per annum; whether her Majesty's government would consider the expediency, in the interest of British industry, of abolishing the compulsory obligation of assay of watch cases manufactured in the United Kingdom for export abroad; whether he was aware that parts of the works of watches are made abroad and put together sometimes with other parts made in this country, and that the Merchandise Marks Act (1862) Amendment bill makes no provision for such cases, and whether the government intended to introduce any amendments to apply to them, and, if so, how they will be dealt with.—London Daily *Chronicle* March 5th, '87.

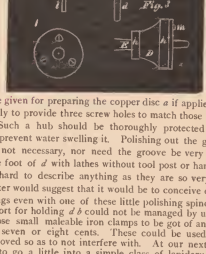
John Bull suffers from the so-called Hall Mark Laws in more than one way. Silver goods generally have to be marked at some little cost for stamping. But the expense to the trade is not that trifling payment alone. For the trouble of sending the unfinished goods to the hall marking office, the damage likely to be done to them through stamping and the delay incurred thereby are items that do count. However, this is the least of the grievances caused by the hall mark law; for Great Britain lives chiefly on her export—and she necessarily exports a great deal to countries where the hall marks is considered no better than the guaranty stamp of reliable manufacturers, and where people do not care to pay for the obsolete stamp tax levied in John Bull's own isle. There's the rub. The *Waltham* stamp, which goes annually on something like 300,000 gold and silver cases, means $\frac{925}{1000}$ fine if it is accompanied by the word *sterling*, and $\frac{900}{1000}$ fine if accompanied by the word *coin*. The Waltham Company alone turn out 80 per cent. more watches annually than all Great Britain together, for, according to the London *Times*, the total watch product of Great Britain in 1883 was only about 200,000, while the Waltham Company furnish fully 1,200 daily, or 360,000 watches per annum. The interest which this great company has at stake is, therefore, greater than what all Parliament has to deal with in this particular instance. And the fact goes without saying, that no manufacturer can live unless he makes his goods up to the standard represented by him.

Advice to Watchmakers' Apprentices.

BY A MAN WHO HAS SPENT TWENTY YEARS AT THE BENCH.

I PROMISED in last communication to describe a method of grooving the edges of concave lenses for spectacles and eye-glasses. For this purpose we need a copper disc at least four inches in diameter and about $\frac{1}{8}$ thick. It should be mounted in a chuck similar to a circular saw, as it is imperative that the disc should run true and flat. This feature is the only difficulty in getting up such a device for an ordinary polishing lathe, as many of these lathes are not adapted for receiving a chuck which would clamp a disc of metal. But with those lathes which only have a taper screw for buffo and brushes the thing can be done by means of a wood hub, as will be presently described. We will first consider the copper disc as if held in the same kind of a clamp as is used for a circular saw, and tell how to hold the lens so as to grind the groove exactly in the middle of the edge. It is unnecessary to describe the chuck for holding the copper disc; and indeed for that matter several of the newer kinds of polishing lathes have chucks especially for circular saws. The copper disc can if desired be made a little concave by hammering. This gives it a rigidity which an ordinary flat disc does not possess, but I would recommend any person who tries this grooving to use the disc first flat with good wide grasp to the chuck as shown at fig. 1. If your lathe has a tool rest of any kind the arrangement is simple enough, but if you use one of these little polishing spindles you can build up a support for the guide from the place where the lathe rests. We will consider this again further along. For guiding the lens to be grooved we attach two pins of spring metal shown at *b b* to a piece of heavy brass wire *d*. The cut at fig. 1 shows the device as if seen from above; fig. 2 as if seen in the direction of the arrow *c*. If our lathe has a tool rest the pin of heavy brass wire *d* goes directly into it and is set so each of the spring jaws *b b* lie on each side of the disc *a* as close as possible and not touch. The spring pieces *b b* should be rather stiff so as to hold the lens steady. The lens (*l*) should be well protected by cementing tissue paper on each side to prevent scratching, as the guides *b b* will soon get smeared with emery. The copper disc is kept wet with water and about No. ½ emery. It is well to not run the disc *a* at too high a speed, or move the lens *l* faster than the groove is formed. Fig. 3 is a view as if seen in the direction of the arrow *c*, fig. 1. We have so many kinds of lathes to which such grinding fixtures can be applied, it is hard to give any definite idea of the manner of holding the piece *d*,

which holds the spring jaws *b b*; but we will suppose the part of *d*, at *f*, is in a tool rest. The jaws *b b* should be about ½ an inch wide and 2½ long, and riveted to *d*. The metal of which they are made should be elastic, say No. 22 hard (spring) brass; and in setting them as regards the copper disc *a*, they should be set about as shown in figs. 1 and 2, and when at rest (with no lens in between them) they should lie as near the copper disc *a* as possible and not touch. If we now press a thick edged lens (as we described the preparation of in last article) between the jaws *b b* as shown at *l*, figs. 1 and 2, and press the lens forward in the direction of the arrow *g*, the disc *a*, wet with emery and water, a groove will soon be cut in the center of the edge of the lens, as each of the jaws *b b* will yield alike. The width of the springs *b*, more than one half of which extend over the copper disc *a*, allows the lens to be grasped and held by the thumb and finger applied at *l*, figs. 1 and 2. For those lathes which have only a taper screw for holding buffs, etc., a wooden hub as shown at *D*, fig. 3, here *D* shows the hub and *E* the taper lathe spindle. The flat surfaces shown at *h h* should be supported from splitting by a metal band driven on such a hub one can easily make themselves from a block of hard wood. It should be about 2 inches long, and the largest part with about the same diameter. A disk of heavy sheet brass should be provided for clamping the copper disc as shown at *m*. Three wood screws are placed at equal intervals for bringing the brass disc firm against the wood hub as shown at *n n n* diagram *D**. There is no particular instruc-



tion can be given for preparing the copper disc *a* if applied to such a hub *D*, only to provide three screw holes to match those in the brass disc *m*. Such a hub should be thoroughly protected by shellac varnish to prevent water swelling it. Polishing out the groove after cutting is not necessary, nor need the groove be very deep. For holding the foot of *d* with lathes without tool post or hand rest support, it is hard to describe anything as they are so very different; but the writer would suggest that it would be to conceive of a condition of things even with one of these little polishing spindles when a wood support for holding *d b* could not be managed by using one or two of those small maleable iron clamps to be got of any hardware dealer for seven or eight cents. These could be used and in an instant removed so as to not interfere with. At our next interview, I propose to go a little into a simple class of lapidary work, and in this day we have so many jobs of this kind that we hardly feel like sending every little job, when a stone is chipped or scratched, a hundred miles to a lapidary.

Diamond Cutting.

DIAMOND cutting (says the *Pall Mall Gazette*) is a work which requires great skill and indomitable patience on the part of the workman, and his training is long and severe, for, despite the machinery which is used, much depends upon the deftness of the workman (who is handsomely remunerated for his trouble). He must be able to tell from an examination of the rough stone what is the proper treatment—that is, its shape, and the number of its facets. An inferior workman can spoil twenty or thirty pounds' worth of property in as many seconds. But the difficulty may the more easily be imagined when we say (on Mr. Streeter's authority) that even the Kohinoor has faults from the connoisseur's point of view. This famous jewel was so clumsily cut by a Venetian named Hortensio Borgio that it was reduced from 793 carats to 186, and rendered as dull as a piece of rock crystal. It was afterwards reduced to about 106 carats, and even now retains a vitreous luster. As a rule, a rough diamond loses seventy-five per cent. of its weight in cutting and polishing; if it is to be turned out in the most effective manner. It would be difficult to describe with any minuteness the technicalities of a diamond factory. Sufficient it is to say that the operations, though limited in scope, are of the most delicate nature. It is often necessary to split or cleave a stone, whether to divide it into smaller portions or to cut off excrescences which would be fatal to the approved contour. If a stone has to be divided it is carefully marked and split by a highly-tempered steel blade. If a stone has to be cut it is placed in a matrix of lead attached to a ferrule, which, on cooling, holds the stone tight. Another stone is placed in a like manner in another ferrule, and one diamond is ground against the other, the tools being held by the workman over a small oblong box, in which is placed a sieve, through which the invaluable diamond dust is sifted, to be used up as a paste in the process of polishing. Hour after hour the patient craftsman rubs diamond against diamond, now moistening their heated surfaces, now heating the matrix and turning another angle to the top, which in its turn becomes a perfect facet. When the required number of facets, are put on the stone is passed on to the polisher. Now steam power comes into play. Every polisher sits before a disk revolving on a steel spindle, tipped with lignumvitæ, at a rate of seventy-five miles an hour, and resting on its smooth surface are three or four clips; each holds a ferrule, at the end of which is the matrix, in which the diamond has again been imbedded. By an adjusting screw the facet which is being polished rests on a certain angle on the lubricated disk, and every few minutes each one is lifted off and examined, in order to see whether it "is nearly done," or "how it is getting on." To each man is delivered a diamond or a number of diamonds in a small paper parcel, and for these he is responsible.

The Government and Gold and Silver Bullion.

A CORRESPONDENT asks the following question, in the answer to which many persons will doubtless be interested. "Does the Government purchase bullion at most favorable prices and then make issues of its own account, or is any citizen entitled to make deposit of bullion and so receive in return therefor gold and silver coins of standard weight or fineness? If the latter, please state charges made the individual for this work. Does the Assay Office receive bullion from individuals, and if desired return same in standard bars for export?

Individuals cannot take silver bullion to the mint and have it coined for their own account, but the government buys the bullion at the current market rate for this metal, and makes an illegitimate profit by stamping it into dollars worth intrinsically now about 73 cents. Gold bullion may be deposited at the mints or assay office, and coin received in exchange at a melting charge of $1 on any amount below 1,000 ounces, and one-tenth of a cent per ounce if the amount exceeds that number of ounces. If bars are wanted instead of coin, the charge is four cents per $100 additional. Persons take advantage of the anomaly that coin can be had without cost, except the melting charge already specified, and that bars can be had in even exchange for coin, to get their bullion first exchanged into coin and then the latter exchanged into bars, thus escaping the four cents per $100 which it would cost them to get bars for their bullion direct. The abolition of the charge for coin is attributed to the influence of private San Francisco refining interests, which were indifferent to the exchange of bullion for bars, while they made a nice thing out of the free exchange of their bullion for coin, melting charge excepted. For converting silver bullion into bars, if it is below 897 fine, there is a refining charge of one and a half cents per ounce. On mixed bullion the charge for parting is from one to five cents per ounce, according to the proportion of gold.

FOREIGN GOSSIP.

ELECTRIC LIGHT.—It is said that no case of injury to the eyes from the incandescent light has been reported.

VOLTA PRIZE.—The competition for the French Volta prize, open to all nations, closes June 30, 1887, when $10,000 will be awarded the discoverer of a means of making electricity economically useful.

SENSIBLE SUGGESTION.—A watchmaker says that the multiplicity of telegraph, telephone and electric wires in large cities magnetize watches and prevent their keeping good time. It has been proposed to put the watches underground, as the wires do not seem to be going in a hurry.

FOSSILS.—Dr. Heim, of Zürich, has suggested that fossils are often greatly deformed by the pressure of the rocks in which they occur, concluding that such distortions may have led Agassiz to an over estimate in distributing the fossil fishes of the older rocks into 80 distinct species.

ELECTRIC LIGHT.—In a paper lately read before a London engineering society it was mentioned as the result of many experiments that 1,000 feet of gas used to produce incandescent electric lighting by means of a gas engine, would give twice as much light as it would if employed as an illuminant in the ordinary way.

LICK OBSERVATORY.—It is proposed to make the Lick Observatory truly a gift to science as well as to California, by placing the great telescope at the disposal of the distinguished astronomers of the world during certain hours of each 24, thus giving visiting specialists an opportunity of attacking the unsolved problems of astronomy with the most powerful optical aid to be obtained.

NEW STYLE OF BAROMETERS.—In the Swiss village of Meyrin some disused wells have been hermetically sealed to serve as barometers. On a fall of atmospheric pressure air escapes through a small hole in the well cover, blowing a whistle, and thus giving warning of a coming storm, but when the outside pressure is increasing, the air being forced into the well causes a different sound, and announces the probability of fine weather.

SILVER MINE.—Reports reach us that T. W. Lincoln, of Maplewood, Mass., while digging a cellar on land off Salem street, Maple wood, recently, struck a ledge from which he has taken ore containing rich deposits of silver, with a large quantity of lead and small amounts of copper. Specimens were sent to Boston for analysis, which yielded fifty-six ounces of silver to the ton. Mr. Lincoln will work the mine instead of building upon the land. The ledge covers a large tract, and it is said that large offers have been made for its purchase.

FRESH-WATER PEARLS.—The cultivation of the pearls of fresh-water mussels has become an industry of considerable importance in Saxony and other parts of Germany. The pearls are generally inferior to those of the genuine pearl oysters, but occasionally a gem of real excellence is produced. Some very fine settings of seed were exhibited at the exposition of Berlin. The Venetians carried on this branch of trade to a considerable extent during the Middle Ages, and controlled it until 1621, when the Elector of Saxony also undertook it, at the suggestion of Moritz Schmirler, a draper of Oelsnitz, and appointed Schmirler "first pearl-fisher." On his death he was succeeded by his son, and the business has continued in the family until the present day, under the superintendency of the forestry department, in whose care are the waters of the region.

WAVE POWER.—In the West of Scotland Stevenson found the average force of the waves for the six summer months to be 611 pounds per square foot, and for the six winter months 2,085 pounds. but if this alleged discovery should prove all that is claimed for it, its powers will have been advanced to an almost incredible degree. He mentions that on one of the Hebrides a mass of rock weighing about 42 tons was gradually moved five feet by the waves in a storm. Hagen records that in the harbor at Cette a block of concrete, measuring 2,500 cubic feet, and weighing probably 125 tons, was moved in its bed over three feet. And now a late observer, Mr. E. M. Nelson, reports finding on one of the Shetland Islands some granite boulders, whose appearance indicates that they must have been broken from the cliffs at the water's edge as a single block, weighing 50 tons, cast up 130 yards inland and 35 feet above sea level, and broken in three pieces. This tremendous power of the waves is constantly grinding away exposed coasts, forming new land of the removed material, and thus slowly but steadily changing the contours of both continents and islands.

PROUD OF HER PEARLS.—Queen Margherita, of Italy, owns a string of rose corals which she takes off neither by day nor at night. When she wears a toilet to which the beads do not suit, she simply covers them up. The following is the history of this string of beads: About five years ago, the Italian Crown Prince, Victor Emmanuel, on foot went through the city of Venice accompanied by his tutor. He noticed a quantity of corals in a show window which pleased him greatly, and said: "I am going to buy some of them for my mama." He entered the shop, asked for their price, and, when named, he said: "I have not quite that sum, but I will make you an offer; I buy five corals now and you keep the rest for me; whenever I have pocket money to spare I will send it to you, and you send me as many beads as the sum will purchase." The bargain was made, and it required two years until the prince could have the pleasure of presenting the string of pearls to his mother. The queen was so moved by this act of filial piety that she made a vow never to take it off.

NEW MEASURING INSTRUMENT.—Professor Cerobotani, of Verona, has contrived an ingenious instrument for ascertaining the distances of accessible and inaccessible points from the observer and from each other—in other words, an easy method of range finding. The apparatus consists mainly of a pair of telescopes mounted on a stand and fixed on a tripod for use. The telescopes are both brought to bear on the object, and a reading is then taken on a graduated scale on the instrument, which, compared with a set of printed tables, gives the distance. Distances can be measured between far-off objects, and, by means of a sheet of paper fixed on a drawing board, a rough plan of the country under measurement can be made. In the same way the distances of ships at sea or of moving objects on land may be determined. Thus, the contrivance appears to be well adapted not only for land surveying, but particularly so for military purposes. In fact, it is stated to have been already adopted in this latter connection by the German government, and will probably be by that of England.

A NEW GLASS FOR THE MICROSCOPE.—Some five or six years ago Professor Abbey and Dr. Scott commenced a series of elaborate experiments at Witten, in Westphalia, to devise some new description of glass by the increased refractory power of which additional power might be given to the microscope. After two or three years of work their funds gave out; but as they had already met with marked success in their experiments, the Prussian government was induced to extend sufficient aid to enable them to continue their work, which they did until the fullest success finally crowned their efforts. With the best glass heretofore made, the full power of the microscope has been equal to the distinct discernment of less than the one-thousandth part of an inch; while with the new glass it is claimed that over less than the one-millionth part of an inch is plainly discernible. The microscope has always been regarded as a most wonderful instrument, Ordinary glass usually contains six substances, while the new glass made by them is said to contain 14, the most essential of which are phosphorus and boron, neither of which have ever before been used in such manufacture. The difference between the new and the old glass consists in the difference of the two in their powers for the refraction of light. As the discovery was made by government aid, it has been given to the world free of any patent restraint.

SILVER SOLDER.—Ten pennyweights of brass and one ounce of pure silver melted together makes a good silver solder for plating.

TO TEMPER A SPRING.—Heat the spring to a cherry red, cool it in oil, then anneal it gray three times, grinding to white each time.

IMITATION SILVER.—Silver, one ounce; nickel, one ounce, eleven dwts.; copper, two ounce, nine dwts. Or, silver, three ounces; nickel, one ounce, eleven dwts.; copper, two ounces, nine dwts.; spelter, ten dwts.

TO APPLY WATCH OIL.—Watch oil should be conveyed to the watch only with an absolutely clean medium, and steel is to be preferred by all odds. Many use brass, but this cannot be kept as clean nor is it as easily cleaned as steel, and we would recommend to our fellow workmen to use steel exclusively.

FLUORIC ACID FOR ETCHING GLASS.—The operator can make his own fluoric (sometimes called hydro-fluoric) acid, by getting the fluor, or Derbyshire spar, pulverizing it, and putting as much of it in a quantity of sulphuric acid as this will dissolve. Inasmuch as the acid is very destructive to glass, it can only be kept in lead or gutta percha bottles.

RUST.—Nuts are frequently rusted so tightly upon the screws that the wrench will not loosen them; kerosene or naphtha, turpentine, even, will, in a short time, penetrate between the nut and stem. Next heat them in a fire, which will quickly sever them. In fact, kerosene is excellent for removing rust; leave the article for some time in it and the rust will come off easily.

TO MAKE GOLD AMALGAM.—Eight parts of gold and one of mercury are formed into an amalgam for plating, by rolling the gold into thin plates, heating it red hot and then putting it into the mercury, while this is also heated to ebulition. The gold immediately disappears in combination with the mercury, after which the mixture may be turned into water to cool. It is then ready for use.

TO REDUCE THE BALANCE SPRING.—There are many ways recommended for reducing the strength of the balance spring, but the following is perhaps as good as any: Remove the collet, place the spring bottom side down upon a perfectly flat surface of an anvil stone, and with a cork somewhat larger than the spring and having a flat surface, which place on top of the spring, grind back and forth, pressing gently. It will require a little time to do the job well, but it will be satisfactory, which is the principal object.

WRITING INSCRIPTIONS ON METAL.—Take one-quarter pound of nitric and one ounce of muriatic acid. Mix, shake well together and it is ready for use. Cover the plate you wish to mark with melted beeswax; when cold, write your inscription plainly in the wax clear down to the metal, using a sharp instrument; then apply the mixed acid with a feather, carefully filling each letter. Let it remain for from one to ten minutes, according to results desired, then throw on water, which stops further action, and remove the wax.

ETCHING FLUID FOR STEEL.—We find the following praised highly for being an excellent etching fluid for steel: Mix one ounce of sulphate of copper, one-half ounce of alum and one-half a teaspoonful of salt reduced to powder, with one gill of vinegar and twenty drops of nitric acid. This fluid may be used for either eating deeply into the metal or for imparting a beautiful frosted appearance to the surface, according to the time it is allowed to act. Cover the parts necessary to be protected from its influence with beeswax, tallow or some other similar substance.

TO CLEAN WATCH CASES.—Very dirty or oxidized silver or gold watch cases can be restored by brushing them with a soft brush and a little rouge and oil. The case is afterwards cleaned with another brush and a little (best is lukewarm) water and soap, and finally laid in alcohol to remove all traces of the soap. The case, after being taken from this bath, is dried with a clean rag. It is evident that the movement, and, if possible, also the case springs, have been taken out. Clean, dry sawdust may be used in place of alcohol; leave the case in them until thoroughly dry.

TO MAKE A PIVOT FILE.—Dress up a piece of wood, file fashion, about one inch broad, and glue a piece of fine emery paper upon it. Then shape your file as you wish it, of the best cast steel, and, before tempering, pass your emery piece several times heavily across it diagonally. Temper by heating to a cherry red and plunging it into linseed oil. Old worn pivot files may be dressed over and made new by this process. At first glance one would be led to think them to be too slightly cut to work well, but this is not so. They dress a pivot more rapidly than any other file.

BRONZING IRON AND STEEL.—First clean the piece to be treated in the usual manner, for which a bath of strong soda water is one of the quickest methods, and most thorough; then expose the piece to the action of vapors arising from a mixture of equal parts hydrochloric and nitric acids, temperature 550 to 600 degress F. When the piece has cooled, rub over with vaseline; heat until this begins to decompose, then allow to cool and repeat the dose of vaseline. Should the color appear darker than desired, mix acetic acid with the other acid in proportion to the change desired.

TO DRILL ONYX.—In order to drill onyx, the simplest method is to use a diamond drill (cost about $2) with oil, turning the drill with the bow which gives the necessary back and forward motion. Another, but slower, way is to use a hollow iron wire with diamond powder. The wire is placed in the chuck of a lathe perpendicularly. It ought to run 2,500 or 3,000 turns per minute. A good way of starting or countersinking the stone is by using iron wire turned into a little wheel or knob at the end, according to the size of the hole desired. This can only be used in a horizontal lathe.

VERDIGRIS SPOTS.—A correspondent of the *D. Uhrm. Ztg.* inquires how to remove verdigris spots from gilt parts of a large clock, to which one responds by saying that they are easily removed with a few drops of spirits of hartshorn upon the offending spots; or wet a small ball of silk paper with it and pad them until removed, afterward drying the spot thoroughly with a like pellet of dry paper. If the spots do not disappear at once, repeat the process. If the spots have shown themselves for a length of time, of course, the gilding has been ruined and must be touched up again, after removing the spots, with a fine camel's hair brush and shell gold.

THE LENGTH OF A BALANCE SPRING.—The length of a balance spring is important, especially in flat springs, without overcoil. By varying the strength of the wire two flat springs may be produced, each of half the diameter of the balances, but of very unequal lengths, either of which would yield the same number of vibrations, as long as the extent of the vibrations remained constant, yet if the spring is of an improper length, although it may bring the watch to time in one position, it will fail to keep the long and short vibrations isochronous. Then, again, a good length of spring for a watch with a cylinder escapement vibrating barely one full turn, would clearly be insufficient for a lever vibrating one turn and a half.

TO MAKE A HOLE IN GLASS.—Spread on thinly some wax after warming the glass. Remove the wax where you wish the hole to be made; with a piece of iron wire put on the spot a drop or two of fluoric acid and it will eat through the glass. If not sufficient, make a second or third application of the acid. After this has eaten quite through, it may be enlarged or shaped with a copper wire with rotten stone and oil; or use dilute (1 : 5) sulphuric acid with the ordinary drill. When shaping or enlarging the hole, also apply this fluid to the file from time to time while using; when finished wash the latter well.

TRADE GOSSIP.

A. J. Thomas, Kelley & Co., jewelry dealers, Attleboro, Falls, Mass., have assigned; liabilities, $2,200; assets, about $1,500.

Mr. Jacob N. Bonnet, of Mulford & Bonnet, sailed from Liverpool on the *Aurania*, March 26th, having purchased largely of diamonds and precious stones for his firm.

Mr. A. R. Harmon, who has been in the Australian office of the American Watch Company, at Sydney, has returned to Boston, and is now employed in the watch company's office in that city.

The old firm of Kingsbacher Brothers, of Pittsburg, has been dissolved and a new one formed to continue the business under the same name. Mr. Mannheimer, heretofore a partner, has retired.

B. H. Knapp, of the firm of Smith & Knapp, sailed for Europe in the steamer *Umbria*, March 19th. He will add largely this Spring to their already fine stock of diamonds and other precious stones.

The solderless rolled plate button introduced by Krementz & Co., supplies a legitimate demand in the trade, and is meeting with ready sale. It is made of fourteen carat rolled plate, and finished in exact imitation of their solid gold buttons.

Mr. Charles A. Nolting, of Cincinnati, who has been conducting business under the old firm name of Lodwick & Nolting, since 1885, announces that he has abandoned that designation, and will, hereafter, do business under his own name.

The firm of Jeanne Brothers has been dissolved by mutual consent. Leon P. Jeanne will continue the manufacture of diamond mountings at the old number, No. 1 Maiden Lane, while his brother Paul Jeanne has engaged in business for himself at No. 8 Maiden Lane.

Messrs. Oppenheimer Bros. & Veith. of 35 Maiden Lane, are sole agents of a patented design of an artistic and elegant watch case, which is likely to become a favorite with the trade. The cases are made of 14-k gold, and show fine workmanship. The sizes are 4 and 6, and an imitation of the design can be seen in our advertising columns.

Officers of the Chicago, St. Louis and Pittsburg railroad, and of the Louisville and Nashville road, have issued letters to their employees endorsing the Giles' Anti-Magnetic Shield Case, and recommending its purchase. Giles, Brother & Co., have these and many other letters of commendation testifying that the Anti-Magnetic Cases are all that they claim for them.

An Atlanta paper contains a highly complimentary notice of the handiwork of Mr. F. C. Wade, of that city, who has engaged in the manufacture of jewelry there. Special note is made of some very handsome medals made by him to be awarded as prizes in some of the state exhibitions. Mr. Wade learned his trade in Newark, N. J., and is commended as a skilfull workman.

Mr. Charles F. Irons, of Providence, while recently driving with a lady, was thrown from the carriage by the breaking of an axle, and received serious injuries. The lady was hurt but little. Mr. Irons was laid up for a few days, but soon returned to business. Had the horses run away at the time of the accident, the occupants of the carriage would have been apt to have fared badly.

John Stark, an old citizen of Waltham, for many years engaged in the manufacture of watch tools and lathes, died at his residence on Moody street, in that city, early in March. He had been seriously ill for some time past with a complication of troubles. He was well known in watch manufacturing circles, and was held in high esteem by the citizens of Waltham. He leaves a widow and several children.

In the case of Edward W. Jones, of Boston, who did business as the Standard Silverware Company, recently failed, a committee of creditors, consisting of Messrs. N. Pettingill, advertising agent, C. C. Ford, of New Haven, and W. S. Williams, of Nembuck, investigated the affairs of the delinquent. They subsequently recommended the acceptance of his offer to pay thirty per cent. to unsecured creditors.

Considerable prominence has been given to the fact that Mr. Edward L. Cheever, of Attleboro, was recently indicted, charged with having robbed the factory of J. T. & J. H. Healey, of that place, of goods valued at about $8,000, and subsequently setting fire to the premises. His trial came on at Taunton recently when he was acquitted, the prosecution failing to produce evidence to secure a conviction.

Augustus W. Sexton, late of the firm of A. W. Sexton & Son, William L. Sexton and George W. Washburn, of the firm of Sexton & Washburn, formerly for about 20 years with Randel, Barremore & Billings, have formed a co-partnership, under the firm name of Sexton Bros. & Washburn, for the manufacture and sale of gold and diamond jewelry and mountings. Their office will be at No. 41 Maiden Lane.

Mr. T. B. Hagstoz, of Philadelphia, has reorganized his business under the firm name of T. B. Hagstoz & Co., limited. In connection with his general wholesale business, he has established a shop for casing odd movements, manufacturing plain rings and odd jewelry. The firm will carry a full assortment of watches and jewelry of all kinds, and will do a legitimate wholesale business with the jewelry trade and no other.

Mr. Charles E. Cady of the firm of Cady & Richards, of Providence, died suddenly at the factory of Howard & Son, in that city, February 26th. The firm of which Mr. Cady was the senior member, was engaged in the manufacture of horn jewelry, and the deceased was well and favorably known to the trade. He left a wife, two sons and a daughter. His loss will be sincerely mourned by a large number of social and business friends.

Two men entered the jewelry store of Mr. Alfred Otten, No. 393 Myrtle avenue, Brooklyn, early last month. While one was engaging the jeweler's attention, the other grabbed two watches and ran out of the store. Mr. Otten gave chase, as did also Sergeant Mande, who ran hatchet headed out of the station house. Both men were captured. They gave their name as John Harrigan and Joseph Miller. To the charge of larceny they pleaded not guilty and were held.

Mr. Henry G. Haskell, of 12 John street, has issued a handsome catalogue illustrating the various styles of class pins and charms made by him, and also numerous forms of pins for fraternal societies, with charms, medals, etc. They are extremely handsome in design and workmanship, the various combinations, being ornamental, useful and symbolical. Mr. Haskell is prepared to get up original designs for societies desiring a pin, badge, charm or medal as a special designation.

Mr. J. Linnenbrink, of Rochester, Pa., sends us a sample of a job envelope used by him. It has printed on its face a series of blanks to be filled in with the name of the person leaving the job, repairs required, when left, when promised, charge to be made, and all particulars regarding the work to be done. To this is attached a coupon giving the same information. It seems to be an excellent arrangement for keeping the repairer in mind of the promises he has made to his customer.

The death of Mr. George W. DuBois, senior member of the firm of George W. DuBois & Co., occurred March 14, at his residence in Brooklyn. He had long been a sufferer from a complication of diseases, and his death was not unexpected. The firm of which he was the head was established by his father upwards of six'' years ago, and has been a prominent one in the trade all these years. The deceased was highly respected by all who knew him, as a man of excellent business capacity and thorough integrity.

In stationery and printing the fashion has been running to what is called the "hard times" style, the paper and general get-up indicating that this is no season for extravagance. The Leroy W. Fairchild

Co. rather caps the climax on this style in a little Tom Thumb circular just issued by them. It is a diminutive circular printed on the coarsest of straw paper, bound with heavy binder's board, with a leather back. The printing is stylish enough, and the little announcement is well calculated to attract attention.

The Seth Thomas Clock Company has recently constructed and placed in position in the tower of the new Erie railroad depot at Rochester, N. Y., a very handsome clock, and a smaller one in the waiting room of the same depot. The tower clock has four dials, each four feet nine and three-quarters inches in diameter. By a new device, the hands can be set while the pendulum is in motion. The pendulum weighs 150 pounds, and the weight that runs it weighs 75. The works are of the finest, and this is regarded as being one of the most complete tower clocks erected in a long time.

Mr. F. Kroeber, who has carried on business in his own name for upwards of twenty-five years, has recently formed a stock company to continue it. It is known as the F. Kroeber Clock Company, of which Mr. Kroeber is the president. Its offices and salesroom will remain at the old stand, No. 14 Courtlandt Street. Mr. Kroeber felt the necessity of having others identified in his growing business who would share with him the labor of conducting it, hence the change. The business will in future be what it has been in the past, as built up and extended under the immediate direction of its founder.

A new manufacturing industry has recently been established at Buffalo, N. Y., under the name of the Wiesbauer Manufacturing Company. It is designed to manufacture jewelers' findings, jewel cases, paper boxes, trays, tags, cards, etc. A fine brick building is in course of construction for the use of the company, and it will be filled with the most approved machinery for manufacturing the specialties indicated at the lowest possible prices. Mr. Joseph Wiesbauer is president of the company and will be the general business manager. In digging for the foundation of the new factory, the workmen unearthed an old British cannon, probably of revolutionary times.

A Polish Jew has been attempting to dispose of a large assortment of seemingly genuine diamonds at ridiculously low prices among the jewelers of Pittsburgh recently. He is said to have offered the stones at about half value. No reputable dealer could offer diamonds so cheap, and the natural inference is that the stones are stolen. There have been only two diamond robberies lately: Fanny Davenport's diamonds were stolen from her at Memphis, but returned in a few days by the police, and J. R. Elliott's jewelry store at Minneapolis was robbed of some watches and diamonds just before Christmas. The police are on the lookout for the vender of the brilliants.

Mr. James H. Noyes, secretary and treasurer of the National Association of Jobbers in American Watches, who has been in the employ of Aiken, Lambert & Co., for the past seventeen years, has severed his connection with that house for the purpose of devoting his entire attention to the association named, and has taken room 29 in the Knapp building, Nos. 41 and 43 Maiden Lane. All communications designed for the Association should be addressed to him as above. Mr. Noyes has taken much interest in this organization, and it has made such demands upon his time that he found it impracticable to occupy any other position, and the association could not afford to lose him, hence the present arrangement.

On January 31, in the House of Commons, Mr. Bradlaugh asked the Under Secretary of State for India whether any gentleman connected with Messrs. Streeter, jewelers, London, were present with the military expedition to the ruby mines of Burmah, and if so, in what capacity and by whose permission or authority; and whether any agreement had been made between the government and any person relative to working of such mines. Sir J. Gorst in reply, stated that Mr. Streeter, Jr., accompanied the expedition to the ruby mines of Burmah in his private capacity, with the permission of the British authorities. No agreement has been made between the government and any persons relative to working the mines.

At a meeting of the members of the National Association of Jobbers, held at the rooms of the New York Jewelers' Board of Trade, No. 41 Maiden Lane, March 1, the following gentlemen were elected as members of the Executive Committee for the ensuing year:—Messrs. S. F. Myers, S. Oppenheimer, F. R. Simmons, I. Stern, D. Marx, N. H. White, L. Herzog, and E. S. Smith. The Association has two hundred and sixty-two members, representing the wholesale trade in the United States, distributing the entire productions of the manufacturers of American movement and cases. It has been in existence now for over three years, co-operating for the interests of the general trade, and has been found to be very efficient in its work ings.

The American Consul at Amsterdam, Holland, has notified all shippers of goods from that port to the United States, that the invoices presented by them to the consulate for verification, must give the following information: 1. The market value of the merchandise in the principal markets of the country from which the shipment is made, by its unit of weight, measure or quantity. 2. The cost of transportation to the port of shipment. 3. The cost of shipment. 4. The amount of packing charges, including boxing, tellating, packing, cartons, etc., etc. 5. Insurance, commissions, discounts, legalization and all costs of any kind, nature or description incurred in repairing the goods for the markets of the United States, separately set forth.

The Waltham Chronograph is above all a thoroughly reliable timekeeper, and its mechanism to start, stop and flyback is of the simplest and most durable construction. While it is in every respect a fine and accurate watch, it is decidedly not a frail watch; neither is it more liable to accidents than the plainest watch made. A notable feature of the Waltham Chronograph is that all its parts are on the top-plate, freely exposed to view, showing at once that it is not a complicated watch. It is likewise important to the watchmaker that the fifteen or twenty pieces which make up the chronograph attachment proper can be easily examined without taking the watch down; and duplicates of any of these may at all times be obtained like all other Waltham watch materials. In case the chronograph attachment requires taking down, the regular timekeeping parts need not be disturbed.

Among the many "authentic" histories of the celebrated Kohinor diamond, one recently revived says it was discovered in India nearly 5000 years ago, and has been like a devil in the world ever since, bringing nothing but strife and bloodshed wherever it has gone. One of its owners, Shah Rokh, the son of Nadir Shah, refused to give it up to the conqueror of his country, and had his eyes put out; this not accomplishing the desired end, the barbarous conquerors had Rokh's head shaved, a diadem of paste put on, and in the hollow thus formed poured boiling oil for the purpose of inducing compliance. The wretched Rokh went mad under his suffering, but never gave up his secret. He had hidden the gem in the plaster of his palace wall, where it remained for many years, and was believed to be lost forever, but where it was finally discovered by an officer cutting his hand on its sharp corner, where the plaster had worn away from it.

When Robert Hooker invented and applied the hair spring in 1658, he could hardly have expected it to be used in the same manner for over 200 years. Such, however, is the fact. It was not till 1886 that a hair spring of a watch was fastened to its collet without a pin. Two patents allowed in '86, *issued* March 15th and 22d, '87, show that the world *is* progressive, even in that direction. The patents consist of—first, a collet with a graver turned in at the width of and as deep as its thickness, the graver being parallel to the plane of the collet, with the usual hole *through* the collet for the inbent end. 2d. The collet same as above, or with a part of the collet turned away, leaving a shoulder for the collet to be pushed against. In

both cases the hair spring is "sprung on" and held by the tension of the *inner coil*. It is claimed that a spring thus put on a collet is held automatically and absolutely true, thus doing away with skilled labor in "truing."

The Horological Journal, of London, remarks that British watchmakers generally agree as to the desirability of a distinguishing mark for English or foreign work, but is it practicable? It is quite clear that every small part of a watch movement could not be stamped, and to allow an English trade-mark on the plate to cover a foreign-made train and escapement, or a rubbishing and unsound movement of any nationality, would do the English trade more harm than good. Then, is it possible to prohibit the importation of watch movements unless they are marked with the locality of their production? A proposition to embody such a law was made by Mr. Joseph Walton, and at first sight it appears to be reasonable and feasible; but then we are assured than even at present many foreign watch movements come here through the Post Office, and that if such an act were passed, channels of conveyance would be selected by which the Custom House would be avoided.

The third banquet of the New England Manufacturing Jewelers' Association, was held in Attleboro, Monday Evening, March 7th. A special train brought the members to Attleboro, where they were received by the local members and escorted to Grand Army Hall, which had been secured as the place of reception. The banquet was held at the Park Street Hotel, and was greatly enjoyed by the large number of members who were present. Mr. W. O. Clark, of the firm of Clark & Coombs, read a humorous paper entitled the "Sample Bag," and brief speeches were made by Messrs. N. Hall, F. I. Marcy, and others. After the banquet, the guests returned to Providence by the special train. The next banquet will be given in June, at some place yet to be selected. The officers of the association are A. S. Potter, President; Edwin Lowe, A. A. Bushee, R. S. Hamilton, Vice-Presidents; John A. McCloy, Secretary; H. F. Carpenter, Treasurer; Executive Committee; J. M. Buffington, F. S. Pearce and H. G. Smith.

A daring attempt to rob the jewelry store of James S. Koch, in Philadelphia, was made recently. Shortly after 11 o'clock a well-dressed young man, wearing glasses, entered the store and asked the proprietor to show him a watch. Mr. Koch suspected his pretended customer and concealed a revolver behind the show case. Three or four watches were shown to the young man and he finally selected one worth $50. He picked it up with one hand and put the other in his overcoat pocket, and drew out a handful of red pepper which he threw into the jeweler's eyes and then rushed for the door with the watch in his possession. Mr. Koch, however, pursued the thief, who ran toward Eighth and Walnut streets, where he was captured by Daniel Crowley, of No. 532 Pine street. The prisoner gave the name of William Sampson, aged 18 years, of Hartford, Conn. One year ago detectives Bond and Donegby arrested him on the charge of stealing $125 from his father, but the latter refused to prosecute. Magistrate Thompson held the defendant in $2,500 bail. The police say his correct name is William Ruth.

The death of Joseph D. Farren, a traveler for Mr. Henry Carter, of New York, has excited considerable comment. Mr. Farren was stopping at the Metropolitan Hotel in Washington, and had complained of not feeling well during the day. In the evening he retired to his room, but subsequently started to return to his office, and had reached the landing on the second floor, when he suddenly fell against the banisters and was precipitated over the stairs, falling upon his head on the marble floor of the office. He was picked up in an unconscious condition, and although he had the best medical attendance, he died the next day, after much suffering. His body was taken to New Haven, where his sister resides, for burial. Mr. Farren was insured for $5,000 in an assessment accident company of this city, but the company refuses to pay the claim on the ground that his death was the result of his own carelessness. Mr. C. R. Foster will hereafter represent Henry Carter in the territory formerly covered by the late Mr. Farren.

The firm of Thompson & Coad, of Fulton street, Brooklyn, made an assignment on the 16th of March. It was discovered that Mr. Thompson had suddenly disappeared with a good part of the assets of the firm, also leaving his family in destitute circumstances. On opening the safe some pawn tickets were found representing articles that should have been in stock. A customer also claimed that the runaway had carried of a diamond ring that he had left to be fixed, and another customer found that a watch he had left to be repaired had been pawned in New York for $125. Goods left on consignment had been disposed of in similar manner. His transactions were not suspected by any one until he disappeared. Mr. Coad then made the assignment, with preferences aggregating about $7,000. The liabilities are estimated at between $4,000 and $5,000, and the assets at about $2,000. A week after the disappearance of Thompson his wife received a letter from him, dated in Canada, informing her that he was in that winter resort for Americans of his style, but saying that he had no knowledge as to how he came there. He said that he was sick and that he had lost everything, but did not indicate a purpose of returning. The firm of Charles & George Praeger, of this city, replevined about $850 worth of goods that had been sent to the firm on commission.

John H. Kane and Giles H. Rich were arrested in Boston recently by a deputy United States Marshal, charged with using the mails for unlawful purposes. They advertised to do business as the Massechuscetts Watch Company, and sent out circulars all over the country, offering to send a "new American watch, stem winder, hunting case, beautifully engraved," on receipt of one dollar. At the office of the swindlers a number of girls were found putting the alleged watches in paper boxes and mailing them to to the dupes who had hitten at the bait put out by the managers of this fraud. The alleged watch was a paper sun-dial enclosed in a brass hunting case. It was stated that many registered letters were received by these men, and their receipts of cash are believed to have been large. They were held to answer. The victims of such sharpers are scarcely to be pitied, for it is not possible that any sensible man would expect to get a good watch for a dollar unless it was stolen, and if they were bidding for stolen goods they deserved to lose their money. But as there always will be a certain number of idiots and fools in the world, the government has to interpose for their protection. But the man who attempts to buy a watch he believes to have been stolen, is entitled to no more sympathy when he is swindled than is his brother sharper who gets bitten when attempting to buy counterfeit money.

A very important decision was rendered last month by Judge Wallace, in the United States Circuit Court for the Southern District of New York, in the suit of Paillard *vs.* Bruno, for infringement of a patent granted in 1875 to Charles Paillard. The decision will affect a large number of cases, as it defines the term for which patents can be maintained when their life is dependent, to a certain extent, upon patents issued in another country. The law of the United States provides that a patent issued in this country for an invention that has been previously patented in one or more other countries, shall be so limited as to time that it shall expire simultaneously with the expiration of the foreign patent having the shortest time to run. In the case at bar, the defendant claimed that the foreign patent issued to Paillard had expired previous to the commission of the act alleged as an infringement, because the plaintiff had neglected to pay the stamp tax required annually in England. In his decision Judge Wallace takes the ground that it was not the intention of Congress to authorize the issuance of a patent for an indefinite period, as might be the case if such patent was made to expire when a foreign patent expired by default or otherwise. He held that the proper interpretation of the statute require the issuance of an American patent for the full time that the shortest lived foreign patent on the same thing had to run, and the fact that the foreign patent subsequently expired through

neglect of the patentee would not operate to shorten the life of the American patent. While the term for which a foreign patent may, therefore, fix the life of an American patent, the latter does not terminate until the end of the term for which it was issued, regardless of what may subsequently become of the foreign patent. The plea of the defendant was, therefore, overruled, thus making a substantial victory for Mr. Paillard. Some of the famous oleomargarine cases now before the United States Supreme Court turn upon precisely this same point, and it is highly probable that the decision of that tribunal will follow the rule laid down by Judge Wallace.

Many complaints have been made lately to the post-office authorities regarding the transactions of a concern in this city going by the name of the Victor Watch Company. The manager of this concern was found to be one Charles West, and he sent out circulars announcing that he would send an eighteen carat gold plated stem winding watch to any address on receipt of $6.50 Complaints came that the money had been sent but no watch returned. West was arrested, but subsequently discharged, it being shown that he did actually buy quantities of cheap watches, which he forwarded to his victims. He explained that he had been sick for some time, and that orders for watches had accumulated, but he was prepared to fill them in regular order. While it could not be shown that the man was a swindler, it appeared that he was sending out a cheap and worthless watch and receiving an extraordinary profit in so doing. This is another case where the victims of the sharper are entitled to no sympathy—if men exist so verdant as to believe that the moon is made of green cheese, and expect to buy a slice of it at the market price of limburger, there is no law that will prevent a man taking their money provided he sends them a fair article of limburger. The moral to be drawn from the exposure of this and a similar Boston scheme, is to place no faith in adventurers, but buy what you want of legitimate dealers of character and known respectability.

Mr. Frankfield, of this city, celebrated his 100th birthday recently. He was well-known to the jewelry trade, having formerly been in that business. At our request, his son, A. Frankfield, jeweler, on Fourteenth street, gives us the following particulars regarding the celebration of his father's centennial. "My father was 100 years on the 10th of March. A few weeks ago he had an attack of sickness which made us afraid that he would not live to see his birthday come, but he got over it very nicely and is all right again but quite feeble. On that accoun: we admitted but the nearest friends to his room on his birthday; but still he had visitors all day and his room looked like a flower garden. He enjoyed the day very much, as he saw many an old friend he had not seen for years. He feels ever since a great deal better, and we think he is out of all danger for the present. He came to New York at the age of 68 years from Germany and wanted to start in business, but we would not let him, as he was well to do and had enough to live comfortably. He merely came here to please my mother, who wanted to be with her children who were all here. To make him pass his time (he always lived an active life) we had him attend to some outside business for us, and he was known in Maiden Lane as "Frankfield's old crank boy." He never learned the English language, but understood all people told to him and our orders were promptly attended to—better than young men generally do it. He did so until 6 or 7 years ago, and then we had to stop it for fear something might happen to him, as he had not the patience to wait for a car, but would run after one that had passed. This time last year he fell and hurt his foot, and since that time has been afraid to walk, but has all his faculties and likes to joke with old friends. I told him yesterday that I had to go to Europe as soon as he feels well enough, and he told me to go, that he is all right. Father comes from a long-lived family; his father died at 102 years, his older brother at 96, his younger brothers at 82. He had only one real grief in his life, when my mother died 15 years ago; otherwise he has all reasons to be satisfied with the world and the world with him."

A despatch from Omaha says that J. S. Keyser, of Ponca, Neb., while sinking a shaft for coal, immediately north of the town, March 20th, discovered a stone of rare brilliancy, weighing three half ounces. It was taken to Sioux City where it was examined by a number of jewelers and pronounced to be a diamond of good quality. The find has produced the wildest excitement at Ponca. The stone will be taken to New York for further examination.

The following letter which was sent out to the creditors of Thomas S. Tice, of Brooklyn, explains itself, and contains about all the information regarding the transaction obtainable.

"311 Fulton street, Brooklyn, }
" March 8, 1887. }

"I would respectfully inform you that my brother, Thomas S. Tice, has sold to me all his right, title and interest in the business heretofore carried on by him at the above address, from this date. I was compelled to do this as the amount of his indebtedness to me was nearly $34,000, and in any way to protect myself I have been obliged to pay very far above the value of the property purchased.

In 1881 a settlement was effected with his then creditors, to do which I obtained a loan from the National City Bank of this city of $10,000, and had another of $4,000, which was part of the money used in said settlement. Those notes have been renewed from time to time, and there are now in the hands of the bank, three notes amounting to $11,700, for which I am responsible and hope to be able to pay in full out of the assets. If there should be any excess after paying those notes and the expenses of closing up the business, I am willing to give and receive, pro rata on the dollar, with the merchandise creditors.

The merchandise indebtedness is about $2,500. I will willingly give such further information as I can, if desired.

Yours respectfully, William R. Tice."

The brothers are very well known in the trade, and as T. S. enjoyed but a limited credit, it is thought the sum named will cover the liabilities. This is not the first experience of Mr. Tice in making assignments, and is another illustration of the injudiciousness of compromising with delinquent debtors and permitting them to continue in business to repeat the operation.

A Jubilee memorial of a very appropriate kind, in the form of a special chain and badge, is to be presented to the ancient town of Blandford. The entire piece has been designed according to the wish of Mr. J. W. Luff, the Mayor, who is also the donor, to connect the event with the civic decoration. The center link of the chain bears a finely enameled portrait of Her Majesty the Queen, surmounted by the Imperial Crown, and enriched by festoons of laurel. On the reverse appears the motto, "Victoria Regina et Imperatrix. Beside this center link are two reduced representations of the ancient maces of the borough, dated respectively 1609 and 1770. Shields at each side in large links of Elizabethan character display the Royal and Imperial Arms, with correct coronets. Next comes on one side the enameled inscription on an escutcheon, "Jubilee, 1886-7," and on the corresponding shield on other side of chain the name of the Mayor for the same period. The series of large links round the chain have mural crowns, from which rises the Prince's feather, part of the borough cognisance, as it anciently pertained to the honor of the Duchy of Lancaster. The series of larger connecting links round the chain are alternate letters, which together make up the name of the town, "Blandford Forum." The badge itself is entirely original in conception. The medallion containing the arms, richly blazoned in enamel, has around it festoons of oak depending from English roses. Above it curve two cornucopiæ, between which is seen standing a carefully modeled figure of Justice, with scales evenly balanced and sword in hand. She is not blind, however, as usually represented; the idea being to indicate that by means of enlighted Justice during the 50 years of the reign of Queen Victoria a double share of plenty and prosperity has prevailed. The whole work has been thoughtfully carried out by Messrs. T. & J. Bragg, of Birmingham, and will prove an admirable and suggestive municipal record of the occasion, while being an important civic decoration.

Mr. Albert Lorsch will sail for Europe, April 2d, on the *Etruria*.

Mr. Henry Ginnel will sail for Europe on the *Germanic*, April 6th.

Noterman & Hubbel, Litchfield, Ills., will discontinue business April 1st.

L. Strasburger & Co., have opened an office in Paris at Rue Lafitte 5.

Mr. G. L. Fox, of M. Fox & Co., sailed for Europe on the *Trave*, March 23d.

Mr. Chas. W. Troughton, for the past year with M. Fox & Co., has resigned his position.

Mr. Gustave Marcus, of Levison Bros., San Francisco, Cal., sailed for Europe on the *Saale*, March 30th.

Mr. W. N. Walker, manager of Wheeler, Parsons & Hayes, diamond department, returned from Europe on the *Germanic*.

Mr. J. L. Granberry will, after May 1st, occupy the whole of the floor, No. 5 Maiden Lane, on which his present offices are situated.

Mr. J. M. Cutter, of the Elgin National Watch Co., returned to Chicago, March 19th, after a trip of three weeks spent on the Pacific Coast.

Mr. George A. French, representing the diamond importing house of Wm. S. Hedges & Co., sails for Europe per steamer *Etruria* April 2d.

Mr. Isadore Stern, of Stern Bros. & Co., will return from Europe early in April. While abroad he made extensive purchases of diamonds for his firm.

Mr. H. F. Adams, the well known and popular salesman who last year represented H. F. Barrows & Co., has made an engagement with Hamilton & Hamilton, Jr.

Messrs. Cross & Beguelin have just received a large and valuable invoice of attractive and desirable diamonds which they offer to the trade at most reasonable prices.

G. A. Dean & Co. announce they will remove their general office and stock to the factory, Attleboro, early in April, but will continue their salesroom at 194 Broadway.

Mr. William S. Hicks has removed from the building which he has occupied for 35 years, No. 20 Maiden Lane, to 231, 233 & 235 Greenwich Street, corner of Barclay.

T. Leblanillier, T. B. Starr, H. C. Hardy, C. B. Eustis, of Eustis Bros., Minneapolis, C. D. Horley, of Woods & Horley, Springfield, Mass., arrived from Europe on 28th, on steamer *Etruria*.

Kirby, Mowry & Co., have removed their factory in Providence to 117 Harrison Street. This move gives them largely increased facilities and a much superior factory in every respect.

M. C. Eppenstein & Co., Chicago, have in press, and will shortly issue, a very complete illustrated catalogue, which will contain all the latest designs of goods desired by the retail trade, with the prices revised.

Our friends and patrons are requested, when visiting the city, to make their headquarters at the CIRCULAR office. They can have their letters addressed to our care, and will find every convenience at hand for conducting their correspondence.

Aikin, Lambert & Co. have had such a demand for their gold pens, especially fountain pens, that it has been difficult to obtain a sufficient number of workmen to fill orders. They have advertised for more men, but even that has not sufficed to hring all they want of competent workmen.

Mr. C. E. Mather, for three years with Mr. L. C. Benedict, and Mr. J. W. Wentworth, for several years with the Chemical National Bank, have formed a copartnership under the firm name of Mather & Wentworth, and have leased the store, No. 16 Maiden Lane, where they will do a general wholesale and retail jewelry business.

Mr. E. A. Thrall left about the middle of February for an extended trip through the South and to the Pacific coast. Mr. Thrall has built up a large and growing business, and feels the necessity of taking a little relaxation. He always contrives to combine more or less business with his pleasure, however, and is on the look out for novelties at all times.

Mr. Wm. T. Smith, the popular assayer and refiner of Providence, has sold his business and leased his plant to Mr. Wm. A. Smith, who has been associated with him for several years. The business will be continued under the firm name of Wm. A Smith & Co. Mr. W. T. Smith will hereafter devote his entire attention to the rapidly increasing business of the Wm. T. Smith Mf'g Co.

The Towle Manufacturing Company have met with wonderful success with their new pattern of sterling silver spoons and forks which they have named the Orchids, the handle of each piece being decorated with the leaf flower and bud of this beautiful and popular plant. This pattern is clearly shown in the illustrations forming the advertisement of the Company in THE CIRCULAR this month.

Mr. Oliver M. Farrand, for over twelve years with Randel, Baremore & Co., has purchasd the business heretofore carried on at No. 3½ Maiden Lane, by L. C. Benedict. Mr. Farrand will continue at the same number. He is well known to the trade, having made hosts of friends both in a business and social way. His experience and popularity warrant the prediction that he will make a success of his new venture.

Keller & Untermyer carry very full lines of jewelry of all kinds, but are making a specialty at present of manufacturing highly ornamented gold watch cases, and in their stock can be found examples of the finest engraved cases, cases beautifully set in various kinds of stones, and cases artistically decorated in all the modern styles. This firm enjoys a deservedly high reputation for the character of their goods and for the enterprise displayed by them in catering to the newest forms of jewelry.

The Julius King Optical Company have found their business increasing so rapidly that more extensive accommodations were imperatively demanded. They have accordingly arranged to occupy nearly one-half of the store where they now are, with J. T. Scott & Co., in place of the small quarters they have had heretofore. Their enlarged quarters will give them largely increased facilities for the transaction of their growing business.

We are still sending out every month a large number of advance proofs of our articles on Fashions in Jewelry, which dealers are causing to be reprinted, in whole or in part, in their local papers. We will be glad to send more to whoever will use them. We do this simply in the interests of the trade in general, for they are no benefit to us, but only an expense. It is deemed of so much importance however, that the general public, through the daily and weekly press, should be informed as to what the trade is doing in the way of producing new goods, that we are willing to do the work, if dealers will only circulate the proofs, and send us copies of the papers using them.

For five months past upwards of one hundred employees, including about sixty skilled workmen, of Thomas G. Hawkes, glass cutter and decorator, at Corning, N. Y. have been on strike. They attempted to limit the number of apprentices that Mr. Hawkes might employ and also to obtain from him a recognition of the Knights of Labor. This strike was adjusted a few days since by the men withdrawing their demands as to apprentices and Mr. Hawkes conceding that no employee should be discharged because he was a Knight of Labor. Mr. Hawkes is to be congratulated upon the pluck and nerve he has displayed in standing out against the unreasonable exactions of his employees.

The Rockford Watch Company has been paying much attention to the production of reliable and trustworthy watches for the use of railroad employees. In addition to their Quick Train Movement that has given such satisfaction, they now call attention to another movement which they call their New Model. This is specially designed for exacting service on railroads, and is made with the purpose of securing a close time keeper at low cost, and extraordinary strength and durability. It is constructed with a view also of enabling a watch repairer facilities for taking it down with the least possible difficulty. The company now has these movements in 15 jewels gilt and 11 jewels gilt, and other grades will soon be offered. These movements fit either in pendant set or lever set cases, 18 size.

The "Success" initial ring introduced by J. T. Scott & Co., has become very popular with the trade. The simplicity of its construction, by means of which any initial can be adjusted to the ring almost instantaneously and with the greatest security, makes it desirable for

dealers to keep in stock. The illustration accompanying the firm's advertisement in this issue of THE CIRCULAR shows the method of construction of these interchangable initial rings, and how, with a few rings and a series of initials a dealer will be able to supply his customers with any initials they may want. The great advantage of these interchangable rings lies in the fact that dealers are not required to carry so large a stock of rings in order to have a full line of initials as they are with the old style, where there must be a separate ring with each initial.

We copy from a recent number of the Baltimore *American* the particulars of a sale made by Messrs. Hennegen, Bates & Co., Jewelers, of that city. It represents an emerald and diamond ring. The emerald weighs 6⅝ karats and is of rare perfection and beauty of color. Experts and lovers of gem stones know well the difficulty in procuring large size perfect emeralds. This stone being perfect in color and absolutely free from flaws or imperfections, it becomes an interesting object for the connoisseurs' inspection, and their store has been crowded with sightseers. On each side of the emerald is a blue-white diamond weighing 2½ karats each. This ring was presented to Mr. J. Frank Morrison, the popular president of the Crescent Club, of that city. As a work of art in combination gems, this is probably one of the finest rings ever made. The cost of the ring was $3,600.

W. C. Edge & Sons have recently invented and just patented a new ear wire which is intended to take the place of the ordinary wires, and which has all the advantages of other patent wires without their objectionable features, being simple in construction, economical, easily adjusted and removed as well as being perfectly secure. This with the fact of its being adapted to any kind of earring and diamond setting ensures for it a large sale. The contrivance consists of a straight pin attached to upper part of setting, which passes through the ear with a loop soldered some distance below, which passes around the lobe of the ear, connecting by a spring catch which cannot be opened except by a downward pressure. Another application of the same idea provides for screwing the loop to the pin, this being for the satisfaction of persons who might be skeptical regarding the safety of the spring. Messrs. Edge have applied these wires to numerous new and original designs of earrings and settings, having them now ready for sale.

The Planters' Hotel at Augusta, Ga., is evidently one of those that does not desire the patronage of commercial travelers. Recently, a member of a prominent manufacturing jewelry firm, arrived at the Planters', hungry and weary; he was shown to the supper room, where nothing hut a "cold lay out" was to be seen. Desiring something warm in the way of food, he ordered beefsteak and eggs. The presumptiousness of such a request filled the hotel with astonishment; the waiter consulted the steward, who came personally to the guest and informed him that before anything so out of the routine of the bill of fare would require a consultation between the landlord and the cook, and a special order in writing from the landlord. Finally, all the requirements of the situation were met, and the gentleman was served with steak that might have been younger, and eggs that, like Cæsar's wife, were not above suspicion. Next day when he called for his bill, it was rendered for "one day's board, four dollars; steak and eggs, fifty cents;" Persons stopping at the Planters' should be careful how they order hot food when a "cold snack" constitutes the bill of fare. Yet, four dollars a day ought to secure a traveling man something appetizing to eat.

We last month referred to the fact that Mr. James W. Hagen, of Miller Bros., had had serious trouble with his eyes and was under treatment for them. It appears that while at Long Branch, in August last, he contracted a cold which settled in one of his eyes, causing inflammation. He neglected to give it proper attention, and left town on his usual trip west, but by the time he reached Omaha it had become so much worse and the suffering so intense, that he was compelled to return to New York. He placed himself under the care of a well-known physician here, who found that what is termed a superficial ulcer had formed over the sight. He remained under treatment some six weeks, and again left on a western trip. Upon his return to New York, his eye getting no better, he consulted Prof. Knapp, who discovered that the sight of the eye affected was entirely destroyed, and that in order to save the other it would be necessary to remove the one affected. After a few days of preparation, the eye was successfully removed and a glass eye substituted by Prof. Knapp, and we are happy to state that Mr. Hagen is again on the street, receiving the congratulations of his many friends. Mr. Hagen is one of the oldest travelers on the road, as well as one of the most popular, having been traveling about 25 years, 22 of which have been with Miller Bros.

There are a large number of removals taking place or to come in the trade this spring. Among them we note the following: Miller Bros., go to Union Square, where they find excellent quarters on the second floor of the building occupied by Reed & Barton. A. Walach's Nephews remove from No. 11 Maiden Lane to the offices vacated by Miller Bros. P. Jandorf & Bro. remove from No. 196 Broadway to No. 34 Maiden Lane. Robbins & Appleton have removed their down town office from No. 12 John street to No. 19 same street. H. Z. & H. Oppenheimer will remove from No. 25 to No. 40 Maiden Lane. Mr. Henry Shade will give up his New York office, May 1st, and remove to his factory in Ainslie street, Brooklyn. Erico Brothers will remove May 1st from No. 33 John street to No. 862 Broadway. Mr. J. C. Orr will remove to the front rooms of the building he now occupies, No. 75 Nassau street. Mr. C. W. Schumann, while retaining his present store at 24 John street, has also taken rooms at 17th street and Broadway, which he has already occupied, and where his friends will find an elegant assortment of desirable goods. C. Rosswog & Son and S. M. Lewis & Co. will exchange offices in the buildings now occupied by them at No. 5 and 7 Maiden Lane. Mr. William Riker goes to 22 Union Square, and his old offices at No. 3 Maiden Lane will be occupied by Shafer & Douglas, on the 1st of May. Wm. Smith & Co. will remove May 1st from No. 25 to No. 33 Maiden Lane. T. Quayle will also remove to 33 Maiden Lane on the 1st of May.

Elsewhere we have spoken of the burning of the Hotel Richmond at Buffalo on the morning of March 18. There were 125 guests in the hotel at the time the fire broke out, and many of these were commercial travelers. Among them were several representing jewelry houses, who had with them valuable stocks of goods. Mr. Jacob Kahn, junior member of the firm of B. Kahn & Son, occupied a room on the fourth floor, and being awakened by the alarm, found himself surrounded by smoke and flames. He promptly jumped from a fourth story window to the roof of a low building adjoining the hotel, receiving severe injuries to his spine and breaking his left leg. He also received some serious burns. He was rescued from his perilous position and taken to the hospital, and his wife and friends sent for. His wife reached him as early as possible, watching him with the utmost care and tenderness, but his injuries were of too severe a nature to permit of his recovery, especially as pneumonia set in, and he died March 25. His body was brought to New York for interment. Mr. Kahn was well known in the trade as a young, enterprising and capable man, and his untimely death under such shocking circumstances will be sincerely mourned. Mr. M. Adler was also a guest of the hotel, and hearing the alarm, arose and opened his door, thus affording opportunity for several persons to escape through the window of his room, he himself escaping in the same way. He had a valuable lot of Diamonds with him, but had deposited them in the hotel safe before retiring; these were subsequently recovered uninjured. Mr. P. E. Robinson, of Aikin, Lambert & Co., was one who escaped through the room of Mr. Adler, receiving slight burns. He had two trunks of goods with him, which were lost. When the ruins of the hotel were searched the remains of the trunks were found, but the goods were melted, and all that can be recovered will be a portion of the metal. The goods were fully insured. Mr. Louis E. Smith, with M. B. Bryant & Co., had a miraculous escape. He was compelled to jump from a rear window, and then found himself in a close court, from which he escaped by climbing a lightning rod to the roof of an adjoining building, from whence he reached the street. He had a valuable lot of goods with him, which were subsequently recovered, having sustained but little injury. They will have to go to the factory to be refinished, however. There was but one fire escape on the building, and this in the rear, where it was not likely to be discovered in case of fire. Their absence undoubtedly subjects the owners to criminal liabilty, and to liability for all loss of life or property. It is to be hoped that they will be prosecuted by all their victims. This was one of the most fatal hotel fires that ever occurred in this country, eleven persons being known to have lost their lives while several are missing.

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THE
JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW

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A Monthly Journal devoted to the interests of Watchmakers, Jewelers, Silversmiths, Electro-plate Manufacturers, and those engaged in the kindred branches of art industry.

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Settling Insolvent Estates.

WE HAVE previously commented on the fact that there appears to be a determination in the trade to hold insolvents to a stricter account than heretofore, and when a case of insolvency occurs, to have a committee of creditors appointed to take charge of the settlement of the estate and look after the interests of the legitimate creditors. This has been rendered necessary by the great number of fraudulent assignments that have been made, when relatives of the bankrupt have turned up as preferred creditors for amounts that absorbed the entire estate and left the honest creditors out in the cold. In several instances of late, note of which we have made as they have occurred, these committees have rendered most efficient service to their fellow victims, succeeded in rescuing much property from the clutches of insolvents who had supposed that they had effectually secured it for their own future uses. In one or two cases, where the insolvent had made an insignificant offer in compromise, he has been induced to more than double his offer when he found that the committee was bound to get at the bottom of things. We have before us as we write, the report of one such committee which shows that they secured for the creditors fully fifty per cent. more than the bankrupt first offered. To do this, the committee, consisting of three members, had to give up almost their entire time to the settlement for nearly three weeks, leaving their own affairs and going to another city to transact the business. They were compelled to contest every inch of ground with the counsel for the insolvent, who had been employed especially for his sharpness in dealing with such cases, and to contend against state laws that were framed for the protection of local bankrupts against the just claims of non-resident creditors. When the committee finally submitted its report and the creditors received their dividends, the result was declared to be satisfactory, but the committee received but little credit for the hard work they had done, involving so much self-sacrifice. Few persons who have not actually performed such work, can fully appreciate how much labor is required of such a committee, nor how great is the sacrifice they make; everything connected with their own business, with their home life and social relations, must become secondary to the requirements of the settlement of the estate with which they have been charged, and for which they receive no compensation Not infrequently such a committee is greatly embarrassed by the action of some individual creditor, who thinks that by pressing his claim separately he can secure a larger dividend than he could if he "pooled his issues" with the other creditors, and by the obstacles he throws in their way, adds largely to the work of the committee, and sometimes defeats their efforts. In one case we have in mind, an individual creditor engaged the services of a local lawyer to collect his claim independently of the committee, and this lawyer evidently came to an understanding with the bankrupt, for he was found working in his interests and opposing the committee as zealously as was the bankrupt's own lawyer. After the committee had closed its labors and made up its report showing the amount each creditor would receive, this particular one declined to accept the compromise, his lawyer having made better terms for him, and the result was that the report had to be remodeled and the per cent. of indebtedness to be returned to each creditor cut down proportionately to the amount required to pay that one claim in full. It is needless to say that no compromise can be made by a committee of creditors with a delinquent debtor unless they are fully sustained by all whom they represent, and the result reached by them carried out in good faith. If it is to be the rule that when a case of bankruptcy occurs, there is to be a general scramble among the creditors to get hold of the assets and make secure their own claims at the expense of every other creditor, dealers will have to adopt the old maxim, "every man for himself and the devil take the hindmost." Unless there is the most perfect good faith exhibited in the management of settlements with insolvents, it will soon become impossible to get respectable and competent men to serve on committees of this kind, for no one likes to give his time and energies to accomplish a certain thing and then when he has been successful, to have his work all upset by some disgruntled "kicker." There are points of honor involved in matters of this kind that no man can ignore for a little present gain, without sacrificing his standing among honorable men, and suffering from the recoil of his own acts sooner or later. The victims of a bankrupt, whose intentions are to rob them, are all in one boat, and must pull together earnestly and vigorously if they hope to escape complete disaster. As a general rule, committees of creditors are sustained to the utmost by those they represent, and an occasional departure from this rule by some grasping individual should not deter the trade from pursuing this means of settlement in future, when it has been attended with such good results in the past.

Unlawful Impositions Upon Commerce.

IN OUR issue for April we noted the fact that the United States Supreme Court had again decided that the special taxes exacted of commercial travelers in several of the states, were unconstitutional, and consequently, unlawful. The special cases decided were Robbins vs. The Taxing District of Shelby County, Memphis, Tennessee, and Corson vs. The State of Maryland. In each of these cases the tax had been collected, was appealed from, the state courts deciding against the plaintiffs, and final appeal being taken to the United States Supreme Court, with the result that the highest tribunal in the land decides that all such laws, discriminating against the citizens of one state in favor of those of another, are in violation of the constitution of the United States, which vests in Congress alone the power to regulate commerce between the citizens of different states. In rendering the decision, the court holds that while a state has a right to prescribe rules for the regulation of commerce between its own citizens, and may tax them if it sees fit upon every business transaction, it has no right to tax inter-state commerce, or the citizens of other states doing business within its borders. This decision is but a repetition of decisions rendered by the same tribunal in similar cases which we have commented upon at length heretofore, but neither the earlier decisions nor those just rendered will serve to secure commercial travelers against the outrage of being taxed or compelled to pay license fees in quite a number of states. Maryland and Tennessee may abstain from attempts to collect the tax in future, but Virginia and the other states having such laws will continue to enforce them despite this declaration of their unconstitutionality. The Treasurer of the state of Virginia has already declared that he will continue to collect the "drummers' tax" notwithstanding this decision, until a test case is made of the special statute of Virginia upon this point. He says that the law yields to the state a considerable revenue which he does not propose to forego so long as there is a possibility of collecting it, and this he can do until the Supreme Court passes upon the Virginia statute. The same course will be followed by the officials of every other state where the law remains in force, as well as the District of Columbia.

In the district of Columbia the abuse is worse than almost anywhere else, for the reason that certain corrupt practices have grown up under it which involve bribery, perjury and various other crimes. The law of the District requires commercial travelers to pay a license of $200 a year, and the law officers hold that the decision of the Supreme Court does not apply to the District, for the reason that Congress and not any local legislature, makes the laws for that benighted section of the country. By a system of collusion with officials, a class of brokers in Washington, who pay this tax, arrange with travelers to allow them to sell under their license, but in order to do this the traveler must make affidavit that he is a part owner of the goods he desires to sell, and must pay a fee to the licensed broker. It is stated that 4,000 affidavits of this kind were filed last year, indicating that the District had been defrauded out of $800,000 by this means, and that 4000 fees had been paid to these local brokers by travelers. In fact this shows conclusively that the District tax law is used simply to enable a few licensed blackmailers to levy tribute on commercial men, the District government profiting but little from the transaction. The competition between these local brokers for the fees paid by travelers is so great that all sorts of tricks are resorted to to secure them, and the tariff of fees has been brought very low. But woe to the unfortunate traveler who does not know the law or the ways of the brokers, and sells any goods in the Nation's capital without paying tribute, for they lay for him as a highwayman for his victim. When he has violated the law, they come down upon him like a wolf on the fold, and not only compel him to pay fees and penalties, but he is fortunate if he escapes the lock-up. The law in the District of Columbia is in the interests almost exclusively of blackmailers, and in some of the states it is little better, being the means used by petty officials to harrass, annoy and extort money from commercial travelers who may, in ignorance of the law, render themselves liable. While the states derive some revenue from them, we venture the assertion that those who attempt to enforce the license laws make more out of the travelers than the states do.

Recognizing the fact that no state would admit the unconstitutionality of its license law simply because the Supreme Court had decided a similar law of another state to be so, the 'Traders' and Travelers' Union prepared a bill, which Hon. D. R. James introduced at the last session of Congress, providing that "residents of each state and territory may, within the other states and territories and within the District of Columbia, solicit from dealers or merchants, orders for goods and merchandise by sample, catalogue, card, price list, description or representation, without payment of any license or mercantile tax." This bill met with the vigorous opposition of the state rights demagogues, especially the representatives of the Southern States, where the obnoxious law is more generally found than elsewhere, but nevertheless received a favorable report at the hands of the Committee on Commerce. A minority report was made against it by Mr. O'Farrell, of Virginia, which caused the bill to be laid over and no action was taken upon it before the adjournment. It will be brought forward again next winter, and, in view of the recent decision of the Supreme Court, there can be little doubt of its passage. It seems an absurdity, however, that it should require a special act of Congress to enforce the decision of the highest court in the land, especially when such decision is in the best interests of trade and commerce, to which the people of this country are so wedded.

Protection from the Criminal Classes.

THE RECORDS of desperately criminal outrages for several years do not present so many instances of deliberately planned and recklessly executed offences against life and property as have been recorded during the past few months. Among these have been several train robberies, and in several instances the robbers have deliberately laid obstructions upon the track for the purpose of wrecking the trains, in order that they might prosecute their robberies among the dead and the dying. Burglaries of the most desperate character have been reported, in one instance at least, in Brooklyn, the citizen who attempted to defend his property being shot down in cold blood. In a case in New York, the burglars being detected in the building, fired several shots at the pursuers, and finally escaped because of the wholesome dread persons have of a loaded revolver in the hands of desperate men who will not scruple to use it.

A greater degree of recklessness is manifested among the criminal classes, and whether this is due to the teachings of the anarchists and socialists, who hold that life is of little value and that all property should be common property, it is not possible to determine, but the fact remains that the criminal classes are recruiting their numbers rapidly, and that they are becoming bolder and more reckless in carrying out their plans. The robberies of jewelers have been especially bold and daring, and we venture the assertion that more members of the trade have been robbed in one way or another during the last twelve months than had been in the previous three years. These robberies are not peculiar to the jewelry trade, for all business men are suffering in common, but to the increasing number of criminals. The law seems to have no terrors for them, largely due to the successful manner in which so many of those who are captured contrive to escape, through the employment of sharp lawyers, who are no better morally than their clients. We are inclined to think that the labor difficulties of the past year have had much to do with increasing the number of criminals, the strikes depriving many of the means of earning their living, while the violence they have seen exerted in

so many instances has tended to familiarize them with desperate measures and to harden them against all employers of labor. One thing is certain, and that is that the position taken by labor unions and the Knights of Labor has prevented the employment of boys as apprentices to a great extent, and these youths, being unable to obtain honest work to do, have become street loafers, rowdies, tramps and criminals. New York is infested with thousands of this class of boys who are banded together in "gangs," having their leaders and officers, and are always ready for a fight, a robbery, or a shooting scrape. Every other city in the land is afflicted in a similar manner to a lesser extent, and it is safe to say that the ranks of our criminal classes are recruited largely from this great army of street loafers, to whom honest employment is denied by the labor organizations. Many an honest, hard working mechanic has seen his sons driven first to the street and then to crime because his labor union refused to permit the boys to work side by side with their father and learn his trade. Whatever may be the causes leading to this increase of crime that is noted on all sides, the fact of the increase cannot be disputed. This being so, it becomes incumbent upon every man to exercise unusual vigilance in the protection of his property. He can insure it against fire, tornadoes, lightning, and "blizzards," he can insure his life against sickness and death, but there is no insurance against robbery. For the proper protection of his property against thieves and robbers, each individual must himself be responsible. The nearest approach to insurance against robbery is the protection afforded by the Jewelers' Security Alliance, to which we have so frequently directed attention. It is an organization to which any jeweler can gain admittance on the payment of a small fee, and has for its purpose the capture, prosecution and conviction of any burglars who may be daring enough to rob any of its members. While the recovery of stolen goods is not the primary object of the organization, that follows as a natural consequence of the capture of those who have stolen it, for it has not occurred in the many cases prosecuted by the Alliance when the captured thieves have not restored a portion or all of the goods they had stolen. But prosecution and conviction of professional burglars is the main object in view, in order that the trade may be relieved of the apprehension engendered when well-known professional thieves are at liberty. When a dealer is robbed, the blow inflicted upon him is generally a serious one from a pecuniary standpoint, and he is unable to meet the expenses of employing detectives to follow up and capture those who have despoiled him. This is the work the Alliance undertakes to do, and to this end, has permanent arrangement with Pinkerton's detective agency, in accordance with which, when a member is robbed, he puts his best detectives at work on the case, and in every instance up to the present time they have been successful in capturing the robbers and securing their conviction. The Alliance now has a large membership, but we should be glad to see it embrace every dealer in the trade, for we are familiar with its workings and appreciate the protection it gives to its members. The cost is so trifling that no dealer ought to be without this measure of protection that is secured by a certificate of membership in the Alliance.

The Insurance Combination Broken.

READERS of THE CIRCULAR will be glad to know that the insurance combination, regarding which we have endeavored to keep them informed, was formally dissolved on April 6. This combination was formed October 12, and included every company doing business in the city, 157 in all. Its purpose was to advance rates, reduce commissions paid to brokers, prevent competition between companies, and, in short, to place the business of fire insurance in the form of a monopoly, against which property owners had no recourse whatever. A condition of the compact was to the effect that if one company withdrew, that act released all the others. There was great excitement therefore, among underwriters when the Williamsburgh City Insurance Company gave notice on the 6th of April that it withdrew from the Association and would no longer be bound by the compact. Notice was at once sent out to all the other members, and competition and free trade in insurance was once more inaugurated. Brokers came to the front at once, and the companies immediately entered into competition with each other to secure the business these brokers control, and instead of brokers' commissions being limited to ten per cent. they jumped up immediately to fifteen, twenty-five, and whatever the broker chose to demand. It is conceded that the business was pretty well demoralized before the compact went into effect, but the fact that the companies went to extremes while the combination lasted, tended to make the demoralization greater than ever when the compact was destroyed. The rates that had been established were no longer binding, and brokers went about renewing policies at cut rates, and obtaining greater compensation for themselves than they could when the rates were higher. The reason given by the Williamsburgh City for withdrawing from the compact was that the others were not "toting fair," or that while they had observed the terms of the combination, other companies had been paying higher commissions to brokers than the ten per cent. permitted by the rules, and consequently the brokers had been taking business away from the Williamsburgh City and giving it to companies that would pay more for it. As a matter of fact, the compact had hardly been signed before some of the members were devising means to evade its conditions and obtain an advantage over their fellow members, and there has been continuous quarelling and fighting with the Association all winter. Charges of bad faith were made at frequent intervals, and no one trusted any one else. Pot was continually calling the kettle black, and from the way they talked about each other, one would have come to the conclusion that fire underwriters are habitually perpetrating most of the crimes enumerated in the criminal calendar, and that the majority of them ought to be in states prison. Under these conditions, the permanency of the compact became impossible, and its dissolution had been predicted for some time.

All combinations of this character are opposed to public policy, and should be prohibited by law. They destroy all possibility of business competition in the line affected by them, and tend to create a monopoly whose purpose it is to oppress the public and make it pay more for a particular article than it is worth in open market. As we have said, no sooner was the compact broken and competition once more permitted, than there was a rush among the companies to secure business at reduced rates, at the same time that increased commissions were allowed to brokers. This is a clear indication that the rates established were extravagant, for these companies have had abundant experience, and are not likely to accept any risks that are not profitable to them. They have never figured in the role of public benefactors, insuring property for the pleasure they found in paying losses; on the contrary, they have very carefully classified their risks according to their experience, and charged for the hazard of each class. If they have not made money, it has been because their expenses have been too high, extravagant salaries paid to ornamental officers, and excessive commissions paid to agents and brokers having consumed as large a proportion of their premium receipts almost as the losses. All these figures are accessible to the public, and property owners have, very naturally grumbled at paying twice as much for their insurance as it was worth. The effect of the abrogation of the compact in New York has been to restore active competition and to place each company on its merits; the general effect will be the same, for the example of this city has great weight in all other sections of the country. No local board or other organization of underwriters is as strong now as it was while the compact was in force here, and it may be confidently predicted that the competition between companies will be as great hereafter as it was before the compact. All of which is in the true interests of the public.

The Inter-State Commerce Law.

THE COMMISSION appointed to carry out the Inter-State commerce law has anything but a pleasant pathway before it. Already the injustice of some of the provisions of the law have become apparent and the Commission is overwhelmed with applications for interpretations of the law, or petitions against its enforcement in particular cases. All the great railroads have found portions of the law that bear unjustly upon them, and are petitioning against their being put into effect. The immediate tendency of the enforcement of the law is to advance freight rates, and to place more or less restriction upon travel. Thus far there has been no announcement of any advance in passenger rates, but unless the Commission places a very liberal construction upon the sections bearing upon this point such advances must be made eventually. Senator Stanford, president of the Union Central Railroad, has advised the Commission that the Pacific railroads cannot compete with the water routes for the carrying trade with China and Japan, and that consequently, that trade is liable to be largely diverted to other countries. On the whole, it looks very much as though Congress, in assuming the control of the railroads, had undertaken a task of which it is profoundly ignorant, and, consequently, has made a muddle of it. The carrying trade of the country is one that may be safely left in the hands of those who have built it up, and who, through years of experience, have mastered all its intricacies and solved the greatest of its problems. In their hands we have had heretofore cheaper freight and passenger rates than any other country in the world, and greater facilities for transacting business. Competition, in this, as in all other matters of business, may be relied upon to prevent imposition upon the public to any great extent; railroad combinations have been attempted at various times, but they have always been short-lived, for the immutable laws of supply and demand have claimed recognition that could not be denied. It is more than probable that the next session of Congress will be called upon to either repeal the inter-state law or so modify it as to take away its most objectionable features.

The passage by Congress of the inter-state commerce law is the most pronounced declaration that body has ever made that it is prepared to assert the rights conferrred upon it by the constitution to "regulate commerce between the states," and to no longer permit individual states to usurp this function of the national legislature. The recent decision of the Supreme Court to the effect that no state has a right to legislate to exclude the traffic of other states from its borders, or to impose taxes on other state merchants that are not shared by the merchants of that particular state, is in the same line of assuming for the national government the exclusive right to regulate the commerce between the states. States may impose all the restrictions and burdens it pleases upon its own citizens and upon commercial transactions that are undertaken and completed within their borders, but when it comes to citizens of other states carrying on commercial transactions they must have as full privileges and no more restrictions in one state than they have in another. The old states right doctrine, that the state was supreme in all matters within its own territory was well enough in those days when there was little traffic between the citizens of the different states, but in these days, when railroads and telegraphs have brought the Pacific coast and the Gulf states practically as near to New York as Albany formerly was, the legislation of the several states is found to be a burdensome restriction upon the business of the country that cannot longer be submitted to. Congress having gone so far in the direction of assuming control of inter-state commerce, it is impossible to predict what may not follow. For one thing, a national bankruptcy law seems inevitable, and we do not doubt its adoption at an early day. We may also see the day when Congress will undertake to regulate the quality of the goods that go to make up commerce, and to thereby prevent the adulteration of any factor of commerce. It would seem to be quite as much within the province of Congress to fix the quality of all articles going to make up commerce as it is to regulate their transportation, and it is certainly to the public interest that fraud and misrepresentation as to the quality of the goods it purchases should be prohibited. Should the Federal legislature ever go to the length here suggested, we may hope that it will prescribe a standard for gold and silver, and fix limitations to the degradation to which these precious metals may be subjected without incurring the penalties attached to fraud. Should this ever be done, it will be greatly to the advantage of the jewelry trade, and to all workers in the precious metals, protecting them and the public alike from the depredations of those unscrupulous men whose ambition it is to see to how great an extent they can debase their products and still deceive the public. The millenium, however, has not yet dawned, and it will probably be sometime yet before Congress goes to the length here indicated.

The Failure of Clapp & Davies, of Chicago.

THE ANNOUNCEMENT April 13 that the jewelry house of Clapp & Davies, of Chicago, had failed, created no little excitement among Eastern firms, who were, with scarcely an exception, drawn into the long list of creditors, whose names are legion. The failure of this wholesale jewelry house is, in many respects, peculiar, as is shown by the vast amount of credit they had obtained in the face of rumors for at least a year that they were sinking. The knowledge of the failure first became known when confessions of judgment were entered in the Superior Court for an aggregate sum of $139,553, distributed as follows: H. B. Peabody, $14,700; Ada S. Havens, $10,388; D. A. Loring, $5,274; H. B. Peabody, $4,224; Mary E. Hanley, $14,067; William Cudworth, $10,408; W. B. Clapp, $65,500; Mary E. Hanley, $12,992. The house had dealt largely with manufacturing firms in the East, and, as not one dollar of the confessed judgments was for merchandise, and as the aggregate confessed more than absorbed the entire stock, the outlook for merchandise creditors was slim indeed.

A close estimate would place the value of the stock at about $140,000, which, if sold under the hammer, would bring, probably, $75,000. The outstanding bills due the firm, according to the book account, is something less than $75,000. The liabilities will reach $300,000, one-half of which is due to manufacturing firms in the East and elsewhere. Among the creditors are numbered nearly every house dealing in jewelers' stock which had a representation in Chicago. As a full list is appended, although the exact amounts could not, in all cases, be learned: The Waltham Watch Company, $15,000; the Elgin National Watch Company, $9,000, secured for $6,000; Welch Clock Company, of Forestville, Conn., about $3,000; Courvoisier, Wilcox & Co., of Brooklyn, dealers in gold watch cases, $2,000; Henry Oppenheimer & Co., of 100 State street, Chicago, less than $1,000; Louis Strashurger & Co., of New York, diamond dealers, $3,000; H. Muhr's Sons, of Philadelphia, dealers in watch cases and rings, $700; Illinois Watch Company, $1,000; Waterbury Clock Company, $1,100; Keystone Watch Company, of Philadelphia, $2,000; Charles Glutz Watch Company, of New York, $1,000; William Smith, of New York, manufacturer of gold chains, $3,000; Young & Bennett, of New York, manufacturers of gold chains, $3,500; Rogers, Smith & Co., of Meriden, Conn., manufacturers of silver plate, about $5,000; Meriden Britannia Company, $1,200; Stern & Fried, of New York, manufacturers of gold rings, $800; Payton & Nelly, of Providence, R. I., manufacturers of gold rings, $250. This list by no means includes all the creditors.

Three days after the failure, Thomas Davies, junior member of the firm, made the following statement for publication: "Although we have been exceedingly unfortunate," said he, "I must deny that we are guilty of any wrongdoing or deception. If I am permitted to

make this statement to clear the firm of any odium that may be attached to it because of its utter insolvency toward the merchandise creditors, then I only state what I know will be verified when the books are thoroughly examined, and the whole truth regarding our struggles to keep our heads above water becomes known. We owed W. B. Clapp $80,000 in round figures instead of $65,000, but he sold a note for $15,000 to H. B. Peabody. Outside of this the rest of our confessed indebtedness was for money borrowed at different times, extending over a period of ten years, except the sum of $4,000 which was borrowed from H. B. Peabody last January. The history of W. B. Clapp's connection with us is briefly stated as follows: In January, 1884, he came into the firm, bringing with him $119,000. The whole investment was then $250,000, leaving $131,000 as a balance not owned by him. The articles of partnership stated that he was to receive no profits and share no loss, but in lieu thereof was to be guaranteed the payment of 1 per cent. a month on his investment. This was a heavy indebtedness to carry, but, during that year, we paid him the money according to agreement. At the beginning of 1885 he reduced the amount to three-fourths of 1 per cent. a month, and for the two years following we paid the interest and decreased the principal to $82,000. In March, 1886, he withdrew, when we owed him $79,000, and agreed to pay him 6 per cent. per annum on this amount. His debt was never secured until very recently, and remained an open account on our books. The money owed to the other people was secured by judgment notes. I think that our books will show that we have reduced our indebtedness for merchandise at least $30,000 in the last three months; that is, we owe $150,000 now, and on January 1 owed $180,000, which ought to be evidence that we at least were doing our best to pay off our merchandise creditors. Regarding the assets, I think the stock will inventory $140,000, and there is $65,000 on the books that can be readily collected. When everything is cleared up we hope to borrow enough money to pay our creditors at least 40 cents on the dollar and start up again. There is a disposition towards leniency on the part of those whom we have dwelt with, even although they have ordered an investigation of our business methods. I am anxious to have the whole matter thoroughly looked into, for I know that everything is straight."

The Transvaal Gold Fields.

REPORT OF VICE-CONSUL KNIGHT.

GOLD MINING in the Transvaal has been carried on in a desultory manner for something like fifteen years. The fact that a large portion of the Northeastern territory of the Republic is highly auriferous has been ascertained years ago; but the failure, until quite recently, to discover anything like payable gold, has kept the fame of the Transvaal, as a country of great mineral riches, in the background. It was only in June last that the now famous Sheba reef in De Kaap Valley was discovered. The quartz from this reef yields from 10 to 30 ounces gold to the ton. The amount of gold that mining experts claim this reef contains is fabulous. But even this wonderful reef has been eclipsed by another reef discovered shortly after and known as the Thomas reef, samples of quartz weighing 3,000 pounds from which, it is claimed, yielded 148 ounces of gold. These discoveries naturally gave an impetus to prospecting on a large scale, resulting in the discovery of marvelously extensive and rich gold quartz veins. The territory within which gold quartz has been found extends from Witwatersrand, 30 miles from the capital, Pretoria, easterly 200 miles to the De Kaap Valley, with a varying width of from 30 to 150 miles. These gold-bearing veins or reefs occur in patches of a more or less rich or payable character. Quartz taken from the Witwatersrand gold fields has yielded from 4 to 30 ounces gold to the ton. It is, of course, impossible, considering the embryonic state of these gold fields, to give anything like an accurate account of their extent or capabilities. This much I am able to state, from the best information obtainable, that the Transvaal fields when fully developed, will prove among the richest in the world. These discoveries have naturally given rise to no end of speculation and mining ventures, and a great rush of capitalists, miners and adventurers has set in for the fields. Near the Sheba reef a city, Barberton, has sprung up as if by magic, numbering already 7,000 to 8,000 population, and is rapidly increasing. As an illustration of the faith that men of capital have in the stability and future of the fields, I may mention that three cargoes of lumber, which arrived in Cape Town within the last two weeks, were purchased for shipment to the fields.

THEIR SITUATION AND MEANS OF ACCESS.

Barberton, the center of the fields, is situated in the De Kaap Valley, in the Northeastern portion of the Transvaal, between latitude 25 and 26 South. The nearest seaport is Delagoa Bay, in the last Portuguese possessions on the east coast, from which it is distant about 200 miles. This route is only available in the winter months, and the prevalence of fever in the summer time effectually closing it to traffic. A railway between Delagoa Bay and Pretoria is in course of construction, and its completion will greatly facilitate communication with the fields. The next nearest route to Barberton is via Port Natal, distant 481 miles, of which 189 miles is by railway and the remainder by wagon. The best and most popular route at present is by way of Cape Town to Kimberley, 646 miles by rail, and from Kimberley to Pretoria, 360 miles by wagon. The journey is made from there to Barberton from six to twenty days, at a cost of from $75 to $120, according to class and style of traveling.

OPPORTUNITIES FOR THE MINER AND CAPITALIST.

While these fields offer many opportunities for successful ventures to men of capital, I cannot too strongly point out the futility of men without means venturing here, unless they be thoroughly practical miners. In the first place, no payable placer-gold washings have as yet been discovered. The result of successful prospecting has thus far been invariably the discovery of gold quartz reefs, the working of which requires large expenditures for machinery. While a few have, and others undoubtedly will, continue to reap riches by the discovery of payable gold reefs, thousands who, in the absence of alluvial diggings, will follow prospecting, will I fear, be doomed to bitter disappointment. The large influx of population has already raised the price of food to famine prices. The time that must elapse before companies will be in working order, owing to the want of machinery and the difficulties of transport, makes the employment of large bodies of men impossible for some time to come.

TRANSVAAL MINING LAWS.

The Transvaal mining laws are fairly liberal. Aliens enjoy the same rights as citizens as to prospecting and mining. The fee for a "digger's license" is $5 per month. This entitles the holder to prospect upon government lands or private lands with the consent of the owner. A licensed digger is allowed to hold one alluvial and one one reef claim, and may buy claims from other claim holders. An alluvial claim is 150 by 150 feet, and a quartz reef 150 in the direction of the reef and 400 feet broad. No claim marked off by a digger can be "jumped" until the holder shall have ceased working or caused to be worked thereon, for fourteen consecutive days.

OPPORTUNITIES FOR AMERICAN ENTERPRISE.

The development of the Transvaal fields offers a chance for American enterprise, of which it should not be slow to avail itself. The greatest drawback at present is the want of quartz-crushing machinery. Judging from the number of companies that have been organized and the large area of gold quartz reefs, the amount of machinery which will be required within the next few years will be very great. American manufacturers of stamp batteries should bestir themselves and take measures to secure at least a portion of this trade. If an agent were sent out with a sample of the latest

improved stamp battery, I believe he would do well. As it may be of interest as well as use, I will briefly describe the kind of quartz-crushing machinery in use here, with the mode of securing the gold: The stamps weigh from 750 to 800 pounds, and, when working with full power, make from 75 to 80 strokes a minute, crushing about 1½ tons of quartz in twenty-four hours. A stream of water rushes through the battery, washing the powdered quartz over copper plates covered with quicksilver. These retain the gold and are washed two or three times a day with a solution of cyanide of potassium to remove the salts of copper, and scraped once in twenty-four hours to remove the amalgam, from which the quicksilver is subsequently removed in a retort, when the gold is ready for sale.

In addition to quartz-crushing machinery, picks, shovels, axes, hardware, prospectors' outfits, and the usual wares and paraphernalia required at mining centers would, I believe, find a good market. In fact, only a week or two ago it was reported from Barberton that of the first three articles just mentioned none were in stock, the available supply having been sold out. I would, however, point out that, in order to successfully compete for this valuable trade, American merchants and manufacturers should dispatch competent American salesmen to introduce and further the sale of their wares. The trade is mostly in the hands of English and German firms, and they naturally prefer to push their countries' wares, though they may be inferior to the American article, rather than further the extension of the trade of their formidable American rivals. I have found that one live, energetic American drummer has done more in the way of introducing and popularizing American manufactures than a dozen consignments shipped at haphazard to commission houses.

W. J. KNIGHT,
Vice-Consul.

United States Consulate, Cape Town.

Isochronism.

ALTERING the length of the balance spring brings a multitude of new factors into operation, says H. Ganney, which more justly claim and are constantly quoted as being the actual causes of isochronism and its variation; and this may explain the confusion of ideas and the contradictions so general on this subject. Most writers and practical men, who do not take the trouble to theorize, are quite sure of the fact that a variation of length causes a variation of isochronism. Saunier's book on horology quotes and indorses various authorities to show that a certain length of spring is necessary to secure isochronism, especially with spiral or flat springs. Mr. Glasgow, in his admirable practical articles on springing, contends for length as a prime element in securing isochronism, and makes no reference to the spring being made eccentric or small, except as a matter of convenience or as a means of altering the adjustment for position. I can find no reference to the eccentric action of the spring as a means of curing errors of isochronism, until Mr. Kullberg gave me the idea, and there can be no doubt but that it is correct.

Like will cure like—that which causes the disease will cure it. The want of concentricity or truth in action is the cause of variation in long and short arcs, or want of isochronism, and long springs, tapered springs, Breguet springs and double-curve springs are used and proved to promote isochronism; yet notwithstanding the inferiority of the flat spring—a single look at which in action, shows its marked inferiority—practical results are obtained with it equaling the more perfect springs; and if acceleration of the short arc is desired, to neutralize the retarding influence of oil in cold, is most easily obtained by it. This shows that the error which is incident to this spring, as usually applied, causes the watch to gain on the long arcs and lose on the short. By reversing this error, we can utilize it. A spring pinned to be quite true at the collet and stud when at rest, developes a series of eccentric circles of increasing eccentricity as the arc of vibration increases. As the eccentricity, so is the error in long and short arcs. A spring being most easily wound when most true, the eccentricity causes a relative increase of power or butting action, which accelerates the action where it occurs. If we fix the spring on the collet and stud so as to throw the eccentricity when at rest near the stud, we can have all the eccentricity in the short arcs of vibration causing their acceleration, or, dividing it between the long and short arcs, secure a circulation of the spring in the middle of its vibration. The matter may be summed up as one of convenience, and in springing with the flat, the circularity of the spring, with the balance turned half the distance it usually vibrates, must be created, if it is to be isochronous. The Breguet and chronometer springs do not, when perfect, move on the balance circle, but with it; the flat spring travels to and from the center if pinned quite true, and the spring circle is only eccentric when at rest, and the whole of its eccentric action is on one side of the balance, on which it exerts a constantly increasing influence. When pinned out of circle when at rest, the circle travels with a diminishing eccentricity to the center of the balance, then becomes concentric with it, and them increased motion creates increasing eccentricity on the other side of the center of the balance. By this means the eccentricity of the spring may be utilized to secure or vary isochronism; and this, doubtless, is the basis of all the changes that are recognized as resulting from altering the length of spring. Perfect truth in a spiral spring being impossible, the spring is shifted about until the error it contains is neutralized or balanced. In the face of this fact, one will be astonished at the opposite opinions expressed on this point. Urban Jurgersen states that the taped spring will give isochronism, which is correct, and twice asserts that the short arcs are quickened with ordinary springs by increasing the length of spring. This is contrary to what is usually asserted, though some writers say, if the short arcs are not accelerated by taking up the spring, let some out. Mr. Immisch repudiates length as of any consequence; and Mr. F. Cole, in his treatise, says the altered length of spring has of itself no influence as a principle in counteracting errors of isochronism, which is chiefly effected by the change of length, altering the mechanical relation of the collet with the stud. Mr. Cole's essay, I am inclined to think, is the most valuable one we have on the subject, as he proves that the subject of isochronism of the balance includes the whole art of watchmaking, and also shows that isochronism, pure and simple, is only to be found apart from watchworks, as a branch of pneumatics relating to vibrating or oscillating bodies, though he makes the singular mistake of asserting that no sufficient test of the isochronism of vibrating strings, reeds or pipes can be had in long and short arcs of vibration, as these only have an extent of a few seconds time after any given blow or impulsion.

I will conclude with an experiment showing the value of the Kullberg idea of putting the spring close to the stud or index. A common eight-day lever timepiece, a constant eye-sore, owing to its gaining some three or four minutes when fully wound, and losing the same when nearly down, offered an inviting field for experiment; and making no alteration beyond setting its spring well toward the stud, no difference could be detected between the first and last of the eight days it its time, which seemed perfect. I have not succeeded in getting it to gain in the short arcs, and a recent experiment in putting the spring very much out of circle toward the stud, seems to develop so much friction at the pivots, which are not jeweled—it being a common Yankee with the usual steel holes—that the original fault seems to develop; and it may be observed that balancing the friction at the pivots, as shown by increased arc of vibration, and observing the circular appearance of the spring in actual motion, is the best practical guide for success in this direction.

TO SHARPEN CUTTING TOOLS.—Carbolic acid is recommended for moistening the tools with which hardened steel is worked. The effect of the grindstone is even said to be increased by the use of the acid. The dark and impure acid can be used for this purpose.

Decline in the Value of Silver and the Commerce of China.

REPORT OF MINISTER DENBY.

THE QUESTION whether the decline in the value of silver has been accompanied by a proportionate decline in the tael value of produce, is one which has been frequently discussed in China. The accompanying tables, giving the prices of tea and silk during the last ten years, which I take from an able article recently published in the Shanghai North China *Daily News*, would tend to prove that, making fair allowance for fluctuations in the value of these goods in Europe, the range of price in China since 1876 has been remarkably steady:

In examining into the prices obtained by the Chinese over a series of years, it must be borne in mind that high prices may have been obtained in particular seasons from causes with which the rate of exchange, and, to some extent, the home demand, had little to do. * * * Again, China silk does not now go to one large market, whose quotations may be taken as the sole guide. * * * There are, however, market influences, and the state of the exchanges between China and Europe and America, only affect them to the extent of making some purchases here practicable or not at a particular time.

The London market is the criterion in black tea, the only side influence being the Russian demand, which requires the finest teas, for which prices are paid far above the limits of the London market.

The prices of good 4½ chop Featlee silk on the 1st of January during the last eleven years have been—

Years.	Taels.	Exchange.	Years.	Taels.	Exchange.
		s. d.			*s. d.*
1876	330	5 7½	1882	420	5 2
1877	520	5 7⅛	1883	370	5 1⅛
1878	400	5 6½	1884	372½	5 3⅜
1879	371½	5 6⅝	1885	307½	4 11⅞
1880	380	5 3⅛	1886	360	4 7⅜
1881	345	5 1⅜			

Down to the year 1880 the exchange is for credits at 6 months, and since then at 4 months' sight. It is evident that exchange has had no general effect on the market for silk in China.

An examination of the tael price paid for tea at Hankow at the opening of the season for eleven consecutive seasons leads to the same conclusion:

Years.	Finest to choice.	Common to fair.	Exchange.
	Taels.	*Taels.*	*s. d.*
1876–77	44 to 47	13 to 18½	5 6¾
1877–78	44 to 48	12 to 14¾	5 6
1879–80	48 to 54	15 to 17	5 0
1880–81	42 to 49	12 to 14	5 2⅝
1881–82	48 to 52	14 to 16	5 2⅝
1882–83	45 to 52	12 to 13	5 2½
1883–84	48 to 54	12 to 14	5 0⅞
1884–85	46 to 50	13 to 15	5 1
1885–86	44 to 48	14 to 17	4 11½
1886–87	46 to 50	13 to 16	4 7⅝
1887–88	47 to 51	14 to 17	4 7⅞

During the first five of these years the London prices for common teas ranged from 7*d*. to 8*d*. and 9*d*., but in the last five the prices have been from 5*d*. to 6*d*. a pound.

The same paper shows that the fall in sterling exchange has not lessened the import trade to China, however much it may have disappointed and at times injured the foreign merchant.

A steady exchange is what is required, the writer remarks; but if that is procured by increasing the cost of imports, we cannot but think it will be injurious to the import trade, and probably retard its growth.

United States Legation, Peking. CHARLES DENBY.

Section of Applied Art.

(Tuesday, March 15, 1887; Sir George Birdwood, M.D., LL.D., K.C.I.E., C.S.I., in the chair).

[The Chairman, in introducing Mr. Phillips to the meeting, said: I have to congratulate the Society on his having kindly consented to prepare and read the paper for this evening—"The Application of Gems to the Art of the Goldsmith." The firm of which he is now the head was founded more than fifty years ago by his father, Robert Phillips, who was the regenerator of art-goldsmiths' work in this country, when it had fallen into its deepest abasement, between the close of the great war with Bonaparte and the accession of Queen Victoria to the throne of the United Kingdom. He spent most of his life, as his son has since done, in traveling throughout Europe for the yearly improvement of his art, to which he gave his entire devotion, and in which he gained the greatest distinction for himself and his country, earning the highest jury awards at the Great Exhibition of 1851 in London, the Universal Exhibition of 1855 at Paris, and the 1862, London, and 1867, Paris, International Exhibitions. At the Paris Exhibition of 1878, he was a juror, *hors concours*. He received also the decoration of the Legion of Honor from the Emperor Napoleon III., and the Crown of Italy from King Victor Emanuel, as marks of their personal recognition of his unique reputation as an English art jeweler. His son, Mr. Alfred Phillips, in succeeding to his father's business, has been worthily walking in his father's footsteps, to the great gratification and pleasure of all who, like myself, have enjoyed the hereditary friendship of his family. But not only has a thoroughly practical and most interesting paper been prepared for us to-night by Mr. Alfred Phillips. Through the courtesy of several of his patrons, it will be illustrated by some of the noblest and choicest works that, during the past ten years, have been produced by Messrs. Phillips Bros. & Co. A rare delectation has, in this way, been provided for this evening's meeting, for which all present will, I am sure, be sincerely grateful to the Duke of Westminster, Lord Revelstoke and Sir W. McCormack, and the other noblemen and gentlemen who have helped to make up the enchanting display]. The paper read was—

THE APPLICATION OF GEMS TO THE ART OF THE GOLDSMITH.

BY ALFRED PHILLIPS.

MY SUBJECT being one of the series in furtherance of the views, and I have a right to say the hopes, cherished by the Applied Art Section of this great Society, that the impetus of art application, wisely directed, be imparted to the various industries at present more or less flourishing in this country, I have had in constant view, while compiling the various facts which I now venture to submit for your consideration, the desirability of chiefly addressing myself to those applications fittest for the existing age and its requirements.

I do not propose, therefore, to recapitulate this evening an absolute chronology of the application of gems from the earliest periods, but elect to base my remarks with reference to the progress of goldsmithery upon the traditions which have survived from a comparatively recent period, namely, the early part of the 15th century, when precious stones came into liberal employment, finding their chief use as objects of personal adornment, distinct from the mystic and religious purposes to which they were applied during the earlier ages.

That gems were firstly so employed was doubtless due to their extreme rarity, inestimable price, and the consequent impossibility of their becoming articles of familiar commerce.

To the archæologist and the historian there is, without doubt, much that is vitally interesting in the use of precious gems and amulets throughout the early ages, and, so far as we are concerned to-night, there is this much which is indispensable to our argument, namely, the well-known fact of the ever-increasing estimation in which gems have been held since the days of Moses, under whose rule we know them to have been used, whatever may be the controversy as to their form and nomenclature as priestly adornments.

The breastplate of Aaron may be considered as a species of regalia, illustrating, as crown jewels do, priceless possessions beyond the purchase of individuals.

For identical reasons, the greatest interest must attach to the accession of Constantine, whose crown is accepted as the earliest instance of the jeweling of the chief symbol of empire.

From that time forward we note the ever-developing luxury in the regalia of all civilized and, indeed, many half-civilized nations, and

we may admit the fact that so far, throughout successive centuries, the crown jewels of European nations have furnished the chief outlet for gems of abnormal size and value. By the same token barbaric nations have absorbed into their regalia gems of corresponding importance in their more primitive forms.

Again, archæologically speaking, nothing should surpass our interest in the engraved signets of Greece, at the remote period of 600 years before Christ, as well as, even at that early age, the production in rude form of some of the nobler gems, such as rubies and sapphires, besides those others which, from their inferior hardness, are classed to-day under the semi-precious category, as, for example, amethyst, chrysolite, coral, amber and opal.

Before abandoning the subject of early engraved gems, my own experience impels me to deny, in common with Lessing and other authorities, the existence of any admitted engraved gem of the early Greek period cut in a true ruby, for the simple reason that this finest quality of corundum cannot be satisfactorily incised by means of the *punctum lapidis* of the ancient engravers, which was nothing more than a lower formation of sapphire, of white or pale blue color, said to have been found in the Island of Cyprus, and imported into Greece under the name of adamas, for the primary purpose of gem engraving.

The *punctum lapidis* efficiently engraved the many gems of inferior hardness to itself, such as banded agates, sards, jasper and the like, as well as the softer pellucid gems, as, for example, garnets, chrysolites and formation of quartz.

It will easily be conceded that the diamond, if known at all in Pliny's time, was neither susceptible of manipulation by any art of cutting then existing, nor was it, in its crystallized form, applicable to the extensive intaglio engraving which the Greeks are known to have conducted. Without absolutely denying the treatment of the commoner qualities of sapphire by such a process in the earlier period, I should, with Mr. King, regard with extreme suspicion an incised work in fine sapphire ascribed to that age.

In support of my view, the ancient Greeks are known to have employed for ornament the true sapphire (Hyacinthus) in most cases, not only uncut, but barely shaped and crudely polished on the upper side only.

The two renowned gems, cut in sapphire, which once graced the Marlborough collection, belong to a later period, when the diamond was known as an incisor, the one being a portrait of Caracalla, A.D., 211, executed during the six years of his reign, and the other a head of Medusa, which conveys to me the impression of having been cut with the diamond. Both these gems possess the brilliant finish which only the diamond can impart.

Extravagant use was made of the gems and precious metals in Solomon's time, both in the secular cause and that of the magnificence of the temples and the priests. The gems, which had been more of mysteries than merchandise, were, in advance of the times, gradually becoming objects of commerce.

Large application was made of precious stones during the reign of Alexander, especially those of Indian origin, the use of which was, no doubt, prompted by the more educated craftsmen who followed in his wake through Eastern dominions.

The anxious student, desirous of tracing back to early sources the application of precious gems, finds himself continually checked by the utter ignorance of their technology which prevailed from the time of Moses to far beyond the time of the Romans possessing themselves of Asia and Africa. Then it was, as we all know, that the lavish use of precious stones, under imperial rule, grew to be such an abuse that it was needful to frame laws curtailing that luxury, which was fatally contributing to the decline of a great empire.

Even under Constantine and his successors the technical acquaintance with the gems had scarcely improved, but they were better manipulated and more extensively applied.

A more reliable supply of gems had created increased familiarity with their general characteristics, and led onwards, by successive steps, to the assiduous attempts which were made during the Christian era to satisfactorily deal with the diamond as a finished gem.

At last, in the early part of the 15th century, this desideratum was accomplished. Diamond cutting may then be said to have inaugurated a great industry, while the real foundation had been thereby established for the application of finished gems, manufactured, if you approve of that term, out of the rough material, in something approaching the perfect development of to-day.

Before approaching the subject of the modern applications of the gems, it seems proper that some reference should be made to the general history of the ruling varieties which, in all ages, have constituted the staple commerce in precious stones. I refer, naturally, to the diamond, the ruby, the emerald and the sapphire.

The so-called diamond of the Septuagint was, no doubt, the jasper. This may be the more readily conceded, practice having taught us that the diamond of Aaron's breastplate could not have been the diamond of our time, inasmuch as it was engraved. The engraving of the diamond, then absolutely unknown, is, even in these days, a necessarily imperfect process, savoring more of the abrasion of a gem than of its legitimate manipulation. Diamond engraving should be stigmatized as the unprofitable accomplishment of the ruin of a gem, which, unlike its fellows, depends solely upon its unrivaled luster, and should be condemned with all other misapplication of skill. The diamond is deservedly the foremost of the gems. My subject being that of application, I cannot too soon remind you of the commencement of its general employment as a finished gem in France during the first quarter of the 15th century. The use of the diamond continued with unabated extravagance throughout the succeeding reigns of the French kings, especially that of Francis I., who not only encouraged its production, but the art of applying it to personal ornament.

All of us can feel how powerful an impetus was given to the art of the goldsmith when men like Cellini were welcomed to the courts of great monarchs, and there treated with friendship and liberality; neither is it difficult to ascribe a reason for the rapid spread of the jeweler's arts of Italy and France to the other countries of Europe, once the great example of their protection had been set by monarchs.

I pause for one moment to reflect upon the relative luxury which heralded the employment of diamonds in the 15th century. When we consider that in 1421 the revenue of England was under £56,000 of our money, and that of France apparently not in excess of that amount; when, in 1428, such a reverse as that we experienced at Orleans was sufficient to cripple our finances, striking the first blow at our power in that country, we need not ask ourselves why the sumptuary laws were soon after established.

We need not wonder that the luxury of an Agnes Sorrel or a Duchesse d'Etampes could menace the resources of an entire dynasty, inestimable, for all that, as we have found the art traditions of those days.

Diamond cutting was practiced in Paris, to a small extent, in the early part of the 15th century, but it is easy to perceive from the specimens handed down to us how primitive was the result, as compared to the magnificent manipulation of to-day.

As an industry already worthy of the name, it was conducted at Bruges towards the end of the same century, whence, we are told, the apprentices once more migrated to Paris, some of them also founding establishments in Amsterdam, the present center of the diamond industry.

Cardinal Mazarin, a lover and enthusiastic collector of gems, protected and regenerated the art of diamond cutting in Paris during the second half of the 17th century. Since the year 1800 the Dutch industry may be said to have triumphed over all others. From that time diamond cutting has never been an important trade either in London or Paris, in both of which capitals, however, work of the highest perfection continues to be carried out.

Mr. Coster, formerly at the head of the diamond cutting industry of Amsterdam, considers that the unprecedented quantity of

2,500,000 karats of diamonds are now annually cut in that city. We must admit this to be an illustration of expansion, unequaled in any other trade since 1800, when the same city scarcely averaged an output of 15,000 karats.

There seems to be some justification for this gigantic estimate, inasmuch as motive power, now so easily obtainable, permits some 2,000 independent workmen to operate in their own homes, outside the sphere of statistical observation. From data, however, which I have collected in Amsterdam while compiling the facts for this paper, I find that the city is known to employ 8,000 skilled splitters, cutters and polishers, producing an average during the last five years of 20,000 karats per week, or 1,040,000 karats per annum. At this moment it is believed that Amsterdam, in its regular workshops, is turning out 1,500,000 karats per annum.

(To be continued.)

The Jacob Castelberg Case.

AFTER AN interesting trial, occupying about two weeks, the committee, representing the creditors against Jacob Castelberg, secured a verdict in their favor on April 12.

There were four charges preferred against the defendant. One on the mere technical ground that he had concealed himself to avoid service of writs, and three, containing in substance the charges that he had made unlawful preference and had assigned, given, sold, conveyed and transferred a large part of his property, consisting of diamonds, watches, watch chains and jewelry with the intent to delay, hinder and defraud his creditors. These proceedings were instituted under the State Insolvent Law of Maryland. This law is the only means of releasing a debtor from his obligations. If he is unfortunate, but honest, it is a beneficent law, and he may appeal by petition for the benefit of the act; stating that he is insolvent and offering to deliver up all his property for the benefit of his creditors, and submitting therewith a schedule of his property and a list of debts due from and owing to him, all verified by affidavit. If there is an attempt to defraud creditors this law is their means of remedy. An insolvent debtor who does not desire to deliver up all his property for the benefit of his creditors may be ordered by the court to do so, and, failing to file a full schedule of his assets or show good reason why he cannot do so, he may be remanded to prison at the discretion of the court.

The fact that Mr. Castelberg, through the ablest counsel he could secure, contested the action of the creditors to the extent of consuming thirteen days in the trial, may be taken as an indication that he had powerful reasons for not wishing to make a complete schedule of his assets. That he was defeated shows that the evidence was very strongly against him, and furnishes ground to expect that the creditors will recover part of the property made away with.

We have examined the stenographer's report of Mr. Castelberg's testimony on the stand, and such phrases as "I don't recollect," "I cannot say exactly" and "I could not state from memory," seem to cover almost all questions relating to what became of his books and his stock, the amount of his sales, cash receipts, deposits, purchases, debts, losses, profits and the general situation of his business. On immaterial points, however, he seemed to possess a good memory, and it is impossible to avoid the conclusion that he has not been entirely honest in his statement of his assets.

We have every desire to treat Mr. Castelberg fairly and give him the benefit of every doubt, but it really seems that a man whose failure followed so close upon the purchase of over $50,000 worth of goods, which are not accounted for in his stock, ought to be able to make some explanation to his creditors which would furnish a satisfactory basis for accepting a reasonable compromise. During the time he purchased this $50,000, we learn that he only paid his merchandise creditors about $9,000. A conspiracy on the part of himself and son to defraud creditors, seems to have been clearly proven.

This trial in the civil suit will probably develop results of great importance. Within a week after the verdict was rendered the two Castelbergs were indicted by the Grand Jury on criminal charges. Mr. Thomas Hughes, the attorney who was the original assignee, has been appointed trustee of the insolvent estate by the Court. The committee who represent the creditors will continue their efforts to recover all the assets it is possible to secure, and it is quite likely that an example will be made of this case which may be studied with good effect by the entire trade.

Scarcely four months have passed since Mr. Castelberg failed. In that short time the assets he resigned to his trustee have been largely turned into money. One dividend of twenty per cent was paid to the creditors on March 22d, and further proceeds of the assets will be distributed as soon as practicable.

We are granted the privilege of laying before our readers sufficient extracts from Mr. Castelberg's testimony on the witness stand to illustrate his method of defense. It will serve to show the uncertainty of human affairs. He had enjoyed liberal credit with the trade, and was supposed to be a fine salesman and good business man of more than average ability. He prided himself on his memory, and no one had cause to question his confidence in that regard. Traveling salesmen spoke of him as a close and careful buyer, and he was reported to be making money up to the time he failed.

EXTRACTS FROM JACOB CASTELBERG'S TESTIMONY IN THE RECENT ACTION INVESTIGATING HIS ASSIGNMENT.

Q. Mr. Castelberg can you tell the Jury what amount of stock you carried?

A. I dont think I can tell that exactly.

Q. When was the last time you took stock?

A. I don't know. I can't recollect. We were disturbed in some way or other and left off.

Q. Had you any books in which you made an entry of the amount of stock you had on hand?

A. My bookkeeper knows more about that than I do.

Q. I ask if you had such a book?

A. There might have been a book of that kind.

Q. What became of it?

A. I really don't know at present.

Q. When was the last time you saw that book?

A. I can't positively recollect.

Q. How long before you made your assignment?

A. I can't positively recollect.

Q. Do you know where that book is now?

A. I do not.

Q. Was it taken away from the store?

A. I don't know.

Q. What were your monthly sales? How much will they amount to on an average?

A. Well, I could not exactly say.

Q. Did you keep a sales-book?

A. I had a book where I kept my sales.

Q. Where is that book?

A. I really don't know where it is now.

Q. When did you last see it?

A. I could not say exactly.

Q. Did you use it as late as December 1886?

A. I could not positively say exactly.

Q. What other books did you keep besides this inventory book and the book of sales?

A. We kept a book of the people that owed us money.

Q. Did you direct your bookkeeper to stop keeping books at any time during 1886, and tell him that he must either leave you or stop keeping books?

A. I told him that his time was more valuable behind the counter. We had a slate, and instead of putting it in a book we put down on the slate our sales. I told him to keep slips of paper of all the transactions we done during the busy season until some other day. (This is significant.)

Q. What was the amount of your indebtedness about the first of January, 1886?

A. I do not know.

Q. Could you tell within $5,000?

A. I don't know how much I owed.

Q. Could you tell within $10,000?

A. I could not.

Q. Have you any means of telling what your monthly sales were?

A. I can't remember.

Q. Is there any record of it?

A. I don't recollect anything about it.

Q. What did you do with the money made by the sales, say, in December, 1886?

A. Spent it.

Q. You have told us you made payments in money. Did you take any receipts for them?

A. None at all.

Q. And could you recollect them?

A. Why should I not recollect them for a few days?

Q. Did you state that you paid Louis Sinsheimer, a flour merchant, of Allecanna street, $5,000?
A. I don't know whether I said $5,000.
Q. How much did you pay him?
A. I can't recollect.
Q. Can you tell about how much?
A. I can not.
Q. What amount did you pay Martin Emerich?
A. Well, I borrowed $3,050 from him.
Q. When did you borrow $3,050 from Mr. Emerich?
A. That, I cannot recollect the date either.
Q. Where did you pay the notes you say you gave Mr. Emerich?
A. I don't recollect.
Q. Did you pay them in bank?
A. I don't recollect, sir.
Q. How did you pay it; by checks or money?
A. That I cannot recollect very well.
Q. Did you pay David Levy, the shirt man on Gay street, any money?
A. Yes, sir.
Q. How much?
A. Well, off and on, several thousand dollars.
Q. Can't you tell the jury how much?
A. I really don't know; I can't recollect.
Q. Were these notes paid by checks?
A. Indeed, I cannot recollect whether by money or check.
Q. Now, Mr. Castelberg, I will ask you with reference to Mr. Daniel Schoolhaus, the insurance agent. Did you pay him any money?
A. Yes, sir.
Q. What amount?
A. I don't remember the exact amount.
Q. Did you pay him as much as $4,500.
A. No, sir.
Q. How much money did you borrow from him in November?
A. I don't recollect.
Q. Give it to us within $10,000. Approximate it as near as you can.
A. I borrowed from Mr. Schoolhaus off and on.
Q. Did you pay him any currency in your store?
A. I might have done it. I can't hardly recollect.
Q. Did you take any receipt from him when you paid him?
A. I don't think I did.
Q. What became of the goods you gave him as security?
A. Mr. Schoolhaus is here and will answer for himself.
Q. Did you get back the goods when you paid him back the money?
A. I did not.
Q. What did you leave them with him for?
A. That will prove itself by and by.
Q. You were largely in debt, about $60,000, and you say you put some of your goods in Schoolhaus's hands as security for a debt. You paid the debt and did not get the goods back?
A. Yes, sir; I paid the debt.
Q. What kind of goods were they?
A. Well, Mr. Schoolhaus has a memorandum and so have I.
Q. Why didn't you get them back and let them go to pay your creditors?
A. I did not dream I would not settle with my creditors.
Q. Why didn't you tell your assignee that Schoolhaus had these goods?
A. Because I thought Mr. Hughes would settle.
Q. You did not fail to pay any of your debts compacted during 1886?
A. No, sir.
Q. Now, you had some stock on hand when you began the year 1886?
A. I suppose so.
Q. Could you tell how much within $10,000?
A. I could not tell you exactly how much.
Q. You could not tell within $10,000?
A. I could not.
Q. You cannot tell within $20,000?
A. I cannot.
Q. Might it have been $50,000?
A. I cannot exactly tell you.
Q. Could it have been as much?
A. I don't know.
Q. Could it have been $100,000?
A. I don't know how much.
Q. Will you tell us whether there is one single thing in connection with your business prior to 1886 that you recollect at all, and if you do recollect anything about it, tell the Jury what you recollect. Now you carried on a business for a number of years. Tell the Jury if you can recollect a single thing in connection with the business you conducted from the first of January 1886 down to the time you made your deed of assignment on the 28th of December, if you remember any transaction. Do you remember how many goods you bought during that year?
A. There are the bills, Mr. Marshall.
Q. Now you have got an indebtedness for merchandise purchased during that year of $59,274—I call it $59,000, and there is a difference of $28,463—now will you tell us where that went? What losses did you sustain by which there is a deficit according to this statement of $28,463? What has caused the disappearance of this amount? Where did it go? What business losses did you incur that all this money has gone and disappeared from the face of the earth?
A. The money was spent.
Q. You failed on December 28th, and you sent some person to New York to make a compromise; now did you make any estimate of your condition to know what you owed your creditors and how much you would be able to pay them?
A. I left the store there with the goods, and Mr. Hughes went to New York to settle up my affairs.
Q. You failed and owed $60,000 for goods bought within four months, the most of them, and now I ask you if you had not a curiosity to look around and see what was the condition of your affairs? Did you make any effort at all to give your creditors any information as to your condition?
A. They got all the information when they came here. They examined the stock and saw what was left.
Q. Had any of it got away without your knowing it?
A. Well perhaps.
Q. Do you think so?
A. Perhaps.
Q. In other words then, Mr. Castelberg, you did not know any more about your business than I do. You failed and made a deed of trust on the 28th of December, owing nearly $60,000 for goods recently purchased; and you tell that Jury that you did not know any more about your affairs than I do. You cannot tell about what stock you had; about what your purchases had been; about what your sales had been, or anything about it. Were you able to enlighten your creditors at all?
A. All I know was unfortunately I could not pay my indebtedness.

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For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 2327. 170 Broadway, New York.

At a regular monthly meeting of the Executive Committee held at the Alliance office on the 8th inst., there were present President Dodd, Vice-Presidents Sloan and Untermeyer, Treasurer W. C. Kimball, J. B. Bowden, Chairman, and Messrs. C. G. Alford, C. G. Lewis, N. H. White, L. Kroeber and Secretary Champenois.

The following applicants were accepted as members:

O. M. Farrand, 3½ Maiden Lane, New York City; H. W. Frankenstein, Cincinnati, Ohio; Steinmetz & Rumley, Helena, Montana.

How to Become a Skilled Optician.

[Edited by C. A. Bucklin, A. M., M. D., New York.]

TAKE great pleasure in introducing to the notice of my readers two essays written by students instructed in our private school of optics for the instruction of those desiring to become skilled opticians. The first essay is by Miss Teresa Freeman, of Blosburg, Pa. The subject is errors of the accommodation.

The second essay is by Robert Taylor of Cedar Rapids, Iowa. The subject is Myopia.

The quarterly report of our school of optics shows that twenty-five persons have qualified themselves for following the vocation of a skilled optician.

It is only after careful consideration that I have decided to publish essays written by optical dealers who are studying optics. I believe that the interest is greater among opticians when they have an opportunity to read what others can do who have had experience and advantages about equal to theirs.

ERRORS OF ACCOMMODATION.

BY MISS TERESA FREEMAN, BLOSBURG, PA.

The crystalline lens of the eye is the great refracting medium through which all rays of light must pass in order that they may be properly focussed upon the retina. This lens is a biconvex, transparent, elastic body, in appearance very much like a common magnifying glass. It has the power of not only bringing light to a focus coming from a single distance, but that coming from different distances. This power is called the power of accommodation, and the entire or partial lack of it an error of accommodation. The amount of accommodation depends upon the physiological action of the ciliary muscle, which, by contracting, relaxes the capsule of the lens, allowing it to become thickened. There are but three errors of accommodation—presbyopia, or old sight; spasm of accommodation, and paralysis, or paresis of accommodation.

Presbyopia.—This is the most common of all these errors. The optician will find that more than one-half of all cases coming under his care will be presbyopic, and it is essential that he understand thoroughly its nature and correction. After the age of forty the lens of the eye begins to grow hard and stiff. The muscles producing the change in shape still retain their powers, but the lens has lost its elasticity, so the muscle is unable to make it thick enough, and the rays of light coming from near objects will not form a distinct image upon the retina. This trouble usually shows itself first in reading, especially at night. The light seems dim, the print poor. There is a tendency to carry the book or paper away from the eye, and the eye itself soon becomes tired. The remedy for this is to use a lens of sufficient refractive power to bring light to a focus upon the retina. This glass will be the weakest convex lens through which the patient can see to read comfortably. Presbyopia affects all eyes, whether normal, myopic or hyperopic. Persons having a slight degree of myopia do not require spectacles for presbyopia as soon as others, because the myopia is stronger than the presbyopia and overcomes it. As soon, however, as the loss of accommodation reaches a certain point where the myopia is no longer able to do so, they will be affected and will require the usual glasses for presbyopia. In hyperopic eyes there is an extra amount of accommodation brought into use. This unusual strain upon the ciliary muscles soon tires them and causes them to relax, when the print in reading soon loses its distinctness and becomes blurred. Of course in such a case the patient should be given a strong enough convex lens to remove this strain. Before giving glasses for presbyopia the optician should always test for hyperopia, and if it is found to exist the amount should be added to the presbyopia in the spectacles. When astigmatic people have presbyopia both these errors must be corrected. This is done by giving a convex spherical lens to correct the presbyopia, combined with a cylindrical lens the axis of which is set at right angles to the faulty meridian of the astigmatic eye.

Spasm of Accommodation.—Persons who have overworked their eyes, or have a great deal of fine work to do, are those who are generally attacked by spasm of accommodation. It is found more frequently in myopic eyes than any other. In this case the eye is undergoing a stretching process which causes a spasmodic contraction of the ciliary muscles. Usually persons under forty years of age who need convex lenses for near and concave for distant vision have spasm of the accommodation. In spasm, if the eyes are not used and proper rest is taken, it generally effects a cure, and no lens will be needed, or at least only a weak concave lens for distant vision.

Paralysis or Paresis.—Which is a partial paralysis, is caused by sickness, either diphtheria, malaria, an injury to the nerve or syphilis. It is usually attended by a dilated pupil and partial or complete loss of accommodation. If patient is given nourishing food—milk punch, beefsteak, etc., for two months without a return of power to the muscle, they should be treated as presbyopic, and given the weakest convex lens with which good vision can be attained. Those having syphilis diphtheria or malaria should receive appropriate medical treatment.

MYOPIA.

BY ROBERT P. TAYLOR, CEDAR RAPIDS, IOWA.

Myopia is the opposite condition of hyperopia and not of presbyopia, as is frequently supposed. The eye is too long in the anteroposterior diameter. Parallel rays unite in a focus before they reach the retina and cross in the vitreous falling on the retina in circles of diffusion, produce indistinct vision. For near vision objects must be brought nearer to the eye, so that the rays from each point of the object may enter the eye divergently. The focus is then thrown back and the image falls on the retina, producing a sharp defined image of the object. Myopia is almost always regarded as hereditary. Hyperopia and emmetropic eyes rarely become near-sighted without predisposition to it, derived from ancestors, and it is most progressive between the ages of seven and twenty years. When once developed in youth, even in a slight degree, its tendency is to increase. The cause why myopia when once established is liable to increase is that the entire convergence which is necessary to enable them to see at the limited distance to which they are confined causes the weakest part, which is least supported, to bulge. As the eyeball becomes elongated its movements become more difficult, and the pressure produced by the muscles during prolonged convergence tends still further to increase the myopia. Myopia is not as common among persons reared in the country who devote themselves to occupations requiring but little exercise of sharp vision for near objects. It is more frequently met with in cities, more particularly among the educated and intelligent classes. Inadequate illumination in many schools favors the tendency to bring the book unnecessarily close to the eyes so as to obtain a larger visual angle. The book usually rests on a desk or table and the head has to be bent over. This posture induces an increased flow of blood to the eyes. For this reason young people are advised to lay aside unnecessary tasks until the eyes become firmer. The existence of myopia and its degree may be ascertained by test letters combined with trial lenses. The patient is directed to look at the test letters in a good light at twenty feet distant. If after a trial with convex glasses the vision is made worse we conclude that hyperopia is excluded. After a trial with concave glasses if the vision is improved, we conclude that myopia exists. We would give the weakest concave glasses, which would make his distant vision the best without causing objects to look small. It is always advisable to insist on the patient accepting the weakest concave glasses. Each eye should be tested separately, so that the refractive conditions which exist may be ascertained. When

there is an insufficiency of one or both internal recti muscles muscular asthenopia exists. In this case recourse must be had to concave glasses, which will increase the distance of the near point, and thus by lessening the binocular convergence relieve the overburdened muscles from the necessity of excessive action. The tension of accommodation is at the same time diminished if there be errors of refraction giving rise to asthenopia, the lessening of the convergence once more places the binocular point of fixation at a position on the line of accommodation which re-establishes the accustomed relative associations, and vision then becomes easy and free from asthenopic disturbances. If, however, there be insufficiency of so high a degree that neutralizing glasses fail to give sufficient assistance to the strained muscles, further aid must be given by prisms with their base in. The strength of the prisms must correspond with the degree of insufficiency.

It often happens in low degrees of myopia, where the error of refraction does not amount to more than $\frac{1}{8}$ or $\frac{1}{9}$ that the existence of it is unknown to the person himself, and he only discovers the defect by accidentally trying on concave glasses, when he finds that he can distinctly see objects at a much greater distance than with the naked eye. If the degree of myopia remains stationary he will probably be able to read fine print without convex glasses at fifty-five or sixty years of age. The tardy recession of the near point will compensate for the diminution in the range of accommodation from senile changes until a later period of life.

There are three different forms of astigmatism in myopia—simple myopic astigmatism, compound myopic astigmatism and mixed astigmatism. Simple astigmatism is where the vertical meridian of cornea is abnormally sharp; such a patient looking at the astigmate chart at twenty feet would see the vertical lines most distinctly, and they require a concave cylindrical glass of the required strength to make all the lines equally dark, with axis horizontal. Compound myopic astigmatism is that condition in which myopia exists in all of the meridians but to a greater degree in some than in others. Mixed astigmatism is where myopia exists in one of the principal meridians and hyperopia in the other meridians.

Asthenopia in myopic persons is due to an astigmatism existing with the myopia, or a muscular defect which makes excessive convergence difficult.

The following forms of glasses for reading are given to myopic persons who suffer from asthenopia. If they have astigmatism combined with myopia one form will be simple cylinder; another form will be simple cylinder combined with prism; in a third and rare form will be cylinders combined with weak concave lenses and prisms. In myopic persons having no astigmatism the usual form of lenses required for reading, if asthenopia is complained of, are simple prism bases; in another form is weak concave lenses alone or combined with prisms bases in.

It is the exception to find a myopic person who reads with comfort through the concave lenses which make his distant vision satisfactory. As more injury can be done to the eye by the improper selection of concave lenses than by any other lenses, it is not safe to allow persons who are myopic to select glasses except under the advise and instruction of those who are experienced as to their dangers.

SPECIAL NOTICE.—The name of John T. Dodge, of Millbury, Mass., was omitted through mistake in publishing the names of the fourth class of students in optics.

BOOK NOTICE.—Charles F. Prentice, of this city, has forwarded a copy of a small book entitled "Ophthalmic Lenses." It is the most complete and best illustrated book on this special subject ever published. The author has contributed thirty-seven original illustrations, exhibiting in perspective the various forms of compound lenses and their effect on parallel rays of light. Those desiring to study up on the special subject of lenses will be pleased with this little work. It is cheap and can be obtained directly from Mr. Prentice, 178 Broadway.

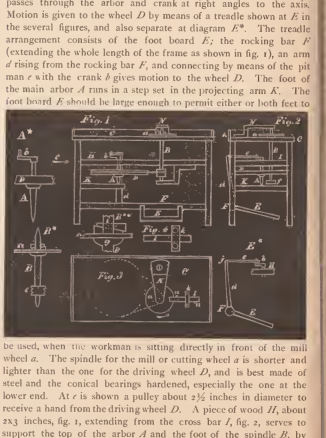
The sixth class will commence their course in practical optics May 12th at 2 P. M. Five vacancies.

The seventh class June 6th at 2 P. M. One vacancy.

Advice to Watchmakers' Apprentices.

BY A MAN WHO HAS SPENT TWENTY YEARS AT THE BENCH.

LAPIDARY'S wheel or mill runs on a perpendicular arbor, and is driven by a fly wheel also turning on a perpendicular arbor. A very convenient form of such fixtures are shown in fig. 1, which is a front view. It consists of a frame work and bench or table with two vertical spindles as shown. The spindle *A* carrying the fly wheel *D*, and the spindle *B* carrying the mill *a*. The driving wheel *D* should weigh near 25 pounds and be about 20 inches in diameter. The balance wheel *D* should be well up to the bench so as to give leg room under the bench. The arbor which carries the driving wheel is shown separate at diagram *A**. It is an iron arbor pointed at the lower end to reduce the friction to its minimum. It has a seat for the fly or balance wheel *D* as shown, while the upper end is turned to a half inch bearing, to which is attached a 2½ inch crank *b*, as shown. The crank *b* is attached to the bearing by a pin which passes through the arbor and crank at right angles to the axis. Motion is given to the wheel *D* by means of a treadle shown at *E* in the several figures, and also separate at diagram *E**. The treadle arrangement consists of the foot board *E;* the rocking bar *F* (extending the whole length of the frame as shown in fig. 1), an arm *d* rising from the rocking bar *F*, and connecting by means of the pit man *e* with the crank *b* gives motion to the wheel *D*. The foot of the main arbor *A* runs in a step set in the projecting arm *K*. The foot board *E* should be large enough to permit either or both feet to



be used, when the workman is sitting directly in front of the mill wheel *a*. The spindle for the mill or cutting wheel *a* is shorter and lighter than the one for the driving wheel *D*, and is best made of steel and the conical bearings hardened, especially the one at the lower end. At *c* is shown a pulley about 2½ inches in diameter to receive a band from the driving wheel *D*. A piece of wood *H*, about 2x3 inches, fig. 1, extending from the cross bar *I*, fig. 2, serves to support the top of the arbor *A* and the foot of the spindle *B*, by means of the cock *f*, fig. 1. The spindle *B* has a collar at *g* for supporting the mill *a;* this should be broad enough to ensure the mill running true and flat. For securing the mill *a* to the spindle and keeping it pressed against the collar *g*, a mortise is made through the spindle *B* at *i;* through this mortise goes a double wedge, as shown

enlarged at diagram *E***. Such a double wedge holds the mill with less tendency to spring the spindle *B* than a screw. The foot of *A* is supported by the arm *K*, extending inward from the cross bar *I*, fig. 2. The spindle *B* has the support for the top from a cock fig. 2. The spindle *B* has the support for the top from a cock extending from the top of the table *C*, fig. 2. This cock should be of cast iron and screwed firmly to the table *C*. The table or hench *C* should be of hard wood and about 2 inches thick. The legs and cross bars should be of oak or other hard wood about 2x3 inches. Fig. 3 is a top view as if seen from above, and shows at *N* a the cock for carrying the top end of the spindle *B* and mill (*a*) for cutting the stones. At the dotted lines the form of the wheel *D* and driving band are shown. A strip of board about 3 inches wide should extend all around the table *C* except the front, and on this a strip should rise about ½ of an inch to prevent tools rolling off the bench. The size of the table *C* should be about 2x5 feet. There seems to be no method yet devised to reduce the size of such a lapidary's bench, as it is imperative to use vertical spindles. A word or two more about the treadle fixtures shown in diagram *E**. The rocking har *F*, see also fig. 1, is best made of wood, and 8 square or round and 3 inches in diameter; in the ends are inserted metal bearings on which it turns or rocks. The treadle *E* is mortised in *F* as shown in fig. 1; the arm *d* is also mortised in *F*, and the joint at *f* is made with an iron butt. We now come to the mills used on the spindle *B*; these vary with the kind of work to be done, but lead or some slightly harder alloy seems to be the material mostly used, and they vary in size from 5 to 9 or 10 inches in diameter. The cutting material is emery and water. An alloy of tin and antimony, usually called pewter, makes a good lap (*a*). The composition is, tin, 86 parts; antimony 14. An inferior composition consists of tin, 4 parts; lead, 1 part. Such a mill or lap (*a*) is cast nearly in shape, and then mounted on *B* and turned off flat and true; then it should also be poised like a balance to ensure its running steady. Most of lapidist's work is the production of flat surfaces, and some device is essential to ensure steadiness. Usually two stones are applied to the mill or lap at once, but for persons who do not intend to make the work a specialty one is enough. The tool usually made use of is called a "dial," and consists of a holder to which the stone to be ground is attached with cement. This cement is usually made of common resin and some cheap earth like red ochre (Venetian red), about 4 or 5 parts of rosin to 1 of ochre. Sometimes black pitch (tar boiled down) is used to give the composition toughness. At fig. 4 is given an enlarged view of such a holder. It consists to essential parts *k l*. The part *l* holds the stone to be ground, while *k*, by means of two adjusting screws, permits the job to be adjusted to the surface of the mill *a*. In the table *C* are inserted two pins *n n*, which prevent the holding device from being carried around by the lap *a*. A full and complete description of the holding device will be given in next article. In lapidary's work some important points must be kept in mind, and one of these is the keeping of the surface of the mill or lap perfectly true and flat, not allowing grooves to establish themselves, and for this reason when work is applied, as shown at fig. 3, at *k l*, the device for holding the stone to be cut should be moved back and forth, that is, toward and from the center of the mill *a*. The device shown in fig. 4 has various modifications for different kinds of work, such as grinding circles and ovals, and also facetted surfaces which will be duly described and illustrated.

Silver and Silver Plating.

BRIGHT LUSTER.

Continued from page 87.

BISULPHIDE of carbon, in small proportions, imparts a bright luster to electro-plated articles. Put one ounce of bisulphide of carbon into a pint bottle containing a strong silver solution, with cyanide in excess. The bottle should be repeatedly shaken, and the mixture is ready for use in a few days. A few drops of this solution may be poured into the plating bath occasionally, until the work appears sufficiently bright. The bisulphide solution, however, must be added with care, for an excess is apt to spoil the solution. In plating surfaces which cannot easily be scratchbrushed, this brightening process is very serviceable. Care must be taken never to add too much at a time.

Deposits on Solders.—The difficulty of obtaining regular deposits of gold and silver over the articles which have parts soldered, may be greatly obviated by scratchbrushing those parts dry, that is, without the usual liquid employed. This renders these refractory parts better-conducting, provided that, during the operation, no impurities are left on those parts.

Method by which the Weight of Deposited Silver is Directly Ascertained.—1. The articles are cleaned by the processes already described, then dried in sawdust or otherwise, and weighed in a scale However rapidly this may be done, the surface of the copper will be slightly oxidized and tarnished; to recover their former cleanliness, the articles must be plunged into a strong pickle of sulphuric acid, and then into the mercurial solution. After rinsing and immersing in the bath, practical experience will teach when it is nearly time to withdraw the articles from the solution. They will have to be weighed several times before the intended weight of silver is deposited.

2. Cleanse the articles, and put them immediately into the bath, except one, which is treated as above, and used as a test. This piece is now and then removed from the bath to ascertain its increase of weight; and when it has acquired its proportion of silver, it is supposed that the other pieces are also finished. Strongly amalgamated articles will not become sensibly oxidized during the drying which precedes their weighing. When the objects have been dried, in order to ascertain the proportion of deposited silver, they should not be returned to the bath without having been cleaned in a hot solution of cyanide of potassium (which dissolves the green from the handling), and passed again through the solution of nitrate of binoxide of mercury, and rinsed. Alcohol may be substituted for the hot solution of cyanide; but the results are not so sure, and the expense is greater. Both these methods are tedious, and only give approximate results.

3. Remove one dish of an ordinary pair of scales; substitute for it a metallic frame which supports the articles to be silvered, and communicates through the beam and the column with the negative electrode of a battery; connect the soluble anode with the positive pole. When the articles are suspended to the frame and are in the bath, the equilibrium of the scale is established by weights upon the other dish; add to this a weight equal to the silver it is desired to deposit. The operation will be finished when the equilibrium of the beam is re-established. This method is not mathematically accurate, but it is sufficiently exact for all practical purposes. An automatic arrangement, by which the electric current may be broken at the time the articles in the bath have received a sufficient deposit of silver, is easily arranged, and saves time and metal.

Anodes.—Should the anodes become black during the passage of the electric current, the solution contains too little cyanide of potassium and too much silver. In this case the deposit is adherent, but too slow, and the bath loses more silver than it can gain from the anodes. Carefully add sufficient cyanide of potassium. If the anodes remain white during the current, the proportion of cyanide of potassium is too great, the deposited silver is often without adherence, and the anodes lose more metal than is deposited; add silver salt until it dissolves with difficulty. When in good working order, the soluble anodes become gray during the passage of the electricity, and white when the circuit is broken. The specific gravity of the bath may vary from 5° to 15° of the Baumé hydrometer for salts, and still furnish good results. There is a simple and rapid process for ascertaining the state of the bath and establishing the proper ratio between the silver and the cyanide. About half a pint of the liquor is put into a tall glass, and a solution of one-third of an ounce of nitrate of silver in three ounces of distilled water is

poured into the former, drop by drop. If the white precipitate produced is rapidly dissolved by stirring, the liquor is too rich in cyanide or too poor in silver. Should the precipitate remain undissolved after long stirring, the liquor is too rich in silver and too poor in cyanide of potassium. When the precipitate is dissolved but slowly, the liquor is in the best condition.

Burnishing.—By burnishing, the roughness of an object is flattened down until the surface is smooth and polished like a looking glass. Burnishing is an important operation for electro-deposits, which consists of a multitude of small crystals with intervals between them, and with facets reflecting the light in every direction. The deposited metal is hardened and forced into the pores of the underlying metal, and the durability is thus increased to such an extent that, with the same amount of silver, a burnished article will last twice as long as one which has not been so treated. The instruments employed for burnishing are made of different materials, and must be of great hardness and a perfect polish. Such are hardened cast-steel, agate, flint and blood-stone. For metalic electro deposits, steel and blood-stone are especially employed. There are several qualities of blood-stone; its grain should be close, hard, and without veins; it should leave no white lines on the burnished parts, nor take off any metal, and its color should be of an intense black red. The steel must be fine and close-grained, and perfectly polished. Should the polish of any burnishing tool alter by use, it is restored by friction upon a skin or leather attached to a wooden block, which is fixed to the bench. The leather is covered with polishing-rouge in impalpable powder, or preferably, with pure alumina, obtained by calcining ammonia alum in a forge fire. Venetian tripoli, rottenstone, tin putty, emery, or many other hard substances finely powdered may be employed. The burnishing tools are of various shapes, such as a lance, a tooth, a knife, a half sphere, or a dog's tongue, and a considerable stock is necessary.

The burnishing is divided into two distinct operations. The first consists in roughing, and the second in finishing; the tools for the first having a sharp edge, whilst for the second operation they have a rounded surface. The tools for the hand or the lathe are fixed by copper ferrules into short, round, wooden handles, so that the hand is not influenced by their weight. The tools for the arm or vise are fastened to wooden handles sufficiently long to rest their slender part upon the arm or shoulder. The stouter lower portion is grasped by the hand. The burnishing tools and the objects must be frequently wetted by certain solutions, some of which facilitate the sliding of the instrument, or with others which have a chemical action upon the shade of the burnished articles. Of the first, are pure water, solutions of soap, decoctions of linseed, and infusions of the roots of the marsh-mallow, or liquorice. The second includes wine-lees, cream of tartar, vinegar, and alum in water. When burnishing gold applied upon electro-deposits of copper, as is gilding with a dead luster by that method, use pure water, for fear of producing a disagreeable red shade. A solution of green soap is sometimes preferred by operators, although, when old, it imparts an unpleasant tinge, owing to the sulphides of the liquor.

When the burnishing is completed, the surface is wiped longitudinally with a soft and old calico rag. The polish obtained by burnishing is called black when it reflects the rays like a mirror, and should the presence of mercury or a bad deposit prevent the tool from producing a bright surface, the object is said to be greasy. Articles which have been previously polished, and which generally receive a very trifling deposit, are not burnished, but rubbed with chamois leather and the best polishing rouge. Too thick or too rapid electro-deposits cannot be burnished, but must be polished by rubbing with a leather and a mixture of oil and powdered pumice-stone, tripoli or tin putty. Coarse powders are used at the beginning and impalpable ones at the end of the operation. Polished silver deposits are more agreeable to the eye than burnished ones, but the the hardening of the latter renders them more durable.

For Dissolving Silver from Silvered Articles—Cold Bath.—For dissolving silver in the cold, the objects are hung in a large vessel filled with the following mixture: Sulphuric acid, of the strength of 66° Baumé, 10 parts; nitric acid, at 40° Baumé, 5 parts, in which they remain for a greater or less length of time, according to the thickness of the coat of silver to be dissolved. This liquid when it does not contain water, dissolves the silver without sensibly corroding copper, or its alloys; therefore, avoid introducing wet articles into it, and keep the liquid perfectly covered when not in use. As far as practicable, place the articles in the liquid in such a manner that they will not touch each other, and in a vertical position, so that the silver salt will fall to the bottom. In proportion as the action of the liquor diminishes, pour in small and gradual additions of nitric acid. Dissolving silver in the cold is regular and certain, but slow, especially when the proportion of silver is great. The other more rapid process is then resorted to.

Hot Bath.—Nearly fill a flat pan of enameled cast iron with concentrated sulphuric acid, and heat to a temperature of from 300° to 400° Fahr.; at the moment of using it, pinches of dry powdered saltpetre are thrown into it; then hold the article with copper tongs in the liquid. The silver dissolves rapidly and the copper and its alloys are not sensibly corroded. According to the rapidity of the solution, more or fewer pinches of saltpetre are added. All the silver has been dissolved when, after rinsing in water and dipping the articles into the cleansing acids, they present no brown or black spots—that is, when they appear like new metals. These two metals are not suitable for removing the silver from wrought and cast iron, zinc, or lead; it is preferable to invert the electric current in a cyanide bath, or to use mechanical processes. Old de-silvering liquors become green after use; to recover the silver, they are diluted with four or five times their volume of water; then add hydrochloric acid, or common salt. The precipitation is complete when the settled liquor does not become turbid by a new addition of common salt, or by hydrochloric acid. The resulting chloride of silver is separated from the liquid either by decantation or filtration, and is afterwards reduced to the metallic state by one of the methods which will be described.

(*To be Continued.*)

The Chronometer Escapement.

IN THESE days of machinery, when almost every article of necessity or luxury used by man is sought to be produced in factories by means of machinery, performing a function rivaling in ingenuity, and frequently excelling, that of the attendant serving it, it is permissible to ask, "Can a chronometer escapement be made by machinery?" Some years ago, two of the leading watchmakers of London, Mr. Whittaker and Mr. Poole, were hotly arguing the question, the former contending in favor, the latter against such a probability. Mr. Whittaker said that "the machine tool succeeds only in cheapening the production of *large quantities* of duplicated work that are uniform in size and style. Machine tools offer no advantage in making very small quantities of work." He next says, in his instructions for making a detent by the aid of a machine tool, after describing the methods of shaking it out: "Then harden and temper. Finally, fix it in the grinding machine and polish every part of it, leaving the reducing of the spring for the last operation." To which Mr. Poole replies as follows:

"Now, I maintain that the secret of the construction of a detent lies in the proper carrying out of the above directions, and the various processes can only be done by hand. To commence: It is known by every practical man that a detent can rarely be hardened without acquiring a slight twist or warp, which has to be set off to the best advantage during the process of polishing. Mr. Whittakcr makes no reference to the fixing in of the locking pallet or making the discharg-

ing spring and screw. These operations require very great delicacy. The pallet is only half round, and has to be fixed in by means of a brass plug, which fills up the remainder of the hole. When this is adjusted to the proper angle it is shellaced in, and the detent is then planted on the frame. At first sight it would appear that the gold spring might fitly be stamped out by a machine, but it has to be so nicely adjusted to the dimensions of the detent, which may alter in course of completion, that nothing would be gained by the attempt, and it would have to be weakened and polished the same as if it had been made by the old process. The final polishing of the detent is now proceeded with, only bear in mind that the pallet is in, and it would be exceedingly dangerous and inconvenient to fix it in a "grinding tool," according to instructions given; besides which, I apprehend that such a tool would only polish up to a sharp edge, whereas the beauty of finished steel work consists in every edge and corner being nicely taken off. It may be said that I am harping on trifles; but I would reply, as a celebrated sculptor is reported to have done, viz., that trifles constituted perfection, and that perfection is no trifle. The detent being weakened according to the judgment of the operator and the gold spring screwed on, is now ready for final adjustment, and this leads up to the topic of the general examination of the escapement, which has remained so long in abeyance.

"It is first desirable to ascertain that the scape wheel teeth are perfectly free of the escape cock, and especially that the part which is turned out for the cogs is not only free of them, but also of the inside of the rim of the wheel, this last being a very insidious fault. Then see that the pallet in the large roller is safely free of each tooth, both top and bottom, and also that the roller itself is quite free of the horseshoe banking. Take out the escape wheel and balance and put the detent in by itself, in order to ascertain that the gold spring is safely free of the banking screw, as many failures arise from this cause. Put the balance in, with only the small roller on, and see if the pallet is safely free of the end of the horn, and then replace the large roller to make sure that it is free of the top side of the gold spring. The end of the horn is supposed to point exactly to the jewel hole; if it does not it must be bent. After the detent is weakened it is "set on," in order to give it a spring toward the wheel, to make its return action safe; when the banking is off the pallet should just rest against the rim of the wheel. The action of the pallet in the small roller on the end of the discharging spring is termed 'the lift;' it should just move it sufficiently to allow the escape tooth to pass the pallet in the detent and no more; if there is too much lift, another tooth would come on before the detent had returned to its proper position.

It is most important that a chronometer should be perfectly in beat, otherwise it is certain to stop; the pallet in the small roller should just rest against the side of the gold spring, which is farthest from the wheel when the balance is at rest. On being gently moved to the left, so as to pass the gold spring and released, the tooth of the escape wheel should immediately fall on the impulse pallet in the large roller, and the balance is moved round to the right, 'lifting' the detent and allowing the escape tooth to pass on. Immediately the next tooth falls on the locking pallet, the balance should be stopped, and, if the beat is correct, it will go on again on being released.

The chronometer escapement is peculiar in requiring no oil except, of course, to the pivots; and owing to the various parts being movable, it is capable of very delicate adjustment. In the olden time the springer and the escapement maker were one and the same person; but this necessarily limited production, and division of labor brought some workmen into the field who really understood no more about the principles of an escapement than machines, and the failure of many chronometers to give satisfaction has been a principal cause of their being regarded with apprehension by retailers. So long, however, as marine chronometers are used at sea the pocket chronometer will retain its position in the wealthy public; and it behooves all well-wishers of the art and science of horology not to degrade it by lowering the standard of excellence of workmanship, which has hitherto been one of its leading characteristics.

Why Diamonds Sparkle.

EVERY one knows that a diamond sparkles, but few can tell why it does so more than other stones of the same color. This depends on three or four causes, and unless these conditions come together, you could not have the sparkle of the diamond, and these causes come together in no other stone. First, light passing through it, is dispersed but little; in glass, the loss is only 0.32, and in the diamond 0.38; thus, nearly all the light that falls on it passes through it. Next, it has a greater refractive power than any other substance, and nearly double that of glass. It is this refractive power that enables a diamond to be seen so much more, or in a wider space, than any other stone; as, if there was no refraction you would only see a ray of light when just opposite or at right angles to that light; as it is now, the ray enters the stone, and is then refracted at a great angle; and now comes the third great reason for the brilliancy of this stone. If it were a crystal of quartz, or of glass, in these, half of the light would pass through the back, and so far be lost as to effect; but in the diamond *all* the light is reflected from the back of the stone that falls on it at any angle of incidence greater than 24.13; artificial stones only reflect half this light. And thus a ray of light is seen at one side of a room that entered from the other side of it. If sun light is allowed to fall on a diamond, and the stone is placed over white paper, there will be a dark shadow to a much greater degree than as if you put a piece of glass of the same form. For these three reasons, next sunlight, a ballroom lighted with candles is so much better for the effect on stones, than a few large lamps; and I should think the eclectric light the worst of all, as the light comes in one direction.

A Few Rules to be Remembered in Timing.

TIMING in the temperatures is facilitated by remembering various fundamental rules and adopting customs, a few of which are:

Do not lose time and work by trying to time in the temperatures a watch which contains one of the well-known, inferior kind of balances, too frequently found now-a-days in watches of both medium and inferior grades. The manufacturer has simply tried to give the watch an appearance of good quality, to which it has not the slightest claim. It is useless to expect a satisfactory rate from a balance which is not true or cannot be made true; in which brass and steel are unequally divided in different places of the rim; which has badly chosen proportions, for instance, a narrow and thick rim and small light screws. Any labor expended upon such a watch may before attempting it, be regarded as wasted, and it would be far better if such a balance had never been cut up at all by the manufacturer.

It is labor wasted to attempt to time a watch with a balance which is not spring hard. Such balances are apt to bend on the least provocation and are inferior to those without compensation.

It is a fatal defect, and at the same time one that has caused many a careful watchmaker trouble and vexation, for a balance to have a thin rim furnished with screws proportionately heavy, especially if the rim is not thoroughly spring hard. Centrifugal force will in the larger vibrations exert its presence in a peculiar manner by bending upward and outward the free balance ends, which in this manner perform vibratory motions of their own. This occurs only in the larger balance vibrations, but not in the medium and smaller, and it

is utterly impossible to closely time a watch with such a balance.

The screws which serve for compensation, and which, in order to distinguish them from the four quarter screws, are called the weight screws, and must on their inner end have a tapering point, in order to facilitate their being screwed in. They must be screwed in firmly up to the shoulder, and to prevent the throwing of the balance rim, the shoulder must be rounded off. Never loosen one of these screws in order to establish the equipoise of the balance. The continual small concussions which the balance experiences in its motion and when worn, are apt to cause the screws, which sit no longer firmly in place, to loosen gradually, until they finally fall out. Before attempting to time a watch, therefore, see that these screws sit firmly.

See to it that the screw slits are clean. If there is an accumulation of dirt in one, the equipoise of the balance will be destroyed as soon as the watch is cleaned.

A compensation balance requires more room, both outside and in than a solid balance, because its diameter is constantly changing in both directions with the temperature. Examine, therefore, whether this space is present, else it may happen that a watch, the balance bridge of which is turned out too scant, or whose scape pinion stands too close to the balance may stop during a cold night, and the timer will have great trouble, after having taken it into the warm workshop to find the source of the trouble, which has really ceased to exist.

Some care is necessary with a watch, and, still more so with a movement, which has been tested in cold; it should not be brought suddenly into a heated room. Such a movement should be inclosed in a box, which is not to be opened until the metal has assumed about the degree of temperature of the room. It is well known that cold bodies, when introduced into a warm room, will be covered with moisture, and in consequence of such a careless treatment, many a valuable timing has been ruined by the rusting of the balance spring, without taking into account the formation of rust on other parts of the movement.

In conclusion, we would add one word of advice to the timer. If he desires to obtain a close timing—a timing that will be satisfactory to everybody, it is indispensably necessary that he also corrects errors the results of which apparently have no immediate effect upon the rate. To this pertains especially an undue quantity of shake of the escapement parts, especially the balance. These parts are too frequently slighted. The timer thinks perhaps that it may be a matter of no concern for a well equipoised balance with well rounded pivots, whether its point of support, that is, the effective part of the jewel hole, lies closer to or farther away from the end of its pivot. He forgets, however, 1.—That even with the best watch he is dealing only with the imperfect work of human hands, and that what a conscientious workman calls *round*, is not mathematically round, but only so far that an irregularity cannot be perceived by our coarse senses. 2.—That in timing even the most trifling defects produce noticeable differences. When, for instance, as it should invariably be in a good watch, the space between the cap jewel and the jewel hole is very small, when the jewel hole, that is its effective part, is thin and well rounded off, a trifling excess of endshake can produce that the pivot end commences to go upon the interior rounding of the hole; it will be patent to every timer that under such circumstances a regular rate of the watch is out of the question.

Finally remember, good watches can be timed very closely, but they want to be treated well and with all the due care, otherwise they will often be excelled by medium and low grade watches.

Artificial Coloring of Chalcedony.

THE ORDINARY chalcedony, says the *Central Assigner*, is a white, almost transparent stone; in antiquity it was used for lance and arrow heads, and in modern times for flint stones. Only after it receives a handsome color by metallic oxides, especially iron, is it raised to the rank of a jewel, whether this be a single color, brown, yellow, red or green, as jasper, chrysopras, etc., or whether it is banded with lighter or darker layers, like the agate, onyx, cornelia, etc. The greater number of chalcedonies, doubtless, owe their origin to the agency of water, since this, especially at higher temperature and great pressure, is capable of dissolving the principal constituent of this stone, silicic acid, and of depositing it again under normal conditions; the color, however, has apparently been produced by the operation of metallic oxides, under the action of heat.

Chemistry can imitate the process, which simply is to produce the cloudy or develop the latent color of the jewel without heating. The celebrated precious chalcedonies of India were manufactured from the cloudy brown stones by heating them in a layer of camel or cow manure, in which operation too high a temperature could be carefully avoided. A heat capable of charring wood produces here the same process which takes place in the burning of bricks; the yellowish-brown hydroxide of iron is charged into the red peroxide, whereby the beauty of the color of the stone is largely enhanced. In Oberstein, in Germany, the main seat of the manufacture of these jewels, the same method is resorted to, and the temperature of the furnace is carefully watched. The non-impregnated chalcedonies generally turn white by the heat, since the texture of the transparent stone is destroyed by the heat. The snow-white bands of the onyx, which make it peculiarly suitable for cameo cutting, are mostly always produced artificially in this manner, the color of the darker layers being developed in a handsomely contrasting manner with the white color of the adjoining layer.

Art goes still farther, however, and introduces the colors into the stone, and thereby it is capable of producing far greater effects than nature. The pigment must be in such a condition that it can be precipitated by heat or chemical effects. If a gray chalcedony is to be converted into a precious one, it is to be dipped into a solution of nitrate of iron, which is prepared by dissolving old nails in dilute nitric acid. Red peroxide of iron is formed by the effect of the heat, and the arising color is light or dark, according to the quality of the solution absorbed by it. The more transparent the stone, the longer must it lie in the solution, and if it contains unequally transparent layers, unequally tinted bands will be obtained. Black onyxes, that is, stones possessing alternating black and white bands, are always artificial.

The coloring substance is coal, which is introduced in a colorless solution, and produced by heat or sulphuric acid. According to the Oriental, which is also the oldest, method, the stones are first boiled in honey or oil, at repeated times, for weeks, and then heated to a temperature which chars the organic substance in the pores of the stone, and produces black or brown, according to the quantity absorbed. The deepest and most durable black is produced in this manner; but since the stone is very prone to crack, whereby it is ruined, Europeans prefer to effect the carbonization by means of sulphuric acid.

The Oriental black was, for a long time, considered to be a natural color, as it resists longer the influence of nitric acid, a quality not shared by the black generated with sulphuric acid; although it was found out lately that by a sufficiently long exposure this black is also attacked.

The yellowish-brown, orange and lemon tints of the chalcedony, are artificial, and may be produced by methods that are analogous to those above described. The lemon-yellow colors are produced by permitting hydrochloric acid to operate upon the almost transparent stone, which, in a natural way, has absorbed a small quantity of sesquioxide of iron, and the other two by dipping the stone in a neutral solution of nitrate of iron, and exposing it afterward to the sunlight.

The pale green color of the chrysopras may, in a transparent chalcedony, be originated by a bath which has been saturated with nitrate of nickel; it is worthy of remark that this color is not produced best by the chemically-pure nickel salt, but by that which still contains a

trace of cobalt. It is necessary to submit the stone for three or four weeks to the action of the bath.

A blue color is more easily produced, but it is not durable. The pigment is Prussian blue, which is precipitated in the pores of the stone by causing ferrocyanide of potash to operate upon sesquioxide which was already introduced into the stone by the above-indicated method for producing red. A still better effect is produced by first dipping the stone in a bath of ferrocyanide of potash, and after that into a solution of sesquioxide of iron.

GOSSIP OF THE MONTH.

THE recognition that has reached us of the plates of monograms we have been furnishing with each number of THE CIRCULAR, beginning with the February number, is conclusive proof that we made no mistake when we concluded that such a series of initials was was desired by the trade. Our offer to supply the back numbers to all persons subscribing to THE CIRCULAR during the month of April was responded to by hundreds, so many more than we had anticipated that the extra supply of CIRCULARS we had provided is well nigh exhausted. We have the plates of the monograms, however, and can furnish these in any quantity desired. We can, therefore, offer these monograms as a prize to each new subscriber, and every dealer sending us $2 for a year's subscription to THE CIRCULAR will be furnished in addition to the journal, a full set of the monogram plates that have been printed previous to the commencement of his subscription. No such publication has ever been made by any trade paper heretofore.

* * *

THE Metropolitan Museum of Art, of this city, is rapidly taking rank among the great museums of the world for the variety and richness of the art treasures contained within its walls. We have at various times pointed out the features connected with it of special attraction to all workers in the precious metals, as contained in the Cesnola collection, the Russian reproductions of the elegant works in gold and silver found in the Russian museums, etc., and it gives us pleasure to record the fact that within the past six years the Museum has received bequests amounting to several millions of dollars, which has enabled it to wipe out a large debt and to increase its property threefold. During the last three months it has received gifts and bequests exceeding $1,000,000 in value. The finest painting in the Stewart collection, Rosa Bonheur's "Horse Fair," was purchased by Mr. Vanderbilt and presented to the Museum, while Mr. Seney's valuable contributions were numerous and attractive. But the most liberal donation comes from a woman, Miss Catharine Lorillard Wolfe, whose death occurred last month. Miss Wolfe owned an estate valued at from $15,000,000 to $20,000,000. During her life she had been noted for her grand and noble philanthropy, her donations to public charities and private institutions for the poor and needy having reached many thousands of dollars annually. At her death it was found that she had left her rare and valuable collection of pictures to the Museum, and $200,000 for a fund to establish a gallery to be known by her name. There are over two hundred paintings in the collection, selected with rare taste and judgment, she being a connoisseur in art, and it is affirmed by competent judges that it is the finest private collection in the city. Within six months this collection is to be transferred to the Mus'm and thrown open to the public, and with the attractions already to be seen there, will make this popular institution one of the best schools of instruction in this country for art students. Miss Wolfe also left a liberal bequest to Grace Church and to several religious and charitable institutions. She was one of New York's most charitable citizens during her life, and yet so unostentatious in her giving that her name was scarcely known outside of her own circle of relatives and friends, but now that her death has occurred, her benefactions are becoming known. The bulk of her immense estate goes to the Lorillard family, her mother having been one of that family, and to her father's relatives, seventeen persons sharing it.

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IT SEEMS to be conceded that the present legislature will not pass any laws adversely affecting charitable and benevolent societies, and, consequently, there is little apprehension that the affairs of the Jewelers' League will be interfered with. The Baker bill, as originally submitted, would have worked great hardships to many benevolent associations under the plea of controlling the speculative assessment companies, but the opposition it aroused caused the acceptance of certain amendments exempting the benevolent and fraternal societies from its operations. The hostility of the assessment societies to any legislation, however, has been so great, that it is not probable that the Baker bill can be passed, even in its emasculated form.

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THIS is a year of jubilees. Queen Victoria celebrates, with the aid of her dutiful subjects, the fiftieth anniversary of her accession to the throne, and Pope Leo XIII. celebrates the fiftieth anniversary of his entrance upon his priestly duties. This latter jubilee will be remarkable from the fact that Catholics in all parts of the world will contribute to make it memorable, while most of the rulers of nations, Catholic and Protestant, will embrace this occasion to testify their respect for the present Pope, who is conceded to be one of the wisest that has ever ruled over the spiritual and temporal welfare of the many millions who profess the Catholic faith. The day of the ceremony is now fixed for the 31st of next December. There will be an exhibition opened in the gardens of the Vatican on the first of January, 1888, of the objects of art sent to the Holy Father in honor of the occasion. Anything intended for a present to the pontiff must be sent to Rome before October 31, so that it can be properly classified. All the Archbishops and Bishops throughout the world have been invited to be present at Rome during the festivities. The dome of St. Peter's will be illuminated three nights previous to the jubilee day. This will be the first occasion on which this has been done since 1870. It is said that every parish, however small, throughout the world will be represented in this jubilee. All the crowned royalties in Europe will send presents. Queen Victoria will send the Pope a copy of the Vulgate richly bound. The Empress of China has officially announced her intention of sending some marvelous specimens of Chinese embroidery. The Emperor of Germany's gift is to be a chalice of pure gold adorned with immense diamonds, one for every member of his family. The Queen Regent of Spain has sent a ring, one brilliant alone of which is valued at $15,000. The Portuguese sovereigns likewise send rich presents, that of Queen Dona Maria Pia, who is the sister of King Humbert, being an altar cloth worked by herself. The President of the French Republic has already sent two immense Sevres vases. The French Archbishops and Bishops are bestirring themselves to send gifts worthy of the occasion. The Archdiocese of Lyons sends a satin chasuble embroidered with gold, bearing the arms of the Pope and of the city of Lyons. The monks of Lerins have prepared a volume of marvelous illuminations magnificently bound in velvet. The Archdiocese of Paris has decided to present a tiara of gold ornamented with diamonds, sapphires and rubies. It is the work of the eminent artist, Froment

Meurice. The German Catholics will send the Pope a collection of all literary and scientific works published in Germany under his reign, expressly bound for his acceptance. The entire series will consist of over twenty thousand volumes. The exhibition will be well worth seeing, as it will consist of an incredible number of things. The Sultan's offering to the Pope is a ring valued at 250,000f. The Italian Government has announced that the jubilee offerings for the Pope will be allowed to pass the frontier without being opened, and will be delivered at the Vatican free of all customs duties.

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SOME of the failures that have occurred of late, wherein preferred creditors have managed to absorb pretty much all the insolvents' estate to the exclusion of the merchandise creditors, indicates that these latter creditors must have been exceedingly derelict in looking after the status of their debtor, or that he must have terribly misrepresented his condition when making his purchases. In the case of Clapp & Davies, of Chicago, it is scarcely probable that their credit would have stood so high had it been generally known in the trade that on the first of January last they owed, in addition to $180,000 for merchandise, $80,000 to W. B. Clapp, which was fully secured, and various other sums for borrowed money, which were also secured. If it had been understood that these claims had to be provided for before the merchandise creditors could hope to secure their claims, it is not probable that so many goods would have found their way to the store of Clapp & Davies. That the firm, under the circumstances, had unlimited credit, affords another illustration of the reckless manner in which credit is extended in the jewelry trade. We do not desire to comment on this failure in particular, at the present time, but simply refer to it to show that there is something radically wrong in any system of credits that renders it possible for any one to buy goods freely when his entire estate is pledged to secure preferred creditors, and even the latest purchases may be absorbed in liquidating the preferred claims. Elsewhere we print a statement submitted to the press by Mr. Davies three days after the failure of his firm was announced. It will be noted that he holds out the hope that the creditors may realize as much as 40 per cent. of their indebtedness, but this can be taken with such allowance as should be awarded to the sanguine temperament of an interested party. It will also be noted that he says that the firm had been paying Mr. Clapp one per cent. a month for the use of his $80,000, the rate of interest being reduced to nine and then to six per cent. per annum. A business that has to pay such rates for money ought to have other resources than the very moderate profits to be derived from the jewelry business. This is only one among many cases where the trade has gone along for years giving unlimited credit without intelligent inquiry as to the financial condition of those asking it. Its lessons will probably be heeded no more than have hundreds of others that have preceded it.

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IT IS confidently expected that the legislature will, before adjournment, pass the Saturday half-holiday bill, and thus give the force of law to the practice of closing business places on Saturdays at one o'clock, that has been in vogue so generally during the past few years. The objectors to legalizing this practice, which came near to defeating the measure, rested with the banks, which could not afford to take the chances of invalidating financial paper that might become due on Saturday, and that could not, under the law, be protested before three o'clock. The following amendment was prepared and accepted by the representatives of the banks, and will be incorporated in the law should the bill pass. We print it entire for the information of our readers who are likely to be affected by it.

"All bills, checks and notes otherwise presentable for acceptance or payment on any of the said days shall be deemed to be payable, and be presentable for acceptance or payment on the secular or business day next succeeding such holiday; or, in the case of a half-holiday, shall be presentable for acceptance or payment at or before 12 o'clock noon of that day. Provided, however, that for the purpose of protesting or otherwise holding liable any party to any bill of exchange, check or promissory note, and which shall not have been paid before 12 o'clock noon on any Saturday, a demand of acceptance or payment thereof may be made any time after 12 o'clock noon on said Saturday, and notice of protest or dishonor thereof may be given on the next succeeding secular or business day. And provided, further, that when any person shall on any Saturday receive for collection any check, bill of exchange or promissory note, such person shall not be deemed guilty of any neglect or omission of duty, nor incur any liability in not presenting for payment or acceptance, or collecting such check, bill of exchange or promissory note on that day. And provided, further, that in construing this section *every Saturday until 12 o'clock noon shall be deemed a secular or business day.*"

For several years the jewelry trade has been in the habit of closing its places of business at one P. M. on Saturdays, and has found a benefit in so doing. The employees have found relief and relaxation from their business cares, and returned to their duties on Monday morning refreshed and better fitted for their work. The passage of the law will merely tend to make the practice more general, and secure to many privileges that their employers could not give unless the practice was general, including their competitors as well as themselves.

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WE HAVE frequently shown in these columns that a patent conveys to its owner little besides the right to engage in endless litigation to maintain its validity. A patent is little more than a certificate issued by the government to the effect that the patentee claims to have devised something new and valuable, but it in no wise affords him any protection for such claims. We contend that a patent should be held in any United States Court to be *a prima facia* evidence that the owner of it has property rights covered by it for which he is entitled to protection, and that the burden of proof against its validity should rest with those who infringe upon it. It should also be sufficient to warrant any court of competent jurisdiction in issuing an injunction to restrain all persons who may be alleged to be infringing upon the rights of the owner. Under the present condition of the law, the issuing of a patent is virtually announcing to the world that the owner of it has something worth stealing, and the theft of it can only be prevented by the owner incurring heavy legal expenses and a long litigation, the infringer, meantime, having equal advantages with the inventor in selling the invention. Comparatively few owners of patents are willing to go to the trouble and expense of defending their rights, so that it has come to be a common thing for an infringer to go entirely unpunished. It is, no doubt, true that many patents are issued that never should be, the idea presented by the inventor lacking originality or being but an adaptation of the ideas of another, but under the law it is not the province of the Patent Office to guarantee the rights of the inventor, but simply to certify that he has something novel. Here is where the law is at fault, and tends to cheapen the work of its own agents in the Patent Office. While it can hardly be expected that the government officials shall pass judicially upon the validity of all patents, they are expected, by reason of their being experts, not to issue a patent that has not some claim to originality. In a recent case in this city, the court held that the patent upon which suit was brought was not a valid one, because the idea forming the basis of the application was not new or patentable. The case was that of Paillard *vs.* Jacot & Son. The plaintiff had patented an improvement in music boxes, consisting of an interchangeable cylinder spring; the same principle having been adopted by Jacot & Son, suit was brought against them for damages. On trial the defendants claimed that the patent issued to Paillard was invalid, because the improvement it was intended to cover was not patentable, the cylinder spring being already in common use. The court took this view of the case and gave a decision in favor of the defendants. Mr. Paillard gave notice of appeal from the decision and will carry the case up. Without expressing any opinion as to the merits

of this particular case, we cite it as sustaining the assertion that we have so often made, that a patent is only a sort of a government permit to its owner to engage in litigation. It does not protect him in any rights until after the courts shall have declared it to be a valid patent. This is an old grievance of inventors, and the wonder is that they have not before this secured amendments to the patent laws that would give them the protection they desire.

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THE recent wholesale arrest of employees on the Pan Handle railroad for a series of robberies that they have been engaged in for many months past, has shown how little protection shippers of freight really have for goods in transit. Some seventy persons employed by the railroad in charge of freight trains have been arrested at different points along the line, and it is claimed that out of the sixty or more freight train crews, there was not one that did not include some thieves among its numbers. Their plan was to break into the cars while the train was on its western trip, some confederate watching the loading of the cars and pointing out which ones to break into. Goods of every description were stolen, and the most incongruous lot of them were found in premises occupied by the prisoners. There was a perfect understanding among the different crews, and the proceeds of their robberies were divided among them, the leaders and outsiders who directed their movements and disposed of the goods getting their share. The investigation showed that pawn shops had been established at Pittsburg and other points where the stolen goods were received and disposed of. These pawnbrokers found a market for everything, even household furniture and other bulky articles constituting part of the plunder. This is the most extensive conspiracy for purposes of robbery that has ever been discovered in this country, and a large number of detectives were engaged upon it for months before they secured sufficient evidence upon which to make the arrests. Then, at an hour agreed upon, all the freight trains on the road were side-tracked at points indicated, and, when the crews were taken into custody, in almost every instance proofs of their guilt were found in the cabooses occupied by them on the trains. It has generally been recognized that pawn shops in general were subject to suspicion, but their connection with these train robberies show that the resources of the pawnbrokers for disposing of stolen property has been underestimated. The laws relating to their business might be made considerably more stringent with advantage to the public.

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MUCH prominence has been given to the announcement that the French crown jewels are to be sold during the present month, commencing on the 12th inst. It is stated that some buyers for American houses have gone abroad with a special view to be present at this sale and to bring home some of the choicest of these gems. It is reported that in the sale there will be about fifteen hundred diamonds of various sizes, shapes, kinds and qualities, and nearly as many other precious stones of other varieties. Many of the jewels possess historic associations that are deemed to enhance their value, but the probability is that they will be sold for their value as gems, regardless of their history. This will be the case if the bidding rests exclusively with merchants who buy to sell again, but should a few wealthy collectors be on the ground, they may be willing to pay more for sentiment than for actual value, and so run up prices on some of the most desirable gems. However, it is hardly probable that American buyers will be left entirely in the lurch if they see anything they really want.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of March 15, 1887.

359,320—Breastpins, Pin Tongue for. J. E. Hasler, New York, N. Y., and A. F. Haberl, Denver, Col.

359,397—Watch Case Pendant. E. F. Margot, Boston, Mass.

359,323—Watch Pinion Cutting Machine. E. A. Marsh, Newton, Mass.

Issue of March 22, 1887.

359,983—Clock, Alarm. A. Runge, Dresden, Saxony, Germany.

359,980—Clock and Watch Balances, Manufacture of. L. Murray, Assignor of one-half to E. Howard Watch and Clock Co., of Boston, Mass.

359,830—Clock, Pneumatic. R. C. Wittmann, East New York, N. Y., Assignor to Himself and A. F. Bernsee, Brooklyn, N. Y.

359,799—Clock System. C. A. Mayrhofer, Vienna, Austria-Hungary.

359,885—Watch Case. D. O'Harra, Assignor to American Waltham Watch Company, Boston, Mass.

359,946—Watch Movement Box. A. Troller, Assignor to Rockford Watch Company, Rockford, Ill.

359,814—Watch, Stem Winding and Setting. B. R. Baughen, Burlington, Iowa.

Issue of March 29, 1887.

360,346—Clock, Alarm. A. B. Hawley, Detroit, Mich.

360,338—Clock, Burglar Alarm. C. E. Burnham, White Plains, N. Y.

360,078—Clock, Primary Electric. J. J. Abell and C. B. Gifford, Colesburg, Ky.

360,092—Clock, Secondary Electric. W. B. Harvey, Memphis, Tenn.

360,395—Ear Ring. E. A. Stratt, Jersey City, N. Y.

360,234—Watch Balances and Hair Springs, Testing and Grading Ec. Marsh, J. Logan and D. H. Church, Waltham, Mass.

360,105—Watch Case. C. F. Morrill, Boston, Mass.

Issue of April 5, 1887.

360,725—Clock, Calendar. H. S. Prentiss, New York, N. Y.

360,481—Clock Mechanism. P. G. Puttemaans, Brooklyn, N. Y.

360,416—Jewels, Tool for Setting. S. T. J. Byam, New Haven, Conn.

360,648—Mainsprings, Device for Letting Down. C. Bickford, Boston.

360,475—Watch. A. H. Potter, Geneva, Switzerland.

360,019—Watch. A. H. Potter, Geneva, Switzerland.

360,477—Watch Case and Movable Plate Combined. A. H. Potter, Geneva, Switzerland.

360,478—Watch Case Pendant and Center. A. H. Potter, Geneva, Switzerland.

360,474—Watch Escapement. A. H. Potter, Geneva, Switzerland.

360,476—Watch Plates and Cases, Manufacturing. A. H. Potter, Geneva, Switzerland.

360,818—Watch Movements, etc. A. H. Potter, Geneva, Switzerland.

(All of Mr. Potter's patents above mentioned are assigned to the New Haven Watch Company, of New Jersey).

360,641—Watch for the Blind. S. F. Adam, Middletown, Conn.

360,563—Watch Key. G. S. and W. W. Conover, Georgetown, Canada.

360,416—Watch, Stem Winding and Setting. S. T. J. Byam, New Haven.

360,777—Watch, Stop. H. A. Ingrin, Brooklyn, N. Y.

360,828—Watch, Stop. G. B. St. John, Boston, Mass.

360,658—Watches, Adjusting the Hair Springs of. L. R. Kauffman, Lexington, Mo.

Fashions in Jewelry

A Lady's Rambles Among the Jewelers.

THE penitential season brought the usual lull to retail dealers, but with Eastertide came evidences of a revival of trade. There was a very general observance of the joyous season among our up-town firms, the show windows of leading houses being, in many instances, refurnished with quite new goods, among which appeared, very naturally, some things especially appropriate for Easter. Numbered with the latter were the usual stock of Pasche eggs of gold or silver, brooches and scarf pins in form of lilies or simulating birds' nests in gold wire, and birds in colored enamel. Then there were little gold baskets filled with eggs, represented by pearls, and there were also prayer books and hymnals in the new-shaded leathers, with gold and silver mountings. Beautiful little bon-bon boxes in precious metals also came to the front, as did silver jewel cases, enameled in pictures of Easter subjects.

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A FEATURE of many of the show windows was the diversity of articles exhibited, articles that are all the while growing in favor and which add alike to the attractiveness and profit of the jewelers' stores. New Easter parasols with long silver handles were unfurled, and arranged as a background to silver candelabra that flanked the sides of windows, in the center of which appeared choice specimens of bric-à-brac. A neighboring window would, perhaps, exhibit a background of elegant fans, while well to the front would come new ideas in jewelry for spring and summer wear. Canes, riding and driving whips with decorated handles, were stationed as sentinels in another window over an elaborate tea set in old English pattern. Show windows that attracted unusual attention were draped with white velvet, which material formed the background for new importations in way of necklaces, brooches and bracelets, and for the harmonious grouping of fine jewelry set with fancy gems.

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EVERYWHERE is seen new evidences of the craze for novelties in stones, both precious and semi-precious. Stones that have been lost sight of in the society world are again recalled, a notable instance being the revival of the opal. As is usual with most revivals, Queen Victoria has the credit of this one. However this may be, nobody cares, since the fact remains that the opal has come to stay. Another stone, for a long time out of fashion in what is known as "polite society," and fine specimens of which are again seen, is the garnet. This stone contributes in its better specimens some exceedingly fine and rare colors, and it is these of which we write. A fact our grandmothers appreciated in relation to the garnet, by the by, our modern belles have, some of them, awakened to, viz., that garnets make the skin appear white and are consequently becoming. The topaz is another stone just now much prized in its choicer colors.

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BUT to return to the opal. Bracelets of this changeful gem are among the most attractive ornaments seen during the past month. A beautiful one consisted of a row of fine opals set in a narrow band of gold, the spaces between the opals being filled in with small diamonds. An unusual combination seen was a ring with overlapping ends, showing in one an opal and in the other a sapphire. Pearls are sometimes combined with turquoises, the usual and [illegible]riate association being, however, opals and diamonds.

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THERE appears no diminution in the demand for pearls, and [illegible]cially colored pearls. The number of really fine colored pearls in stock in this city are a surprising development to many people. There are pearls of soft smoked gray, pearls of salmon tint, pink pearls, black pearls and irridescent pearls.

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THERE remains no question about clusters being fashionable; one sees cluster finger rings, ear rings, scarf pins and brooches. The favorite arrangement is a fine gem, such as a pearl, a ruby, an opal or sapphire in the center, with diamonds around it. Stylish ear rings, and ones much sought after by young ladies who can afford them, have ruby centers; indeed, the ruby is a favorite everywhere. It appears in finger rings alike for men and women. The former are affecting of late a gold ring somewhat widened on the top and set with three or more stones; usually a ruby and two diamonds appear, and sometimes the combination consists of a ruby, diamond and sapphire.

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EAR RINGS continue to be made in a variety of styles. When gems are employed the favorite ear rings are solitaires and clusters. Many pretty designs have appeared in the all gold and silver ear rings. The popular patterns in brooches and scarf pins are repeated in ear rings. The little coil and knot patterns remain good; so do balls; and then there is a large line of flower patterns represented.

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WHITE enamel jewelry, in flower and other patterns, promises to be the "correct style" in jewelry to wear with summer dresses. This jewelry appears in both gold and silver, the effect being the same, as the entire surface is covered by the white enamel. It comes in brooches and fancy pins, also in cuff buttons. Much of it is all white, though in some of the flower pins appear tiny anthers or a diamond center. Occasionally one sees a white enamel flower with a thread of gold around the edge of the leaves, but, generally speaking, the most attractive pins are the all white ones. The daisy is a favorite; so is the double white violet. Very pretty bar pins seen are formed of three white daisies. Little cravat bows of white, with tiny dots or stripes of color, swell the list of white enamel jewelry.

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UNDER white jewelry come white onyx pins and ear rings. Attractive specimens seen represented, in the brooches, a white lily, or other single flower with a long stem and diamond center. Ear rings are also made to simulate a single flower, though some of the white ones come in form of balls.

BRACELETS are as fashionable as ever. Very beautiful are the bracelets on which appear a French enamel or miniature painting, surrounded by pearls or diamonds, and this mention leads to the statement that there is no falling off in the popularity of either the Limoge enamels or the miniature paintings. As a rule these are set in a framework of gold or silver in antique pattern, or else are encircled with diamonds or pearls.

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OUR jewelers are indebted to Mlle. Bernhardt for a revival among our New York ladies, at least, of the girdle of "ye olden time." This accomplished actress wears in her remarkable impersonation of "Theodora" a series of girdles, in antique patterns, over the loosely draped gowns that are called for in the play. The flowing draperies, held in place by massive girdles, some of which almost touched the floor on one side, much increased the natural grace of Mlle. Bernhardt's lithe figure. The effect is picturesque in the extreme, especially in the gorgeous court robes that were embellished with a gold girdle, in an elaborately wrought pattern curiously set with colored stones. At least half a dozen ladies of fashion, on the opening night of "Theodora," conceived the idea of borrowing that conspicuous feature of the barbaric Byzantium queens' customs, the girdle, as an accessory to their own new gowns. It was a long leap, all the way from A.D. 525–50 to 1887, but our modern belles are courageous, and they attempted it. It need hardly be told that the attempt proved successful. The first dealer to whom they hinted the desire for barbaric girdles listened, and presto! there appeared almost immediately a goodly assortment of silver ropes, and coils, and chains, and linked plaques, from which to make selections.

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AS YET the "Theodora girdles" are confined mostly to house wear with the loose fronted tea gowns, just now so fashionable, though Mrs. Grundy sees no valid reason why these should not be worn on the street. The tourmure holds the girdle up near the waist line of the back, from whence it falls down to rest on one hip, escaping over the other somewhat, with its burden of attached viniagrette, tablet, etc, that in some instances nearly reach the floor.

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These girdles are quite massive, being sometimes large silver coils; at others, braided rope, chains or large flat placques linked together. A beautiful one seen was composed of a series of silver plates of peculiar shape and decorated with colored enamel.

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IN THIS connection it may be as well to state that an impetus has also been given to hair ornaments and scarf pins that simulate a dagger in form. Some jewelers claim that this is due to the impression made on some impressionable young women by the jeweled dagger worn in "Theodora" as a hair ornament, and with which the queen enacts her greatest tragic scene. However this may be, the dagger is numbered with present popular designs.

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ORNAMENTAL hair pins have gained a widespread popularity, being now an excellent selling article "on the road." The balls, coils, stars, etc., continue in favor, while many much more elaborate patterns have appeared. Gold or tortoise shell pins are now surmounted by narrow comb-like tops, also tops resembling a diadem or crown.

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SPEAKER Husted is by no means the only man who revels in a numerous collection of scarf pins. Throughout the length and breadth of the land scarf pins are worn, and their employment is not confined to any one class. This very general patronage has created a demand, naturally, for a wide diversity of style and quality, and it is only fair to our manufacturers to state that the demand has been met in a manner that must rejoice the hearts of would-be purchasers. Many of the new scarf pins are exceedingly handsome in design and workmanship, and not a few are set with rare gems. These pins are not only ornamental, but, in many cases, symbolical, in instance of which may be mentioned the sword scarf pins with jeweled hilts, and masonic symbols wrought in enamel on their blades. Men of means who have a penchant for rare and novel stones, are wearing fine specimens of some colored gem, associated with small diamonds, in their scarf pins. Colored pearls are much affected for this purpose.

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JUBILEE scarf-pins have found their way to this country in small numbers, and show sometimes a tiny crown of gold set with small gems, and sometimes the royal initials traced in diamond points. Scarf-pins are by no means confined to men's wear; they are more popular than ever with the fair sex, who use them for a just variety of purposes, such as pinning in the high collar of a dress, fastening a lace fichu or plastron in place, and in bonnet ribbons; in fact, wherever there appears a use for any sort of decorative pin. The patterns presented in these pins are legion; flower designs remain popular, so do the *old*, old star, crescent, horseshoe, clover leaf, ball and knot designs. Then there are, of course, many quite new ideas, among which are the pins that show flat round heads edged with grain work ornamentation and having a diamond or pearl in the center. The jewellers say that the "four-in-hand tie" has greatly increased their sale of scarf-pins among men.

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THERE appears to be a lively competition between the brooch and the "combination pin," as jewelers are now calling the short bar pin. These latter consist in a bar or scroll with a round or widened center piece, which produces a shortened effect to the ornaments. In each style there are a sufficient number of new patterns out to insure everybody's obtaining just what they require. Numbered with jubilee brooches are those made in copy of the brooches Queen Victoria presented to her royal bridesmaids when she was married. These are in the shape of a bird, the body of which is formed entirely of turquoises, the eyes of rubies, and the beak a diamond, while the claws are of gold resting on a fine pearl. Bridal presents given of late by the Queen, if Paris correspondents are to be accepted as authority, consist of some ornament, as a ring, brooch or bracelet set with opals, a stone her Majesty is said to greatly admire.

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A NOVELTY which has appeared, both as a brooch and a pendant for a queen chain, consists in a five dollar gold piece that has been relieved of all the gold intervening between the head in the centre and the stars around the edge of the piece, presenting a gold wheel or rim of stars with a medalion in the center, showing the head of a woman.

A PRETTY conceit in a bar pin is that of a canoe with the bars resting in the oar-locks and a gold rope hanging over the bow of the boat. Little gold wish bones tipped with pearls contribute to the new stock of bar pins; so does a gold parasol with a topaz ball for a handle.

BOTH flower and fly pins thrive. The long-stemmed flower pins bid fair to be very popular ornaments during the summer season. Their graceful stems admit of the long pins underneath which are so convenient for catching and holding masses of lace and other delicate fabrics, and this, by the way, was the great secret of the old lace pin's success.

WATCHES for ladies use continue to run in small sizes, and decorated cases are in demand, with a tendency to Queen Anne, Louis the XIV, and other old styles of ornamentation. Some of the cases are irregular in form and some are made to imitate a shell.

WHILE several novelties in watch chains for ladies have appeared, the Queen continues to lead all other styles. The Queen's continued popularity, however, does not prevent an excellent patronage for the short vest chain. Watch chains for the most part show a finish and decoration that matches with the watch with which it is associated; hence there are chains in bright Roman and enamel finishes, as well as chains set with gems.

A NEW Queen ball-pendant is composed of open scroll work in blue enamel, encircled by a band of diamonds. For mourning offers a similar ball in black enamel with a band of pearls around it.

A NUMBER of Japanese dollars, also old Mexican dollars, have been made into lockets. They may be worn on a silver chain, or carried in the pocket as a piece for luck. It need hardly be told that the initiated know how to touch the spring that shifts one half of the piece so as to expose a hidden picture of "he" or "she," as the case chances to be.

THE double chain divides favor among men with the fancy vest chain. Many are showing a preference for the red gold chains.

WITH the increased demand for finer grades of jewelry has grown an increased demand for fine plush and leather cases. While leather cases are coming on apace—being now more popular than before in some years—the plush cases continue to attract a wide patronage. Few fine goods are sold now in paper boxes; small articles in silver ware, as well as jewelry, are put up in fine cases. The dealers say it pays, and as the manufacturers seem happy, there is every reason for believing that it does.

THE fancy for fine leather goods, with gold and silver mountings, continues; indeed, so far as pocketbooks are concerned, it appears as if the rage had only just begun. Instead of the mountings getting more simple, they are more elaborate than ever, in some cases almost covering the book. The fashion of monograms is revived, and these are placed on pocketbooks, card cases and other objects, in addition to the usual mountings. These monograms are many of them very elaborate, and embrace the styles of Louis XIV. and Louis XV, the Renaissance and Florentin and Moderne periods. The monogram illustrations that began in the February number of THE CIRCULAR have unquestionably given an impetus to the fashion of decorating again with monograms. It need hardly be told that ornamental monograms are not confined to applied gold and silver decorations on portfolios, pocketbooks and other leather goods, but are to be seen on jewelry and silverware as well. THE CIRCULAR'S monogram illustrations will render it an easy matter for every jeweler and silversmith in the land to fall in procession and follow New York styles in this direction.

LADY readers will be interested to learn that the long narrow pocketbooks continue to be the fashionable ones; also that monkey skin is just now ahead in leathers for making pocketbooks, chatelaine bags, card cases and the like, though pig skin, crocodile, etc., are still in fashion. The new shades in dress fabrics are represented in the new pocketbooks; hence there is a prevalence of heliotrope and Bismarck hues.

NUMBERED with noticeable revivals made during the past winter, and likely to remain a fashion for some time to come, is that of lorgnettes. Every well-dressed woman who makes any pretentions to style carries her lorgnette to the opera, the theatre, the concert-room as certainly as she carries a fan, a handkerchief or any other necessary accessary to the toilet. The lorgnette has grown rapidly in favor, doubtless, from the fact of the ease with which it is carried, as well as its furnishing a graceful toy to hold in the hand. Of course with the rage for these optical instruments, there are lorgnettes and lorgnettes, some very plain and substantial ones, boasting only of the best results of the optician's skill; some valuable chiefly for their rich and elaborate handles and frameworks, while there are some that combine perfect lenses set with the highest skill of the jeweler's art.

A GOOD selling article is the garter. This very practical, and, in old days, never mentioned above a whisper, article, has become quite a feature in the show cases. It is no longer a secret that ladies wear garters, these being numbered with popular presentation gifts for birthdays, weddings and other occasions. The garters are of colored silk elastic, or of fine leather (usually the former) and fastened with gold or silver buckles and clasps. These buckles or clasps are variously decorated, the very newest style being perhaps a decorative monogram applied, etched or traced on with enamel.

IN silverware the forms continue for the most part low. The bright finish may be said to be the popular one, while old English and Louis XIV. forms prevail to a great extent. The fluted pattern is in favor. In plate ware the same forms and styles of decoration are offered as are seen in the sterling ware.

ELSIE BEE.

CORRESPONDENCE.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular:

The manufacturers, like Micawber, are quietly waiting and hoping for something to turn up in the way of orders, but hope deferred maketh the heart sick, and they are beginning to ask each other if the business for the spring season is already over, a few orders to the majority of the manufacturers would to-day be as welcome as

"The flowers that bloom in the spring,"
"That breathe a promise of merry sunshine."

But the sunshine which would radiate from their faces in comparison would dazzle the midday sun in brightness, from the effects of being able to gather in a few of the aforesaid orders, if they were only like, by hook or crook, to do so. Unless the next few weeks should show a revival of trade, now that Lent is over and the pleasant days with azure skies have come, the business can be summed up as indifferent and unsatisfactory to the great majority of the manufactories located here, and at North, South, East and at Attleboro Corners; at the latter places the factories closed down on Wednesday night for the balance of the week, which speaks very little for business on hand. The season there has been very moderate so far, to say the least; after paying for dies and new tools with which to get out new goods and other necessary expenses, it is hard to figure where the manufacturer comes in for much of a margin on which to live, out of the small amount of business done so far this season, which would seem to be a good selection, for the reason why that more firms do not start in this branch of trade, as THE CIRCULAR stated in the February number. The great competition in the manufacturing jewelry business of to-day, together with the small profits derived from it and the carrying of jobbers' accounts from one to two years, does not make it a branch of trade to invite many new firms to commence in unless they have unlimited capital back of them, which is seldom the case. Several new firms who had the courage to commence have made an ignoble ending and passed into oblivion, the few customers that they sold while doing business have been gathered in by the other large concerns, left behind much in the same manner as an octopus gathers in what it feeds or preys on to nourish her. The majority of the factories in Providence are running to only light business; many of them are on short hours and employing a reduced number of employees, others are on three days per week and eight hours per day. Some firms are working on stock in anticipation of being able to float the goods as orders are received for them, or possibly to carry them along for the fall business where the patterns remain salable, which happens in some cases where the goods are fine, but as a general rule, patterns that one considers safe to make up ahead for stock, are just the ones you will not be able to sell, so that the manufacturer must use the best of good judgment in this regard or feel the effect financially.

One of the abuses imposed on the manufacturer this season, and, in fact every year, is that of sending goods on selection to any part of the United States; for instance, perhaps some firm or private individual in the far West wants to get a single pin or pair of ear knobs for his wife or friend and sends to the manufacturer of the goods he wants to send him on selection a small order of goods to select from. And the manufacturer, thinking possibly that he has made a new customer, is rather crestfallen to find that on return of the balance of the goods a cheap pin or pair of ear knobs have been kept, hardly worth enough to pay the expressage on the goods there and back, and for which an account has to be opened on the ledger and carried along from month to month, necessitating a monthly statement for several months, and, most likely, then be overlooked on to profit and loss. So goes the selection order business.

The creditors of the late firm of Messrs. Nathaniel Grant & Co., or, at least, a majority of them, voted to accept of 35 per cent. on their claims, but some not being satisfied, the effects will be sold at public auction.

The firm of Messrs. Reed & Gardiner, on Saturday last, was dissolved by mutual consent. The business will be continued as heretofore, by Mr. Gardiner assuming all liabilities. Mr. Reed, it is reported, will start in business independently in the same building.

Messrs. S. W. Bassett & Co. have decided to remove their works from this city to Newark, N. J., where they have secured better facilities for the gold ring branch of their business.

The Manufacturing Jewelers' Board of Trade has at present one hundred and fifteen (115) members, and is constantly on the increase. This organization is of incalculable benefit to the manufacturer to keep him posted as to what is being done by the jobbers in general.

Mr. R. A. Kipling sailed per the steamer *La Bretagne*, of the French line, on Saturday last for Havre, on his way to Paris in search of new goods.

Mr. Charles Read should have been mentioned in the April number as being connected with the firm of Messrs. Hahn & Co. instead of Messrs. Cottier & Son. Mr. Read is showing many novelties to the trade this season in fancy stones, and is doing an increased business over last season, due to his popularity with manufacturers.

Messrs. Harvey & Otis, the gold emblem manufacturers, have removed from their old quarters on Dorrance street, opposite the Providence Opera House, to the Fitzgerald Building, corner of Eddy and Friendship streets, where they have increased facilities for transacting their business.

The firm of Messrs. James W. Barney & Co., manufacturers of ladies' dress buttons, etc., has removed to the Fitzgerald Building from No. 178 Eddy street; they have greatly enlarged facilities in their new quarters.

Mr. Joseph L. A. Fowler, of the well-known firm of Messrs. Fowler Brothers, will sail for Europe per the Cunard steamship *Etruria*, on the 30th instant, for a pleasure trip, and will be away for about three months. Mr. Fowler will visit all the principal cities of Italy, Austria and Germany; also expects to enjoy a short sojourn to the "land of the midnight sun." We wish him a *bon voyage* and a safe return.

Messrs. Hudson & Farnum are about to introduce to the trade a new bracelet, using fancy instead of plain wire, and is counted on to lead their last effort, "The Daisy," in point of sales.

Mr. Fry, of the firm of Messrs. Fry & Read, dropped dead this week in his factory, as it is supposed, from heart disease.

Messrs. C. A. and J. D. Fowler, of the firm of Fowler Bros., succeeded recently in inveigling about 60 trout (those fine speckled ones) weighing 80 pounds, to jump after the fly on their eight ounce rods, and thereby landing them safely without the use of a net. They were beauties, some of which weighed two pounds each. Friends in New York and elsewhere will be notified of the shipment.

Mr. Charles F. Irons has fully recovered from his fall of February last from his carriage, and his genial face can be seen on the street any day. He will soon issue a new catalogue of gold badges, emblems, charms, etc.

Messrs. Howard & Sons' circulars, advertising their "Sensation" collar button, are fine specimens of unique printing.

Providence, R. I., April 15, 1887. FAIRFAX.

Our Foreign Correspondence.

BIRMINGHAM, April 4th, 1887.

To the Editor of the Jewelers' Circular:

The cause of the present state of the jewelry trade is the riddle to which all are seeking an answer, but none seem able to find a satis-

factory one. While, according to newspaper reports and inland revenue statistics, all other trades are better than last year and are slowly improving, the jewelry trade has been for two months past almost dead. Certainly it is the quietest part of the year, but with few exceptions all manufacturers agree they never knew it so bad nor the outlook for the remainder of the year so discouraging; as it is not only the manufacturers who are selling nothing, but the factors report that it is with the utmost difficulty they are paying expenses.

This state of trade is, no doubt, partly due to the very heavy failures of factors which occurred early in the year, as with the present system of long credit, so universal in the trade, the pressure which is being brought to bear upon many of the retailers by the trustees of various bankrupt estates is seriously affecting the financial position of a large number.

I will give an instance of what I mean: A is a factor and sells a parcel of goods to B in January; on his next journey in May A draws upon B at 6 months (very often longer) for the goods bought on previous journey. B has been in the habit when he found money light of sending A part of the money for the bill, and getting the rest renewed; but, in this instance, A has become bankrupt, and, as a consequence, the bank force B to meet his bill; so the latter has to ask other houses to give him more help than he would have done had A remained solvent.

The present rage for limited liability companies is also affecting the jewelry trade. Last October we had one of the largest firms of manufacturing jewelers, viz., G. E. Walton & Co., turned into a private limited company, and to-day the largest firm of wholesale jewelers, S. Blanchensee & Sons, is put upon the market, and with the false idea of the enormous profits made in the jewelry trade—which the general public have, no doubt—there will be a great rush for shares, especially as, according to the prospectors, there is very little doubt it will pay a dividend of 10 per cent.

The Queen chain, which has been fashionable with you for so long, has had a very short run with us. Last spring a few houses made it, but, with the exception of Canadian buyers who were over here, it was shunned by the wholesale houses. About August last our queen set the fashion by wearing one in public, and there was a rush for them for a short time, but, in spite of the endless variety of styles it was made in, it was with difficulty sales were kept up to Christmas, and since then no one would buy for stock, and manufacturers have had to scheme to sell those left in stock, until, at the present time, none are asked for.

I hope that manufacturers in your country find the competition less keen than it is here. The amount of time wasted by the travelers for manufacturers here is simply ruinous. A few days since a wholesale house in this town was known to be about to buy. The custom here is for the travelers only to do the buying, and as this house employs several, all of whom buy together, it is a great point to show stock or samples before other manufacturers. As a consequence, the first manufacturer's traveler is at the door at 8 A. M., prepared with a newspaper to while away the time. From 8 to 8.30 other travelers are coming every few minutes, and from then until 9 o'clock there is a constant stream, so that when the buyers arrived at about 9.30, there were travelers from about 45 manufacturing jewelers waiting for appointments. At a large number of houses no appointments are given, and it is quite a common occurrence for travelers to have to wait two and even three hours for their turn.

SOLITAIRE.

NICKEL CRUCIBLES.—Crucibles of nickel have lately been adopted in some chemical laboratories, in place of the silver ones generally used for melting caustic alkalies. They have the advantage, not only of being cheaper, but of being capable of resisting a higher temperature than the latter, and the result is said to be favorable.

President, HENRY HAYES.....Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON.....Of Celluloid Show Case Co.
Second Vice-President, JAMES P. SNOW.....Of G. & S. Owen & Co.
Third Vice-President, JOSEPH R. BOWDEN.....Of J. R. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS.....Of Rendel, Barrmore & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON.....Of Sexton Bros. & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
J. R. GREASON.....Of J. R. Greason & Co.
GEO. H. HOUGHTON.....With Gorham Mfg. Co.
WM. H. JERNEE.....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box 3,441. P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee of the Jewelers' League held on Friday evening, 1st inst., there were present the Chairman, Geo. R. Howe, Vice-Presidents Snow, Lewis and Bowden, and Messrs. Bardel, Jeannot, Greason and Sexton.

The Treasurer reported all claims paid, and a cash balance on hand of $5,029.68.

There were six (6) changes of beneficiaries granted.

Three (3) applications were referred for correction.

One (1) application rejected.

The following (9) applicants were accepted:

W. R. Bradley, Colorado Springs, Col; C. A. Colby, Buffalo, N. Y.; W. Friederich, Washington, D. C.; R. Lackenbach, Philadelphia, Pa.; W. B. Musser, Lancaster, Pa.; J. H. Taylor, Newark, N. J.; Maurice Weil, F. K. Hays, New York, N. Y.; S. N. Follansbee, Athol, Mass.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

A REMEDY SUGGESTED TO PREVENT FRAUDS IN GOLD CASES.

To the Editor of the Jewelers' Circular:

I have carefully read your article in the April CIRCULAR regarding the proposed Hall marking of gold cases. I cannot see where the benefit you seek to secure for the innocent purchaser would be obtained, as the average watch wearer knows or cares little for the stamps that may be placed upon the cases he is bargaining for, but depends, nine times out of ten, on the jeweler's reputation for honesty and veracity as to whether the case he is buying is as represented. The Hall mark is not a success in Great Britain, as we all know, and we also have had a great deal of experience with the Swiss stamp, which has not always been satisfactory. The only protection that the dealer can rely on is the innate and tried honesty of the manufacturer who has passed through the crucible of the world's test as to the quality, wear and durability of the goods he manufactures. Certain makers of watch cases, like similar manufacturers of other lines of goods pertaining to our trade, such as silverware,

many good goods are, have only to place their names on their productions in order to give accepts it at its full value, knowing that many dunces are ever placed upon articles manufactured by them a full guarantee that in every respect, regarding intrinsic value and workmanship, are exactly as represented. Such a reputation is only attainable to the maker and the trade than any Hall mark, could ever be wielded in a thousand ways. Right here is a way to solve the whole difficulty regarding gold watch cases that the trade can readily apply. Refuse to buy any case upon which the manufacturer, not the seller, does not place his name and stamp of quality. Reputable makers cannot afford to sell any of their goods which are not full up to standard, and new-comers will be so closely watched by their older brethren in the trade that they will not dare to debase their goods for fear of the inevitable exposure.

It is no doubt a fact that at least three-quarters of the gold cases sold as 14k or 18k solid gold cases are fully up to the standard, and the only trouble in ascertaining the quality of the remaining portion lies in the fact that no one seems to know where they come from or who made them, as so many dealers have their own name or initials placed upon their cases, and many small manufacturers adopt all sorts of devices and marks except the right one (their own name and trade mark) that it is next to impossible to find out when a black sheep is found who made it. If retailers and jobbers would refuse all cases that do not bear the name and quality mark of the maker, they would soon put an end to swindling in the gold case business. This is much better than putting all on a common level of a Hall mark uniform stamp, as experience shows where governments are sometimes not above suspicion.

What could Steinway or Faber say if it was proposed to have a Hall mark for pianos and lead pencils and take away from them that individuality that has taken years to build up and is now worth millions of dollars to them? There is the same thing in our trade. Our well known manufacturers stand by their name and trade marks now, and henceforward as in the past. Their records are honorable, their goods are above suspicion, and it would be suicide for them to surrender that which has been the foundation and secret of their success, *i. e.*, the unflinching integrity and honesty of their business career, and the intention always fully carried out, that any article bearing their name and trade mark shall always be exactly as represented.

Let the Jobbers Associations and the various retail associations increase names and quality being stamped on all gold watch cases. Away hideously all others, and show them up to the contempt and scorn of honest dealers, and if this assaying business is properly systematized and carried out there will be a rapid disappearance from the market of all crooked and bogus watch cases. BISMARK.

A STAMP OF QUALITY DESIRED.

To the Editor of The Jewelers' Circular:

Your editorial in the April issue concerning the desirability of stamping the quality of jewelry is timely and goes right to the point. During the last few years we retailers have been compelled to sell our goods at very small profits, if they were of good quality, just because our competitors had the same patterns in cheaper quality. In watches especially has this been the case, and the fraudulent stamping of quality in gold cases has ruined all hopes of ever obtaining a living profit on good quality goods. I am an honest dealer. I buy my cases of honest firms who stamp the quality of gold in numbers which I am confident are true. But within a block of my store is a dealer who has his cases made by an unscrupulous firm which stamps his 10k cases 14k. My competitor looks to be as honest a man as I do; he talks as well, and is successful in his sales. He makes new customers every day, and I find it hard even to retain my old ones.

If you will allow me to make a suggestion I think you will find others to agree with me in its practicability. Would it not be a good thing for all the *honest* manufacturers of watch cases to combine in a national association, adopt a universal stamp of quality, and advertise it largely throughout the country? Let their advertisements reach the general public besides the jewelry trade, and let them devise a scheme for ascertaining whether all their members are complying with this requirement. In this manner the public would look for the stamp of the association upon every watch, and if it were not found, a reasonable suspicion would hold that the case was not of the quality indicated by the private mark of the manufacturer. The public would soon learn to respect this stamp and it would then become impossible to sell watches without it, and jobbers, manufacturers and retailers would be enabled to make a reasonable profit on their goods.

As things now are the dealer who sells honest goods is compelled to content himself with a small profit in order to compete with his competitor, the dishonest dealer. The dishonest dealer makes fabulous profits on his fraudulent goods, and still sells them much below the low prices obtained by honest dealers.

Hoping you will print this in the interest of the trade in general, I am respectfully, KARL K.

Brooklyn, April 16, 1887.

THE NATIONAL ASSOCIATION OF JOBBERS.

To the Editor of the Jewelers' Circular:

I notice in the April issue of THE CIRCULAR, in response to a communication, you state that wherever dealers know of instances in which jobbers have been selling goods to the outside trade, they should inform the Secretary of the Jobbers' Association in order that that body may punish the offender. It seems to me a very queer condition of affairs that the jobbers, who have formed an association for certain purposes, and bound themselves by distinct pledges not to do certain things to the prejudice of the retail dealers, are not to be trusted. Are we to assume that there is no good faith left among the jobbers? Are we, as retail dealers, in order to protect ourselves, to form ourselves into an association of private detectives for the purpose of watching these jobbers and reporting them for violation of their pledges? When the National Association of Jobbers was formed and their rules and regulations promulgated, I took it for granted at once that these pledges would be observed religiously. I find, however, that such is not the fact, for I know of my own knowledge that outside dealers are now handling jewelry which was bought of these same jobbers at the same prices that I have paid for them. This brings these outsiders into direct competition with me and other legitimate retail dealers in jewelry, and, as these outsiders are not looking to their sales of jewelry as a means of support, but simply use such goods as leaders to attract customers, they undersell us and steal away our trade. If there were any virtue in trade traditions, or any dependence to be placed on the honesty of the jobbers, the legitimate retail trade would be protected from competition of this sort, nor would it be necessary for them to become private detectives for the purpose of watching and reporting the operations of these who have pledged themselves to act towards them in an honorable manner. I find in dry goods houses in this place, and in novelty and furnishing goods stores, some of the same lines of jewelry that I am carrying, and consequently I know who the manufacturers of such goods are, and, as a rule, can identify the jobbers through whom they were placed. While I do not propose to turn informer or constitute myself a spy upon the actions of the jobbers, I do propose to give these gentlemen the cut direct and buy my stock of those jobbers who do not make it a part of their business to destroy my trade. The Jobbers' Association, which is organized, as claimed, for the protection of the retail dealers, is as well informed regarding these violations of its rules and regulations as the dealers are, but it seems to be part of their programme to ignore them and to take no measures to bring the delinquents to book for these violations of their pledges. If the association is to be permanent and have any influ-

ence with the retail trade at all, it must take cognizance of these offences against it which are patent at least to all except, perhaps, the members of that body who prefer to be wilfully blind.

Albany, April 15. G. L. N.

KINDLY WORDS FROM APPRECIATIVE FRIENDS.

The following are brief extracts from business letters recently received:

"I have been a constant reader of THE CIRCULAR for the past three years. I receive it through the N. Y. News Co., as in connection with the jewelry business I handle all periodicals. I am very much pleased with THE CIRCULAR, and I would not want to do without it."

"Please insert the enclosed advertisement in the next edition of THE CIRCULAR and state cost by mail. We will remit by return. We feel obliged to terminate our interest in this patent on account of the long-continued illness of our business manager (sick since last October) and we know from our experience that the right man can dispose of a good many of the goods and make money. We have found THE CIRCULAR to be the best possible advertising medium, as it brought us orders from South Carolina, Mexico, Europe and all parts of the United States and Canada. We shall recommend our successors to continue advertising with you, we having stopped our advertisement simply because we intended selling our interests.

"Yours truly, HEMSLEY & Co."

"Newark, N. J., April 9, 1887."

"Enclosed I send two dollars to pay for one year's subscription for THE CIRCULAR, commencing with April's number. Think it is the best jewelers' journal printed, and also think it is worth fifty dollars a year to any young jeweler.

"Amsterdam, N. Y., March 16, 1887."

"Please find enclosed postal note for two dollars for subscription to THE CIRCULAR. The monograms are a valuable feature and worth twice the money.

"Chillicothe, Ohio, March 21, 1887."

"I have been taking THE CIRCULAR for the past three years and still take it. I think it the best paper of the kind I ever saw. I would not miss a number for anything. I feel lost without it."

*A Complete History of Watch and Clock Making in America.

[By CHAS. S. CROSSMAN.]

Number Eleven.

Continued from page 96.

THE ELGIN NATIONAL WATCH COMPANY.

THE Elgin National Watch Company furnishes a striking example of American enterprise and business sagacity. It cannot be said that the credit of conceiving and organizing this company is due to any one man or set of men, but is due rather to a combination of Western push and business enterprise and Eastern horological skill, a union which has developed a watch manufacturing business which to-day stands second to none in existence. As early as 1863 the idea of starting a large watch company in the West was talked over by Messrs. J. C. Adams, of Chicago, and N. P. Stratton, then connected with the American Watch Company, of Waltham, Mass. Mr. Stratton being sent to Europe by the latter company soon after, the matter was dropped for the time being. In the spring of 1864, Messrs. P. S. Bartlett and Ira G. Blake, of Waltham, both of whom were, at the time, prominently connected with the American Watch Company, visited Chicago, and the idea of starting a watch company was once more agitated. Mr. Adams soon after went to Waltham, where he interviewed a number of practical men who were anxious to go into a new company, if men with large capital and business experience could be found to form the new company. Returning to Chicago he soon interested several prominent business men who, early in August, 1864, took steps toward a corporate organization. This was effected by the 27th of the same month under the name of the National Watch Company, with an authorized capital of $100,000. The following gentlemen were named as corporators, viz.: Messrs. Benjamin W. Raymond, Howard Z. Culver, Thos. S. Dickinson, Geo. M. Wheeler, Philo Carpenter, W. Robbins and Edward H. Williams. It may as well be stated here that the certificate of license granted at that time was surrendered April 25, 1865, and the company reorganized under a special charter granted by the general Assembly of the State of Illinois, approved February 15, 1865, with an authorized capital of $500,000. Messrs. Benjamin W. Raymond, Philo Carpenter, Thos. S. Dickinson, Howard Z. Culver, Geo. M. Wheeler, Joseph T. Ryerson, of Chicago, and Benj. F. Lawrence, of Elgin, were, by this charter, made the first Board of Directors. Mr. Raymond was elected President, Mr. Lawrence, Vice-President, and Mr. Wheeler, Secretary. Immediately after the organization of the preliminary company they began to cast about for a suitable place in which to locate their plant. Messrs. Raymond, Culver and Adams were appointed a committee on location and finally selected Elgin, the citizens there donating thirty-five acres of land to the company for the plant and homes for the foremen, besides taking $25,000 worth of stock of the company. In the month of September following the first organization, Mr. Wheeler, accompanied by Mr. Adams, visited New England for the purpose of engaging a corps of practical men to start the machine shop. At that visit, Messrs. Ira G. Blake, Geo. Hunter, John K. Bigelow, P. S. Bartlett, Otis Hoyt, Chas. E. Mason and D. R. Hartwell contracted with the company each for five years, but, before the time arrived for them to remove, through some misunderstanding or personal dissatisfaction, Mr. Blake became detached and Mr. Chas. S. Mosely was added to the staff in his place. They were all at this time in the employ of the Waltham Watch Company in more or less important positions. The reason these seven men wished to leave the old company was that they were to have an increased salary, they were also each to receive the dividends from a certain amount of stock and be given a plot of ground containing a half acre as a homestead. They, too, felt they could have more latitude in the new company than they could ever hope to have in the old. During the month of November, 1864, machinery and supplies for a machine shop were purchased in the East and shipped to Elgin, where a temporary wooden structure 35x60 feet, three stories high, was erected on the water power to serve the purposes of the company until the factory should be ready for occupancy. This building was finished in the early part of January, 1865, and was immediately occupied and work begun on tools and watch machinery by the men just alluded to, with Mr. Hunter as foreman. Situated in a prairie country far from the center of supplies, they found many drawbacks to the work. Before even iron castings could be procured of the proper quality, they found it necessary to build and equip a foundry of their own. The workmen were all eager for results, however, and pushed the work forward without faltering. Mr. Daniel G. Currier, an expert watchmaker, was hired from Waltham in April of this year and assisted Mr. Mosely in constructing the model watch. Meanwhile active preparations were being made to provide the business with a permanent home, and to this end Mr. H. H. Hartwell, an architect of Boston, and a brother of Mr. D. R. Hartwell, visited Elgin by request to consult regarding the proposed factory. Later he submitted plans which were adopted, and work on the buildings was begun in the spring of 1865. The buildings consisted of one main building 40 feet square, 4 stories, a wing 27x100, a back extension 27x86, both of which were three stories, a one story building 20x75, containing engines and boilers, and another one story building 20x50, with an L which contained the dial enameling and painting rooms and furnaces. A chimney stack 100 ft. high was also erected.

* Copyright by Chas. S. Crossman, 1885.

Works were built to provide the factory with illuminating gas, there being no gas company in Elgin at that time, nor for 10 years after, in fact. The buildings thus erected were all of brick with limestone trimmings, with metal and slate roofs. They were built and finished in a most substantial manner, and were so far completed by January 1st, 1886, as to receive the machine shop which was transferred from its temporary quarters to the factory building on that day.

By June 1st of that year the entire buildings were completed and sufficient machinery finished and set up, so that work was now begun on parts of watches.

The factory was now under the general superintendence of Mr. C. S. Mosely. The train department was the first organized and was in charge of Mr. J. K. Bigelow. Work steadily progressed and the other departments were organized with foremen as follows: Plate department, P. S. Bartlett; escapement making, Chas. S. Mason; pinion making, Otis Hoyt; jeweling, Chas. H. Bagly, who had formerly been employed by the Howard, Watham and Nashua Companies; dial department, John Webb, an English dial maker; balance making, Eben Hancock; flat steel department, Mr. M. Goodridge; gilding department, Jas. Fairchild, an English gilder; finishing department under D. G. Currier. The adjusting was done by John F. Gilson. Mr. George Hunter, the present Superintendent, was foreman of the machine shop, as previously stated. The first movement produced was an 18 size, full plate, named B. W. Raymond, after the President of the Company. The first of them was put upon the market April 1, 1861, or about 2 years and 7 months from the date of the organization of the company. It was a key wind, quick train and straight line escapement, and essentially the same as now made except, of course, the improvements that have been added. The model was arranged at first to have the hands set at the back, as was common with three-quarter plate movements of Swiss and English make. Before the movements were completed it was modified so that the hands set on the face after the general plan of all full plate American movements. The following is a list of the movements immediately succeeding the Raymond. The H. Z. Culver, named after another of the directors; it was made after the original model and was the next grade below. It was put on the market July 16 of the same year. The next addition to the line was four movements, having slow trains and right angle escapements, viz., H. H. Taylor, full jeweled, the G. M. Wheeler, eleven jewels, and the Mat. Laflin, plain jeweled, all having compensation balances, and a plain jeweled steel balance movement named J. T. Ryerson. They were put upon the market in the following order: The Ryerson, October 14, 1867. The Taylor and Wheeler in October and November, respectively, of the same year, and the Laflin in January, 1868. Later this line was further increased by the addition of four more grades of 18 size movement, named respectively the W. H. Ferry, M. D. Ogden, J. V. Farwell and Chas. Fargo. These were introduced between August, 1869, and August, 1870; they were all named after gentlemen who had become connected with the directory. Since the latter date no additional grades of named movement of this size have been put upon the market as at this time corresponding grades to the named movements were introduced bearing only the name of the company as a trade mark instead of individual names. May 20, 1869, the first of the popular ten size, key wind, ladies' movements, was brought out and named Lady Elgin. This was a full jeweled expansion balance movement, and was followed August 24, 1870, by the Francis Ruby, a finer grade of the same size, and September 8, 1871, by the Gail Borden, and December 20, of the same year, by the Dexter Street, both lower grades of the same size. The Gail Borden was named after a stockholder, whose name has also been prominently before the public as a condensed milk manufacturer. He had large works in Elgin. This entire line of ten size, key wind movements is now obsolete as the demand for smaller size and stem wind movements have forced them from the market.

The first stem wind watches issued by the company were delivered June 28, 1873, the model watch having been made by Mr. C. S. Mosely. Between that date and May 6, 1875, stem winding attachments were applied to the Raymond, Culver, Taylor, Wheeler, Laflin and Ogden grades. During this latter year, also, the nameless movements which have already been alluded to were adopted for all movements of every size and grade. The first of this series was produced June 16, 1875. Since that time over thirty distinct grades of 18 size full plate movements have been added to this line; changes in the condition of the market have, from time to time, compelled changes in the production, many changes having been both added and discontinued. So that the company have made since the introduction of their first watches about fifty grades of 18 size movements, that is, without making a distinction between key and stem winding of the same quality or grade. To-day they are making really but six, not counting all shades of difference.

August 28, 1874, the company brought out two new model full plate movements, seventeen and one-half size, named respectively the T. M. Avery and the "Leader." These movements were a little different from the other model, as the main wheel was between the plates instead of having a separate bridge, and the balance, which was a plain one, run in a countersink in the top plate. They were placed at a low price, and the latter grade was cased and sold as a complete watch. The company had in contemplation at this time the manufacture of cases as a part of their business, and machinery for the purpose was being accumulated, but the idea was abandoned. The odd size of these movements rendered them unpopular in the trade, and their manufacture was discontinued in 1877. Between September 29, 1875, and December 29, of the following year, five grades of 14 size, three-quarter plate, key wind movements were produced. They ranged in quality from full jeweled expansion balance adjusted, to plain jeweled with steel balances. These were more especially designed for sale in the English market, the company having opened an office in London, but they were sold to some extent in this country. After the adoption of popular prices by this company in 1876, their manufacturing resources were so heavily taxed to supply the home market that they deemed it best to withdraw entirely from a foreign one, and, in consequence of that decision, this entire line just mentioned was discontinued and the London office closed. Since that time no more key wind goods of any size have been added to the production. Between March 28, 1878, and June 11, of the same year, a line of 8 size stem winds, consisting of five grades were added. These have since, however, been entirely superseded by the present 6 size movements. Between November 1, 1878, and January 6, 1879, four grades of 16 size, three-quarter plate, stem winding movements were made in both nickel and gilt, in fine and medium grades. These embraced an entirely new feature in a stem winding device, being interchangeable for hunting or open face cases, with the winding stem at either three or twelve o'clock.

In February, 1880, this line was extended by the addition of two bridge movements, one nickel and one gilt. It is not too much to say that these movements have met with popular favor with the trade, especially the grade designated as the number fifty, which has become the most popular movement of its character ever introduced. This, with the other grades of the same size, has almost revolutionized the Swiss watch trade in the United States. Many of the Swiss manufacturers are now making movements to fit Elgin 16 size cases. The company expect soon to put out some still finer grades of 16 size movements, which will be second in quality to no watch in the market. On February 8, 1879, another line of 16 size, three-quarter plate nickel and gilt movements were produced in four grades, and made to wind at three o'clock for hunting cases only. March 11, 1880, this line of 16 size was further increased by adding one nickel and two gilt movements, having snap dials so arranged as to put three or twelve o'clock at the stem as desired, making the interchangeable feature in these also. The three last movements not proving popular have been discontinued. The company have, since their organization, made and put upon the market over one hundred distinct grades of the various styles and sizes of their products. At

the present time they are making twenty-four, only one of which is key winding. This key wind movement at present constitutes about ten per cent. of their total product. The first nickel movements made as a regular product were delivered from the factory August 15, 1877, and at present nickel forms about 40 per cent of the product and is constantly increasing. All the three-quarter plate movements ever produced have been quick train, making eighteen thousand beats per hour. The popularity of these, together with the two 18 size movements of this construction, designed especially for railroad use, decided the company to adopt this plan in all grades, and, at the present writing, all grades have quick train. With a view to having their products, the best of their several kinds, in the market, this company has always been on the alert to secure all valuable improvements, whether patented or otherwise, and have had in use in their movements fifteen different patents, most of which are well known to the trade. Hair springs were made by the company from the start and they were among the first to use tempered hair springs. Mainsprings have been made by them since March, 1875. Mr. C. S. Moseley, as has been stated, was the first Superintendent of the factory. He continued to hold this position until May, 1872, when he was succeeded by Mr. Geo. Hunter, the present Superintendent. Mr. P. S. Bartlett, was the first Assistant Superintendent, and resigned the position in 1877, withdrawing entirely from the company. He was succeeded by Mr. Wm. Cloudman, who still holds this position. Mr. Jas. Dangerfield was put in charge of the machine shop to succeed Mr. Hunter, afterward holding the position of master mechanic and designer. He left the company in November, 1878.

To meet the growing demand for Elgin watches many additions have been made to the original buildings. The first buildings already described contained a floor area of about 23,000 ft. The first addition was made in 1868, being a counterpart of the original wing to the main building, and increased the floor area by 8,000 feet. In 1873 four buildings were erected which gave an additional floor area of 38,000 feet. In 1874 a boiler house 40x70 feet and both chimney stacks now standing were built. The chimney for the boiler being 150 feet high and one for the dial furnaces being 100 feet high. The original stack, which was the latter height, was taken down at this time. The next extension was made in 1878, whereby 10,000 feet floor are was gained. In 1881 two buildings were erected, increasing the area by 19,000 feet, and an addition was built on the boiler house 47x133 feet.

The following year saw the last and by far the largest addition ever made in one year, consisting of seven buildings, and increasing the floor space by 72,000 feet. This makes, at the present time, a total floor space in the factory buildings proper, not including boiler and engine rooms, furnace rooms or any detached buildings, of 169,000 surface feet, or 175,000 including these. Outlying from these buildings is a full gas works containing twenty-four producers, supplying gas for eight pairs of fifty-horse power boilers and 24 dial enameling furnace fires, besides general furnace work. These gas works are separate and distinct from the illuminating gas works already mentioned. A carpenter shop 30x135 feet, provided with a Westinghouse engine of fifty horse power, and a full equipment of wood-working machinery suitable for the work of the company, also forms part of the plant. A spur track from the Chicago and Northwestern Railroad enters the yard at the rear of the factory buildings, delivering supplies to the store house and coal at the doors of the producers, where it can be fed to them without intermediate handling. The motive power for the factory proper is furnished by two automatic engines of eighty horse power each, arranged to be used singly or together. These were built by Messrs. C. H. Brown & Co., of Fitchburg, Mass. The entire plant has been designed and the various departments organized with a view to the highest state of efficiency, and it is not too much to say that there is no large manufacturing corporation existing which has a better appointed and equipped factory for the producing of their respective line of goods than this company have. During these years of manufacturing many changes have taken place in the organization of the company, both as regards its charter and its officers. A brief summary of these changes is as follows: As has been stated, the company surrendered its original charter April 25, 1865, and reorganized under a special charter with an authorized capital of $500,000. At this time the actual capital was increased under the new charter from $100,000 to $200,000. By an act amendatory of the charter passed by the General Assembly of the State of Illinois, approved January 28, 1869, the authorized capital of the company was increased from $500,000 to $2,000,000.

As the products of the company were so generally known as Elgin watches, the stockholders, at a special meeting held on May 12, 1874, took the necessary legal steps to change, and subsequently did change, the name of the company from the National Watch Company to the Elgin National Watch Company, by which name it has since been and is now known. In March, 1867, the actual capital was increased from $200,000 to $500,000, and in January, 1869, it was further increased to $650,000. On February 7, 1870, it was increased to $884,000, on January 16, 1883, to $1,000,000, and on May 20, 1884, it was again increased to $2,000,000, the limit under the present charter.

(To be Continued.)

Obituary.

DEATH OF CLEMENS OSKAMP.

The death of Clemens Oskamp, of Cincinnati, on April 7th, attracted widespread attention and universal sorrow among his friends. He was one of those sturdy and honest foreign-born citizens who have aided so materially in the development of this country. He came with nothing, worked hard, and achieved success both in wealth and public situation. His success and position were worked out by himself, and after a life of sixty-five years he passes away, leaving behind him many indelible traces of his worth and the imperishable example of an exemplary life.

Born at Westphalia, Prussia, in 1822, Mr. Oskamp was brought to this country in his fourteenth year by his father, who left his native land with his family to escape the severe military service exacted by the government. The family went immediately to Cincinnati, where young Clemens learned the trade of a brass finisher, and was one of the men who worked upon the first locomotive ever built in that city. Possessed of considerable mechanical ingenuity, he made his mark in his trade, and laid the foundation which has resulted in the large fortune he leaves behind.

Theodore Oskamp, a brother to Clemens, opened a jewelry store upon $300 capital loaned him by the latter, and in 1852 Clemens went to serve his brother as clerk at 62 Main street. Upon the death of Theodore, Clemens, who had previously been made a partner, continued the business alone, and under his control it rapidly increased, and in 1868 he purchased the site of the present large store at 175 Vine street. In religion he was a Roman Catholic, firmly attached to the principles of his faith, and prominent in church affairs. He held several public offices in Cincinnati, and was a member of various societies.

In business life he gained the respect of the trade, and since his death the Cincinnati Wholesale Jewelers' Association held a special meeting for the purpose of recording in fitting terms the sincere respect its members bore him. By his business ability he accumulated a large fortune, estimated at about $800,000. In 1847 he married a Miss Mary Fisher, who, together with four sons and four daughters, survives him. His death was caused by pneumonia and paralysis. In the middle of February he went to Florida, and when he returned early in March was already seriously ill. He was then confined to the house for three weeks, and for the two days preceding his death was unconscious. The funeral, which was private, was held on Monday, April 11th, and the interment was in the Spring

Grove Cemetery. Although private, there were many prominent people present, including W. A. Moore, of the Dueber Watch Case Co., representing the National Association; Mr. Perkins, of the Elgin Watch Co.; Mr. Wittig, of Joseph Fahys & Co., and E. H. Duhme, of Duhme & Co. The Cincinnati Jewelers' Association also attended in a body.

JOHN WEBSTER SEDGWICK.

The daily papers of April 21 contained the announcement of the death on the previous day of John Webster Sedgwick, of the firm of Cox & Sedgwick, of this city. The announcement was entirely unexpected, for Mr. Sedgwick never looked stronger and healthier than he did during the last week of his life, and few persons were aware of the fact that he was suffering from an insidious disease liable to terminate fatally at any moment. He was one of the best known jewelers in the business, having been connected with the trade all his life, and all who have been brought in contact with him during his business career, extending over nearly forty years, have learned to respect him for his many good qualities, for his strict integrity and for his genial and pleasing manners. Mr. Sedgwick was born at West Hartford in 1831, and while yet a boy removed to Wilmington, N. C., where he learned the trade of watch-making. He then came to New York and accepted a position as salesman with G. R. Downing & Co., where he remained for several years. While in their employ he made the acquaintance of Stephen P. Cox, who was also employed with G. R. Downing & Co. In 1864 these two, whose business acquaintance had ripened into a warm friendship, formed a partnership and engaged in business for themselves as manufacturing jewelers, locating at their present place of business, No. 26 John street. For twenty-three years they have been together, occupying the same offices and furnishing goods to the jewelry trade. On Saturday, the 16th ult., they had completed the work of taking stock, and, on the first of May, the partnership would have expired by limitation. It had been their practice to renew their partnership every five years, and this would have been done this year had Mr. Sedgwick lived. For several months past Mr. Sedgwick has suffered from illness at irregular periods, but it was not regarded as serious until within the last month or so, when his family physician found that he was suffering from fatty degeneration of the heart. A consultation of physicians confirmed this diagnosis of the case, and while Mr. Sedgwick suffered apparently little from the effects of the disease, it was plain that he had got to be very cautious. He was attending to business during the week previous to his death, and was even out for a long walk a day or two before. On Wednesday, the 20th, there was to have been another consultation of physicians at his house, and it is supposed that this increased his nervousness decidedly and his sudden death from heart disease followed. Mr. Sedgwick resided at No. 419 Clinton avenue, Brooklyn, with his family, consisting of a wife and son, his only daughter being married. He was a member of the Church of the Messiah, of Brooklyn, the pastor of which conducted the funeral services on Saturday, the 23d. Mr. Sedgwick was a member of the Oxford Club of Brooklyn, and also of the Brooklyn New England Club, and Vice-President of The Jewelers' Circular Publishing Company. His funeral was largely attended by representatives of the trade and of the organizations above named. The body was interred in Woodlawn Cemetery privately on the Sunday following the funeral services. His son, while having no interest in the business of Cox & Sedgwick, has been employed by the firm as salesman and in the factory in order that he might learn the business. In the sudden and unexpected death of Mr. Sedgwick the trade has lost one of its most respected and enterprising members, and the event is one that will be sadly regretted, not only by all his business acquaintances, but by a large circle of personal acquaintances.

THOMAS W. WHITNEY.

Thomas W. Whitney, the well-known jeweler at Binghampton, N. Y., died on April 3, of apoplexy. The stock on the 9th of Ap.

GUSTAVE F. WILLIMEN.

Gustave F. Willimen died at his home, 429 State street, Brooklyn, on April 21, after a short illness. He was born in 1844, and while still quite young his father died, leaving him, as the oldest child of a large family, to take the father's place. He was thus early compelled to go to work, and found employment with his uncles, Messrs. C. & A. Pequignot, in Philadelphia, where he learned the trade of watch case making, with which he was identified until his death. In 1877 he came to New York and secured a position with Messrs. Courvoisier & Wilcox, and by perseverance and diligent performance of his duties was soon made the foreman of their factory. In 1882 he organized the Willimen Watch Case Company and began the manufacture of gold watch cases. His too earnest devotion to business resulted in failing health, and for the past three years he was never very strong. In social qualities he was agreeable and generous, and he made many friends and was popular among his acquaintances. In the trade he was respected. His widow and three children survive him, and a good example of his practical foresight is seen in the fact that his eldest son and daughter have for some time been associated with him in his business, the son at the New York office and the daughter in the office at the factory, and they will, for the present, continue the business established by their father. The funeral, which was held on Monday, the 25th of April, was largely attended.

JOHN C. RUSSELL.

John C. Russell, junior member of the Trownsell & Russell Jewelry Company, Hannibal, Mo., committed suicide on April 4. He had not been in good health for several months, and it is thought that the opiates, which he used to allay his sufferings, acted upon his mind. His friends had been expecting he would do something rash, and guarded him in every possible way, but, selecting an opportune occasion, seemingly in good spirits, he shot himself in the left temple and died before the arrival of the doctors.

MAJOR ALBERT F. MILLER.

Major Albert F. Miller, for many years with Pearce, Kursh & Co., Philadelphia, died at the home of his sister in Brooklyn on April 15. He had been connected with the jewelry business for about thirty five years, and earned his title of major in the late war, where he fought in several noted battles. He received some painful wounds from which he never fully recovered, and, though he lived to be old, it is thought that his death was hastened by these wounds. He was well-known as a traveling salesman through the South and West.

JOSEPH SEYMOUR.

Joseph Seymour, of Syracuse, N. Y., died last month of apoplexy, at the age of 72. He had resided in Syracuse for forty one years, and in that time built up a large business, starting as manufacturer of silverware. He was well-educated, and cultivated the society of learned people. Fond of traveling, he had made several trips to Europe, besides one to California, and numerous others in this country. As a business man he won the esteem of his associates and by his integrity soon became the head of the well-known house which bears his name. He had not been feeling well for the past year, yet, when death came, it was sudden. Without any warning just as he was about to take his regular afternoon nap, his son was startled by a faint sigh, and, upon turning, beheld his father's countenance pale and unnatural; he immediately summoned medical help, but the venerable gentleman expired upon the arrival of the doctors.

GUSTAVE KUHN.

Gustave Kuhn, a man well-known in the trade, died April 13 at his home at San Diego, Cal., of consumption. He was born in Newark, N. J., in 1855, and when a boy was employed by the firm of Kuhn & Doerflinger, of which his father was a member. He soon

started in business with his brother, under the firm name of C. & G. Kuhn, which was shortly afterwards merged into the other firm under the style, Kuhn, Doerflinger & Co. In 1882 he became acquainted with L. B. Citroen, of Paris, who offered him an interest in his business, and the firm of Citroen & Co. was thus established; but young Kuhn's health began to fail and he was obliged to give up business and to live in warm climates. After residing at times in the South of France, in Spain and in Cannes, he returned to the United States in poor health, and found a suitable place to live in San Diego, where he built a beautiful residence. Bright's disease attacked him with the fatal result mentioned.

JOHN NEWHARD.

John Newhard, of Allenton, Pa., died on April 11. Since his death, $43,000 in gold, silver, greenbacks and bonds, etc., were found secreted in his house. He also left about $9,000 in real estate, and his only heir is a demented and invalid daughter.

The Strike of the Silversmiths.

DURING THE latter part of last month the manufacturing silversmiths declared a lockout of their employees, to the extent of refusing further employment to those who belong to the Knights of Labor. The cause of this move on the part of the employers has been found in the fact that the employees of the Whiting Manufacturing Company, who have been on strike some time, were being supported by those employees in the other factories who are Knights of Labor, and, as the strikers could afford to remain in idleness as long as the others paid them for so doing, the employers made up their minds that it was necessary, if they would retain control of their business, that they should make common cause against the dictations of the Knights of Labor. The strike in the Whiting Manufacturing Company's works originated in a demand of the union men that certain apprentices employed by them should be discharged, it being claimed that their employment was in violation of the rules of the union, which limit the number of apprentices that may be employed to one to every four journeymen. Owing to an excess of work to be done and a scarcity of journeymen, the number of apprentices in the factory was greater than the number allowed by the union, but, as the company was under contract with them, it could not honorably discharge them, nor did the managers feel like yielding to any such dictation regarding the persons it might employ. Refusing to comply with the demands of the workmen a strike was ordered, and all the workmen who have surrendered their individuality to the Knights obeyed the order and stopped work. After the strike had lasted some weeks the firm became evident that the strikers were preparing to make other demands upon the other employers, and a meeting of these was called, when it was decided to sustain the Whiting Company by discharging from their employ all workmen who were contributing to the support of the strikers. A notice to this effect was posted in all the shops, and, in accordance therewith, all members of the Knights of Labor, comprising about one-half of all the men employed, found themselves locked out. All the silverware manufacturers participated in the movement, being determined that they will not permit any outside organization to manage their business. In some of the factories there is but a small proportion of the employees who are members of the Knights, and these continued at work, showing clearly that, as a matter of fact, the workmen have no special cause for dissatisfaction, but simply struck in obedience to the orders of outsiders and for the enforcement of rules that were made for shoemakers and cheap workmen, and not for such artistic workmen as comprise the small army of silverworkers.

A more senseless and unwarranted strike than that of the Whiting employees has seldom been made. They were getting good pay, some of them making as high as fifty and sixty dollars a week, while the average earnings of all, including men, women and children, was over twelve dollars a week. Their work is of the highest order of skilled labor, and, in some of its phases, entitled to be classed as art work. Yet these workmen, by joining the Knights of Labor, consented to degrade their artistic calling to the level of that of the hod carrier, the longshoreman and the coal handler, which class of labor in the main make up the membership of the Knights of Labor. The rules and regulations made for the Knights are based upon the supposed requirements of purely mechanical callings, and are not adaptable to the higher requirements of skilled labor, yet the silverworkers who recognize the order admit their willingness to be placed on the same level as the coal heavers, the longshoremen and the hod carriers, who are capable of earning at most two dollars a day, and whose average of earnings will not exceed six or seven dollars a week. And yet these artistic silversmiths consented that these cheap laborers should dictate the terms of their employment! Such a despicable prostitution of the higher intelligence of skilled workmen has never been witnessed. It would not be inconsistent if the employers were to take the men at their own valuation, and fix a scale of wages corresponding to the earnings of their associates and dictators, the shoemakers, the hod carriers and the longshoremen.

At the time of writing this paragraph the lockout has been enforced about a week, and about one-half of all the silversmiths employed in the various factories have suffered from it. In some of the factories a majority of the men were Knights of Labor, and in others only a small proportion of them belonged to that organization. All, however, who owed allegiance to that body were discharged from their employment. It became evident to the employers that the Knights were expecting to obtain such a foothold in all the factories as to be in a position to compel the manufacturers to recognize them exclusively, and finally to force them to employ only such workmen as belonged to the order. The manufacturers saw what was coming, and also that if they permitted the plans of the schemers to be matured they would absolutely lose all rights in their own factories. Self-preservation, therefore, prompted them to make common cause against the threatened encroachment, and now they are a unit in declaring that they will not recognize the Knights or any other organization that attempts to absorb the individuality of their employees. They refuse from this time forth to deal with their late employees as a body, but stand ready to re-employ any of them as individuals and to make terms with each according to the degree of his skill as a workmen, but they will not consent that a uniform scale of wages shall be forced upon them, by means of which the most skillful workman is permitted to earn no more than the least skilled. The employers would not have objected to an organization of their employees that included only silversmiths, but they will never consent that an organization made up of representatives of outside trades, who know nothing about the silverware business, shall have any voice in the management of their affairs.

When the senseless strike and boycott of the Derby Silverware Company was in progress last year, we said that the unreasonable action of the men was such as, if persisted in, would force the employers to combine for mutual protection, and that if such combination should become necessary, a strike in one factory would be the signal for a lockout in all the others, so that workmen employed in one factory should not be able to support others on strike. This is precisely what has occurred, and is but the logical sequence of the unreasonable exactions of the men. Had the strike in the Whiting factory been successful and been unheeded by the other manufacturers, the Knights would have been greatly strengthened and would ultimately have forced every silversmith to join their ranks, and then would have felt strong enough to dictate the most oppressive terms to the employers. The public is rapidly becoming disgusted with the arbitrary dictation of the Knights, as is evidenced by the unanimity with which the daily press has denounced this foolish strike of the Whiting employees, and upheld the employers in locking out the members of that order as a precautionary measure. Wherever the hand of the Knights of Labor has been visible in any movement, just so certain has that movement become unpopular and, eventually, an ignominious failure for those engaged in it. The very name of Knights of Labor has become a stench in the nostrils of respectable, law-abiding citizens, and self-respecting workingmen cannot afford to be associated with them in future. At this moment of writing the silversmiths' lockout is still in force, but we hope a settlement of it may be reached in time for us to announce the fact in a paragraph in our "Trade Gossip" columns, which go to the press to-morrow than this page.

TRADE GOSSIP.

Mr. M. Adler has removed to 7 Maiden Lane.

Mr. Rud. C. Hahn has removed to 194 Broadway.

Mr. C. B. Wilkinson has removed to 42 John Street.

Mr. L. Egerton, Jr., has removed to 61 Nassau street.

Mr. Alois Kohn & Co., have removed to 11 Maiden Lane.

Messrs. Hirsh & Metzger have removed to 7 Maiden Lane.

Messrs. H. Elcox & Co. have removed to 41 Maiden Lane.

Messrs. Lacroix & Verpillier have removed to 19 John street.

Messrs. P. Jandorf & Bro. have removed to 34 Maiden Lane.

Messrs. Howard & Cockshaw have removed to 857 Broadway.

Messrs. Victor, Bishop & Co. have removed to 12 Maiden Lane.

Messrs. William Smith & Co. have removed to 33 Maiden Lane.

Messrs. A. Wallach's Nephews have removed to 7 Maiden Lane.

Mr. Henry Fera sailed for Europe on the *Hammonia*, April 28th.

Mr. John Foley, 2 Astor House, removed May 1st to 18 John St.

The sale of the Paul E. Wirt fountain pen is very large at present.

Mr. Thos. E. Thompson, of Galveston, Texas, was in town last month.

Messrs. Mackinney, Smith & Co. have removed to 52 Maiden Lane.

The Bausch & Lomb Optical Company has removed to 48 Maiden Lane.

Messrs. Miller Bros. are now at their new offices at 37 Union Square.

Mr. Maurice Klaber, 461 Eighth avenue, has sold out to Mr. Jacob Ritter.

Mr. J. Valentine, of Jeandheur & Valentine, will sail for Europe, June 7th.

Mr. Joseph Muhr, of H. Muhr's Sons, will return from abroad early this month.

Mr. J. H. Bishop, formerly of Owensboro, Ky., is now located at Paducah.

Mr. Le Roy Garton, formerly at Cameron, Mo., has moved to Kansas City.

Messrs. H. & Z. Oppenheimer are now at their new office, 48 Maiden Lane.

Mr. William Riker has removed to corner 17th street and Broadway, Union Square.

Messrs. Shafer & Douglas and S. M. Lewis & Co. have removed to 5 Maiden Lane.

Messrs. Robbins & Appleton's down-town office has been removed to 19 John street.

Messrs. Errico & Co., formerly of 31 John Street, have removed to 862 Broadway.

An order for 1,000 Waltham watches was recently received from a large dealer in Japan.

Mr. Taylor, of Taylor Bros., arrived home from Europe on the *Furnia*, April 24th.

The Seth Thomas Clock Co., have secured Mr. E. H. Dunbar for their St. Louis branch.

The stock of Mr. James Wood, Owensboro, Ky., was recently sold out under an attachment.

Mr. David Untermeyer, of Keller & Untermeyer, sailed for Europe on the *Ems* on April 13th.

Messrs. Rogers & Brother have removed to the Telephone Building, No. 16 Cortlandt Street.

Messrs Lewis Brothers, formerly of 21 Maiden Lane, have removed to 41, same street.

Mr. J. H. French, the successful jewelry auctioneer, has met with further success in the sale of the stock of Mr. F. C. Parker, of Wilkesbarre, Pa., which began on the 9th of April.

Geo. A. Collins, of Peabody, Mass., has been succeeded by Joseph A. Hanson, formerly manager of the store.

Mr. E. G. Harper, of Scranton, Pa., has sold out to L. M. Keen and opened a new store in Newark, N. J.

Mr. A. J. Lewis, of Geo. C. Shreve & Co., San Francisco, sailed for Europe with his wife on the 20th of April.

Messrs. Louis Strasburger & Co., for many years at 15 Maiden Lane, have removed to Nos. 16 and 18, opposite.

Mr. Douglass Gardner, of Mayfield, Ky., has sold out to W. D. Foster, and opened a new store in Chattanooga, Tenn.

Mr. Herman Jarecki, of Erie, Pa., has admitted Mr. George A. Disque as partner, under the style of Jarecki & Disque.

Mr. Thomas H. Worrell, formerly with Messrs. Victor Bishop & Co., is now salesman for Messrs. A. Wallach's Nephews.

The Novelty Mfg. Co., formerly at 32 Maiden Lane, has been succeeded by Mr. Leopold Grinberg, at 21 Maiden Lane.

Mr. J. W. Anderton has been admitted to partnership with Mr. J. W. Tyler, of Dayton, O., under the style of Tyler & Anderton.

Messrs. Mackinney, Smith & Co. have recently made up a line of single strand imitation pearl necklaces, which are selling rapidly.

Messrs. Shoemaker, Pickering & Co., removed their office on May 1st, from 21 Maiden Lane to 23 Marshall St., Newark, N. J.

The F. Kroeber Clock Company has recently added some new patterns of imitation marble clocks which are attractive and desirable.

Mr. C. Cushing Adams has bought the lease and fixtures of Thompson & Coad, Brooklyn, N. Y., and it is said will continue the business.

The Gilbert Clock Company has recently added to their extensive stock some new patterns of fancy walnut clocks, which are neat and handsome.

Mr. W. F. A. Woodcock, formerly of Circleville, O., has removed to Minneapolis, Minn., and opened a store in the New Bank Building in that City.

Mr. B. Rosenstock, formerly with Messrs. Stern & Stern, has been admitted into the firm of Corn & Clark. The new style is Corn, Clark & Co.

Mr. C. W. Schuman, who sailed for Europe last month, will make a tour of Russia, and it is possible he may bring home another fine large painting.

Mr. H. C. Haskell, formerly of 14 John Street, has removed to No. 18, two doors below. He now has a large and comfortable office to himself.

Mr. Peter E. Leimbach, of Leimbach Bros., returned from Europe on the 9th ultimo on the *Adriatic*, having purchased a large supply of fine diamonds.

Messrs. Bookhout Bros., have removed their wood engraving establishment to 48 Maiden Lane, and have a more accessible office than formerly.

The Ponder Jewelry Co., of Louisville, Ky., made an assignment on April 23, to H. S. Irwin. Liabilities, $5,000; assets, between $3,000 and $4,000.

Mr. M. A. Myers, of S. F. Myers & Co., sailed on April 30th on the *Le Bretagne* for Havre. He will attend the sale of crown jewels on the 12th of May.

Messrs. Zehner, Buechner & Co. are the successors to the firm of Zehner, Jackson & Buechner, Cheyenne, Wyoming, which latter firm was dissolved April 2.

Messrs. A. Pinover & Co. have removed their offices to 25-29 Ann street, and now have better business facilities, as their office and factory are under one roof.

Mr. Gash, of Carpenter & Gash, Barry, Mo., has retired from the firm. The business will be continued by Mr. D. Carpenter, who assumes the firm's liabilities.

Messrs. S. Cottle & Co. have lately added a few new patterns to their line of bead bracelets. Their new butterfly brooches, which were patented last fall, are quite popular.

A letter from one of our Australian subscribers, dated March 23, says that "trade is very quiet in all branches," and expresses the hope that it will soon become better.

Mr. O. Schwencke, the old established manufacturer of hair jewelry, formerly at 42 Maiden Lane, has removed to 8 John Street, where he has much better accommodations.

Mr. G. W. Hull, of Simpson, Hall, Miller & Co. has been elected a Director of the Jewelers' Board of Trade, in the place of Mr. George Courvoisier, of Courvoisier, Wilcox Mfg. Co.

The tower of Bissman & Co.'s new building at Mansfield, Ohio, will have a large striking clock and an 800 pound bell, which the Seth Thomas Clock Co. will put in this month.

Mr. E. E. Rawson, of Barton, Vt., gave up his business in that place, and went into partnership with Mr. Fred. N. Squires, at Bennington. The firm name is Squires & Rawson.

Mr. Morris Rosenbloom, who for nearly three years was with Mr. Philip Present, Rochester, N. Y., started in business for himself on the first of April at 29 Rhine street in the same city.

The Barnes Brothers' Clock Co., of Bristol, Conn., was recently granted a decree of dissolution. The business has been discontinued and the capital stock distributed among the stockholders.

The stem winding watches made by the Manhattan Watch Company are in great demand. One new style is made which has a 24 hour dial, and is being sold extensively through the West.

Mr. M. Ettinger, of Stern & Stern, is now on his trip through the Southern States. He has with him this time a larger line of goods than ever before, and has already sent in favorable reports.

Mr. Chas. Leo Abry, formerly of 63 Nassau Street, has removed to the Knapp Building, 41 Maiden Lane. The elevator in that building literally *wafts* a person up to the top floor before he has time to think.

Mr Louis Kahn, of L. & M. Kahn & Co., sailed on the 27th of April on the steamship *Saale* for Europe. He took his wife and two little boys along with him, and intends to make a stay of about four or five months.

Mr. Charles E. Juillerat, importer of musical boxes, will occupy the store of 21 John street after May 1st. The new location is a good one, and his store will contain a large assortment of musical boxes of all grades and prices.

The late firm of Keagy Bros., of Altoona, is spreading itself over the country. Mr. J. S. Keagy goes to Hollidaysburg, Pa.; Mr. E. W. Keagy to Chattanooga, Tenn; and Mr. A. L. Figart opens a repair shop in Frankstown, Pa.

Mr. Irving Smith, the manager of the Boston office of the American Waltham Watch Co., has entered the firm of Morrill Bros. & Co., in that city. He will remain in charge of the Waltham office, however, until his successor can be named.

The Jewelers' and Tradesmens' Company, which was organized last fall, has met with such great success, that up to the present time it has issued membership certificates for insurance to the amount of over three-quarters of a million dollars.

A fire which originated in the basement of Hegeman's drug store, 203 Broadway, on the 11th of April, also damaged the jewelry stock of Messrs. L. S. Friedburger & Co., who occupied the upper floors of the building, to the extent of about $1,500.

Mr. Wm. B. Stewart has purchased the business of Albert Lissen, manufacturer of jewelers' signs and emblems, and will remove from 90 Nassau street to a more convenient situation at 387 Carroll street, Brooklyn. His business is booming at present.

The firm of Becker, Kohl & Co., diamond cutters, 40 John street, was dissolved on April 15th. Norden & Co. will continue in the same business at the same place, while the firm of Becker & Kohl has established itself at 35 Ann street, corner of Nassau.

The fine quality of the stones used in the sleeve buttons made by Messrs. F. I. Marcy & Co. is what has given them their wide popularity. They note a growing demand for their higher priced intaglio buttons, which are mounted in exceedingly pretty designs.

After the disastrous Richmond Hotel fire in Buffalo, the Assembly last month passed a bill requiring every hotel in the state to have a rope attached to a window in every room, not accessible to the permanent fire escapes, for the use of guests in case of fire.

De la Reussille Bros., jewelers, doing business at Freehold and Red Bank, N. J., was dissolved by mutual consent, April 1st. A de la Reussille takes sole charge and control of the Freehold branch, and Leon de la Reussille similar charge of the Red Bank business.

Mr. August Morck, Jr., of the firm of Morck Bros., Warren, Pa., who was recently a pupil of Dr. Bucklin of this city, is now considered high in his profession of a specialist in errors of refraction of the eye, and is achieving considerable success in the locality of Warren.

The silverware factory of Wood & Hughes, which has been located for many years at 95 and 99 Cliff street, has been removed to the new Ross building, corner of Bank and Hudson streets. The new factory is the largest one of the solid silverware factories in this city.

Messrs. S. Valfer & Co. have recently enlarged their factory, and their present facilities for the production of plush and leather goods, &c., are more extensive. They have patented a novel style of watch box, which is highly successful, and has already met with a good sale.

Gen. Thomas W. Manchester is now representing upon the road the following well-known houses: The Rogers & Hamilton Co., of Waterbury, Conn.; J. B. & S. M. Knowles, of Providence, R, I.; Charless Krauss, Newark, N. J.; and C. W. Hartmann, of Newark, N. J.

Mr. Wm. F. Nye, the manufacturer of the famous watch, clock and chronometer oils, writes us from New Bedford, Mass., saying that his trade at present is enormous. Those who have used his oils can easily account for this fact, for the demand corresponds to their excellence.

An annual meeting of the directors of the Aurora Silver Plate Co., Aurora, Ill., was held last month, and Mr. W. F. Dickinson elected President in place of Mr. J. G. Stolp, resigned; Mr. F. B. Rice was elected General Manager and Treasurer in place of Mr. G. W. Quereau, resigned.

Elsewhere we print a full report of the action thus far taken by the committee of creditors in the case of Jacob Castelberg. The litigation has been in favor of the creditors, the Court holding that Mr. Castelberg must show what became of the property he possessed previous to his failure.

Mr. H. C. Haskell reports that the business in badges, medals, &c. will be very large the coming summer, owing to the increasing interest manifested among persons of all sizes, ages and sexes, for athletic sports and games. He has issued a handsome catalogue which can be had upon application.

Messrs. H. M. Smith & Co., who have been in the building at the N. W. corner of Cortlandt Street and Broadway, for the last twelve or fifteen years, have taken a large office on the second floor of 83 Nassau Street. This latter building has recently been overhauled, and newly fitted up as an office building.

The Chalmers Spence Company, of New York, miners, shippers of asbestos and manufacturers of boiler and pipe coverings, etc., have been obliged on account of increasing business to find more room. They have, consequently, leased the adjoining building, and now have double their former floor space and capacity.

Messrs. Sinnock & Sherrill have beautified the appearance of their office by the application of some exquisite wall-paper. The pattern of the ceiling is light, with a graceful border, while the wall is of darker shade with a charming dado. Mr. Sherrill says their business for March was the best it had been since 1882.

The "Loop Ear Ring," advertised by Messrs. A. Luthy & Co., in this issue, is a good thing of its kind. The setting, being hung to the ear wire by a loop soldered in a way to give the stone a peculiar swing, is an improvement over the old style. A good illustration of this setting is to be seen in our advertising columns.

The store of Messrs. Aikin, Lambert & Co. gives evidence of trade not being so poor as is currently reported. Their gold pen department is especially active, and for the Fall trade a series of new designs of fancy holders and pencils is now being made up, and can be seen presently.

Mr. John S. Atchison, the lapidary of 105 Fulton street, has several wheels of peculiar composition, upon which he claims to be able to do in one day as much work as three men can do upon the ordinary wheels. The composition of the wheels is known only to himself and a London gentleman, and has the appearance of copper.

The elegant monograms which we have been printing from month to month, have been published in book form in France by the artist. The work is an elaborate and elegant one, containing the entire series complete. Messrs. R. & L. Friendlander, well known and enterprising jewelers of this city, are agents for the sale of the book in this country.

The store of Lambert Brothers, on Third avenue, was entered last month by Charles H. Lester, who said he desired to buy a vest chain. Not finding one to suit him, however, he decided to call again some other day, but was detained by Mr. Lambert, who found there was one gold chain missing. Lester was arrested and held for trial, bail being fixed at $1,000.

The new "Beryl," which was discovered recently in Connecticut, is a remarkably fine stone. It is of the same hardness as the emerald, and is lively and full of luster. There have been many shades found thus far, but the most beautiful is the deep golden shade. Messrs. Henderson and Winter have mounted these gems into some pretty styles of rings.

Messrs. Krementz & Co. exhibit some new and pretty designs of enameled pins. One very odd one is a Roman finished oyster shell, with a spray of forget-me-nots in the center. Another novelty is a line of pins made with flowers of white onyx. A small brilliant in the center is richly set off by the dull white of the onyx, and the effect is singularly pleasing.

Mr. Fayette S. Giles, of Giles, Bro. & Co., Chicago, sailed for Europe on the *Bretagne*, April 30. Mr. Giles recently opened an office at 18 John street for the sale of Giles' patent anti-magnetic shield for watches, and the business has since become so great that he decided to give up the New York office. He goes to Europe in the interest of the Chicago house.

The following named dealers sailed for Europe last month: Mr. David Untermeyer, of Keller & Untermeyer, on the *Ems;* Mr. C. W. Schumann, on the *Umbria;* Mr. Jacob Muhr, of H. Muhr's Sons, on the *Trave;* Mr. Henry S. Oppenheimer, of Oppenheimer Bros. & Veith, on the *Etruria*, April 30; Mr. Randel, of Randel, Baremore & Billings, April 9, on the *Auruania.*

Mr. W. F. Hammond, of Greenport, N. Y., has placed on the market a useful and novel glass finishing and grinding tool, fitted for polishing lathe heads. It does work equal to the finest water stone finish, and has no superior for rapidity and ease of cutting as no water or grit is used. It is cleanly, and a valuable acquisition to the outfit of every jeweler, watchmaker or optician.

At a meeting of the Wholesale Jewelers' Association of Cincinnati, O., held on April 6th, Mr. A. G. Schwab, of A. G. Schwab & Bro., was elected as the executive officer for the ensuing year, to represent that association in the National Association of Jobbers. After the meeting adjourned, he entertained the members with a supper, at which speeches were made by prominent members.

A despatch from Paris to the daily press of this city, says that the Louvre is thronged with visitors every day, many of whom go to see the exhibition of the crown jewels. No one is allowed to stop for any length of time to examine them, and only those who are regarded as possible purchasers can have a private view. The despatch says that wives of United States Senators have received permits to these private views, and adds that this sufficiently indicates where the bulk of the jewels will go.

Mr. E. A. Thrall has got an uncut diamond which is so perfect in its present form that he is loth to have it cut. Its polish is exceeding smooth, and the stone weighs about five carats. The color is a little off from pure white, but there is not a speck nor flaw to be found in it. He intends to keep it as a curiosity, and holds it before his friends as a sample of the stones obtained from our Western mines.

Mr. J. P. Delany, the manufacturer of the "Grip" collar button, has been compelled to open a wholesale department in the rear of his retail store, 2 Astor House, solely for the sale of this button, and he intends soon to bring out a line of sleeve buttons with the same style of back as the top of the collar button. A few sample pairs which he shows work like a charm, and we think they will be successful.

An annual convention of the Jewelers' Guild, of Iowa, was held on April 13th, at Ottumwa, Iowa. The following named gentlemen were elected officers for the current year: Mr. Oliver Startsman, president; Mr. R. O. Misener, first vice-president; Mr. E. R. Oliver, second vice-president; and Mr. W. L. Bingham, secretary and treasurer. The convention elected Messrs. Charles Bachman and E. R. Oliver delegates to the national convention of the Guild at Chicago, May 11th.

A chronograph which is selling well is the "Centennial," manufactured by Messrs. Cross & Beguelin. While its movement is not complicated, its accuracy and reliability are features which commend it to dealers, and its low price for a chronometer or horse timer will greatly aid its sale. It can be had in all cases—nickel, silver and gold. The movement is also made in split seconds, which is preferable for horse timing.

Our readers will notice among the advertisements one of a new style of setting called the "Invisible." It is an ingenious device for showing the full brilliancy of stones like diamonds or imitations to the fullest extent. As there is nothing to cover the stone or hide the light from the back, the pendant will look as well from either front or back. Another object gained is that the stone can be so easily cleaned, simply wiping off with linen. They will be for sale by leading jobbers.

New carpets, counters, railings and other furnishings, elegantly designed wall paper, and general renovation have so entirely changed the appearance of the office of the Elgin National Watch Company, that Father Time is the only ancient looking thing about the place. The credit of all this modernizing belongs to Mr. Schofield, the popular New York agent of this company, whose excellent taste designed the alterations, and whose enterprise carried them to completion.

Messrs. S. F. Myers & Co. have secured the lease of the first floor and basement of the building next door to them, No. 48 Maiden Lane and 35 Liberty Street, from May 1st. They have begun to cut through and make the proper connections, and, in thus adding about 1,000 square feet more room, will rank as having the largest establishment in the city in their line. They expect to have the necessary alterations completed by the 15th instant.

A remarkably pleasing combination of silver and ivory is used by Messrs. Thomas G. Brown & Sons upon many varieties of articles, such as hair brushes, shoe horns, umbrella handles, manicure and toilet utensils, etc. The metal is laid over the ivory in a way that its edges are flush; and the ivory being colored and the silver oxidized, the contrast is extremely pleasing. On some articles, the silver work is wrought into artistic forms, while other pieces are smooth and etched with delicate lines into odd designs.

Messrs. B. & W. B. Smith, of artistic store-fixtures fame, are at present engaged on work for some well known firms. Rogers & Bro. will have their fixtures from the factory of the Messrs. Smith, and Miller Bros. and C. W. Schuman, who are to add their importance to the up-town-jewelry-colony, are proud to bestow a like patronage. In Chicago, the new office of the Gorham Co. is now completed. In Milwaukee, Bunde & Upmeyer, and in Cleveland, Cowell & Hubbard have concluded that the only firm which can fit up a really first class jewelry store is B. & W. B. Smith, of New York.

Messrs. H. E. Oppenheimer & Co., who started in business about two months ago, have already begun to make themselves felt in the trade, and their beginning promises a successful business career.

A new and handsome design of clock is the latest one of the Terry Clock Co., shown at the salesrooms of S. F. Myers & Co. It is a mantel clock, made in ash, cherry or walnut, highly polished, and, with the exception of a few inlaid gilt scrolls, is quite free from ornamentation This almost severe plainness gives the clock a rich and tasteful appearance, and those with the visible escapement are as handsome as any fifty dollar French clock.

Mr. Jacob Gumbinger, of Jacksonville, Fla., made an assignment on April 14, to Chas. H. Smith. He gives preferences to the amount of $1,000, while the rest is to be paid to his other creditors in equal shares. Mr. S. W. Fox, the representative of several of the creditors, places the liabilities at about $7,000, while the assets are reported at the same figure. Mr. Jacob Strauss has been appointed the representative of some of the New York creditors, and started for Jacksonville on April 24.

A man entered the establishment of Charles F. W. Volckman, Baltimore, last month, and, having some gold chains shown him, asked to see another tray. While Mr. Volckman's attention was drawn from the first tray, the man dropped his handerchief on it, and, when he picked it up, it contained four chains. Mr. Volckman immediately noticed the theft and accused the man, whereupon he dashed out of the door but was soon captured by a police officer. The man was put in jail to await trial.

Considerable curiosity has been manifested by the trade concerning the filled gold chain which Messrs. Hamilton & Hamilton, Jr., have announced to presently offer. The idea of a filled gold chain, while original and remarkable, is yet practical, and there is certainly room for it in the market. There has been a demand for a chain better than the ordinary best quality of plate, and yet cheaper than solid gold, and the chain of Messrs. Hamilton & Hamilton, Jr., it is said, will meet this want exactly.

On April 15, a representative of the Howard Clock Company started the large clock which that company has erected in the tower of Wanamaker's store in Philadelphia. It is one of the largest in the country, the dials being eleven feet in diameter, with hour and minute hands of 3½ and 5 feet long respectively. It is run by three enormous weights, weighing in the aggregate 3,190 pounds. The chimes connected with the clock, which ring every quarter hour, are five in number, and are duplicates in reduced weight of the famous chimes in Westminster tower, London.

The Spencer Optical Co. has introduced the "Audemair's Trial Lenses," which is a complete optician in itself, and designed to aid dealers in correctly fitting their customers with glasses. It is a full set of lenses, arranged in pairs in a handsomely finished mahogany case, each lense being marked so it can easily be distinguished. The full set covers every necessity of the diseased human eye, and any jeweler, whether he knows anything of optical science or not, can soon arrive at the exact need of the eye of his customer.

In the case of Mr. E. L. Cheever *vs.* Healy Bros., R. F. Simmons and J. Sweet, in Attleboro, the plaintiff charges the defendants with malicious prosecution, and has already attached their property to the extent of $20,000. Mr. Cheever, it will be remembered, was recently tried on a charge of burglary and arson, and acquitted from lack of evidence. The defendants say that no malice can be proven, inasmuch as the Grand Jury considered it had sufficient evidence to ground an indictment against him, and claim that the State is the only responsible party for any damages resulting from the trial.

A case recently decided by one of our petty magistrates, richly illustrates the way many thieves are allowed to escape the penalty of the law. A large dry goods house was robbed of fifty dollars worth of goods by a notorious woman-shoplifter. After she had been captured, the firm refused to prosecute her, and the magistrate, after severely lecturing their representative who came to recover the goods, refused to return them, and ordered them sent to the property clerk. This magistrate ought to be promoted, and we hope his lesson will be heeded.

On account of the delays incident to building, Messrs. Rogers & Brother were unable to remove to their new and elegant store, 16 Cortlandt Street, on April 15th as intended. They have, however, made a beginning, and have already one line of show cases erected, and the others will rapidly follow, and probably May 1st to May 10th will see them located entirely. The adjoining store—steam heated and electric lighted—is not yet rented, on account of the delay in completion. It is a rare chance for a first-class clock house or silversmith.

Last month the Association of Watch case makers issued a circular calling a meeting of the manufacturers and their employees at French's Hotel. The circular was issued by the workingmen, who propose that the manufacturers combine to raise the prices of cases, and suggest that a movement be undertaken to have the Government put a general stamp of quality upon cases. Since the meeting which occurred on April 5th, we have been at some pains to find out what the result was; but every one seen has been rather reticent, and those who have said anything, say that no result was arrived at.

The latest designs of handles used by Messrs. R. Wallace & Sons upon their sterling and plated ware knives combine elegance and utility most admirably. One rich style of carving knife has a handle of oxidized silver, after the pattern of a stag's horn. Others are fashioned after the antique style of chasing, while some of the embossed designs are beautiful. These handles, have an advantage in their strength, being made without seams, and thus, while enhanced in beauty, they are also more durable. Many new designs also of coffee spoons have recently been shown, of classic and superbly ornamented patterns. Oxidized silver is the prevalent style, but polished and frosted work still find a large sale.

A useful novelty in the clock line is an electrical attachment that saves the trouble of winding. The Self-Winding Clock Company, who have arranged with the American Mfg. and Supply Co. (Limited), at 10 Dey street, to act as agents for the sale of their goods, have recently put upon the market this useful appliance. It consists of a small battery, so arranged in the works of the clock that the spring is wound up one revolution every hour. This prevents friction and wear of the parts, and guarantees better time. The cost of renewing the battery, which only becomes necessary once a year, is but twenty-five cents. The Clock Department is in charge of Mr. E. J. Deraismes, who is well known in the trade.

F. P. Locklin & Bro., manufacturers of gold and silver headed canes, have removed their factory and salesroom from 144 Fulton street to 206 and 208 Canal street, corner of Mulberry. Messrs. Locklin have, during their many years in Fulton street, built up a large business, and their capacity for manufacturing became entirely too limited for the demands of their trade. They have now secured a large factory and well-lighted salesrooms for exhibiting their fine stock of gold, silver and oxydised silver canes. They have also in press, and will shortly distribute to their customers and the trade in general, a complete illustrated catalogue of their manufactures, which include many new and elegant designs.

One day during the latter part of last month, a gentleman left at the Assay office in this city four bars of what he supposed was gold, to be assayed for his account. The gentleman who received them said they seemed to be rather light, but their owner said that he was an old gold miner and knew his business. So he was given a receipt showing that he had left certain bars of alleged gold to be assayed. Next day it was announced that the bars were bogus, and inquiries were made for the gentleman who had left them. He proved to be Captain Ben Richardson, of Harlem, a famous California pioneer.

We are constantly receiving letters from publishers and jewelers inquiring after advance proofs of Elsie Bee's articles, and often receive copies of the papers in which they are published. One enterprising jewelry firm in Detroit fill half a column of the *Free Press* with paragraphs from our fashion notes most applicable to their stock, and casually mention their name and address at the bottom. The same paper devotes a full column to these fashion extracts, thus bringing prominently to the attention of its readers the subject of jewelry. This is an effective way of popularizing jewelry, and we would be pleased to send advance proofs of these articles to all dealers who will have portions of them reproduced in their local papers.

The E. N. Welch Manufacturing Co are constantly introducing novel patterns in their manufacture of clocks. Notable among those recently placed upon the market are several elegant designs in mahogany and other woods, matching all new styles in house decoration. These goods are fitted with a new visible escapement movement with jeweled pallets, and all the visible metal work is gold plated. This movement is also used in their new and attractive line of enameled iron clocks, highly finished and very attractive, and as timekeepers equal to the best. Among other attractive novelties is shown a handsome etching on brass, mounted on plush bordered frames in various colors, and attached is a clock with antique dial arranged with and forming a part of an illustration from Burns' "The Jolly Beggars."

The ladies' patent wateh-pocket, recently brought out in such novel and pleasing designs by Messrs. Payne, Steck & Co. is becoming decidedly popular. Dealers who have had them are sending in duplicate orders, and the maker's have recently produced twenty-five new designs. Some of the new ones are patterned after ancient coins, with mythical heads, and other odd designs are of classic appearance, of which some are oxidized and some polished.

Galt's jewelry store in Washington was the scene of a lively tussle recently. A man called and asked to be shown some watches. Nothing but the best in the place would suit him, and when Mr. Galt showed him a fine one costing $500, the man became possessed of a desire to own the thing without going through the preliminary form of paying for it, and he tried to go out of the door. He even drew a revolver to persuade Mr. Galt to let him go, but Mr. Galt could not be persuaded, and overpowered the man and held him until the police arrived. The man was soon placed in custody. He gave his name as Thomas McCarty, age 46, occupation, a clerk. It is believed that the man is merely a dangerous crank.

Word comes from Ottawa of the discovery of rich gold deposits in British Columbia close to the imaginary boundary line between that province and Alaska which may lead to serious trouble if the actual boundary is not defined before any attempt is made to develop these valuable finds. In view of the discovery of gold in the Pacific provinces the Dominion Government have decided on sending out a party to make a geological survey of that part of the country. An effort will be made in the coming session of Parliament to secure an appropriation to begin a survey of the British Columbian boundary in the hope that the United States Government will co-operate and definitely fix the boundary line and thus remove all possibility of disputes.

The famous moonstone jewelry which Messrs. Fowler Bros. brought out this Spring, and which created quite a stir in the trade, is still selling rapidly. Some of the cherub brooches, so neatly mounted in well-finished plate, are in special demand. The latest novelty shown by this firm is a series of designs in brooches, bar pins, earrings and scarf pins, consisting of little moonstone flowers. Several varieties of flowers are shown, including the Heliotrope, Wild Poppy, English Violet, and Four-leaf Clover; and each flower contains a real brilliant in the center. Though these are mounted in plate only, for regular stock, Messrs. Fowler Bros. have recently filled many orders from uptown houses for 14 k goods, because of their attractiveness.

Grundriss Der Edelsteinkunde, von Dr. P. Groth, is the title of a new work on gems, 8vo., 1 colored plate of 12 colored illustrations, and 34 small wood cuts in the text, VI., and 165 pages. Leipzig, 1887, published by Wilhelm Engelmann. The illustrations of the original forms of the crystals are ingeniously but not finely colored, the different sides of each crystal giving the various tints that the gem occurs in nature. The descriptions are very accurate, and, although only one-third as large as Kluge's, yet it is the best and most accurate work published in German in over twenty years. That Prof. Groth is Professor at the University of Munich and Conservator of the Royal Bavarian collection, are sufficient guarantee of its scientific accuracy.

A curious specimen of opal was recently found in a western State, and is now in the possession of an enterprising merchant on the Lane. It is oval, egg-shaped, about a half or three-quarters of an inch long, and while it is undoubtedly an opal, is yet one of the most wonderful ever seen. The center part is transparent, and a rich red fire is brought out very strongly from this portion when subjected to a certain light. Around the edges of the stone are queer formations which appear like minute blades of grass or other vegetation. In certain positions, the stone resembles a glorious sunset on the prairies. In the foreground appears the tall prairie grass. The sky is colored a gorgeous red in the center, fading into a faint and delicate yellow, with an azure outline. The horizon appears distinctly, and the rich deep purple of the velvet pansy, adds its impressive effect in the grasses. The stone is not for sale.

Up to going to press with the last pages of THE CIRCULAR, the strike of the silversmiths continues, the employers adhering to their determination not to recognize any labor organization whatever, but to treat with their men as individuals. The employees of the Gorham Company at Providence, about 1,000 in all, remained at work. Sixty or seventy of these were Knights of Labor, and constituted an assembly of that order. After the strike had been in progress about a week, these men resolved to withdraw from the order, and accordingly surrendered their Assembly charter. This left the Gorham Company with its full force at work. Many of the strikers are growing tired of their connection with the Knights, and many gave notice of their withdrawal from the order. According to the latest reports the strike and lockout was approaching an end through the abandonment of the knights by the silversmiths. They never had any business in that order, and were being used by its leaders to promote their own selfish ends.

When an old established firm which has earned an enviable reputation for the fine finish upon its goods, continue to bring out more and more new designs, it is no criterion that trade must be universally brisk, but only proves that the business of that particular firm is well established. Such a firm is E. I. Richards & Co., and notwithstanding that many plated goods manufacturers have discontinued making certain kinds of goods, and begun to predict that no more of those kinds can be sold, this firm has recently brought out new designs of all goods in their line. Especially neat are some of the newest styles of hairpins shown, and the workmanship is always of a high class. They have also brought out some new Queen vests; and while other firms are saying that Queen vests have had their day, they go on making and selling them as fast as they can turn them out. They promise to put a new thing on the market this month which will make their competitors feel rather faint. We have seen it, but are not permitted to mention it until our next issue.

The Charleston (S. C.) City Council has decided to repeal the ordinance imposing a special tax on drummers. The *News and Courier* says: "It is taken for granted that the action of the City Council of Charleston will be followed by the repeal of the drummers' tax in all the towns in this state, and what was lost by the larger competition of visiting drummers at home, will be more than counterbalanced by what we will gain by the operation of our own drummers in other fields. Charleston has nothing to lose by competition. She has much to gain, however, by pushing her trade in new directions. The decision of the United States Supreme Court has given us standing room, and we should be able to walk without crutches. We ought to have ten active, wide-awake commercial missionaries in the field where now we have only one—men who can preach Charleston and convince people who want to buy goods that Charleston is the best market south of New York. The drummers' tax helped to fill the city coffers, but it never brought a single new customer to Charleston, and the drummers say it kept many from coming here."

When the Waterbury Watch Company chartered ten steamers to accompany the boats in the recent Oxford-Cambridge race, it was naturally expected that police protection would be granted them for the asking. Mr. Merritt, of that company, who was then in London, called upon the chief of police with a request for officers, which was decidedly and emphatically refused, for the reason that the circular inviting all persons who wore a Waterbury watch to enjoy the excursion free of expense, concluded with the warning that any person who failed to properly behave would be "chucked" overboard by the police. This was accepted in its most serious aspect by the authorities, and even a letter of apology failed to set it in its proper light. A few days after the race a member of Parliament rose with one of the circulars in his hand, and asked whether Her Majesty's policemen were used for such a purpose as was there suggested, which the Commissioners hastened to deny. The entire lack of any appreciation of humor in the affair, and the voluntary free advertising Parliament offered to the Waterbury Company are the interesting phases of this incident.

John Code, of the late firm of Thompson & Code, Brooklyn, was arrested lest month upon complaint of William S. Rosenfield, of this city, who says he left two watches valued at $390 with the old firm to be displayed in their window. When he called again he found they had sold the watches and gave him worthless checks and securities for them. Thompson has disappeared with several thousand dollars' worth of the firm's property, and young Code is left behind to face the crowd of creditors. Several dealers say that they have been swindled, and Code says he believes Thompson has gone to Washington Territory.

A large alexandrite, exquisitely cut, of excellent color and claimed to be absolutely perfect, is one of the fortunate purchases recently made in London by Messrs. Mulford & Bonnet. Mr. Jacob N. Bonnet, who has represented this firm in Europe for several seasons, was remarkably successful this Spring in procuring some beautiful specimens of precious stones. Besides the large alexandrite above referred to, there is a large emerald of fine workmanship and color. Of pearls and diamonds there is a large quantity, all of them of good quality, some of them being of the most delicate tints. Among the fancy stones there is an Oriental sapphire, which, though not large, is yet a marvel of life and fire. Placed under an incandescent lamp, its almost purple color resolves instantly into a blood-red. This stone is very rare. Some small emeralds of a square shape are perfect beauties; their color is rich, and no flaws are to be found in them. A novelty is the double-cut diamond, of which Messrs. Mulford & Bonnet have several specimens. The peculiar cutting makes the stone much more effective, and, being without a table, its full beauty is drawn out.

The well known four-size watch made by the Illinois Watch Company, which was, up to a short while ago, the smallest American-made watch, is to be made in a cheaper grade in time for next fall. This is to be done by making it a seven-jeweled movement, although the present eleven-jeweled one will be continued. Four new watches were recently put forth by this company, which are exciting considerable interest. One is the No. 99, which is the only eleven-jeweled watch in the market having a patent regulator. It is a nickel movement, having a sunk-second dial, and is made in both key and stem-wind. Another, No. 65, made in stem-wind only, is a nickel movement, adjusted with double sunk dial, patent regulator, having fifteen jewels, with four pairs in settings. No. 60 is also a stem-winding, gilt movement, with sunk second dial with inside circle, having patent regulator, and fifteen jewels, with four pairs in settings. Another new one is the No. 6. This is a cheap, grade, key-winding, gilt movement, having a raised silver index and a sunk-second dial with inside circle. These movements have been successful from the start, and a few of the 99's have already been delivered.

The American Watch Company seem determined to maintain the proud position they have long occupied among manufacturers of pocket timepieces. During an interview the other day with a representative of Robbins & Appleton, he said: "We have a number of novelties that ought to be worthy of your attention, and, in fact, of the trade in general. During the year 1886, we have had a steadily increasing demand for our better class of goods. This is owing to the very great improvements which have therein been accomplished. For instance, all the watches fitted with our patent Breguet hair spring have met with special favor, because of the great amount of extra quality which this hair spring imparts to the goods. The company seem to have pursued the policy of not increasing the quantity of their lowest priced goods, but rather of putting the better and medium grades at figures which bring them within the reach of a very limited purse, and enable dealers with very limited capital to lay in an assorted stock of good quality goods of great popularity. The Bartlett watch may be taken as an example. Here is a movement equipped with all that can possibly be put in a watch to make it a thorough timekeeper, and its price is fabulously low."—*St. Louis Jeweler.*

Diamond experts were in great request during the latter part of last month to solve the question whether a large stone, as large as a hen's egg, was a diamond or not. It is a peculiar stone, found in one of our Western States, and sent here to be disposed of. Its surface is rough and resembles an ordinary pebble in appearance. The shape is somewhat irregular, and in one end is a large interior flaw, distinctly visible, which shows colors when exposed in the light. The stone originally weighed over 900 karats, but a small portion has been cut off. The lapidary who cut it found the material very hard and spoiled a whole set of tools on it. He succeeded in producing a small stone, gem-shaped, miserably polished, without any life or brilliancy. This stone has been examined by experts, who have given vague opinions as to its character. Some say it is a topaz, others a white sapphire, while the owners believe it to be a diamond. But, if it be either of these stones, it is a monstrous specimen and very valuable. Its weight now is about 900 karats, but its specific gravity is almost twice that of a diamond.

Probably the smallest traveling clock ever made is that shown by the New Haven Clock Co. It is covered with sole leather, which is neatly stitched at the corners. The whole is not over two-and-a-half inches high, including a diminutive strap on the top for a handle. Another novelty is a very small nickel clock, with the "repeating strike" attachment. By merely pressing a small button on one side, the little thing strikes the hour in a remarkably sweet tone. A tennis-racket is the shape of another novel clock. The frame is of brass, with a small thermometer upon the handle, and in the place of thongs, a net-work of silver wires forms the bat, in the center of which is placed the clock. Another clock, called the "Mace," from its peculiar shape, which is spherical, with protruding spikes of brass sticking out at intervals, has a magnifying glass before the dial. It is a pretty ornament, as is also a clock made of a buffalo's horn, with an inkstand on either side. Of French clocks, this company has just added two new styles; one, a large white onyx castle, with battlements and base trimmed with massive brass; the other, a perfect representation of the stern part of a vessel. On this latter, the pendulum is a boat-swain, whose body sways to and fro in regular time, while his hands grasp tightly the wheel; and before him enclosed in a brass case is a small compass. Side lights and rigging are carefully copied, and this clock is very handsome.

The latest news in reference to the Clapp & Davies failure in Chicago, is to the effect that the merchandise creditors had examined the books of the firm in the hands of the assignee, and that such examination only tended to heighten their dissatisfaction with the condition of affairs. Mr. Davis had been subjected to a severe examination, when he admitted that the firm had been in a bad way for a year or more, which fact had been carefully concealed from the creditors. He hoped the estate would be able to pay from 25 to 40 per cent of its indebtedness, but no one else appeared to be equally sanguine. A committee of creditors, consisting of Messrs. Peck, Meacham and Kettle was appointed to make a thorough examination of the affairs of the insolvents, and to report at a future meeting of the creditors. A determination is manifested among the creditors to have this flagrant case investigated to the fullest extent, and if possible to secure something for the merchandize creditors. After several meetings of creditors had been held, a formal offer of 35 cents on the dollar was made by Mr. Davies, this being guaranteed by Daniel Loring, who offered to loan Clapp & Davies $75,000 to resume business with. The committee recommended the acceptance of the offer. Many of the creditors were in favor of accepting the offer, but, as others objected, it was resolved that a copy of the recommendation of the committee be sent to all the creditors with a blank form of the compromise, with a request that each creditor signify his acceptance of the same, and return the blank to the Secretary of the Jewelers' Association of Chicago. There is great diversity of opinion regarding this failure, some of the creditors regarding it as legitimate, while others are inclined to criticise the firm very severely.

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Business Revival in the South.

THAT THERE has been a phenomenal development of business activity in the South during the past few years is something that everybody knows, but there has also been much misconception as to the foundation upon which this development rests. That there has been much wild and unwarranted speculation in connection with it, is generally believed, but there can be no question that there is a legitimate basis for much of the progress the South is now making. As is always the case where business enterprise becomes especially active, speculation follows close, and, by its recklessness, tends greatly to discount legitimate business. Such has been the case in many instances in the South. No sooner has enterprise found a legitimate field for operating than speculation has stepped in and sought to work up a "boom," by means of which fortunes could be suddenly made or lost. While legitimate enterprise has been developing the iron and coal mines in the South, speculation has been dealing with town sites and corner lots, building up fictitious values to be knocked down again with serious losses to the victims who had been gathered in by the speculators. So it has come about that there is a divided sentiment regarding the business outlook in the South, some contending that it is purely speculative, while others, more sanguine, are convinced that crumbs now cast upon the Southern waters will be sure to return before many days in the shape of full loaves. Affairs in the South are, however, beginning to take such shape that intelligent observers can form a pretty correct judgment as to the general advantages and outcome of particular localities. A gentleman who has made a careful study of those localities where the greatest activity prevails, presents his views so concisely that they can scarcely fail to be of value to business men in general. The leading forces behind the phenomenal development now going on are recovery from the effects of the war, general revival of business throughout the country, and the more substantial fact that great iron and coal mines have recently been opened in various sections. Among the special advantages are the nearness of coal, iron and limestone to each other, the cheapness of labor and the healthfulness of the climate. Another advantage, the low price of real estate, has been negatived in some sections by excessive speculation, but in many other localities it still exists. That speculation has done harm is an unfortunate fact, but any one who thinks that there is nothing but speculation in all this activity, should bethink himself of the mountains of coal and iron that loom up in Tennessee, extending southward and sloping to the foothills in Georgia and Alabama. These deposits are declared by geologists to be inexhaustible. Practical men who have used these ores pronounce them suitable for making any kind of iron, while coke burners declare that the coal is suitable material for their ovens. While the iron ores of the North are becoming each year more difficult to mine, the advantages of a region that has all the material necessary for the production of merchantable iron and excellent transportation facilities, are too obvious to require explanation. It is not surprising that many fortunes have been made in this section in the past five years, nor is it surprising that speculation has been rampant. But, speculation aside, it is clear that a region that has so solid a foundation for its business interests cannot fail to win in the long run.

While nature has been lavish with her mineral deposits, the people have not always been wise in making their locations for the development of this wealth. Commerce cannot be forced from its natural channels, as some of the unfavorably located towns will find to their cost. Birmingham, about which such extravagant stories have been told, occupies a good location for the production of the coarser grades of iron, but a poor one for transportation facilities and residence purposes. That it will long be an important manufacturing city is probable, but other cities will come up and surpass it in commercial importance. The position of Chattanooga is well-known. It has achieved a prominence that is scarcely likely to be taken from it. Yet this city has its disadvantages. The land on which it is built is ragged and mountainous, while that portion of it on the river is subject to inundation. The best beds of coal and iron are difficult of access at present, but improvement in this direction is going on. Below Chattanooga, such towns as South Pittsfield, in Tennessee, and Florence and Sheffield, in Alabama, are making strong bids for public favor. They are good industrial points, but have not in them the making of large commercial towns. In what is known as the Birmingham district there are a number of thriving manufacturing places, but they are not likely to grow beyond mining or manufacturing towns; nevertheless they contribute their full quota to the new activity of this region and to the wealth that is being added to it. Meantime, Nashville has awakened to the fact that she is situated on the edge of these great fields of iron and coal, that she can advan-

rageously go forward in the development of industrial enterprises, and large investments are being made in this direction. A new era of prosperity has dawned upon the city and improvements are noticeable on every hand. Verily, a "new South" has arisen upon the region wherein the armies of the North and South contended but a few years ago, and the dawn of peace has brought to it a development and prosperity that it would scarcely have known but for the war. The manifold resources of the country that had lain dormant for so long a period might have remained undiscovered but for the stimulus of these years of bloody contention, and the changed conditions resulting from them.

Intelligent Workingmen and the Knights of Labor.

WHILE THE course of events tends to show that the intelligent workingmen of the country are growing weary of the arbitrary dictation of the Knights of Labor, or, rather, of the few men who control that organization, much remains to be done before the great body of workmen are thoroughly emancipated from the bonds of slavery that have been fastened upon them by this order. The leaders of the so-called labor movement, by representing that the workingmen in the country are in the majority, and that by combining together they could dictate their own terms to capitalists and employers, have led astray thousands who have been deluded by their specious arguments. Last year the combination was very powerful, and the leaders exercised their authority to such a demoralizing extent that thousands of workmen went on strike simply because they were ordered so to do. Without grievances of their own, satisfied with their employment in every respect, they were ordered to strike because the leaders declared that it was necessary for them to do so in order to convince employers that the Knights of Labor were invincible, and that, if necessary to enforce their demands, they would paralyze the industries of the country. By a process of dragooning and intimidation, many intelligent workingmen were forced to join the order and to participate in the strikes against their better judgment, awaiting the reaction that was bound to come to release them from their unnatural bondage to the Knights of Labor. That reaction was not long in coming, for the action of the labor fanatics was so arbitrary that the strikes they ordered were failures in almost every instance, and the misguided workmen who had participated in them found they were the greatest losers. Still the order maintained considerable strength after the failures of a year ago, and various strikes have occurred since in which the Knights have figured as conspicuous failures, for in every instance where they have demanded recognition by the employers they have failed utterly. Millions of dollars have been lost to the workingmen of the country during the past year through the arbitrary and mistaken action of the Knights of Labor. Had the men been content to ask for the redress of grievances from which they were suffering, for a reduction of their hours of labor or for a reasonable increase in their pay, they would have been met by the employers in a conciliatory spirit and their demands listened to; but the Knights of Labor went further and demanded that the employers should employ no workmen who were not members of the order in good standing, should discharge all men who were not Knights, and, in short, should delegate to the Knights of Labor the power to employ and discharge their workmen. Self-respecting men could not consent to such a surrender of their business, and, as a consequence, the strikes were greatly embittered by the antagonism of employers against this dictatorial order.

During the last two months there has been in progress a strike of the silversmiths, not for an advance of wages, for they were receiving the highest rates paid to skilled artisans, but for the enforcement of rules laid down by their union, which is a branch of the Knights of Labor. The first outbreak was among the employees of the Whiting Manufacturing Company where, because of a scarcity of journeymen, the number of apprentices employed exceeded the proportion permitted by the union—one apprentice to each four journeymen. The company refused to discharge the apprentices and the men struck in obedience to orders. As evidence that the apprentice grievance was but a subterfuge, some of the apprentices were in sympathy with the men and joined them in striking. The actual point of the strike was for the recognition of the Knights as supreme authority in the factory as to the qualifications of the workmen, and the sole arbitrer as to who might or might not be allowed to work in the factory. After all reasonable means had been used to convince the men of the error of their position, the principal silversmiths came together and resolved to sustain the Whiting Company, and to this end they discharged all their employees who were contributing to the support of the strikers. This was a direct blow at the Knights of Labor, for members of that order were the only ones among the silversmiths who were taxed for the support of the strikers. A large number of men in this city, Newark, Providence and elsewhere were thus deprived of their means of support, because they preferred to ally themselves with an order that had never done anything but mischief, rather than maintain their independence and their loyalty to their employers. It was but a few days, however, before the employees of the Gorham Manufacturing Company, at Providence, saw the absurdity of their position and determined to abandon the Knights of Labor, and they accordingly surrendered their charter and returned to work. Others did the same in other localities, and by this senseless and unnecessary strike, fostered by the Knights of Labor, that order lost a large number of members. Those who had the moral courage to throw off the yoke of bondage that they had been misled into submitting to are deserving of great credit, for they subjected themselves to all the abuse and ridicule that order is capable of heaping upon intelligent men who dare to think for themselves. But the action of these men did not put an end to the strike in its entirety, for those employed in this city refused to surrender their allegiance to the Knights, and on no other terms would the employers receive them back. From the first the employers determined that they would not recognize the Knights and would only treat with their old men as individuals, while the men were equally determined that they would only return in a body as Knights of Labor and be recognized as such in the future. At the present writing the contest is undetermined, both parties to it seemingly remaining as firm as they were at the outset. The result thus far has been the loss of many thousands of dollars to the workmen in wages that they might have earned, while they have, at the same time, been eating up their savings in idleness or running in debt for the necessaries of life. In other columns we shall report the progress of the strike up to the last hour of our going to press. Our purpose here is to show the utter, criminal folly of this strike; the men demand, in effect, that the employers who have invested millions of dollars in their business and are conducting it at great cost, whose margin of profits has been greatly reduced by reason of excessive competition, shall surrender the management of their business to an organization of irresponsible persons, composed largely of workmen who know nothing whatever of the character of the business. To do this would place it in the power of a few professional agitators, whose harvest is found in labor troubles, to utterly ruin their business and to jeopardize every dollar of capital they have invested in it. This is precisely what the Knights have done in some of the New England cities, where the boot and shoe industry formerly had its home and thrived famously. For two years or more the Knights have been fighting to obtain control of this industry, and have so hampered the manufacturers as to ruin more than one and to drive others away from the place where they have done so much to develop its prosperity. Some of these large manufacturers have moved West, where enterprising communities make them liberal offers to locate in their midst, and the New England cities are sufferers by the loss of their capital and enterprise, while the workmen who have caused all this

trouble must seek other employment or follow their employers to the West.

Every strike that occurs tends to demonstrate what we predicted a year ago, that the result of the unreasonable exactions of the Knights of Labor will force the employers to combine for their own protection. We said then that if the Knights persisted in compelling the men in one branch of industry to strike in sympathy with the strikers in another branch, the employers would enter into a combination whereby a lockout would be declared in sympathy with any employer in the same line who was made the victim of an unreasonable strike. The silversmiths discovered that they must do this or surrender the control of their business, so several hundred of their employees were thrown out of employment. We venture the assertion that not one in ten of the silversmiths who are either on strike or locked out, can give a reasonable explanation of why he is not at work. The answer of the strikers uniformly is "we were ordered out." To whom do intelligent men thus surrender their independence, their individuality and their manhood? To a few labor agitators, walking delegates, etc., whose only means of livelihood is found in the trouble they can draw others into. The course of the Knights of Labor is nearly run; already the best elements among the workingmen are breaking away from this thraldom, and it will not be long before the majority will be ashamed to admit that they ever yielded to such abject slavery as their membership in this order imposed upon them.

Our Trade with Mexico.

THE FEELING exists to a considerable extent in this country, that the traffic with Mexico belongs of right to us; indeed, not a few go still farther and maintain that the country itself should be ours. Doubtless, if we could get the country without the people who inhabit it, there would be a very large party that would favor annexation. But the spirit of Yankee enterprise has long had its eyes turned towards the land of Montezuma, and a large amount of Yankee capital has found investment there. It is popularly believed that Mexico possesses rich gold and silver mines that will, under proper development, yield untold fortunes to the men who can obtain control of them. It is in this direction that northern capital has mainly sought investment in Mexico. It is more than probable, however, that the same amount of capital and enterprise expended in the development of better commercial relations with that country would have brought forth better fruit than has yet been realized from the mining ventures. But our merchants are not entirely to blame for the fact that our business intercourse with Mexico is so restricted; they are ready enough to reach out for new fields to conquer and new markets to supply provided proper encouragement is held out to them. The Mexican policy is one of exclusiveness and the people do not take kindly to outsiders, which leads the Mexican *Financier* to lament that the wide-awake little Argentine Republic is outstripping Mexico, not only in developing her natural resources, but also in extending her foreign trade. That journal says that "the Argentines may be going too fast, but at least they are thoroughly in motion. Colonization in Mexico is but an experiment; the foreigner is not welcomed by a cordial public sentiment. A sense of exclusiveness, a belated provincialism, these are the sentiments that contribute to keeping out of the country hard-working and industrious Europeans who otherwise might flock here, making the country grow rapidly in population and giving it impetus in every path of progress." It is the old story of a nation trying the experiment of living within and for itself, and keeping away all "outside barbarians." It is not an experiment that will work satisfactorily. Nature intended the different races of men to intermingle. International competition is a perpetual spur to commercial adventure and industrial enterprise, while isolation is fatal to every form of healthy development. For two thousand years China tried the isolation policy, during which time her civilization degenerated very greatly. It is safe to say that since she opened her barred gates to the outside world, her progress has been greater in all material things than it had been for hundreds of years before. This fact is admitted by her statesmen, and those who have the interests of their country most at heart are most desirous for unrestricted intercourse with outside nations. Japan is another illustration of the fact that international intercourse tends to the development of that nation which accords us the greatest encouragement. It is no compliment to the intelligence of Mexico that popular sentiment there is opposed to according us welcome to foreign enterprise and the foreigners themselves. These need more than anything else some fresh blood down there to arouse them from the stagnant condition into which they have fallen. Lacking enterprise and industry themselves, they should import these qualities and naturalize them. How they permit their natural resources to lie dormant was illustrated by their manner of working in California. With the rich gold mines of that State at their feet they were content to extract a trifle of the precious metal by the crudest appliances; the Yankee stepped in, drove out the Mexicans and took out tons of gold by means of superior machinery where they had taken out ounces. Give to Mexico a population equal to that of California in enterprise and industry, and it would soon become one of the richest countries on the globe. Our merchants are looking for new markets in which to dispose of their surplus productions; Mexico offers them an attractive field, both because of its accessibility and its requirements. It might take several years to make it highly profitable, but it is worth trying, especially in view of the efforts that are being made by some of our citizens in the development of the mining resources of the country. Certainly, whatever commercial advantages other nations have in that country should belong to our merchants, and Mexico is now largely supplied from abroad with whatever she has to buy. There is an opportunity building up a large and profitable trade here if our people would improve their opportunities.

Industrial Training Schools Wanted.

THAT WAS a severe remark some one made regarding the rising generation in this country, that we "had to send too many boys to the State Prison to learn trades," but there was a great amount of truth in it. Since the labor unions and the Knights of Labor have placed a limit upon the number of apprentices that any employer may have, not one boy in ten can obtain the opportunity to learn a trade. The consequence is that the cities are overrun with idle boys many of whom are dependent upon their earnings, but whose only opportunity to earn anything lies in securing odd jobs by hanging around the street corners. About all a boy has to look forward to selling newspapers or blacking boots, with possible promotion to a post of a district messenger boy. As a result they become street loafers, and it is not surprising that so many of them become criminals. But the Knights of Labor even invade the prisons and will not permit the employment of convicts at established trades, and have even induced the legislatures of some States to discontinue shops they had created in the prisons for the technical education of convicts. In this condition of affairs, the only hope of supplying the future demand for mechanics and artisans lies in the establishment of technical schools, or in the introduction of industrial training in the public schools. This latter has been attempted with good results in some of the public schools, but the facilities thus far afford in only been such as could be given to an experiment, and necessarily limited. At the Cooper Institute, however, thanks to the generosity of Peter Cooper, the facilities for learning useful callings are almost as are required in the lines that are there taught. Thousands other

...e here secured a technical education that has fairly equipped them ...r the battle of life, and every day bless the memory of him who ...ve them these advantages. But a small proportion of the boys ...ho need it can obtain these advantages, and hence the necessity for ...e multiplication of training schools where boys can learn trades or ... themselves for such calling as demand technical skill and training. ...It is stated that Brooklyn is soon to possess one of the largest and ...t equipped training schools in the country. It is to be endowed ...Mr. Charles Pratt, who, it is reported, proposes to supply all the ...ds required to place it on a par with the best of the European ...ining schools. The scheme of the school is to furnish technical ...ining for young men who have a natural inclination towards the ...s or mechanics. All trades will be taught, and in addition to the ...ctical drilling, instruction in subjects relating to each industry will ...given. There will be a course for young women, including ...truction in sewing, cooking, house decoration, type-writing, tele...phy and such other light industries as have been opened to ...nen.

No industries in the country require a higher degree of skill and technical training than those kindred to the jewelry trade. Already there is a scarcity of skilled artisans in the several branches, and where the workmen and artists of the future are to come from, unless training schools be provided, it is impossible to say. They certainly are not enrolled as apprentices to-day, and a majority of the boys now employed in factories and shops do not regard such employment as permanent; they are prepared to abandon it at a moment's notice if anything offers that will give them fifty cents or a dollar a week more ...wages. It is merely the present that the majority are contemplating ...nd they have no regard for the future. The introduction of labor ...aving machinery has also tended to prevent boys from learning ...rades thoroughly, for they simply learn to operate one machine, and ...are satisfied to remain at that because they can earn better wages by ...oing than if they were changed about from one "job" to another. ...ve ought to be a training school, especially for the arts and indus... that are classified under the head of the jewelry trade. ...e is a splendid opportunity for some of the wealthy gentlemen in ...siness to earn the lasting gratitude of a large army of boys and ...do his successors in the trade, by imitating the example of Peter ...ue and Mr. Pratt and endowing a training school. The idea ...seem more than once broached but has not yet reached fulfil...t. In the recent report of Mr. Charles T. Peck, State Labor ...ommissioner of New York, it is stated that the skilled handicrafts ...this State are passing out of the hands of native Americans and ...to those of well-trained foreigners. He further says that the ...e degree of skill required, and the higher the wages, the less likely ...the workman to be an American. In some manufactories where ...eghest grades of skill are demanded, not one American employee ...be found. Mr. Peck ascribes this state of things to a neglect to ...ade suitable manual instruction for American youth. This is a ...ject that should be overcome by State legislation, supplemented ...rivate philanthropy.

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Yorkingmen Coming to their Senses.

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THE PAST week or two has witnessed some curious manifestations of the rapid process of disintegration which is going on among the great labor organizations. One of the first important defections from the Knights of Labor occurred among the silversmiths, whose usually intelligent, honest and highly-paid men, but, in an of If, they listened to the exhortations of the paid enthusiasts ...rested the "colossal organization." The number of persons in ...nesde is not large, and the labor autocrats, having got them ...the / bound, found it easy and convenient to use them for that ...bject of injuring their employers, in comparison with which, ...the ...the ...rules

as Mr. Powderly says, "the suffering of the individual workman is of little importance." After the well-known methods of annoyance based on this view had been practised for some time, the masters rebelled, and gave notice that after a certain date all the principal silver-working establishments would be closed until assurance was given that the business conducted in them would be managed by their proprietors, and not by the "colossal organization." They were answered by the customary bragging and bullying, but they kept their word, and, on the appointed day, their doors were closed to all who chose allegiance to the Knights of Labor in preference to faithfulness to the service which they were employed to perform. The largest establishment of the kind in the country is that of the Gorham Manufacturing Company, which maintains eight hundred persons, all or nearly all of whom were members of the Knights of Labor. The managers of the company, somewhat deceived by the vaporings of the knightly mouth-pieces, prepared themselves for a struggle of several months' duration, but their operatives, after considering for about three days the advantages of being ridden by a colossal organization as compared with those of working independently for the benefit of themselves and their families, voted to give up their knightly charter, and return at once to the places which still remained open to them.

In another place, about the same time, an attempt was made by the managers of an International Union of Iron Workers to carry out the ordinary tactics of enforcing obedience to their orders by tormenting innocent people. It seems that a certain firm of stove founders in St. Louis had incurred the malice of the International Union, which resolved to ruin its business. As it happens the stove founders of the country have a defensive association, the members of which help those of their fellows who are "struck" by making castings for them, in order to enable them to fill their orders, and, in the present case, the patterns of the St. Louis establishment were divided among several firms in New York State belonging to the Association, in order that they might be used for casting. The International Union heard of this, and ordered its subjects to "strike" all foundries in which an attempt should be made to cast from the St. Louis patterns. The order was obeyed, and several hundred men, at a signal, gave up the employment by which they and their families subsisted in order to gratify one of the parties to a squabble a thousand miles away, of the merits of which they knew nothing whatever. As in the case of the silversmiths, two or three days' reflection was enough to convince the stove casters that the sacrifice they were making was altogether disproportionate to the occasion, and they voted to defy the orders of the International Union, and to go back to their work without troubling themselves further as to whether the patterns they were using came from St. Louis or elsewhere. Still further indications of the return of common sense to the members of the "colossal organizations" are to be found in the results which have followed the adoption of the nine-hour day in the building trades. To hear the representations of the labor agitators, it would seem that the whole body of carpenters, plumbers and masons has for many years been sighing in vain for the reduction of the working day to eight hours, in order that they might have time to improve their minds; and that nothing but the heartless tyranny of "capitalists" and "monopolists" has prevented them from securing this precious privilege. In point of fact, however, since the orators have at last prodded their reluctant subjects into making a successful demand for a nine-hours' day, the latter seem to have taken to spending their leisure moments in revolving schemes for evading the new rules, and working ten hours instead of nine. In one case, within a week or so after the compromise which has become general, of nine hours' work and pay by the hour, had been adopted, the workmen employed by a large contractor went to him and asked the privilege of working ten hours a day for the first five days in the week and five hours Saturday. This would make fifty-five hours' work in a week, instead of the fifty-four hours agreed upon in the compromise, but, as the men said, it would be much more convenient for them to make full

days the rest of the week and have Saturday afternoons to themselves for cultivating their gardens or amusing themselves and their families, that they would willingly give the extra hour's work for the sake of making the modified arrangement. We suppose that the labor quacks who heard of this must have wept at the backsliding of their unruly disciples, but the contractor, who had himself worked hard all his life, and who knew the value of a half-holiday, thought the idea a very sensible one, and willingly agreed to pay the extra price for the extra hour in the week's work, although, according to the quacks, who maintain, when they wish to gain a point, that men do more work in a nine-hours' day than they do in one of ten, he would, by the modified arrangement, suffer a loss of five hours' work a week, instead of a gain of one, and ought to have docked his men of ten per cent of their wages instead of giving them more. Unless this view of the case should occur to the contractor, it is easy to see that other men will ask the same privilege, and the result of the modification in the agreement will be that in the autumn, when the crops have been gathered from the little garden, and it is too chilly for picnics with the children, the men will, very gently, for fear the orators may hear them, begin to propose that the Saturday half-holiday should be discontinued, and that on that day a full day's work should be accepted and paid for. We venture to say that unless some meddler interferes, none of the men will suggest return to nine hours for the other days of the week in place of ten, and that matters will quietly fall back to the condition in which they have usually been during the winter, except that the contractors will have gained the point against which the agitators have fought so hard, of paying by the hour instead of by the day. Whether the labor autocrats will look on quietly at this dodging of their decrees remains to be seen. To them, disregard and neglect are fatal, and, as they know perfectly well that their salaries and their influence depend upon making themselves conspicuous, it is very likely that the autumn may see some desperate movement concocted to upset the industrial world, and bring into renewed prominence the figures of the self-styled champions of labor.—*American Architect.*

The Application of Gems to the Art of the Goldsmith.

By Alfred Phillips.

Continued from page 117

IT MAY truthfully be said of remarkable diamonds, up to the recent time of the Cape discoveries, that their value was vastly over-estimated. It seemed as if, because they were far beyond the reach of ordinary buyers, there could be no harm in over-stating their value to an extent simply based upon their weight, but with little reference to the actual quality of the gems.

A glaring instance was Roné de l'Isle's estimation of the Braganza diamond, weight 1,680 karats, which he says was worth £224,000,000 sterling, or about £80 sterling per karat for the multiplicand of the square of its whole weight. This is aside from the fact that the Braganza has never been proved to be a diamond.

Again, the Orloff diamond of the Russian sceptre, weighing 779 karats, was, in the year 1800, supposed to be worth £4,854,728 sterling, although its actual cost was 135,417 guineas.

The monster rose diamond of the Great Mogul weighed 279 karats, and was valued at 380,000 guineas, and so on until we come to the Regent, weighing 136¾ karats, and valued at 208,333 guineas, although its actual cost was half that amount. The most palpable absurdity, however, is Dutens' valuation of that uninteresting gem, the Sancy, weighing 55 karats, which he states to be much above 25,000 guineas. I can find no contemporary estimate of a diamond of similar weight at more than £9,500.

The forgoing instances apply exclusively to the diamonds of the various East Indian localities, known in our markets as "Golconda" which had been explored since the time of Alexander, and which had yielded the total supply of these gems until the Brazilian discovery in 1720.

The East Indian diamonds are, by many authorities, said to have been of finer quality than those of more recent discovery. While I do not share that opinion, I admit that they yielded a larger proportion of pure gems, and that they are both denser and harder than any others. I am confirmed by Thomas Collingwood Kitto as to their greater hardness, and by personal experiments with reference to specific gravity. Ellicott's exhaustive experiments in 1795 and those of Page, published in 1855, both prove the Oriental diamond to be of greater specific gravity than the Brazilian gem.

If one may judge by the superb old parures of Golconda diamonds still extant and eagerly sought after, the assertion may be accepted that East India yielded a larger percentage of white stones. Indeed, it is well known that the various shades of yellow and cinnamon colored diamonds were infinitely rarer before the opening of the Brazilian mines, and even then comparatively seldom, until the Cape mines produced an abundance of this particular class of diamond.

It would be impossible to frame a reliable estimate of the quantity and value of diamonds exported from India under British rule, for there was free trade in diamond seeking. The supply of Indian diamonds is now most uncertain, no noticeable quantity having been brought to this market for the last forty years.

The discovery of diamonds in Brazil in 1720, was followed in 1721 by the export of 173,000 karats to the European markets. As may be supposed, the value of diamonds considerably declined for a time, until the increased supply had, *ipso facto*, created relative application and demand. Shortly afterwards the Brazilian government wisely assumed the working of the mines, the industry was successfully conducted until 1880, when the Cape diamonds, which were priced at a much smaller cost, reduced Brazilian mining to a minimum.

The present total export of diamonds from Brazil does not exceed 24,000 karats, of which it is estimated that 30 per cent. are of the water, as against 20 per cent. of the same quality from South Africa, where, however, the crystals are found of much larger sizes than the ever have been in Brazil.

It cannot too emphatically be asserted that the qualification of "Cape diamond" applied to the South African gems as a term of reproach, should now and forever be retracted by those persons who, knowing better, have been foolish enough to propagate such nonsense.

Cape diamonds furnish to-day fully 95 per cent. of the European supply, which alone is sufficient to uphold them in public estimation. It is true that colorless diamonds have been found in the small proportion in South Africa, but it is equally beyond dispute that large numbers of the whitest and most faultless diamonds are exported from the Cape, while the mass of material is conspicuously wherein white or colored, for its brilliancy.

Disparagers of South African diamonds were, usually interested supplies of rough from other localities, and continue to fear that the public mind having been so industriously prejudiced against the denominations of African diamonds, purchasers would hold off if the goods were fairly represented.

It is not generally known that, during the first fourteen years of the career, the then most prolific of South African mines, the Kimberley, put out more diamonds than all the other sources of supply combined had produced since any record had been kept. Diamond mining commenced in earnest at the Cape in 1871, and developed with marvelous rapidity. Upon the authority of Mr. J. B. Finlason, chief inspector of diamond mines, I give the following statistics: In 1871 the usual digger's claim, 31 ft. square, was equal to the unprecedented value of £32,000, readily realized. In 1874, the total shipments from the Cape amounted to £5,000,000 sterling. The Postmaster General reports that between January 1, 1874, and December 31, 1877, the net weight of diamonds sent to England by post amount

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by one ton. The government returns of duty paid on diamonds shipped from September, 1882, to February, 1884, amounted to £4,428,157, and weighed 3,617,226 karats.

In connection with the developing use of precious stones, but more especially the diamond, it is impossible to overrate the significance of the table of statistics previously given for which I am indebted to the painstaking courtesy of Messrs. Tiffany, the eminent goldsmiths, of New York.

These gentlemen have used their influence with the government of the United States of America, in order to procure the most perfect form of tabular information, vouched for up to February 24 of the present year by the chief of the Bureau of Statistics of the Treasury Debt. It will be at once recognized that America is the only country capable of furnishing such unquestionable evidence of the large increase in the application of diamonds since the Cape discoveries revolutionized the whole trade.

t Not only are precious stones duty free in the chief European countries, but no record is kept upon which it would be safe to found even an approximate estimate of their consumption.

ti I elect to refer conjointly to the ruby and sapphire, because, although no two denominations can more considerably vary in commercial value, they form the same body, differing only in coloring matter. The ruby, at any rate since 1700, has remained the most highly valued of the gems. A ten karat ruby at that time was worth over £1,300.

I possess the record of the sale of a twenty karat ruby for £8,000, or considerably over double the value in 1700. About the year 1800 fine rubies of one karat were valued at about 10 guineas, but a six karat stone was recorded to have been sold for £1,000. It is not ing reason in these days to obtain £150 for a specimen ruby of 1½ c o-

thom these facts it is easy to conclude that fine rubies prohibit tpent application, but it should be remembered that artificial prices or only to gems of the true "pigeon blood" color, untainted either brown or violet. The high price of the ruby is likewise due to e uncertainty of the supply, and to the hoarding of the principal gems by eastern princes.

It will be interesting to mark the influence upon rubies, once European control shall be definitely established over the Burmese mines. There are those who assert that these mines, scientifically worked, are destined to yield up a vastly increased quantity of this most precious material. If this were verified rubies must diminish in value, but, on the other hand, a flourishing trade would spring up, as as the case with sapphires when the prolific discoveries in Kashmir duced by 50 per cent. their market value, and admitted their application to jewelry within the reach of moderate incomes. Others em that the Burmese ruby mines, which have been uninterruptedly worked from early ages, are exhausted with reference to important ns, and that rarely is a stone produced of more than half a karat. own experience shows this to be an exaggeration. On the interg occasion of my report to the Indian government upon the hese loot, I found, on the contrary, that a very large proportion e rubies exceeded half a karat in weight. Of the quality, howI must say that not one-hundredth portion was suitable for ing or for the European market. If such may be taken as representative of the Burmese supply, it seems right to conjecture that t cheapening influence will be brought to bear upon rubies of h quality.

The sapphire, as I have said, is another colored ruby. It is curious note that blue-tinted corundum has always occurred in larger quantities than red. The sapphire, which once was next in value to the ruby, is to-day the cheapest of the major gems, and yet from its intrinsic beauty and unrivaled blue color, its disappearance would be to the art goldsmith a greater misfortune than that of either the ruby r the emerald, neither of which seem to have enjoyed the same entimental association as the sapphire which, among many uses, we onstantly find employed as an episcopa gem.

Commercially viewed, the sapphire, both blue and yellow—the last known as Oriental topazes—were almost of identical value about the year 1700. In fact, the value of all sapphires below 30 karats was even less than it is to-day. Here we have reference to parcels of stones averaging 6 grains at 40s. per karat, and to a fine 30 karat sapphire valued at £400. About 1830 sapphires begun to rise to exhorbitant prices, which were maintained until about six or seven years ago, when the large quantities of rough brought from Kashmir and Siam literally glutted the markets, which scarcely yet can be said to have recovered their normal condition. If the supply be fifty times greater than at the beginning of last century, the demand created by the very cheapening of sapphires is practically certain to stay further decline in value. As an illustration of the plenteousness of sapphires I received recently, in one and the same consignment 1,300 stones, weighing 4,626 karats, the sterling value of which was £16,680, or an average per karat of £3 12s. 1½d.

The emerald, or *smaragdus* of the Latins, is one of the most beautiful, although the softest of the precious gems, easily fusible with borax into a colorless glass. The huge emeralds of Pliny and Theophrastus must have been either crystals of beryl—known to occur of a large size, and of which the emerald itself is the precious type—or else masses of green quartz. The true emerald occurs in crystals seldom over one inch in length. The Indian emerald has been applied both to signets and personal ornament alike in ancient Greece, Italy, Egypt and Arabia.

It must not be confounded with the so-called Oriental emerald of India, which is nothing less than a green ruby or sapphire, characterized by its sap-green color, and, however curious as a gem, undeserving of the appellation of emerald.

The extraordinary rise in the value of this gem since the year 1700 has known many fluctuations. The basis of valuation up to 1710 was one-quarter of the price of table diamonds of same weight, or about 3s. 9d. per grain. A 10 karat emerald was worth about £160. From 1720 to 1780 the quantity of emeralds brought to the European markets had so largely increased as materially to diminish their value. At the end of last century rough emeralds were sold at the following approximate prices: Inferior small, 20s. per oz. troy; medium small, 40s. per oz. troy; fine small, £8 per oz. troy; fine medium small, £10 per oz. troy; while the very best rough, in larger sizes, fetched only £15 per oz. troy, equal to 151½ karats.

Parcels of emeralds, now very rare, of medium color, are offered at from £10 to £15 per karat. I have purchased small emeralds of good color within this month at £6 per karat.

I should like to dissipate an idea frequently entertained by amateurs, that the commercial value of many of the abnormal specimens of emerald on record is in proportion to their size, as, for example, the Duke of Devoashire's emerald, weighing 1,360 karats; Duleep Sing's emerald, measuring 3 in. by 2 in.; and a large sexangular emerald recently looted at Mandalay which, while its weight approximates to 200 karats, is distinguished by size but not quality.—*Journal of the Society of Arts.*

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* The Pearl Fisheries of Australia.

BY CONSUL G. W. GRIFFIN.

THE PEARL shell fisheries of Torres Strait belong to the Colony of Queensland, and are situatcd 1,500 miles from Brisbane and more than 2,000 miles from Sydney.

Torres Strait is about 80 miles in width, and separates Queensland from the Island of New Guinea. The navigation of the Strait, although said to be safe and practicable, is in fact very

* From the advance sheets of the Bulletin of the U. S. Fish Commission, kindly furnished by them.

difficult, on account of the innumerable islands, reefs and shoals scattered about. The chief places at which the fisheries are conducted are Wai Weer, Albany Island, Jervis Island, Endeavor Strait, Friday Island, Prince of Wales Islands and Possession Island.

Wages of the Men.—A good diver can earn from $60 to $150 per month. He usually signs shipping articles for a period not exceeding three years, at a fixed sum per month and an interest in the catch or lay. Mr. Bayne, of Sydney, the owner of an important station at Prince of Wales Islands, who for many years has been engaged in pearl shell fishing, states that several divers in his employ have earned as much as $300 per month. The divers and crews are composed of South Sea Islanders, Malays, and a few Chinese and Lascars.

The diver is the captain of the boat, and the other men obey his orders. The duties of the tender consist in waiting on the diver, helping him to dress, and looking after him while in the water. The pay of the tender is from $10 to $12 per month, with a small interest in the catch, generally from one-sixtieth to one-eightieth part of the value of the shells. Each of the vessels generally has one diver and four tenders, who compose the crew. The tenders are engaged on regular shipping articles, and are paid off like any other merchant seamen.

Mr. Henry M. Chester, the resident magistrate at Thursday Island, says, in a recent report on the fisheries, that the natives are never overworked, and that they are always well fed and kindly treated. He further says that payment is usually made them in blankets, clothing, knives, hatchets and beads, and that whenever they are dissatisfied with what they receive they seek other employment. Mr. Chester is of opinion that the competition for their services is of such a character as to secure for them fair treatment. All the available adult population of the Island are employed as swimming divers, under "the masters and servants' act," and while their pay is small, it is made in the presence of the local authorites, and all the old men, women and children receive food in seasons of scarcity.

Mr. Chester admits, however, that the occupation of a diver is dangerous and not at all conducive to longevity, but adds that the loss of life among the natives from such causes is more than counterbalanced by the abundant supply of wholesome food given them, and by the decrease in infanticide and other savage practices to which they were formerly addicted.

Method of Fishing.—The method pursued in pearl fishing is for a number of vessels to start out together and fish on the same ground. Each vessel carries supplies to last a fortnight. When in about 8 fathoms of water, if the tide is slack, the diver will jump overboard. His boots are heavily weighted with lead, so as to hasten his descent. Upon reaching the bottom he walks leisurely along until he comes to a patch of shells; then he signals to the boat to cast anchor. He carries with him a sack or bag to hold the shells, and as soon as it is filled it is lifted up, emptied out and sent down to him again, he being able to remain under water several hours at a time. Some divers remain down from 9 o'clock in the morning until 5 o'clock in the afternoon.

The pearl oysters lie on the ground with the shells partly open, and great care is required in handling them, for if touched in the wrong way they will close upon the hand like a vise. Accidents of this kind not infrequently happen to inexperienced divers, who are obliged to signal those above to lift them up and remove the pearl oysters from their hands.

The monsoons which blow in the Strait from May until the end of September are often so severe that boats have to lay up for as much as ten days at a time. The average catch for each boat is from 1 to 1½ tons of shells per month. Unlike the fisheries in Ceylon and the Persian Gulf, there is little or no difficulty in collecting the shells, for they either lie loose on the ground or are only partially buried in the mud or sand.

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The fisheries off the coast of West Australia, and especially at Shark Bay, produce the true pearl oyster (*Avicula margaritifera*). For a long time this shell was supposed to be valueless on account of its thin and fragile structure, but now there is a great demand for it both in America and in Europe. It is especially prized by the French and German artists for fine inlaid cabinet work.

The young or chicken shell is the best, and commands the highest price. When the pearl oyster is five or six years old the shells become blistered and wormy, and it is said that the oyster dies about the age of seven years. The divers in fishing make no effort to select any particular shell, but take every one that they can get, even the dead shells, which have the least value of any, on account of various blemishes, rottenness, lack of luster, etc. Pure white silver-edged shells are the most desired.

The oysters in the West Australia fisheries are generally obtained by passing an iron dredge over the banks, but divers are also employed. Pearl oysters are gregarious in their habits, and wherever one is met with it is almost certain that numbers of others will be found in the immediate neighborhood.

Divers are expert swimmers, and they go down to a depth of four or five fathoms, where it is said some of them can remain two minutes. The occupation is an unwholesome one, and soon produces deafness and diseases of the chest and lungs. Blood not infrequently flows from the mouth, ears and nostrils after the usual dip of forty or fifty seconds, which is repeated fifty or sixty times a day. The men also run the risk of being eaten by sharks, although death from this cause is not apt to occur except in untried fishing grounds, as the noise of the divers is almost certain to drive the sharks away.

The Pearl Stations.—All the pearl fishing stations in Torres Strait bear a very close resemblance to one another, and consist of a small but nice-looking residence for the manager and one of less pretention for the men, a warehouse for storing provisions, etc., and several sheds for drying the shells. Before the shells are brought to the station the boats usually run into land, and the men open the oysters, take out the pearls, if any, and throw the soft parts overboard. The shells are then roughly cleaned and stowed under the hatches. At the end of the voyage they are taken to the station, where they are counted and thoroughly cleaned. The shells are then assorted and dried, and, after the outer edges are chipped off, they are packed in cases, each case weighing from 270 to 300 pounds, and are ready for shipment.

No systematic effort has yet been made to collect pearls at the Torres Strait, and such as are found become the property of the men, who secrete them in various ways, often by swallowing them. Some very fine specimens of pearls about the size of a hazel nut, and of a remarkable beauty and clearness, have recently found their way to this market from Torres Straight. Other specimens of a much larger size have been found there, but they were imperfect in shape and color.

Formation of Pearls.—In oysters aged four years—which are judged by the shells, weight and appearance—the best pearls are found. The shell, like the pearl, is formed by the secretion of the animal, and is composed of animal matter and lime. The iridescent hues on the inside of the shell are occasioned by the edges of the thin, wavy, concentric layers overlapping one another and reflecting the light. The minute furrows, containing translucent carbonate of lime, produce a series of more or less brilliant colors, according to the angle at which the light falls upon them. Occasionally some of the finest pearls are found loose in the shell. As many as one hundred pearls have been found in one oyster, but they are generally of little or no value. The pearls of the young oyster are yellow, and in the older oyster are of a pinkish hue.

The Use of Pearl Shells.—The pearl shells shipped from Australia to the United States and Europe are used principally for the manufacture of knife handles, shirt buttons, etc. Considerable quantities are also used for *papier maché* and other ornamental work. The pearl buttons, shirt studs, etc., now made in the United States, are said to be the best and cheapest in the world, a fact due in a great measure to the care used in selecting the material and to the improved methods of cutting, etc.

U. S. Consulate,
Sydney, New South Wales, *April, 1883.*

Silver and Silver Plating.

Continued from page 122.

RESISTS AND RESERVES.

BY RESERVES, certain parts of a metallic article, which may be already covered with an electro-deposit on its whole surface, are coated with another metal. To gild the parts in relief of an object of which the body is silvered, make a gold reserve, and use a silver reserve for silvering certain parts of a body already gilt. This requires a little practice and care, and a firm hand to make thin lines with the hair pencil. Thoroughly scratch brush and wipe the object; the parts intended to have the primitive color must be covered by a brush with a resist varnish; dry in the air, or in a stove, or upon a gentle fire, until it no longer feels sticky. Place in the bath; the galvanic deposit will only coat those parts unprotected by the varnish. The temperature of the bath should be low, and the current weak, for fear of having rough lines where the deposit touches the varnish from the latter being softened, or from bubbles which are disengaged at the negative pole under the action of a strong electric current. When the deposit is completed, remove the resist varnish with warm essence of turpentine, and afterward with tepid alcohol; gaseine or benzole are preferable, as they rapidly dissolve in the cold nearly all resinous and fatty bodies, or the varnish may be destroyed by a brief immersion in concentrated sulphuric acid, when cold. It often happens that several colors and metals have to be placed upon the same object, such as silver with both a bright and a dead luster, and yellow, green, red, white, or pink golds, or platinum. Varnishes are also employed for avoiding the deposits of the precious metals upon those parts which do not need them. To prepare a

Resist or Reserve Varnish.—Dissolve in boiled linseed oil or essence of turpentine, resin or copal; these varnishes are not sufficiently colored to distinguish the places where they have been laid on; mix with them, therefore, a certain proportion of red lead, chrome yellow or Prussian blue, which at the same time facilitates drying.

Old Silver.—To imitate old artistic productions made of solid silver, the groundwork and hollow portions not subject to friction are covered with a blackish-red earthy coat, the parts in relief remain with a bright lead luster. Mix a thin paste of finely-powdered plumbago with essence of turpentine, to which a small proportion of red ochre may be added to imitate the copper tinge of certain old silverware; smear this all over the article. After drying, gently rub with a soft brush, and the reliefs are set off by cleaning with a rag dipped in spirits of wine. Old silver is easily removed and the brightness of the metal restored by a hot solution of caustic potash, cyanide of potassium or benzole. To give the old silver tinge to small articles, such as buttons and rings, throw them into the above paste; rub in a bag with a large quantity of dry fir-wood sawdust until the desired shade is obtained.

Oxydized Silver.—This is not an oxydization, but a combination with sulphur or chlorine; sulphur, soluble sulphides and hydro-sulphuric acid blacken silver, and insoluble silver salts, and particularly the chloride of silver, rapidly blackens by solar light. Add four or five thousandths of hydro-sulphate of ammonia, or of quinti-sulphide of pottassium, to ordinary water at a temperature of 160° to 180° Fahr. When the articles are dipped into this solution, an iridescent coating of silver sulphide covers them, which, after a few seconds more in the liquid, turns blue-black. Remove, rinse, scratch brush and burnish, when desired. Use the solution when freshly prepared, or the prolonged heat will precipitate too much sulphur, and the deposit will be wanting in adherence; besides, the oxydization obtained in freshly-prepared liquors is always brighter and blacker than when produced in old solutions, which is dull and gray. If the coat of silver is too thin, and the liquor too strong, the alkaline sulphide dissolves the silver, and the underlying metal appears. In this case, cleanse and silver again, and use a weaker blackening solution. Oxydized parts and gilding may be put upon the same articles by the following method: After the whole surface has been gilt, certain portions are covered with the resin varnish; silver the remainder. Should the process of silvering by paste and cold rubbing be employed, the gilding should be very pale, because it is not preserved, and is deeply reddened by the sulphur liquor. When this inconvenience occurs from a too concentrated liquor, it is partly remedied by rapidly washing the article in a tepid solution of cyanide of potassium. Deep black is thus obtained upon cleansed copper: Dissolve 3 or 4 ounces of blue ashes, hydro-carbonate of copper, in a sufficient quantity of aqua ammonia, place the cleansed copper in this solution, cold or tepid, and it will be instantaneously covered with a fine black deposit. This coat is so thin that burnished articles look like varnished black.

[The rest of the article treats on manipulations not customary here in our workshops, and we therefore do not translate them, but commence at once with

GILDING AND GOLDPLATING.

Gilding.—The operation of gilding is done by two distinct methods; by the *wet*, and by the *dry* process. Gilding by the wet process is effected either by single affinity or chemical reactions called gilding by dipping; or when by chemical and electric reactions combined, it is known as *electro-gilding*.

Gilding by Dipping.—This method is applicable to the small articles which make up imitation jewelry, and is principally employed on copper or such alloys as contain a large percentage of that metal. The baths employed contain gold in the form of a double salt of protoxide. A solution to be fit for this kind of gilding should possess the following indispensable properties: It should have little stability, that is, it must decompose readily and abandon its gold under feeble influences. It should dissolve the copper immersed in an equivalent proportion to that of the gold deposited, thus forming a new double salt, in which the copper is in the same degree of oxydization as the gold. When the articles have been previously amalgamated, as is generally the case, it is mercury, and not copper, which is substituted for gold in the solution.

Preparation of the Gold Bath:—

Distilled water	17 pints;
Pyrophosphate of potash, or soda	28 ounces;
Hydro-cyanic acid of ⅛ prussic acid	½ ounce;
Crystallized perchloride of gold	⅔ ounce.

The pyrophosphate of soda is most generally employed, and is obtained by melting, at a white heat, the ordinary crystallized phosphate of soda. The pyrophosphate of soda may be obtained in the form of crystals, which is a proof of a definite composition. The quality of chloride represents a little more than one-third of an ounce of pure gold treated by aqua regia. Put 16 pints of distilled water in a porcelain vessel, or an enameled cast-iron kettle, and add, by small portions at a time, and stirring, with a glass rod, the pyrophosphate; heat, filter, and let it cool down. The chloride of gold is prepared by introducing into a small glass flask:

Pure gold, finely laminated	⅓ ounce;
Hydrochloric acid, pure, nearly	1 ounce;
Nitric acid, pure	½ ounce.

The flask is slightly heated, effervescence and abundant nitrous vapors result, and in a few minutes the gold has entirely disappeared, leaving a reddish-yellow liquor. The flask is then put upon a sheet of iron with a hole in its center, and supported by a tripod. The whole is heated by a gas or spirit lamp to evaporate excess of the acids; too much acidity may cause great irregularities in the workings of the bath, and even prevent its action altogether. An excess of nitric acid causes a jumping of the heated liquors, and may overthrow the whole; it is preferable to have the hydrochloric acid predominating. The evaporation is finished when vapors escape slowly from the flask, and when the liquid has become of an oily consistency and of a deep red color. The flask is then removed

from the fire with wooden pincers, and set to cool upon a ring of plaited straw.

If a more rapid evaporation is desired, heat the flask over ignited charcoal or the spirit lamp; agitate the liquid to prevent any of the gold from returning to the metallic state. Well prepared chloride of gold, when cold, forms a saffron-yellow crystalline mass. If the color is red, it has been too much evaporated, and will do very well for electro baths; but for dipping baths it must be heated again, after a small addition of the two acids. If the perchloride of gold has, by too protracted a heat, passed to the state of insoluble proto-chloride, or even of a metallic gold, the treatment must be begun again with the indicated mixture of pure nitric and hydrochloric acids. The perforated sheet of iron upon which the flask rests is intended to prevent the action of heat upon the sides of the vessel, which will decompose the films of chloride of gold, wetting the flask at these places. When the chloride of gold is cold and crystallized, dissolve it in the flask with a little distilled water, and pour the solution through a paper filter, held in a glass funnel, into a clean bottle; this is to separate a small quantity of silver always found in the gold of the trade. Rinse the flask and filter with the unemployed water, so as to get all the gold into the bath. Pour the filtered solution of chloride of gold into the cooled one of pyrophosphate and stir with a glass rod. Lastly, add the hydrocyanic acid, and the bath is heated nearly to the boiling heat for use. If the solution of pyrophosphate is still tepid, add the hydrocyanic acid before the chloride of gold. Hdyrocyanic or prussic acid is not absolutely necessary, but without it the bath is too easily decomposed, and the gold is too rapidly precipitated upon the objects placed in it. When the solutions are mixed in the cold, the liquor is yellow or greenish-yellow, but becomes colorless by the increase of temperature. If the liquor becomes currant-red, or wine-lees violet, it is an indication that there is too little hydrocyanic acid; add it drop by drop, until the liquor becomes colorless. An excess of the acid is objectionable, but there is a very simple method of keeping the baths in good working order, by adding prussic acid to those too rich in gold, or correcting any excess of prussic acid with a small proportion of chloride of gold until the gilding is produced without difficulty and of the proper shade. Thus prepared, the bath will produce very fine gilding upon well-cleaned articles, which must also have passed through a very diluted solution of nitrate of binoxide of mercury, without which the deposit of gold is red and irregular, and will not cover the soldered portions. The articles are supported by a hook, or in a stoneware ladle perforated with holes, or in brass gauze baskets; they must be constantly agitated while in the bath.

(*To be Continued.*)

GOSSIP OF THE MONTH.

THE Jewelers' and Tradesmens' Company have issued a circular to merchant jewelers and others interested in the sale of jewelry, calling attention to the importance of each one doing all in his power to educate the public to a just appreciation of the fact that jewelry is not out of fashion, but that manufacturers are more enterprising than ever before in bringing out new styles and beautiful designs. Stress is laid upon the importance of securing the early publication in local papers of the fashion notes that appear in THE JEWELERS' CIRCULAR and *The Jewelers' Weekly*, advance proofs of which can be obtained by any dealer on application to the offices of these journals. Some three years ago the managers of THE CIRCULAR saw the importance of doing this very thing, and they accordingly secured the services of a well-known fashion writer, "Elsie Bee," to prepare an article on "Fashions in Jewelry." Her articles, under the heading of "A Lady's Rambles Among the Jewelers," have been a prominent feature of our magazine for many months. We print advance sheets of these every month, and send out several hundreds to jewelers who secure the publication of extracts from them in their local papers. In addition, a bureau of correspondence in this city, presided over by "Elsie Bee," sends extracts from our advance proofs to over one hundred papers in different sections of the country. It will thus be seen that THE CIRCULAR pulls the working oar in this enterprise, but we are nevertheless grateful for the assistance rendered by our weekly contemporary. These advance proofs are subject to the order of any jeweler who will undertake to make use of them. Send name and address, and the proofs will reach you regularly. It is gratifying to us to know that our efforts to foster and encourage "Fashions in Jewelry" are appreciated by so excellent authorities in the trade as the officers and board of directors in the Jewelers' and Tradesmens' Company.

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IT IS generally conceded that the spring trade was excellent, and there are but few who find fault with the quantity of goods sold. Orders came in with a steady flow, not fitfully, and manufacturers and jobbers were in good condition to take care of them. No one was especially overworked, nor would they have complained had the orders been larger, but, on the whole, the trade up to the present time this year has been generally satisfactory. The best of it is that orders are accompanied by flattering reports from the retail trade in all sections of the country. In all quarters the outlook is promising, and unless something unexpected comes along to interfere, the trade of 1887 will be greater in the aggregate than that of last year. The season opens with promise for full crops of all kinds, and those sections of the country that are far enough advanced to indulge in predictions are sanguine that abundance will attend upon their labors. While the late spring and accompanying frosts killed all the peaches, strawberries and other small fruit, as usual, according to the reports of the farmers, there is little doubt that we shall have an abundance of peaches, and strawberries and cream galore. It always turns out so when the predictions are the most dismal, and the present season is not likely to prove an exception to the rule. Persons outside of the large cities scarcely realize what an important figure the small fruit crops play in swelling the nation's wealth each year, but millions of dollars find their way, by their instrumentality, into the pockets of the producers and thence into general circulation. Statisticians tell us the precise value of the wheat and hog crop, but they leave out of the account the small fruits, to the cultivation of which thousands of acres are devoted. The mere handling of such portions of these crops as reach New York gives employment to a large army of men and women, and the money they receive passes at once into circulation. It may be said of these small crops that they are part of the circulating medium, the money paid for them is turned over so rapidly, while the proceeds of the wheat and hog harvest, of the oats, barley and other large crops, are what people make their hoardings from. But, as we remarked previously, reports from all productive fields are extremely flattering, and all branches of trade and commerce feel hopeful in consequence. Barring the unexpected, it is safe to predict an extremely prosperous season. May there be no disappointment to any.

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EARLY last month there were several severe shocks of earthquake in Arizona, Sonoma and the adjacent country. In Sonora, according to the telegraphic report, a large number of persons were killed by falling walls in the different places that suffered from the shocks, which extended over two days. A volcano was reported to have broken out in the mountains of Arizona, which was throwing out stones, ashes and lava in the regular orthodox style, but this was subsequently denied. It was also stated that an immense landslide

had laid bare the sides of some of the mountains, and had thus exposed extensive beds of rich gold-bearing quartz, while new born lakes and mountain streams had made their appearance at points convenient for prosecuting the work of gold mining. It was very considerate of the god of the mountain to thus lay bare its wealth and provide the means for white men to obtain it at comparatively little trouble, at one grand swoop, but unless an earthquake can do something of this kind, of what use is it? The story smacks loudly of a real estate speculation and the methods adopted in the West for getting up town site booms. A little exploration and practical prospecting will be in order before it will do to place too much faith in these newly thrown up gold mines. At the best, the average man can make better wages sweeping the streets than in seeking his fortune in the gold mining regions.

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THERE was a decided rush of New Yorkers to Jersey City, Hoboken and adjacent cities on the other side of the water early last month, all because the authorities of this city decided that the law prohibiting the sale of liquor on Sunday should be rigidly enforced regardless of person. Sunday, May 8, was the first attempt to enforce the law, and, in accordance with advice received from counsel, every hotel and drinking saloon in the city was hermetically sealed. At the hotels the guests could not get either wine, spirits or beer for love or money, and the proprietors were not even permitted to give away their beverages. As a consequence, there was a rush of New Yorkers and of strangers within their gates to the more accommodating shores of New Jersey and Staten Island, where beer gardens open wide their portals to thirsty travelers. The Sunday law was never so thoroughly enforced in this city as on that occasion, and the liquor dealers in the adjoining cities never sold so much beverage in one day as they did then. The fact that regular guests at the hotels were not permitted to be served with even so much as a glass of claret with their dinners, did more to prejudice the public against the liquor law than anything else could have done. It was General Grant who said that the best way to secure the repeal of an obnoxious law was to enforce it, and this fact was never brought out more prominently than in this rigorous enforcement of the Sunday law. Efforts were at once set on foot to secure the amendment of the law, and it is possible that by the time this paragraph is printed the obnoxious features of the law will have been eliminated by the legislature. While this, possibly, has little to do with the jewelry trade, we allude to it as a matter of news, and also to enforce the remark we have made before, that it is impossible to make men temperate by sumptuary laws quite as much as it is to make them honest. Laws may be made for the punishment of dishonesty and intemperance, but no man was ever yet made honest or temperate by legislation. Sunday liquor selling promiscuously is unquestionably opposed to the public good, but restrictive legislation that goes to extremes in anything is equally bad. To exterminate an evil is a herculean task, while to keep it within reasonable bounds may be comparatively easy.

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SPEAKING of unreasonable legislation, the inter-State commerce law seems to have been a pretty fair example of this kind of legislation. For years practical railroad men have been striving to manage their business so as to give the public the greatest accommodation at the least possible cost. They have done this not because of their love for the dear public, but simply because it is policy to do so; to popularize their management is to bring money to their coffers. While there has been much to complain of in their management, competition can be relied upon in the long run to secure justice to the public. But Congress, whose members are utterly ignorant regarding the practical management of railroads stepped in, and by the passage of a single law seeks to do that which practical men have been laboring in vain for years to accomplish. Already the new law is found to work great hardships, not only to individuals but to whole communities, and consequently to the general public. The commission appointed to enforce the law has had but little time to do anything but consider protests against the enforcement of certain provisions of the law, and to applications from different localities for its suspension as regards them. The great objections refer, of course, to the transportation of freight, but the traveling public also finds the law full of hardships for them. The act that was promised should be a boon to shippers and travelers is found to impose new burdens upon them and to leave them in doubt as to their rights. The railroad managers, who seem desirous of complying with the law, are at a loss what to do, and to all their applications to the commission for information the answer is returned, substantially, "We cannot tell in advance what you may or may not do, go ahead, violate the law, lay yourself open to punishment, and then we will make a case against you and let the courts decide what the law does mean." One of the associations that has charge of the interests of traveling men, made application to the commission to know if it was not feasible for the railroads to issue thousand mile tickets to travelers at reduced rates, and the answer returned was to the effect that the railroads might do as they pleased, but if they violated the law they would be dealt with severely. So the new law has thrown the railroad business of the country into a chaotic state, and neither the managers nor the public can ascertain what it means. One of the curious effects of the law was found in the vast amount of work it made for the printers. It provides that all freight schedules and other information intended to be given to the public by the railroads shall be printed in type not smaller than pica, which is two sizes larger than the type in which this paragraph is printed. Heretofore these schedules have been printed in very small type, and now in their larger dress they become regular broadsides, some of them as large as circus posters. They are so large and awkward that the difficulty of reading them is greater than it was before. But it gave employment to all the printers in the country at high wages, for the work was pressing and much night work was required. Then there was not pica enough in the country to do the work, so the type founders have also been running night and day to supply the deficiency. It's an ill wind that blows nobody good, and if the general public suffers through the inter-State commerce law, the printers are making a good thing out of it.

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THE suggestion made by us some time ago that the jewelers in this city ought to organize a club down town, is likely to be carried out in part, although not in the Equitable Building, as we suggested. When that proposition came to be investigated it was found that the only rooms in the building available for club purposes were held at a rental of $17,000 a year, and it was not deemed feasible or advisable to proceed with that plan. But the ball having been put in motion, it took shape in the organization of a Jewelers' Exchange which will have accommodations in the Astor House. This hotel, which has been headquarters for jewelers for many years, is now being remodeled, and all that portion of it that has been rented for business offices is to be restored to the hotel proper, and in this portion of the building rooms are to be appropriated to the Jewelers' Exchange. Rooms are to be provided, properly equipped with every convenience for conducting correspondence and general business, and out-of-town jewelers will be invited to make their headquarters there when in the city. These rooms are being handsomely fitted up, and are expected to be ready by the first of July. The Exchange has been formally organized by the election of John W. Senior, of THE JEWELERS' CIRCULAR, as President; Walter Gardiner, Vice-President; J. J. Fogerty, Treasurer and Manager, while the Board of Directors consists of Charles A. Fowler, E. E. Kipling, Fred. I. Marcy, Ira Barrows, Chas. F. Irons, Stephen Albro, B. F. Crossin, N. B. Barton, Joshua Lothrop and C. E. Hancock. There is abundant opportunity for such an organization to make itself

exceedingly useful, especially in extending the hospitality of the trade to its customers from other cities.

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ELSEWHERE we print in this issue the full text of the new holiday law as passed by the legislature of this State. As it creates one or two new legal holidays and makes a half-holiday of every Saturday afternoon, it is important that every business man should understand its provisions, especially as regards obligation falling due on those days. The bill was carefully prepared, after consultation with the financial authorities of the city, and it is believed that its effects will impose no hardships upon any one. There has always been more or less looseness as to practices in regard to holidays, and it is a good thing to have them clearly defined. As to the Saturday half-holidays, it will not, probably, change existing customs to any great extent. No one is obliged to refrain from labor on that day, and business houses will, no doubt, regulate their practices in closing according to the nature of their business—in the busy season they will keep open all day as heretofore, and when it is dull they will close. The tendency, however, will be to secure a more general closing of business houses on Saturday afternoons during the hot weather than has been the case heretofore. For two years the jewelers have generally closed at one o'clock on Saturdays during July and August, and they would probably have continued to do so without the passage of any law to that effect. Other lines of business have not been able to follow this example because dealers were not all of one mind regarding it, and the new law will probably help them to unanimous action.

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THE Supreme Court of the District of Columbia has just rendered a decision, holding that the decision of the Supreme Court of the United States declaring the "drummers' tax laws" unconstitutional, applies to the District of Columbia, and consequently no further attempts will be made to collect this tax there from commercial travelers, nor will the licensed dealers of Washington be able to levy blackmail on them in future. An agent for a Baltimore firm recently refused to pay the tax, was arrested and imprisoned by the local authorities. He obtained a writ of habeas corpus, and, when the case came before Judge Merrick, he held that the act of the District of Columbia was in violation of the principle laid down by the Supreme Court, and discharged the prisoner from custody. This means that commercial travelers can do business in Washington hereafter without paying license, and without paying tribute to the licensed brokers in that city. There were several of these licensed brokers there who paid the tax to the District authorities, who were in the habit of permitting commercial travelers to sell goods under their license for a consideration. They thus made large sums each year, while the District of Columbia only realized from the tax $200 apiece for each of these licensed brokers. It is said that these brokers had formed a pool, and if a traveler came there and undertook to sell goods without paying tribute to one or another of them, they showed him no mercy, but railroaded him to jail or made him pay roundly to get out of their clutches. But there will be no more outrages of this character at the capital of the nation, but any one who chooses can sell goods there without danger of molestation. It will not be long before the same will be the case in every State in the Union, only it needs a plucky man or two to fight the "drummers'" tax wherever it still exists. We suggest that some one should make a test case of the Virginia statute, for down there they not only continue to collect the tax, in spite of the Supreme Court decision, but shamelessly declare that they intend to continue doing so until some one appeals to that court from the statute of the State. The sooner this is done the sooner Virginia will become free territory.

A CASE of interest to special partners was recently decided in the Superior Court of this city. James B. Colgate was sued by the Fifth Avenue Bank as a general partner in the firm of Humphrey & Co., which failed four years ago. Mr. Colgate claimed that the firm was a limited partnership, and that he, being a special partner, was not liable for the firm's debts. Judge Freedman held, however, that the limited partnership was not lawfully renewed, because the firm was insolvent at the time of the attempted renewal, and that, consequently, Mr. Colgate was liable as a general partner. In the jewelry trade there are a large number of persons who are special partners and suppose their liability to be limited, but from this decision it will be seen that special partners are liable to be held as general partners, and it therefore behooves them to have a thorough understanding of the condition of the business before they place their capital in a position where it is possible for it to become swallowed up on account of liabilities of which they know nothing. Ignorance of the actual facts does not excuse in the eyes of the law.

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THE proposition which has recently been submitted by this government to the authorities of Jamaica, is believed to be but an initiatory step that will eventually lead to the establishment of the postal parcel delivery system between the United States and all the Central and South American countries and the West Indies. The government of Jamaica has been active in promoting this idea, and hence the formal proposition is first made to her. It is believed that the formal adoption of the parcels post between the United States and these countries will tend to promote commercial intercourse between them, greatly to the advantage of our merchants. This government ought to go still further and guarantee the safe delivery of parcels it now permits to go through the mails. Packages weighing not exceeding four pounds are now permitted in the mails, but safe delivery is not guaranteed, nor, in case of loss is the government responsible for damages; the sender must take all the chances. Until the government insures safe delivery or payment of damages in case of loss, it cannot hope to compete with the express companies in the carrying of parcels.

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BY THE wreck of the steamship *Tasmania*, on the coast of Corsica, April 18, six boxes containing jewels valued at $200,000 went to the bottom. These were the property of the Maharajah of Jadhpore, who claims damages to this amount from the owners of the steamship. At the time of the wreck the captain and twenty-four others lost their lives, while 180 passengers were saved. Marine divers have since succeeded in locating the wreck, and it is more than likely that the freight, including the jewels, will be recovered. Persons traveling with jewels of so great value should have them specially insured, and not trust to the steamship owners being able or willing to pay for them in case they are lost.

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AS WE stated in the May number of THE CIRCULAR, the breaking up of the insurance compact in New York was followed by great reductions in the rates of insurance. The demoralization still continues, and there really seems to be no bottom to rates. The brokers have pretty much everything their own way, and have been quite busy during the past month going about among their customers, and taking up the policies they had secured for them under the compact for one year, and replacing them with policies in the same companies for three years without any additional premium. They do this in order to bind their customers to them, and to prevent their transferring their business to other brokers. This demoralization in rates is a good thing temporarily for the property owners, but in the end

cannot fail to impair the character of the indemnity offered by the companies. As it stands to-day the companies are getting lower rates and paying higher commissions than ever before, and if this practice is continued for any great length of time, some of the companies will go to the wall and possibly involve their policy holders in loss. Especially is this contingency to be apprehended regarding some of the smaller companies that do exclusively a local business, for they are putting too many eggs in one basket, and the basket is meeting with serious disasters at the present time. Last year the local companies could have made money at almost any rates, for the fire losses in the city were phenomenally low, but this year the "fire fiend" appears to be anxious to make up for lost time and is pouring in the losses thick and fast. New York has seldom had so many and such disastrous fires as have occurred since the beginning of the present year, and if there were not to be another one before the first of January the companies would not make themselves whole. It therefore behooves every property owner to overhaul his policies, and see that his broker has not imposed upon him policies in weak or precarious companies. When there is so much competition among companies as there is at present, brokers are apt to favor those that pay them the most liberal commissions, and it is the weak and struggling companies that are usually the most liberal in this respect. Brokers are but human, and, like the rest of humanity, they are looking after their own interests every time, and it requires the eye of the master to keep them within bounds at all times. So we say, overhaul your policies and satisfy yourselves that they are issued by strong, solvent companies. Better to pay a higher rate in a company that has abundant resources and a good reputation, than to wake up some morning and find your property burned and your insurance in companies that will resort to every possible trick to avoid payment, or possibly be unable to pay. It is unfortunate for the entire community when any important line of industry becomes so demoralized that the business is conducted without a reasonable profit, for it is better for all that everybody should receive fair compensation for his labor and the use of his capital, and when the many millions of dollars involved in the business of fire insurance are considered, it is especially unfortunate that bad practices and undue competition should impair the usefulness and stability of the companies.

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HOW dependent property owners are upon insurance has been pretty forcibly illustrated in New Hampshire during the past month. Two years ago, in spite of the protests of the companies, the legislature, to satisfy the vindictiveness of one member, passed what is known as the valued policy law, which compels the company, in case of loss, to pay the sum named in the policy, regardless of the actual value of the property at the time of its destruction. As a consequence, every insurance company doing business in that State, except one or two chartered by the State, cancelled its policies on New Hampshire properties and closed its agencies. Property owners were driven to their wits' ends to obtain insurance, and several important industries removed from the State because they could not obtain it. Several State companies with small capital were immediately organized, and New Hampshire undertook to do its own insurance business. Last month there was an epidemic of large fires in that State, and, in the course of a single week, property valued at over $1,000,000 was wiped out. Not one-half of it was insured, while the losses that fell upon the State companies was sufficient to consume all their assets and capital as well. As a result, the stockholders in them have got to put more money and the entire loss falls upon the citizens of New Hampshire, whether they were insured or not. But for the valued policy law, the loss would have been distributed between a hundred or more other State and foreign companies and none of them would have been seriously affected by it, while at present these heavy losses will be the ruin of more than one important industry. Public sentiment now demands the repeal of the obnoxious law, and the next session of the legislature will probably abolish it, but it cannot restore to the individual citizens the wealth they have lost.

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THE cool weather of the spring will tend to make the seaside and mountain summer hotel season shorter than usual. Instead of opening the summer resorts in May, many announced that they would not open till early in June, while others deferred their openings till July. As a matter of fact, New York is as fine a seaside resort as one can find except in the months of July and August, when the heat becomes oppressive, and no one is to be blamed for wanting to get away. But for the other ten months the weather is seldom oppressive, and the city offers more and better attractions to visitors than any other place in the country. If there comes an occasional hot day, it is a simple matter to reach half a dozen fashionable resorts either on the ocean shore or in the mountains, and return when the hot wave has passed. New Yorkers are beginning to learn that home has more comforts even during the warm weather of early spring than any of the over-praised watering places, and also that great numbers of business men and possible customers from other sections of the country have found out this fact, and time their visits so as to be here during the mild weather of May and June. The facility with which Long Branch, Coney Island, Rockaway and numerous attractive places can be reached from this city, forms quite an inducement to out-of-town buyers, who can combine business with pleasure by visiting the city at this season of the year.

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IN OUR May issue we alluded to the fact that Miss Catharine Wolfe had left some valuable paintings to the Metropolitan Museum, and also that Cornelius Vanderbilt had purchased some of the best works from the Stewart collection and given them to the Museum. More recently Judge Hilton and Mr. Russell, his son-in-law, have each made important contributions to the collection. Judge Hilton gave the famous Messionier, "1807," for which Mr. Stewart paid $40,000, while Mr. Russell gave other important pictures of noted artists. The contributions to the Museum have averaged a million dollars a month in value for a number of months, and it is rapidly becoming one of the most important public collections in existence. It can never expect to possess examples of some of the old masters for which some of the European galleries are famous, but, in addition to its remarkable collection of pictures, it is rich in other things which compensate, to a great extent, for the lack of old masters. A movement is now on foot to have the city museums open on Sundays for the benefit of workingmen, who cannot afford the time to visit them on week days. The managers of the American Museum of Natural History have submitted to the Board of Estimate a requisition for $15,000 a year additional appropriation, with which amount they say they can keep the museum open on Sundays. It is probable that this amount will be allowed, and the Sunday opening thus once begun it is likely to be followed by others, till it will be possible to visit all the public museums on this universal day of rest or recreation as well as on any other. It is claimed that this will tend greatly to develop art education among the workingmen, and also to inspire them with an ambition to excel in their own lines of industry.

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THERE is little doubt that this country will yet be found to be exceedingly rich in all kinds of precious stones. The States now noted for their gold and silver productions have been but imperfectly prospected, and their resources are not even suspected. Every little while some miner accidentally stumbles upon some gem, the value of which he does not realize, but because of its peculiar appearance he holds for some one to pass upon, and those who have the greatest familiarity with the geological formations of the country, predict that all kinds of precious stones will yet be found in quantities. We have recently seen specimens of rough diamonds and rubies that were picked up by miners in the West, and several jewelers in this city have experts on the alert to pick up whatever is found in this line, and to follow up all indications of such deposits. The government could well afford to encourage its geologists to prosecute this line of explorations, although experience has demonstrated that private enterprise usually accomplishes better results than any government prospectors in matters of this kind.

Fashions in Jewelry

A Lady's Rambles Among the Jewelers.

NEVER in the history of fashions in this country has there been a wider latitude given in matters of personal adornment than at the present time, and never have the manufacturers of jewelry produced a greater diversity of styles than now. The writer's rambles during the past month among both up-town and down-town houses have more than ever made apparent this fact. This great diversity of styles while calling for a larger expenditure of money and labor is not without invaluable benefits to both manufacturer and dealer. One important result already apparent is the impossibility of any but very extreme and *outre* goods going out of fashion. The breaking down of the narrow barriers that once existed in the matter of jewelry making has rendered it possible to introduce new things without in the least disturbing the popularity of the old favorites. A notable instance is that of the brooch and the lace pin, two very differing styles of ornament. The former is all the while growing in favor, and, so far as the writer of these notes can see, the latter is about as popular as ever. Between these two styles have come a number of attractive modifications in the way of the often described flower and insect pins, and the short bar pin with widened center, all of which are in fashion and consequently good selling articles.

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NUMBERED with beautiful brooches seen recently are all gold ones, with surfaces decorated with fine grain work. Coming to more expensive brooches is the miniature painting mounted sometimes in a gold setting, sometimes in a silver one, and often in a circlet of diamonds. Some are quite large in size while others are medium. There appears, quite a disposition among some manufacturers to utilize small stones, in brooches, by setting them in light filigree mountings.

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WHILE many of the brooches appear in round form there are many irregular in shape, and representing some such subject as a shell with a pearl on the surface, a leaf on which appears a lady-bug, or a single flower with a gem in the center. A new brooch seen was composed of three interlocking rings, the outer ones being finished in grain-work, while the inner one was in plain Roman. Another new form is one that represents the figure 8, having in each open space a small gem set so as to swing.

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SOME of the most expensive as well as the newest brooches are in such old forms as the star, and the star and crescent. Sometimes in the latter, the crescent is set with rows of small and graduated pearls while the star is of diamonds; again, both crescent and star are of diamonds, A unique crescent and star pin had a moonstone crescent elaborately carved and set round with brilliants; the star swinging therefrom being composed of diamonds.

FLOWER pins representing clusters of blossoms, single flowers with long gold stems, and a single blossom without a stem, remain as fashionable as ever. Apple blossoms in chased gold, clematis, primroses, pansies and orchids, enameled in the natural colors, are favorites at the present time. In some of the flower pins very pleasing effects are gained by a combination of various colored golds. Pearl flower pins, also diamond flower pins, in which the gems are set so as to show little or no gold, are largely worn and furnish a rich ornament at a small price compared with the cost of brooches mounted with large stones.

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A PARISIAN conceit for a brooch is represented by a diamond palm leaf in the center of which rests a dark hued amethyst carved in the form of a tiny infant. Another French brooch simulates an orange tree twig in gold, from which hang two oranges made of yellow sardonyx.

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COMING to the lace pins—Quite a number have been seen this month set with three large stones, the gold part being simply a knife edge bar. There is nothing new in this style but it may surprise many to know that any idea so old still pleases fashionable patrons. A new finish, by the way, has appeared on lace pins, also on earrings, and charms for queen chains. This finish is quite original in effect, and, comparatively speaking, inexpensive in cost. It is called the Egyptian and produces a rough surface quite decorative in effect.

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THERE appears no diminution in the favor with which insect pins are regarded; beetles and bugs, the devil's darning needle, humming birds, moths and butterflies, are all conspicuous models. Many of them with jeweled heads and eyes, while others have their bodies represented by large gems. The fly ornaments, which are fastened on by means of little gold prongs in place of the usual pin and catch, and previously described in THE CIRCULAR, are rapidly gaining recognition, being admirably adopted for evening wear. These ornaments have proven very successful, especially when thickly set with diamonds or other stones. The newest model employed in these are the American Eagle and the Peacock. One of the latter seen had its widely spread tail thickly set with stones, representing every hue in the rainbow. The effect was exceedingly gorgeous. Butterflies, have been made recently to serve as corsage-bouquet holders—the prong being large enough not only to fasten in the dress but to hold the flowers in place as well. The effect is that of a butterfly resting in a cluster of blossoms.

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ONE of the most popular ornaments worn to-day in the finer goods, is the pendant. No gem is considered too rare to set in this form. The star is a popular model in these pendants. Quite a new idea is the heart-shaped pendant, the outer edge of the heart being formed of diamonds while inside swings a diamond of larger size. Less expensive than the one just described but exceedingly effective, is a pendant, having for its center a heart-shaped moonstone set round with brilliants. Pendants, when set with exceedingly rare gems, are

often worn on a simple gold neck chain, which serves the practical purpose of holding the costly trinket in place without in the least detracting from the principal ornament. Pendants are also worn on gold chains set at intervals with diamonds; also from strings of pearls or gold beads.

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While very simple neck chains are much worn, magnificent necklaces are also in order. At the last queen's drawing room, if we may believe a London correspondent, Lady Lacon wore around her neck two ropes of pearls, at least as large as good size peas, and then below this, and falling far down on the bust was a wonderful diamond necklace with a pendant diamond fringe two inches in length. In addition to this remarkable neckwear her ladyship wore on the right side of her corsage a huge dragon fly, the body of which was a single pearl of enormous size, and between that and the middle of the corsage appeared two diamond stars. In the middle of the corsage was a diamond arrow, five inches in length, with a large crescent in the center. On the left side of the corsage was a huge emerald brooch surrounded by diamonds. Her train was fastened to the shoulder by a diamond and emerald star. Her earrings were screws as large as hazel nuts; on the right side of her hair was a magnificent jewel fly, and in the hair at the nape of the neck, was a magnificent diamond star. And Lady Lacon was only one of many much-be-jeweled dames present on that auspicious occasion.

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The moonstone, to everybody's surprise, continues in favor, especially in the finer qualities. Very beautiful effects are gained by artistic carvings on a stone of large size, and surrounding it by brilliants, for brooches or pendants. There are some indications, by the way, that amethysts, of choice colors, used in the same manner, will become fashionable again.

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Solitaire earrings are in as great demand as ever but by no means represent the only style in favor. Two stone earrings, as sapphire and diamond, or a ruby and diamond, are seen in the show cases of some of our best houses. Hoop earrings, composed of either brilliants or colored stones, are another favorite style. The twisted hoop, one-half of which is set with stones of one color, and the other half with stones of contrasting hue, afford yet another variation in gem earrings that finds favor. Little flower earrings, with and without a gem in the center continue popular, as do also the various modifications of the knot pattern.

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In connection with earrings, mention must be made of the several patented contrivances in this direction which are attracting attention from both dealers and patrons. Prominent among these is the invisible setting described last month. The loop earring, an arrangement consisting of a loop shaped wire attached to the back of the ring of the setting, produces, it is claimed, an easy, graceful motion to the pendant stone that shows off its brilliancy to the best advantage. A new ear wire, adapted to any earring or diamond setting, is yet another recent invention. For this is claimed ease of adjustment and easy removal, absolute security, and economy. These ear wires are made with both spring and screw fastenings, and are adapted to any style of earrings.

The jewelried hair pins introduced with fear and trembling, have grown steadily in favor, and the same is true of the plain gold and silver ones. Very pretty ones seen recently were about the size of the ordinary steel hair pin and of tortoise shell with tops of gold set with small gems. Another pretty style, also of tortoise shell is decorated with a comb-like top, one half of which is perforated tortoise shell while the other half is of gold filigree set with brilliants. An effective hair ornament is that of a cluster of feathers from which appear aigrettes of solid silver or gold.

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In finger rings, the shanks for the most part continue small, and in many cases, quite plain, though one sees occasionally a ring with double shank, one of which may be in rope pattern, while another is in plain circlet. The two stone ring, in which appears a diamond and colored gem, is fashionable, and is preferred by many to the cluster and marquise rings, though the two last mentioned are as popular at the present time as any dealer could wish. A beautiful ring seen was an opal of oval shape surrounded by three clustered rows of small diamonds. The most remarkable fact to be recorded concerning finger rings, is the freedom with which these ornaments are worn by men. The English style of rings in which the stones are sunk in the gold, lead in favor though other fashions prevail.

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In the making of cuff buttons there appears to be no end. These are out in links, and single buttons, in all styles of finish, with and without patent back. Very pretty ones seen showed the grain finish so popular just now on brooch and lace pins. Very beautiful lines of silver buttons are out for summer wear. Many of these are cross matches. These silver buttons deserve a big patronage, owing to their artistic designs and fine finish.

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Jewelers generally report good sales in cuff pins and the consequence is, that these useful little things are out in new and pleasing patterns. Their use is for the most part confined to children's wear and the pinning of lace in ladies' toilettes. In this connection it may be well to remark the increased use of studs for children's dresses, both boys and girls; the almost universal fashion of earrings for girls, and finger rings for both sexes. The turquoise remains a favorite stone forc hildren's wear, and garnets are also much employed for the same purpose.

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Silver jewelry is now regarded by every dealer who handles it, as well as the patrons who wear it as staple goods just the same as is gold jewelry. It has been proven beyond question that silver jewelry does not in the slightest affect the popularity of the gold ornaments. There is a place for each in every lady's toilet, the present style of dress affording opportunities for the wearing of silver trinkets when gold would be scarcely appropriate, and *vice versa*. The demand is unquestionably, however, for fine goods in silver; goods showing new and pleasing designs. Indeed, the demand in all directions is for finer goods.

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As has been told several times recently, watches for ladies are smaller in size and decorative in finish. The queen continues to he the popular watch chain. A new idea recently seen is, that of a gold

bell for a charm. The little gold vinagrettes, with and without gems, are another popular charm for these chains. If we may believe our Parisian correspondents fobs are coming in for men's wear; slowly but surely the mode adopted by our great-great-grandfathers is returning. Little by little the seal is appearing. While writing of old fashions it may be well to notice the fact that Sevigne brooches or jewel bows, in modernized form, are again coming in favor. The association of platinum and gold continues in chains for both ladies and men's wear, especially for the latter. The Egyptian finish already mentioned is quite effective on the balls and other pendants for queen chains. A unique charm for chain or bangle are enameled ones that simulate a half-open nut with the kernel peeping out; the hazel nut is a favorite model.

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THERE is nothing especially new to be said about bracelets. Every woman wears them and there are no limitations as regards the form, fashion or finish in which these ornaments shall appear. The knife edge bracelets set with one, three or more gems; the flexible bracelets, with and without gems; the broad band; the East Indian, the bangle, all find place not only in the dealer's show case, but in milady's jewel box. Curious little charms are worn sometimes on the narrow curb bracelets also on the bangles; charms, simulating speckled bird's eggs, little beans, tiny vinaigrettes and lockets.

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A FASHION article would hardly be complete now-a-days unless mention were made of the popular scarf pin, worn alke by men and women, and out in as great a variety of styles as are the ladies' neck pins. A feature, this season, are the jeweled scarf pins, worn by men, more ornate in style and large in size than before seen in some years. Jewel studs are also in order with the present fashion of low cut waistcoat and dress coat.

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FINE enameled jewelry is as fashionable as ever, and will continue in vogue just as as long as flower pins thrive. The white jewelry mentioned last month, as was then predicted, has found a ready sale.

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THE silver girdles described in the last issue of THE CIRCULAR are a feature in several show windows in uptown houses. As these are out in numerous array, it is safe to conclude they are finding favor in the eyes of New York ladies. To wear with these girdles, have been introduced shopping and traveling bags of monkey skin, velvet, also materials to match the dress. These bags show elaborate silver mountings and are employed by our ladies in their shopping expeditions. A little later on they will figure as a convenient and useful adjunct to the traveler's costume.

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THE CIRCULAR has preached for a long time the doctrine of a greater diversity of goods in the jeweler's and silversmith's stock. This preaching has not been without its results. Many out-of-town dealers have tried it and report success exceeding their greatest expectations. Articles found especially profitable have been those pertaining to the toilet, such as manicure sets, brushes, combs, shaving sets and the like. The result has been many beautiful goods in this direction. In illustration may be cited stained ivory backs and handles with silver trimmings. These goods must be seen to be appreciated; no pen and ink sketch can give an adequate idea of their attractiveness. Odd pieces, such as match boxes of unique pattern, vinaigrettes, pin cushions, silver-handled knives and the like are other profitable subjects for the jeweler's stock. A favorite form of vinaigrette is that of a little jug attached to a short chain ending with a swivel. Very odd are vinaigrettes in shape of old coins. Quite new are the glove vinaigrettes with perforated tops which admit of the salts being used without opening or removing the top. Silver-handled knives, in which are employed the best of steel for blades, are becoming quite a feature in our city stores, affording, as these do, an elegant little present at a comparatively moderate cost. These handles are variously decorated, some being etched, others engraved, while on others appear elaborate carving.

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LITTLE pocket pin cushions with plush edges and silver centers furnish another inexpensive article suitable for presents to men. The silver decorations in these take on a variety of shapes, some representing an owl's head, others a cat's head, while others again simulate a double shell between the edges of which appears the gay-colored cushion. Entirely new are the pretty little silver tubs or baskets, made just large enough to receive the pin roll; sold in every dry goods store.

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GOODS admirably adapted to the wants of the jewelry trade are artistic china, pottery, glassware, bronzes, and small articles in the baser metals. This statement is not made at random, but is the result of repeated interviews with importers and dealers of these goods who agree without a discordent voice in reporting a large increase of sales to jewelers in and out of town. Many of the out-of-town jewelers now carrying full lines in the way of decorative pottery and bric-à-brac began in a very small way, expending the first season for these goods, say $250, the next, $500, and so on. In every little town there reside at least a few persons of means with cultured tastes, who have, in the years gone by, purchased their decorative articles in the larger cities whenever opportunity afforded, and going without said articles often because these could not be found near at hand. This class of patrons have been found ready and willing to buy of their own townsmen whenever a really desirable collection has been placed in stock. This patronage has, in turn, induced custom for these same goods from that numerous class always ready to follow where the "big people" of the place lead; a class with some money, but little confidence in their own judgment in decorative matters. Articles suitable for presents on such occasions as weddings, birthdays, anniversaries and christenings, have proven especially acceptable with all classes of country customers.

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NUMBERED with ready selling goods, are fish sets in decorative china, and put up in handsome cases; also after-dinner coffees, in cases; ice cream sets, and the like. New fish sets seen recently, by the by, represented in their decoration the different American fish, one plate having one member of the finned tribe, while a second plate exhibited a good likeness of another, and so on through the entire fish family. These useful goods make a fine show at very reasonable cost, hence they have become favorites with many jewelers.

WHILE articles that combine utility with beauty will always be popular with the great majority, patrons of exclusive, fine goods in purely decorative subjects, such as vases, figures, groups and panels, are all the while increasing in numbers. In substantiation of this statement are the extended sales, reaching to towns of three or four thousand inhabitants, of such fine importations as the Gobelin ware, with its delicate tapestry effects of design and coloring; the artistic figures in old ivory ware and the vases with old ivory bodies and hand-painted decorations; decorative pieces in Vienna ware, in Royal Worcester, Crowa Derby and Doulton; ewers in antique silver, brass and bronze; delicate cameo glass ornaments, and fine old Vienna paintings on porcelain. But why continue the list? Enough has been said to show the strong reaction in favor of fine classes of goods for house decoration.

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FRENCH bronze figures are reported as being in especial demand. There is also an active trade in decorative lamps and in large, showy ewers. Among old things that continue to find favor are bisque figures and small objects in brass and antique silver.

ELSIE BEE.

*A Complete History of Watch and Clock Making in America.

[By CHAS. S. CROSSMAN.]

Continued from page 136.

Number Twelve.

ELGIN NATIONAL WATCH COMPANY.—THE TREMONT WATCH COMPANY.

MR. RAYMOND was the first President, and served as such until October 10, 1867, when Mr. T. M. Avery was elected, and has since filled this office and the management of the company has since been under his general supervision. Mr. Lawrence was elected Vice-President of the company at the time of its organization, and served as such until his death in December, 1871, when Mr. Culver was elected and filled the position until June, 1884. He was then succeeded by Mr. Jas. W. Scoville, the present Vice-President. Mr. Wheeler was Secretary from August, 1864, to January, 1868, when he was succeeded by Mr. Hiram Reynolds, who was followed by Mr. Geo. R. Noyes in January, 1877. After his death in July, 1879, Mr. Elisha Whitehead was elected and served until June, 1884, when he was succeeded by Mr. Wm. G. Prall, the present Secretary. During the twenty-three years almost of the existence of the company since its organization, August 27, 1864, the following gentlemen have served as directors, viz.: Benj. W. Raymond, 1864–78; Thomas M. Avery, 1866–84; Howard Z. Culver, 1864–87; Benj. F. Lawrence, 1865–71; Charles Fargo, 1878–87; Martin Kyerson, 1862–72; Matthew Laflin, 1868-87; Henry H. Taylor, 1867–75; Geo. M. Wheeler, 1864–67; Samuel T. Atwater, 1873–78; Philo Carpenter, 1864–66; Orlando Davidson, 1876–78; Thomas S. Dickinson, 1864–66; William H. Ferry, 1868–77; Walter L. Pease, 1871–76; Joseph T. Kyerson, 1865–83; Jas. W. Scoville, 1875–87; Morris C. Towne, 1878–87.

Of these eighteen gentlemen, five have been removed from the board by death, viz., Hon. Benj. F. Lawrence, Vice-President, died December 16, 1871; Henry H. Taylor, died November 9, 1875; Hon. Wm. H. Ferry, died March 26, 1886; Joseph T. Kyerson, died March 9, 1883; Hon. Benj. W. Raymond, the first President of the company, who was at one time elected Mayor of Chicago, upon retiring from active connection with the board in June, 1878, was elected an honorary director, and remained such until his death, April 5, 1883. The present officers and directors of the company are as follows: T. M. Avery, President; J. W. Scoville, Vice-President; Wm. G. Prall, Secretary. Directors, Messrs. Thos. M. Avery, Matthew Laflin, Matthew Ryerson, Jas. W. Scoville, Chas. Fargo, Morris C. Towne and Howard Z. Culver. As previously stated, Mr. Geo. Hunter has the general superintendence of the factory, assisted by Mr. Wm. H. Cloudman; Mr. Carlos W. Smith is chief clerk and manager of the hotel. As the business has developed and increased, sub-divisions of the work have been made and new departments have been added, so that at this time the working force of 2,300 employees are grouped into 18 departments with foremen as follows: Machine shop, Wm. F. Dean; foreman plate department, Hiram Thomas; escapement department, E. P. Gerry; balance department, E. F. Gooding; jeweling department, L. N. Jackson; motion department, F. H. Carthill; engraving department, A. F. Kelsey; gilding department, and including nickel finishing, Wm. S. Hewins; screw department, Frank Preston; stem wind department, W. C. Torry; press and hand making department, C. L. Young; flat steel department, A. F. Alden; dial department, Geo. Webb; mainspring department, C. J. Lehman; finishing "A" department, Wm. H. Black; finishing "B" department, John M. Moulton.

Mr. Frank Leman is the designer of machinery and draftsman. Mr. G. M. Wheeler, who besides holding the position of first Secretary of the company, also acted as General Business Manager in the factory until Mr. Geo. P. Lord was appointed to the position. He remained there as business manager until 1876. Early in that year Mr. Thomas Baxter came into the company's Chicago office, and he was afterwards appointed general manager of both the office and the factory. He was a man of good executive ability and did much to promote the welfare of the company. It was during his management that the company made their great reduction of sixty to seventy per cent. in the prices of their movements. This was done in order to more successfully compete with Swiss watches. From the date of this reduction new life seemed to be given to the company and they made a rapid stride forward, the home demand for their watches becoming so great that they decided it was best to discontinue the English trade as already noted.

Mr. Baxter retired from the company in 1879, and Mr. Avery, the President, assumed the general business management. The general office has always been in Chicago and at present is located at 76 Monroe street. Mr. D. W. Whittle, familiarly known as Major Whittle, the evangelist, was the first general selling agent, being appointed in 1875, but retired after Mr. Baxter came with the company. John M. Cutter is the present general agent, to which position he was appointed in 1883.

The New York office was opened in 1869, with W. F. Wilder as agent, at No. 1 Maiden Lane. He afterwards opened the London office in 1874, being succeeded in the New York office by Mr. L. L. Woolley, who retained the position until May 1, 1885, when, in consequence of failing health, he resigned, and was succeeded by Mr. E. J. Scofield, the present agent. Mr. Woolley subsequently went to Baltimore to reside, hoping to regain his health, but died there in September, 1885. He was a valuable man for the company, but a successor has been found in the person of Mr. Scofield who possesses those qualifications so necessary to a successful business man. The New York office was removed to 22 John street, its present location, in 1878.

A fact worth considering is that no officer or director of the Elgin Company since its organization had ever had any previous experience in the watch manufacturing business. Consequently it must be conceded that the great success of the Elgin Company is largely due to careful management on their part, and especially to those holding the office of President, both past and present, under whose guiding hand the business is, to a great extent, conducted; also the extreme care and judgment on the part of those having in charge the various mechanical departments. The production of movements has steadily

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increased from the start. On June 1, 1886, the company were manufacturing 1,200 movements per day. To provide in part for the accommodation of its 2,300 employees, the company has erected a large boarding house with comfortable rooms to accommodate 400 persons, warmed by steam and lighted with gas, manufactured by the company, with a dining room where 500 persons can be seated and served at the same time. Adjoining are large double parlors furnished with pictures, musical instruments, a good library and the current papers and magazines of the day for the use of the boarders. The company has also built on a piece of land purchased for that purpose, a number of cottages for the accommodation of its operatives. The quality of the surface water in this locality proving ruinous to steam boilers, an artesian well was sunk by the company in 1881 to a depth of 2,026 feet where a vein of comparatively pure soft water was struck, flowing at the surface line two hundred gallons per minute. This water is pumped to an elevation of 75 feet into a distributing reservoir of 80,000 gallons capacity, situated 1,200 feet east of the works. From there an ample supply is distributed suitable for every requirement of the factory and hotel. All these improvements are the property of the company, and, with dwellings erected by some of the employees contiguous, form a thriving village in itself. The Chicago and Northwestern, and Chicago, Milwaukee and St. Paul R. R. Companies have erected depots close by the factory buildings, which give the company and its employees easy and frequent communication with the great center of Western trade. Female help constituted about forty per cent. of the whole force. They have never looked to Europe for operatives, although many foreign workmen have been hired through letters of recommendation. The company pride themselves on the fact that they were the first watch company in America that ever paid a dividend to its original stockholders. The record speaks for itself. The Elgin Company is distinctly a Western institution, and stands to-day a worthy monument of Western enterprise.

THE TREMONT WATCH COMPANY.

In the year 1864, Mr. A. L. Dennison, who had previously been superintendent of the Waltham Watch Company, and Mr. A. O. Bigelow, of the firm of Messrs. Bigelow, Kennard & Co., of Boston, talked over the matter of starting a watch company. They thought if they could succeed in putting a good movement on the market at a reasonable price there would be a ready sale, as the Waltham watches were then meeting with great success, and the company did not seem able to supply the great demand for good American watches which had been largely increased during the war which was not quite ended then.

The price of skilled labor, however, was very high, and Mr. Dennison thought, that rather than going to the expense of fitting up a full fledged watch factory, and having the necessary skilled workmen, and operatives, they could as well make some parts of the movements complete in Switzerland, to a given standard, under the supervision of a competent man, and thus save a large percentage of cost. The remaining parts could be made and the watch set up in America, and still have it an American watch. In this way they could get their movements on the market in a shorter time and at less expense, than if they tried to turn out every part in this country. At the same time they agreed no sacrifice would need to be made in the matter of workmanship, and, if at the close of the war, the price of labor should decrease, then they might, with advantage to themselves, build and equip a factory for supplying the parts which should temporarily be made abroad.

On this basis a stock company, composed of ten gentlemen, was formed in the Spring of 1864, called the Tremont Watch Company, with a capital of $100,000, with $50,000 paid in, that amount being deemed sufficient for the manufacture of the movement in the way we have just spoken of.

The company was managed by a board of trustees. Mr. A. O. Bigelow was elected treasurer and business manager, and Mr. A. L. Dennison, superintendent. The company's headquarters were in Boston, at the corner of Washington and Franklin streets, where two rooms were fitted up for their use. The machine shop was located on Hanover street, with Mr. Charles P. Crafts as foreman. Although their arrangements for manufacturing the movements were deemed but temporary, they wanted their goods to be sound and reliable, and nothing like the cheap foreign watches which had flooded the country during the war. It was decided, therefore, to make the barrels and plates at home on the American interchangeable plan, as that would ensure soundness and reliability. Enough tools and machinery were made to manufacture the plates and barrels, and work was commenced. Mr. D. B. Bingham acted as superintendent in the absence of Mr. Dennison, who had gone to Switzerland. Mr. John Polsey, formerly with Messrs. Howard & Davis, was the first foreman of the plate room, and Mr. Chas. Byam was foreman of the flat steel department.

Mr. Osmore Jenkins, of Boston, was master watchmaker, and Mr. Daniel F. Leary was foreman of the jeweling department. Dials were first made by Messrs. Gold & Spear, but afterwards by Messrs. Hull & Carpenter, who were afterwards at the United States factory. Mr. A. Brush was gilder and pattern maker. While the company were making their part of the watch in Boston, Mr. Dennison had gone to Berne, Switzerland, taking with him a Swiss watchmaker from Boston, named Godfried, who acted in the double capacity of assistant and interpreter. Mr. Dennison remained in Berne a short time and then removed to Zurich, resolving to make that his future headquarters for the collection and finishing of material, most of which he obtained in that locality. Here he had a shop and he set to work to finish 600 sets of trains, escapements and balances per month. The plan was not considered practicable by the Swiss watchmakers, but Mr. Dennison soon demonstrated the practicability of the undertaking, and was able now to supply trains and escapements much faster than the company at home could turn out the other parts. He employed several men in pivoting the pinions and making and matching the escapements. Expansion balances were used. He tried the greater part of the balances himself, and staked on the rollers with roller jewels already set.

The first movements were ready for market in about twelve months from the time they commenced operations, this being a shorter road to actual production than most companies have had; they were 18 size, key wind, full jeweled movements, and were engraved "Tremont Watch Co., Boston, Mass." They gave good satisfaction, and were probably as good as any in the market at that time for the price. The business was seemingly prosperous, and the company, apparently thinking the prosperity which the war had brought with it had come to stay, decided, in 1866, to remove to Melrose, a suburb of Boston (where two of the stockholders owned some property), and there to establish and equip a factory to make the complete movements and thus concentrate their business, which was, in fact, somewhat scattered. The factory at Melrose was a frame building, on the corner of Main and Tremont streets, which had previously been damaged somewhat by fire, but was now altered to suit the purpose of the company. It was 50x100 feet, and two stories high.

Once settled in their new building, they commenced to make machinery for the manufacture of the watch complete. The removal to Melrose, and consequent change in the business tactics of the company, was done against the wishes of Mr. Dennison, and caused him much anxiety. He soon after withdrew as a member of the company, and furnished what further material they needed by contract.

Another eighteen size movement which was plain jeweled was gotten out as soon as the company commenced making their own trains and escapements in Melrose. This was engraved, "Melrose Watch Co., Melrose Mass."

A three-quarter plate movement was commenced, but abandoned, as the company soon found they had reckoned without their host.

The fifty thousand dollars paid in was used up and more too; a call was made for the other fifty thousand dollars allowed by the charter, but the stockholders failed to respond and the factory was closed in 1868.

It could not be said the company failed for they had not allowed themselves to accumulate any liabilities; they simply spent a certain amount of money and stopped. They showed their good sense. They were not practical watch manufacturers, and, from a commercial standpoint, they did not see "millions in it," as some with more sanguine faith in the great future of the Horological Industry in America have seen. It is a noteworthy fact, however, that in several instances the "millions" staid in even where large amounts of capital were put in, although most desperate and prolonged struggles were made to get them out, but each must have experience for themselves and not all could profit by the example of the gentlemen composing the Tremont Watch Company.

But in this moralizing we are diverging from the subject. At the time the factory was closed word was sent to Mr. Dennison asking him to try and effect the sale of their plant in Switzerland, but in this he did not succeed. He remained in Switzerland, however, until 1870, meantime forming a company which would probably have purchased the American plant had they not been obliged to abandon the project owing to the political agitation which was taking place in Switzerland at that time. After Mr. Dennison returned to Boston he endeavored to revive the Tremont company but did not find sufficient vitality left to resuscitate. He also endeavored to organize a new company to take the old plant but soon found this could not be done, and, after a stay of some five months in America, he went to Birmingham, England, where he now resides. Here he effected a sale of the machinery which was set up and started by an English company, under the name of the Anglo-American Watch Company.

They subsequently changed the name to the "English Watch Company," under which name it still exists. Mr. Dennison, however, is not connected with it, but is engaged in the manufacture of watch cases in Birmingham. One change in the Tremont company which has not been noted was that at the time of removal to Melrose, Mr. Bigelow resigned as treasurer of the company, and Mr. Edward S. Philbrick, an architect of Boston, was elected in his place, which office he held during the remainder of the company's existence. As has been already said they did not fail, they simply stopped after having spent their money and made a few thousand watches. The machinery was sold to the foreign company, they divided the proceeds of the sale and retired from the watchmaking arena. While the plan of making watches on two sides of the Atlantic was at first a seeming success it finally resulted somewhat disastrously to the financial welfare of those interested.

The Importance of the Proportions of a Watch Balance.

BY H. REINECKE.

ABOUT thirty-five years ago fusee watches had the lead in this country. Adjusting watches to heat, cold and position was hardly known and not appreciated, because the public had not been educated. A Charles Frodsham watch was the *ne plus ultra*. The only watch not having a fusee and which began to assert itself about this time, was the watch made by Jules Jurgensen, of Locle, Suisse. Of all the Swiss watches I had seen before the advent of this one or which I have seen since, none would hold its rate for years as well as this one, though during the twenty-four hours' running it did not equal the fusee watch for regularity, but it would always show an error during the last two hours of its running or before being re-wound. Gradually the competition between fusee watches and going barrel watches became intensified. Finally it was established to the satisfaction of the two parties in this country, who took opposite views in the matter, that it was possible to make a watch with a going barrel which would run with the same regularity as a fusee watch, and the fact was clearly established that it could be accomplished by proportioning the momentum of the balance to the motive power in such a manner, that, should the vibration of the balance be disturbed by local or external influences, the motive power stood in such proportion to the momentum of the balance and the escapement, that they would not disturb the regularity of the time keeping, or, in other words, that the time lost in the motion of the balance in unlocking the escapement, was recovered by the accelerating effect of the impulse, no matter what the extent of the vibration might be. Heretofore the large sized English fusee watches usually carried balances weighing as much as 16 grains, while the weight of the balances in our best American going barrel watches is probably between 8 and 9 grains. But it is not the weight of the balance only which is our guide, but it is the *momentum* of the balance with which we have to deal.

A balance measuring 1 inch in diameter, controled by a balance spring which brings it to time, would have to be four times as heavy if it were only ½ inch in diameter, if it were to be controlled by the same balance spring as the former, being 1 inch in diameter. But why?

Because the rim of the small balance is only half the distance from the center, and any given point in the rim would have only half the distance to travel for an equal angular motion with the large balance. But the smaller balance would have double the momentum of the large balance, because momentum is weight multiplied by velocity, and if we multiply the weight of the small balance, which is four times as great as that of the large balance, by the velocity, which is one-half of the large balance, we have a momentum twice as great,

or, 1 inch × 16 grs. = 16.
½ " × 64 grs. = 32.

Here, then, we have the power to regulate the momentum of the balance and make it suitable to any watch, and here, also, we have the power to make the momentum suitable to any motive power and to make a watch run uniform, no matter how much the extent of vibration may vary.

If this is true, can we wonder how some watches, even with isochronized hair springs, run so much poorer than some others. The whole trouble in such cases lies in the badly proportioned balances, if the escapement and everything else has been attended to. Long and short forks, lockings and impulse angles, pivots, etc., all are factors in the problem,

Next: As I understand it, the prevalent and accepted theory is, that the balance spring must always be made to suit the balance for isochronism. But we can also so change the momentum of the balance, as to produce isochronism without ever changing the spring one particle. Small and heavy balances have a greater tendency to go fast in the short vibrations, while large and light balances (both being to time with the same balance spring) have a tendency to go fast on short motions, and all this is owing to a different development of the momentum between the two. The small and heavy balance develops its momentum faster and overcomes the resistance of the balance spring easier on the long vibrations, and causes a watch to go slow on the long vibrations. The larger and lighter balance develops its momentum slower; in fact, it can never develop the same amount of momentum under any condition as the small balance, because the proportion between the arm and the rim show a less pronounced difference.

A similar theory applies to watches having slow and quick trains. The slower the vibrations of a watch the less control has the balance spring over the balance, if the latter is of the same proportion as the balance of a quick beat train, and the development of the momentum of the balance in a slow beat train is proportionately faster than the development of the force of the balance spring, the latter being, by the very force of circumstances, weaker and incapable of developing the same force as the balance spring in the quick beat train. The effect on the isochronous condition of the balance springs of the two becomes at once apparent.

Non-Magnetic Watches.

An Address made to the Society of Horology of Geneva, Switzerland, by Mr. Ed. Sordet, Director of the Geneva School of Horology.

UR colleague and friend, Mr. Paillard, has begged me to take his place here, and if I have accepted that honorable task it is certainly not without scruple or without fear. Indeed, the importance of the subject that I have to treat, the influence that there will be in the near future on horology of precision, the numerous obstacles that Mr. Paillard has had to overcome before reaching the wished for end, the researches and studies of a scientific nature to which he has been obliged to devote himself before being able to clear the work in which he has so courageously engaged himself, and finally the insufficiency of my knowledge on such matters, all of which made me consider it my duty to leave to him the honor of submitting to you himself the splendid results due to his energy, his researches and his perseverance.

If, at the wish of Messrs. Paillard & Crusaz, I have accepted this task it is because, on one side, I could not count upon their complete assistance to initiate me into the mysteries of their discovery and of their manner of manufacture, and on the other side I was assured of all your kind sympathy and of the welcome reserved for my communication.

PHENOMENA OF MAGNETISM.

Before speaking of the splendid discovery which is the principal object of my communication, you will permit me, gentlemen, to pass rapidly in review of the physical phenomena resulting or possible to result in machines for measuring time, from magnetic influence, slightly accentuated. (It is well understood that we leave aside the apparatus having the same object, but of which the organs are refractory to magnetism.)

There are now hardly two years since our honored and regretted colleague, Professor Wartmann told us in this same hall in his eloquent and clear manner that magnetism existed everywhere in nature in the natural state. This state in certain cases can be modified and presents then different physical phenomena of a most interesting kind, but of which we have only to speak here to examine those which touch the subject which is occupying our attention.

If we submit to the influence of a rather powerful magnet a piece of steel from a watch movement the neutral state ceases immediately and the magnetism of the said piece becomes instantaneous. One observes this new state by proving the presence of the two poles by means of a magnetized needle, light and very sensible. This magnetism can be produced in a great number of ways, also one can say, without fear of making much error, that in nearly all watches and in particular complicated watches one can prove with very delicate instruments its presence in one or the other of the steel organs. The facility with which magnetism is caused being very great, and the causes which determine it increase every day. It is very easy to understand the value of the discovery of Mr. Paillard and the importance which it represents for the maintenance of the regulation of chronometers and of high class watches.

One can certainly remark that in a watch it necessitates a considerable amount of magnetism to cause the watch to stop, which is a case that rarely happens, but this phenomena happening very often under conditions which are much more restrained do not suffice it is true to paralyze entirely the movement, but it suffices to cause a complete disarrangement in the regulation.

I must remark here that the presence of magnetism can be always easily proved. It is only necessary that any part of this piece attracts one of the points of a compass and repulses the other; if it produces the attractions at both the points then there is no trace of magnetism. The spirals in palladium have already, in a certain measure, obviated the evil; again ought we to testify to their inventor, Mr. Paillard, all our recognition for this first and precious discovery. Certainly, gentlemen, you will permit me, I trust, to manifest my opinion and to testify my regrets, that here in our little Switzerland an invention so important, which has cost both years of hard work and great sacrifices to its author, cannot be placed under any shelter from imitation, in other words cannot be patented. Everywhere in the dominion of industry, of arts, of the sciences and of literature, we see inventions and discoveries and different works all protected by the law during a certain period and this protection permits generally to those to whom one owes it to receive the just recompense due to their talents and to their work and to their sacrifices and often considerable that their researches have cost them. Hoping that our own country will awaken also to the mission of the actual requirements and will thus give a powerful encouragement to national researches and discoveries. Well understood that the habitual causes of variation of a well manufactured watch are known, it is none the less a good thing to remember here those to which Mr. Paillard has given himself up and which have caused the nature of his researches. A watch provided with a non-compensating balance loses from 10 to 11 seconds in twenty-four hours by an increase of heat of one degree centigrade. This phenomena is due, for the most part, to the loss of elasticity of the spiral, and to correct this considerable difference the compensating balance has been invented.

If the regulating organ, that is to say the balance united to the spiral, could be in its turn badly impressionized by accidental causes, but which none the less happen very often, it is clear that the regulation and the going of the watch will suffer in proportion as the regulation is more or less carefully done.

These accidental causes are, on one side, the wheel the great destructor of all the delicate parts of those little machines called watches, and on the other side magnetism with all its pernicious consequences.

I will not enlarge, gentlemen, on the effect produced upon the going of a watch by the fact of the rusting of the spiral, as equally as well as myself you are aware that it is particularly hurtful, and that to destroy it it is necessary to make the cause disappear, that is to say, change the spiral.

Besides, the invention of the palladium spiral has happily come to suppress the possibility of rust to that very important part of the regulating organ.

Let us see now the different characters resulting from magnetism, and let us examine the various effects that it can produce, not only upon the regulation, but upon even the vibration of the balance. The causes for watches are of two natures, as follows:

1st.—By contact, that is to say, in handling with magnetic tools the steel pieces of a movement one determines the formation of the poles, of which I have spoken above, and one creates this a more or less active cause of variations.

2d.—By influence, that is to say, by the approach of a fixed or artificial magnet. For horology magnetism by contact does not present a sufficient character of gravity to cause a lever watch to stop, especially if it is only produced by the workmen touching the pieces with the tool which he uses. Generally these last when they are affected with this complaint have not sufficient power to enable them to produce an effect capable of provoking stoppage. However, in handling a "dard" (little factor of the escapement lever) or the little escapement role with magnetized pincers, it is possible to determine a magnetic effect sufficiently strong to diminish in a visible manner, the energy of the vibration. It is useless to add that in a watch provided with a cylinder escapement, a feeble magnetism of the two movers (cylinder and wheel) suffices to prevent completely the going of the watch.

Since a long period without doubt the inconveniences of this phenomena have been observed by watchmakers of all countries, but as it has been easy for careful workmen to avoid them, affairs would probably have remained in that state if the progress accomplished in the domain of science had not made electricity a new and powerful agent of dynamic force

I must remark here that the fixed magnet is always made in steel and may be either a straight bar of a certain length, or in the form of a horseshoe. The watchmaker who possesses an instrument of this kind ought always to take care to keep it in a place where its presence will not be felt and to unite the two poles by a conductor of certain dimensions. In causing an eclectric current to pass into a piece of soft iron an artificial magnet is obtained which loses its property when the current ceases. It is upon this law that all the industrial applications obtained with dynamo-electric machines are based. The electric magnet that the school of horology possesses is actionized by a current coming from the three elements of bichromate ; it can easily carry one hundred kilogrammes, and when it is in action it is necessary to take great care not to approach it with a watch in the pocket. I can say also as much for the little Gramme machine that we possess for experiences and for projections, as its influence is much more considerable.

It is easy to see, by what I have just said, the effect that is caused upon the steel organs of a watch by these powerful electric engines, applied now-a-days in certain branches of industry, and it is easy to understand all the importance of the discovery of Mr. Paillard.

In fact, the magnetic influence can, according to the force of the machine, make itself felt at a great distance, as the accidents occasioned to chronometers by the fact of this influence, have, during the last few years, taken proportions really disturbing. Besides, it has been well understood, all the dangers that such a state of things present, that immediately from all parts have come machines and apparatus more or less well invented to demagnetize watches. It has been even thought possible to put them under the shelter of magnetic fluid by enveloping in a sort of armor in soft iron which would be able to preserve them perhaps from a slight influence, but would have no effect when it became a question of a powerful current. I could speak to you much longer upon the different subjects that I have just glanced over, and in particular could communicate to you the result of experiences that I have made upon numerous magnetized watches, and also, gentlemen, of the studies of which I have since some considerable time applied myself in finding a formula that can be applied in a prompt and sure manner to demagnetize a piece of any kind belonging to a watch. But time presses and I am in haste to arrive at the subject which is the real object of this communication.

NON-MAGNETIC BALANCES AND SPIRALS.

Since more than ten years the idea of using palladium for the manufacture of spirals has been in Mr. C. Paillard's possession.

This metal makes part of the second series of metals classed with platinum; its thickness is about one-half that of this latter, and its dilating powers almost equal to that of steel. As rhodium and rhutium, it is very difficult to melt in its natural state, and besides it possesses neither elasticity nor hardness.

It is then, as also for a great number of other metals by alloys, that Mr. Paillard has arrived at his result. You understand, gentlemen, that it is not for me to divulge here the processes and the secrets that the inventor has been good enough to communicate to me. All that I am able to say is, that it was necessary for him to make a considerable number of experiments, and to have a very determined will to enable him to vanquish the innumerable difficulties that he met at each moment.

To day, when palladium spirals have proved their value, it is superfluous to praise their efficacy; also I shall limit myself in recalling to you that their value has been proved in such a manner, that it is impossible to refuse, and their going verified officially in different observations in a large number of watches, and in marine chronometers.

By the invention of these spirals and their practical application to civil horology as also to the high class chronometery, Mr. Paillard has rendered an immense service, and I think that it belongs to the Society of Horology of Geneva, to demonstrate to him once more all their appreciation.

The inventor could have, perhaps, remained there, but with the energy and perseverance that distinguishes him, and understanding besides that his work was not perfect, he valiantly put himself once more to the work of endeavoring to render the balance also entirely opposed to magnetic influence of any force. Here, gentlemen, was a period of costly experiments, troublesome and often discouraging It was necessary to give to palladium the wished for resistance and fixity, so that the balance, when once finished, would present all the conditions of rigidity and strength required for a good regulation. It was necessary also that the work of execution was rendered possible and the solidity of the bi-metalic plate quite proved.

It was during this troublesome period that Mr. Paillard has been so well seconded by Mr. Crusaz, whose good will and experience has never been at fault.

It is necessary, gentlemen, to have assistance, as I have been able to do myself, at this struggle of the will and of the human intelligence against what are in appearance insurmountable objects, and to be able to understand all the extension of this work accomplished in, relatively speaking, so short a time.

The work is to-day perfect and the labor in all its completeness; the proofs have given all the most desirable results, and one can affirm that this magnificent invention has been able to take the rank to which it has the right.

The numerous essays which I have myself contributed in the past, have all conformed the theoric calculations which procceded the execution, they have been made with a scrupulous exactitude and the bulletins obtained at the Observatory with watches possessing spirals and balances in palladium have confirmed in a most striking manner all the calculations and all the experiments of Mr. Paillard.

We know in a most certain fashion that on the point of view of compensation, as also that of the inflexibility and of the homogeneousness of the plates, this new balance is equal to those in steel, and does not present any more than these serious difficulties against a perfect execution.

Let us now see how it behaves itself in the face of the energy it ought to combat, and let us compare the experiments made under the two forms

A lever watch provided with a compensating balance in steel will be immediately impressionized in its going by the approach of a fixed magnet. If the magnetic influence is feeble the apparent going of the watch will not be much effected, but the regulation will no longer exist and the watch will go anyhow. If we replace the fixed magnet with an electric magnet, slightly powerful, the effect will be as much more dangerous as the instrument is more powerful, and lastly if we pass by the side of a dynamo-electric machine in action, the magnetic power will exercise itself with such influence that the keys that you might have with you, your penknife, and even your glasses, will become veritable magnets. One can easily understand the effect produced on the steel organs of a watch by the presence of so energetic a fluid which could, if one pushed the experiments a little further, momentarily paralyze the force of the mainspring itself.

These different experiments have been made at the school of horology and they are sufficiently conclusive, so that I need not urge upon you the lessons that they give and the information they contain.

With the balance and spiral both in palladium one can have with impunity the most considerable magnetic influence, since this metal is entirely opposed to magnetism. This is the result that has been so superabundantly proved by the experiments of which I have just spoken, and have been repeated on watches provided with the new regulating organ.

The most interesting that have been made were those which consisted of changing the balances and spirals of watches strongly magnetized, and by replacing them with regulating organs in palladium. These watches, after the operation, have commenced going in a perfectly regular manner, notwithstanding the presence of all the little magnets still surrounding the balance.

I believe I am right in saying that Mr. Paillard pursues his works

to arrive at introducing in a watch movement a new element of preservation, to fill a want actually existing, not in the regulating organ nor in the escapment, but nevertheless in an important part of the watch movement. If, as it is probable, he succeeds it will be a new and legitimate success to register to him.

I have been obliged, gentlemen, to observe a certain reserve in the communication that I have just made to you and I have avoided giving here explications of too precise a character, likely to be prejudicial to Mr. Paillard's interests. The fate reserved for the new balances would perhaps have been, had I done otherwise, the same as that which has happened to the spirals in palladium, which has been, as you are without doubt convinced, a very poor recompense for all the trouble and sacrifices that this important invention has cost.

I hope, gentlemen, that, to terminate, you will all join with me in congratulating Mr. Paillard on the success due to his perseverance, to his researches, both practical and scientific, and lastly to the sacrifices which he has imposed upon himself to arrive at the desired result.

I am aware that all human work is improvable and perhaps some day one will arrive at something better, but in the meantime let us be both happy and proud to see this new and brilliant progress have for its author a child of the Geneva school of manufacture.

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., near U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of April 12, 1887.

360,955—Clock, Advertising. B. F. Feldman and W. H. Reese, Jr., Franklin, Pa.

360,903—Clock, Electric Pendulum. A. L. Parcelle, New York, N. Y.

360,888—Clock Repeating Mechanism. E. V. Judd, Hartford, Conn.

361,084—Jewelers' Rolls for Enlarging Rings. J. C. Rocheleau, Worcester, Mass.

361,168—Watch Case. A. Lorsch, New York, N. Y.

Issue of April 19, 1887.

361,511—Clock and Alarm, Combined. A. B. Harford, East Saginaw, Mich.

361,569—Jewelry. J. Petit, Bordeaux, France.

361,311—Watch Dust Band. D. Gruen, Columbus, Ohio.

361,627—Watch Key. G. Hoffmann, Lebanon, Ill.

361,665—Watch Key and Chain Bar, Combined. S. L. Swasey, Newbury, Vt.

361,658—Watch, Stem Winding and Setting. P. H. Wheeler and H. Barbier, Assignors to Columbus Watch Co., Columbus, Ohio.

361,597—Watches, Pendant Stem for. H. Rohrdantz, River Head, N. Y.

Issue of April 26, 1887.

361,837—Clock Winding Mechanism. A. Robinson, Brooklyn, N. Y.

361,769—Ear Ring. A. Luthy, New York, N. Y.

361,946—Watch Arbor and Pivot. G. S. Heath and A. F. Champlin, Hartford, Conn.

361,752—Watch Case Spring. N. J. Felix, New York, N. Y.

361,850—Watches, Regulator Pin for. A. Van Strait, Sidney, N. Y.

Issue of May 3, 1887.

362,150—Clock, Night. C. C. Adams, Brooklyn, N. Y.

362,462—Clock System. P. G. Puttemans, Brooklyn, N. Y.

The Jewelers' Security Alliance.

President, DAVID C. DODD, JR.

First Vice-President, AUGUSTUS K. SLOAN.....Of Carter, Sloan & Co.
Second Vice-President, HENRY HAYES.....Of Wheeler, Parsons & Hayes.
Third Vice-President, DAVID UNTERMEYER.....Of Keller & Untermeyer.
Treasurer, W. C. KIMBALL.....Of Scruggs & Boulter.
Secretary, C. C. CHAMPENOIS.....Of Champenois & Co.

EXECUTIVE COMMITTEE.

J. B. BOWDEN, *Chairman*.....Of J. B. Bowden & Co.
C. G. ALFORD.....Of C. G. Alford & Co.
GEO. W. FARR.....With Howard & Son.
F. KROEBER.....Of F. Kroeber Clock Co.
N. H. WHITE.....Of N. H. White.
CHAS. G. LEWIS.....Of Randel, Baremore & Billings.

EXAMINING FINANCE COMMITTEE.

GEO. H. HODENPYL.....Of Hodenpyl & Sons.
CHAS. F. WOOD.....Of Chas. F. Wood.

Counsel, HON. ALGERNON S. SULLIVAN.

For further information, Application Blanks for Membership, By-Laws, etc., Address 170 Broadway, New York. P. O. Box 3917.

The fourth annual meeting of the Jewelers' Security Alliance was held at 170 Broadway, on May 3, at 3 P. M.

The meeting was called to order by President Dodd.

The minutes of the last annual meeting were read, and, on motion, approved.

The yearly report of the Treasurer was rendered, and, on motion, ordered to be placed on file and spread in full on the minutes.

The report of the Auditing Committee was received, and, on motion, accepted, and ordered to be placed on file with the Treasurer's report.

The report of the Executive Committee was received and read, and motion made that it be accepted and a full report be sent to the trade journals. Carried.

REPORT OF THE EXECUTIVE COMMITTEE.

Mr. President, and Gentlemen of the Jewelers' Security Alliance:

In reviewing the records of the past year, your Executive Committee find that while the increase in membership is not large, that the growth is steady, and the Alliance is much stronger than at any time since its organization.

We have held eleven regular and special meetings, elected fifty-three members and transacted all business necessary to the success of the organization.

Our membership is now 540, and our association is on so sound a basis (with a reserve fund increasing monthly) that should we continue without adding to the membership we would be able to render efficient service; but, as the Alliance was founded to benefit the retail jewelers of the United States, it is desirable to have each one a member, thereby giving us still greater power.

If each member would secure even one applicant our membership would be doubled, thereby bringing us nearer, if not quite, to the point where annual dues would be no longer necessary. Your Committee believe that if the retail jewelers throughout the country fully understood the benefits to be derived from a membership, that ninety per cent. of the entire trade would join in the coming year.

We have to report one robbery this year, occurring in Fond-du-Lac, Wis. The goods were quickly recovered, the Alliance rendering efficient service. It was the work of inexperienced thieves, probably tramps.

It is a well-known fact that this organization has prevented the robbery of many jewelers' safes throughout the country, and in the first year of its existence, in a case of robbery, it not only secured the goods, but, after a hunt of five months, succeeded in the arrest, conviction and sentence of the three thieves to five years each in States Prison. Since that time burglars have given us a wide berth.

It is, without question, economy for every retail jeweler to be a member of the Alliance. The cost is, as you are aware, but five dol

lars a year, and the advantages large, the protection great. How can they afford to remain outside?

Respectfully submitted,

J. B. BOWDEN, *Chairman*,
C. G. ALFORD,
CHAS. G. LEWIS,
N. H. WHITE,
C. L. CHAMPENOIS, *Secretary*,
DAVID C. DODD, JR., *President*,
AUGUSTUS K. SLOAN,
HENRY HAYES.

The election of officers being next in order, Mr. S. H. Monell was called to the Chair. Nominations for President being called for, Mr. David C. Dodd, Jr., was nominated. There being no other nominations, motion was made that the Secretary be instructed to cast one ballot for Mr. Dodd as President of the Alliance for the ensuing year. The ballot was cast and Mr. Dodd declared elected President.

Messrs. A. K. Sloan, Henry Hayes and David Untermeyer were nominated respectively for the 1st, 2d and 3d Vice-Presidency. There being no other nominations, motion was made that the Secretary cast one ballot for each of the aforesaid gentlemen for the office named. Carried. The ballot being cast, the Chairman declared them duly elected.

Mr. W. C. Kimball was nominated for the position of Treasurer. There being no other nominations, motion was made that the Secretary be instructed to cast one ballot for Mr. Kimball as Treasurer for the ensuing year which was done, and thereupon Mr. W. C. Kimball was declared elected Treasurer.

Mr. C. C. Champenois was nominated for the office of Secretary. There being no other nominations, on motion Mr. Monell was instructed to cast one ballot for Mr. C. C. Champenois as Secretary of the Alliance, which being done, Mr. Champenois was declared elected Secretary.

For members of the Executive Committee, Messrs. C. G. Alford, N. H. White and C. G. Lewis were nominated to fill the vacancies. There being no other nominations, the Secretary was directed to cast one ballot for the above-named gentlemen as members of the Executive Committee for the ensuing two years. This was done and the gentlemen declared elected.

The election of officers being concluded, Messrs. Alford and Lewis were appointed a committee to escort the President to the Chair, on assuming which Mr. Dodd addressed the members as follows:

ADDRESS OF PRESIDENT DODD.

I can say, gentlemen, that I certainly appreciate your kind consideration and favor in electing me as President of the Jewelers' Security Alliance for another year.

I suppose that most of the gentlemen present to-day were present at its organization in the early part of April, '83. In reference to the organization of this Alliance, and as in every case almost in the starting of a new enterprise, the question occurs to those interested in it, will it succeed? Will it accomplish the work for which it is designed? The question of success, I think, always interests, and enters very largely into the consideration of those who are specially connected with the organization. A man does not like to be connected with an institution of any sort and have it fail, and I think it is a matter of congratulation and one that we all realize and feel to-day, that this organization is past the point where it may be considered an experiment.

It has not realized fully, perhaps, our largest expectations as far as the membership is concerned, but it has placed itself upon a firm financial basis, it has given to every member what it promised to give, and it has aimed to throw around each individual member of the association the arm of its protection. To succeed in any enterprise requires some work and some effort, and, as the President of this Alliance, I can say that the gentlemen who have been associated with it from its commencement have given to it their earnest efforts, their best judgment and their time without stint. We look to the future, and we look with assurance and with hope, because we have demonstrated the fact that such an organization is needed, and that through the means which we have adopted the ends can be secured, maintaining the prosperity of our customers and the smaller dealers scattered throughout the country. We give a measure of security that can be obtained in no other way.

An individual who is unfortunate enough to fall into the hands of a burglar is crippled; his resources are, in a measure, gone, and he hardly knows what way to turn to secure the return of his property.

The capture of the thieves, as stated in the report of the Executive Committee, was, I think, one of the grandest things ever done by this association. It has been a warning to all professional burglars. These men calculate upon their chances, and they know that they have not a single individual to contend with when they commit a robbery, but they have an organization to follow, to capture and to punish them if possible.

I am rather in a mood of congratulation to-day. I think that we have done well in the four years of our history, and I think that we shall, in the coming four years, do better.

There is a clause in our By-Laws which gives to the Committee power to assess members if they see necessary. Men are always shy of these assessments. We can send forth the statement to-day that these assessments are not possible.

I wish stated that in all probability we shall be able, after the present year, to omit entirely the annual dues. The announcement of that fact, I think, will be a large factor in inducing men to join this institution.

Again thanking you, gentlemen, for your appreciation and electing me for your President, I will simply turn the matter into your hands for any work that may come to us.

The President appointed Messrs. Geo. H. Hodenpyl and Chas. F. Wood as Examining Finance Committee for the ensuing year.

On motion, a vote of thanks was extended to the different trade journals for their kindly mention of the meetings held by the Alliance during the year.

On motion, adjourned.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular:

The jewelry business at present is marked by extreme dullness, more so than for any time since a year ago. In fact, this is the regular breathing spell which the manufacturer gets between the two seasons' trade of spring and fall; he looks for it just as much as the race horse that has just finished a two-mile heat looks for a chance to breathe as soon as he has passed under the wire, whether the race has been won or not—which has nothing to do with the case. The spring's business has been nothing more than a dash, and it is feared that a great many that started in the race, although possibly in the rear ranks and badly handicapped at the commencement, have been left, if not distanced altogether. It seemed to be the impression of some of the manufacturers before Lent that, possibly, after it was over and spring weather had assumed its supremacy, that trade would take to itself a genuine boom and start up with renewed activity, but, sorry to say, these fond hopes were never realized, and those firms holding on to such thin straws for support in their views have been just the ones to be left farthest behind in

this great business race, for they, Micawber-like, are always waiting and praying (if they happen to be in very shallow water, financially speaking) for something to turn up to help them out, but, at the same time, will sit quietly down, smoke a cigar, and not try to raise a breeze to cause something to come their way. Business men of to-day may rest assured that they will never amass any surprisingly large fortunes by sitting down and expecting business to come to them without a single effort on their parts to have it do so. Competition is too great for any such vague ideas to be fulfilled; those days of miracles are well nigh passed, especially in this regard to amassing fortunes in a legitimate business. The great trouble is that more new blood should be infused into the veins of a great many firms doing business to-day to give them a good, healthy action. The situation, as it really is, reminds one of an old hulk, full-rigged, with new sails, loaded down to the water's edge with tons of barnacles and seaweed, trying to sail against a clean-cut, fine-lined, copper-bottomed yacht such as the Mayflower or the Puritan; you would at once remark that the old craft, although when clean-bottomed and all ship-shape, would give her opponent a hard rub, with such odds against her could do nothing. Then why can individual firms, with loads of barnacles on their heads, expect to sail along against a strong tide and heavy head wind, and accomplish anything, financially speaking? If some such craft do not get grounded before January 1, 1888, it will be nothing short of a miracle of a different kind from that just previously mentioned. The weather ahead looks rather squally and the water decidedly limpy; the vessel to sail over it must be a staunch one, and the captain keep his weather eye aloft at that or he may possibly find that he has more than his hands full to manage things to keep her afloat after all. Since you last heard from us we have received authentic news of the sad foundering of two of this class of craft, heavily loaded with barnacles, within the city limits of Chicago, the names of which are, respectively, Messrs. Clapp & Davies and the Rosenkranz & Weber Jewelry Company. Some of the barnacles, having been of immense size, struck regular John L. Sullivan blows as far east as Providence, as some of the manufacturers here have readily testified before the Manufacturing Jewelers' Board of Trade in filing their claims against them. Attleboro firms have suffered with the rest, but not to such an extent. A thunderbolt from a clear sky in winter could not have been more of a surprise to the majority of their creditors than these failures, especially the first named concern, which could have failed just as easily for twice the amount as for what it did, the manufacturers having such perfect confidence in their ability as a business firm to conduct their affairs on a paying basis; but a once burned child dreads the fire ever afterwards. The majority of the creditors of Messrs. Clapp & Davies are thinking quite favorably of accepting the amount offered of thirty-five (35) cents on the dollar, which is probably the best settlement that they will be able to effect, as about eighty-five (85) per cent. of the claims have been signed in favor of such a compromise. Those still out will most likely sign off in the next few days, giving the firm a chance to have their affairs speedily adjusted, so as to be in readiness to commence on the fall trade when it sets in if they so decide.

The J. F. Ponder Jewelry Company, which assigned some two years since, paid the last and final dividend of two per cent. on their assets the past month, just on the eve of their second failure. This concern has never enjoyed the full confidence of the manufacturers since their first failure, and have been struggling against great odds to keep above water. It was only a question how soon they would go under.

The Manufacturing Jewelers' Board of Trade issued on the 25th of April, 1887, the following circular: "You are hereby informed that an adjourned quarterly meeting of the Board of Trade will be held at the rooms of the association, No. 9 Wilcox Building, on Saturday next, the 30th inst., at 1 P. M. Business of the utmost importance, relative to correcting the abuses of the trade, such as dating invoices ahead, prepaying express charges on goods, time limitation sales of goods, consignments, etc., will be introduced for final action." These subjects have been fully discussed in the columns of THE CIRCULAR during the past four or five months, and it is very gratifying to learn that Secretary Emery, of the Manufacturing Jewelers' Board of Trade, has attracted the attention of the Board of Directors to these vital points, and it is to be hoped that some decided action will be arrived at in regard to abating the said abuses which have grown to such gigantic proportions. The manufacturers must stand the bad business and failures, too, but they must draw the line somewhere if they would save anything, so let them, one and all, sing, "We will draw the line at that."

An announcement received from the Jewelers' Exchange last month, which is to open with large and commodious rooms in the Astor House, New York, about July 1, is engaging the attention of the manufacturers generally, and it is thought to be what has so long been needed, a general headquarters for jewelers, but never found friends enough before to give it the proper support, until the energetic officers now in command took the helm in hand to guide it to a successful issue. Long life and a prosperous future to the exchange and its officers is the wish of THE CIRCULAR.

The past month Messrs. Potter & Buffington detected their gold plater in the act of purloining gold clippings from the firm, in which he was carrying on quite an extensive business, the amount so appropriated being quite considerable, as it covered several months' duration.

Messrs. Dodge & Court have changed their quarters from the corner of Eddy and Friendship streets to No. 195 Eddy, formerly occupied by the lapidary works of Messrs. Fowler Bros., who have removed them to No. 183 Eddy street, where they have the most complete lapidary works in the city, which are under the efficient management of foreman John Kelley.

Collections for the past month have been very good, and a great absence of trade paper is also noted, which speaks for itself.

Messrs. Reed & Daily, of Minneapolis, are reported as settling up their late unpleasantness for 30 cents on the dollar, which is generally accepted by their creditors as being a fair compromise, considering what many other firms are doing of late.

Mr. Joseph L. A. Fowler the past month has been stopping in London, taking in the opening of the Peoples' Palace by Her Royal Majesty, Queen Victoria, and also Buffalo Bill's "Wild West Show" at Kensington. He leaves next week for Paris on his way to Naples and Berlin.

Messrs. Hancock & Becker are making a new white stone ring with solid gold setting; being different from anything of the kind in the market it finds a ready sale. The firm have several new novelties for the fall trade which must be seen to be fully appreciated.

Messrs. Thomas J. Gardner, Jr., & Co. succeed to the business of the old firm of Messrs. Reed, Gardner & Co., at No. 227 Eddy street. Mr. Gardner is well and favorably known to the jobbing trade throughout the country.

The machinery and fixtures of the defunct firm of Messrs. Nathaniel Grant & Co., sold recently at auction, only realized about $1,000, the accumulation of some thirty years. FAIRFAX.

Providence, R. I., May 16, 1887.

An Original Article on Nasal Stenosis,

Its Effects on the Eye, Ear, Pharynx, Larynx and Brain.

[By C. A. BUCKLIN, A. M., M. D., NEW YORK.]

Y REQUEST of Doctor Egbert Guernsey and others, I am induced to express my views on nasal stenosis. I cannot allow myself the necessary space to go into the details of my many failures to relieve symptoms which are embraced under the elastic term of *nasal catarrh.* I have had an extensive experience with nitrate of silver, galvano cautery and caustics. Without reviewing my past experi-

once, I desire simply to state the conclusions which twelve years of careful thought, combined with an extensive experience with the *Austrian, German, American* and *English* specialists, in their daily hospital work, have forced upon me. *The first conclusion* is that specialists as a class take an exceedingly narrow view of their special subject. They ignore in practice if not in theory, the effects of acute infectious disease upon the mucous membrane of the *nose*, eye, *ear*, pharynx and larynx.

The second astounding conclusion is that a granular eye-lid may be treated every second day for four years by the best specialists and the opacity of the cornea resulting from the roughened eye-lid grow worse each day till fingers can no longer be counted at four feet. On the other hand, if the diseased condition of the nasal cavity had been recognized and the disease properly treated, the granular eye-lid could have been practically cured in four weeks. Cases which had obstinately refused to improve while under treatment for four years before the nasal cavity received any treatment have been practically cured in four weeks after treating the nose.

The third conclusion is that eighty per cent. of all the persons hopelessly deaf have lost their hearing from catarrhal disease of the middle ear, which was caused by large tonsils, extensive granular masses in the posterior pharynx, or a partial or complete stenosis of the nostrils. During the past twenty years specialists have not given these patients treatment which was competent, even of arresting this disease, although applied at its earliest stages. They have gloriously neglected to do anything which was of permanent benefit to the patient.

The fourth conclusion is that diseases of the pharynx and larynx, exclusive of infectious diseases and traumalisms are caused by complete or partial nasal stenosis. The only treatment which can permanently benefit such cases is the complete removal of the nasal obstructions. That nasal stenosis brings about all these results is something which I have been able to demonstrate every day since 1880, by observing innumerable persons, who, notwithstanding all other kinds of treatment had been patiently tried for years, they never received but temporary benefit. I frequently treat patients who have been under constant treatment by "spray" every fall, winter and spring, for two, four or six years.

These patients, when the nasal stenosis was properly relieved, have received prompt and permanent relief. In only two cases have I been unable to make the results satisfactory to the patients. In no case have I found it impossible to make the results satisfactory to myself. The two cases referred to above were hysterical subjects. One was a female. The other was one of those unfortunate cases in which a female brain occupies the cranium of a male individual. This last subject manifested those perverted sexual instincts usual in such individuals.

The fifth conclusion is that a person having phthisis has a larynx tracheæ bronchi and lungs which are more susceptible to the injurious effects of mouth breathing than the same organs of those who are not phthisical. The nasal obstruction in such cases should be relieved with the greatest possible rapidity. The patient should not be delayed by a lengthy treatment of his nasal or throat trouble, but should be urged to avail himself of the only possible chance of averting the fatal tendencies of his disease by a speedy removal to a more favorable climate.

The frequency with which I observe wealthy persons having phthisis, who are retained in the city by specialists who delude these unfortunates by allowing them to believe that they are saving their lives by their skilful treatment of their throat affection when the truth is they are dying by inches, causes me to shudder. Can these men become so special and view phthisis from so narrow a standpoint that the encouragement which they give this class of patients is sincere?

How nasal stenosis causes such a variety of trouble will now be considered.

The first condition is where the nasal stenosis is not complete, and the greater part of respiration is carried on through the nose, the mouth remaining closed usually.

Stenosis of this variety admits of a number of forms. The obstruction may be so great at all times as not to admit the air during inspiration with sufficient rapidity to prevent more decided rarification in the posterior pharynx, and also obstructs its escape during expiration sufficiently to cause decided compression of the atmosphere contained in the posterior pharynx. It certainly does not require but a legitimate use of reason to conclude that under these circumstances there will be severe chronic congestion of the mucous membrane of the posterior pharynx and larynx owing to the constant variation above and below the normal pressure of the atmosphere contained within these parts. This chronic congestion causes in time true hypertrophy of the tissues, which, after years, causes the mucous membrane to atrophy.

This explains the reason why those who have examined old cases of catarrhal deafness for the purpose of establishing the fact of its dependence upon hypertrophy in the pharynx, or obstruction in the nose, have failed to demonstrate that such cases have hypertrophy of the pharynx or nasal stenosis

The hypertrophy existed long enough to produce the damage, but at the time of examination the process had gone farther and caused atrophy of the previously hypertrophied membranes. These varying conditions enable those who are so disposed to go into rather extensive classifications of the different forms of catarrh.

The second condition is where the bony stenosis makes the nostril so small that the irritation caused by the slightest change in the weather produces the most annoying symptoms. Such individuals are constantly catching cold in their heads. This amount of hyperæmia in a nostril of proper caliber would occasion no annoyance, as there would be sufficient room for the slight swelling of the mucous membrane without its causing nasal obstruction.

Exostoses and deflections of the bony septum on the one side and malpositions of the turbinated bones on the other side are the causes of hony nasal stenosis.

Large masses of hypertrophied tissue and granulations in the posterior pharynx may interfere directly with nasal respiration, or, like enlarged tonsils, act as foreign bodies in the posterior pharynx and cause a chronic congestion of the mucous membranes of the pharynx.

When stenosis of the nostrils is extreme the individual is known as a mouth breather. Mouth breathers irritate their pharyngeal and laryngeal troubles by inhaling directly into the larynx dry cold and dusty atmosphere.

How do these conditions affect the eye? Every one has observed that where acute congestion of the nasal mucous membrane exists, from either infection or atmospheric changes, the conjunctiva becomes also red, swollen and congested. Admitting that granular lid is an infectious disease, it is usually curable in a few weeks by the intelligent use of sulphate of copper. Occasionally, however, we meet cases of granular lids which are benefitted but little, if any, by this treatment, the theory of which is to starve the granulation down by the astringent effect of the copper and the mild, connective tissue changes which its repeated and long continued application will produce. Cases of this description I find have some radical difficulty in the nasal passages. I believe that the constant irritation communicated to the conjunctive form, the inflamed mucous membrane of the nose through the lachrymal passages explains why it is impossible to treat the tracoma with satisfaction until the nose has received attention. Some may claim the obstructed nasal passages retain the original infectious matter and are a constant source of re-infection, to which suggestion there can be no possible objection.

The following four cases are selected from many which have taught me to believe in the relations existing between nasal stenosis and granular eye-lids.

Case I. Mr. L. came to me in 1880; he had been treated for some months by prominent specialists for trachoma. They had tried sul-

phate of copper and also nitrate silver. The eyes had been growing steadily worse during the treatment. I tried the same treatment for two weeks, and must confess the eye-lids, which were one mass of granulations, grew steadily worse. The patient told me that he had a badly obstructed nose and that every time he caught an additional cold in his head his eyes were decidedly worse. Acting upon this suggestion, without the slightest expectation of success, I thoroughly cleaned his nose of all obstructions. In three weeks his granular eye-lids did not annoy him ; and I heard within a month that he never has had any return of the trouble.

Case II. Mrs. C., a case referred to me by Dr. Fields, of this city, had been treated by skilled specialists every second day for about four years, by the usual means of copper and silver. The opacity of the cornea continued to grow worse. She told the same story about the nose being obstructed and the eyes much worse every time she caught cold in her head. At the time I first saw her she could not count fingers at a greater distance than four feet. The opacity of the cornea rapidly disappeared, and after four weeks she refused to come to the office any more because she considered herself well.

Cases III. and IV. were two children treated for three months with sulphate of copper. I found they were not benefitted and removed the nasal obstructions which existed in both children. They improved more in ten days than during the previous three months' treatment. The change for the better was so marked that it attracted the attention of every one who came in contact with the children.

The above article in its relation to diseases of the eyelids is something entirely new. It has as yet no place in literature, but I believe the relation between a chronic inflammation in the nostril and a chronic inflammation of the eyelid will soon become generally recognized. The essay will be continued and completed in the July number of THE CIRCULAR.

The names of the *Fifth* class who have just completed the course of instruction in optics as applied to the correction of errors of refraction and accommodation, are as follows : Charles P. Gomph, Utica, N. Y ; Dwight Dutcher, Port Jervis, N. Y. ; Chas. P. St. John, Prattsburg, N. Y. ; Will Haseltine, Kokomo, Ind. ; Henry W. Appleton, New York ; Edward F. Robinson, Ellsworth, Me.

This class makes thirty-one students who have qualified themselves to do optical work intelligently and correctly. They are all enthusiastic, energetic, and all those who have made a start in business are successful.

The sixth class commenced may 17th.

The seventh class commences June 6th, in which there may be one vacancy possible, owing to the failure of some student to come who has made arrangements to be here.

As so many more have applied than I have been able to accept I will depart from my original intention of giving no further instruction this season, and give one more course which I hope will accommodate all those who are anxious to get to work this season. The course will commence June 21st, at two o'clock. Students should apply early.

A good lantern has been introduced for the purpose of showing the microscopical anatomy of the structures of the eye.

The New Holiday Law.

THE following is the full text of the new law relative to holidays, including the Saturday half-holidays:

SECTION 1. Section one of chapter twenty-seven of the laws of eighteen hundred and seventy-five, entitled, as amended by chapter thirty of the laws of eighteen hundred and eighty-one, "An act to designate the holidays to be observed in the acceptance and payment of bills of exchange, bank checks and promissory notes, and relating to the closing of public offices," is hereby further amended so as to read as follows:

SECTION 1. The following days and half-days, namely: The first day of January, commonly called New Year's Day; the twenty-second day of February, known as Washington's Birthday; the thirtieth day of May, known as Decoration Day, the fourth day of July, called Independence Day; the first Monday of September, to be known hereafter as Labor Day; the twenty-fifth day of December, known as Christmas Day; any general election day in this State; every Saturday from 12 o'clock at noon until 12 o'clock at midnight, which is hereby designated a half-holiday, and any day appointed or recommended by the Governor of this State, or the President of the United States, as a day of thanksgiving, or fasting and prayer, or other religious observance, shall, for all purposes whatever as regards the presenting for payment or acceptance, and of the protesting and giving notice of the dishonor of bills of exchange, bank checks and promissory notes, made after the passage of this act, be treated and considered as the first day of the week, commonly called Sunday, and as public holidays or half-holidays; and all such bills, checks and notes otherwise presentable for acceptance or payment on any of the said days shall be deemed to be payable, and be presentable for acceptance or payment on the secular or business day next succeeding such holiday; but, in the case of a half-holiday, shall be presentable for acceptance or payment at or before 12 o'clock noon of that day. Provided, however, that for the purpose of protesting or otherwise holding liable any party to any bill of exchange, check or promissory note, and which shall not have been paid before 12 o'clock at noon on any Saturday, a demand of acceptance or payment thereof may be made and notice of protest or dishonor thereof may be given on the next succeeding secular or business day. And provided, further, that when any person shall receive for collection any check, bill of exchange or promissory note, due and presentable for acceptance or payment on any Saturday, such person shall not be deemed guilty of any neglect or omission of duty, nor incur any liability in not presenting for payment or acceptance, or collecting such check, bill of exchange or promissory note on that day. And provided, further, that in construing this section every Saturday, unless a whole holiday, as aforesaid, shall, until 12 o'clock noon, be deemed a secular or business day. And the days and half-days aforesaid shall be considered as the first day of the week, commonly called Sunday, and as public holidays or half-holidays, for all purposes whatsoever as regards the transaction of business in the public offices of this State or counties of this State. On all other days or half-days, such offices shall be kept open for the transaction of business.

SEC. 2. Section 2 of said act is hereby amended so as to read as follows:

SEC. 2. Whenever the first day of January, the twenty-second day of February, the thirtieth day of May, the fourth day of July or the twenty-fifth day of December shall fall upon Sunday, the Monday next following shall be deemed a public holiday for all or any of the purposes aforesaid; provided, however, that in such a case, all bills of exchange, checks and promissory notes made after the passage of this act, which would otherwise be presentable for acceptance or payment on the said Monday, shall be deemed to be presentable for acceptance or payment on the secular or business day next succeeding such holiday.

SEC. 3. This act shall take effect on the tenth day after its passage, as certified by the Secretary of State.

COMMUNICATIONS.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attension will be paid to anonymous letters. Correspondence solicited.]

DEALINGS WITH INSOLVENTS.

To the Editor of The Jewelers' Circular:

I note what you say in your May number to the effect that creditors are determined to deal more strictly with insolvent debtors than heretofore, and by appointing committees to investigate their affairs to prevent fraud as far as possible. This will be good news to the dollar-for-dollar dealers if it proves to be true. But is it to be the policy pursued in all cases of insolvency, or only in those cases where the case is a flagrant one and the creditors interested numerous? In other words, are those cases of special interest to the manufacturers and jobbers only to be investigated, while those that work hardship to competing retailers compromised as heretofore for whatever the bankrupt chooses to offer? In my judgment, the creditor class owes it to the honest retail dealers to investigate a small bankruptcy case quite as much as a large one. The practice has been to compromise with the small dealer who fails to pay, give him a clean bill of health,

restore him to credit and permit him to continue in competition with those who pay their obligations at maturity. We cannot compete with a dealer who, by means of such a compromise, has a stock of goods that has cost him less than fifty per cent. of what we have had to pay for ours, yet we are constantly being made to do this very thing. I do not doubt that many a man has been induced to go into bankruptcy from seeing how easily his competitor got through, and because he saw that he could not compete with the successful insolvent. I know how this works, for on two occasions my competitors have compromised with their creditors, and on each occasion they have continued right along in business, marking their goods down to figures below what they cost me. The creditors of a five or ten thousand dollar insolvent are apt to be so numerous that the loss to each is regarded to be too small a matter to waste much time on, but to his competitors it may be a matter of life or death. If a stock that, in settlement, costs him only half what a similar stock in my hands costs me, he is able to undersell me every time, and, of course, steals away my trade. If the man who fails for fifty or one hundred thousand dollars is to be investigated, the smaller fry ought to be subjected to the same ordeal. This amount of protection the jobbers owe to their customers. It seems to me that some of the Boards of Trade might be entrusted with all the small failures, and special committees appointed for the larger ones when necessary. The few thousand dollars I have invested in my business is as much to me as is the fortune of a Vanderbilt to him, for it is all I have, and when that is placed in jeopardy by the act of those who ought to protect me, I have the right to grumble and to kick. What is sauce for the goose is sauce for the gander, and if the big fish who swindle the jobbers are to be brought to book, it is no more than justice that the smaller ones, who destroy the business of the retail dealers, should also be held to account. I ran my business one whole year without making a dollar, because a rival who had failed had compromised for twenty-five cents on the dollar, and advertised such great reductions on account of that fact that I could not sell any goods to speak of. A part of my capital had to go to pay my living expenses that year, and another year of it would have busted me wide open. Fortunately for me, however, my compromising rival skipped the town when the notes he had given in compromise became due. As it turned out, the creditors only got about ten cents on the dollar, and I was not sorry that they were victimized. They had no consideration for me when they made the settlement with my rival, and I had no sympathy for them when he left them in the lurch. If there is to be protection from scheming swindlers let us all have the benefit of it.

J. H. M.

WORKINGMEN AND STRIKES.

To the Editor of the Jewelers' Circular:

I have read with much interest all you have said about the Knights of Labor and the numerous strikes that have occurred during the past eighteen months, and while I agree with you in the main, I think there is one point that you do not give sufficient consideration. When the war broke out there were many Southern men who did not believe in secession, but were good Union men. Southern sentiment was all against them, however, and they were ultimately forced to go into the Southern army. They simply could not stay at home, even though they were willing to be entirely neutral. Once in the army they had too much manhood to betray it, and so they continued the fight against their principles, solely because they could not do otherwise. Now, that is precisely the condition of many of the workmen of the country to-day, and it was recently my condition. When the Knights of Labor organization came to the front it carried everything before it; large numbers of workingmen were led to believe they could improve their condition by affiliating with it, and that it could carry all its points by sheer numerical strength. The man who refused to become a member became a "scab," and was ostracised by all his fellow workmen; not only was he persecuted in his place of employment, but he was followed every where, even into his family, and his peace of mind was entirely destroyed. I am reckoned a first-class workman—I can say so without boasting, for the wages paid me by my employers testified to the fact—and a year ago I had steady work and was entirely content with my condition. I have a wife and three children, and have contrived to provide for them comfortably. During the Knights of Labor furore many men in our factory became members, and finally the word was passed that all the workmen must join. I and half a dozen others held out, but the pressure was too strong for us and we finally yielded. We were assured that no strike in our factory was contemplated, and that our moral support of the order was all that was wanted. Still it was not until my companions and myself had been "sent to Coventry" by the entire shop, and made to feel, both in the shop and outside, that we were traitors, renegades and "scabs," that we consented. No one who has not undergone this species of persecution can understand how terrible it is; it is manifested in every action, word and look of your associates; it is ostracism and complete isolation. We were made to feel that our presence was an offence to every employee in the place, and that at the opportune moment we would be driven forth and our means of support taken from us. Finally we consented and joined the order, which made the factory a "loyal" one. Shortly after a scheme was devised for precipitating a strike in the factory. The only cause for it was found in the fact that a few superior workmen were getting more wages than the others, so it was resolved that the poorer workmen should be advanced and the better ones cut down to a uniform scale, and that none but union men—this then meant Knights of Labor—should be employed in the factory in future, and that the number of apprentices should be reduced. A few of us protested against this strike and did all we could to prevent it, but in vain; the hot heads had got control and the order went out that a strike must be made. And strike we did, with the result that we were out of employment for over three months, when the strike was declared "off" as a complete failure. The employers were especially incensed against me and the other high-priced men for countenancing a strike that sought to reduce our wages, and regarded us as ringleaders to be made examples of. So while the other men were taken back we were refused employment and had to look elsewhere for it. We were dragooned into the order first, then dragooned into striking and then made to bear the brunt of the punishment. I know that hundreds of strikers have similarly been forced to take the course they did, as much as union men were forced to fight against their country during the war, and I know that the pressure that forced them to do this was as strong in one case as in the other. There was never such a despotism in the world as the Knights of Labor set up in this country a year ago; the tortures they subjected their opponents to were worthy of the Inquisition, and men should not be blamed for having submitted to them. I am thankful that it is gradually losing its power, and trust the day is not far distant when American workmen will fight as heartily to maintain the principle that every man has a right to sell his labor for any price he may choose to accept, as they have to prevent willing men working at any price. It has cost me half a year's work and many hard earned dollars for the part I took under compulsion in the strike referred to, but if I am now emancipated from the dictation of the scheming leaders of the Knights of Labor I shall not particularly regret it. My voice has been arrayed against them for many months and I flatter myself that I can take some credit to myself that their hold on the workingmen is becoming materially weaker. But I hope in your future discussions of the labor question you will bear in mind the fact that the majority of the men are misled, and that many of them are actually driven to join the order and obey the leaders in opposition to their wishes, and often undergo sacrifices no one but themselves know anything about.

WORKMAN.

PLEASANT WORDS FROM APPRECIATIVE FRIENDS.

The following are a few brief extracts from our business letters of last month: Mr. James A. Montgomery, Los Angeles, Cal., writes:

"Enclosed find my subscription for this, my 12th continuous year. This year THE CIRCULAR has given me both pleasure and profit. The marked advancement in every department places THE JEWELERS' CIRCULAR away in the front rank of all trade journals. Kindly accept my congratulations on the success of your management."

Mr. William K. Hawes, of Canton, Mass., writes: "The fact that my 'prents' (apprentices) are at times more interested in THE CIRCULAR than in their work is proof—in my mind—that it is a very interesting visitor to my store. Enclosed find check for two years' subscription.

Mr. E. M. Ackley, Alliance, O., in renewing his subscription, writes: "I do not want to lose any of the monogram plates, for I think they alone are well worth the subscription price."

The Stem Winding Mechanism.

[BY MORITZ GROSSMANN.]

Continued from page 84.

THIS LATTER class, continues our author, Mr. Grossmann, in the majority of cases are executed with the so-called Breguet action; that is, they wind the spring when the knob is turned to the right, and perform a click action without any effect when the knob is turned the other way, thus affording the advantage that any inconsiderate effort for turning the knob the wrong way cannot do harm to the mechanism. The Breguet click, however, is not an essential feature of this form of stem winding mechanism.

The winding knob, in the majority of stem winding watches, is connected by a square or other adjustment with the winding pinion, the arbor of which passes through the pendant, the pinion part being within the rim of the case. By this arrangement, the barrel arbor on which the operation is to take place is situated vertically, while the pinion stands in a horizontal direction, and these two moving parts, therefore, must be connected by an angular gear. In most stem winding watches this gear is composed of a straight pinion and a contrate or crown wheel. These, however, constitute a very imperfect transmission of force, because the teeth of the contrate wheel being cut in the radial direction, can only agree in one point of the action with the direction of the pinion teeth, viz., when the size of the tooth is in the line of centers. During the part of the action which takes place before and after the line of centers, the pinion tooth works against the outer or inner edge of the wheel tooth, which is certainly not an advantage for both parts. The detrimental effects of a gear of this kind will be the more considerable with a pinion of low number, because its teeth lead through a more extended angle. Therefore, it is necessary to slope off the wheel teeth inward and outward to lessen this defect as much as possible.

For these reasons it is preferable to employ a conical gear as offering the best conditions for a regular and smooth transmission of power and for the durability of the parts. A conical pinion, too, can be executed much stronger than a straight one. There is, indeed, almost an impossibility of practically executing a conical wheel and pinion of perfectly theoretical shape of teeth; but in the way they are commonly made, they are quite fit for service and far superior to the straight pinion and contrate wheel.

One of the best stem winding mechanisms, on account of its simplicity and durability, has the following general features: The barrel arbor has at its upper end the ordinary square, and on this square is adjusted a large wheel, as large, indeed, as the size of the watch allows, or, which is the same, nearly the size of the barrel. This wheel is in gear with another wheel of about two-thirds of its size, which is concentrically connected with a conical wheel below the upper plate. This latter wheel is set in motion by a bevel pinion, the arbor of which extends through the pendant of the watch, and has a rifled button at its end outside of the pendant. One of the two flat wheels on the top of the upper plate has, at the same time, to perform the service of the ratchet by means of a properly shaped click and spring. This is the fundamental principle of the oldest stem winding watches, but many improvements have been made upon it.

For the purpose of setting hands, devices of various kinds may be connected with the previously mentioned parts. The oldest plan of this kind was the following: The winding pinion had a lengthwise motion, and upon pulling the knob a little out, the toothed part of the pinion came of gear with the bevel or crown wheel, and by means of a lever a small crown wheel was pushed in gear with the minute wheel or another wheel connected with it. The small crown wheel was adjusted with a pipe into the inner part of the axis of the winding pinion, either on the square or on the round axis, having one side flattened about one-fourth of its thickness. The pipe of the wheel, in this case, had a steel pin screwed through its side so as to enter a

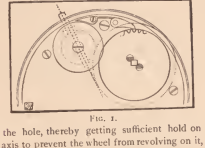

FIG. 1.

little into the hole, thereby getting sufficient hold on the flatted side of the axis to prevent the wheel from revolving on it, only allowing it a sliding movement in the direction of the pinion axis. Figure 2 shows the situation of the parts with the knob pulled out.

Another plan was as follows: There was a small pinion adjusted to the inner round end of the winding pinion arbor and freely turning on it. The minute wheel geared into a similar wheel, having another row of contrate or crown teeth, and these teeth were constantly in gear with the little pinion on the winding arbor, so that these two parts were following the movement of the motion work when the watch was going. This little pinion was kept in its position by a bridge; it had a small pipe projecting toward the end of the

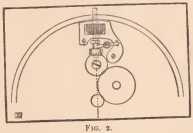

FIG. 2.

winding axis, and this pipe had two rectangular cuts across its face, forming thus four recesses, broad and deep enough to receive the pin fastened in a hole drilled across the extremity of the arbor. Thus, by pulling the knob and winding pinion out, the pin, when entered into one of the cross cuts, made the pinion follow its motion, and thus imparted the movement to the motion work. By pushing the knob back to its former position the motion work becomes disconnected, and the winding action was in gear as before. This way of setting hands, certainly very simple and reliable, was found objectionable, because the knob, when pulled out for setting hands, was often left in that position by careless wearers, and the watch, having then to move also the winding pinion with its considerable friction, was quite unable to perform its increased task and stopped altogether. This was a drawback which has essentially produced mistrust against stem winding watches, and finally it has lead to dropping the device of pulling out the knob for setting hands.

FIG. 3.

(*To be continued.*)

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The regular monthly meeting of the Executive Committee of the Jewelers' League was held on the 6th inst. There were present Vice-President Johnson, Chairman Geo. R. Howe, and Messrs. Jenks, Jeannot, Greason, Houghton and Sexton.

Eleven (11) changes of beneficiary were granted, and the following applicants were admitted to membership:

Henry M. Jacobson, Albany, N. Y.; Geo. M. Marcres, Sharon, Conn.; W. V. Nonnenmacher, Columbus, O.; Fernando Roth, N. Y. City; L. B. Sorensen, New Orleans, La.; W. J. Van Kueren, Honesdale, Pa.

The Pottery Manufactures of New Jersey.

TRENTON THE STAFFORDSHIRE OF AMERICA.

(Contributed by OTT & BREWER.)

NEW PEOPLE are aware of the magnitude of the pottery industry of Trenton, N. J. This is not to be wondered at when it is known that the industry is but twenty-five years old; that for nearly twenty of those years most of the goods sold from there were stamped with an English stamp. This was unavoidable as the goods had to be disposed of by the dealers along with the regular imported wares, and to match in sets this was necessary.

In 1860 there were but two or three small struggling potteries in Trenton, making not more than $50,000 worth of ware all told, and that of a very inferior quality out of very common clays, for at that time our American clays or fine kaolins had not been opened. To-day the output of the Trenton potteries is nearly $4,000,000 a year. This comprises all grades of white and decorated earthen and china ware, from the commonest C. C. (or cream color) to the finest egg shell *Belleek* china manufactured by Ott & Brewer. There are, all told, twenty-seven potteries in this city, with about 130 kilns, exclusive of the enamel or decorating kilns or muffles. No one can ever know the troubles and losses of the early potters in this country, where the raw material was undeveloped and untested, and where the chemical differences of the clay, kaolins, silicas and spars were so different from those in the old countries. Old English or French receipts were of no account when mixing with the new and different American material. Many have asked why the potteries have centered here so largely. The main reason is that Trenton is so central for her raw material. Common clays all about her—fire clays on the East at South Amboy and Woodbridge, coal on the North in Pennsylvania, and jasper on the North East in Maine and Connecticut. Flint from Maryland and Pennsylvania, kaolins from Delaware and Pennsylvania, which, with rail and water communication, make up the reasons for the large cluster of potteries here.

Nor has the bulk of the industry increased beyond the quality and finish of the product, as was shown by the fact that the Franklin Institute of Philadelphia, at their late Novelties Exhibition, awarded Messrs. Ott & Brewer, of this city, the Elliott Cressen gold medal—the only one awarded by them—for the reason explained in their award, that the industry showed the greatest advance in its product, and, at the same time, was of greater benefit to mankind than any of their competitors.

The works are visited by many parties of ladies and gentlemen who, verbally and by letter, express their admiration and surprise at the beautiful wares produced and the methods by which such perfection is reached.

It would be well here to state that all the Trenton potteries now use their own stamp and sell their goods on their merits as true American products, and that instead of copying English and French shapes as they used to do, they all have designers of their own and have completely turned the tables, for the English, French and German potters are now copying the American shapes and styles of decorations. It would be well to say in this connection that the selling prices of all grades of these wares, both home and foreign, have been reduced *one-half* since 1860.

BELLEEK CHINA.

The most highly esteemed porcelain of past ages, and that which is regarded at present as the rarest specimen of the potter's art, is the old egg shell of the Chinese. Its delicacy of fabric and its beautiful translucency had never been equalled until Messrs. Ott & Brewer, of Trenton, N. J., began to perfect the original Belleek porcelain, which was first manufactured in the county Fermanagh, Ireland. In the beginning of this costly experiment the original fabric was a simple foundation upon which they improved to such a degree, that their productions now equal in delicacy and color the best specimens of the antique egg shell to be found in a few of the famous collections of the world, and it stands to-day unrivalled as a modern triumph of the potter's skill in manipulating the simple but refractory materials from which it is made. Connoisseurs and lovers of fine China invariably express their surprise at the extreme lightness and delicacy of these truly wonderful productions, and some idea of their marvelous lightness may be gained from the fact that one dozen cups and saucers, making twenty-four separate pieces, weigh exactly sixteen ounces avoirdupois. To the original beauty of Belleek, in its pure white state, is added the most artistic decoration in color and gold that it is possible for the human mind to conceive, and every piece, however lightly it may be touched by the artist's pencil, is a gem, while some of the richly ornamented pieces are regarded as the most perfect specimens of art produced by the modern potter. The most striking pieces of this superb product are the large vases of exquisite modeling and delicate workmanship. These pieces are made of the same comparative degree of lightness as the smaller objects, and are so designed that they present a broad, clear field for the richly elaborate decorations in enamels or gold relief and chasing. In superlative elegance and artistic finish, these ornamental pieces excel the rarest specimens of the old world, and their appreciation by American collectors and admirers of fine porcelain is a pleasing evidence that our own manufacturers now excel all competitors of whatever country. The choicest and most costly specimens of Belleek are to be found in the houses of the most prominent dealers in the larger cities of the United States, where they never fail to attract the attention and admiration of the refined and critical of American buyers. Of all known china the Belleek is recognized as the finest, most delicate.

The greater portion of the Trenton works is, of course, devoted to the making of various grades of china in dinner, tea and toilet ware,

such as is used in all American households. These goods are also of superior excellence, for they are designed and decorated by special artists, and the influence of the more elaborate goods, above described, upon the less expensive but equally attractive ware is distinctly marked, and each service bears the impress of superiority.

A Noiseless Clock.

A GERMAN imperial patent has been granted to M. Anthoine, of Paris, for a clock having a noiseless motion, and actuated and regulated by the decrease of some fluid. The inventor says that inquiry is often made for a perfectly noiseless clock for sick room and dormitories which caused him to construct the following mechanism that indicates both hours and minutes, and is actuated and regulated by the uniform decrease of a fluid in a receptacle.

In the accompanying cuts fig. 1 gives the side view, while fig. 2 is the setting arrangement for the hands. The principle of the system is as follows: The train or the hands are set in motion by the unrolling of a chain, one end of which is fastened to a drum, the other end, however, to a float, swimming upon the surface of a fluid contained in a receptacle. This fluid escapes at a uniform rate, no matter in what manner this may be effected. This decrease of the volume of the fluid may be brought about either by feeding a lamp burner or by dropping away, or by any other manner.

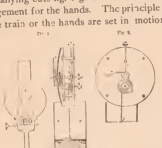


FIG. 1.

FIG. 2.

The following description of the invention has reference to a clock with ordinary dial, therefore, one which produces and requires light for reading the time, and it can, consequently, serve at the same time as night lamp. For this purpose the apparatus consists of the train with dial, of a receptacle into which is poured the fluid with which the light is to be produced, and of a small tube containing a wick and communicating with the receptacle. It is provided at its upper end with a burner, globe, cylinder and a wick screw for regulating the size of the flame. The entire mechanism can, except the dial and burner, be suitably hidden from view by a statuette or other fanciful design. The apparatus works in the following manner:

The fluid *b*, which is to serve for illuminating purposes, is poured into the receptacle *a*, and the float *e* is permitted to swim upon it. This float is connected with the train by means of a chain fastened to a drum, upon which sits the barrel or main wheel. Since the receptacle *a* communicates with a tube *d*, which is provided with a wick and a burner, it is evident that as soon as the wick has been ignited, the level of the fluid will gradually sink and with it the float. If this act the latter actuates the drum *g*, by means of the chain or cord by which, necessarily, the entire train is propelled, which, it is self-evident, in this case consists only of the simple motion work.

The main or barrel wheel, provided with 60 teeth, depths into the 10-leaf pinion of the center staff *h*; this latter, therefore, accomplishes six revolutions while the drum *g* makes one. The center staff rotates the arbor *i*, upon which the minute hand is fastened, and hy it, finally, also the minute wheel, which communicates to the hour hand a motion twelve times slower.

Since the corresponding dimensions of the receptacle, drum, wheels and pinions have previously been calculated in such a manner that the complete emptiness of the receptacle corresponds to a certain number of revolutions, it is clear that the more rapidly combustion progresses the quicker will be the revolution of the hands; in consequence of this the clock will have a tendency to go too fast. To counteract this, there is a very easy means of regulating the clock by keeping the flame constantly at the same height. This is easily effected by the use of a cylinder provided with a notch or other distinguishing mark; the flame is kept exactly to the height of this mark. This regulator takes the place of the pendulum in mantle clocks and of the balance spring in watches.

The arrangement for winding and setting the cloek is very simple, as follows:

With the button *m* the setting bar is pressed down so far upon the click *n* that this seizes into the teeth of the main wheel; beside this, the staff *h* can also be turned from the back of the clock by the button *o*, and the drum *g* by the button *l*.

The apparatus performs as follows: When the receptacle *a* is completely empty, and the float has descended down to the bottom so that motion has ceased, the clock is set going again by re-filling the receptacle *a* with fluid; the bottom *o* is turned from the left to the right in order to wind up the float by means of the drum and cord *f*. During this operation the hands will rotate in the opposite direction. When ceasing to turn the button farther forward, the float will descend sufficiently far until it swims upon the surface of the fluid when the hands will cease to rotate, and be kept in the necessary motion by the consumption of the illuminating fluid. When, therefore, the clock has been wound the hands must be set to time; for this purpose the wick is ignited and pressure is exerted upon the button *m*, whereby the click *n* depths into the teeth of the main wheel and stops it. The button *o* is then turned in a corresponding direction in order to place the hands in their correct corresponding positions. The button *m* is then loosened again, and the click *n* will force it upward; the main wheel is now liberated and revolves, together with the drum *g*, thereby actuating the entire train. The clock is now in motion, and as the mutual proportions, viz., the escape of the fluid, the size of the drum and wheels, have previously been carefully computed, the clock will indicate the correct time as long as the size of the flame remains constant.

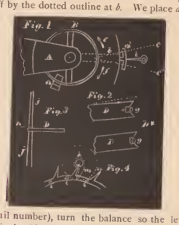
As the clock performs by force of the diminishing of the fluid contained in a receptacle, it is evident that it will go correctly, no matter in what manner this decrease may have been effected, whether by dropping away or by burning. To operate the clock during the time that light is not wanted, a spiggot arrangement can be connected with it, through which the fluid gradually drops in order to establish a uniform decrease of fluid. At night, when the lamp is lit, the dropper is closed and the diminution takes place by means of combustion.

Problems in the Detached Lever Escapement.

BY DETENT.

IT WOULD have been easy to have made one movable index which is attached to the pallet staff longer so as to better show the graduations, and if we had only intended to use it when the hair spring is removed from the balance we could well have done so, but, in many instances, we would not remove the hair spring, only slip the little index lever on the pallet staff, as shown in fig. 4 and diagram F* of April number. We will suppose at present, however, we are using it on a movement without a hair spring, or, as most workmen term it, running our watch "on half time." To digress a moment:

Few workmen practice the testing of an escapement by running a watch without a hair spring, and many workmen do not even know it can be done. Any fine lever watch, if the escapement is in good order, will run if the hair spring is removed and the balance started a going, and there is nothing which will so severely test the several actions of a lever escapement as this course. All of the finer grades of American watches will run on half time as we find them, and a skillful workman will soon manipulate a No. 7 Elgin or a Broadway so they will do it, and if a watch will run on half time, my word for it, it will tell on the time-keeping qualities. We will go on now with our problem of testing a lever escapement with our little index. We place a slight friction under the rim of the balance as shown at *a*, fig. 1. In this figure the measuring index is shown at *d*, and the fork and pallet staff by the dotted outline at *b*. We place *d* as directed in



the instruction (April number), turn the balance so the lever is resting against one of its banking pins. We set the little index pointer *l* so it stands opposite *o* on the index *d*. We will suppose to accomplish this we turned the balance in the direction of the arrow *c*, and that the lever *b* and index *d* are left on the dotted line *c'*. We now reverse the direction in which we turn the balance, and turn it in the direction of the arrow *f* until we see the index *d* begins to move, as indicated by the pointer *l*. We turn the balance very carefully until we see when the engaging tooth is freed from the lock. This can be told with great precision, because as long as the locking face engages the tooth the tendency of the lever is to draw toward the banking, but the instant the tooth leaves the lock the lever makes a sudden start forward. We should carefully note on the index exactly where the jump occurred. It should have taken place after a movement of the index *d* of 1½ degrees, and should in no case occur after 2 degrees have been shown on *d*. If more than 2 degrees are used by the lock our escapement is faulty; presently we will see how to remedy such faults, but at present we will confine ourselves to the use of our index. We continue the turning of the balance until the tooth escapes and make a note of the entire angular motion. Let us now take a little retrospect of the situation. Before we applied *d* to the pallet staff we banked up to the drop. Perhaps some of my readers will not understand this expression. I explained this turn in a former communication, but will repeat it for the benefit of those who are new readers. We first set the banking screws so that neither pallet would release a tooth; we next turn the banking screw on which the fork rests until the tooth engaged falls from the impulse face. We repeat the process with the opposite banking. We now have our lever banked up to the drop, as it is termed. To continue our review of the situation and testing our escapement with the index *d*. I said above that at the instant the tooth left the locking face the fork and, of course, the index, which is attached to the pallet staff, moves forward. Now, this jump forward should be studied with great care and attention, for it betrays the great loss of power in a lever escapement. We have the balance so controlled by the friction spring *a* that this goes no faster than we move it, and consequently if we see the index jump forward on the release of the lock 2 or 3 degrees, we understand instantly that there is a leak of power somewhere, probably in the fork. if we have taken pains (as we should) to see if the pivots to the pallet staff have the proper side shake. If the lever fork has been filed away so the jewel pin has too much play in the fork, perhaps the jewel pin is too small. Jewel pins should be sized to fit the fork, with only side shake enough to secure the necessary freedom. In the factories the fork is gauged and a jewel pin selected to $\frac{1}{1000}$ of an inch to fit. All workmen should do likewise. At fig. 3 is shown at *D* a side view of a lever fork, and at *j* a carefully turned taper steel gauge; this (*j*) is pushed through the slot until the diameter of the taper just fits the fork, when, with a pair of michrometer callipers, we get the proper diameter for the jewel pin by taking the size of the taper gauge at the dotted line *h*. If we find the index to jump after we know the side shake to the pivots are all right and the jewel pin properly fits the fork, we can look for the trouble in a too shallow depth between the fork and roller, as illustrated at fig. 2, where *D* represents the fork and *g* the jewel pin. In this illustration (fig. 2) the jewel pin seems to have too much shake in the fork, whereas it is really a shallow depth. The action should be as shown in diagram *D**. Such an imperfection might cause a watch to stop in a very mysterious manner. The lesson we have for consideration now is testing our escapement with our new tool. We tested our fork and jewel pin, and there was not too much side shake and the pivots were all right for side shake. In this a jump of the index *d* says plainly fork and roller are too shallow in depth. Frequently the jewel pin can be set forward enough to remedy the trouble. If not, stretch the fork a little. Such a condition could exist in a limited degree and not sensibly affect the watch, for when the hair spring is on the balance staff, the balance, when the conditions shown in fig. 2 occur, is moving at its maximum velocity; so, in this case the jewel pin would be carried safely into the fork before the impulse would have time to act. I beg to be permitted to take a retrospect. Some two or three years ago I spoke in this journal of a similar condition in pallet action. A person criticised the statement and said it could not occur, as the train at this time was "*as quick as greased lightning.*" I am not prepared to state how much unctious matter facilitates the speed of lightning, but I am prepared to prove my statement, not in response to the critic, but to dispel any thought of the kind from rising in the mind of the reader. The best evidence I know of occurs in a duplex escapement when the hair spring is removed. To illustrate, take any duplex and remove the hair spring, then set the impulse finger so that if we turn the balance slowly the pointed scape tooth, when released from the roller jewel on the staff, will actually allow the pin on the scape wheel to pass the impulse finger on the inside. If, now, we give the balance of the duplex a rapid motion in the direction of the action, we will find the impulse finger to be carried in far enough to engage the impulse pin on the scape wheel. The same thing can be demonstrated with a chronometer escapement.

SIMPLE METHOD OF SILVERING.—The following is the most expeditious way for silvering metallic articles. Freshly precipitated chloride of silver, after it has been thoroughly washed with hot water, is mixed with equal parts of table salt and cream of tartar, transforming it into a thin paste by adding water, if necessary. The article to be silvered is first well washed with a hot soda solution and soap and a stiff brush, in order to remove all dirt, and it is next to be rinsed thoroughly in hot water. A second day cleaning with fine washed chalk, pumice powder or quartz powder is to be recommended. After having been well rinsed with cold water, and before drying, it is coated with finely pulverized table salt, so that the article is covered with a thin layer; a little of the silver paste is next rubbed on, whereby its surface to be treated is well and uniformly silver-washed. This treatment is quickly followed by rubbing in a little cream of tartar, which is also to be applied with the same kind of ball and it is finally washed. The coating is very handsome, clear, and as white as snow,

TRADE GOSSIP.

Messrs. Hirsh & Metzger have removed to 7 Maiden Lane.

Mr. Henry Ginnel is expected home about the middle of June.

Mr. B. H. Knapp, of Smith & Knapp, returned on the *Etruria*, May. 2.

Mr. Wm. G. Bailey, of Helena, Montana, paid us a short visit last month.

Messrs. Morrill Bros., of Boston, have admitted Mr. Irving Smith into the firm.

Mr. Jean Bach, of Hudson, N. Y., has been succeeded by Wm. B. Joseph & Bro.

Mr. Joseph Muhr, of Messrs. H. Muhr's Sons. returned on the *Fulda*, May 16th.

Mr. W. Abe Smith, of Columbia, Tenn., has sold his business to Messrs. Jos. S. Voss & Son.

Mr. F. W. Weaver is the successor of the late firm of F. W. Weaver & Co., Attleboro, Mass.

Mr. James Peacock will represent the firm of John M. Hugo in New York the coming season.

Some excellent patterns of white stone jewelry are to be seen in the stock of Messrs. Moore & Horton.

Mr. Charles Jacques is going on his wedding trip, leaving New York on June 11, on the steamer *Chateau Lafitte*.

A slight fire in the store of Abraham Robinson, 256 Court street, Brooklyn, on May 1, damaged his stock about $1,000.

A man in Chicago writes us that he has a rare coin he would like to sell. It is a "Gold Noble, Edward III.," dated 1346.

Messrs. Jeannot & Shiebler, who make a specialty of fine watch cases in 14 and 18 karat, have some excellent new designs.

The new "Loop" ear ring setting made by Messrs. A. Luthy & Co., has already caught the favor of dealers wherever shown.

Ostby & Barton are preparing many new designs in engraved band rings, some of which will be illustrated in the July CIRCULAR.

The young firm of Henry E. Oppenheimer & Co., at 52 Maiden Lane, is doing a good business in diamonds, loose and mounted.

Many of the largest Cincinnati jewelry houses have signed an agreement to close at one on Saturdays, during June, July and August.

Mr. Tohn Tillson, lately a traveler for Messrs. C. T. Seaverns & Co., Boston, has opened a diamond cutting establishment in that city.

Mr. Charles Dickinson, President, and Mr. George Merritt, selling agent, of the Waterbury Watch Co., sailed for Europe on the *Aurania*, May 7.

In lockets and rings with interchangeable initials, Messrs. Odenheimer & Zimmern promise to introduce a few other new designs soon.

A fine lot of rubies, composed of picked stones of true color and excellent shape, is among the latest importations of Messrs. M. Fox & Co.

Four sizes of the popular all-diamond butterfly, made by Messrs. S. Cottle & Co., are now on the market. The most expensive ones sell the best.

Mr. C. E. Davies, formerly of Taunton, Mass., has opened a new store at 40 Cainbridge street, Boston, with a stock of jewelry and optical goods.

The latest designs in plated lace pins, made by Messrs. E. I. Richards & Co., are of small and graceful patterns, with real turquoises, pearls or garnets.

The watches of the Manhattan Watch Company have proved desirable goods for dealers to handle, and the demand for them is increasing every day.

In their recent purchases of diamonds, Messrs. Leimbach Brothers bought only fine goods. Several lots are composed of stones, each of which is a perfect gem.

The Illinois Watch Company are expecting to make some deliveries of their new cheap grade four-size movement next month, for which many orders are now in.

Mr. W. F. A. Woodcock, a well-known dealer in the West, has located permanently at Winona, Minnesota, where he has a large stock of jewelry and optical goods.

A large invoice of marine glasses and telescopes has just been received by Messrs. R. & I.. Friedlander, who will send a list of prices to the trade upon application.

Mr. Edward H. Hamden, one of the popular salesmen for the American Waltham Watch Co., has been placed in charge of the Boston office, to succeed Irving Smith.

Mr. L. Combremont, agent for Perrenoud & Brodbeck, Switzerland, has removed his office from 23 to 2 John street. He has also taken the agency of the Dubois Watch Case Co.

Messrs. A. Pinover & Co. have been at work fixing up their new place, corner of Nassau and Ann streets, and are now fully equipped with a large factory and well-lighted counting rooms.

Messrs. Ensign & Sharp, of Ripon, Wis., recently dissolved partnership, and the business is being continued by Mr. Chas. Sharp, who has also purchased the stock of Geo. O. Kingsbury.

Messrs. Joslin & Park, of Leadville, Col., and Salt Lake City, Utah, celebrated the twenty-fifth anniversary of their partnership at the residence of Mr. Jervis Joslin, in Denver on the 6th of May.

Mr. James M. Durand, of the old firm of Durand & Co., Newark, was married on May 16 to Mrs. Hattie V. Clark, of New York. The bride was a widow of about forty-two and the groom is seventy-five.

The sole agency in this country of the celebrated Jules Jurgensen watch, of Copenhagen, has, for almost fifty years, been held by John E. Hyde & Co., now Messrs. John E. Hyde's Sons, of 22 Maiden Lane.

We call the attention of the trade to "Snap No. 1" which King & Eisele are offering. They intend to offer bargains of this description every 60 days. The reputation of the firm is of such long standing that they will not depreciate their goods for the sake of this offer.

The French crown jewels sold for an aggregate of 6,864,000 francs, or $1,372,800, about one-third of which sum was paid by Tiffany & Co., of this city. The greater portion of the jewels were purchased by dealers of different countries.

Mr. Alfred H. Smith, of Alfred H. Smith & Co., sailed for Europe on the *Umbria*, May 14. Mr. Harrison B. Smith, of this firm, who has been on the other side since last December, has attended the sale of the crown jewels in Paris.

The pattern shown by the Towle Manufacturing Co. in their advertisement of solid silver flatware in this issue of THE CIRCULAR, is known as the "Clover" pattern. It is very handsone and attractive, as will be seen by the illustration.

Mr. Henry S. Oppenheimer, of Oppenheimer Bros. & Veith, who was recently on a short visit to the New York Branch, returned last month to his office at 2 Tulpstraat, Amsterdam. He is sending over an average of one invoice a week.

Mr. I. M. Kallmeyer, of the wholesale jewelry firm of Kallmeyer Bros., Detroit, recently went on his regular trip through the West, accompanied by a liveried porter who sported a magnificent cluster of diamonds upon his quivering breast.

The creditors of Jacob Gumbinger, of Jacksonville, Fla., are signing an agreement to accept a settlement of 65 per cent., to be paid as follows: 25 per cent. cash, 20 per cent notes due January 1, 1888, and 20 pcr cent. notes due May 1, 1888.

Some burglars entered the establishment of J. S. Prince, Montreal, Canada, on the 9th of last month after midnight. They secured jewelry amounting in value to about $1,500 and escaped. They effected an entrance by smashing through one of the show windows.

Mr. J. F. Fradley, the manufacturer of cane heads at 23 John street, has taken the office on the first floor lately occupied by Mr. Charles Jacques, which he will use for an office and show room, retaining the up-stairs room for his factory.

At the fourth annnual meeting of the Jewelers' Security Alliance, held at 170 Broadway, on May 3, a resolution was passed tendering a vote of thanks to the different trade journals for their kindly mention of the meetings held by the Alliance during the year.

The watches of Vacheron & Constantin, Geneva, are adding principally to the sales of Mr. Chas. Leo Abry, the sole agent in this country. He reports that he sells more of the higher grades than of the lower, and that they are giving satisfaction wherever sold.

Chandler & Shader, of Chicago, filed a voluntary assignment on May 17th, to James E. Moore. The liabilitics were reported at about $25,000, with about $20,000 assets. The firm claims that it was heavily pressed by its creditors since the recent Chicago failures.

Mr. Chas. W. Froughton, recently with Messrs. M. Fox & Co., has associated himself with Mr. C. C. Adams, who, under the name of C. C. Adams & Co., opened a fine retail jewelry business at 474 Fulton street, Brooklyn, on May 23.

Mr. Eldin B. Hayden, who has two flourishing jewelry stores on Fulton street, Brooklyn, opened a third last month at No. 231 on the same street. The new store, which is but a block or two from his first one, will be run under the name of E. Barrett.

Mr. Charles Magnus, who was recently with Messrs. Philip Bissinger & Co., and started in business for himself about the first of January, has opened an office in 18 John street. He will carry a line of precious stones, loose and mounted, and will make his own importations.

S. Albro & Co. will introduce many novelties in rolled plate chains the coming season. Among them is a line of gold front chains in various patterns. Illustrations of various patterns of these novelties are now being prepared and will appear in the next issue of THE CIRCULAR.

The new office of Messrs. Louis Strasburger & Co., on the corner of Maiden Lane and Liberty Place, affords excellent light for the diamond business. The ceiling is high and there are large windows at two sides. Mr. Louis Strasburger is still in Europe making purchases for his firm.

Some very flattering letters have recently been addressed to Mr. Chas. Hofer, of Waltham, Mass., regarding his new jewel pin setter. The letters come from several of the large watch companies and material jobbers, and there remains no doubt that this new tool is deserving of attention.

The June number of the *New York Jeweler*, a monthly publication issued by Messrs. S. F. Myers & Co., promises to contain many interesting illustrations of Spring and Summer novelties. This paper is sent gratis to any retail jeweler in the country, and can be had regularly upon application.

The international badge of the Young Men's Christian Association, made by Mr. Chas. S. Crossman, is as unique in design as it is interesting. There are upon it many emblems of various meaning enameled in several colors. It is becoming quite popular, and is being sold throughout the world.

Messrs. Alois Kohn & Co. are now thoroughly domiciled in the old office of Messrs. A. Wallachs' Nephews, which has been renovated and refitted for their accommodation. Messrs. Kohn & Co. certainly make a beautiful line of gold chains, and they are rapidly pressing to the front as gold chain makers.

The "Success" initial ring, manufactured by J. T. Scott & Co., is all that its name implies, as it is in great demand with the trade. The interchangeability of the initials and the readiness with which one can be substituted for another, constitute features that are specially attractive and desirable.

It sounds rather paradoxical to hear one ask to *see* the "*Invisible*" setting, yet the question is becoming common in the trade. The "Invisible" setting is a narrow strip of gold encircling the edge of the brilliant, so thin that it cannot be seen from the front, but strong enough to hold a diamond securely.

Mr. Emil Herbrich, of Cincinnati, O., made an assignment April 27. His assets are estimated at $3,000 and his liabilities about $4,500, including a mortgage to his wife of $2,000, which is preferred. He gave as a reason for his failure the pressure of a claim of $2,000 by the wife of the late Clemens Oskamp.

The Rosencranz Weber Co., of Chicago, failed on May 4th, with a long list of creditors whose claims amount to nearly $70,000, with less than $50,000 assets. The Company had a capital stock of $40,000. They lay their failure to the pressure from Eastern creditors who lost heavily in the failure of Clapp & Davies.

Mr. Lorenzo Cuppia, representing the house of L. A. Cuppia, 19 Union Square, will leave New York for Europe about the middle of June for the purpose of visiting the factories of Birmingham, Paris, Genoa and Vienna, with a view to the enlargement of his stock of gold and silver jewelry for the Autumn trade.

The following named gentlemen are about to sail for Europe: Mr. M. Fox, of Messrs. M. Fox & Co., sails on the *Aller*, June 1st, with his wife; Mr. S. H. Joseph, of Messrs. Albert Lorsch & Co., sails June 1st; Mr. Max Freund, of Messrs. Max Freund & Co., and his brother August, sail on the *Ems*, June 8th.

A unique design in presentation medals is being made by Mr. Henry C. Haskell. It is a large piece of 22 karat gold, about the size and shape of a silver dollar, and weighs 42 dwts. It is to be given to a venerable couple on the fiftieth anniversary of their wedding by their eleven children, all of whom are alive.

A little directory of Maiden Lane jewelers has just been published, and is neat and attractive. It has the names of all jewelers in the immediate neighborhood of Maiden Lane, which it styles "The Home of the Watch and Jewelry Trade." Copies can be had from Mr. H. M. Wolf, Secretary, P. O. Box 1264, New York City.

Rogers & Bros., are nearly settled in their new and elegant store, 16 Cortlandt street, running through to Dey street. The task of moving their immense stock together with their factory, has been the work of many weeks. When they get finally settled, however, their increased facilities for trade will well repay the trouble and expense.

The French steamship *Champagne* which was wrecked early in May on the French coast, had on board a case of watches consigned to Messrs. J. Eugene Robert & Co. This case was recovered and sent to this country on *La Bretagne*. All the watches were irreparably damaged, and the case, originally worth $2,500, is now valued at $100.

The new office of Mr. Wm. Riker, at the corner of Broadway and Seventeenth street, is most pleasantly situated. A large bay window commands a fine view of Union Square and of the most fashionable part of busy Broadway. He has twice the amount of space he had in his old Maiden Lane office, and about ten times the ventilation, light and comfort.

The new factory of Mr. O. Schwencke, maker of hair jewelry, etc., at 8 John street, is now in complete order, and is larger than the old one in Maiden Lane. Mr. Charles T. Menge has retired from business, and issued a circular to his customers recommending them to send their orders to Mr. Schwencke, and the latter has increased his facilities on that account.

Messrs. Jacques Depolier, Jules Dubois, Louis Duval and Emile Cureau announced that they have formed a co-partnership under the name of the Dubois Watch Case Company, for the manufacture of fine watch cases in 14 and 18 karat gold for American and Swiss movements. Their factory is located in Brooklyn, but their business office is at No. 2 John street.

This Spring has been an unusually good season for tower clocks. The Seth Thomas Clock Company are now engaged on several important ones. The new Seth Thomas' watches are a success. Jobbers are taking hold of them and retailers buy them with the clocks. The company already have out four grades, and will soon have a ladies' size on the market.

Buyers of fancy goods who neglect to call at 33 Chambers street when looking for new things, run great risk of not seeing the very latest novelties. The Chas. D. Pratt Co., at that address, keep everything in this line, and for the coming season they will have the monopoly of some novelties from several out-of-the-way places in Germany and neighboring countries.

A clock movement, handsomely finished, was recently exhibited at the office of the Howard Watch and Clock Co. It was a fine grade of movement, contained eight chimes besides the regular striking gongs, and the parts were finished to perfection. This company is making a special feature of these chime clocks, and are producing better ones than those of English make.

August Trier, of Trier Bros., died very suddenly on the evening of May 5th, of hemorrhage. He was well known and liked by the trade wherever he was known. His funeral was held on Sunday, May 8th, the interment being made at Union Hills cemetery in Brooklyn. The firm name will remain unchanged and the business will be continued by the remaining partner.

The Crittenden Jewelry Co., of Cleveland, O., owned by August G. Ilg, made an assignment on May 7th. The liabilities were reported at $20,000, and the assets about $25,000. The assignment deed was made by August G. Ilg to George H. Schwan. Mr. Ilg reported that his suspension was made merely to protect certain of his creditors, and that he would continue in business.

Messrs. M. B. Bryant & Co. have recently been compelled to find a larger factory owing to increase of business. Their old place at 268 Liberty street was much too small, and at No. 26 in the same street they have a large and well-ventilated factory. Their machinery, all of which was purchased within a year, has been further extended and improved. Their salesroom is still at 10 Maiden Lane.

Regarding the recent destruction by fire of the factory of Kendrick & Davis, makers of dust proof watch keys, at Lehanon, N. H., the firm writes as follows: "Fortunately, as we carry a large stock of keys at this time of year preparatory to a vacation, we will be able to supply our customers with goods, except name keys. We have a large force of men at work on building and machinery, and hope to be able to furnish the name keys in a very short time."

A practical and convenient price list of watch tools and materials has just been issued by Messrs. Cross & Beguelin. The book is small enough for the pocket, and the typography neat and distinct. The material and tool department of this firm is its pride and boast, and is in the hands of an efficient force of clerks. This price list should be secured by all watchmakers and material dealers.

Mr. C. H. Jacot, of Jacot & Son, obtained on May 3 a patent on a new system of interchangeable cylinders for musical boxes. The chief new idea is a simple arrangement of the spring holding the cylinder in position, and is simple but quite valuable. It has been introduced upon all the musical boxes made by this firm. Messrs. Jacot & Son have an elegant musical box mounted upon a large desk-like cabinet. It is of fine workmanship, beautifully veneered and highly polished.

A novelty in ladies' watch cases was recently introduced by Messrs. Stern & Stern, called the "Motto Cases." They are handsomely engraved with landscapes or imaginary scenes, and various mottoes appropriate for presentations. One pretty case has a beehive engraved in the center of floral work, and the motto about the busy bee improving the shining hour is handsomely engraved below. In diamond, inlaid and fancy ornamented cases, the Messrs. Stern have just received a large assortment and they are having a fair trade in them.

The Self-Winding Clock Company is gradually stocking up the show rooms of the American Mfg. and Supply Co. with all styles of their clocks. A large oak clock in the center of the store is valued at seven hundred fifty dollars. Its movement is fully jeweled with big sapphires, and its parts are put together with the same skill and excellence that are required to produce a complicated watch. Mr. C. H. Pond, the inventor of the self-winding clock, is an electrician of established reputation, who has given to the world many valuable electrical inventions.

A circular issued by the officers of the Jewelers' League announces that "With the closing of this present assessment the League will reach the end of its tenth year—its obligations fully cancelled and a handsome amount in its Reserve Fund. Organized in June, 1877, its object being to prove of mutual benefit to its members, by aiding the families of those who were removed by death, it has accomplished good results that cannot be estimated upon any pecuniary basis. There have been but 95 deaths in ten years, which is a rate per annum extremely low in an association of the size of the Jewelers' League.

A complicated watch which gives no more trouble to its wearer than an ordinary watch is a blessing, and is not to be found in every watch making establishment. Messrs. Mathey Bros. & Mathey, who make a full line of these goods and always carry a complete assortment at their office, say that they never have one come back to them with the complaint that it is "out of order." Great care is taken by them in the manufacture of these watches to so accurately fit and adjust the parts, that they are really no more complicated in their workings than an ordinary fine watch.

A novel little nickel clock has just been put on the market by the Waterbury Clock Co. The movement, called the "Crescent," is made with a solid plate, and one spring, enclosed in a barrel, runs both the clock and the strike. A "silent attachment" is soon to be introduced on this movement which will enable the strike to be used or disused at will. This little clock strikes the half-hours, and the hours. Turn the hands backwards or forwards, with all the rapidity you like, and the clock finds its time, and always strikes as its hands point.

Since the 1st of May, Messrs. Albert Lorsch & Co. have taken possession of the entire first floor of their building, 37 Maiden Lane, and have renovated it completely and partitioned off a private office at each end. The place is about 95 feet long and 25 wide. The walls have been papered with an exquisite pattern of delicate blue color, and in either private office a choice of light can be had. The front office has a strong light during the middle of the day, while the rear one has a much softer light. Accommodations for their customers have been provided and they will be made to feel at home.

The patented gas furnace made by Mr. F. P. Reichhelm, of 80 Nassau street, is now used in many shops throughout the country for melting, refining and annealing gold, etc., and is commended by those who have used them. He has just issued an illustrated catalogue of these gas furnaces and sends them upon application. His stock of tools for jewelers, silversmiths and watchmakers is complete, and the latest improvements in all sorts of tools and materials are always included in it. He has a special department to provide large establishments with complete outfits, and never overlooks an order for the smallest file or brush.

An erroneous impression has held with some jewelers that the cheaper they can get plated jewelry the better. Krementz & Co. told us the other day that they were constantly getting orders for their plated collar buttons "of cheap quality." Now the idea of this firm is not to make a cheap quality of plated button, but buttons that are somewhat cheaper than solid gold buttons. There was a demand in the better class of trade for such goods, and when Messrs. Krementz & Co. started to make their one-piece button they decided to plate it with gold of 14 carats fine. Since then they have declined to make it in cheaper quality, for they believe that jewelry should be well made, and that in so useful a thing as a collar button it pays a jeweler in the end to sell one that will stand years of wear.

The committee of the creditors of Jacob Castelberg, composed of Messrs. S. H. Monell, W. A. Copeland and Joseph B. Bowden, recently issued a card to the creditors, notifying them that on the 17th of May they went before the Commissioner of Insolvent Debtors in Baltimore, and elected Mr. Thomas Hughes permanent trustee for the proper protection of the further interests of the creditors. The committee also announce that they have decided to pay the creditors their respective shares of the assets "as rapidly as they are converted into money, without waiting for larger, but longer deferred dividends." The committee further announce a distribution of six per cent., which was paid on May 27. The committee say in answer to repeated inquiries that they will continue to fully care for the interests of the creditors, and will take all necessary action until due notice to the contrary is given.

The following named gentlemen sailed for Europe during the past month: Mr. J. T. Bailey, of Bailey, Banks & Biddle, Philadelphia, on the *Germanic*; Mr. Henry Oppenheimer, of Chicago, on the *Werra* early last month; Mr. H. Oppenheimer, Jr., of Messrs. H. & Z. Oppenheimer on the *Werra*; Mr. C. Cottier, of Messrs. C. Cottier & Son, on *la Gascogne*; Mr. J. H. Wattles, of Pittsburgh, Pa., on the *Aurania*; Mr. E. E. Kipling on the *Aurania*; Mr. A. J. Grinberg, of Messrs. Grinberg & Glauber, May 14th, on the *Normandie*; Mr. Thos. LeBoutillier sailed the 28th of May, on the *Saturnia*; Mr. R. N. Peterson, of Messrs. Peterson & Royce, May 4th, on the *Germanic*; Mr. E. Harris, of Messrs. Harris & Shafer, Washington, May 4th, on the *Germanic*; Mr. C. H. Jacot, of Messrs. Jacot & Son, May 21st, on *La Bretagne*.

The strike of the silversmiths remains in a dormant condition. A few of the strikers have got tired of idleness and have left their unions and gone back to the shops. The manufacturers are as firm as a rock, and will not take a man into their employ who will not promise to obey his employers and give up his adherence to outside or union influences. The manufacturers also are all acting independently. There is no "combine" to freeze out the men, and there is no personal feeling against any of them. The employers are merely fighting for a principle, and it is believed that they will hold to it to the end. Last week the State arbitration committee called a meeting of the silversmiths, employers and strikers, but none of the employers appeared as they do not recognize the right of any State official to interfere in their business. They have simply discharged men whom they did not want, and there is nothing in the situation calling for arbitration.

An excellent illustration of the methods of the Knights of Labor is shown in a recent event. Messrs. Rogers & Brother, the silver plated ware manufacturers, who have been moving their factories into the new building, 16 Cortlandt street, have kept in their employ about twenty-five mechanics. There were masons, plumbers, bricklayers, painters, carpenters and others of other trades, who all belonged to some "union." The carpenters were required, among other things, to fit together the large show cases and other fixtures which had been removed from the up-town store, and at first they were much puzzled to know how the parts fitted. This caused considerable delay, and it was suggested to them that a colored porter, who had been in the employ of the firm for years and knew every board in these cases, should come down and help them. This was merely to facilitate the work, as he could stand by and hand each piece to the carpenters as it was required and show them where to put it. This plan worked very well the first forenoon, but in the afternoon the porter came to one of the firm and reported he had nothing to do. "You cannot have finished that job with the carpenters already?" he was asked. "No," said he, "but the carpenters said that as I was not a Knight of Labor they could not let me work with them." And so the work was delayed till the carpenters could find some "Knight" as competent to teach them as the colored porter.

B. & W. B. Smith now own and are the sole manufacturers of a new process of putting together glass for small show cases from 2 inches square to 48 inches square, and of every conceivable shape. By this process the frames of the cases are about $\frac{1}{8}$ inch wide and $\frac{1}{4}$ inch thick, and can be made to imitate rosewood, mahogany, walnut, cherry or ebony. They will be found very useful in the jewelry trade. Messrs. B. & W. B. Smith are getting out their new catalogue which will be ready June 15, 1887, which will contain many new and handsome designs in store furniture.

The report of the Director of the Mint on the production of the precious metals in the United States for the calendar year 1886 is in press, and will soon be ready for distribution. The Director estimates the year's production in the United States at: Gold, $35,000,000; silver, $51,000,000. The production of gold shows an increase over 1885 of $3,200,000, while the production of silver is slightly less. Colorado ranks first as the largest producer of the precious metals in the United States, the value of its production of gold and silver having been over $20,000,000. California yields second place to Montana, with a production of nearly $17,000,000 against $16,000,000 by the former. The value of the gold deposited at the mints in 1886 was $79,057,818, of which over $21,000,000 consisted of foreign bullion and over $9,000,000 of foreign coin. The deposits and purchases of silver amounted to $59,086,070. The coinage consisted of 63,739,566 pieces of the face value of $61,375,438.

George Hartje, one of the late firm of G. & F. Hartje, Union Square, died suddenly of heart disease on the 7th of May, aged 46 years. He was born in Germany and came to New York when but a boy. He worked in the shop of Austin Brothers when that firm had charge of the manufacturing department of Ball, Black & Co., and here he learned his trade. In 1864 he started in business with Mr. Jacquin, under the style of Hartje & Jacquin, which firm dissolved after about three years. For a short time he continued in buiness alone in Fulton street, and was subsequently employed by Mr. Thomas G. Brown, with whom he remained until 1876, when the late firm of G. & F. Hartje was formed. He was an industrious man, honest and agreeable, and his reputation among the trade has been good. It was little suspected that he had heart disease and his death was unexpected. The funeral was held on the Tuesday following his death, the interment being made in the Lutheran Cemetery, Brooklyn. Mr. F. Hartje intends to continue the business under the old style.

A meeting of the principal manufacturers of silver plated ware was recently held, at which the new Inter-State law was discussed. A committee was appointed at this meeting for the purpose of petitioning the classification committee of the railways for a return to the old classification of plated ware. It was formerly rated first-class, but since the new law, has been rated at once-and-a-half the first class rates. The committee show in their petition that the old rates were satisfactory and profitable to the railroad companies, and allude to the fact that the principal company in the East had voluntarily reduced its rate of freight on plated ware from 22 to 18 cents per hundred pounds; that since the new classification took effect, this company had been compelled to change its rate to 27 cents. The committee go on to show, that plated ware is not an article of luxury but of necessity, and state the fact that some of the New England railway managers have urged for it a special classification as low as cutlery or hardware. It is shipped in large quantities and there is seldom any loss. The committee hint that the manufacturers would be willing to risk all losses if they could obtain as low a rate as crockery, which is fifth-class.

The new offices of Messrs. Miller Bros. are without doubt the finest in the trade. Taking up the entire first floor of 37 Union Square, the space is about a hundred feet long by twenty-five or thirty wide. This is divided and sub-divided into private offices, closets and other conveniences, and the furniture which is entirely new is of the finest material and workmanship. In the front part is the diamond department, and a heavy mahogany rail encloses the desk of Mr. Miller. Three large safes, also new, enclosed in protection cases of mahogany, form an imposing side to the office. The rear of the office is divided up with a large place for the bookkeeper, and extensive tables for carding jewelry. A small office in one corner promises to be the envy of all the "boys of the road" who may see it. It is elegantly fitted up and designed expressly for the use of a traveler. Here he can lock himself in, smoke his cigar in peace and arrange his stock at leisure. It is worth a call, simply to inspect these elegant offices, while as to stock, pretty much everything handled by jewelers can be found here, in addition to the extensive lines manufactured by the firm. Union Square now contains a notable cluster of jewelry and silverware manufacturers and dealers, and all seem to be doing an excellent business. It may not be out of place to note the fact that the large safes in Miller Bros. were manufactured by Herring & Co., while the elegant furnishings and decorations were provided by B. & W. B. Smith, the well known decorators and finishers.

The sale by auction of the French crown jewels during the past month attracted to Paris many of the largest dealers in precious stones from all prominent cities in the world. Our dealers were well represented and some large purchases were made by them. Tiffany & Co., of this city, were the largest American buyers, having determined in advance to invest about $500,000 in these gems. Their most important purchase was made at the sale May 20, and consisted of two entire lots and a fourth of another, paying for the entire purchase $194,620. Out of the forty-five lots already sold, Tiffany & Co. have bought in whole or in part ten lots, paying for all, including the last purchase, $322,540. The most important lot was a corsage of brilliants consisting of fourteen pieces, a number of which are made up of smaller stones. In the corsage there is a pendant of sixteen karats, two of fourteen karats each and an oval brilliant of fourteen karats. For this corsage the firm paid $162,200. The other entire lot consists of 321 brilliants, of $68\frac{1}{2}$ karats in all, and 300 brilliants, of thirty-six karats together. This price paid for this lot was $24,020. The other purchase was a fourth part of a set of rubies and brilliants for which $8,400 was paid. There are a few more lots to be disposed of, one of which are the famous Mazarins. The firm is not buying for private persons, though many people have made inquiries of the New York house concerning the sale. The first purchase made by the firm was sold to some one in Europe. It is a necklace of four rivieres, for which Tiffany & Co. paid $36,300. The other lot is a buckle for a girdle, and the firm paid $36,000 for that.

The "Gladstone Testimonial," a large ornament containing a thousand ounces of pure silver, is now on exhibition at Tiffany's. This magnificent and costly work of art is the gift of many of his admirers in America. There is much political significance in the gift, but of that others have spoken and THE CIRCULAR treats it but as a work of art. It stands thirty-six inches high, with a width of twenty-two inches at the base. The testimonial is crowned with a small bust of Gladstone. The pose of the head is majestic, the face is stern yet of pleasant expression and the design is correct. Immediately below the bust is a pedestal with the inscription, "William Ewart Gladstone, Testimonial Presented by his American Admirers." This is in fancy letters with raised surface and a fancy scroll-work background. In the center of this part of the pedestal is a laurel wreath surrounding a *facies* and scales of justice, with the words "Home Rule" in prominent letters. On the right side of this pedestal, and standing on the main pedestal, is a female form clothed in a light garment covered with stars. She holds in her left hand an Irish harp, and with her right arm lovingly clasped about the base of the bust, she looks up at the form of Gladstone with a face fixed with deep admiration. She represents the American admirers, and they are beautifully represented. Upon the other side of this pedestal is a large wreath of laurels, and on the back the date of presentation, 1887, is done in a rich ornamented style. Below this pedestal is the base. This is a large oblong block resting upon six feet of Celtic pattern. Its panels are ornamented with emblems. In the center is represented the "lamp of learning," with the word "Sapientia" in block letters. Over this is the coat-of-arms of Christ Church College, with the words "Double First," which means to the men of this college that he took the first place both in mathematics and classics. To the right of this central group is a wreath with the emblem of justice, and to the left is a similar wreath with the emblem of kind-heartedness. The head of Homer in relief on the left side of the base indicates the classical learning of Gladstone, and that of Demosthenes upon the other indicates his great power as an orator. Shamrocks and stars and stripes arep atterned into this testimonial with great skill and artistic effect. The whole piece, which is made solid and of pure silver, is a remarkable example of workmanship, and a work of art that does credit to all concerned in its construction.

Mr. C. B. Wilkinson, the manufacturer of medals, badges, etc., who recently removed to 42 John street, was fortunate in his choice of an office. The new place is both large and well-ventilated; the light is good, being in the front part of the building and having three large windows. He is doing a good business at present, especially in fine medals of special designs.

The two large safes of Messrs. H. F. Barrows & Co., which were the handsomest on the Lane several years ago, have been sent to the factory at North Attleboro, Mass. This change was made on account of the determination of the firm to rid themselves of petty memorandum orders in the city. Hereafter the office at 1½ Maiden Lane will be used as a sample office only.

At a meeting of the Central Labor Union on May 1, a resolution was adopted requesting all labor organizations which contemplate giving prizes or medals for games during the coming summer, to boycott firms which are in combination with the silversmith firms until the present difficulty is settled. A very absurd and ridiculous proceeding—a case of biting off your nose to spite your face.

The pretty pansy, in all its simple gracefulness, with petals waving and stem cut short, is reproduced very naturally, as far as form is concerned, in black onyx, and mounted by Messrs. Woglom & Miller into a handsome brooch, with a large pearl in the center. This firm also has many other excellent styles of brooches and lace pins, with and without pearl ornaments. They report that the crape finish is preferred to the polished onyx.

Queen Kapiolani visited the factory of the Waltham Watch Company early last month, attended by her suite, officers of the company and authorities of Waltham. She was much interested in the factory arrangements and the machinery for making watches. A subject of the queen recently ordered a fine Waltham movement, in gold case, through this office, and it was so much admired by a friend of the purchaser in Honolulu, that an order to duplicate it was received soon after.

One of the busiest men in the trade is Mr. J. P. Delany. His retail store at 2 Astor House is crowded daily with retail and wholesale buyers. Since he opened his factory in Jersey City for the manufacture of the "Grip" button, he has also begun the manufacture of sleeve buttons in many varieties, and also of novelties in silver jewelry such as button hooks, ear knobs, etc. At present his orders are as large as his factory capacity, and he contemplates enlarging his facilities.

We are indebted to Messrs. Bowman & Musser, of Lancaster, Pa., for a copy of the book entitled "Resources and Industries of Lancaster." The work is a history and reference book of the growing enterprise and commerce of that city, and, aside from its typographical beauty, is interesting as a clear exposition of the growth of Lancaster from an insignificant town into a prosperous city. The book is printed for the Lancaster Board of Trade, of which Mr. Willis B. Musser is a member.

Among the jewelry houses which have recently moved up-town, not the least important is that of Errico & Co., late of 31 John street. In the days when coral jewelry was all the rage, Messrs. Errico & Co. were the largest importers of coral from Naples, but since it has fallen somewhat into disfavor, they have extended their business in other goods from Italy, such as filigree jewelry, terra cotta statuettes, bric-à-brac, etc. They are also the sole agents for the celebrated Nove's ware. A visit to the new store at 862 Broadway will be productive of much pleasure, and suggestive of many ideas to those of good taste.

The "Chippendale" is a large and imposing hall clock recently added by the New Haven Clock Company to its extensive line of novelties. It is made both in antique oak and mahogany, highly polished. Lavish decorations of heavy brass make the effect richer, and the dial of silver is of antique design. Another novelty is an odd-looking mantel clock. Shaped something like a jewel casket, its frame is of fancy brass and the panels on all sides are of silver, richly wrought with quaint designs. In the center is the dial of porcelain, which, with its odd numerals, effectually carries out the idea of antiquity.

Among the novelties in solid silver goods recently introduced, the following shown by Messrs. J. B. & S. M. Knowles are worthy of notice. A shaving set, composed of a telescope brush and a case for soap, are designed for the use of traveling gentlemen. They are made in various patterns and etched or finished in *repoussé* work in several sizes. Three or four new designs of paper cutters are quite pretty. In hair and clothes brushes some new patterns are shown, and of these the heavy chased ones are the most popular. Indeed, Messrs. Knowles have introduced this class of work upon many of their staple goods and find quite a demand for it. Some tea-caddies in this style of finish are very attractive.

Largely increased sales are reported as being all the while made to jewelers by importers of bronzes, artistic china, pottery, glassware, metal and kindred goods. Experiments made by out-of-town jewelers in carrying lines of these goods appear to have resulted very favorably, and proves the wisdom of THE CIRCULAR'S oft-repeated advice to diversify stocks. The attention of would-be purchasers is called to the immense and comprehensive stock of L. Straus & Sons, 42–48 Warren street. Here can be found one of the largest collections in the city. Special attention is called to the beautiful Gobelin ware from the celebrated Rudolstadt factory, also a full line of Comer glass objects at prices greatly reduced. Their stock of French bronzes and fine lamps are also worthy of inspection.

O. E. Hausburg, sole agent for the Standard Watchman's Clock, has issued a new and attractive circular descriptive of the fine and complicated watches handled by him. Dealers will find it to their advantage to possess themselves of his circulars, and also to place orders with him, as he announces liberal discounts to the trade. The Standard Watchman's Clock is well-known, there being hundreds of them in use in establishments where watchmen are employed. Incidentally we may mention that the insurance companies take into account the usefulness of these watchmen's clocks, and make allowances in their rates where they are used. They do not regard a watchman as of much service unless there is some check upon him that will compel him to do his duty.

Some elegant designs in gold cigarette holders are among the newest things made by Messrs. Carter, Sloan & Co. One pattern is a Roman gold eagle's claw, which clasps an oblong-shaped bowl, made of tiger-eye. The mouthpieces are of amber. In lace pins several new designs are shown, the most popular being of light and delicate patterns. Enameled flowers of small size are much used and are quite salable. One of the prettiest, perhaps, of the new designs is a small brooch made of two horseshoes. One is inlaid with half pearls and the other has a row of forget-me-nots. A horseshoe nail runs in and out through the two shoes, connecting them in a pleasing manner. Messrs. Carter, Sloan & Co. have also just made up a lot of pin cushions of various styles. One of these, with a silver daisy on either side of the cushion, is neat and dainty.

Thomas C. Perkins, who for the last six years had been a trusted employee of Messrs. Potter & Buffington, at their factory in Providence, was arrested early last month upon a charge made by that firm of stealing gold. Some months ago the firm suspected he was "crooked," and set a detective to watch his movements. The detective found that Perkins would take a larger amount of stock than was necessary at a time, and while working it would hide a goodly proportion of it, worth about a dollar a pennyweight. When arrested he had on his person gold of the value of about $100. Perkins was always regarded by the firm as an honest man. His wages were about $25 per week, and though he dressed elegantly and sported diamonds, yet the firm trusted him implicitly. It is thought that he has robbed the firm of at least $5,000 since being in their employ.

Hans Goebel, a boy recently in the employ of Messrs. S. F. Myers & Co., was suspected of taking gold watches out of the firm's stock to pay his board, and recently the firm found him out and had him arrested. In the police station he denied ever having stolen anything, but when a gold watch was found in one of his boots his confession of guilt soon followed. He was sentenced to five years at the Elmira Reformatory.

On a French invoice, recently received by Messrs. Mulford & Bonnet, one of the items, a large stone of nearly seven karats, was translated to read in English, "One enchantingly perfect gem," etc. The stone is certainly something near what these words imply, for in color, cast and material it is beautiful. The color is pure white, and though the stone possesses much life and brilliancy, yet it seems cold and impresses one with an idea of antiquity. This firm has just mounted up a few new fancy pieces, and one particularly handsome design is a sixteen-pointed star. It is composed entirely of diamonds and the points are delicately tapered.

The new up-town offices of Messrs. Charles W. Schuman & Sons, corner of Broadway and 17th street, are handsomely fitted with show cases and partitions, and in one corner, taking up a space of perhaps 15x20 feet, is stretched a large curtain made of the finest silk plush. This curtain is suspended from the ceiling on a massive brass bar, by heavy rings, and hangs in rich folds. The curtain alone cost about $800. Inside is the famous painting of the Russian Marriage Feast, and down stairs the other noted paintings and works of art belonging to Mr. Schuman are arranged upon the wall and in niches, and make quite an important gallery of paintings. The public is admitted upon paying a fee of twenty-five cents, which is afterwards distributed among the charitable institutions of the city, the sums thus far distributed in this manner amounting to several thousands of dollars.

The people of Japan are known to be an enterprising and imitative people. Evidences of their ingenuity are constantly being presented to us, but in the arts and sciences they are far behind the age. As artists and horologists they are most successful failures. A firm in Japan, seeing a fine pattern of clock made in this country, decided to imitate it and make it in quantities for home consumption. They made an excellent imitation of the case, which was mahogany, copied the dial and the hands exactly as the American clock, and, indeed, they even used the trade-mark of the American manufacturer, and pasted a *fac-simile* of his advertisement on the back of it. To all outward appearances the Japanese clock was a close copy of the American article. But here the resemblance ceased. The works were inferior in every respect, and the clocks cannot keep the time correctly for a single day. Yet these clocks have been sold throughout Japan in large quantities, and the American manufacturer, who was only recently apprised of it, has taken steps in Japan to stop it.

A despatch from India says that the Financial Secretary of India has advised the government of the discovery of an immense amount of treasure, estimated at over $25,000,000, which had been secreted in the palace of Gwalior by the late Maharajah. The treasure had been sunk in pits under the vaults beneath the zenana, and the secret was entrusted to a few confidential servants. The Secretary was present when the treasure was unearthed. After removing the earth to a depth of six feet the workmen uncovered great flagstones. Beneath these stones were several pits filled to the brim with silver, chiefly freshly coined rupees. In each pit was a plate recording the amount of the treasure and the names of the officials who had assisted in secreting it. The Indian government has taken the hoard as a loan from the young Maharajah. The native papers protest against this action. They say that had the Maharajah been an adult instead of being under a regency controlled by the government, he would never have invested his whole wealth in Indian securities. A question will be raised in Parliament as to whether the "investment" be not another name for seizure.

Dealers desiring elegant and substantial signs to attract attention to their places of business, would do well to examine the styles and prices of the signs made by the Excelsior Sign Company, of Chicago, who manufacture signs under the patents issued to Mr. L. S. Grout, who is the manager of the company. Among their attractive designs for suspended signs is one called the Star, which is a six-pointed star having a watch dial in the center. Another is the combined diamond, watch and spectacle sign, being a diamond-shaped panel with a watch in the center, while suspended from it are diamond-shaped spectacles. Other designs are watches more or less highly ornamented, various styles of spectacles, etc., arranged to be suspended in front of the business houses of dealers in jewelry. These signs are made of the best quality of iron, carved in elaborate designs, finished in the best gold leaf and warranted to resist the weather. Old rusty signs, that are weather-beaten and battered, are far from attractive, tending to convey the impression that the owner is an antiquated old fogy. Modern requirements demand that the successful business man shall make his place of business as attractive as possible, and nothing serves better to call attention to him than attractive signs. But dealers cannot afford the expense of renewing their costly signs every year, so the economical way is to buy the best at the outset. Iron signs finished with the best gold leaf are not only the most attractive, but are the least expensive in the long run.

On the twenty-first of last month there went into effect a law of the State of New York, legalizing the custom of a Saturday half-holiday. The jewelry trade for several years past has observed this custom, through the summer months, and the law does not make much change to its members. Two weeks before the above-mentioned date, THE JEWELERS' CIRCULAR sent representatives to visit some of the larger jobbing and manufacturing houses to gather opinions as to whether they would close their places at twelve o'clock, according to the law, or at one, according to the older custom. The almost unanimous verdict was one o'clock. Nearly every person seen said that it was absolutely necessary to keep open till one, and that shipments could not be got off before that hour. A few days later THE CIRCULAR sent around to every jeweler in Maiden Lane, John street, Broadway, Nassau street and wherever else they have located, a neat card with the legend in plain, yet bold and striking type, "Will Close at 1 o'clock Saturdays." Many hundreds of the one o'clock cards had been distributed when there came a demand for others with twelve o'clock instead of one, and we had a quantity of them printed immediately, and these were delivered wherever required. It may happen that some firms were not supplied with these signs. For this reason we have reserved a quantity of the cards, and will supply them gratis to any jewelry firm upon application.

Early last month, a man named H. Streicher was arrested in Alleghany, Pa., on a charge of swindling. He has been traveling through the country selling watches and jewelry below cost in some cases, and often making sales of second hand watches for new ones. It is now learned that Streicher was a jobber in Chicago some years ago, and that he failed and never settled with his creditors. A year ago the National Association of Jobbers heard of him as selling movements and cases below regular prices. This was found upon investigation to be true, and his prices ranged from 10 per cent. to 33⅓ per cent. below regular prices. Nothing could be done with him, however, as it was learned that he had bought out the stock of Charles Wendell's Sons, of Chicago, and that among this stock were the movements and cases he was selling. Streicher used fictitious bill heads, and one of them was elaborately printed with the name "A. Pollack & Co., 4 Maiden Lane." But very few of the jewelers who bought bills of him received honest goods. From a reliable source we learn that the man had sold fire-gilt chains for rolled plate, by substituting the swivels of a well-known firm for the fire-gilt swivels. The weights of his gold cases are said to have been several pennyweights less than his bills called for, and some of the movements old ones cleaned up like new. He used the staple American movements as leaders to sell his trash. Retail jewelers should know that if they are offered movements, cases or jewelry below cost they will surely be swindled.

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The Tax on Commercial Travelers.

NOTWITHSTANDING the various decisions of the Supreme Court of the United States declaring that State laws imposing taxes upon merchants or salesmen of other States who sell goods within their borders, are unconstitutional, it seems probable that all States whose laws have not been passed upon by this tribunal, will continue to enforce the tax. The Supreme Court in three or more cases has held, that a tax of this kind is unconstitutional, because in passing them the State usurped the authority of Congress to regulate traffic between the States, and interposed an obstacle to unrestricted inter-state commerce. One of the cases decided by the Supreme Court came from Tennessee and another from Maryland, and while the decisions will prevent any further attempt to enforce the laws in those States, they will not prevent Virginia and other States where they exist still enforcing their own laws. The State Treasurer of Virginia is reported as having declared, that the "Drummer's Tax" in that State has brought in a revenue of about $50,000 a year, and that he did not propose to give this up until the Supreme Court has specially declared the Virginia statute unconstitutional. In other words, he was not willing to accept the enunciation of a principle by the highest authority in the land, but would wait till that decision was brought home specifically to Virginia, by a declaration that her pet law was invalid. Other States are similarly situated, and similarly persistent in enforcing their unjust and unconstitutional laws. This will involve, in each case, a long, legal contest in the State Courts, and a final appeal to the United States Supreme Court. A case begun now and carried up would not, probably, be reached under three or four years, owing to the great amount of business accumulated before the Courts, and meantime the State would go on collecting the tax, imposing burdens upon our merchants illegally, that aggregate hundreds of thousands of dollars annually. For this there is no redress. Some one, in order to test each law, must suffer himself as a victim, submit to arrest, give bonds, appear for trial, carry his case through the State Courts and finally to the Court of last resort, subjecting him to great expense and serious loss of time. This is not likely to be done, as there are few men sufficiently self-sacrificing to undertake the fight—it is easier to pay the unrighteous tax and go on with his business. Unless some one of the travelers' associations takes the matter up in each State and prosecutes it to a termination, it will be a long time before travelers will escape the swindle involved in the enforcement of these laws.

There is one other method by which this abuse can be brought to an end, and that is by an act of Congress declaring that all such laws are, according to the decision of the Supreme Court, unconstitutional and invalid. It is scarcely probable that, in the face of such an enactment by Congress, any State would continue to enforce its license tax against commercial travelers. But Congress, although importuned so to do, has declined to pass such a law, on the ground that it has no right to interfere with State legislation, and that if State laws are unconstitutional, the Courts of the land are the proper authority to declare them so. But here is a case where precisely that has been done, and the States refuse to heed the Courts. Thus between the inaction of Congress and the "pure cussedness" of certain of the States, our merchants are likely to be robbed of large sums of money for several years to come. It might be a good plan to make a test case in some State, say Virginia, to ascertain whether a person arrested under the license law cannot recover damages for false arrest and illegal imprisonment. If the arresting officers could be made to pay heavy damages the example would, no doubt, serve to deter officers from making similar arrests in other States. This would be a more effective way of curing the abuse than interceding with Congress to pass a law, that would be ignored by those whom it intended to reach, or wasting years to test each separate State law before the Supreme Court. In the Courts of the District of Columbia, the Judge upheld the Supreme Court decision, so that Washington is now free stamping ground for commercial travelers, where heretofore they were subjected to outrageous taxation and blackmail. Possibly the higher State Courts may take similar action, but as they have heretofore strenuously upheld the State laws, they will probably continue to do so in any cases that may be brought before them. This is a matter in which every class of commercial men is interested, and they should join forces in making the fight thorough and con-

plete, never relaxing their efforts until every State recognizes the unconstitutionality of its license laws as regards commercial travelers.

Fashions in Jewelry.

LAST MONTH we alluded to the fact that the Jewelers' and Tradesmens' Company had issued a circular to the retail dealers of the country, asking them to co-operate in the good work begun three years ago by THE CIRCULAR, in educating the public up to a just appreciation of what is being done by the jewelry trade to keep the matter of personal adornment abreast of the times. While marked progress is being made in literature, science, the arts, etc., and the human race becoming more appreciative each day of all that is beautiful either in nature or art, it is but reasonable to suppose that an industry that is devoted to the production of articles of luxury and in which so many millions of dollars are invested, should contribute its full share to the progress of the age. In no branch of artistic work has there been greater advancement than is manifest in the productions of the gold and silversmiths. All the other arts and sciences have been made tributary to these productions, and whatever of progress has been developed in painting, sculpture, etc., may also be found in the modern examples of the handicraft of the gold and silversmiths. This has been abundantly demonstrated in the recent sales of the collections of some of our wealthiest citizens, whose death made necessary the dispersion of their art collections which they had spent their lives in collecting. At the sales of these famous collections, no articles offered attracted more attention than the examples of art work in gold and silver. The cabinets containing these were surrounded at all times by admiring throngs, whose admiration extended not only to the artistic ideas embodied in the works before them, but to the workmanship as well, and the highest encomiums were lavished upon the skill that had wrought out in the precious metals the beautiful conceptions of the artists who designed these masterpieces. At the sales these works of art and of value brought liberal prices, and the competition for them was very great, showing that there is a wide and growing appreciation of artistic work of this kind. That such is the fact is demonstrated by a visit to the salesrooms of the leading manufacturers, where will be found exhibited a profusion of gold and silver work in the greatest varieties of design and patterns that have ever been exhibited anywhere at any time. These productions are in response to a demand that is constantly increasing as the country grows in wealth, and the number of persons who can afford to gratify their longings for the beautiful multiplies with such rapidity as it does in this country. Our manufacturers are stimulated to renewed effort by the demand, and vie with each other in the beauty and elaborateness of their productions. The mere fact that these beautiful and costly works are produced is all the evidence that is required that the demand for them not only exists but is increasing, for our shrewd manufacturers are too good business men to put their money and their time into work that is not likely to be remunerative. If there was no market for them there would be no goods, whereas the fact is that there never was such a profusion of fine goods, embodying the highest artistic ideas, as there is at present. These goods take on all forms that are known to the jewelry trade, from elaborate pieces that are cherished simply for their artistic beauty to the most utilitarian articles of everyday use.

What is true of the demand for the best examples of the gold and silversmith's art, is true, also, as regards those examples of the jeweler's art designed for personal adornment. There was a time, a few years ago, when fashion, in its fickleness, decreed that gold jewelry should not be worn to any great extent, but even fashion could not enforce this decree fully, for each individual will insist upon following his or her own tastes in such matters and wear such things as are appropriate and becoming. There are few ladies who do not realize that jewelry, that is in itself beautiful, adds to their attractiveness when displayed with judgment, and hence jewelry has always been fashionable, in spite of all efforts to taboo it, since it was first invented. At times it has been less conspicuous than at others, but never has it been regarded as in bad taste when exhibited with judgment. One may be bejeweled to excess and so appear ridiculous, as another may be dressed in bad taste, but dresses are nevertheless demanded and so is jewelry. But Dame Fashion has recalled her decree against jewelry, and those devotees who formerly wore but little or none, do not now feel that they are dressed unless they are adorned with certain articles of jewelry, the kind and amount varying with individual tastes. Necklaces, brooches, ear rings, finger rings, lace pins, pins for the hair and for the bonnet, cuff buttons, etc., are worn on all occasions, and our lady contributor, "Elsie Bee," is our authority for the statement that even the garters worn by ladies are ornamented with gold, silver and gems. Of this we have no personal knowledge, although we remember having seen in the stores some very beautiful articles which we supposed to be bracelets of novel design until our fair contributor awakened our suspicions in the matter. But we can testify positively to the fact that the other articles we have mentioned are worn freely and openly by ladies at home, at parties, in the street and on all occasions. The poet remarks that "beauty unadorned is adorned the most," but our modern ladies act upon the belief that judicious personal adornment heightens their beauty, and American women the world over are noted for their loveliness. As for the gentlemen, a certain amount of jewelry has become with them a matter of necessity. They must have their collar and cuff buttons, their watch and accompanying vest chain, a handsome scarf pin, studs for full dress, charms for their watch chain and one or more finger rings, and other articles of ornament according to taste. These are worn by everybody, at all times and at all seasons, some of them being absolutely indispensable to full dress occasions.

These are the fashion in the larger cities, and as the country takes its styles from the cities, it is obviously for the interests of the retail dealers to make known to their constituents what are the prevailing styles they are expected to conform to. It has been our purpose in printing each month a department of "Fashions in Jewelry" to furnish to the retail trade full information as to prevailing styles in jewelry, and to keep them informed as to what the manufacturers are doing to keep up with the times in this age of progress. The contributor of this information, "Elsie Bee," is a lady whose fashion articles have been in demand for a number of our daily contemporaries, and she is as well known among the dry goods merchants and milliners as she has come to be among the jewelers. She makes it her business to keep fully informed as to fashions in everything in the nature of personal adornment, so that what she says from month to month about styles in jewelry can be accepted as authentic. As we have so often stated, her articles are sent out to retail dealers in the country each month in advance of their publication in our pages, so that dealers may have extracts from them reproduced in their local papers simultaneously with their appearance in THE CIRCULAR. Several hundreds of these advance sheets are sent out each month, and, as nearly as we can estimate, extracts are printed in not less than three hundred papers every month. The advantage of this to the trade can be imagined. We are willing to send the advance proofs to every dealer regularly who will apply for them. Editors of local papers are usually eager to get them, and if the dealers will take the trouble to distribute them we will cheerfully furnish them without cost.

The Strike of the Silversmiths.

THE EMPLOYING silversmiths having persisted in locking out their workmen who were contributing to the support of the strikers in the Whiting Manufacturing Company's employ—the strike and lockout having lasted several weeks with no sign of being terminated—the idle workmen made application to the State Board of Arbitration to investigate the matter, with a view to bringing about a settlement. Accordingly, early last month the board, consisting of three members, met in this city and began, in their peculiar way, an investigation of the matter. They first determined to take testimony to ascertain if there existed a strike and lockout; it would have been quite as reasonable to take testimony to establish the fact as to whether or not water will run down hill. The fact of the strike was a matter of public notoriety, and the causes leading to the lockout were equally notorious. But the board had to do something to earn their pay, mileage and expenses, so testimony was taken. The absurdity of this interference by a commission appointed by the State becomes apparent when it is known that they have absolutely no power whatever to put an end to the strike—they can neither compel the strikers to resume work nor the employers to re-employ the men whom they have discharged. But testimony was taken all the same, and the State will have a nice comfortable bill of expenses to pay, while there is no possibility of the board accomplishing anything that the workmen and the employers could not as well have done without outside interference. In fact, the whole trouble has been brought about by outside interference on the part of men who had no knowledge of the business and no right whatever to interfere, and if the employers would not submit to the dictation of the Knights of Labor, claiming to represent their employees, they would not be likely to submit to the dictation of a State Board of Arbitration, that represents nobody, and has no authority to act for anyone. The simple fact is, this board was created to make places for politicians, and was a little piece of cheap demagogery indulged in by our legislators with a view to conciliating the labor vote at the coming elections.

At the examinations held by the board, both the men and the employers were represented by counsel, the latter with a view to preventing misrepresentations of the situation going forth to their prejudice. The testimony of the men who were examined showed the situation to be precisely as we stated it last month, viz.: That the workmen in the employ of the Whiting Manufacturing Company having become members of the Knights of Labor, determined to make the factory conform to the rules laid down by that organization, and to permit no one to work in the factory who did not belong to the Knights. They made a pretext for striking out of the fact that the number of apprentices employed was in excess of one to each four journeymen, this being the limit of the number permitted by the Knights. They asked that the number should be reduced, a demand which, had it been acceded to, would have placed the factory virtually in the control of the Knights, for they would have increased their demands in the precise ratio in which they were granted, as the shoemakers in the New England cities have done, till the shoemaking industry in that part of the country has been sadly crippled and some of the largest employers ruined. The Whiting Company saw the drift of the movement, and they refused to break faith with their apprentices, with whom they were under contract, and the men quit work without notice. After the strike had run along for a time, it was found that the Knights of Labor employed by other silversmiths were contributing to support the strikers, so the manufacturers agreed to dismiss those of their employers who were so contributing. An order was posted in the various factories to the effect that employees who were aiding the strikers in the Whiting Company's factory were no longer required, and this constituted the lockout regarding which so much has been said. The silversmiths of Providence had the good sense to perceive that their connection with the Knights of Labor was only an injury to them, giving to shoemakers and car drivers, who belong to the order, a right to dictate the terms of their employment, and they promptly surrendered their charter and withdrew from such association. But the Knights in New York exercised a more powerful influence over the workmen, and they refused to surrender their membership, while the employers refused to take them back as members of that order. They were willing to treat with them as individual workmen, but not to recognise them as Knights of Labor, or to concede to that organization the right to regulate their business. The testimony taken by the board showed that the men were earning large sums weekly, their wages largely exceeding the wages of almost any other class of artisans, and that there had been no trouble until the men undertook to enforce in the Whiting factory the rules and regulations prescribed by the Knights of Labor. The men themselves testified that they were getting good pay and were entirely satisfied with their situations until this question of apprentices was forced on them by the rules of the order to which they had yielded their independence and their individuality.

A greater mistake has seldom been made than the one embraced in this strike of the silversmiths. They not only compelled the employers to make war upon the organization to which they belong, but they advertised the fact that the trade of a silversmith is remarkably well paid, and that men of skill and ability can make from $25 to $50 a week, and even more; also that the demand for their labor exceeds the supply, and that even fair workmen can find permanent employment at good wages. As a result, it will be but a short time before the market will be overstocked with silversmiths and the price of labor in this line will be reduced in consequence. There are thousands of skilled workmen in other lines of industry that are so near of kin to that of silversmith, that it will take but a short training to make them available workmen in the factories of the employing silversmiths, and those workmen who so jealously guard their art from apprentices whom they could influence and control, have, by their injudicious action, thrown wide open the doors of competition, and advised artisans in lines that are overcrowded that there is a demand for silversmiths and high wages awaiting those who can adapt themselves to the requirements of the trade. Instead of graduating a few apprentices each year, they have invited all who can handle tools, however indifferently, to compete with them for the work to be done; where there has been a scarcity of labor in the past there is likely to come a surfeit, and a reduction of wages is the inevitable result of an overstocked labor market.

At the time of this writing the Board of Arbitration has not made known the results of its investigations; whatever these may be we shall endeavor to place on record in another part of the paper that goes to press later in the month. Whatever the board may conclude, its opinions cannot change the situation by one iota; certain workmen have seen fit to abandon their employment, and the board is powerless to compel them to return to work; certain employers have discharged certain workmen whom they did not want, and the board is powerless to compel them to re-employ them. In short, the State Board of Arbitration is a political abortion and a humbug, which fact no one more fully appreciates than the intelligent gentlemen composing it.

The Fire Risks of Manufacturing Clocks, Watches, Jewelry and Silverware.

THE following article upon the fire hazards of manufacturing establishments in the jewelry and kindred industries, we copy from the *American Exchange and Review*, of Philadelphia, one of the best insurance journals, noted for its intelligent criticisms of special fire methods:

"The industries here grouped have general resemblance in use of the precious metals; all require light and fine machinery, and all do

much carving and ornamentation. It is within about thirty-five years since clocks and watches began to be made with interchangeable parts in large factories by machinery; and such machinery has been followed with greatly increased use of alloys in copying finer work. Galvanoplastic methods have recently much modified the former fire risks of the silverware industries. We give these data from the Tenth United States census:—

Industries.	Establishments.	Capital.	Average Capital.	Employees.	Value of production in 1880.
Clocks	22	$2 474,900	$112,495	* 3,940	$4,110,367
Clock cases and materials	2	6,000	3,000	46	50,500
Watches, †	11	4,144,327	376,757	* 3,346	3,271,744
Watch cases	27	1,584,720	58,694	1,758	4,589,314
Jewelry	739	11,431,164	15,469	12,747	24,201,621
Jewelry and instrument cases	17	62,000	3,647	138	131,670
Silverware	30	1,640,900	42,049	1,029	2,253,539
Silversmithing	38	257,198	6,768	131	263,934
Plated and Britania ware	55	5,862,025	106,582	4,675	8,596,181
TOTAL	950	$27,463,254	$28,909	27,810	$45,468,358

The Chronicle Fire Tables make the following fire showing of three of these industries:—

	Establishments as per census, 1880.	1880 (Jan. 1879 to 1881 (Dec. 1879 inclusive).			1884.			1885.			1886.		
		Fires.	Losses.		Fires.	Losses.		Fires.	Losses.		Fires.	Losses.	
Clock factories, ‡	22	15	2	5	$19,300	..	None reported.	..	None reported.		..	None reported.	
Watch, and watch case factories, ‡	38	10	1	2	7,000	2	$102	..	None reported.		..	None reported.	
Jewelry factories‡	739	62	21	7	10,075	7	26,366	19	$54,987				

We have here hazards in which fire loss is a minimum quantity.

The Massachusetts State fire reports present the following statistics for jewelry factories:—

1882—4 fires, losses, $211,064
1883—4 " " 6,127
1884—1 fire, " 4,000
1885—None reported.
1886—4 fires, ‡ loss on buildings, 5,157
" contents, 13,127

The causes of fires in Massachusetts jewelry factories in 1886 were as reported: incendiary, 1; soot in chimney, 1; sparks from chimney, 1; exposure, 1; total, 4. In the ten years, 1876, 1878-86, inclusive, the number of fires in jewelry factories was 22, and property loss, $23,501, an annual average loss of $12,887.

There are two distinct kinds of clocks, *i. e.*, (1) large tower or hall clocks, (2) house, store and watchman clocks. The former are made in works of moderate size, sometimes having foundries for the bells needed, and more usually, foundries for iron frames, bridges, drums, cogwheels, weights and hammers. Here the risk becomes something of the foundry and machine shop hazard.

The other kind of clocks, which comprise a vast variety, are now chiefly made in factories which are very extensive, having many buildings covering large superfices. The general clock factory has long lines of light shafting above heavy work-benches, and upon the latter are located numerous small, accurate lathes and drilling machines. In another department, nearest the steam engine, will be located the furnaces and rolling cylinders for brass bars and plates (also a separate department for rolling steel wire into springs), and powerful stamping machines for cutting out cogwheels, frames, etc., from plates. This work has the heaviest shafting, and causes far more friction than all the other processes combined. The general work for preparing arbors for wheels, boring and finishing wheels, making iron rods for frames, etc., much resembles that of a large machine shop for the lightest of work.

There is much hand work required in fitting the parts and in final adjustment. Especially is this the case in the department where are made and tempered motor springs, hair-springs and escapements, and here there is a great amount of oiling and polishing. In all the processes, except the first named, there is much use of oil, indicating danger from spontaneous ignition; but as the best quality of oil is generally used, and great care and cleanliness strictly enforced, the actual danger from this source is much reduced. Heating and tempering furnaces and ovens for springs, escapements, enamelled faces and for hands, constitute a source of jeopardy in this portion of the work.

In general clock manufacture there are three departments which determine whatever fire risk may exist in the works, viz.: The iron, brass and bronze foundry for frames, parts, ornaments, weights, bells and bronze figures; making wooden clock cases, where glue, paint, varnish (possibly prepared on the premises), and gilding are largely used; and the electro-plating process for cylindrical metal cases, clock faces, and various other parts, using chiefly silver and nickel, but some gold. Furnaces for heating and cylinders for rolling brass bars may not be a factor of risk, because very liable to be absent, as some works for convenience and to save expense of plant, purchase the plates. Undoubtedly wooden case-making adds the most jeopardy, and there is the necessity to keep in stock for this work, glue, paint, varnish, turpentine and benzine, besides using heated irons and other modes for gilding. The foundry may have jeopardy diminished by being for brass work alone, iron weights and probably bells, being purchased, and bronze figures not made. In such case the plant is far smaller and simpler, and the patterns much less in number and expense. The electroplating process adds danger, not so much from its own jeopardy, which is not heavy, as from extending plant, and requiring in finishing of goods much polishing and burnishing. Should the doubtful process of reheating and rolling brass bars and plates be adopted, an addition will be made to the general fire risk; and if wooden clock cases be purchased the jeopardy will be diminished. The last is not very likely to occur, judging from the fewness and smallness of the clock-case works as shown in the Tenth census.

Besides small heating and tempering furnaces, there is much use of the blowpipe, with gas or petroleum flame for soldering, etc. The amount of polishing and burnishing is great, and as oil, cotton waste and rags must be used therewith, this, it seems, is a great addition to the possibility of fire outbreak. Everything, however, must be kept so scrupulously clean in a clock factory, and much of the contents are so valuable, that there is strong stimulus to the greatest vigilance to remove any source of danger. This fact may, in large degree, neutralize every fire menace, and partly accounts for exemptions from ignition.

In such factories as make the finer descriptions of clocks, jeopardy is diminished by the absence of wooden case-making, the outsides of finer clocks being either marble, celluloid, or metals electroplated with gold, silver or nickel. There must be necessarily here an extensive electroplating plant, supplemented by more polishing and burnishing arrangements. For the finer filing and polishing, flour emory and diamond dust are used, the latter generally being put upon a brass disk, which is heated and covered with oil during the

*In clock manufacture, the nuuil er of young girls and small children employed is nearly 30 per cent. of all the employees, and that of watches they form 36 per cent.

† "Watch and clock repairing" in the Tenth census should also be noticed, as some of those places are properly allied to this subject. These establishments numbered 1,202 in 1880, capital, $1,704,571, and value of production in 1880, $2,712,819.

‡ Causes of fires as per Chronicle Tables.—Clock factories, 1884: explosion of benzine, 1; stove, 1; exposure, 1; not reported, 2; total, 5. Watch and watch case factories, 1884: exposure, 2; 1885, furnace, 1; unknown, 1; total, 2. Jewelry factories, 1884: accident, 1; exposure, 5; not reported, 1; total, 7. 1885: explosion of gas stove, 1; cigar stub, 1; stove, 1; unknown, 2; exposure, 2; total, 7. 1886: incendiary, 1; explosion of lamp, 1; furnace, 1; ashes, 1; spontaneous ignition, 1; sparks, 2; exposure, 7; unknown, 1; not reported, 4; total, 19.

hammering into its surface of the diamond dust. Generally, it may be stated, that for polishing, buffing, etc., in this department, much oil is used throughout, though always applied in small quantities. There is also here a department for drilling and setting "jewels," including use of cement to hold the stones in position during the manipulation; also for making the more elaborate escapements. Many of the metallic cases used require enameling and japanning, with needful ovens therefor, and heated preparations of materials. One apparently dangerous process, is the use of turpentine and beeswax on cotton for polishing marble cases. If the soiled waste and rags be properly attended to, however, no danger results.

Some clock factories have a department for the manufacture of electric clocks and various small apparatus such as telegraph recorders, stock-price indicators, rheostats, electrometers, etc., the work upon which, and attendant fire risk, are very similar to those for clockmaking. Not only does such extension of work and apparatus therefor add jeopardy, but there is the special danger of dynamo-electric machines and a network of electric wires within the works. To compensate, however, there would in such case certainly be added electric illumination, relatively safer than gas and much safer than coal oil. As the making of electric clocks and electric apparatus is now largely pursued as a separate industry, the connection mentioned should be viewed as exceptional, but not the less needs attention in considering the fire possibility where the union occurs.

Watch factories in the United States are frequently larger than those for clocks; and probably in no other industry is the factory system with such minute division of processes, interchangeable parts and rigid inspection of work, so thoroughly prosecuted. The machinery used is more delicate and accurate than that for clockmaking—the circular saws for cutting slits in heads of small screws, and many of the drilling machines, being of very diminutive size; the same may be said of the teeth-forming and finishing machines. One considerable advantage over clock works is, that the most valuable parts, such as the gold and silver used, escapements and jeweled works, being much smaller, can be kept in large fire-proof safes, day and night, so that far less stock in proportion is under risk in the manufacture. Some processes, here having much more extensive use than in clock-making, add greater danger; these are such as the preparing and using of cement for fastening to brass plates stones, etc., to be manipulated, and the making of white enamel and putting it upon heated metallic plates. Besides much use of sealing wax and shellac separately, the cements contain beeswax, linseed oil and other inflammable substances.

In regard to the use of cements, an expert in watch manufacture remarks: "To set wax in lathe: Trace a series of concentric circles on the face of the chuck with a graver point, after turning it true; this will increase the adhesion of the cement. The flame of a spirit lamp is held under the rotating chuck; when this is hot enough its surface is covered with a layer of shellac or sealing wax, and the object held against it. . . . . To fix a pallet-stone on an end-stone by means of shellac, heat it (the shellac) and roll it into a cylinder between the fingers; again heat the extremity and draw it out into a fine thread." The danger here is in many persons using at once open lamps amidst alcohol and sticks or pieces of inflammable material on workbenches; it must be stated, however, that the general surroundings and stock are *not* inflammable.

White enamel clock and watch faces are made by fusing with strong heat white enamel in powder upon a thoroughly cleansed copper disk, and then grinding the surface evenly upon a stone; afterwards the face is subjected to enough heat to glaze it. This operation requires a certain kind of small furnace. To bleach such dials cyanide of potassium and other salts are dissolved in alcohol; the mixture is heated* and after the face is immersed therein for awhile it is passed quickly through nitric acid and then well washed.

There is much hardening of steel parts of watches, by heating to cherry red and plunging them in mercurial ointment, tallow or resin;* all three are used. There is a great amount of polishing done for watches, not only of the hardened but other parts. For polishing the hardest steel softer metals, such as brass or tin, are used, and the finish is by means of box and willow wood. Other parts are polished by oil stones, flour emery and diamond dust along with oil. Some portions of the watch works are "blued" by placing them in a copper pan and heating over the flame of a spirit lamp to temperature of 550 to 650° F. The blowpipe with use of flame from alcohol, gas or petroleum is much employed in the manufacture of watches for soldering, and for frosting enameled faces; also muffles and other small furnaces heated by gas, petroleum or charcoal. Turpentine is present for use in drilling glass, and gilding small wheels fixed on pinions. The latter are often varnished with a mixture composed of 5 parts resin, 2 parts yellow beeswax and 2 parts oxide of iron. We think on reviewing these facts that, as in the case of clock manufacture, it is only the scrupulous *care* and attention given to these processes that prevents the fire risk from being much greater than it is.

Watch-case factories, though frequently very extensive, have fire risk less than those making works for watches and adjusting the same in the cases. One reason for less damage in the former places, if ignited, is the possibility of keeping a large proportion of the valuable stock constantly within fire-proof safes. Much silver and gold plating by electrolysis is practiced, using "white metal" alloys for construction of cases in factories making the better and medium gold and silver watch cases. Those manufacturing the cheaper descriptions, such as nickel plated upon copper (which kind is in some instances made in separate establishments), have nearly same machinery and electric bath arrangements as the others; they may be considered as escaping some danger through not being usually so large; nor, in case of fire, would the loss on stock be probably at all comparable with that which might occur in the finer works.

There is one process in the medium and better watch case factories which, under neglect, could easily cause ignition, *i. e.*, the chemical or mechanical modes of recovering gold and silver from the waste and sweepings.† Heat by boiling or in furnaces is usual by either mode, but with proper construction and care the place where this process is performed can be made almost entirely safe. If the room be built of non-inflammable materials, or, still better, a fire-proof, detached building used, both furnaces and chemicals can be prevented from menacing the main works. We are informed that, somewhat recently, fire occurred three times in the recovery room of a large gold and silver watch case factory using the chemical process. The actual cause could not be discovered, but due precautions having been taken no serious damage resulted. In

* The following table given by Britten shows the temperature, colors, etc., in tempering steel:—

Color.	Purpose.	Temperature.	Effect on Tallow
Straw . . .	Watchmaker's tools	430° F.	Smokes.
Straw yellow.	Penknives and razors.	460° F.	More smoke.
Nut brown. . .	Small pinions and arbors. . .	500° F.	Dense smoke.
Purple.	Large pinions and arbors. . .	530° F.	Black smoke.
Bright blue. . .	Swords and watch springs. .	580° F.	Flashes if light is applied.
Deep blue. . . .	Watch balance springs.	590° F.	Continuous burning.
Blackish blue.	Chronometer bal. springs. . . .	610° F.	All burns away.

† The sweepings, fragments, soiled rags, etc., are [by the mechanical mode] first *incinerated* to destroy organic matter, then comminuted by stamping or triturating, and passed through a sieve whose meshes are less than .039 inch. The iron in the coarse mass remaining in the sieve is extracted by using a magnet, and the residue *fused* with soda and borax, cast into a bar, weighed and sampled. Further lotionation and assay afterwards is performed on the recovered metal.—Kerl, Assayer's Manual, 1883, p. 22.

* Cyanide of potassium, CNK, detonates violently when heated with nitrate or chlorate of potassium. If fused with oxides of tin, iron or copper, it ignites.

watch case factories, as in the others named, automatic sprinklers are now largely introduced.

Jewelry manufacture is so many-sided, and its processes so numerous, that we can only give a view of some portions thereof. Establishments are not so extensive as for watches, but far more numerous, and the machinery employed is very similar, though not so accurate; there is also more gilding and silvering, and oxidizing of silver is added. There is more handwork in carving and graving, and a large amount of casting done of small ornamental parts. The combinations of gold, silver, brass, bronze, precious stones (and imitations of all these) are almost infinite in variety. The business has been enormously extended during the past 30 years by the great increase in imitation jewelry and modes invented for facilitating its manufacture. It should also be stated that many fine articles in brass are made in the best jewelry factories.

There are various kinds of furnaces for melting the precious metals and imitations, also for enamelling, etc.; these, with their flues, may become quite a menace. Some of the imitation gold alloys (chiefly copper, with about 15 per cent. zinc) have added to them 1½ to 2 per cent. quick lime. There is considerable use of varnish for many purposes in jewelry manufacture, and if it be made on the premises the danger from it is greater. White shellac and collodion, both very inflammable, are employed for several purposes.

Cements are largely used in jewelry making for uniting metals and glass and metals and precious stones. One is formed of 2 parts litharge, 1 white lead, 1 copal varnish, stirred into 3 parts boiled linseed oil to make a thick dough. Another has gum mastic, isinglass and gum ammoniacum dissolved in hot alcohol. Another, cold, is formed by beating quick lime into white of eggs, making a thick cream therewith. Linseed oil, so conducive to spontaneous ignition, is used to unite pieces of amber. In this case a hot iron is held close until the oiled parts become sticky, when they are pressed together and held thus tightly until united. Quick lime is also employed, as in watch factories, to prevent small steel articles from rusting; and cyanide of potassium (see note *ante*) for cleansing articles of oxidized steel. Carbon di-sulphide, which should not, if possible, be permitted in any workshop, is used here as solvent for various purposes. Benzine is employed for cleansing purposes. We think this one paragraph is tolerably well filled with fire danger.

Articles of jewelry in "oxidized iron" are now much in vogue, comprising vases, plaques, clasps, bracelets, chains, handles and numerous other forms. Some are made by carving or engraving soft iron and afterwards hardening it, by heating red hot and plunging it in oil or beeswax. Other pieces are carved, graved or filed, while red hot, and steeled after the proper form is given. Many are made by passing soft iron, while red hot, between small steel rollers wherein patterns are cut in intaglio. The oxidized appearance being given by chemical solutions, the articles are polished by use of tin or wooden wheels, emery and other powders on soft buffer rollers for the portions in relief and by brushes for what may be called intaglations.

"Filled jewelry"—which includes using backs of imitation gold —is one of the recent methods for counterfeits of the best designs. Some objects are made by stamping a thin ribbon of fine gold with the figure and filling it with cheap alloy for weight. This requires heat for melting the alloy in furnaces and the risk of carrying it in vessels to the place of pouring—though if the work be done on a small scale the furnace may be replaced by a blowpipe and a lamp or gas jet. Innumerable articles of still cheaper jewelry are made by variations of this process, with gilding and silvering to imitate the thin pure metal above named. The more we view the manufacture of cheap jewelry the more certain it appears that it has greatly increased the former fire risk of jewelry manufacture.

Lacquering and enameling cannot here be detailed; it is sufficient to say, that for the former the object must be well heated before the lacquer is applied; and, first of all, is cleansed by boiling in a solution of pearl ash and quick lime. It is then dipped for a moment in a mixture of sulphuric, nitric and muriatic acid, rinsed, dryed in warm saw dust and rubbed clean with cotton cloth. Enamelled fancy articles must be carefully dried and annealed in small ovens, then elaborately polished. This work includes the inlaying of gold with enamel, one of the most expensive forms of jewelry. In both these processes much heat is used, supplemented by the blowpipe with flame of gas, alcohol or petroleum. Throughout jewelry manufacture the blowpipe is largely employed for soldering and other purposes.

Ivory carving and work in tortoise shell, such as the adornment therewith of plates of gold, caskets, cabinets of costly woods, etc., includes forming pure jet jewelry (such as Whitby), and jet and gold combined. Most of this is by handwork and very expensive. When, for cheaper articles, jet is replaced by hard vulcanite rubber or celluloid, the danger is much increased, because of the nature of the solvents needed to form the plastic mass, the heat of drying, finishing and polishing. Besides, there will in such case be the jeopardy from inflammable rubber and solvents in stock.

The amount of gilding and silvering in jewelry manufacture is very great; some is performed in the electro-galvanic bath, but much by liquid solutions and powders, supplemented by much polishing and burnishing. For cleansing the articles previous to application of the thin coating of finer metal, diluted acid solutions are employed; and the charcoal fire and use of hot irons are common for gilding and silvering certain articles. The burnishing of jewelry, with use of much oil, resembles that for clock and watch wheels and movements, and in quantity probably exceeds the latter.

Much ingenuous machinery has greatly cheapened the production of all kinds of jewelry; the stimulus to this came from the demand for the imitations. It has been asserted that "gold" chains can now be made at about one eighth the former cost. The principal saving is using intaglio cut rollers, instead of carving by hand, forming long pieces from the hot metal, cutting these in proper lengths by machinery and soldering into links by use of the blowpipe. There are also machines to aid in making rapidly the cable style of gold and imitation gold chains. In manipulating the links and also in setting stones in finger rings, etc., the object is often held on a piece of charcoal when applied to the blowpipe flame. Sparks are constantly emitted.

In some instances, danger in clock and jewelry factories is diminished by purchase of various portions of the work, chiefly in the brass department, and of cast ornaments. On the other hand, there are minor dangers in each not here detailed. There is always much fine raw cotton and the thinnest tissue paper used in the packing and transportation of jewelry and watches.

Silverware has two distinct branches, the making of pure silver articles and the imitations thereof. The greater demand for the latter, on account of lower price, has caused many factories to combine the two industries. In its dangers, pure silverware making comprises melting furnaces of moderate size, modes of casting numerous objects, medium forges and arrangements for polishing and burnishing—all resemble those forementioned. There is much use of the hammer in shaping placques and vessels, besides carving and graving; the blowpipe, with its open flame, is not so much employed here as in clock, watch and jewelry factories.

While factories manufacturing their own objects for imitation-silver have jeopardy much resembling that of pure silver working, the establishments are larger, while there are to be added the galvanoplastic arrangements. For some plated articles the old mode is still used of applying silver leaf upon baser metals in one to three layers, with heat, pressure, polishing and burnishing. Galvanoplastic modes are, however, most employed, comprehending the moderate jeopardy of dynamos and electric wires. For certain very cheap articles, silvering powders alone are used, being applied with raw cotton or linen cloth.

The manufacture of Britania ware is generally a separate industry, with dangers much resembling those for working pure silver, but

somewhat increased because of the mixture of the metals. The usual description is composed of 100 parts block tin, 8 antimony, 2 bismuth and 2 copper. This, and "white metal," are the ones most used by silver platers. If the melting and mixing of the four metals named be added to silver plating works the danger will be much increased. Objects in both pure and imitation silver, though far less numerous than those of jewelry, have, through demand for more ornamentation, increased very largely during the past thirty years. There is now much combination of glass with silver and silvered vessels, but such addition is not any material enhancement of risk. Taken together the manufacture of silverware and its imitation may be considered as resembling coppersmithing of small articles with the addition of the galvanoplastic process.

We have thus treated of a range of fire hazard in which the fire experience has not realized the conditions or liabilities of ignition, and even of combustion. As a rule, clockmakers, jewelers, etc., keep out of the fire through causes which have been intimated. In the industries considered is the best argument to be found in favor of the theory that all fires are preventible, or that combustion can be so far restricted that fire insurance will be no longer necessary. The Massachusetts figures cited show that at times the fire menace will be realized in performance as to jewelry establishments. When the risk is slight, and the number of subjects not numerous, it takes a good many years' experience to get the measure of probable fire cost as an assumption for future anticipation.

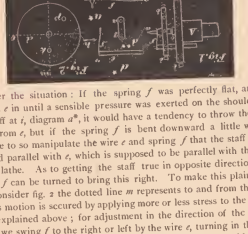
Graduating the fire risks here viewed from the standpoint of associated fire possibilities and loss realization, they appear to arrange in the following order of probable fire cost per annum per $100 of property value:—

		Cents.
1.	Watch case factories, including galvanoplastic arrangements	8
2.	Pure silverware	10
3.	Imitation silverware	18
4.	Pure and imitation silverware combined	21
5.	Tower clocks, with foundry work	25
6.	Watches	27
7.	Finer clocks, with casting and galvanoplastic arrangements	27
8.	Common and medium clocks, with casting and galvanoplastic arrangements	30
		33
9.	Pure fine jewelry	35
10.	Imitation jewelry	

Lathes and Lathe Work.

BY THE MODEL WATCHMAKER.

IN THE April number the cut illustrating the series of articles was in part designed wrong. Everybody knows in this day that all objects have to be reversed on the wood block to print correctly. To illustrate: If we were to make a cut of an American lathe on the block the tail stock would be to the left and the live spindle to the right. In the cut of April number, fig. 2, an enlarged view of the back center was not reversed in the drawing, as it should have been, but in the cut it shows reversed. The other cuts are all right. In my last communication I left the tool for restoring balance pivots with the back center fitted with a **V**-shaped notch ready to receive a pivot; and now we will proceed to fitting up the little face plate and live center shown at fig. 1, April number. We reproduce the cut showing the face plate *d*, and center for holding one end of the staff, but will refer the reader back to that number (April) for the manner of fitting up the face plate *d*. The device for holding the outer end of the balance staff is shown at *f e*. In the present cut the lower pivot is shown as the one to be operated upon. The device for holding the staff consists of two pieces shown at *f e*, fig. 1, and diagram *d**. The part *f* is a short piece of main spring screwed or riveted at *g* to *e*. The piece *e* is made of a bit of steel wire about $\frac{1}{16}$ of an inch in diameter and ½ an inch long. At fig. 2 is shown a front view of the face plate *d*. In this is drilled a hole at *k* to receive the wire *e* of the holding device shown in diagram *d*. At diagram *d*** is shown a top view of *f*, diagram *d**, run in the direction of the arrow *n*, diagram *d**. It will be seen that *f* is pierced with two holes: the one at *g* being to let the screw at *g* pass through to attach *f* to *e*. The hole at *a* is to permit the pivot or shoulder of the staff to pass through. If it is the lower pivot the spring *f* rests against the lower face of the large part of the staff against which the roller table is staked, as shown in fig. 1; but if the top pivot is to be burnished the spring *f* is applied to the shoulder above the hair spring seat, as shown at diagram *a**. The hole at *a* in the spring *f* is supposed to be so located as to correspond to the axis of the face plate *d*. We will suppose we wish to put a staff into the device as shown in fig. 1. We place the top pivot in the steel center *e*, fig. 1 (it is to be understood we had removed *f e* from the face plate *d*.) We place the staff as directed and insert the wire *e* into the hole *k*, and push it in, guiding *f* so that the bottom pivot will pass through the hole at *a*, and let the spring *f* rest on the shoulder of the staff as shown in fig. 1. It will be seen on inspecting diagrams *a** and *d** that *f* is bent a little downwards where the hole at *a* is located. Now let us



consider the situation: If the spring *f* was perfectly flat, and we pushed *e* in until a sensible pressure was exerted on the shoulder of the staff at *f*, diagram *a**, it would have a tendency to throw the staff away from *e*, but if the spring *f* is bent downward a little we can manage to so manipulate the wire *e* and spring *f* that the staff *n* will be held parallel with *e*, which is supposed to be parallel with the axis of the lathe. As to getting the staff true in opposite direction, the spring *f* can be turned to bring this right. To make this plainer we will consider fig. 2 the dotted line *m* represents to end from the wire *e*; this motion is secured by applying more or less stress to the spring *f*, as explained above; for adjustment in the direction of the dotted line *o* we swing *f* to the right or left by the wire *e*, turning in the face plate. At *l* is shown a set screw to hold *e* in place. The idea with the device for holding a staff is to secure it loosely in near the position we require, and still have it held so that by applying a piece of peg wood steadied over the tool rest the staff will come true. If now we advance the **V**-shaped notch in the tail stock, as described in April number, we can press the pivot into the notch and burnish it as well as we could in a Jacot lathe. In practice it is as well to have the **V**-shaped notch a little low, so that the pivot to be burnished runs free and a mere trifle (say $\frac{1}{32}$ of an inch) above the notch until pressed down with the pivot burnish. The lathe should only have a slow motion, and the motion only be given after the pivot is pressed down into the **V**-shaped notch with the burnish. The writer has found in practice that the best way to do is to turn the foot wheel by hand, giving it a back and forth motion like a bow would impart. It used to be the practice with many watchmakers to reburnish nearly all the pivots with the bow lathe, and smoothe out the holes, if not jeweled, with a round broach. This course was founded on practical experience. Steel pivots running in brass holes never wear bright and smooth. Neither is the hole bright and smooth on the inside, consequently smoothing of both pivots and holes abates friction. With the lathe device just described we can polish almost any

pivot except such staffs as are sprung from below. There is one point I should have explained, and this is the manner of conveying the power to make the staff turn; this is done by one arm of the balance coming in contact with the wire *e*. It is well to have two or even more holes in the fan plate *d* for wires like *e* to go into so we can use a longer or shorter spring *f*. It is better to have two pieces, *f* e to correspond to each hole (*k p*) in the face plate *d*. In using a burnish pivot file most workmen are aware it should be kept "*sharp*," as it is termed, by rubbing with emery powder. The emery should not be too fine; about No. 1 or No. ½ should be used on a lead lap or block. Rubbing a burnish file on emery cloth or paper will soon destroy it, as it rounds up the corners and makes the cutting or burnishing surfaces uneven. A lead lap for "*striking*" a burnish file on should be about 3x4 inches square and ½ an inch thick. Such a block can be cast nearly into shape and one side scraped so as to ensure a *true* flat surface. It is not essential it should be perfectly smooth—only flat and tolerably smooth. A burnish file for conical pivots should be rounded on one edge so as to not cut a small shoulder when used on such pivots. A burnish file after being "struck" on the lead block should be cleansed of any particles of emery which may adhere; this is best done with bread crumb, but the palm of the hand will answer. A good way is to oil the fresh sharpened burnish file a little, then clean with a clean rag and fine charcoal until bright. Another class of pivots which we frequently find cut is the center arbor under the cannon pinion. A similar device to the one just shown can be used, but it must be modified, as we will explain at next interview. The joining of *f* and *e* at *g* should have no screw head to catch the burnish file.

The Stem Winding Mechanism.

[BY MORITZ GROSSMANN.]

Continued from page 171.

ANOTHER PLAN has found much favor and may be said to answer the purpose very nearly. The winding parts are exactly the same as described, with the only difference that the winding pinion is fitted loosely on a round axis, the inner end of which, as far as it projects from the winding pinion, is square. On this square a little steel tube with a square hole is adjusted, loose enough to move with ease up and down the square. The face of the winding pinion and the corresponding face of this tube are cut with ratchet teeth, forming exact counterparts of each other. A spring, acting in a notch round the periphery of the tube, keeps the two parts continually connected with each other, so that the winding pinion participates in the motion of the winding axis.

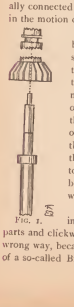


FIG. 1.

When the setting of the hands is required, a small button or push-piece projecting from the case near the stem is pushed in, and causes the spring to slide the tube downward on the square. The other face of the tube has a small set of contrate teeth which, by this movement, come into gear with the minute wheel itself or another small wheel connected with the same. At the same time the ratchet teeth of the tube are drawn out of action with those of the winding pinion, so that this latter does more closely follow the movement of the axis, and when the setting has been done, the button released from the pressure allows the spring to bring the tube back to its former position ready for winding.

There is a secondary advantage in this arrangement, inasmuch as it prevents any damage to the winding parts and clickwork, in case of anyone turning the winding knob the wrong way, because, in this case, the two ratchets produce the effect of a so-called Breguet key.

Nevertheless, objections have been raised also against this system, because the side opening in the rim of the case for the passage of the button was thought a means of letting dust, etc., penetrate into the movement, and because the projecting button may, under unfavorable circumstances, be forced in while the watch is in the pocket. For these reasons, much skill and sagacity was spent on other methods of setting the hands in motion. One of them consists in a rather complicated arrangement of the bow of the case, establishing the connection with the motion work when the bow is put down. The advantages to be expected by this contrivance are very doubtful, since the bow may be accidentally put down in wearing the watch, thus bringing it to a standstill. Besides, many people have the commendable custom of always putting the bow down when laying the watch flat on the table, in order to prevent the polish or engine turning being scratched. This, of course, would lead to the same result.

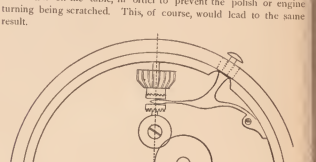


FIG. 2.

Other contrivances have been made with stem winding hunting cases, to the effect of having the push-piece protected by the front cover of the case, and projecting from the periphery of the bezel. This push-piece, when pushed inward, causes a part of its spring to get hold at the outer edge of the bezel, and from this moment the winding ceases and the motion work is, and remains, in connection with the winding axis. This hold of the spring and push-piece is released by shutting the case, and every part is in its former situation. This plan answers excellently for every purpose, but if the hands are set without shutting the case afterward, which some people do when coming home or going to bed, it will evidently stop. From the foregoing observations some conclusions for the setting hands mechanism may be arrived at, and I always thought these parts ought to be constructed in such a way that:

1. The motion work can never come into contact with them by an accidental cause; on the contrary, they should be so arranged as to require a decided act of the wearer to establish their effect on the motion work.

2. After having set the hands, the said mechanism ought to go out of gear with the minute wheel by its own action, and without requiring any care whatever of the wearer.

These two principles are of the utmost importance for the good and reliable service of the watch, for a watch invariably stops if the stem winding mechanism comes into, or remains in, gear with the motion work at a wrong time; and a construction which requires a degree of care which not all wearers bestow on their watches, must be called defective so long as other constructions may be attained without this weak point. That kind of stem winding mechanism with which the hands are set by laying down the bow of the case, implies a neglect of both of the above principles. Those mechanisms which require the knob being pulled out, and those in which the push-piece keeps hold till the case is closed, are against the second of those principles.

There is an arrangement which is entirely free from the abovementioned objections, and applicable to open-faced and hunting cases, in which the push-piece projects from under the bezel and is flat with the outside of the case. Its thickness of about one milli-

meter, or a trifle more, allows of its being pushed in with the nail without difficulty. The rim of the bezel in the open-face case or that of the front cover of a hunting case, must be filed through so that the end of the push-piece just fits into it. It is evident that there is no opening for the entrance of dust, that no pressure from outside can move the push-piece, and the former free position of the setting hands mechanism is instantly re-established by the action of the push-piece spring, as soon as the setting has been done. The only inconvenience resulting from this arrangement is, that an open-face watch of this kind requires the glass bezel to be opened for setting the hands, which is not necessary with the projecting push-piece. But with a well-regulated watch the setting hands is a rare occurrence, and even a little inconvenience in these cases is of no great consequence.

The other principal group of stem winding mechanisms, those with the rocking platform, will always require some study. They offer some very important advantages, especially for fuzee watches, where the fuzee arbor, not being stationary like the barrel arbor of a going barrel watch, requires an absolute independence of the rest of the stem winding mechanism at any time, except in the moment of winding. Therefore, the wheels on the rocking bar or platform in a fuzee movement must be kept by a spring in a neutral position, touching neither fuzee wheel nor motion wheel.

Most of the keyless mechanisms have three wheels on the rocking bar, the middle one being the bevel wheel into which the winding pinion gears. This latter requires no prolongation of its axis into

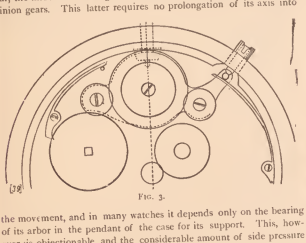


FIG. 3.

the movement, and in many watches it depends only on the bearing of its arbor in the pendant of the case for its support. This, however, is objectionable, and the considerable amount of side pressure which always results from an angular transmission, strongly indicates the necessity of giving the inner end of the pinion a support on the edge of the pillar plate, which is so easy to obtain. A pinion supported in this way allows also of inspecting the bevel gear without having the movement in the case—a convenience of some value. The rocking bar is fastened in such a way that the center of its oscillatory movement is the center of the bevel wheel, so that the two wheels gearing into it at both sides remain in regular action with it in whatever position the bar may be. One of these wheels is continually in gear with the barrel wheel on the square of the barrel arbor, to which it communicates the winding action. The other wheel stands sufficiently apart from the teeth of the minute wheel of the motion work, so that it does not touch the teeth of it when the wheel at the other side of the bar is clear out of gear with the barrel wheel. Moreover, it is held at a sufficient distance from the minute wheel by a spring acting on the working bar.

Setting the hands requires the inverse position of the rocking bar to be established by external pressure on a push-piece, to which the same observations apply as made on this subject before. The push-piece produces a change of position of the bar, bringing the other wheel on it into gear with the minute wheel, while a banking pin prevents the movement being extended further than required for a safe depth. After setting the hands the bar is brought back to its former position by its spring.

This arrangement has also the so-called Breguet click, and if it is attempted to wind the wrong way, the clickwork prevents the barrel wheel from following the motion in this direction, and the rounded parts of the teeth of the rocking wheel slide over those of the barrel wheel, so that no harm can be done to any part of the mechanism.

In fuzee movements, as already explained, this mechanism requires another arrangement, inasmuch as the wheels of the rocking bar must be kept in a middle position between the winding and setting actions, which is produced by a properly applied spring. For bringing the rocking bar to act on the fuzee wheel no push-piece is required. Here we see one of the surprising effects of friction, which is a constant and obstinate adversary of the watchmaker. The friction of the small intermediate wheel on its stud on the bar causes this latter to move round the center of the bevel wheel by the reaction of the gear, as soon as the winding pinion is turned in the right direction. If this friction by itself is not sufficient to throw the wheel into gear with the fuzee wheel with the necessary security, a small stiffening spring must be applied underneath the intermediate wheel, in a recess at the lower side of it. For setting hands the usual push-piece must be resorted to. When turning the knob the wrong way, the fuzee watch, having no Breguet action, the wheels on the rocking bar only move freely and without any effect whatever.

An English watchmaker, Mr. Kullberg, has devised a first-rate mechanism. This mechanism has but two wheels, and the motion of the bar is derived from very subtle effects of frictional reaction of the gearing wheels. The only drawback to it is the necessity for a straight toothed pinion and contrate wheel, since the bar does not oscillate round the center of the contrate wheel.

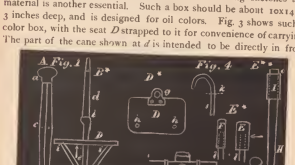
(To be Continued.)

Free Hand and Mechanical Drawing.

BY EXPERT.

WE HAVE been devoting our attention lately exclusively to mechanical drawing, but now, at the approach of Spring, in accordance with the spirit of these articles, we will devote some space to sketching from nature. The writer mentioned some time since the convenience of a pen for making sketches. But now we propose to entertain broader views and give the reader his choice out of several methods, leaving him to select such as he thinks he likes or feels as if he could manage to the best advantage. A pen or pencil have the advantage of convenience, but they lack (especially the pen) breadth of effect. For sketching from nature we need materials and methods which will give broad effects rapidly. With a pen this is not possible; a lead pencil is much better in this direction than the pen, for with a stamp and fine black lead (scrapings from a pencil lead) we can put in masses of trees and floating clouds with great facility, leaving details to be worked out with the pencil pointed to suit the work, and by means of pencils of different degrees of hardness beautiful effects can be secured. There are two drawbacks to pencil drawing: the first is the leaden look; second they rub and smear easily. Charcoal is a pleasant method. But the perfection of sketching material is oil colors. These methods will be considered in their order, but we will first describe a cheap and convenient outfit for a sketcher, no matter what method he uses in drawing. First of all he will need a comfortable seat, then protection from the sun in the shape of an umbrella. All these appliances can be bought, but they cost a good deal of money, more than many of my readers would care about investing for a mere recreation. The first article cited above, a seat, is of greater importance than any person who has not devoted some time to sketching would believe. A three-legged stool which closes together and forms a large cane, is a very desirable seat except

for one drawback, and this is, it is very uncomfortable to sit upon, a person soon tiring. The reason of this is the seat is formed of 3 strips of webbing joined at the ends, forming a triangular seat. This defect can easily be remedied by making a board seat which can be removed and attached to your sketching box. And it will be explained soon the necessity for a light box to hold sketches and material, if the sketcher cares to make anything which will really be of use to him. A piece of light board, 9x12 inches, forms the seat. If the person who is to use it is rather light the board need not be more than 5/8 of an inch thick, but 3/4 will hold almost any person. At *A*, fig. 1, is shown such a cane seat closed, *a* being a head which slips on the three parts, holding them together when in use as a cane. At diagram *B** the cane is opened out and turned bottom side up, and the seat board *D* is in position. In such a cane at *b* is an offset to hold one corner of the triangular webbing seat, but with the board seat shown at diagram *D** we screw on a loop at *g*. This loop is best made of strong harness leather, but one made of No. 18 soft brass or copper will do. Such a cane is best bought of some material dealer, but the seat will have to be added by the purchaser. Two shallow holes shown at *h h*, diagram *D*, serve to hold the tops of the legs *i i*, diagram *B**. A japanned tin box for holding sketches and material is another essential. Such a box should be about 10x14 by 3 inches deep, and is designed for oil colors. Fig. 3 shows such a color box, with the seat *D* strapped to it for convenience of carrying. The part of the cane shown at *d* is intended to be directly in front



and serves to support the sketch, as will be further explained. Such a cane will cost about $2 with the webbing seat, but the board *D* will have to be made. A cheaper sketching stool opening with 4 legs, a regular camp stool, in fact, can be got for about 75 cents, but they are neither as comfortable to sit upon or as convenient to carry as fig. 1. An umbrella for protection from the sun when sketching is an absolute necessity; these, again, are expensive, costing from 5 to 7 dollars. But one can be made from a common dollar umbrella at a slight cost of time and money. Take a common umbrella and cut off the handle as shown at *k*, fig. 4, and then procure a piece of hard wood 3/4 of an inch thick by 1 1/2 wide and 5 inches long, and bore a hole into one end for inserting the sawed-off end (*J*) of the umbrella staff as shown in diagram *E**. This piece should be securely glued on to the staff and will serve as a handle when rounded on the edges a little. He must have a cane, *H*, for driving into the ground as shown at diagram *E***. The cane *H* can be made of any hard, strong wood, like hickory, and the point *n* shod with iron. An ordinary cane ferule, if a taper steel point is added, is all that is needed. The block *I* is precisely like *E*, diagram *E**, except it should be thicker to correspond to the cane *H*, which should be nearly or quite 1 inch at the top; consequently the piece *I* should be about 1 1/2 inches square and 5 long. The cane should extend quite through *I*, leaving a part of *H* at *o* to receive a band of iron or brass so that the point *n* can be driven securely in the ground. The pieces *E* and *I* are clamped by a common iron clamp, shown at diagram *L**, in almost any position one can imagine. The piece *I* being square we can clamp the piece *E* on the umbrella staff on any of the four sides at any angle we desire. We have now a very comfortable seat (if a board like *D* is used), a screen umbrella to protect us from the sun, and a next important point is to select the method we propose to adopt for making our drawings; a tin box as mentioned above will do in any case, whether we use a common lead pencil, water colors, charcoal or oil colors. If we are making sketches with a pen only, a book or portfolio will answer every purpose; but even with a lead pencil the sketch should be preserved from rubbing in contact with any surface. The japanned tin box spoken of has a compartment to receive sketches and hold them apart so that by no possibility they can rub together. For convenience of carrying, the umbrella and cane *H* and seat board *D* can be strapped together as shown in fig. 3. There are many little minor points in a sketching outfit we will speak of as the necessity for their use occur. We will first consider the simpler modes of sketching, and then take up sketching in oil colors.

GOSSIP OF THE MONTH.

THE observance of Saturday afternoon as a holiday, in accordance with the new law, has become very general during the past month. It is estimated by those who were active in securing the passage of the law, that at least 200,000 persons have enjoyed the relief thus secured to them each Saturday thus far, and the probability is that the number will increase as hot weather sets in. The general observance of the law has not brought about any of those business complications that were predicted, everybody having been abundantly forewarned and having made their preparations accordingly. We have heard of one or two instances where business men failed to appreciate the necessity of having their bank accounts made up before twelve o'clock, and so experienced a little difficulty in arranging for their payrolls, but one experience of this kind probably taught them such a lesson that will induce them to observe the bank regulations more promptly in future. The banks have shown every desire to accommodate the public, and while they close ostensibly at twelve o'clock, they have kept one or two persons on duty to attend to belated customers up to three o'clock. These employees were, of course, deprived of their holiday, which need not be the case if the patrons of the banks will recognize the fact that twelve o'clock on Saturday is the same as three o'clock on other days. The effect of the half-holiday on business is not perceptible to any extent, at least, in the jewelry trade. The custom of closing Saturday afternoons in the summer has been followed voluntarily for so many seasons by the trade, that the formulation of the idea into a law made no perceptible difference. But there has been some disappointment among those who had thought to make purchases in other lines after their own places had been closed, for they found that the law was being generally observed. Some persons who were going to the country to spend Sunday, desiring to make some necessary purchases before going of articles to take with them, have been disappointed to find that the places they desired to patronize had closed as promptly as they themselves had. How many fishing excursions have thus been interfered with we cannot pretend to say, but, as fishing is a popular pastime, it is probable that many have found themselves short of the necessary "tackle" when Sunday came. It might seem that the loss of a half a day each week would make considerable difference in the sales, but the universal testimony is to the effect that quite as much business is done in five and a half days as was formerly done in six, and the weary salesmen, accountants, etc., gain a much

needed rest, returning Monday morning refreshed and better able to prosecute their business for the week.

* * *

THE domination of the Knights of Labor over the workingmen of the country bids fair to come to an end before a great while. A consummation so devoutly to be wished is not to be expected to be reached in a day or a month, but as the knowledge is forced in upon the workingmen that this organization brings them nothing but evil, and is constantly undermining the respect, confidence and sympathy that employers have heretofore entertained for those in their employ, they cannot fail to abandon it. Accounts come from all parts of the country showing a rapidly increasing friction between the Knights of Labor, as a national organization, and local trade unions which have been induced to become branches of the Knights. Trouble of this kind has been inevitable from the start. Mr. Powderly's great scheme for organizing all labor into a solid mass, to be used to raise the wages of all workmen, was bound from the beginning to result in nothing but disappointment and wrangling. For it to succeed required a willingness upon the part of laborers of all kinds to go on strike whenever fellow laborers of any kind desired to have their wages raised. If all such strikes were to be generally sustained by labor and were to be successful, the only result would be to raise all prices, thus making the laborer's expenses correspondingly greater. The workingmen are beginning to see some of the ignorance upon which the scheme is built, but not all of it. They realize pretty fully the folly of a silversmith going on strike because a coal heaver desires to have his wages raised, or of a lot of cotton mill hands striking because the shoemakers are dissatisfied with their rates of compensation. They also see that the attempt to enforce a uniform scale of wages is to make mediocrity the basis of such wages, and to deny to the superior workman the compensation to which his skill and intelligence entitle him. All individuality in workmanship is destroyed by the Knights of Labor plan, and the poorest workman ranks as high as the best, and the cheap hod carrier is placed on an equality with the skilled carpenter or mason. Every phase of the labor problem advocated by the Knights is based on fundamental error, resulting from a futile attempt to enforce their motto that "one man is as good as another," and "an injury to one is the concern of all." Had all men been created equally intelligent and skillful there would have been some sense in this idea, but so long as inequalities in these respects exists, there is inequality in the wage earning capacity of individuals which all must recognize.

* * *

SOME wonderful accounts have been printed recently regarding the "city sceptre" owned by the city of London. It has been described as the "pearl sceptre," as "a magnificent work of art," and in other equally extravagant terms. A correspondent of the Manchester *Guardian* says that it is nothing of the sort. Its highest value is its extreme antiquity. The gold of which it is composed is supposed to be of a date before the Conquest, while its gems are almost barbaric in the rudeness of their shape and setting. The two most ancient properties of the London Corporation are this "sceptre" and the charter of William the Conqueror, which gave to the city freedom from the law of primogeniture. The "sceptre" is a crude, clumsy affair, and is preserved for its ugliness and antiquity.

* * *

THE validity of the Texas law taxing commercial travelers is about to be tested in the courts. A number of travelers, representing various Southern and Western houses recently raised a fund of $500 for the purpose of making a test case of the first attempt made by the authorities to collect the tax. Their opportunity came recently in the arrest of Mr. W. G. Ascher, representing a New Orleans house, who was arrested at Houston for selling goods without a license, and who was committed to jail on his refusal to pay a fine. A lawyer was at once engaged to defend him, and his release was secured on a writ of habeas corpus. The case will be taken to the State Court of Appeals as soon as possible. There is hope that this court will recognize the decisions of the United States Supreme Court and hold the law to be unconstitutional, but should it decide the other wly, the case of Ascher will be taken to the higher court as soon as it can be reached. "One by one the roses fade," and one by one the States are being "knocked out" on their unjust and discriminating license laws. It takes time to go the rounds, but the result is sure defeat to the States when the United States Supreme Court takes up the cases. We have suggested that some victim of the tax laws should bring suit against those who take him into custody for damages for false arrest and imprisonment; the case of Ascher would seem to be a good one to prosecute in this manner. If respectable citizens can be arrested and thrown into jail for simply prosecuting a legitimate business that the highest judicial tribunal in the land has declared to be lawful and right, the fact should be made known. We confidently belie.e that Ascher could recover damages if he would bring suit and prosecute it to the end. Judgment in his favor would do more to secure commercial travelers against similar outrages elsewhere than almost anything else that could be done.

* * *

FROM the report of the Secretary of the Treasury regarding the imports and exports of the country for the quarter ending April 30, we notice that the importations of "jewelry and manufactures of gold and silver" for the previous ten months, aggregated in value $721,439, or nearly $150,000 less than during the corresponding period of the previous year. The importation of "precious stones and imitations thereof," for the same ten months aggregated in value $8,487,488, as against $6,429,541 for the corresponding period of the previous year. While our consumption of precious stones is rapidly increasing, our manufacturers are demonstrating their ability to supply the demand for gold and silver manufactured goods. It will not be many years before we shall discover precious stones in this country in such abundance that we shall be able to supply the demand of the world. During the ten months included in the Treasurer's review, the value of the jewelry exported was $319,023, or $100,000 less than in the first ten months of the previous year. Where these exports went to is not stated in this report. It indicates, however, that there are markets in other lands where our products are appreciated, and that might be cultivated more extensively.

* * *

BEFORE the passage of the Inter-State Commerce law, railroads were in the habit of selling passage tickets to commercial travelers at reduced rates. Since that law went into effect and a commission was appointed to enforce it, the roads have been obliged to charge commercial travelers full rates, because of that section of the law that prevents them from making any discrimination. The Chicago and Grand Trunk Railroad thought it saw a loophole in the law whereby it might continue the old practice of selling at reduced rates, and it did so. Complaint was made to the commission and the managers of the railroad were called upon to explain their action. In their answer the managers admitted the sale as charged, but hold that the tickets issued to commercial travelers at reduced rates is in the form of a special contract. By this form the road is released from a portion of the liability it assumes in transporting other passengers, and the managers claim that this limitation constitutes a suffi-

cient reason for discrimination in favor of commercial travelers. They also claimed that these travelers constitute a distinct class of the railroad traveling public, generally riding short distances at a time, and visiting a number of places on business on the line of the road, often going from one station to another on freight trains, and altogether traveling very much more than any other class of persons. It was also claimed that they create a very large freight traffic over the roads by the sales they make at places along the line. In view of these considerations, it was contended that the provisions of the Inter-State Commerce law do not apply to mileage tickets sold to commercial travelers. The decision of the commission on the points raised has not yet been made public, but it is regarded as doubtful if they view the situation as presented by the road. The railroads would be glad to restore the reduced rates if they could do so without exposing themselves to the infliction of penalties, but unless the law is construed as suggested they will not dare do so. The Grand Trunk Road should be favorably remembered for having brought up the question.

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THE newspapers of the West and Northwest announce that the transportation lines in those sections are crowded with freight coming into the hands of the retailers and manufacturers located there, and speak especially of the heavy freights going by the water routes, more steamboats being employed than ever before. While jewelers do not find much occasion for employing the freight lines, their goods being usually sent by express, nevertheless they cannot but rejoice at the many signs of prosperity that greet them on all sides. Wherever there is general business activity, there the missionaries of the jewelry trade "get in their fine work," and are pretty apt to secure their fair share of business. Reports from all sections are most promising for a lively trade this fall, and, barring something unexpected, there will be an active season in the jewelry trade.

* * * * * *

THERE has been some attempt to create a yellow fever scare in the South, and the daily papers have had considerable to say on the subject. There have been some cases at Key West, and the croakers are predicting that it will reach into Florida, and thence possibly extend to other sections of the country. The authorities of Jacksonville, Florida, gave color to the grounds of apprehension by declaring quarantine against Tampa, which, the authorities of the latter place declare, is wholly unwarranted and instigated by jealousy. It has been demonstrated that yellow fever can be confined when it makes its appearance, by the adoption of proper sanitary precautions; it does not travel in the air, but breeds in foul localities to which it may be confined; by the removal of the breeding-places its appearance can be prevented. It has been so controlled in New York and other Northern cities, and there is no cause for anticipating that it will make any serious progress should a few cases be inadvertently imported. As a matter of fact, there is probably scarcely a month in the year that one or more cases of yellow fever do not arrive here from some infected port, but they are at once taken care of by the health authorities and the public never hears of them. In the South, where "Yellow Jack" is an almost yearly visitor, they have learned pretty well how to deal with him, and there is not much occasion for any one getting frightened about it. Efficient sanitary regulations and stringent quarantine are measures that can be relied upon to prevent the spread of yellow fever.

* * * * * *

IT SEEMS that the story about the recent earthquakes having opened up an active and very much alive volcano in Sonoma was true, and that a very large one is now in active operation. According to recent reports, it is throwing out lava, large lakes and corner lots at a fearful rate, filling up the valleys for miles around. The heat is so intense that explorers have been unable to approach nearer than four miles, at which distance the sight is said to be magnificent. That part of the original story that said that the earthquakes had laid bare some exceedingly rich gold mines and opened up streams of water at convenient places for working the mines, has not as yet been confirmed. It will require some Yankee real estate speculator to visit the scene, hunt up the new mines and inaugurate a "grand boom" in that direction.

* * * * * *

WE PRESUME there are a good many jewelers, manufacturers and others, who obtain a supply of water, either for their factories or dwellings, by means of driven wells. In the West especially these wells constitute the main reliance for water. These wells were conceived during the war by Colonel Green, of New Jersey, to supply his regiment with water. He subsequently took out a patent, but this has generally been disregarded. Pump makers and well diggers throughout the country have put down driven wells without number without recognizing the patent in any way. A number of years ago Colonel Green sold the greater portion of his rights to Andrews & Brother, of this city, but when they attempted to collect the royalties due them, they found themselves at once engaged in protracted litigation, for in several States the users of the wells combined to contest the patent. In almost every instance the United States Courts gave judgments sustaining the patent, but still the litigation was kept up. Early in June the United States Supreme Court rendered a decision in one of these cases that came before it, and upon every point the validity of the patent was sustained. For fourteen years this litigation has been in progress, and the owners of the patent have expended over $300,000 in maintaining their rights. They are now in a position to collect royalties from every person in the country who uses a driven well, and they are now arranging to prosecute their claims systematically. When they first demanded royalties, years ago, they asked only for $5 a well from such as would pay at once without litigation. The number who did so was small, as the lawyers led them to believe that if they would fight they would not have to pay anything. Now, however, they will have to pay an increased royalty in addition to all they have paid their lawyers. One combination in this city expended over ten thousand dollars in contesting a case, and were defeated by a decision rendered by Judge Benedict, now of the United States Supreme Court. That case took four years to try, and the printed evidence makes a book larger than a big dictionary. If any jewelers own driven wells, we advise them to settle when they are called upon on the best terms they can make.

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THERE seems to be a good prospect now that the Jewelers' Exchange will be established on a sound and permanent basis, and that it will be in full working order as soon as the rooms in the Astor House, now being fitted up, are ready for occupancy. A large number of manufacturers have signified their desire to become members on the basis proposed, and the number thus enrolled is sufficient to guarantee the payment of the necessary expenses. It is proposed to make the Exchange headquarters where jobbers from all sections and manufacturers can meet on neutral ground and transact their business. Every convenience will be provided for the accommodation of members and visitors, and special attention will be given to supplying the wants of jobbers from out of town who are here either for business or pleasure. A suite of rooms is now being fitted up in that portion of the Astor House that has heretofore been occupied as offices, and these will include a public parlor, reading room, and conveniences for manufacturers to display their samples privately

to their customers. Such accommodations have long been needed in the city, and, if rightly managed, the Exchange can be made exceedingly useful. If it is not properly managed it will be the fault of the members themselves.

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WE HAVE frequently advised our readers to keep a close watch of their insurance policies in order to make sure that they are insured in safe and solvent companies, those that are in the habit of paying losses without litigation. The necessity for such scrutiny was never greater than at the present time, for the fire losses this year have been so numerous and so heavy that there are many rumors afloat prejudicial to a number of companies. The losses for the first five months of the present year have been over ten millions of dollars more than they were during the corresponding five months of last year, and should they continue in the same proportion during the year, it will be the most disastrous year ever known, barring the Chicago and Boston conflagrations. Report says that several companies are seeking to re-insure their risks preparatory to retiring from business, and it will be fortunate for the community if they succeed in doing this without involving policy holders in loss. It is a wise provision that requires the companies to put aside fifty per cent. of their premiums as a re-insurance fund, as it substantially protects all interested from loss, saving and excepting the stockholders. Still, when a company gets weak, or its losses come in too thickly, they frequently make contention over losses that is very annoying and costly to the person who holds their policies and depends upon them to restore property destroyed. It is a good thing at all times to keep a close watch of your insurances, and such vigilance at the present time cannot be neglected without danger. Overhaul your policies and ascertain for yourself that your broker has placed your risk in trustworthy companies.

*A Complete History of Watch and Clock Making in America.

[By CHAS. S. CROSSMAN.]

Continued from page 162.

Number Thirteen.

THE HAMPDEN WATCH COMPANY OF SPRINGFIELD, MASS.

THE New York Watch Co., however, preceded this Company, and it is of this that we will speak first, but in this connection we are constrained to say, that the following of the history of this Company through all the changing necessities of their career from the first "three-wheeled" Mozart watch, which was a total failure to the successful era of the present administration has been no small amount of labor, but the writer feels amply repaid by the complete although necessary brief history which he is able to place before his readers.

It was in Providence, Rhode Island, in 1864, that Mr. Don J. Mozart first appeared in the role of a watch manufacturer in connection with the New York Watch Company.

Before going on with a history of this Company, a short biographical sketch of Mr. Mozart may be of interest to some. He first saw the light in the sunny clime of Italy, in the year 1820, and during his third year his parents removed to America and settled in Boston. His father was a watchmaker and established himself in that city, which fact is all that is known of him. Don, at the age of nine, while playing on the wharf, was enticed on board a vessel, which sailed away, and the boy was forcibly detained thereon during a three years' cruise. He was unable, however, to get back to America for seven years, visiting, meanwhile, many countries. Upon his return he could find no trace of his family, although he made repeated efforts to discover them, even going to Italy once to see those bearing the same name.

During his wanderings, Mr. Mozart had employed his time at various mechanical occupations, displaying a wonderful genius in comprehending and inventing machines of various kinds. He took up the watchmaker's trade and soon began traveling about as an expert in that line for some time. In 1854 he married and went into business at Xenia, Ohio, but spent most of his time in making mechanical devices for watches. At this time we find him of a sanguine and excitable temperament, with a restless desire for invention in the horological line. He remained in Xenia until 1863, when he moved to Bristol, Conn., intending to manufacture the year clock there which he had invented. This proved a failure, but it was probably here that he got the idea of the three-wheeled watch of which we are to speak. This is a supposition on our part, but think it correct, as the wheels and pinions bear about the relation to each other in the watch movement as they did in the year clock, viz., the wheels had a large number of teeth and the pinions a small number. After Mr. Mozart had gotten his model (of which we will speak later), perfected, he began to look about for capitalists to form a company and make the watch.

He was assisted by Mr. Geo. Sam. Rice, of New York, who was the first convert to his scheme of making a three-wheeled watch that should be preferable to all others. As a result of their efforts, the New York Watch Company was organized in 1864, and was composed of the following named gentlemen: Messrs. E. E. Hayward, Geo. Sam. Rice, J. A. Briggs, Henry L. Fuller, L. T. Best, J. A. Simmons, John T. Mauran and Joseph Anning. Most of the above named gentlemen were connected with the jewelry trade in New York City, Messrs. Hayward and Briggs being one of the leading houses engaged in the manufacture of rolled plate goods.

The capital of the Company was placed at $100,000, and their office located at 180 Broadway.

Mr. Geo. Sam. Rice was elected president, and Mr. J. A. Briggs secretary and treasurer. Mr. Mozart was made superintendent. He was a man of rare mechanical genius but, as subsequent events proved, lacked somewhat in the matter of good judgment. The factory was located in Providence, R. I., for two reasons; one was, it seemed the most available place for obtaining machinists and workmen to carry on the business, and the other was, some of the gentlemen comprising the Company had other manufacturing interests there. Two rooms were engaged in Broad street near Weybosset, and Mr. Mozart commenced making machinery and tools for the Company in the fall of 1864. As to machinery, he thought watches could be made without a great outlay for fine machinery, and commenced by taking Swiss lathes and having them altered more or less to suit his ideas. He kept his machinists busy at this until he had enough lathes and other tools ready to commence parts of watches, which was now started with vigor. At this time some twenty operatives were in the employ of the Company. Parts of a large number of watches had been made, but it began to dawn upon the minds of the stockholders that the venture would not be a success, as when it came to making and setting the escapement many unlooked-for difficulties arose.

Before speaking of them, the reader will want to know something of the watch in detail. We have already alluded to it as a "three-wheeled" watch. This result was of course arrived at as usual by using wheels of a high number, of teeth and pinions of a low number, the barrel was of the usual construction found in American watches. The idea of a "three-wheeled" movement was undoubtedly new to Mr. Mozart, as he claimed it was, but watches of their construction were made many decades ago. The writer calls to mind one of English make that he has the care of, that was made,

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sold and partly worn out before Mr. Mozart ever thought of making watches. We certainly wish to give credit when it is due; but so much noise was made about this "three-wheeled" watch, that the writer wished to set all his readers right on this point. The size approximated eighteen and may be called either full or three-quarter plate. The balance run between the pillar plate and balance bridge that was screwed on the top plate as usual. The bridge partially covered the opening in the plate, which was round and just large enough for the balance to oscillate in. The balances were compensating and somewhat below the usual diameter of American balances in size.

Now we come to the hardest part of our text, viz., the escapement. It was what Mr. Mozart was pleased to call a chrono-lever. It seemed to the writer, who has carefully examined it, to be a combination of some of the principles of both without possessing the distinctly good qualities of either. The writer cannot trust himself, however, to go into a detailed description of it, but can only say, it is one of those things that needs to be seen or, we might say, worked on for a time to be fully appreciated. Mr. Mozart had great faith in it, however. This was illustrated by the fact that he attempted to make it without jeweling it, as he claimed he had an escapement that was so perfect in its functions and free from friction, that jewels were unnecessary. We have, perhaps, spoken somewhat derogatively of this escapement. It certainly was not practical for the purpose intended, but it did show Mr. Mozart's superior inventive and mechanical ability, and had he been possessed of a like amount of good, sound judgment, he would have been among the horological lights of this generation.

Finally, after repeated trials to get watches out, the stockholders declared the effort a failure, and the employees were given a vacation gradually, and the Company engaged the services of Mr. L. W. Cushing, of Waltham, Massachusetts, to take charge, and authorized him to go ahead and make tools to build machinery with for a regular American watch. Mr. Cushing went there in the summer of 1866 and Mr. Mozart, after somewhat of a protest, left a few days after and subsequently removed to Ann Arbor, Michigan, where he organized another watch company, of which we will speak in another connection. Mr. Cushing was given a small force of competent machinists, and two lofts were engaged in Pine street, where the work of building tools and machinery was pushed vigorously. The old Mozart machinery and unfinished watches were entirely discarded. The Company had a very convenient place in which to carry on the work, but they were offered the old Machine Works in Springfield, Massachusetts, at what was considered a low price, viz., $37,502, and for which stock of the Watch Company would be accepted in payment. Additional subscriptions to the stock were also made by Springfield parties, and the Company was reorganized and the capital increased to $500,000. $30,000 of this amount was allowed to the stockholders in the old Company for the tools and machinery already completed in Providence. All the stockholders in the old Company became members of the new. The officers of the new Company were: Geo. Sam. Rice, President; J. A. Briggs, Secretary; George Walker, Treasurer. The latter was succeeded in this office by Mr. Geo. L. King and Theo. L. Studley, respectively, and in 1870 by Mr. Homer Foote. The plant was removed to Springfield in October, 1867, and operations were commenced in the new location which is the present site of the Hampden Watch Company. It is located on Armory Hill, about one mile north of the business center of the city. About three acres of land was included in the purchase. The old building, which had been used as a machine shop, was a one-story brick building edifice, which was now re-fitted and made tenantable for the watch factory. Mr. O. P. Rice was made General Business Manager, and Mr. J. H. Gerry was secured as Superintendent. A few other names might be mentioned in this connection: The first foreman of the plate room was Mr. George Griffin; of the escapement room, E. P. Gerry, while the balance room was presided over by Mr. H. J. Cain, the present Superintendent, Mr. Leonidas Murray, had charge of the train room, and Mr. B. Gerry of the flat steel and stem-winding work. The gilding was done by Mr. George Pollard, and the dials made at first by Mr. Chas. Ayer, who was soon succeeded, however, by Messrs. Carpenter and Hall, who had previously been at Marion, New Jersey, together. Mr. Chas. P. Crafts was the first foreman of the machine shop. Two grades of 18-size ¾-plate movements, engraved "Springfield," were commenced. They were to sell at $60 and $75 respectively. But before many were completed a fire occurred, which completely destroyed the factory building, although most of the machinery and watches were saved. The confiagration took place on the night of the 23d of April, 1870, and was supposed to have originated in the dial room from an overheated furnace. The Company, nothing daunted, at once set about getting under way again. With the purchase of the machine works, the Company also came into possession of a large two-story boarding house, which stood across Orleans street from the factory. This was at once moved over to the Company's grounds, another story added and internal arrangements made, so that it was convenient for the purpose intended, and in July following work was again resumed on the 18-size ¾-plate movement, which afterward became a standard production of the Company, and were also given names and were made in several grades. The highest grade was named Geo. Walker, and was listed at $200. The Company also decided to make one grade of 16-size ¾-plate movement, bearing the name "New York Watch Co." on the dial only. One thousand of these movements, which were all stem-winding, were commenced, but only about one hundred of them were ever completed and put on the market. There were several reasons why they were not completed, as there were many things about them far from being right. It is not to be understood, however, that the Company did not make a success of 16-size movements. The Geo. Walker and other grades were subsequently made in 16 as well as 18-size, and were a success. The Company also commenced work on 18-size full-plate movements shortly after the fire, and were able to put their first movements of this kind on the market in 1871. It is due to Mr. Geo. Hunt, who was with the Company at that time as Master Watchmaker, to say that he did much toward perfecting this model. The first grade was a full-jeweled, adjusted movement, and was named Frederic Billings, after a Vermont stockholder. Seven grades of 18-sized, all key-winding, were gotten out, the lowest being the John Hancock, which had his fac-simile signature as he signed the Declaration of Independence. The movements were similar in construction to the 18-size movements made by other companies. The trains were 16,200 per hour. Shortly before the fire, Mr. Gerry retired from the superintendence and was succeeded by Mr. Osmore Jenkins, who remained Superintendent but a short time. Mr. J. C. Perry then succeeded Mr. O. P. Rice as General Manager, and Mr. H. J. Cain was appointed Manufacturing Superintendent. This is the history of the Company to 1872. They now had about one hundred operatives, and were now beginning to make for themselves a name in the trade. They adopted the plan of selling both to the retail and wholesale trade, and that plan is still adhered to by the present management. In 1870, after the fire, a change was made in the matter of transferring the charter from New York to Massachusetts. Mr. Foote had been elected Treasurer a short time before this and now came to the front as Financial Manager. At this time, $287,000 had been paid in on the capital; a bond of $100,000 was issued, upon which $75,000 in cash was realized, and the Company pushed the work vigorously. The business ran along without much interruption until 1873, when Mr. King succeeded Mr. Rice as President at the annual meeting in January. He died in the following March and Mr. Aaron Bagg, a director, was elected to fill the vacancy. This was the year of the great financial panic, as will be remembered, and the watch business, like many others, began to suffer. It became necessary to reduce the force of operatives considerably. In 1875, they concluded to close entirely, as they were short of ready money and could run the factory only at a great disadvantage. But it was not doomed to lie idle long, as the stockholders took hold of the matter and a new

organization was formed, called the New York Watch Manufacturing Company, which took hold of the affairs of the old Company, and started the factory again in the fall of that year. It was virtually the old Company under a new name and with a little new capital. They were, however, handicapped, owing to want of more capital, and did not score a great success.

The doors were again closed in the summer of 1876. But from the debris, if such it can be called, was to spring a new Company that was destined to score a grand success for itself and its managers. This new Company was organized in January, 1877, and was of course, composed largely of stockholders of the old Company. About $300,000 in bonds of the old Company were held by the stockholders and others. The Company sold out to these bondholders, who then organized as the Hampden Watch Company. The Board of Directors were now Messrs. Homer Foote, Aaron Bagg, Jas. D. Baner and A. Breever. Mr. Homer Foote was elected President. Mr. Chas. D. Rood, came from New York City to take the position of Treasurer. Mr. J. C. Perry was elected Clerk. They did not, however, commence active operations until June, 1877, when H. J. Cain was appointed Superintendent, Mr. Perry taking the position as their Traveling Salesman, and Mr. Rood that of Business Manager, which position he has since held. The Company have made a larger number of grades, dropping some of the old ones and adding new to take their places. The Company's productions are all full-plate with the exception of the State street, which is a 16-size ¾-plate movement. The steel parts in this movement, which are exposed with the exception of the balance and escapement, are gold-plated, which gives it a very beautiful appearance. At the time the new Company started, the escapement was remodeled, the Grossman plan being followed closer than in the old escapement. In 1881 a new brick building was erected. It is 40 by 100 feet, three stories and basement; both this and the wooden building are occupied. During 1885, the Company got out a full-plate watch to wind at figure 12 for open face. The grades are the same as the Hunting. The history of the Hampden Company has not been gone into as much in detail as would otherwise have been done, as much of the present Company's history is still fresh in the memory of those in the trade.

An Important Removal in the Silver Plated Ware Trade.

ANNOUNCEMENT has been made that Rogers & Bro. would occupy the beautiful new store at No. 16 Cortlandt street, and now, after various delays, the feat is accomplished, and the company is conveniently domiciled in its new quarters. This removal of Rogers & Brother from their uptown store back to the very center of the jewelry trade, means a great deal, and is deserving of more than a passing notice. This house was established as a firm in 1847, at Hartford, Connecticut, where it transacted business on a limited scale. In 1858 it removed to Waterbury, where its factory still remains, and was there incorporated as a stock company. The necessity for having representation in New York induced them to open an office on the third floor of No. 19 John street, where they remained some years. Twenty-four years ago they took the entire lofts of the building No. 203 Broadway, which they fitted up very elegantly for those days, and put in a largely increased line of goods. Here they remained for twelve years, their business constantly increasing, until finally they found their large store too small for them. Twelve years ago there was quite a movement of jewelers up town to the vicinity of Bond street, where the American Watch Company had located, and many thought the jewelry trade was destined to forsake Maiden Lane and follow the fashion of moving up town. Quite a number of prominent houses located in and about Bond street, and among them was Roge 197
& Brother, who found enlarged quarters at No. 690 Broadway. hange
large fire, however, burned out several jewelry firms some years ag
in Bond street, and they were obliged to go elsewhere, locating mainl
about Union Square, others returning to Maiden Lane. But the u
town movement was not so general as had been expe ted, and Maide
Lane has always been the headquarters of the trade, notwithstandin,
the fact that a few prominent houses have abandoned it.

Two years ago, Rogers & Brother found they needed increase
facilities for transacting their immense business, and so determine
to move back down town when they could find an appropriate buildi
ing. One of the great telephone companies projected an immense
building at No. 16 Cortlandt street, partly for their own accommo
dation, but mainly to rent for office and business purposes. M
George C. White, of Rogers & Brother, saw the architect's plans, an com
immediately leased the choice store in the building even before th lls
cellar was excavated. It is one of the most elegant and substantiall ed t
built buildings in the lower part of the city, and, although labo cien
strikes have delayed work upon it, it is now ready for occupancy, an ngine
indeed, is filled with first-class tenants. Now Cortlandt street, e sa
will say for the information of those who do not know the lay out ipara
New York, is but a projection of Maiden Lane—that is to say, the ughl
is a street that crosses Broadway, the Eastern portion of which a s
called Maiden Lane, and that which lies West of Broadway is cal an
Cortlandt street. Maiden Lane is essentially given up to jewel h
but the trade overflows into Broadway, John and Cortlandt streets, ia
so that by their removal, Rogers & Brother find themselves once mor d
in the heart of the "swim." e

The store they occupy is one of two in the Telephone Building, e
being the nearest one to Broadway. The entrance is massive, and te.
flanked with immense show windows of plate glass, in which on-
kept an attractive display of silver-plated goods of the latest style cel
and designs, artistically arranged to catch the eyes of passers. Th ain
store is 120 feet deep by 28 feet wide, with an ell at the rear 30 r in
by 20. Along both sides of the store are rich and elegant black wa ent ce
nut cases, reaching from floor to ceiling, divided by shelving into or
venient spaces for the display of goods. In lines down through e or
center of the store, dividing it into aisles, are other cases, also ac a
black walnut, for the display of smaller articles. Overhead are nume e
ous chandeliers, fitted for gas or incandescent electric lights, whic ers
are used according as circumstances require. This is the salesroom e
wherein are kept samples of all goods manufactured by the company ity
and these are so numerous, including almost everything, from a mate de r
box to an elaborate dinner set, that to simply name them would ksat
require many pages of THE CIRCULAR. The general effect of th a ot
entire display reminds one of the descriptions of some of the fai d
lous palaces in the Arabian Nights. The ell part of the store he
devoted to offices, which are commodious, and arranged with a spe e
cial view to having plenty of room and every facility for the trans
action of business. Conveniencies are provided as well for buyer
as for the office help, and customers will here find every facility f
letter-writing, telephoning, telegraphing, etc. The store is eq
thoroughly with electric bells, is abundantly lighted from fr ass d
rear, and the ventilation is admirable. can ne

This store, with its immense proportions, would seem to l r Yo t in
all that one concern requires, but it does not half supply R s the
Brother with the room they need for their business. In the
of Cortlandt street is Dey street, the buildings of one street be
up against those of the other street. In the rear of Rogers & Br
is a five story marble building, fronting on Dey street, No. 11, an
entire building has been rented by the company, and a commu one
ting passage way cut through the walls to No. 16 Cortlandt and t even
This building required a complete overhauling, from cellar to g e pear.
to adapt it to the requirements of their business, so elevator and s ly in
waiters, connecting with each floor have been put in, and shel mize
counters, desks, and other office furniture made for each floor. first floor is devoted exclusively to storing the immense stock of

act

re, which is placed on appropriate shelves, duly labeled and ticketed, so that there is no delay in finding whatever may be required in the w urse of business. On the three floors above the stock of hollow m re is kept, and is similarly disposed for convenience in reaching w l goods are received and shipped from the Dey street store, so that a re is no littering up of the main salesroom, nor are customers p uired to run the gauntlet of boxes and barrels partly filled with t ods. The two upper lofts of the Dey street building are devoted c the plating and jobbing rooms. An immense amount of jobbing ork is done by the company, exclusively for the trade, thirty work- en finding steady employment in these departments. In the base- ment and sub-cellar of this building all the packing and shipping is lone, the goods being delivered from the first floor. Nothing seems o have been omitted in the fitting up of this immense establishment t secure the greatest facilities for transacting business quickly, con- niently, and without noise or confusion. Standing at his desk in e Cortlandt street building, the manager can, by the arrangement electric bells and speaking tubes, talk with any person in either ilding without leaving his seat or calling the person from his bench lace of duty. The establishment in its entirety is splendidly ted, ventilation is all that can be desired, steam heat reaches every m, and the plumbing throughout is new and specially adapted to requirements of the business. In all there are about seventy-five ons employed on the premises, which number is insignificant pared to the number employed at the factory at Waterbury.

It is impossible to give more than a faint description of the estab- shment of Rogers & Brother without taking more space than we have command; suffice it to say that they have now at their new store, the very center of the trade, the largest stock of silver-plated ware o be found in New York City, and buyers will no longer have to se time in running up Broadway to find them. Whatever is made goods of this kind will be found right here. Their new establish- nt will well repay a visit merely as a matter of curiosity, and all rsons who are interested in the trade are cordially invited to call d inspect the stock, and avail themselves of the conveniences pro- ded for those who have business to transact.

An Original Article on Nasal Stenosis,

Effects on the Eye, Ear, Pharynx, Larynx, Voice and Brain.

[BY C. A. BUCKLIN, A. M., M. D., NEW YORK.]

Continued from page 169.

How do these conditions affect the ear?

This is probably brought about in two ways. First, by direct tension of the inflammation to the middle ear. The second and more probable way is, that the swollen condition of the mucous membrane of the pharynx causes the opening of the eustachian tube to become obstructed in such a manner, that the swollen end of the be acts like a check valve. When we swallow the air from the vi ddle ear is partially exhausted, and the swollen mouth of the tube Walkioped by the vacuum formed in the tympanic cavity, that a Gen vacuum is constantly maintained within this cavity. It is Mr. Hunderstand what will happen in the blood vessels of the mem- 1867, lining this cavity if they are under a continuous partial the im. They will become chronically congested, the lining mem- Arn of the tympanic cavity will hypertrophy, and we very soon have Abourable catarrhal disease of the middle ear. This condition has ing, lency to keep up an annoying and unmusical buzz in the ear.

but to not pretend to cure, by treating the nose properly, an ear wan has been destroyed by catarrhal disease, but I do propose to ann this horrible disease by proper treatment of the nose, if the atment is undertaken before the ear is ruined. The slightest plainness or buzz in the ear should seriously attract immediate Gation.

thou have only to look at the text books on otology, and to observe th cuts of eustachian catheters made to inflate an ear, the eustachian tube of which must be reached from the nostril of the opposite side owing to a bony obstruction on the affected side, and no other testimony is required in support of the statement that cases of incipient catarrhal congestion of the middle ear do not receive proper treatment. Treatment for catarrhal disease of the middle ear is usually commenced too late to be successful. When it is commenced in time the treatment is of such a nature as to greatly annoy the sufferer without giving him any chance of benefit.

How the larynx and pharynx become affected.

They become affected in three ways, viz., by direct extension of the inflammation to these parts, by the rarification of air within the parts, and by breathing constantly and directly into the air passages through the mouth colder and dryer air, which also contains more foreign substances than the air which is breathed through the nose.

The voice.

When nasal stenosis in any way disturbs the normal relations existing between those portions of the sound waves producing a musical tone which escape through the nose and mouth, the resonance of the voice is destroyed. Vocalists suffer very much from these causes. They have a single note which they have always taken with difficulty. "E," I believe, is usually the note which makes the most trouble. I have seen a vocal difficulty which had existed for years disappear within twenty-four hours after the removal of a nasal stenosis. Any singer can demonstrate the mechanical effects of nasal obstruction upon his head tones by simply closing his nose when he attempts to produce a clear head tone. The additional difficulty experienced from the chronic congestion of the mucous membrane lining, the nasal cavities cannot be appreciated by one who simply closes his nose while attempting to produce a head tone.

How can these conditions affect the brain?

Persons suffering from chronic congestion of the mucous surfaces of the *nose*, pharynx and sinuses have a full feeling in the head. They are always drowsy, and at times have the most acute headaches. These symptoms are promptly relieved by restoring perfect ventilation through the nose. Having given a passing glance at the etiology of this most common class of diseases, we will pass to their treatment.

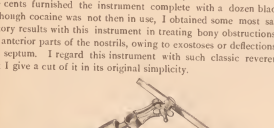
Treatment.—There is no field in which a greater amount of charlatanism has been practiced than in diseases of the nasal passages. The opening in a normal nose between the septum and the turbinated bones, is sufficient to admit of considerable swelling of the mucous membranes covering these parts, without causing any annoying obstruction of the nostril.

An individual may be thoroughly poisoned by some infectious disease, resulting frequently from defective plumbing, which will cause the swelling of the mucous membrane of the nose to be extreme, and he will have nasal stenosis as a result of excessive hyperæmia of the nasal sub-mucous tissues. It certainly shows a great lack of good judgment to attempt to treat such patients with treatment which is exclusively local. They require pure air and such remedies as will most effectually kill bacteria without disturbing the constitution. The fact that a few of these patients have sufficient room between the bony walls of the nostrils to breathe well, providing the room occupied by the hyperæmic mucous membranes can be made available, has given rise to innumerable operations and operators, who treat all cases by indiscriminate attempts to destroy the hyperæmic mucous membrane with cautery, caustics, scissors, snares, forceps, etc. Beneficial results can be brought about in certain cases by any of these means, provided they are used with intelligence and their action properly limited. I am, however, convinced that the average practitioner in making a limited *slough* on the mucous membrane of the turbinated bone gets the caustic pretty well over the entire lining of the nose, and the adjacent surfaces in these cases become firmly adherent; thus more harm than good results. The treatment of these cases by galvanic cautery has many warm friends. I use it occasionally, but find that it fails like the spray to bring about the substantial

and permanent results with which I am satisfied. It occasionally gives a result which is highly satisfactory to the patient. My experience, however, is that the results are frequently satisfactory at the time, but they are seldom permanent. Most practitioners have given up galvano cautery because of the difficulties of keeping a constant supply of electricity on hand sufficient for cautery purposes. I overcame this difficulty by designing a battery which is manufactured by Henry E. Stammers, of this city. It only requires charging and cleaning every two years to furnish sufficient electricity for daily cautery operations in the nose.

I, however, discovered, as early as 1880 that in the majority of cases the true cause of the difficulty was a too narrow opening between the bony walls of the nostril. The septum by its deflections or exostoses usually so encroaches on the nostril as to make it impossible by destruction of the soft tissues with cautery or caustics to obtain permanent satisfactory nasal respiration. Occasionally the mal-position of the turbinated bone is the cause of a serious nasal obstruction.

My first attempts to overcome these difficulties were made in 1880 and they were the first thoroughly successful ones ever made. The instrument I used was a No. 10 jeweler's saw, clamped in a sheath of metal to give the saw the requisite stiffness. One and one-half inches of the saw was left free to cut. The metal sheath was firmly clasped in a pin vise which was driven into an ebony file handle. Seventy-five cents furnished the instrument complete with a dozen blades. Although cocaine was not then in use, I obtained some most satisfactory results with this instrument in treating bony obstructions in the anterior parts of the nostrils, owing to exostoses or deflections of the septum. I regard this instrument with such classic reverence that I give a cut of it in its original simplicity.



I was not long in discovering bony obstructions in the nostril which were rather heavy for this little saw, some of them protruding at least ¼ of an inch into the nostril and having a length of one inch. These difficulties lead to the construction of a heavier and longer nasal saw manufactured by Tiemann and Co., and known as Bucklin's Reversible Nasal Saw. It has two blades which are reversible in the handle. Each blade is 5½ inches long. 3½ inches are occupied by teeth thirty-two to the inch. The saw blades release when pushed and engage when pulled, the cutting side of the tooth stands at right angles to the blade. The teeth are without any "set." The lighter blade has a breadth of ⅛ of an inch at the extreme end, and increases slightly in breadth from before backwards. When the bone to be removed is very heavy and there is room, I always use the heavy blade, which has an average breadth of ¼ of an inch and fits into the same handle. This makes a powerful instrument.

Very frequently there is not room to use so broad a saw blade. Under such circumstances I occasionally find it advantageous, after having started a cut with small saw, to remove it and replace it with the stronger blade. This could not have been done except for the room made by the cut of the smaller saw. The heavier the blade, the more rapidly can you remove the bony obstruction.

The following cut represents the saw as it is in use at present. With it I can remove from the nose any bony obstruction which is detrimental to perfect nasal respiration.

I am more thoroughly convinced every day that the common trouble in nasal disease is caused by the narrowness of the bony opening in the nostril, which does not permit the mucous membrane to become as hyperæmic as it naturally must during sudden change in the atmosphere without producing serious nasal stenosis.

The dental engine is the only instrument which attempts to compete with the saw in increasing the space between the bony walls of the nostrils. The engine is clumsy, expensive and well calculated to frighten nervous patients. An exostosis from the septum of sufficient size to require one hour's constant work with the dental engine can be dropped into the handkerchief in one minute with the saw.

The operation by the thorough use of cocaine is made comparatively painless, and gives results which are permanent and thoroughly satisfactory. Doctor Bosworth, of this city, has constructed a saw since I invented my saw, but as far as I know did so without any previous knowledge of my instrument. He has done much demonstrate, that perfectly satisfactory results can be obtained to this method of treatment. He has also been convinced, that cautery and caustics in the majority of cases are inefficient and give only temporary relief to the nasal stenosis.

For the removal of granulations and hypertrophies in the posterior pharynx, Jarvis's steel wire écraseur gives very satisfactory results in most cases. If the instruments are perfectly cleaned and carefully disinfected, there is never any unpleasant reactions following the operation for the removal of a deformity of a septum or a turbinated bone. These conclusions, although novel, have the endorsement of Dr. Alfred Loomis and Dr. James R. Leaming, of this city.

The names of the Sixth Class who have completed the course of instruction in optics, as applied to the correction of error of refraction and accommodation, are as follows: Samuel S. Little, Cumberland, Md.; Charles H. Gorton, Gloversville, N. Y.; Rudolph Pagé, Wellsborough, Pa.; Stephen Preston, New York; Chas. H. Safford, Kingston, N. Y.

The names of the Seventh Class are: Curtis J. Monson, Waterbury Haven, Ct.; Elias L. Guthman, Youngstown, Ohio; Isaac W. Sheffner, Waltham, Mass; Edward H. Hopkins, Penn Yan, N. Y.; Thodeast H. Bowen, Bridgeton, N. J.; Charles C. Kimball, Watertown, Mass.

The object of this School is to educate only one student in a town, excepting the very large cities. Those desiring to control the optical trade of the place in which they reside, should attend to forwarding their application at once. As near as I can determine, the average income of those who have started in business is fifty dollars per week.

If sufficient numbers desire to take the course in July, a class will be started on July 12th, at two o'clock. Further particulars can be obtained by addressing enquiry to 206 West 42d Street, New York.

A New Escapement.

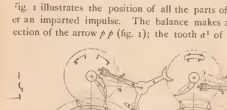
UNIVERSAL ROLLER CHRONOMETER ESCAPEMENT.

WE LAY before our readers this month a new escapement which, to judge from the length of its name, will be calculated to consign all the present escapements into the lumber room and start a new era in the horological art. We believe it has been patented in every civilized country by its inventor, Mr. Aug. E. Müller, of Passau, Germany. It may be described as follows: The character

dic part of the universal roller chronometer escapement consists of .n axis with one tooth, on which is fastened a roller with a notch (like a duplex roller), which part is located between the chronometer "scape wheel and a pivoted detent with fork, and stands in depthing .ith the two. The escapement consists of the following parts: The chronometer escape wheel *a*, which differs from all others of the kind hitherto known, by having the inclined face of its simple teeth directed forward. This reverse shape of the escape wheel teeth causes the impulse always to be exerted upon the point of the finger *l*. From the lines *d d'* and *r r*, fig. 1, will be seen the direction of the two lines forming the tooth; for a wheel of 12 teeth the inclination of the front face is obtained by drawing from the point of a tooth a straight line *d d* to the point of the fourth tooth; the back of the tooth coincides with the direction of the wheel's radius. The above-mentioned axis, with the tooth *z* and the male stop *x*, is united with the roller *b*, having the notch *i*. The male stop *x* prevents every revolution of the axis, by which the tooth might get beyond the reach of the curve of the arm *e* of the pivoted detent.

The pivoted detent consists of three arms, *e*, e^1 and e^2; one of its arms, e^2, carries the fork, the other arm *e* ends in a curved piece with notch *c*, and the third arm, e^1, serves for establishing the equipoise the pivoted detent upon its axis of rotation. The pin *g*, which paths into the fork, is located on the balance arm, and the balance staff carries nothing but the finger *l* beside the collet and the balance ring.

Fig. 1 illustrates the position of all the parts of this escapement after an imparted impulse. The balance makes a vibration in the direction of the arrow *p p* (fig. 1); the tooth a^1 of the escape wheel



on the roller *b*, and the tooth *z* stands in the notch *c*. The tooth resists the retrograde movement of the pivoted detent, because it is locked by the scape wheel tooth a^1 which lies braced on the roller and the banking pins *k k* limit the motion to the exterior, for which reason the fork must remain in its position until the balance turns in the direction *q q* of the arrow, the impulse pin *g* enters the fork and thereby effects the motion of the pivoted detent to the left. This rotation is accompanied by that of the roller *b* in the indicated direction of the arrow, because the tooth *z* is moved to the right downward, and, at the same time, the notch *i* is moved to the right and upward. At the moment, now, at which the tooth *z* is lifted free, the escape wheel tooth a^1 drops into the roller notch, and while the pivoted detent still continues a little its motion, the tooth *z* slides along the curved piece *e* of the arm of the pivoted detent. (See fig. 2). The position of all the parts of the escapement is now visible from fig. 2. The tooth *z* lies upon the curved part of the arm *e* of the pivoted detent, with a pressure corresponding to that exerted by the escape wheel tooth upon the notch *i*, and the fork, therefore, remains stationary until the pin *g* at the return of the balance, in the direction of the arrow *p p*, deepths into the fork notch. The unlocking and impulse occur now. The impulse pin *g*, fig. 2, carries the fork to the right (in the direction of the arrow *p p*), the curved plane of the arm *e* moves to the left, and after the latter has accomplished a distance corresponding to the thickness of the tooth, whereby the pivoted detent precedes 3^0, the tooth *z* commences to enter into the notch *c*; the pressure of the scape wheel tooth upon the notch *i*, therefore, is transported upon the pivoted detent by means of the tooth *z*, it is consequently imparted to the balance by the fork until the pivoted detent has accomplished an additional distance of 6^0, after which the scape wheel tooth leaves the notch *i*, the finger *l* stands before the scape wheel tooth a^2, and this tooth communicates the impulse upon the finger of the balance.

There remain 3^0 which the fork has still to accomplish; these serve for the purpose of keeping the fork sufficiently long between the pin *g*, until the next following tooth, a^2, of the scape wheel has dropped upon the roller *b*, and we then have the position of the different parts of the escapement, as seen in fig. 1.

The inventor next enters into a calculation to show the preferable qualities of his escapement, and finally sums up by finding that it is superior even to the chronometer escapement, because his escapement has no angle of draught, and therefore no loss of power by the recoil of the scape wheel; no bendings of elastic springs; the unlocking, therefore, takes place in a very easy manner by means of push; the fork arm of the pivoted detent is twice as long as the arm with curve and notch; the latter, consequently, possesses only one-half the velocity; the motion starts of itself, does not require the precision of anchor and spring escapements and can be easily constructed by machinery.

On Gold and Silver Ornaments from Mounds of Florida.*

BY GEORGE F. KUNZ.

DURING the last few months, four gold and two silver ornaments which were found in the Florida mounds have come into my possession through Mr. F. A. Robinson, who, from his profession of a surveyor, has had opportunity to examine large tracts of ground and who discovered the ornaments, purchased them at the several localities, and has kindly supplied me with all the information in his possession.

In the Smithsonian Report for 1877, p. 298, Dr. Chas. Rau refers to a gold ornament, shaped like a bird's egg, which was dug out of a mound in Florida.

Fig. 1

No. 1, a gold ornament, weighs 75½ dwts., has the color of native Georgia gold, and is about 920 fine. Its specific gravity is 17.414. It is 82 mm. long, 38 mm. wide, 35 mm. thick in the center and 1 mm. on the edges. In shape it is like a blunt spear head.

McDonald Station, where this relic was found, is in Orange County, Florida. The mound was about a quarter of a mile from the railroad, measured 6 feet at the base and 6 feet in height, and on its top a huge live-oak tree was growing. Here, at a depth of 3½ feet below the surface, the precious ornament had been deposited, together with a small string of bright-colored glass beads, blue, white and brown, and two shell beads of larger size. The position of these on the skeleton showed that they had been worn suspended from the neck as a breast or totemic ornament. In this same mound have been discovered, from time to time, a large quantity of stone celts, broken pottery, arrow heads and other rude implements of savage life.

This gold ornament, which is of principal interest, has every appearance of having been hammered out and then smoothed by rubbing with a stone. The surface is slightly uneven and covered with

* Read at the Buffalo meeting of the American Association for the Advancement of Science.

scratches, which may be simply the result of wear. At the point of fastening it appears as if it might have been cracked in the hammering.

No. 2 weighs 19 dwts., 26.26 grammes. It is a thin, circular ornament about 3¼ inches in diameter. Its specific gravity is 17.39, and it is 920 fine. The ornamentation on this is more interesting. In the center is a raised portion ½ inch (3 mm.) above the surrounding level, and about 1 inch (26 mm.) in diameter. The rim is regularly beaten up at intervals into small bead-like dots on the upper surface, and evenly distributed around the inner portoin of the circle are 8 long drop-like projections about 8 to 12 mm. (⅓ to ½ in.) long, and 5 mm. (⅕ in.) across at the widest part. Between each pair of these projections 3 of the small bead-like dots are included, making 24 of the small dots in all, arranged evenly from the raised center. Whether these curious forms were symbolical in some way or were simply put on for purposes of ornamentation it si impossible to tell.

If this object were of any but American origin, we might suggest that the center represents the sun and the dots the 24 hours into which the day is divided.

The raised markings were evidently made by a single blow, a piece of leather or wood being used for the background, and the drop-shaped projections were made hy pushes of some round-edged tool,

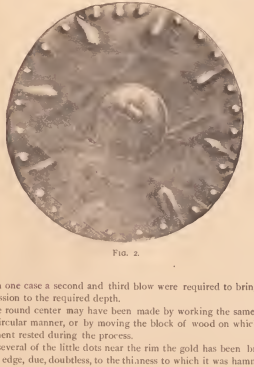


Fig. 2.

and in one case a second and third blow were required to bring the depression to the required depth.

The round center may have been made by working the same tool in a circular manner, or by moving the block of wood on which the ornament rested during the process.

In several of the little dots near the rim the gold has been broken to the edge, due, doubtless, to the thinness to which it was hammered and the rough method of ornamenting.

This interesting ornament was probably a center piece for a shield or a breast or hair ornament, cemented in place by pitch or resin.

No. 2 was found on the east shore of Lake Butler, Orange Co., Florida, 5 feet below the surface, in a mound 50 feet in diameter at the base and 8 feet high. With it was found the silver ornament No. 1. It weighs 19 dwts.

No. 3 is a circular ear disk, weighing 10 dwts., 14.640 grammes. Its specific gravity is 16.68 and it is 920 fine. In width it is 49 mm., the hole in the center measuring 6 mm. (¼ inch). In all the space between the central hole and the circumference the surface is slightly raised on the upper side and quite smooth, but on the other side an irregular structure is seen, as if the gold had exfoliated, showing that the ornament had been hammered out of one or more nuggets of gold.

This was found with Indian remains on the west side of Lake Tohopekaliga, in Orange Co., at a depth of four feet, in a mound measuring 100 feet at the base. Much broken pottery was also met with all through the mound.

Fig. 3.

No. 4 was found in September, 1885, by Mr. Robinson, at Wes Apopka, on the west side of Lake Apopka, Sumter Co., Florida, in a mound 100 feet at the base and 5 feet high. A large number of decomposed bones were found in this mound, showing that hundreds of Indians had been buried there, but the bones were in too advanced a stage of decomposition to warrant the assertion that this ornament was found on a bod[y]. One skeleton had a stone celt with it, and perha[ps] this gold ornament belonged to the same boc[y]. The triangular silver ornament, No. 5, was f[ound] here also. The gold ornament is long, semi-ci[r]cular in form and tapers somewhat towards the end w[here] it was fastened. It measures 67 mm. in le[ngth] (2¾ in.), 22.5 mm. in width and 6.5 mm. in [thick]ness (¼ inch). Its weight is 61½ dwts. (94.81 grammes), its specific gravity is 14.433, but its fine[ness] is only 663, as it is alloyed with silver. From its appearance we can quite positively affirm that it is a casting, and that a collar was cut in it and the rounded side smoothed off after it was cast. The under side particularly shows the unevenness of the metal flow, and two cracks in the metal prove either that it must be somewhat crystalline or that it was not properly cooled.

Fig. 4.

No. 5 is a silver ornament weighing 4¼ dwts. (6.040 grammes) It is in shape a rude segment of a circle, whose diameter would be

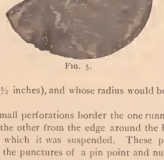


Fig. 5.

about 85 mm. (3½ inches), and whose radius would be about 54 m[m] (2¼ inches).

Two rows of small perforations border the one running around t[he] entire edge, and the other from the edge around the hole at the c[en]ter of the piece by which it was suspended. These perforations [ap]pear. about as large as the punctures of a pin point and number over [fif]ty in all, though part of them have been broken off. They may h[a]ve been made for purposes of display or may have served as eyelets, t

means of which the piece was sewed onto cloth or leather, fibrous hair serving as thread.

FIG. 6.

No. 6 is a circular ear disk of silver, measuring 60 mm. (2 3/8 inches). The hole in the center is 7 mm. wide (1/4 inch). The same style of ornamentation runs around the edge of the entire disk, as was described under No. 5. It weighs 20.788 grammes, or 13 3/4 dwts. This disk was found with No. 2 on the east shore of Lake Butler.

Dr. Rau has very kindly loaned me three silver ornaments, but the information that came with them was very meagre—a simple statement that they were found in some mound or mounds near Tampa, Fla. These are designated as Nos. 7, 8 and 9. No. 7 (No. 62,273, Smith. Coll.) was either an ear disk of enormous size or the center of a shield, but Nos. 8 and 9, which are elongated, flat bars, were probably breast ornaments. No. 7 is 99 mm. in diameter (3 3/5 inches), and the opening in the center is 8.5 mm. (1/3 inch) in diameter. It is quite flat and weighs 38.07 grammes. No. 8 (62,271, S. C.) is a long, flat bar

FIG. 8. FIG. 7. FIG. 9.

with two perforations at one end, by which it was suspended when worn. It is 125 mm. in length (5 1/6 inches) and 30 mm. (1 1/4 inches) in width, and the edges are cracked from the vigorous hammering it received.

No. 9 is also a flat, elongated bar, 119 mm. long (about 5 inches), 42 mm. wide (1 5/8 inches) and 4 mm. (1/6 inch) thick, and weighs 140.04 grammes.

In the *American Antiquary* for May, 1885, p. 143, Mr. A. E. Douglas, in his paper on shell mounds, mentions the reported finding at the Spruce Creek mound near the Halifax River, of three circular silver plates, slightly concave and perforated in the center, and measuring 4, 3 and 2 inches respectively in diameter, and, with these, a silver bar and five old Spanish coins. Mr. Douglas regards all of these articles as of modern date. In the *American Antiquary* journal for March, 1885, p. 80, he speaks of the finding of a copper bead that had discolored the teeth of a skull, and this he supposes to be of ancient origin.

In the 16th report of the Peabody Museum of Archæology, p. 171, Prof. F. W. Putnam mentions the finding of hammered native gold in the Ohio mounds when they were explored by Prof. C. L. Metz, the first authentic find of gold in an ancient mound. A small copper pendant discovered at that time seemed to have been covered with a thin film of gold, portions of which still adhered to it and were found to the mass of the material.

In the account of the expedition of De Soto, by the Gentleman of Elvas, gold ornaments are spoken of as in the possession of an Indian queen about the year 1575.

De Bry's Brevis Narratio, Pl. XLI., contains an exaggerated and rather imaginary illustration of the manner in which the natives gathered gold, and the locality he refers to would seem to be somewhere in the northeastern part of Georgia.

In commenting on these gold ornaments, at a recent meeting of the New York Academy of Sciences, Mr. L. E. Chittenden said that a large number of ships laden with gold and silver are known to have been wrecked on the coast of Florida. The following are some of the results of his researches:

In the "Histoire Notable de la Floride," by Basanier, Paris, 1586, occurs a passage translated as follows: "There was found among the Indians a great quantity of gold and silver, which, as I learned from themselves, was from the ships which had been wrecked along the coast. They trade in it with one another. What confirms this statement is the fact that along that part of the coast and the cape where the wrecks occur, there is more silver than there is farther north. They said constantly that in the Apalache Mountains there were mines of copper, which I think are really gold."

De Soto was the first to make search in Florida for mines of the precious metals, and in the chronicle of the "Knight of Elvas," who wrote the history of his expedition, there is abundant reference to the use of the precious metals by the Indians. In describing an interview between De Soto and an Indian prisoner from a distant country, the knight says: "His country was governed by a woman whose city was of surprising grandeur; that she drew tribute from all her neighbors, from some in commodities, from others in gold. Whereupon he described the manner in which the gold was taken out, how they smelted and refined it, as if he had seen it done a hundred times or the devil had instructed him, so that those who were experts in the ways of working mines were certain that he could not have spoken so accurately had he not seen it, and the relation passed for a confutant verity from the circumstances which confirmed it." . . . . . At many places on their journey they were told that across the mountains to the northward lay Chisca, rich in mines of gold. At Chiaha, near the northeastern corner of Alabama, "the chief, Acaste, came to offer his services. And when De Soto asked him if he knew any rich and fertile country, he said that farther north he would find the province of Chisca, where they smelted copper and another metal more lively and more perfect; that this metal seemed much more precious than copper, but because of its softness it was not used." This account conformed to what De Soto was told at other places, and he subsequently saw some small axes of copper which they said was mixed with gold.

De Soto made several attempts to reach these mines. Once a party set out to visit a chief who, the Indians said, was a neighbor of the chief of Chisca where the metal was found, which the Governor believed to be gold, but the party failed to reach its destination.

The province of Chisca, as indicated by these extracts, was nearly coincident with the gold fields of northern Georgia. The relation of the Knight of Elvas throughout gives an impression of the advanced state of civilization among these Indians, so that here, if anywhere, the knowledge of the smelting of the precious metals should have existed.

The omission of all mention of silver in this narrative, however, tends to confirm the suggestion that the material contained in the silver ornaments was obtained from sunken ships, especially if they came from localities near the coast.

Col. C. C. Jones ("Antiquities of the Southern Indians," 8vo., New York, 1873, p. 433) says: "Gold beads, evidently not European in their manufacture, rudely hammered into round and oval shapes, with holes drilled through their central or upper portions, have been found in the Etowah Valley."

Mr. M. F. Stephenson mentions the finding of a gold bead, which had been deposited with a stone axe, a native copper vessel, pe

forated shells and mica mirrors and other utensils. (Smith. Rep., 1870, p. 380).

Mr. Geo. B. Hanna, U. S. Assayer at the Assay Office, Charlotte, N. C., communicates that the quality of native gold throughout Georgia and North Carolina ranges from 700 to 975 fine. He also states that the Indians inhabiting the State of Georgia were of a higher grade of intelligence than their neighbors, and that in that State natural circumstances favored placer exploitations; adding that where circumstances favorable to the finding of nuggets exist, the gold is almost uniformly above 900 fine. He thinks that few localities were favorable for the rude miner, but that in the northern belts of Georgia and their extensions into North Carolina, the requisite conditions for accidental finds may have existed. Over this entire area the gold ranges from 875 to 980 fine, and is above 925 at most of the localities.

Mr. D. M. Fox, Superintendent of the Philadelphia Mint, kindly informs me that the average fineness of Georgia gold is 920, and that it has been found as low as 820 and as high as 995. The Spanish gold coins, he says, were 917 fine before 1772.

In fineness all of the gold ornaments found, with the exception of the casting which is heavily alloyed with silver, do not vary materially from the native Georgia gold. The casting may belong to a post-Columbian era, but the metals mixed were both pure. The savage, of whatever age he may have been, simply wanted to increase the size of his cherished object, and melted a piece of silver with it to attain this end. It is known that the Peruvian Chiriqui did fine casting, so that we may fairly infer a knowledge of this art among [illegible]s at the South. That articles made of gold are seldom [illegible]e mounds is unquestioned, for the responses of the Superintendent of the Philadelphia Mint, and of Mr. Geo. B. Hanna, of the Mint, show that neither of these gentlemen were cognizant of any such occurrence, and they certainly would know of any finds had been brought to the mints to be tested or [illegible]

Comin[illegible]
rings run[illegible]
no talk
to be
the lot

[illegible]
just [illegible]
[illegible]facility with which the Indians worked the native copper of
[illegible]ular[illegible]e Superior region was never ascribed to European tutorship,
[illegible]spra[illegible], it been suggested that the silver ornaments or articles ham-
[illegible]sim[illegible] out of meteoric iron which are dug out of the Little Miami
[illegible]s might be traced to a foreign source. The gold which
found in the United States of Columbia, has always been
[illegible]garded as a domestic product, and there seems to be no rea-
[illegible]on why these articles may not be put in the same category. The
[illegible]act that gold was rarely found in nuggets or easily worked placers
in the southern territory, does not prevent us from concluding that
a part of the small quantity found was made into these ornaments,
and more highly prized by reason of the rarity of the precious metal.
It is possible that some of the ornaments are of post-Columbian
origin, but it is scarcely probable that they are all of this date.

The cupidity of the Indian for gold is strong, and he would eagerly search for it on the slightest indications of its presence. It is not at all likely that the Spaniards gave the Indians gold, for history tells us too plainly that the greedy Spaniards wrested everything of value from the conquered race, and, when nothing was left to satisfy their cruel rapacity, put the Indians to death in cold blood, hoping thus, by the pain of torture, to wring from them a confession of the hiding place of other treasure. It is barely possible that the wearing of gold by the Spaniards, or at least their anxious inquiry for it, may have set the example for the Indians, and led them to search for the precious metal and apply it to their own rude uses, burying the ornaments they prized so highly, just as the New Zealanders did their coveted heirlooms of jade. If copper was procured in trade from Lake Superior, silver, too, may have been brought with it occasionally, and is it not still more likely that gold was obtained in barter from the much less remote regions of upper Georgia? If the ornaments are really of post-Columbian origin, their presence in the mounds can only be explained by the theory of intrusive burials.

Further references to this subject have been made by Dr. Daniel G. Brinton: "Historical Magazine," 1st Series, Vol. X., p. 137; in the "Collections of the South Carolina Historical Society," Vol. I., p. 209, Charleston, 1857; in White's "Historical Collections of Georgia," p. 487; "Stephenson's Geology and Mineralogy of Georgia," Atlanta, 1871, p. 208; "Observations on a Gold Ornament from Florida," by Dr. Chas. Rau, Smithsonian Report, 1877, p. 302; and in the narrative of Alvar Núnez Cabeca de Vaca, translated by Buckingham Smith, Washington, 1851.

The Spec. Gravity of.	Fineness.	Weight Grammes.
No. 1 is 17.414	.920	117.58
No. 2 is 17.39	.920	26.26
No. 3 is 16.68	.920	14.64
No. 4 is 14.443	.668	94.81
Silver 5 is 10.23		6.04
" 6 is 10.21		20.788
" 7 is 10.10		38.07
" 8 is 10.29		48.81
" 9 is 10.457		140.04

The diversity of weights and the different values of both the gold and silver ornaments, preclude the supposition that they were made from some special denomination of coins, and the exceeding fineness of three of the gold ornaments and all of the silver ones lends some credence to the theory that they are made of native metals.

A Lady's Rambles Among the Jewelers.

Women all along the Vanity Fair line, regardless of age, are again liberal patrons of jewelry, in the selection of which they observe the same wide license that is permitted in other classes of goods. No longer hampered by rigid rules that make one style fashionable to the exclusion of others, milady buys what she specially admires and wants, and, it may be said in passing, is, as a general thing, willing to pay a very fair price for the object of her admiration. Should said object be the only one of its kind in the show case and peculiarly unique in appearance, all the more is it prized; for milady does enjoy, above all other things, the possession of something of which not one of her dear five hundred friends can possibly obtain a duplicate. Hence it is that importers and dealers are constantly selling, not only unusually fine gems, but fancy stones of remarkable color, fine French miniature paintings, elaborately wrought objects in gold and silver, finely cut seal rings and phenomenal specimens of semi-precious stones, etc., at remunerative prices.

* * * * * *

Along the conservative line a different order prevails to some extent. Women watch their neighbors—especially those who live in larger houses, and, having convinced themselves that a certain style is in fashion, govern their purchases accordingly. Some one in whose taste they have implicit confidence, for instance, wears a Queen chain, which settles in their minds any doubts about the desirability of that article. When they come to buy a chain, they select one as nearly like those worn by their friends as may be, feeling that in so doing they are getting the most fashionable style.

It is this conservative line of patrons that make certain articles popular and eventually standard goods, as, for instance, the lace pin. Milady, on the other hand, is responsible for the widely diversified styles that mark present fashions, and it is to her caprice the jeweler owes his freedom to work out, in gold and silver, any odd or artistic design that pleases his fancy.

***

Fortunately both classes of patrons can be satisfied and still remain within that charmed circle called fashion, for to-day it is simply incompatible with truth to definitely state what is not in fashion so far as personal adornments are concerned. It is, however, possible to say that one style is more popular than another, but this or a different matter to stating that any popular style is fashionable to the exclusion of all others. Indeed, it sometimes occurs that the most popular of styles is not the most fashionable, by which is meant not the one approved of by milady who originally made it popular, but the very universal acceptance having killed it in her estimation. And it has come about that those who cater to what is termed an "exclusive fine trade" dare place in stock anything that is beautiful and costly, whether it represents fashions in the past or present century; and that those who supply what is known as the "popular trade," work out in diversified forms of finish certain styles that have found favor with the great majority of patrons.

***

Occasionally occurs an exception that proves the rule. Every woman with pierced ears, for instance, is the possessor, when practicable, of at least one pair of solitaire ear rings. But then there are solitaires and solitaires, and it is in the quality of the stone that milady differs from the "great majority." In this connection it may be well to tell that (according to a leading diamond dealer) ten thousand ear drop covers for diamonds per annum is a low estimate of the number made, and, as comparatively few women who have diamond ear rings possess corresponding covers, this faintly suggests the popularity of single stone ear rings.

***

Solitaire ear rings, however, while if possible more popular than heretofore, no longer satisfy the cravings of the fair sex as ornaments for their ears. The cluster ring, previously described, has established itself as one of several favored styles, and now comes a fashion of two stones, one below the other, as a diamond and pearl drop, an emerald and pearl drop, or, in fact, any two stones that appear well together. A pear-shaped pearl is much used for the lower stone, the tendency being apparently to a little longer ear ring.

***

This leads to a mention of the paragraphs floating about in some of the New York dailies, announcing the fact that long ear rings are coming into fashion again, after having been out of style for so many years. As most fashions that have ever enjoyed a great degree of popularity are, as a rule, revived after a disappearance of fifteen or twenty years, it seems not improbable that long ear rings may again be in favor. There is as yet, however, small indication of the long ear rings in our jewelers' cases, beyond the two-stone rings already alluded to. Before dismissing the subject of the two-stone ear rings, it [illegible] has explained that many ladies are having added to their ear rings in solitaire diamonds, an extra stone that can be removed at pleasure when only a solitaire ornament is desired. The nearest approach seen to the old time long ear ring during the past month, was a pair in which a small diamond was set close to the ear, with a long topaz drop hanging pendant from it, and a similar pair with onyx drops as pendants.

***

Screw ear rings are still sold by our best retail dealers; so are the pretty little flower ear rings and various other styles in all gold. In the flower and gold ear rings, the patterns run much in the same line with the flower pins and brooches; as yet, heavy gold patterns have not appeared, the designs being for the most part small where there are no gems. Where fine gems are used in ear rings, what is termed the invisible setting is much employed. This setting, as old readers already know, is a narrow strip of gold encircling the edge of the stone in such a manner as to hold it securely, but without being seen from the front. Ball ear rings, also hoop ear rings, are still counted with fashionable designs.

***

Perhaps the most popular jewel of the day, next to the diamond, is the sapphire. The sort preferred and most costly, because rarest, is that in which the color appears blue by artificial light as [illegible]taken day, and in which the blue is pure and spread over the [illegible]one a hundred stance of the stone. In inferior sapphires the blue is [illegible]who were black, which gives an inky appearance when seen by artificial [illegible]could not [illegible]on passed [illegible]med it."

***

[illegible]t across

Sapphires are set sometimes alone, but oftener with diamonds [illegible]of gold. rubies. A beautiful design for a pin seen recently represented [illegible]chief, three-leaf clover, with a diamond, a sapphire and a ruby set [illegible]im if leaf. The sapphire is popular as the central stone to clusters, [illegible]th he for finger or ear rings. A good stone, when set round with diamonds, [illegible]ed produces a remarkably brilliant effect.

***

[illegible]as

[illegible]t

The sapphire is also employed in jewelry for men's wear. A ring seen recently was a heavy gold band in which three sapphires were embedded. Scarf pins of gold made in the sailor's knot, with a small sapphire set in the center, are popular.

***

Numbered with novelties that please those who can afford to pay for them, are emeralds, perfect in color and of a square shape. Another novelty is the double cut diamond, which is thought to be more effective and beautiful than diamonds cut in the usual manner. A turquoise in diamond form and encircled by small brilliants, is also considered a novelty.

***

An important feature at the present time in jewelry, is the extreme favor with which stones of beautiful color—both gems and fancy stones—are received. Stones which twenty years ago were of no value to the jeweler are now of decided importance, while old time favorites have been revived. Numbered with the latter are garnets, some of which display beautiful hues. The fact that the

late Mr. Beecher had a great passion for garnets, a large number of which were found in his collection of stones, has produced, among the admirers of the dead divine, a very kindly feeling for this stone. The average observer not infrequently mistakes a fine garnet for a ruby. Two or three instances of this kind have recently been called to the writer's notice.

***

The show cases of leading up-town houses, such as Tiffany's, Starr's, Schumann's, Jacques & Marcus' and others, display the usual number of lace pins and an unusual number of brooches, a fact that seems to prove conclusively the statement so often made in these columns, that it is now days quite possible to establish a widely different style without at all interfering with old ones.

***

Among new designs in diamond ornaments seen lately are rams' heads, three crescents grouped in the form of a trefoil, and a diamond heart. Diamond stars and horseshoes remain popular, both as pendants and as brooches. The French enamel paintings in a framework of diamonds or of pearls, furnish beautiful, and, at the same time, fashionable ornaments, and are much seen in the show cases of jewelers who cater to a fine trade.

***

Coming to less expensive jewelry, it is worthy of note that ear rings run in styles similar to the brooches, although there is little or no talk about "regular sets." Red gold is effectively used and seems to be gaining in favor. White onyx flower pins with long stems, also the long stemmed white enamel flower pins, are decidedly popular just now, being especially appropriate for summer wear. Other popular pins are those representing a sprig of ivy, a hop vine or a tiny spray of Virginia creeper. Daisy pins, clover leafs, the wild rose and similar old patterns swell the list of designs in neck and scarf pins.

***

Silver jewelry, about which little or nothing has been said, is just as popular as ever, and represents much the same patterns that are seen in gold jewelry.

***

Numbered with novelties in watches is one recently patented by a Connecticut genius, by which the time may be told in the dark or by a person devoid of sight, and is known as the blind man's watch. The motto-cased watches previously described, and engraved with various mottoes appropriate for presentations, are a novelty in ladies' watches that bids fair to find liberal patronage.

***

The silversmiths of our country have never been called upon to produce a greater variety of objects than are in demand at the present time. Everything, ornamental and useful, that can possibly be made of silver, appears in the show cases of our leading jewelers. In table ware have appeared no radical changes; low forms for the most part prevail, and many English patterns are copied. Oxidizing, while employed to some extent, has given way largely to the bright or white finish. The disposition is to a combination of styles in one article, as a bright and satin finish, a fluted and bright finish, or a *repoussé* finish with bright bands. The favorite modes of decoration appear to be the *repoussé* in white finish, embossing, engraving and chasing. Chasing and engraving are so admirably wrought together that it is often difficult to distinguish these; just as the finer grades of embossing often pass to the uninitiated for the hammered *repoussé*. Applied work is still used, and there is a decided disposition to bright cut ornamentation on white finish. What is known as the quilted or cushion ornamentation is seen in some of the new plated ware, and is decidedly pleasing in effect. This pattern, as the name suggests, shows little raised diamonds, such as are seen in old time quilted work. Water pitchers in the quilted pattern, with bright trimmings, are decidedly attractive.

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Some pleasing objects appear in crystal and cut glass, with silver trimmings. A beautiful salad bowl seen was of crystal glass, with a silver cover wrought in *repoussé*.

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The widely extended use of plated ware in this country is due to the excellent work done by our manufacturers. The silver plate manufactured, as made by best manufacturers, will, much of it, with ordinary care last a lifetime, and this fact has come to be generally known among consumers, who are every year becoming more and more aware of the importance of securing the best quality of plate. As there appears to be, on the part of the average reader, some confusion in regard to the comparative merits of what is termed "nickel silver" and "silver plate on white metal," it may be well to explain that nickel silver exceeds plated white metal in price, is lighter in weight, bears extreme heat better and wears longer. In consequence of the qualities mentioned, it pays to buy the nickel silverware for hotels and other places where it will be subjected to unusual wear and tear. In the ordinary household, however, where economy is an object, nickel silver becomes a useless expense, the best silver plate on white metal being quite equal to ordinary demands. Articles such as coffee and tea sets, water pitchers, vegetable dishes and the like, last for many years without replating. A fact not generally known to housekeepers, who imagine they must have a nickel silver coffee or teapot to stand on the back or at the side of a stove is, that a white metal pot, if full of water, will not melt. By this is not meant, of course, that a plated pot can be set with impunity on a red hot range, but just what is stated, at one side or on the back of the stove, provided it is filled with water, milk, tea or other liquid.

***

Silver plated meat and vegetable dishes need never be subjected to the heat of a range or stove. Vegetables to be kept hot in the one are in the porcelain linings which are, at the last moment, placed in the silver receptacles for them; while the meat is kept hot by the boiling water in the reservoir underneath the silver platters.

***

Castors continue to be a staple article, the small breakfast one being employed at breakfast and luncheon by many households, even at the East, where the old time dinner castor does not often appear. These latter, however, continue to be largely patronized, notably in the Southern and Western States, and are out in styles to harmonize with the decoration of other portions of table service.

WHERE the dinner castor is not used, there are substituted one or more salad sets, according to the size of the table, consisting of two or more glass bottles or jugs in light silver stands, the salt and pepper being furnished in individual shakers or cellars, as fancy dictates. In the making of individual salt cellars, as well as of the little butter dishes so popular, silversmiths have wrought many curious and pleasing designs.

*** *** ***

THERE appeared this spring in plated ware quite a number of attractive shapes in individual berrry dishes, which, by the way, will be found equally serviceable as receptacles for ice cream. When one takes into account the comparatively small cost of these decorative articles, there remains no wonder at their popularity.

*** *** ***

STAPLE articles the country over in plated ware, are butter dishes, pickle jars and cake baskets. In the first mentioned, there is little new to be said. In pickle stands the preference appears to be for those containing single jars, instead of two as formerly. Cake baskets appear in both low and high forms. The low forms prevail at the East, and may be square, oblong or round.

*** *** ***

DECORATIVE lamps are in as much demand as ever, and this is in the face of the continued popularity of single candlesticks and candelabra. The bowls of the former are as varied as are their shades. Sometimes the bowls are of silver, sometimes of brass, and often of decorated porcelain or fine glass. Our silversmiths in their candlesticks and candelabra have, for the most part, followed favorite English styles, though there are some specimens in purely American patterns.

ELSIE BEE.

Various Methods of Polishing a Wheel.

THERE are various methods in use for polishing a wheel, which operation, easy though it appear, is nevertheless a difficult matter to be done nicely, especially to a workman not accustomed to the job. It is like everything else in watchwork or any other kind of work; it demands a fair amount of practice, personal instruction, and the greatest cleanliness. If the operator is unsuccessful, he may, in the majority of ins ances, trace his failure to a waste of cleanliness. Put a cork cut flat on top in the vise, place the wheel on the cork as far as the pinion will allow; take a blue stone, which has previously been reduced to a level surface by having been rubbed on a stone and water, and stone the wheel smooth and flat, at the same time keeping turning the wheel round with the left hand, then wash it off and put it in a box with some slaked powdered lime; the object of this is merely to dry it, and prevent the pinion from getting stained or rusty. Then brush it out nice and clean, put on another cork cut clean and flat in a vise; then pound on a stake some red stuff. Some workmen add a little rouge, but that is simply a matter of taste. Take a slip of tin about the size of a watchmaker's file, only thicker; file one side flat and smooth, charge it with a little of the red stuff, and polish the wheel, keeping it turning all the time with the left hand, and do not leave off until the wheel and tin polished are almost dry so that you can see the polish; when to your satisfaction, clean it off with pieces of soft bread and brush it out. If it has scratches bread them off, clean off all tin, and charge it again with the red stuff. As said, cleanliness is of great importance, for if there be any grit about the red stuff, polished, or the fingers of the workman the work will be full of scratches.

Escape wheels are polished in the same way, but before they are put on the pinions. Solid wheels, such as fusee and movement wheels are polished in the turns, using soft wood or burdock pith instead of tin. There is another way for polishing them, however, which is quite as often employed, by which they are fixed to a small brass block. The block is heated in the blueing pan, and a piece of resin passed lightly over it so as to leave a very thin varnish only, which is quite enough to make the wheel adhere; there should be circles marked on the face of the block as a guide for fixing the wheel as nearly central as possible, or else a small pin in the center of the block to go through the hole in the wheel with the same object. The wheel fixed to the block is first rubbed till quite flat on a piece of bluestone having a true surface which is kept moistened with water; it is rubbed with a circular motion by means of a pointer (generally a drilestock), and pressed down on the middle of the back of the block, which is hollow. The wheel is thoroughly cleaned and then polished on a block of grain tin with sharp red stuff and oil well beaten up previously. The block of tin rests on a leather pad. When one side of the wheel is finished it is placed again in the blueing pan. The old resin is cleaned off and the finished side of the wheel fixed to the block. After both sides of the wheel are polished, the wheel is placed in spirits of wine to remove any resin adhering to it.

Pierced wheels are first rubbed flat on a cork with blue stone. After cleansing, they are polished with a soft tin polisher and moderately sharp red stuff, using a slightly circular stroke. Instead of a plain cork, some finishers use a half round cork resting in a notch cut in another cork. When quite smooth, the wheels are washed in soap and water, and burnished on a clean hard cork with a burnisher, well-rubbed on a board with rotton stone or red stuff.

Another method for polishing wheels is also much employed; Grind the wheel well upon a cork, and be careful to remove all the burr from the limbs. Then polish with a zinc file moistened with crocus and alcohol. After the wheel has been polished with it, take a sword file and finish polishing with it. Before using, the sword file is to be sharpened and rubbed with a little wax, after which the file is wiped off upon a piece of cloth, so that only a film of wax remains upon it. A brass wheel may also be polished in the following manner viz., by grinding it with slate stone and oil, and polishing with diamantine upon boxwood with a few short strokes. For sharpening the sword file emery paper is much employed.

Another Wonderful Clock.

ANOTHER great clock has been added to the horological wonders of the world—a piece of mechanism that will vie with the elaborate marvel of Strasburg Cathedral, and put the processional curiosity of Berne Tower in the shade. The latest effort of the renowned Christian Martin, of Villigen, in the Black Forest, is said, in its way, to surpass anything of the kind yet attempted. It is three and a half metres high, two and three-quarters broad, and shows the seconds, minutes, quarter hours, days, weeks, months, the four seasons, the years, the leap years, until the last sound of the year 99,999 of the Christian Era.

Moreover, it tells on its face the correct time for various latitudes, together with the phases of the moon and a variety of useful information generally confined to the pages of an almanac.

It also contains a vast number of working figures representing the life of man, the creed of Christendom, and the ancient Pagan and

Teutonic Mythologies. Sixty separate and individualized statuettes strike the sixty minutes. Death is represented, as in Holbein's famous dance, in the form of a skeleton. In another part appear the Twelve Apostles, the seven ages of man, modeled after the description of Shakespeare, the four seasons, the twelve signs of the Zodiac, and so on.

During the night time, a watchman sallies forth and blows the hour upon his horn, while at sunrise, a chanticleer appears and crows lustily. The cuckoo also calls, but only once a year—on the first day in spring. Beside the figures there is a whole series of movable figures in enamel, exhibiting in succession the seven days of creation and the fourteen stations of the Cross. At a certain hour, a little sacristan rings a bell in the spire, and kneels down and folds his hands as if in prayer; and, above all, the musical works are said to have a sweet and delicious flute-like tone.

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of May 10, 1887.

362,750—Hair Spring Adjuster. A. L. Keller, Springfield, Mo.

367,737—Jewelry Pin. H. Fletcher, Providence, R. I.

362,712—Watch Case. E. K. Boyd, Chicago, Ill.

362,615—Watch Case Centers, Manufacture of Rings for. E. Ecaubert, Brooklyn, N. Y.

362,559—Watch Regulators, Screw Clamp Pin for. W. Weiand, New Bremen, Ohio.

Issue of May 17, 1887.

363,309—Bracelet. A. Williams, Providence, R. I.

363,000—Lathe, Watchmaker's. F. Rivett, Boston, Mass.

Issue of May 24, 1887.

363,496—Clock Movement, Secondary Electric. C. D. Warner, Ansonia, Conn.

363,440—Clock, Primary Electric Pendulum. J. Zeiner, Munich, Germany.

363,556—Gem Settings, Construction of. O. T. Smith, Brooklyn, N. Y.

363,550—Watch Mainsprings, Manufacture of. F. Sedgwick, Chicago, Ill.

363,725—Jewelry. J. Bulova, New York, N. Y.

Issue of May 31, 1887.

364,179—Ear Ring. H. Knickman, East New York, N. Y.

364,140—Ear Ring Fastening. T. W. F. Smitten, Brooklyn, N. Y.

363,915—Jewelry, Mounting for. G. W. Ryan, East Orange, N. J.

364,105—Watch. G. E. Hart, Assignor to Waterbury Watch Co., Waterbury, Conn.

364,107—Watch Balances, Manufacture of. G. E. Hart, Assignor to Waterbury Watch Co., Waterbury, Conn.

363,817—Watch Case. C. K. Giles, Chicago, Ill.

364,108—Watch Case Pendants. G. E. Hart, Assignor to Waterbury Watch Co., Waterbury, Conn.

364,109—Watch Dial. G. E. Hart, Assignor to Waterbury Watch Co. Waterbury, Conn.

364,110—Watch Movement Plate. G. E. Hart, Assignor to Waterbury Watch Co., Waterbury, Conn.

364,015 and 364,106—Watch, Stem Winding. G. E. Hart, Assignor to Waterbury Watch Co., Waterbury, Conn.

Issue of June 7, 1887.

364,429—Clock, Electric. G. E. Mejer, Providence, R. I.

364,370—Watch Barrel. F. Parker, Weston, Pa.

364,528—Watch, Safety Guard. J. Lehr, Darmstadt, Ill.

CORRESPONDENCE.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular:

Now that the month of Roses has arrived with its azure skies, and winds of ethereal mildness, somewhat heated though they may be, suggesting trips to the seaside and country more than to sitting down and worrying one's self all through the red hot summer days with business affairs, and the thousand and one trials of a large manufacturing business. The manufacturer looks with not a trifle of envy on the business man who from the very nature of his business during the summer months is enabled to get away for a couple of months or more, even though that same business should not pay such a large revenue for the amount invested as his own. The manufacturer does his heaviest business during the hottest of weather in July, August and September, just the time when he could most enjoy himself with his family in some retired and quiet work in the country, or if he be a bachelor, as it happens in some cases, he could while away many an hour very pleasantly at such resorts as Bar Harbor or Mount Desert where the southern beauties from Philidelphia and Baltimore congregate every summer, apparently lacking more solid comfort and enjoying themselves more than at any other resort on the Atlantic seaboard. Dear reader if you want solid comfort and pleasure combined, go to Bar Harbor or Mount Desert; about one season will be quite enough to force you to join the benedict ranks, if you are past the age of impressions. Then you will do well to go to Newport or Saratoga or some other of the thousand and one places pleasant to sojourn in, which have sprung up in the past few years in the length and breadth of our mighty land, but no such good luck falls to the manufacturer; he consigns himself to his business, heart and soul, and for ten (10) long hours each day, he figures to get out somethine new, so as to keep just ahead of the pirates of the trade who are on his trail hunting him to the very death to find out what new designs he is working on to give the trade, so that when his drummers go on to the road and show up his samples, they will not become disgusted and disheartened by having the jobber to remark that they are old "chestnuts" and nothing that he would dare buy. No, the manufacturer who would not have the remark passed on him of "not dead but merely sleeping," must be sharp and wide-awake, for it is the early bird in the market that gets the cream of the business in high prices before the pirates come along with their pirated ideas and necessarily cut prices to entice the trade from the original idea manufacturer. It is plainly to be seen what immense odds he is fighting against to maintain what rightfully belongs to him, but can only hold so long as he can keep these vultures of the trade off of patents, amount to very little in this country as they are not properly endorsed by the government, as in some of the foreign countries, where, should a patent be infringed upon, the government takes the case in hand for the patentee and establishes his rights to it against all comers, but in the United States it is not an uncommon thing for one, two or three persons or firms to hold patents on the same design, which should not be the case, to make a patent valid and of any account whatever. There is evidently

something radically wrong at the U. S. patent office, at Washington, to allow such a state of affairs to exist.

But let us look around and see what the manufacturer has been doing for the past month, for he certainly has not been idle, although he may not have done much business in a general way of speaking, for he has cast away his old love (the spring business, such as it was) and is about to take to himself his new (the fall trade) which he hopes will be more companionable than the old, and more money in it, in a financial way of thinking, for it could hardly be worse and be anything at all. Certainly we cannot have any floods or heavy snows to interfere with the fall's business so soon to boom upon us, we trust, and with the light and conservative buying of the jobbers generally during the spring, then stocks on hand should be so depleted by the time winter sets in as to warrant their placing some good orders on the very commencement of business.

The recent copious rains and pleasant weather has given the crops a good start, and, with plenty of hot days and not too cold nights, there is no reason why that the harvest should not be heavy all over the United States, making the necessities of life cheap the coming winter for the poor as well as the rich, leaving a good surplus on hand, some of which necessarily will reach the manufacturer through the jobber unless the watch case fiends get hold of it all, which can hardly be the case if collections are looked after sharp when accounts are due, and not afterwards to run from one to two years, as in some cases in the past not far away, as some caught on, the recent failures could easily testify. The manufacturer has looked after the wants of the "Sisters, Cousins and the Aunts" in regard to getting out something new, and the number of designs that will be put on the market this fall for the first time will simply astonish the oldest inhabitant in the jewelry business, and for neatness of finish and general good taste they are simply exquisite. We do not like to anticipate the manufacturer too much in his business affairs, for we feel certain that the goods will speak up long and loud for themselves in all lines once they are shown to the jobber. "My lady" can find anything her heart desires in the costlier lines of solid gold and diamond goods, while her maid may please herself with equally pretty designs in plate, which to her may look quite as well, for one-third to a half less in price. The manufacturers are deserving of a great deal of credit for their liberality in producing new and pretty designs without being guaranteed even the prices of their dies back on a great number of them, the amount of which is nothing small to say the least, but once he gets a pattern to become popular with the trade he would make enough on one to pay for a dozen or possibly twice that number, besides an immense profit which repays him for all the trouble.

The creditors of the firm of Messrs. Chandler & Shader, of Chicago, which recently made an assignment after fighting hard against it, have been offered twenty-five (25) cents on the dollar to sign off their claims, and the majority have done so, believing that Messrs. Chandler & Shader have done the best they could under the circumstances, this firm undoubtly would have weathered through but for the other recent failures in Chicago, which rather forced them as their creditors became possibly more nervous than they should have done had they not have occured.

The Gorham Manufacturing Company, located here, are soon to move their works from their present location to Elmwood in the suburbs, where they will have one of the most extensive plants in the country for carrying on their business, covering several acres of ground and perfect in all of its appointments, second to none in the United States.

Mr. Wm. E. Taber, a local jeweler doing business in this city, has been forced to make an assignment for the benefit of his creditors, to Mr. W. B. W. Hallet, an attorney at law, who sold the stock at auction. His assests were claimed to be from $6,000 to $8,000 and liabilities $2,000, but from the shrinkage in stock the assets may not have been more than one-fourth the amount claimed, and goods sold at auction, especially jewelry, seldom realize one-third of their real value.

Messrs. Fowler Bros. have for the coming fall trade one of the finest line of samples that will be seen on the road, comprising about four hundred (400) new designs in moonstone and mat mourning goods, all of the latest patterns; this firm continues to take the lead in their lines, as they always have done, as their motto is onward and upward; they hew to the lines and let the chips fall where they will.

The Manufacturing Jewelers' Board of Trade, June 2d, submitted the following recommendations for the approval or disapproval of the members of the board:

Terms.—1st. That on and after July 1st, 1887, all transactions concerning the sale of goods upon credit, shall be governed by definite terms as regards time. Such terms to be distinctly understood by buyer as well as seller, and stated clearly upon invoices

2d. Definite terms having once been made, should be rigidly adhered to, and to the furtherance of this end, your committee recommends that information regarding this subject should be communicated by the members to the secretary of the board when officially requested to do so.

Dating Bills Ahead.—Your committee wishes to place itself on record as being opposed to the pernicious practice of dating bills ahead, and therefore recommends that it be discontinued.

Consignments.—In the opinion of the committee the custom of consigning goods is alike detrimental to the interests of the jobber and the manufacturer, and they would, therefore, recommend that the practice should be absolutely discontinued by the members of this Board of Trade.

Board of Trade Seal.—The committee recommends that a distinctive emblem or seal should be adopted by the Board, and that a cut of the same shall be illustrated by the members upon their invoices or bill-heads, for the purpose of indicating their membership in this Board.

For the Joint Committtee,
GEORGE L. EMERY, *Sec'y.*

From the above preamble, it will be readily seen that the Board of Trade, through its able secretary, have awakened to the importance of the measures passed upon, and we hope soon to be able to chronicle the endorsement of them by every member of the Board of Trade, as a start in the proper direction in regard to managing the jewelry business on strictly business principles, which has not always been the case of late years.

A son of Mr. H. F. Hahn, of the firm of Messrs. H. F. Hahn & Co., of Chicago, one of the largest wholesale houses in the country, is visiting this city for a few days, having just graduated from college. Mr. Hahn is a very affable young man, and is making many friends among the jewelers during his sojourn in chosen plantations.

Mr. Joseph L. A. Fowler, of Messrs. Fowler Bros., who has been sojourning in Europe for the past two months, has of late been doing the continent as far as Oberstein and Dresden, in Germany, through Austria and Switzerland to Naples, and Milan, in Italy, to Paris. Mr. Fowler has enjoyed the scenery very much, especially in Switzerland and on the lakes, where he describes it as being grand in the extreme. He will return per a steamer of the Cunard Line about the 1st of July. Welcome home.

Collections for the past month have been very good, and trade paper seems to have nearly left the market in regard to the settlements of the jobbers with the manufacturers, so little of it being seen

of late, which would seem to speak of a healthy action of the trade for the fall season.

FAIRFAX.

Providence, R. I., June 15th, '87.

Our Foreign Correspondence.

BIRMINGHAM, June 9th, 1887.

To the Editor of the Jewelers' Circular:

The jewelry trade in the town was never worse than at the present time. The factors not only refuse to buy the ordinary class of goods, but if you show them new goods they will acknowledge they could sell them in ordinary times, but at the present they can sell nothing, no matter how new or cheap it may be. In addition to not being able to buy, everyone finds money very hard to obtain; as most of the shopkeepers are unable to meet their payments in full, the factors are obliged to help them, and as a consequence, when the factor's bills become due, in many cases the manufacturers are obliged to help them to meet them. As is usual in such times, the banks are extra cautious, and there are very few factors but have received from their banks an intimation that no more bills of certain customers can be discounted or, what is worse, an order to reduce the amount of their overdraft.

Since I last wrote you, the firm of S. Blankensee & Sons, of 15 Frederick Street, has been floated as a limited liability company. This has been on hand for some months. The nominal capital of the firm is £120,000, and has been to a large extent taken up by manufacturing jewelers and the firm's customers. Among business people outside the trade the stability of the trade is in such bad repute, that some of the stockbrokers have completely ignored the firm, and one local stockbroker in issuing his share list, spoke of it in the most damaging manner possible, and many copies of this list were posted either by the broker himself or some one who wished to damage the new company to all the leading houses in the trade.

It seems as if English fashions in jewelry are lately following the American fashions. Firstly, you had the fichu or bar brooch, and after being fashionable with you for some years, the ordinary round and oval brooches worn here are discarded and bar brooches are all the rage, and after being worn for some years appears still to be a favorite. Afterwards you have the Queen chain, which a few months after is introduced here and remains in fashion for about twelve months, then a few months since I read in THE CIRCULAR that flowers enamelled on gold and silver work is fashionable, and now we have the same fashion introduced here, and as far as can at present be seen seems to be likely to be very generally liked by the public.

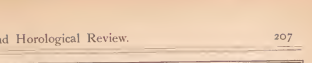
Among the makers of cheap silver and gilt jewelry the exhibitions to be held this year in various parts of the country will probably cause a stir. The most popular of these is the American Exhibition to be held in London, and this will be to a great extent a huge bazaar, where the public will be deceived into buying goods as American manufacture, which are really made in this country in a similar way to what the visitors to the Colonnial Exhibition bought crocidolyte jewelry as "Real Cape Jewelry," whereas the stones were cut in Germany and mounted in this town. The Manchester Exhibition was opened on Tuesday last and promises to be a great success, there being already 25,000 season ticket holders.

As far as I at present know, the only manufacturing jewelers who have men at work there are Messrs. Wright & Hadgkiss, diamond mounters of Vyse Street, who are showing the method of making best diamond jewelry.

In addition to these we have exhibitions at Saltaire Yorkshire, Newcastle-upon-Tyne and Dudley, all of which will no doubt allow some amount of selling, and thus offer a field for makers of cheap jewelry.

Yours sincerely,

SOLITAIRE.



[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

A NEW LABOR PARTY.

To the Editor of The Jewelers' Circular:

In a recent editorial in the New York *Times*, the writer gave expression to a thought which is worthy of the attention of all men who labor. Speaking of the "arbitrary and despotic methods" characteristic of existing labor organizations, the writer advocates the formation of a new union—"a union for the protection of personal liberty." This union could be composed of all classes and conditions of people who believe in the right of every man to choose for himself. The main principle of this union should be the right of every man to make such contracts as he saw fit, and to work upon such terms as satisfied his individual self. Employers and employees alike should work for the success of such a union. The labor unions of to-day are the worst kind of tyrants. How many of their members have joined them of their own free will? Did they not rather join them because only through such union could they gain a livelihood at their trade? Before they joined their present union they were "scabs," and no man dare employ them for fear of the boycottism of the labor union! Other men have joined these unions who honestly believed that in such a union was strength, and for social and insurance advantages; but I doubt if they have been satisfied. These men will all join a new union such as the *Times'* writer advocates. Put it to the jewelry trade and see what they think of it.

J. N.

June 16, 1887.

KIND WORDS DULY APPRECIATED.

D. R. Smith, of Lancaster, Pa., writes: "If I miss a copy of THE CIRCULAR it seems like losing an old friend. Best wishes for its success."

Patton, the jeweler, of North Adams, Mass., says: "Your paper is worth more than all the other trade papers combined."

A. J. Mercer, of Burden, Kan., says: "I find after careful examination that it is a journal I cannot well do without, and the monograms alone will be worth twice the money to any wide-awake jeweler."

BASE BALL AND THE HALF-HOLIDAY.

To the Editor of the Jewelers' Circular:

Since the beginning of the Saturday half-holidays, I have noticed on the part of my clerks and of the clerks of other firms in the trade an indescribable glow of countenance, a restless and impatient body, and a loud and reckless tone of voice. I have heard some of them talk together of the great ball matches, and have heard with deep regret that some of our brightest and most successful salesmen have formed themselves into clubs for the sole purpose of playing ball. I ascribe the unnaturalness of our jewelry clerks to base ball, and I sincerely hope that you will tell them in your valuable paper that base ball is demoralizing to the body, to the mind and to the voice. It is true that a good base ball player can draw ten thousand dollars a season and a large percentage of the gate receipts, and that a jewelry clerk does not draw as large an amount in a whole year as a general thing. But can't they see that if they play base ball they might get quarreling among themselves or with the umpire—that the pitcher might "lay them out" with a wild pitch or the spectators

hoot them off the field? Now, I sincerely wish that "the boys" would give up base ball. Our insane asylums and our hospitals for the decrepit are already filled with professional base ballists, and let the jewelry boys beware. Why did they ever give up poker? I have only heard of one or two men becoming insane through poker, and never have I seen one lamed or maimed through this delightful pastime. It is true that quarrels over poker develop the voice and that the opponents always shoot to kill, but I advocate poker above base ball!

MERCHANT.

New York, June 12, 1887.

President, HENRY HAYES.....Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON.....Of Celluloid Show Case Co.
Second Vice-President, JAMES P. SNOW.....Of G. & S. Owen & Co.
Third Vice-President, JOSEPH B. BOWDEN.....Of J. B. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS.....Of Randel, Baremore & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON.....Of Sexton Bros. & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
J. R. GREASON.....Of J. R. Greason & Co.
GEO. H. HOUGHTON.....With Gorham Mfg. Co.
WM. H. JENKS.....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Shebler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box* 3,444, *P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee of the Jewelers' League, there were present Geo. R. Howe, J. R. Greason, W. Bardel, A. A. Jeannot, W. H. Jenks and W. L. Sexton.

There were four changes of beneficiaries granted, and one application was referred for investigation.

The following four names were accepted:

Anton Seifert, New York City, recommended by T. W. Winter and J. Henderson; Charles H. Higbee, St. Louis, Mo., recommended by S. Bauman and J. N. Hagen; Patrick Copeland, Marshall, Texas, recommended by D. Copeland; A. C. Abeytia, Las Vegas, N. M.; recommended by W. W. Weyman.

Gilding and Gold Plating.

Continued from page 153.

GILDERS usually employ three baths, placed in close proximity to each other, and heated upon the same furnace; the first bath is one deprived of gold by a previous operation, and is used for removing all excess of acid which may remain upon the articles; the second batch still retains some gold, but not enough to give a sufficiently rich gilding. The pieces passed through it begin to receive a deposit, which will be finished in thickness and shade in the third bath. A gas furnace, easy to manage and clean in its working, may be arranged by having a properly supported sheet-iron plate with holes cut out where the kettles are to stand. Under each kettle place suitable gas burners; when the baths have been heated nearly up to the boiling point lower the gas so as not to increase the temperature. This method produces much more gilding with a given quantity of gold than one bath alone. The gilding is done in a few seconds; the finishing operations consist in rinsing in fresh water, drying in dry and warm sawdust, and burnishing, if desired. The sawdust of white wood, such as pine, lime-tree, poplar, free from gum, dust, and other impurities, answer best for drying purposes. Oak and chestnut sawdust blacken the gilding.

COLORING PROCESS.—If any of the precautions to be taken with gilding are neglected it often happens that the gilding turns out dull and irregular in color. The coloring process is to remove these defects. Melt together in their water of crystallization at about 212° F.,

Sulphate of iron,
Sulphate of zinc,
Sulphate of alumina and potash,
Saltpetre, equal quantities.

Cover the articles with the mixture, so that every part is well wetted; then put them into a cylindrical and vertical grate placed in the centre of a furnace, where the charcoal burns between the sides and the grate which holds the articles. When the moistened finger is pressed to one piece, and a slight hissing sound is heard, the heat has been sufficiently raised; put all the articles rapidly into a very diluted solution of sulphuric acid, when the coating of salts is immediately dissolved. The articles present a warm and uniform shade of color. This process is, of course, only applicable when the previous gilding has been done complete. If the copper articles are not entirely gilt by the first operation, the ungilt portions will show themselves by a red coloration, and the article must then be deprived of gold, cleansed, and gilt anew. The gilders of the present day generally employ the battery as well as the simple dipping bath, and when the first gilding by immersion is imperfect, instead of coloring by the process just described, the articles are placed for a few moments into the electro-bath. As already stated, gilding by simple immersion is generally only resorted to in the treatment of small articles which make up imitation jewelry. There is, however, an easy method by this process of obtaining as good results as by the battery. It consists in gilding several times by dipping; before each dipping the article is passed through the solution of nitrate of binoxide of mercury. This repeated dipping method is very much used and is applicable for gilding articles which are usually treated by the battery only, such as clocks, candelabra, bronzes, etc. Work manipulated by this system is superior to that by electricity in depth of shade, brightness, and especially in not scaling off, as the deposit is of pure gold only.

ORMOLU.—This operation consists in smearing, by means of a brush, the gilt and scratch-brush objects with a thin paste of nitrate of potash, alum, and oxide of iron, which have been well mixed and ground under the muller, and to which has been added a solution of saffron annatto, or any coloring substance, according to the shade desired. If the gilding is strong and thick, the objects are heated until the previous coating curls over at the approach of a wet finger. If the gilding is a mere film the mixture is simply allowed to stand upon the article for a few minutes. In either case the whole is rapidly washed in warm water, holding in suspension a certain quantity of the materials for ormolu; they are then rapidly dried, when they appear of a darker shade. Remove any portions too much colored by striking them vertically with a brush having long bristles. If the tint does not appear satisfactory, commence the operation afresh, after washing off the ormolu in a diluted solution of sulphuric acid. Instructions for preparing the various shades of ormolu will be given when dealing with the chemical products used by the trade.

GREEN AND WHITE GILDING.—These shades may be graduated at will, and are obtained by adding drop by drop until the desired shade is arrived at, to the bath of double pyrophosphate of soda and

gold, a solution of nitrate of silver. For the solution of nitrate of silver dissolve in five ounces of distilled water one half ounce of crystalized nitrate of silver or of lunar caustic Before gilding green or white, yellow gild the objects in the ordinary bath, then pass them rapidly through the mercurial solution, and, lastly, dip them into the gold bath holding the nitrate of silver, which parts rapidly with its silver upon the first article immersed in it. It is necessary to maintain the constancy of the shade by the addition of a few drops of the silver solution when required.

GILDING SILVER BY DIPPING.—The silver articles previously cleansed and scratch-brushed, are boiled for about one half hour in the gold bath of the pyrophosphate, to which add a few drops of sulphuric acid, or, preferably, hydrocyanic acid, in excess of the quantity needed by the primitive bath. This gilding is very fine, but without firmness. The deposit is rendered more rapid and thicker when the silver articles are stirred with a rod of copper, zinc or brass.

GILDING ON PORCELAIN, GLASS OR CRYSTAL.—Mix first in a crystal mortar and then between a muller and a ground glass plate, neutral chloride of platinum with rectified essence of lavender, so as to form a thick syrup, which is applied with a brush in very thin layers upon the glass, porcelain, or other ceramic objects After drying, heat in a muffle up to a dark red; this temperature reduces the platinum to the metallic state; it then appears with a perfect polish. After cooling pass the whole object through aquafortis, which is without action upon the platinum, but destroys the impurities which may tarnish its surface. Rinse in plenty of water, wrap the object with a few turns of fine brass wire, having numerous points of contact with the platinized places, and dip into the gold bath After a few minutes the platinum is covered with gold which has the same adherence and polish Rub the gold with a chamois leather; this method dispenses with burnishing, which is costly, and often impracticable in the deeply indented parts If the gilding is too red add to the bath a few drops of a solution of double cyanide of potassium and silver (liquor for silver electro-plating) This method gives better results than that of baths with separate battery; the gilding has a bright instead of a dead lustre, and its adherence is greater.

Dutertre's process for bright gold gilding consists simply in applying with a brush a mixture of sulphide of gold and various essences, which are then submitted to a dull red heat, has almost wholly superceded the previous one

GILDING BATH WITH BI-CARBONATES.—I have fully described the pyrophosphate bath in the preceding, because I consider it preferable to all others; nevertheless, gilding by dipping may be effected by the use of other substances, particularly with bi-carbonates of potash or soda. Gilding baths with bi-carbonates were still employed by some gilders a few years ago, but I think it must have been because they were not acquainted with the pyrophosphates, or did not know how to employ them The bi-carbonate bath is prepared in a cast iron kettle, turned clean and smooth in the lathe, and previously gilt by the protracted ebullition of nearly spent gold baths. It consists of

Water, 35 pounds,
Bicarbonate of potash or soda (potash in preference), 20 pounds,
Pure gold (transferred into chloride), 4¼ ounces.*

The whole is boiled for at least two hours, and fresh water added to replace that evaporated. A part of the gold precipitates in the form of a violet black powder, and the bath then requires cooling and decanting. The liquor is then boiled again, and the gilding proceeded with in the same manner as before described, except that the mercurial solution should be more diluted than for the pyrophosphate bath. This operation is finished when about half of the gold in the liquor is deposited. The remainder goes to the saved waste. The bicarbonate process is inferior in most respects to the pyrophosphate; personally I do not know any gilder at the present day who makes use of it, and I merely mention the process as a point of interest in the history of the galvano-plastic art.

(To be continued.)

* This weight refers to the gold and not to the chloride.

Obituary.

EDWARD HUNZIKER.

Edward Hunziker, of the firm of L. H. Keller & Co., died suddenly of pneumonia on May 30th. He was born at Bienne, Switzerland, on July 19th, 1848, and when nine years old, his father emigrated and settled on Staten Island. His father was a thorough watchmaker, but on Staten Island he made but a poor living at his trade, and Edward was put to work at the bench as early as his tenth year. Soon after the death of his father, which occurred in 1861, Edward came to New York and found employment with T. A. Huguenin, and as he was familiar with the details of the watch-making trade, he became a valuable clerk. In 1873, Mr. L. H. Keller succeeded T. A. Huguenin, and in 1876 Edward Hunziker was admitted into the firm with which he had worked so long and so faithfully. Soon afterwards, however, through ill-health, he became deaf, and, up to the time of his death, though he had consulted with eminent physicians in America and Europe, nothing could be done to cure him. He was a quiet man, was never married, and was thoroughly familiar with everything connected with his trade. He was quite a mechanical genius, and several machines and tools are the results of his wisdom. He was well known and liked by many in the trade, and was industrious and honest. His funeral was held on the 1st of June.

E. W. DENNISON.

At the recent annual meeting of the Dennison Manufacturing Company, the following resolution, relating to the death of Mr. E. W. Dennison, the founder and first President of the company, were adopted, and ordered to be engrossed and copies sent to the family of the late Mr. Dennison.

Resolved, That in the death of Mr. E. W. Dennison, the originator of the business now conducted by the Dennison Manufacturing Company, of which he was the President and leader for eight years, we have sustained a loss which we deeply lament.

Resolved, That it is our belief that, as a man of original ideas and as a successful manufacturer and merchant, he was excelled by but few in this country.

Resolved, That we recognize with great pride and satisfaction his heartfelt sympathy for the poor, the unfortunate and the oppressed, and his readiness to extend his generous hand to all honest, worthy applicants.

Resolved, That his sterling integrity, his hatred of sham and dishonesty or meanness in any form, commands our admiration, and his example in these respects, as well as his general Christian manliness, will remain with us as stimulants to emulate his nobility of character.

Resolved, That we, in a large measure, realize how much greater the loss of such a husband and such a father must be to his immediate relatives, than to those but just outside the kindred line. To each member of his direct family, therefore, we beg to extend our heartfelt sympathy in the bereavement they are thus called upon to bear, and to assure them that we will ever—

"Keep his memory green."

W. H. CLEWLEY.

W. H. Clewley, salesman for many years for the firm of C. E. Smith & Co., died suddenly of rheumatism of the heart on June 16th, at his home in Brooklyn, N. Y.

The Burmah Ruby Mines.

UBY earth is called by the natives "byun," and is generally found at two different depths, the first layer at about four feet, and the second and richer one at twenty to thirty feet below the surface. It is generally extracted by a company of miners, 10 or 12 in number. Pits are dug about eight feet square, lined with rough timber, and braced with four cross-pieces at intervals. Water enters the pit on sinking a short distance below the surface, and the principal work and source of expense is keeping the mine free from water. Upright posts are let into the ground at a short distance from the mouth, and a fork is cut in the upper end of each. In this fork is balanced a lever, the longer arm of which hangs over the pit, while the shorter arm carries a bucket weighted with stone to counterbalance the contents of the basket, which is connected with the longer arm by a bamboo which reaches to the bottom of the pit. This contrivance forms a most efficient though simple means of raising both water and earth by manual labor. Generally six or eight of these levers overhang each pit in actual working, and probably the proportion of water buckets in constant use to earth baskets is two to one. Three men at least are below, occupied in filling both baskets and buckets; they rise and fall incessantly during the working hours, which rarely exceed six daily. The ruby earth thus extracted is placed in a heap at the side of the pit, and on first exposure, while wet, sparkles in the sun with myriads of small stones, brilliant in color, but not large enough, unfortunately, to be of any value. When a sufficient quantity has been obtained it is washed in bamboo trays and handed over to the sorters, who, after carefully examining it and taking out any stones of value, pass it on again to a small colony of women and children, who generally surround every pit, and who again sort it slowly over in the hopes of finding some smaller stones that may have been missed by the men. It is a ludicrous sight to see two or three little children, who perhaps can scarcely walk, sitting down before a heap of this washed earth and sorting away with most serious faces, as if they realized that their existence depended upon their exertions. No machinery is apparent in the whole district, though it is stated that a pump was brought up a few years ago from Mandalay, but it soon got choked and was thrown away as useless, probably because no one understood how to work it.

To Correct the Center Staff.

HE REPAIRER will often find, especially with stem-winding watches, that the center staff moves too easily. He will also find that this defect has been corrected by working burr on the staff by means of a graver or a sharp file; it is true that this remedy will, for a time, be quite efficacious, as it will, so to speak, enlarge the staff and produce a stiff motion. This is not of great duration, however, since, by the moving backward and forward of the hands, the burr will gradually drop off, and finally become a good grinding material by combining with the oil, and in due time will aggravate the defect by wearing the center staff and the hole of the center pinion, and the motion of the hands becomes still looser. Should next the loosened burr leave the pinion and combine with the oil of the pivot, the consequence will be still graver than formerly, because the jewel holes and pivots of the center wheel will be interfered with to such an extent that the watch must become faulty in its rate.

It is the purpose of these lines to acquaint my colleagues with another less known method, which is both shorter and accomplishes the purpose much more securely than the above. Fasten the square of the center staff in the pin vise; if the staff has at some previous time been treated in the above described manner, go over it with the pivot file and remove all traces; then with a fine rat tail file file in it a so-called lantern, in such a manner that it is about one-third of the length of the center pinion away from the square. Then lay the staff flat upon an underlay, and gently tap it with the hammer in such a manner that the upper part of the notch slightly inclines to one side. This notch, which will now exert a slightly springy motion, will produce a greater tightness of the staff, and if the operator is careful not to file away more than from ⅓ to ½ of the staff the watch will not be exposed to the inconveniences frequently occasioned by too great a looseness of the motion work.

The History of the Fork.

PEAKING of the fork, says C. André, in the *Revue Professionelle*, an interesting discussion has been raised between M. Sardou and M. Darcel, the Director of the Cluny Museum. In the course of his beautiful drama, Theodora, the eminent dramatic author places a fork in the hands of the wife of Justinian, and researches into the history of this useful utensil has become the mania.

The introduction of the fork is less ancient than one would believe, because it dates only to the 10th century. This little instrument originated in Italy, and the wife of Pietro Orseolo, Doge of Venice, appears to have been the first who made use of it; although it was a simple two-pronged affair, still it was considered by the historians of the age to be an unpardonable luxury of the Venetians of the 11th century. Until then only the simple sharpened rod was known, which is still employed by certain nations of Asia and Oceanica.

In the following centuries the fork passed from Italy and Europe. The first distinct mention we have of it is in the list of the silverware of the favorite of Edward II., Father Galveston, who owned sixty-nine spoons and three forks. It is stated afterwards that these forks simply served for eating pears.

Queen Clemence, of Hungary, in 1328, had thirty-nine spoons and one fork, and Queen Anna, of Bourbon, had a gold fork, which Charles V., of France, had inherited, and which he had adorned with precious stones. Beside this one, he had seven or eight more, according to an inventory drawn up in 1380.

The silverware of the Chancellor Duprat, which was by experts valued at 33,848 livres, a large sum at that time (1536), included only one fork, but two dozens of spoons. Also the inventory of the goods and chattels of the Prince of Condé speaks of only one silver-gilt fork.

The use of the fork became more common in France during the 15th and 16th centuries. Certain museums of national antiquities possess small wooden and ivory forks, to which the bowl of a spoon could be readily affixed.

Gabrielle d'Estrées had twenty, eight of which were silver, and the others of iron, with coral handles. The beautiful favorite, it is said, simply used them for toasting her bread; in all other cases she prosaically eat with her fingers, as the Prince of Condé himself and all the grand seignors of the court, as well as the common people did.

The use of the fork was at first considered as something scandalous; a curious pamphlet attacks the minions of Henry III. in the following indignant strain: "In the first place, they never seize the meat with their fingers, but they use forks for the purpose, which they convey it to their mouths by advancing the neck. They also eat their salad with forks, in spite of all difficulties, because it is forbidden to touch a dish with the fingers, and they prefer to touch their lips with this little instrument."

Before the introduction of the fork in good society, there existed a code of good manners for people of good society; one rule says that at table the party must seize the food with three fingers, and that he must avoid touching his nose with the food-conveying hand for fear of being considered a boorish person.

What a revolution has been accomplished in our style of living, and how far are we removed from those barbaric times; yet barely three centuries separate us from the epoch when the English called the traveler, Thomas Coryate, a madman, because he had introduced among them from Italy so useless a utensil as a fork.

ALLOY FOR MODELS.—A good alloy for making working models is four parts copper, one part tin, and one-quarter part zinc. This is easily wrought. The hardness increases by doubling the proportion of the zinc.

GOOD GILDING METAL FOR COMMON JEWELRY.—For common jewelry, melt together 3 parts of copper, 1 part of old brass, and four ounces of tin to every pound of copper. If this alloy is to be used for fine polishing, the tin may be omitted, and a mixture of lead and antimony substituted. Paler polishing metal is made by reducing the copper to 1 or 2 parts.

WATCH OIL.—I have always prepared an excellent article of watch oil from deer's or elk's feet; take off the skin, prepare the feet with great cleanliness; fry them out well, and filter the obtained fat through clean filtering paper. I have prepared my oil in this manner for twenty-five years, and it has kept well invariably, in jewel holes and cylinders up to seven years.

TO MAKE PALLETS, UNLOCKING PALLETS, ETC.—This may be done on the lap or by using files of soft steel, copper, or tin. In the first case the stones are roughed out while held by the hand, and the required form is given while holding them in a small carrier that fits into the T rest support, but the forms of such stones are so various that no special details can be given. Use diamond powders of different degrees of fineness, as in making jewel holes.

ACID-COLORING SMALL ARTICLES.—For acid-coloring on gold for small articles, a very good plan is to place them on a lump of charcoal, and make them red hot under the blow-pipe flame, and then throw them into a pickle composed of about 35 drops strong sulphuric acid to one ounce of water, allowing the article to remain therein until the color is sufficiently developed; washing the article in warm water in which a little potash has been dissolved, using a brush, and finally rinsing and drying in boxwood sawdust, completes the operation.

TARNISHING OF SILVER.—Of the many agents proposed to prevent the tarnishing of silver and plated goods, none appear to have given as satisfactory results as a varnish of collodion—a solution of gun-cotton in a mixture of alcohol and ether. All other varnishes appear to impart a yellowish tinge to the silver or plated wares, but collodion varnish is quite colorless. The articles should be carefully brushed with the varnish, using an elastic brush, making sure that the entire surface is covered. The film of collodion will protect the underlying metal surface for a long time.

TO BLEACH WATCH DIALS, ETC.—Dissolve one-half ounce cyanide of potassium in a quart of hot water, and add two ounces strong liquor of ammonia, and one-half ounce spirits of wine (these two may have been mixed previously). Dip the dials, whether silver, gold, or gilt, in it for a few seconds, then put them in warm water; brush well with soap, and afterward brush, rinse, and dry in hot box-wood dust. Another good plan is to gently heat the dials and dip in diluted nitric acid, but this must not be employed for dials with painted figures, as these would be destroyed.

OVERBANKING.—One of the causes of overbanking is that the steady pin is too far from the table roller; it may also happen at times that the roller jewel is a trifle too short, and will allow the fork to spring under it; if there are any forks at all—steady pin and roller jewel being right—there is no danger of overbanking. It is but seldom that the banking pins will allow overbanking, and they are mostly there for the purpose of keeping the fork from going so far that the jewel can strike inside of the same. However, they must be far enough apart to allow the pallet to drop the tooth freely.

TO MOUNT DIAMOND DRILLS AND GRAVERS.—Drill a hole or fill a notch in the end of a piece of brass wire to correspond with the fragment of diamond; heat the end in a spirit lamp and lay on it a piece of good sealing wax or shellac. When this commences to melt, set the diamond in position and leave the whole to cool. Diamond drills are very commonly mounted at the end of a pin that has had its point filed off; mark a point at the end with a graver and drill the hole, which should be very shallow. Holding the pin in a pin-vise, with its point projecting about one-tenth of an inch, heat the vise in a lamp and proceed as above explained.

COLORING BRASS.—In coloring and lacquering brass work, browns of all shades are obtained by immersion in a solution of nitrate or perchloride of iron, the strength of the solution determining the depth of the color. Violets are produced by dipping in a solution of chloride of antimony. Chocolate is obtained by burning on the surface of the brass moist red oxide of iron, and polished with a very small quantity of black lead. Olive green results from making the surface black by means of a solution of iron and arsenic in muriatic acid, polished with a blackhead brush, and coating it, when warm, with a lacquer composed of one part lac-varnish, four of turmeric and one of gamboge.

HOW TO REPLACE A BALANCE STAFF.—It is quite a knack to select another balance staff, when one is either ruined or lost. Take the watch partly down, that is, remove the balance bridge, the lever, scapewheel, the hands, dial, and face-wheel, also, remove the cap-jewel plate, the regulator, and cap-jewel from the balance bridge. Now we will suppose there was nothing but the balance wheel and balance spring left, so remove them and screw the balance bridge back into its place. There are several ways of getting the measure of a staff. Some watchmakers will just put a pair of calipers on the outside of balance bridge over the center of jewel-hole, and get the outside measurement, and proceed to guess at the rest of the work. A simple way to measure, and perhaps as good as any in use, is to use a pair of three-screw calipers, at the points they turn outwardly in the form of a T, when they are closed. This tool is made for the express purpose of getting the measure under the bridges for balance staffs, or any other pinion wished to be replaced. These calipers being sharp at the points, you will just set them into the pivot hole, which will enable you to get the shoulder measure of your staff. The turning is done in the customary way.

TO SOLDER A PEARL RING.—The country watchmaker, who is supposed to be conversant with the art of soldering, must be very careful when he has to perform this on a pearl-set ring, as it is quite a risky job, and difficult to hard solder under any circumstances; in fact, should it be broken up, it can in no other manner be hard-soldered except by taking out the pearls. If, however, the break is at the bottom, or far from the set, it can be hard-soldered as follows: First, clean the ring well, make it the size wanted, fit close and even to where to be soldered, make the size a little smaller than wanted, to allow for dressing and toning up; tear tissue paper into strips, twist it loosely, wrap around the sets every way, thoroughly covering them; take one coil of binding wire, twist it around the paper so as to hold it together; put the set part of the ring in clean, clear water, until the paper swells full; lay or pin on a piece of good charcoal; put a slip of coal between paper and the part you wish to solder; apply the borax; use good easy-flowing solder; make a large blaze; blow directly on the point you wish to solder; keep as much of the blaze off the paper as possible; make the solder flow quick, and stop as soon as it flows; take the ring off the coal and put it in the water to cool off. Should the paper, during soldering, become dry, and commence to burn, stop, and apply more water on it, tear the paper off and finish. By working it this way, the expert man will never fail to save the most delicate setting, unless the ring is extra heavy all round.

DECREASE IN GOLD PRODUCTION.—According to reliable reports from Victoria, Australia, the yield of gold of the Colony has, last year, been 130,000 ounces less than in 1885.

A WATCH IN THE SHAPE OF AN APPLE.—In the South Kensington Museum, London, is a small watch, about one hundred years old, representing an apple, and the golden case is ornamented with grains of pearls.

POWER OF TELESCOPES.—The most powerful telescopes now in use magnify 2,000 times. As the moon is 240,000 miles from the earth, it is thus practically brought to within 120 miles, at which distance the snowy peaks of several lunar mountains are distinctly visible.

RELIC OF MARAT.—After passing through many hands, a French journalist now owns the watch of Marat, *l'ami du peuple* (the friend of the people). Its shape is very peculiar. It has two cases, one of which, closing upon the dial, resembles a Phrygian cap in general form. Upon one of the exterior faces are engraved the words, "Love only thy native country;" the other bears the words, "Obey only its law."

NEW PROCESS.—A new process for obtaining aluminum, as well as copper, silver, etc., has been devised by M. L. Senet. He exposes a saturated solution of sulphate of alumina, separated from a solution of chloride of sodium (ordinary table salt), by a porous vessel, to a current of six or seven volts and four amperes. The double chloride of aluminum and sodium is decomposed, and the aluminum is deposited upon the negative electrode.

ARTIFICIAL JEWELS.—One of the unexpected uses to which natural gas fuel is put is the manufacture of artificial jewels. The factories of France and Belgium have had a monopoly in this branch of business heretofore. The basis of these jewels is glass, but the acme of glass making can only be reached by the use of a hot, clear and steady fuel, and this requisite natural gas furnished in a superlative degree. A Pittsburg paper claims that we now lead the world in the production of imitation gems.

HOW PEARLS ARE MADE.—It is believed that a wound in the mouth of the mollusk will lead to a deposition of the calcareous matter, but it is uncertain whether it will be of common shell matter or of pearl—and upon the operation all the value of the operation depends. In the Dutch East Indias the formation of pearls in the pearl oyster is sometimes provoked by inserting a grain of sand within the shell. A considerable business is done at Adorf in the manufactume of fancy articles from the nacre of muscles.

FACIO, THE INVENTOR OF JEWEL HOLES.—Facio was a mathematician, born in the Canton, Geneva, and, although the jeweling of certain parts of a watch movement had been done before, yet he was the first who had been able to drill holes in rubies to receive the pivots of the "balance wheel." Whatever stones had been tried before must have been of much softer quality than the ruby; had it been harder, we should have heard of it. He obtained an English patent, recorded in the London *Gazette*, May 11, 1704, for his invention.

NON-MAGNETIZABLE BALANCE.—An artist of Geneva, it is announced, has found a method of making a compensating balance for a watch, on which magnetism has absolutely no effect. A watch fitted with a balance of this kind, and with a spring of palladium, submitted to the action of a very powerful electro-magnet, will stop immediately, but so soon as it is removed from the magnetic influence, it goes on again without the regulation being in any manner interfered with. An ordinary watch, on the contrary, when subjected to a similar test, becomes thoroughly charged with magnetism, as many a watchmaker has found out to his cost.

A HISTORICAL WATCH.—A watch, since the beginning of this century in the possession of the family Minthorp, of Pamelia, Four Corners, New York, has an interesting history. It was made in 1720, in London, for George III., who presented it to Sir William Johnson, when he was appointed Governor of this State. He, in turn, presented it to the notorious Indian chief, Joseph Brandt, with the remark that "it is worth at least forty rebel scalps." The American paymaster, Evart van Epps, took the watch, together with a quantity of other booty, from Brandt; but, strange to say, van Epps subsequently again became the prisoner of Brandt, who recovered his watch. After the war, Brandt presented it to the grandfather of the present owner. The watch has been going, and kept excellent time up to to-day, and has been repaired only three times—in 1825, 1831 and 1847.

THE ST. MARC CLOCK AT VENICE.—Evelyn, in his Memoirs, under date 1645, records that while he was at Venice, he went "Thro' an arch into the famous Piazza of St. Marc. Over this porch stands that admirable clock, celebrated, next to that of Strassburgh, for its many movements, amongst which, about 12 and 6, which are their houres of Ave Maria, when all the towne are on their knees, come forth the 3 Kings, led by a starr, and, passing by ye image of Christ in his Mother's armes, do their reverence, and enter into ye clock by another doore. At the top of the turret another automaton strikes ye quarters. An honest merchant told me that, one day walking in the Piazza, he saw the fellow who kept the clock struck with the hammer so forcibly, as he was stooping his head neere the bell to mend something amisse at the instant of striking, that, being stunned, he reel'd over the battlement and broke his neck."

THE WORLD'S GREAT LENSES.—Astronomers have witnessed, during the last decade, a greater advance in optical power than ever before in a like period. Among the great refracting telescopes constructed are the 30-inch of Pulkowa, the 26-inch of Charlottesville, and the 23-inch at Princeton, for which the lenses were made in America by Clark, of Cambridge, Mass. A 27-inch telescope for Vienna has been made by Grubb, of Dublin, Ireland, who is at work on one of 28 inches for the Greenwich Observatory. The 19-inch telescope at Strasburg, Germany, has been turned out by Merz, of Munich. The Henry Bros., of Paris, have made a 29-inch objectglass, not yet mounted, for the Nice Observatory; while Clark has finished the giant lens of all—36 inches in diameter—for the Lick Observatory. Up to 1881, the greatest refractor in the world was that of the Naval Observatory at Washington, D. C., with an objectglass of 26 inches, and up to 1880 there was none larger than the 15-inch of Harvard Observatory.

VALUE OF PEARLS.—Although a pearl weighing one grain is worth only one-eighth of the price of a diamond of the same weight, it is very easy to spend a large amount of money for pearl jewelry. The most expensive collection of pearls on record is that owned by the Countess of Dudley, in England, which is far more valuable than the celebrated pearls belonging to the Queen. The Countess has a coronet of pearls; the top is composed of pear-shaped pearls; there is a very large one in the center, and the others are graduated in size down to the smallest. In order to get these pear-shaped pearls in the requisite sizes and colors, the jewelers were obliged to buy such an enormous quantity of pearls that, when the famous necklace was completed, with earrings, bracelets, brooch, and finger rings to match, the jewelers had $80,000 worth of odd pearls left! A pair of matched pear-shaped pearls, weighing 110 grains, was, some years ago, sold in San Francisco for $6,000. When the Princess Royal of England married Frederick William of Prussia, she received a necklace of thirty-two pearls, costing $93,000. In 1789, the French Government possessed pearls valued at $200,000. One that weighed 108 grains was valued at $37,000; two that were pear-shaped were vrlued at $55,800. Black pearls are very costly.

Mr. C. H. Hall, late of Jamestown, Kan., has moved to St. Andrews' Bay, Fla.

Messrs. Kneale & Southworth, of Corsicana, Texas, are the successors to Mr. C. E. Rose.

Mr. George R. Howe, of Messrs. Carter, Sloan & Co., sailed for Europe on the *Umbria*, June 11th.

The firm of F. Kramer & Son, of Baltimore, Md., has been succeeded by Mr. Charles F. Kramer.

Mr. E. J. Smith, of Messrs. M. S. Smith & Co., Detroit, Mich., sailed for Europe on the *Ems*, June 8th.

Messrs. Hamrick & Son, of Philadelphia, Pa., have opened a branch store in this city at 4 Cortlandt street.

Messrs. T. Steele & Son, an old jewelry firm of Hartford, Conn., closed out their business in the latter part of May.

Mr. Henry Sessler, diamond setter, has removed to 32 John street, to the offices formerly occupied by Mr. C. T. Menge.

Messrs. B. & W. B. Smith have a new catalogue in press. It will be filled with many excellent illustrations of their show cases, fixtures, etc.

A surprise is in store for the whole trade, to come from Messrs. Albert Berger & Co. presently. It will prove a blessing to jewelers and opticians.

Mr. Louis Kaufman, 14 John street, says reports from his travelers are very good, and that they are receiving liberal orders from the country dealers.

Business generally is reported good for this season of the year. June is always a dull month, but trade for this year has been better than in June of last year, and prospects are bright.

The fire underwriters are endeavoring to fix up a new organization for raising rates and enforcing more stringent regulations. It is the part of wisdom for insurers to secure long term policies when rates are low.

The strike of the silversmiths has not yet been declared "off," but many of the strikers have gone back to work, accepting the condition imposed by the manufacturers, that they should abandon the Knights of Labor.

One of the designers for Carter, Sloan & Co., having been abroad for some time, has just returned with a portfolio full of designs, which he will incorporate into the new styles of goods to be introduced by that firm this fall.

Mr. D. Valentine sailed for Europe on the 1st of June. When he returns in the latter part of July, he will occupy a part of the office of Messrs. Sinnock & Sherrill, 3 Maiden Lane, having given up his old quarters in No. 41 Maiden Lane.

A house which can always be relied upon to have a complete line of emblem pins, charms, etc., in stock, is that of Messrs J. W. Richardson & Co., which makes a specialty of this business. The quality of their goods is well known in the trade.

For nearly forty years, the firm of Nicholas Muller, now Nicholas Muller's Sons, have been engaged in the manufacture of bronzes and bronze ornaments of all descriptions. For the fall trade they offer many new designs in bronzes, clocks, and side ornaments.

The "Herald Watch," of which Messrs. J. Eugene Robert & Co. are the importers, is having a large sale. It is a plain, open-faced nickel watch, with all the latest improvements, besides being a good time-keeper and low-priced. It is also proof against magnetism.

Mr. W. Archibald, whose business card appears in another column, makes a specialty of supplying the trade with stones for jobbing purposes. Parties having jewelry out of which the stones have been lost, by sending their orders to him can have them promptly attended to.

Mr. J. L. Matthey, of Messrs. Matthey Bros. & Matthez, who went to Europe about nine months ago with his family, returned on *La Gascogne* on the 22d of May, much benefitted in health, and after having had a pleasant tour through portions of Switzerland, Germany and France.

Mr. F. H. Rabe, formerly of Alton, Ill., has removed to Freeport.

In a Canadian town, an enterprising jeweler thus competes with his neighbor, the clothier: The clothier offers a beautiful watch free with every suit of clothes, and the jeweler offers a fine suit of clothes with every watch.

The jewelers of Canada are happy over the late reduction of the duty on watch movements. The duty has been lowered ten per cent, and though this will not yet enable them to compete with jewelers in the States, they are confident that their trade will be somewhat increased.

Our readers should look at the advertisement of Mr. N. J. Felix upon another page. Mr Felix here illustrates a case before and after being repaired. He has often repaired cases which other men have pronounced beyond repair, and all kinds of altering are done in a most satisfactory style

Messrs. E. S. Johnson & Co., have removed their pen department to the Knapp Building, 41 Maiden Lane. This part of their business has increased lately, and they were compelled to find more room. They will retain the retail jewelry store at the corner of Nassau street and Maiden Lane.

Mr. M. C. Eppenstein, of Chicago, who sailed for Europe on the *Umbria*, June 11th, was presented with an engrossed testimonial from his employees a few days before he left, in which they express their regret at his temporary absence, and wish him the blessings of health and happiness both for himself and his parents in Europe.

The Western National Bank, of which Daniel Manning is president, recently had two large bullion balances made at the establishment of Mr. Henry Troemner, Philadelphia. They are remarkably fine scales, one with the capacity of 5,000 pounds, and the other of 2,500 pounds; they are giving much satisfaction to the directors of the bank.

Still another style of setting for diamond earrings has come into the market. Messrs. W. C. Edge & Sons have applied for a patent on the "Perpetual Motion" earring, in which the setting rests upon a kind of pivot, different from any others already in the market. There is a peculiar motion gained from two points: one, from the pivot itself, and the other from the ring where the arm of the setting is fixed.

We have received from the publisher of the *Jeweler & Metal-worker Directory*, a copy of the issue of 1887. It surpasses that of 1886 in completeness, and appears to be a very full directory of the jewelry trade. It is handsomely printed, bound in flexible covers, and will be found valuable to all members of the trade. This directory is so well known, that commendation is unnecessary.

Our esteemed contemporary, *The Trader*, of Ontario, is rather suspicious of the commercial union movement, and contends that it is but another name for annexation, and vigorously asserts, that from its point of view, annexation is not desirable. Here is what it says: "What this country (Canada) wants at present is to be let alone and allowed quietly to grow and develop her own resources. We are gaining wealth and importance with rapid strides, and if the sore-head politicians whose only object in stirring up such agitation is to ride into office on them, will let her alone she will no doubt show the world in the near future, that personal freedom and civil and religious liberty can reach their highest development more thoroughly under the Canadian form of government than any other."

Among the few houses which make a specialty of initial rings, Messrs. Sinnock & Sherrill have gained the reputation for excellent finish and good quality. Their rings are well known all over the United States and Canada, and many large houses keep a full line of them in their stocks.

The largest safe that ever went into Maiden Lane has just been placed by the Marvin Safe Co. in the new office of S. F. Myers & Co., 48 & 50 Maiden Lane. It stands ten feet six inches in height, is beautifully finished, and will be used exclusively for the books of the concern, which are kept by fourteen book-keepers. The new counting-room of S. F. Myers & Co. will occupy the larger portion of the main floor of 48 Maiden Lane, and will be a model in its line.

Some new patterns of bonnet and ribbon pins have recently been added to the already large assortment of Cox & Sedgwick Mfg. Co. It is wonderful how fast this kind of goods has sold lately, and how the demand still continues so large. In black onyx goods also, This company is now producing some very handsome designs, The hemmatite jewelry made by them is finding an increasing sale. and business in general for the last two months has been much better than the corresponding season of last year.

The factory of the Trenton Watch Company, at Trenton, N. J., is most pleasantly situated within a kind of park, laid out and improved by the Company. The factory is a large brick building, recently built, and stands upon high ground in the midst of magnificent scenery. The latest sanitary and other improvements have been placed in it, and the accommodations for employees are excellent. The company's capacity is 500 watches a day. The president of the company is Mr. J. Hart Brewer, well known to the trade; Mr. Byam, who has held positions with other prominent watch companies, is in charge of the factory as its superintendent.

Two employees in the establishment of the late Clemens Oskamp Cincinnati, O., were recently discovered in the act of stealing articles from stock Frank Riehle, a lad of 16 years, who was employed as a polisher, was supposed to have been the leader, and his companion was Robert Gottschalk, the porter It is suspected that they have been systematically robbing the concern since last Christmas, of small articles of jewelry and bric-à-brac. In young Riehle's house many articles were found by the police The Oskamps place their loss at about $500, but have no way of arriving at any definite knowledge, as the thieves had easy access to the stock and were fully trusted.

Sometimes a small thing goes a great ways, and a little accident often produces a big change. Recently an accident occurred in the salesrooms of the E. N. Welch Mfg. Co., in Warren street. Owing to defective plumbing in an upper story, a portion of the ceiling fell down, and the owner of the building set about fixing it. But the company thought that a good job might as well be made of it, so they moved all their clocks into the storage and packing departments, took an office in the next building, and had the old salesroom entirely overhauled. For a couple of weeks business was done under difficulties, but now things are again to rights, and the display of clocks is much more attractive than it was before the accident. This company has some excellent novelties ready, and many more to be completed for the fall trade.

In the June issue of THE CIRCULAR, we spoke of a clock made in Japan which was copied from one of American make The Seth Thomas Clock Co are the makers of the imitated clock, and at first they were very wroth that the Japanese should do so wicked a thing as to make a copy of it They were going to institute proceedings immediately against the Japanese to stop the manufacture of the imitation. But latest advices from Japan say that the imitation is so poor, that not even a "Jap" will buy one, and consequently the contemplated fraud does not affect the sale of its American model in the least. The Seth Thomas Co. will have out in time for fall trade twelve new and attractive patterns of their marble clocks. The cases of these clocks are of real marble, and the movements are made for them especially.

The average monthly pay roll of the American Watch Company is $125,000, or $52 a month to each employee.—*Waltham Free Press.*

The membership of the Jewelers' Security Alliance has largely increased of late, as its advantages have been prominently brought to the attention of dealers. It ought to include in the list every dealer in the country, not only because such membership secures to them individual protection, but because the greater number thus protected the greater the benefit to the trade in general. The Alliance makes war especially upon professional burglars, who have always been a terror to the trade, and when a member has been victimized by them, the Alliance is not satisfied till the guilty ones have been landed in State Prison. Individuals are seldom situated so as to be able to pursue and prosecute with vigor the burglars who despoil them, but the Alliance steps in, employs the best detectives in the country, and assumes all the expense of the prosecution. It costs but little to secure this protection, and every dealer should avail himself of it.

Upon another page will be found an advertisement well worth the careful study and attention of the trade Messrs. Heeren Bros. & Co., of Pittsburg, Pa., have had a cut made, which represents their business in curious and quaint emblems. The illustration, like their enterprise, is strong and firmly built upon a solid foundation. At the base, workmen of different branches are busy at their trade, and to the right and left above them their products are ingeniously and artistically arranged. In the center, a large arch with the trademark of the firm as its keystone encloses three pictures, which show much skill on the part of the artist. The three members of the firm are here seen at their respective posts attending to business. Mr. Wm. Heeren, in the center, who has charge of the factory, is busy at his bench. To the left of him is seen a portion of an office, with Mr. Wm. F. Hofmann at his books. To the right, Mr. Otto Heeren is showing goods over the counter. Above the arch is the legend, "Established 1867," which to those who remember so far back conveys much. When the firm started in business twenty years ago, they were fortunate enough to furnish employment to one apprentice, and since then their business has improved to the extent of having forty full-fledged employees, and the large building at 42 Fifth avenue, Pittsburg, is none too large for their increasing business.

A correspondent in Virginia sends us a clipping from a new, ajuct —an advertisement of a watch, which a firm in Connecticut will send to any person on the receipt of $2.69—and asks us if we cannot show up this swindle. Certainly we can show it up. But it is hardly necessary for us to tell our readers, that when they see advertised in a local paper a "solid silver nickle watch, handsomely engraved, with a finely jeweled Swiss movement, made by skilled workmen in the factory of one of the most celebrated watch companies in the world," all to be had upon receipt of two dollars and sixty-nine cents in postage stamps, or any other way, except a check upon a bank, we say we don't think it necessary to tell our readers that it is a swindle. The advertisement, with a fine, life-size cut of a handsome watch, further says that, "this is no cheap gold-plated (brass) watch, but bran new goods right from the factory." Its new patent winding attachment is "found on no other watch!" All this is bosh and nonsense to the average jeweler. It is set to catch the money and postage stamps of the ignorant farmhand and the village fool. THE CIRCULAR does not reach these. If it did, it would certainly educate them and tell them, that if they want a cheap watch which will keep time, they may find the names of reliable watch companies in its advertising pages, which will give them the full value of their money. But perhaps the best way to educate the ignorant is through experience. If they have two dollars and sixty-nine cents, let them send it in money or postage stamps to this swindling "Company," and if they ever receive in return anything in the way of a watch which will "keep perfect time" (as the advertisement says), legitimate dealers may put up their shutters and go into some other business—bunco-steering, for instance.

Mr. A. J. G. Hodenpyl will sail for Europe on the *Edam* on the 2d of July.

Mr. Emile Dreyer, representing Mr. Tell A. Beguelin, sailed for Europe on *La Gascogne* last month.

Messrs George Fahys and H. F. Cook, of Jos Fahys & Co, sail for Europe on *La Gascogne*, July 2d.

Mr. Lazarus Levy, of New Orleans, La., failed last month, with liabilities stated at $2,000, assets, $1,200.

Many of the wholesale jewelers of San Francisco, Cal, have agreed to close at two o'clock on Saturdays.

Mr. H. Oppenheimer, of H. Z. & H. Oppenheimer, is expected home from Europe in the first week of July

Mr. E. W. Holbrook, of the Gorham Manufacturing Company, sailed for Europe on the *La Gascogne*, June 11.

Mr. E. E. Kipling, of Messrs. E. E. & A. W. Kipling, returned from Europe on the steamer of the 25th of June.

Mr. B. F. Snow, formerly with Thomas Totten & Co., is now representing Messrs. S. E. Fisher & Co. on the road.

Messrs. Crouch & Fitzgerald are making jewelers' trunks that weigh fully twenty-five pounds less than the old style.

Mr. B. A. Bell, well known for many years as a leading jeweler in New Berne, N. C., has moved to Chattanooga, Tenn.

Messrs Arnstein Bros & Co, jobbers, of 37 Maiden Lane, express themselves as satisfied with the outlook for the fall trade.

Messrs T. I. Smith & Co. have removed their New York office to 10 Maiden Lane. Mr. L. I. Mattison is their representative

Mr. John T. Sandman has retired from the firm of Lingg Bros. & Sandman, Philadelphia, and Messrs. Lingg Bros. will continue the business.

Messrs. G. B. Willis & Co., of Providence, R. I., are now represented by Mr. P. E. Malone, who was formerly with Messrs. T. I. Smith & Co.

There are only thirty days more for the trade to secure King & Eisele's "Snap, No. 1," upon the terms they offered for sixty days from June 1st.

Messrs. M. Zineman & Bro, of Philadelphia, Pa, recently moved to 130 So. Ninth street, where they have better facilities for business and more room.

Mr. A. B. Allen, of Barry, Ill, has opened a new store at Hannibal, Mo. He will retain the old store at Barry, which is left in charge of Mr. James Riffle.

Messrs. Errico Brothers contemplate a slight alteration in the arrangements of their art show rooms, which will add much to the general good effect.

Among the specialties of the Boston Clock Company, we would call the attention of the trade to their Watchman's Time Detector, which is worth a trial.

Everyone interested in Mr. Zadek, of Mobile, will be glad to know that his many friends have stood by him in his recent difficulty, and all wish him success.

Mr F. W. Johnson, of Cumberland, Md., has removed his store to 128 Baltimore street, next to the old store His new place is larger and more convenient.

A small advertisement appears in our Special Notice column over the name, "Energy" Any firm in need of such a man will do well to correspond with him.

Mr. A. M. Henry, formerly of 85 Nassau street, has formed a partnership with Mr. S. Sonnenberg, under the firm name of Henry & Sonnenberg, at 493 Broadway.

Mr. Fred'k. Steiman, traveler for Mr. F. W. Gesswein, 39 John street, has returned from a very successful business trip West. He is preparing for his fall trip to California.

Mr. Adolph Goldsmith has secured the services of Messrs. Henry Polatchek, of Chicago, and Louis Hirsch, as travelers. A. Rose and I. Oppenheim are no longer with Mr. Goldsmith.

The F. Kroeber Clock Co. is busy on its catalogue for 1887-1888. Many new clocks have been added to the line recently, and those presently to be brought out are of salable patterns.

The Waterbury watch is now sold only to the jewelry trade. It will not hereafter be offered for sale or given away as a prize, premium or gift as an inducement to buy other goods.

Mr. J. U. Garver, formerly of Bloomington, Ill., has bought out the interest of W. H. Crothers, of Crothers, Deal & Co, Carthage, Mo., and the style of the new firm is Deal & Garver.

Mr. Charles Hofer, of Waltham, Mass., who recently applied for a patent on a new jewel pin setter, has had it granted, and is now fully prepared to furnish them to the trade in any quantity.

Mr. Louis Kaufman will be represented in the West by Mr. Gus. Rees, and in the East by Mr. Henry Dinkelspiel, both good men. Mr Kaufman's enterprise and salesmen will attain success.

Messrs. Oppenheimer Bros. & Veith are quite busy at present mounting diamonds into all sorts of jewelry. They have in stock a large assortment of brooches, pendants, rings, ear rings, etc.

The Rogers & Hamilton Co., of Waterbury, Conn, makers of high-grade electro-plated ware, are producing some fine patterns for the fall. The "Acanthus" pattern is neat and pretty, and is quite popular.

The suit in the U. S. Circuit Court, brought by Messrs. S. Cottle & Co. against Messrs. Krementz & Co., for an alleged infringement of patent on collar buttons, has been decided in favor of Messrs. Krementz & Co.

Mr, William A. Wightman, representative of Messrs. R. F. Simmons & Co., was married to Miss Hester C. Riley, in Brooklyn, on June 1st. Many people well known in society and also in the jewelry trade were present.

Jul. Schumann, Jr., after July 1 will represent Mr. R. Henrich, manufacturer of rings and diamond jewelry, having severed his connection with Messrs. L. H. Keller & Co., in whose employ he had been for seven years.

Mr. S. Lorsch, of Messrs. Sussfeld, Lorsch & Co., sailed for Europe June 15th, on the *Ems*. He was accompanied by his wife, and will try to do more business and have more pleasure than he has had on any former trip.

Messrs. Lissauer & Sondheim have just made up a line of watch cases of specially new designs, in 4, 6, 16 and 18-size. Illustrations are now being made of these designs, and they will appear upon the back page of our August number.

Messrs. Stern & Fried are now making up a line of sample rings for the coming Fall. They are paying particular attention to fancy styles with garnets, small diamonds and opals, and upon these latter they expect to have an unprecedented run.

The "Honoria" bracelet, made by Messrs. Daggett & Clap, and illustrated in their advertisement of this issue, is one of great merit. That this merit is appreciated by the trade is evident from the many orders which the manufacturers have taken for it.

The "Loop" ear-ring, of which an illustration is seen in our advertising columns, is a novelty of considerable merit. Many of our leading houses have already ordered stocks of them, and Messrs. A. Luthy & Co. are busy at present filling orders.

Mr. L. A Cuppia, of 19 Union Square, sailed for Europe on *La Normandie*, June 11th He intends to travel all through Southern Europe for novelties in his line, and will especially visit Italy, where he gets his fine filigree jewelry.

An exciting game of base ball occurred in Cleveland, O., on Saturday, June 18th, between the "Manufacturers" and the "Julius King Optical Co." nines. The score was 27 to 5, in favor of the first mentioned club.

A fine line of novelties in fancy goods has just been received by the Boyd & Abbot Co., of 23 Warren Street. Mr. Abbot spent some time in Europe this spring looking up new things, and was successful in procuring many desirable goods.

Messrs. Albert Lorsch & Co. have about completed the alterations in their office, and have certainly improved appearances very much. The new wall paper is exquisite, the hard-wood work is fine, and there is more room than there was formerly.

A jeweler in Washington recently received a watch to be fixed. The customer couldn't understand what was the matter with it, but soon the jeweler found a small red ant in the wheels of the movement. It was still alive, and when released the watch was found to be not damaged.

The jewels recently made in Germany for the Empress of Japan are said to consist of a diadem, a necklace and several bracelets. Her diadem contains of 600 diamonds, nine of which are very large. The central stone weighs nine karats and is valued at 25,000 francs.

Mr. Sumner Blackington, of Messrs W. & S. Blackington, who has been seriously ill for the past two months, is now convalescent, and expects to fully recover by taking an ocean trip. He leaves shortly for Rio Janeiro, Brazil, and intends to come back in two or three months.

The largest watch ever made was sent last week to Kansas City by Messrs. R & L. Friedlander. The diameter of the dial is eight feet. It is not a watch to keep time, but only a monstrous thing of wood and zinc, handsomely painted and gilded. It is designed for a jeweler's sign.

Gold has been discovered in Wisconsin. Several nuggets, the largest weighing nearly three grains, were recently washed out on a farm near Rock Elm, Pierce County. Since then many other discoveries have been made, and the people of Rock Elm have great expectations.

Since Messrs. H. F. Barrows & Co. moved their large safes out of 1½ Maiden Lane, they have lost themselves in the great amount of empty space. They want to rent a part of their office to some good concern. This is a good opportunity to become associated with a good company.

Messrs. E. I. Richards & Co., are making liberal preparations for the fall trade, adding many new patterns and novelties in every department of plated jewelry. Their ladies' vest chains, particularly, are very pretty, and the finish is something that their salesmen can justly recommend.

Some new designs of silver buttons made by Messrs. F. I. Marcy & Co., are oxidized, and look very ancient. Their new line makes its appearance about the first of July, just after we go to press, but it is said that it surpasses all former years, and this would be saying much for the new line.

Mr. Leopold Stern, of Messrs. Stern Bros. & Co., arrived from Europe on *La Bourgogne*, June 19th. He has bought a great many diamonds, and Messrs. Stern say that the new invoice will amount to $100,000, which they hope will be sufficient to supply their customers with for a month or two.

Messrs. Charles W. Schumann & Sons exhibit in their art room, at the Union Square store, two elephant tusks with Japanese carving. They are probably the largest and finest specimens in the country. Mr. Charles W. Schmann, Jr., sailed for Europe on the *Saale*, June 22, intending to meet his father in Russia.

Mr. C. H. Jacot, of Messrs. Jacot & Son, who went to Switzerland in June, is now at Ste. Croix, superintending the making of novelties in music boxes for next Fall's trade. He is also having made some practical improvements to these instruments, of which we can say more when he returns next month.

The firm of Cox & Sedgwick having been dissolved by the recent death of J. W. Sedgwick, has been incorporated into a joint stock company, called The Cox & Sedgwick Manufacturing Co., of which Mr. Stephen P. Cox is President, Mr. M. L. B. Cooper, Treasurer, and Mr. Clarence W. Sedgwick, Secretary. The business continues at the same place, 26 John street.

Messrs. Healy Bros., of North Attleboro, Mass., have added, this season, to their large assortment of chain trimmings, a full line of rolled plate chains, comprising all the novelties in fancy links, engraved and plain patterns, and seals for ladies' and gents' chains, in all shapes and styles. Orders have already been taken, and indications point to a successful season for this firm.

Precious metals are hoarded by the people of Eastern Asia and India to an almost fabulous extent. During the recent visit of the British Indian Secretaries of State to Gwalior, for the purpose of borrowing £3,000,000 sterling, they found that a vault underneath the palace of Gwalior, contained a treasure estimated at about £6,000,000 sterling, consisting mainly of silver rupees.

In the latter part of May, Mr. A. Corn, of Messrs. Corn & Clark, while traveling from Mahanoy City to Shenandoah, Pa., had his trunk, containing nearly $1,000 of goods, sent to Audenried by mistake, and since then nothing has been heard of it. The Lehigh Valley R. R. Co. have offered to settle with Messrs. Corn & Clark, but no compromise has yet been effected.

The English people are now favored with clocks which wind of themselves, after the style of our American self-winding clock. The Self-Winding Clock Co. has sold to an English company the right to manufacture these clocks in England, and our esteemed contemporaries in that country are having their say about them.

Mr. Harrison B. Smith, of Messrs Alfred H. Smith & Co., returned from Europe on the *Trave*, June 10th. He attended the sale of the Crown Jewels, and came within an ace of buying one important item. He outbid all the trade on this item, but just at the last moment he encountered the opposition of a private party, who slightly overbid him.

London pawnbrokers test watches by applying acid to the knobs. A Frenchman ordered 200 watches from Geneva. The cases were copper, heavily gilt, and the knobs pure gold. They cost 40 francs each. He pawned them in London for 70 francs each and dropped the tickets about the city. Dishonest people found them and paid 70 francs for for 40-franc watches.

A natural curiosity has been discovered at Solothurn, Switzerland, the center of a large watch manufacturing district. It is the nest of a wagtail, built wholly of long spiral steel shavings, without the least part of vegetable or animal fibre used in its construction. The steel shavings are half a millimeter thick and about twelve centimeters long. The nest has been preserved in the Museum of Natural History.

The so-called "Victor Watch Company," which for some months past has occupied a small room on the upper floor of 48 and 50 Maiden Lane, and has gained some questionable notoriety because of its methods of doing business, were dispossessed on the 9th of June and put on the sidewalk for non-payment of rent. The "Manager," Charles West, was recently on trial before the municipal authorities.

Some novelties in bracelets, shown by Messrs. Carter, Sloan & Co., are unique and not in the ordinary run. They are made of an open curb chain with a small clasp, and in the center for about a third the length of the bracelet is a row of diamonds, rubies and sapphires, set in plain settings or ornamental work. In bracelet mountings, Messrs. Carter, Sloan & Co., have a large variety of good patterns, mostly of light design with settings for small stones. Several new patterns of long-stemmed flower-pins are also shown, and are very pretty. In ladies' vest chains there is one style which is particularly odd, composed of three sections of light chain with two little balls of *lapis lazuli* for connecting pieces.

Mr. Delmont E. Mowry, of Messrs. Kirby, Mowry & Co., will represent his firm on the road the coming fall. He will be at the Astor House during July, with a full line of gold goods, which includes many pretty novelties.

Now that the offices of Messrs. Miller Brothers, at 37 Union Square, are in complete readiness, we would advise the trade to visit them to see the finest office in the business. Crystal chandeliers, plate-glass partitions, solid mahogany furniture, and fine English stationery, are a few of the articles Messrs. Miller Brothers indulge in.

There is a diamond ring worth $500 in the coffin of some ancient resident of New Jersey long since dead, and several attempts have been made by cemetery ghouls to steal it. Since the last attempt, which occurred last month, the descendants of the deceased have concluded to remove the ring, as it is a constant temptation to these inhuman burglars.

A neat little catalogue and price-list, embellished with clear wood-cuts, comes from Mr. W. W. Oliver, of Buffalo, N. Y., manufacturer of all kinds of jewelers' machinery, tools, supplies, etc. Mr. Oliver tells his patrons, that he is continually adding new kinds of machinery and tools to his manufactures, and is constantly improving upon old designs and methods. He has an advertisement in another part of this issue.

Mr. Charles Jacques, of 2 Maiden Lane, was married early in June to Miss Ida Monquin, daughter of Henri Monquin, at the residence of the latter at Clifton, Staten Island. The couple went to Europe on their wedding trip, and Mr. Jacques intends, while in Paris, to buy many novelties for the fall trade. In his salesroom at present he has several new patterns of window clocks for display, which are very unique.

Novelties in charms for queen and Jersey chains are coming in rapid succession from the factory of Messrs. Alois Kohn & Co. Not long ago it was a small market basket in roman gold, the wicker work in close imitation of its prototype, and a cover which lifted off and on in the most natural manner. Now comes a still newer one, a Pompeiian Jardmere vase, of quaint design. Both of these are having a large sale.

The strike of the silversmiths is virtually at an end. For the past two weeks the men have been returning to work as individuals, waiving their demand that the employers should recognize the Knights of Labor. The strike has not "officially" been declared at an end by the leaders, but when the men desert the leaders, there is an end to the strike. The result could not have been otherwise, for the employers are not yet prepared to surrender their business to their employees.

A package of large, fancy pearls is a delight to the eye. In a recent importation, Messrs. M. Fox & Co. received several lots, and in one lot is a fine steel-colored pearl, in shape a perfect miniature of a hird's egg. Messrs. Fox & Co. also have a few excellent specimens of black diamonds, beautifully cut and without flaw. Mr. M. Fox, who went to Europe in May, expects to buy many fancy stones for the fall trade.

Messrs. E. Dalzell & Co., of 32 John street, are manufacturers and designers of fancy watch cases who have achieved much success in their line. Special designs are furnished on application. The fancy ornamentation is put on in fine gold colored with certain alloys, and leaves and flowers, under the skillful hands of their workmen, are made in their natural colors. Some cases seen by our representative last month are superb.

Not only is Mr. Paul Jeanne, of 8 Maiden Lane, a well-established jewelet, carrying in stock a full line of diamond mountings, but he is also an artist of ability. He has executed many designs for large pieces of jewelry, mostly upon special orders from wealthy persons who wished to have old gems reset into more modern style. Last month he showed two handsome designs for a large sword-handle hair-pin set with diamonds.

An elegant line of silver mounted leather goods is made by the Gorham Manufacturing Co. All kinds of card cases and pocketbooks are shown, and these are made in several shades and finishes of alligator skin, monkey skin and pig skin, which latter is known in polite language as "porcine leather." Small memorandum books for sportsmen and betting women are shown, with covers of sterling silver and emblems of the chase in rich *repoussé* work.

Rogers & Brother expected to be in their elegant new store, 16 Cortlandt street, by the first of May, but as the building was not completed, they did not get in until June. The work of preparing to move, moving and getting settled, occupied six weeks, while ten large trucks were employed twelve days in transporting their stock and fixtures from the old up-town store to the new one. All the employees aided in the removal, but it was an immense undertaking.

Messrs. Jeannot & Shiebler, the well-known makers of fine gold watch cases, have enlarged their office at 20 Maiden Lane, and have entirely refurnished it in elegant style. Two new safes, beautifully finished, stand behind a long oak table with a broadcloth top. New desks, gilded wire screens, fine wall paper and plenty of light and air make this a pleasant office to go into. The quality of the watch cases remains the same, but the patterns change with the fashions.

Mr. George F. Kunz, of Tiffany & Co., New York, was sent, accompanied by Mr. J. S. Diller, of the U. S. Geological Survey, to examine the peridotite of Elliott Co., Kentucky. The occurrence there of carbonaceous shale in it closely resembles the same rock at the South African diamond fields, and although diamonds were not found, yet valuable observations were made on this most interesting occurrence, which will be published later by the "Survey" in a paper on the subject.

Lest any unwise watch case manufacturers should think that the "Half Shell" case, manufactured by Marx & Weis, and illustrated in our advertising columns, is a pattern of case which any one may imitate with impunity, we would say that Messrs. Marx & Weis were thoughtful enough to have so good a design patented, and that already one manufacturer who copied this design has promised never to do it again. This case is made in several sizes, and some are set with precious stones.

Since Messrs. Henry Ginnel & Co. put in their three new safes and renovated their office, they have increased their business facilities. Their business for June was much greater than that of June, 1886. Mr. Ginnel returned from Europe on the 24th of June, hale and hearty. He was greeted by his young partner in a pleasant manner, two large bouquets of cut flowers being placed in conspicuous places in the rear office. Mr. Ginnel has secured several new things for the Fall trade.

Mr. H. B. Peabody, one of the judgment creditors of Clapp & Davies, who recently purchased the bankrupt stock of that firm for $101,000, has since been trying to sell it out. He has gradually come down in price to $85,000, and it is believed that $50,000 is a figure nearer to its real value. It is hard to understand, how a man will pay $100,000 for a stock of goods one day, and shortly afterwards offer it for $85,000. It is said that Mr. Peabody may continue the business.

Mr. F. Hartje, doing business under the firm name of G. & F. Hartje, at 39 Union Square, made an assignment last month to Mr. L. Tannenbaum. His brother, George, died recently, as was noted in our June number, and he felt unable to continue the business alone. There seems to be no doubt that his failure is honorable, and Mr. Tannenbaum says the creditors may receive as much as 60 per cent. The liabilities are estimated at about $7,000, and the assets are probably near that figure, but lawyers' fees and the certain depreciation in the value of the stock on hand will bring them down considerably. Mr. Tannenbaum says he will not charge any fees for his services as assignee.

During the early part of June, Messrs. Hinrichs & Co. received several notable shipments of goods from Europe. One was composed of some elegant patterns of Royal Worcester Ware. The floral designs upon these goods are exquisite, and the pieces themselves are of beautiful and artistic shapes. Another shipment contained some new designs of the popular satin-finished ware. These are in all colors and shapes conceivable, from the simple long-necked vase to the elaborately decorated bowl. Some of these pieces are of delicate tinted shades, and others are ornamented with faint vein-work.

Messrs. J. B. Bowden & Co., who are known all over the country for the excellent quality of their rings, have recently made up many new designs of fancy rings. They have many combinations, in clusters principally, of diamonds with opals, cat's eyes, rubies, emeralds and sapphires, in pleasing contrast and design. In single stone diamond rings they keep on hand a full stock. Their seal rings are well known, and the latest pattern is a glove-ring with a curved intaglio, with the shank so shaped, that the ring fits snugly to the finger, and though of heavy appearance, it is of rather light weight.

Some new designs in ornamental watch cases, shown by Messrs. Stern & Stern, are pretty and tasteful. This firm has recently made up a large stock of cheap diamond ornamented cases. They are of 10k., handsomely engraved, with small rose diamonds set in neat patterns of engraving. Another case is made perfectly plain with a star or trefoil of diamonds in the center. The latest design is of a classic vase with flowers in profusion, the colors being shown with rubies, sapphires and diamonds. Many other good designs have the diamonds set in the cap with the outer cover pierced, to allow them to show through. In this way they are more secure, and the case has a richer and heavier appearance.

Mr. Chas. E. Juillerat, importer of Swiss music boxes and fancy musical articles, removed lately from 18 John street, where he found the space inadequate for his growing business, to 21 John street, on the ground floor. The location is better adapted to his business, permitting a much more elaborate display of his large stock of instruments and other articles. Mr. Juillerat is making extensive preparations for the coming fall, and will have a particularly fine line of music boxes (higher grade goods) from Geneva, which are unsurpassed in style and quality by any music boxes placed on this market. Mr. Juillerat's patent safety check, for which he received the United States Patent No. 343,767, is an important improvement, and is in successful practical operation.

It is not a mere transient bit of enterprise which Messrs. Hamilton & Hamilton, Jr., show in their production of a filled gold chain. For many years this firm has made plated chains equal to the best in the market in the matter of finish and quality, and their inlaid chains have had a wide popularity and sale. But within the past few weeks the much talked of filled gold chain has made its appearance, and received the favorable comment of those who have seen it. The chain is finished as well as the best makes of solid gold chain. For wear, it will give as much satisfaction as a gold one, and in price it holds down at a remarkably low figure for such good workmanship. An advertisement of this chain, upon another page of this issue, is worthy of perusal. Messrs. Hamilton & Hamilton, Jr., show some very pretty patterns of ladies' vests with diamond slides.

The annual meeting of the New England Manufacturing Jewelers' Association, held on the afternoon of June 17th, was the occasion of much social enjoyment. The meeting was held at Crescent Park, whither the members went, on board the *Philadelphia*, arriving there shortly after noon. Boyden's famous chowder then had the attention of the members, after which the business of the meeting was done in the new dance hall at the park. The old officers were re-elected, and are as follows: Mr. Alfred S. Potter, President; Messrs. Edwin Lowe, Ralph Hamilton, Sr., and A. A. Bushee, Vice-Presidents; Mr. John A. McCloy, Secretary; Mr. Horace F. Carpenter, Treasurer. The Executive Committee is composed of Messrs. John M. Buffington, F. T. Pearce, and H. G. Smith. After the meeting, the company gave themselves to pleasure and games until the dinner which was served at 4 o'clock. There were forty persons at the clam-bake. After the dinner, music, both vocal and instrumental, and games, filled out the day until 7 o'clock, when the boat took the members home. This association of jewelers has always been a complete success. Its latest report from the treasurer shows a nice little balance, and in that way its prospects are brilliant. But it is principally in the social social benefits of this association that it claims our congratulations. For many years the same officers have been repeatedly re-elected, showing the appreciation of its members. At every quarterly, these being held at different places in New England, a banquet is served, whereat excellent speeches are made and social festivities indulged in. The members are a jolly set, and the meetings are very pleasant, contributing largely to a better business feeling among competitors. There ought to be such an organization in every city.

A large fire in the First National Bank Building, Pittsburg, Pa., on the 10th of June, damaged the stock of Mr. Thomas P. Bedilion to the extent of about $5,000. The fire was caused by loose paper coming into contact with two crossed wires in the office of the Western Union Telegraph Co., on the third floor of the building. Only the third and fourth floors were damaged by fire, but water and more especially a large quantity of oil of vitriol from several thousand broken jars, used in the batteries of the telegraph instruments, damaged the stock in the lower floors. Mr. Bedilion's art room, in the rear of the store, contained many articles of bric-a-brac, etc., which were completely ruined by this oil, and the silverware is badly discolored and virtually ruined. Mr. Bedilion's insurance is said to fully cover all losses.

In Poland the people have a singular superstition that each month has a particular gem associated with it, which governs and influences the destiny of the persons born in that month. Thus, January has a jacinth or garnet, which denotes constancy and fidelity in every engagement. February—Amethyst, insuring peace of mind. March—A bloodstone, denoting courage and secrecy in dangerous enterprises. April—Sapphire or diamond, signifying repentance and innocence. May—The green emerald, typical of love. June—An agate, meaning long life and health. July—Ruby or cornelian, which insures the forgetfulness or cure of evils springing from friendship or love. August—Sardony, a warrior's charmed life. September—Chrysolite, which preserves from folly. October—Aquamarine or opal, which denotes both misfortune and hope. November—The topaz, bringing the owner fidelity and friendship. December—Turquoise or malachite, signifying the most brilliant success and happiness.

The *New York Mail* justifies the wearing of sham jewelry under certain conditions: Sham jewelry may be worn for a variety of reasons. If it is to give the impression of wealth, which the wearer does not possess, then the practice is wrong; but if the profession or career of a husband requires that his wife should go much into society on a small income, she would be perfectly justified in wearing imitations to save money. A smart and dressy appearance demands the use of many little knick-knacks and accessories, the fashion of which is constantly changing. For instance, at present gold jewelry is obsolete for evening wear, as a lady scornfully remarked to a poor relation, "You can wear nothing but diamonds." Under these circumstances it cannot be wrong for a lady who may not afford to buy diamonds and has not inherited any, to wear a moderate amount of paste. She should not, however, try to pass her ornaments off as diamonds, nor speak of her "jewels" with an air of importance which would lead people to infer that she had any of value.

In the advertisement of the American Manufacturing and Supply Co., upon another page, will be seen an illustration of one of the latest designs of "Gallery" self-winding clocks. This is one of several designs which are now being used extensively in the offices of railroad companies, in banks and churches, etc. The advantages of self-winding clocks are already well-known and need no further explanation here. The manufacturers have in process of manufacture many new designs of clocks, among which are some for the mantel. These are cased in all kinds of hard wood, and the same degree of finish and excellence of design will be used, as is used upon the more expensive hall and gallery clocks. The company has also lately designed several patterns of imitation marble cases in iron. These are heavy and rich looking, and at each side of the dial is provided a space within the clock for the batteries. A catalogue and price list of these goods can be procured by dealers upon application.

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A Monthly Journal devoted to the interests of Watchmakers, Jewelers, Silversmiths, Electro-plate Manufacturers, and those engaged in the kindred branches of art industry.

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The Outlook for Fall Trade.

CONSIDERABLE surprise has been manifested in the trade that there should have been so many buyers in the city during June and July. Their presence was something unusual, and still more unusual was the fact that they were buying liberally in anticipation of a very active Fall trade. Travelers on the road report that their Summer sales were never better, and that there is a universal feeling of satisfaction and confident hopefulness among the retail dealers in all sections. It is seldom that the orders for June and July have been so liberal as this year, and these are based upon the generally satisfactory condition of the country. In all directions there are signs of almost phenominal prosperity; there have been no great disasters to bring distress upon the people, speculation has been kept well in check, and the harvests have been abundant or promise to be so. Last year was prosperous, and the present one promises to be even more so. Manufacturers have every reason to be satisfied with the situation, and most of them are now busily engaged in preparing for a large Fall trade that all believe will be sure to be realized. The only drawback is found in the fact that excessive competition has cut down the margin of profits very greatly, and it takes longer to realize satisfactory results than formerly. But this is to be expected. As the country becomes older and more settled, its commercial features take on more resemblance to the business conditions of the old world, where business men are content to devote a lifetime to acquiring a modest competence. While marketable securities are paying but a low rate of interest, it is natural that business profits should be reduced proportionately. Government 3½-per cent. bonds command a high premium, and all classes of securities that are in reality secure, are in active demand while the interest they pay is small. These are the days of small things, and business men must be content with moderate profits. Competition in the jewelry business has grown wonderfully of late, but no more so than in other lines. There is a rising generation that is exceedingly numerous, for which the jewelry trade is partly responsible, that must be provided for, and that has equal rights in the business world. The multiplication of the number of persons engaged in any particular line of industry necessarily entails active competition and breaking of prices. Young men come into the business and are content to make small profits, thus forcing their older competitors to come down to their level. In fact, the business of the country, outside of the realms of speculation, is tending towards a basis of small profits, and he who is content to recognize this fact, and plod along in legitimate channels, is sure to be rewarded in the end. Careful study of the signs of the times and the prompt siezing of opportunities will generally bring success, and the present is a time when every person in the jewelry trade will be warranted in putting forth all his enterprise and business push.

Retail Dealers' Protective Association.

WHEN retail dealers have complained so loudly of the injuries they claim to suffer at the hands of manufacturers and jobbers, THE CIRCULAR has counselled them to organize local associations for mutual benefit and protection. At the same time, we have warned them that in doing this it was necessary to proceed with great caution, for there was danger that they might injure themselves more than would be offset by any benefit they might receive. Several such associations have been formed in different parts of the country, and while some of them seem to have been judiciously managed, and to have had considerable influence, others appear to have fallen under the control of injudicious men, who fail to comprehend the true purposes of such organizations. We have had occasion to criticise the methods of some of these associations, but have done so with a view to aiding them by letting them see how their action appeared to others.

Some time ago the idea was started in this city of forming an association of retail dealers mainly for the purpose of inducing manufacturers and jobbers to abstain from selling to the outside dealers who promote unhealthy competition. A call was sent out, and in pursuance thereof, the Retail Dealers' Protective Association was formed. It has been in existence now for two years or more, but has failed to secure the co-operation of the entire retail trade. Many who were solicited to become members replied that they were entirely competent to conduct their own business, and when they found that they could not compete with outside dealers in handling jewelry, they would give up the business and go into some other. Still others did

not believe that any good could be accomplished by such an organization, and declined to become members. Nevertheless, quite a number of small dealers in this and neighboring cities joined the association, and it now has a membership of between fifty and one hundred dealers. Unfortunately, the management of its affairs does not seem to have been devolved upon the wisest and most judicious of the members, for action recently taken is calculated to bring the association into contempt. This action consists of an attempt to "bulldoze" manufacturers, and when these have refused to be dictated to, their names have been blacklisted.

The facts of the case are substantially these: The association prepared a pledge for manufacturers to sign, which required them to agree that they would not sell any goods whatever to any person whose regular business was not exclusively that of a jeweler. This was circulated for signatures, but as many manufacturers sell to exporting houses, and some of them to large houses who combine the business of a retail jeweler with that of some other business, they hesitated about signing the agreement. These were assured by the officers who circulated the pledge that it was not intended to interfere with such trade, but the language of the agreement made no exception whatever. Quite a number of manufacturers refused to sign a document that bound them in express terms not to do what the association was willing they should do. Finally, at a meeting of the association, a resolution was adopted to the effect that the association *did not care what the manufacturers and jobbers did outside of the jurisdiction of the association.* That is to say, if they would pledge themselves to protect the retail dealers in this vicinity, they might slaughter those of other localities all they pleased. All principle was thus thrown aside, and the bald fact left patent that this association was purely selfish, and looking out for its own members alone—not combatting for a principle. Like Artemus Ward, during the war, they were willing to sacrifice all their wives' relations so they could save themselves. But the resolution did not modify the pledge, and many manufacturers still refused to bind themselves in writing to an agreement that it was not intended they should adhere to. They were threatened with blacklisting, boycotting, etc., but they were not to be bulldozed. Finally the association carried out its threat, or rather, the officers of that body did, for they issued a circular giving a list of manufacturers who had signed the agreement and who should, therefore, be patronised by the members. This was followed on the same page by a list of some half a dozen old and well-known firms who had refused to sign and, therefore, were to be boycotted by the members. There is also a paragraph in the circular to the effect that those who signed the agreement did not do so in good faith, and will bear watching. With such an insinuation, it is more of a compliment to be in the black list than the other. The ridiculousness of the whole proceeding was so apparent that quite a number of the members hastened to the blacklisted firms and expressed their indignation at the course of the association, and showed their good will by ordering fresh bills of goods from them. It is evident that this association in this instance overshot the mark. By the stupidity of those directing its affairs, it has placed itself in the wrong. First in attempting to stem the current of supply and demand by preventing sales to exporters, or any other person who combines with the jewelry business any other occupation. The pledge they offered for signature would prevent a manufacturer selling even to his wife or brother. Second, they made the mistake of ignoring principle in the matter, and showing that they are actuated by selfish motives entirely—that they do not care for the retail trade in general, but for themselves exclusively. Men fighting for the right and for principle are broad gauge enough usually to be disinterested, and to merge their individual interests in the general good, but in this instance, selfishness was the ruling motive.

The officers of the Protective Association evidently lost sight of the fact that there have recently been several criminal prosecutions and convictions of persons who had conspired together to injure the business of another. Their blacklist circular is sufficient to show that there was a conspiracy among the officers, at least, of this association to injure the business of the persons blacklisted. If further evidence of the conspiracy were wanting, letters can be produced from the officers wherein they threaten to do all in their power to injure those who refused to sign their pledge. Probably few of the members sanctioned the course that has been pursued, but the officers have, unquestionably, rendered themselves liable to a criminal prosecution for conspiracy, and if they escape it they may thank the forbearance of those whom they have sought to injure. Several years ago, a Western association did substantially the same thing, and we then warned them that they were playing with fire, and the fact that several persons are now in prison for having conspired to injure the business of others whom they had boycotted, proves that our warning was based on good law. We thoroughly believe in organization for mutual protectinn, but protection does not mean oppression by unlawful means, intimidation or injustice.

Retail dealers certainly have much to complain of in the way competition has been fostered by manufacturers selling to outsiders, but they can never hope to remedy this evil by fighting it with unlawful weapons. When they will make it as profitable for manufacturers and jobbers to sell to them exclusively as it is for them to sell to outsiders, that moment the outsider will cease to obtain goods. Their fight is against the outsiders; let them combine to fill the demand for jewelry at retail and to drive the outsiders out of the business. The outsiders handle jewelry because they are merchants in the strictest sense of the word, and aim to supply the public demand; if the retail dealers did this there would be no trade in jewelry for the outsider to cater to. All trade is governed by the immutable laws of supply and demand; where there is a demand, there will the supply be found. If the retail jewelers do not provide for it, some one else will, and that some one will have no difficulty in obtaining goods, for the same laws prevail in the wholesale trade as in the retail, and whoever has money to buy goods will always be able to obtain them. When the retail dealers wholly cover the field they have elected to operate in they will have no competition from outside nor any occasion to employ unlawful means to enforce their claims on the manufacturers and jobbers.

More Knights of Labor Failures.

E ANNOUNCED briefly last month that the strike of the silversmiths was substantially over, and that the strikers, cutting aloof from the Knights of Labor, were returning to work as individuals. After nearly three months of idleness, during which time they were either consuming their savings or running in debt, the strikers, finding that the support the Knights had promised them was not forthcoming, and that their places were being filled by others, finally gave up the unreasonable struggle and returned to work on the only terms their employers would receive them, viz., as individual workmen and not as Knights of Labor. This strike was not one for increased wages, for fewer hours of labor, nor for any grievance whatever, but solely to compel the employers to recognize the alleged right of the Knights to regulate the terms of their employment. The employers saw the danger that threatened them in its incipiency, and wisely took the initiative by locking out those Knights who were contributing to sustain the strikers in the factory of the Whiting Manufacturing Company, where the trouble originated. It was a contest to determine whether the Knights or the proprietors should manage the factories, and but one ending to the struggle could result, and that finally came. In other cities the men came to their senses sooner than they did in New York, probably because the outside influences that bolstered them up were stronger here than elsewhere, but the end came none the less surely. During their voluntary idleness, the men have lost many thousands of dol-

lars that they might have earned, have spent their savings, and worse than all, they have advertised the fact that theirs is a lucrative calling, better paid than almost any other mechanical labor, and that there is a scarcity of skilled workmen in it. As a consequence, many workmen in kindred trades have been attracted to it, quite a number have obtained the places of the strikers, and will be retained. The men will have only themselves to blame if the business soon becomes overcrowded with workmen, and if the price of labor goes down in accordance with the additional supply.

A similar strike was recently terminated in Massachusetts in favor of the employers. The shoemakers went on strike for the purpose of obtaining control of the shops in the interests of the Knights of Labor, and the manufacturers were forced to combine to resist their demands. After a prolonged struggle, the men recently returned to work on the terms proposed by the employers, abandoning the Knights of Labor and going to work as free men. During the progress of this strike the men became so impoverished that the State authorities were appealed to for relief, and many tradesmen who had given them credit unsparingly were ruined in consequence. Of course, the employers lost heavily, but they could better afford to lose something than to turn the management of their business over to the Knights of Labor. The organ of the Knights admits this failure, and concedes that it is due to the decadence of the power of the Knights, the various branch organizations having refused contributions for the support of the strikers. This was what the silversmiths found in this city. This is an important fact that the Knights seem to have ignored in their plans. They announce that "the injury of one is the concern of all," but ignore the truth of the old proverb that "what is everybody's business is nobody's," and so the strikers have been permitted to sacrifice their prospects and go to the very verge of starvation while the helping hand they were led to expect has been withheld. While so many strikes have been in progress, a man who was working steadily might readily have donated half his earnings to support strikers in idleness had he responded to every call made upon him. As the workers had not been specially benefitted by the Knights, and it took just as much work to earn their wages, and just as much money to support their families, the demands of strikers soon became an old story, and few could see why the fruits of their labors should go to support others in idleness. What looked plausible in theory was not so attractive in its practical application. The idea that one half the workingmen in the country shall contribute of their earnings to support the other half who refuse the employment offered them, is a proposition too absurd for the intelligent workmen of the country to entertain for any length of time.

During the past two years the workingmen have had a bitter experience in strikes, and have been conclusively shown that any attempt to organize all labor into one great monopoly with which to fight capital, is and must be a grand failure. In the first place, the diverse nature of the labor requirements prohibit the possibility of harmonious action, for the fundamental idea is to place all callings on an equality—the silversmith, earning six or eight dollars a day, on a level with the 'longshoreman and the hod carrier, earning one or two dollars a day. The elements sought to be combined will no more affiliate than will oil and water, and no amount of theorizing can change the actual conditions. Experience has demonstrated that wherever the Knights of Labor have interfered between the workmen and their employers they have made a mess of it, and the last condition of the workman was worse than the first. The Knights also overlooked the fact that if there could be combinations of workmen, there could also be combinations of employers, and that the one would be a necessary result of the other. But this is precisely what has occurred, and wherever the Knights have attempted their arbitrary dictation, the employers have forthwith organized for self-protection. This was shown most extensively at Chicago, where employers in all the building trades combined to resist a strike that h[illegible] been organized by the Knights, with the result that hundreds of [illegible] driven out of the city, and finally lost every point they are used with effect.

had demanded. It will be impossible to ascertain how much actual money the workingmen of the country have lost through the Knights of Labor, but it will run way up into the millions of dollars, while the suffering entailed can never be known. Employers are not, as a rule, opposed to trade organizations; on the contrary, they would be glad to see their employees associated together for mutual improvement, benefit and protection, but they will not tolerate outside influences among their workmen. In many instances employers have encouraged their employees to organize by contributing liberally to their benefit funds; they will not hesitate to meet them and adjust any grievances they may have in an amicable manner, but they will not be dictated to by outsiders. This is the main secret of all the labor troubles that have occurred during the past two years, and it is time the workmen abandoned their false teachers and followed the dictates of their own sound sense and good judgment. The days of the master workman and the walking delegate, supported in idleness from the hard earnings of the industrious and frugal, are approaching an end. When the true American workman has the courage to stand up and declare his freedom from the shackles the Knights of Labor would impose upon him, he will have little trouble with his employer.

The Saturday Half Holiday.

THE STATE Legislature having legalized what was rapidly growing into a custom, the Saturday half holiday has become a fixed fact, and the business of the city has readily adapted itself to the new order of things. It is estimated by the gentlemen who were most active in securing the passage of the law, that while there were perhaps fifty thousand persons who had the benefit of the early closing movement in May, there are now over two hundred thousand persons who are released from business on the last half day of each week. A noticeable fact is the avidity shown by employers as well as employed in availing themselves of the holiday and the recreation to be obtained on that occasion. Not only did they accept the law without a murmer, but they seem quite as anxious to have this breathing spell come around as does the hardest worked person in their employ. The retail stores in all lines of business have followed the example of the wholesale dealers to a greater extent than was anticipated would be the case, and it is now the rule that retail stores close Saturdays at 12 or 1 o'clock. This is more of a concession to public sentiment than compliance with the law, for there is nothing obligatory in the statute to make dealers close their places of business unless they feel so inclined. But, as we have said, the employers seem to be quite as desirous of escaping from the cares of business Saturday afternoons as the employees are.

Considerable apprehension was felt while the matter was being agitated lest the persons having a half day at their disposal should spend it in dissipation. If they do it is dissipation of the mildest kind. Our own observation goes to show that at about 12 o'clock on Saturday there is an unusual rush to the restaurants and lunch counters by persons who are hastening to catch an early train or boat to take them out of the city to spend Sunday, and all outgoing trains and boats are loaded to their utmost capacity. At the race tracks the attendance is quadrupled, while thousands take the places of hundreds in witnessing the public games of base ball. Yachting, canoeing and boating all have their devotees among the pleasure seekers. In short, as nearly every man has his hobby, he is pretty sure to indulge it in any leisure time he may have. Proprietors of down town saloons complain that their Saturday patronage has diminished wonderfully, while the summer resorts have been benefitted correspondingly. As a matter of fact, the Saturday half holiday does not appear to have developed any excess of dissipation, but has, on the contrary, given to many thousands of persons opportunities they

would not otherwise have had for spending an agreeable afternoon with their families in some quiet enjoyment. The effect upon business has not been perceptible; customers have learned to accommodate themselves to the new order of things, and there is no falling off in the volume of business.

While the law provides that the Saturday half holiday may be a permanent thing, it is not probable that it will be maintained except during the hot weather of Summer. When the cool days of Autumn come, Saturday afternoons will be devoted to business quite as diligently as heretofore. It is entirely optional with employers to allow the holiday or not, and there will be little occasion for their doing so. The active season of out-door sports will have passed by September, and there will he few attractions to divert the minds of men from business. The half holiday is essentially a provision for hot weather, and when that has passed there will be but few who will desire it or would know what to do with it if it was granted to them. Some of the retail stores have posted placards announcing that the store would be closed Saturday afternoons until the 1st of September, after which it would be open as usual. This is an indication of what will be the general practice. Meantime, those who are now enjoying the brief weekly vacation should make the most of it, and get as much of the country as possible.

Commercial and Political Honesty.

NEW YORK CITY has done the world a service in prosecuting and convicting its corrupt aldermen and their millionaire tempter, the notorious "Jake" Sharp. For thirty years this venerable speculator in municipal franchises has haunted the lobbies of the legislature and of the city government, seeking to bribe legislators and officials into robbing the people for his enrichment. When the crucial moment arrived, he was on hand with "barrels of money," which he poured into the pockets of those he had corrupted, in return for their votes to pass a measure that would enrich him. But outraged justice finally awoke, and the tempted and the tempter are now feeling the full penalties of the laws they had successfully defied for years. Sharp, now in his seventieth year, broken in health and nearing the grave, is a convicted criminal, awaiting in state prison the final summons to the hereafter, while two of his associates in crime bear him company in that lonely retreat for the vicious. Others have escaped to Canada, but the brand of crime is upon them that all may know them, and they are fugitives from home and country. It has taken New York many years to set its seal upon official corruption, and it is to be hoped that the lesson will be a salutary one. Other cities have been encouraged to hunt down their corrupt officials, who, no doubt incited thereto by the immunity enjoyed heretofore by their New York brethren, have plundered and pillaged their constituents boldly and without interference. There is a promise that some of them will receive the punishment they so richly deserve, but many will escape as they have here.

Commercial honesty has received some severe blows of late, notwithstanding which the public still makes a distinction between commercial and official honesty. That is to say, it assumes that business men as a rule are honest, but takes it for granted that a public official is or will be dishonest, the extent of his peculations being circumscribed only by his opportunities. This is, of course, unjust to many high-minded and deserving officials, but the frequency of peculations by public officers has led the public to believe that there is one code of morals for business men and another for public servants. There seems to be something in the atmosphere of politics that undermines personal integrity; men who are looked upon as possessing the highest degree of personal and business honesty will do things in politics and for their party or faction that they would not think of doing in their business relations. Judges upon the bench, who are regarded as thoroughly upright and honest, who enjoy the confidence of their neighbors and of the bar, will do things in a political campaign for which they would send another to state prison if done in an ordinary business transaction. It is an open secret that it costs every judge on the bench from five to ten thousand dollars to secure his nomination and election, and every other candidate for official position must pay tribute to his party according to the emoluments of the office to which he aspires. Those who are elected, it is safe to assume, expect to get back the money they expend in political blackmail as well as full compensation for their services. They are robbed, to begin with, by their party, and the party must, therefore, expect the officials to rob the people. The corruption that is known to exist in offices of public trust is inspired by the political parties who levy blackmailing contributions upon every aspiring candidate. The "Jake" Sharps and the "boodle" aldermen are the natural outgrowth of corrupt politics, and the wonder is not that there are so many corrupt officials, but that there are so many honest men in office. If the business of the country was subjected to similar corrupt influences, the result could not fail to be the same, for all men are human, and are substantially what circumstances make them. It is not necessary to endorse the doctrine of total depravity to reach this conclusion, but as Catholics believe in Purgatory, so we may believe that there is a medium somewhere between integrity and total depravity that constitutes a platform on which our dishonest business men and office holders hope to stand.

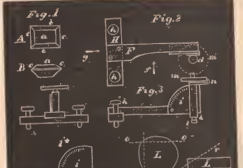
It may seem to be unjust to cast imputations upon office holders as a class, but, owing to the conditions we have named, it seems almost impossible that they should be honest. We know that it is claimed that they are as honest as the general average of mankind, but if the facts could be known, it would be seen that a larger percentage of office holders are dishonest than of business men generally. There is something about a political position that seems to change a man's nature, and cause him to regard lightly many things he would, as a business man and good citizen, unqualifiedly condemn. It is often asserted that commercial honor is at a lower stage at present than ever before, but the daily experience in our great commercial cities refutes this assertion. Transactions aggregating millions of dollars are made every day upon the various exchanges of our trade centers that depend for their fulfillment upon the personal integrity of the parties to them, or upon the rules laid down by business men for their government, and that are not dependent upon law or legislation for their enforcement. The business codes thus enacted have more force with business men than would be the case if they emanated from legistative halls, and are enforced with more vigor than any state statutes. That there are many defaulters and embezzlers is true, and that the American colony in Canada is constantly increasing is a lamentable fact, but the percentage of offences against business integrity is by no means on the increase; the business population is increasing rapidly, the methods of detecting crime have improved, and the means of disseminating news were never so great as now. The newspapers are on the alert for sensations, and the telegraph ably seconds their efforts, so that the greatest publicity is given to even minor offences. What might from such publicity, be held to be a carnival of crime, is but the average output of rascality more prominently brought to the surface. Who argues that commercial integrity is below par in these days, pays little heed to the immensity of the volume of business transacted in these times as compared with that which amused our forefathers, or to the fact that a very large proportion of it is done on the word of honor of business men, with nothing to bind them but their personal integrity. A short time since there was almost a panic in the wheat market in Chicago, but the men who lost millions of dollars by it took their punishment manfully, and by the honorable manner in which they conducted themselves, prevented a general panic throughout the country. To be sure, that little spurt brought to the surface two or three men who had gutted a bank, but these were hands of dol-

and not to be classed with the average of business men—if they could not have robbed the bank in the way they did, they would probably have resorted to the jimmy and the crowbar. They were criminals, and not business men, although assuming that garb. Whoever observes the signs of the times cannot fail to be convinced that the tone of commercial integrity is higher than it is in official circles. That it is so is due to the fact that in business there is no politics. When the political bee gets into a man's bonnet, his fine sense of honor is soon driven out. This ought not to be so, of course, but it is, nevertheless, the truth.

Advice to Watchmakers' Apprentices.

BY A MAN WHO HAS SPENT TWENTY YEARS AT THE BENCH.

IT IS WELL to understand first the principles involved in any mechanical process, and then go on and master the details. In lapidary work the elementary principle is using a harder material to cut or abraid a softer one. Mankind for hundreds of years knew of the diamond in its rough state but were unable to fashion it. Yet they were highly skilled in cutting the ruby, sapphire and other hard stones. If it were possible to make a file of a diamond we could quickly shape any other stone to our fancy, for a diamond transcends in hardness all other stones as much as a hardened file does a piece of spring-tempered steel. But as it is impossible to procure a diamond of such form we must resort to some method of combining particles of diamond with some substance (preferably metal, as far as we know the art of the lapidary) which will hold the particles of diamond, and present the sharp angles in such a way as to practically produce a diamond file. In practice we make a diamond grindstone by driving or burnishing in particles of diamond into a flat disc of metal. Copper being generally used, as it is for a cheap metal less affected by water than any other. But the great drawback to diamond laps is the particles of diamond are only imperfectly imbedded in the metal, consequently are torn out quickly. This is probably the case with fully four-fifths of the particles which were first applied to a lap after even a very short use. Consequently diamond laps are very efficient but expensive, and not much used by the practical lapidary. Wood and lead laps are used with emery and water for many of the coarser operations. Splitting or cutting of slabs or portions of the gem stones is done with a soft steel wire and diamond dust and oil. The wire is first charged by pressure and rolling in diamond dust on a hard steel bed. Thin strips of soft iron or copper, with water and emery, will also cut off slabs of all such stones as garnets, amethysts, agates, chalcedony, etc. It is of but little use to speak of such stones as the ruby, sapphire and emerald, as they are so rare and expensive no person except a professional lapidist will often be called upon to cut them. The idea of the writer is to furnish hints and instructions as will enable a careful reader to grind and polish such stones as are of the commoner sort, and speak only briefly of the rarer gems. Diamonds are cut with a soft steel or fine cast iron lap or mill, using diamond dust and olive oil; and in inferior diamonds one can see the grooves from the wheels on the facets. Some portions of rough diamonds are split away by striking with a punch; but only experts need attempt such a feat. Rubies and sapphires are cut with diamond dust as above, only a copper wheel is used, and the polishing is done with a copper wheel, using tripoli and water. The softer stones, like garnets, are cut on a lead wheel with emery and water. The most practical wheel for most operators of this kind is a hard brass wheel coated with soft solder. Such wheels hold their form better, and when the tin begins to wear off it can be re-coated and used for a long time before the brass gets grooved or cut so as to sensibly affect it. In cutting, such wheels are used with emery and water. The emery need not be too fine, but a grade coarser than what is termed flour of emery. The polishing is done with the same kind of lap, except tripoli and water is used. Some lapidists use a zinc wheel and putty powder, *oxide of tin*. But if there is any slight gain in brilliance of polish by this last method there is more loss in time. And I fancy few would detect the difference. I would say, however, that the zinc lap and putty powder is certainly the best for imitation stones and pastes. Some lapidists use boxwood laps for pastes and soft stones like opal. With wood laps use emery to grind and putty powder to polish. In May number I only mentioned lead and pewter wheels, and the brass wheel is a new departure from old methods. I have been led to recapitulate somewhat, but it is the great point in such work to understand first the principles, then the complete details. We come again to the so-called *dials* for holding the stone to be cut. The first part of this dial is a rod *k l*, into the end of which the stone to be cut is cemented. The end *l* of the rod which holds the stone varies according to the size and form of the stone to be cut. In this instance we will assume we wish to cut and polish a garnet to the shape shown in fig. 1, where *A* shows a top view and *B* a side view. We adopt this shape as being simple, and yet it contains the elements of all stones ground to facets. The professional lapidist can dispense with many auxiliaries which ordinary workmen will have to employ to produce satisfactory work. We will select a garnet in the rough, and flatten one side by simply holding it steadily on the lead lap, using emery and water until there is a flat surface produced as



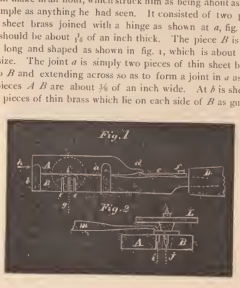
broad as we are sure will form the table or top *a*, fig. 1. The stone is now ready to be mounted in the holder or *dial*, as it is termed. The simplest form of dial is a T-shaped device shown at *F H*, fig. 2, and can be made mostly of hard wood. To consider it in detail, it consists of two pieces of hard wood *F H*, joined to form a T as shown in fig. 2. The piece *F* should be about 8 inches long by 2 wide (where it joins *H*), by ¼ of an inch thick. Metal would be as well for these parts, but scarcely any better and a good deal more trouble to make. The pieces *F H* are joined by 2 wood screws as shown. At fig. 2 the parts are shown as if seen from above, fig. 3 as if seen in the direction of the arrow *f*, fig. 4 as if seen in the direction of the arrow *g*. In addition to the wood pieces *F H* are 2 screws *h h*, for leveling and bringing the facets readily to surface in polishing. At *i*, fig. 1, is shown a brass quadrant for getting the angles for the facets. This quadrant is part of a circle 6 inches in diameter, and is shown separate at diagram *i**. It is screwed to the edge of *F* with 2 wood screws. At the point indicated at the upper termination of the dotted line *j* is a hole through which passes a screw which secures the brass tube *d* to the quadrant *i*. Through this tube passes a steel rod *k* which, with the cup *l* which forms the real holder of the stone. On this steel rod at *m* is mounted an index, which, by means of the hand *n*, indicates and controls the form of the stone as shown at *A*, fig. 1. To understand this more perfectly we refer to fig. 5, where the dotted line *o* indicates the first surface we grind, which we will assume corresponds to the facet *b*, fig. 1. We revolve the dial *m* 90° and grind the facet to correspond to the

line *p*, and so on until the 4 facets of *A* are formed. By setting the tube to certain angles by the quadrant *i*, fig. 3, and diagram *i**, the the angles of the facets are established, as shown at *r l*, fig. 5. This grinding to angles by means of the quadrant *i* and dial *m*, are the only difficult things to understand, but it is only by these means really beautiful and perfect work can be done. In my next communication I shall describe the parts and the method of working in detail.

Problems in the Detached Lever Escapement.

BY DETENT.

TYPOGRAPHIC error occurs in this series of articles in June number in the first line, ninth word; the word *one* should read our. The problem of shallow depths between fork and roller is one which should deeply interest all workmen. And we considered it to a great extent in our last (June) interview, but still some points remain to be considered. The writer in last article spoke of moving the jewel pin forward to correct the depth; but in doing this the jewel pin must be kept upright, and many workmen hate to disturb a jewel pin any way, and for this reason we have several patented jewel pin setting tools on the market. The writer has seen one any apprentice can make in an hour, which struck him as being ahout as effective and simple as anything he had seen. It consisted of two pieces of heavy sheet brass joined with a hinge as shown at *a*, fig. 1. The brass should be about $\frac{1}{8}$ of an inch thick. The piece *B* is about 3 inches long and shaped as shown in fig. 1, which is about half the right size. The joint *a* is simply two pieces of thin sheet brass riveted to *B* and extending across so as to form a joint in *a* as shown. The pieces *A B* are about $\frac{3}{8}$ of an inch wide. At *b* is shown one of two pieces of thin brass which lie on each side of *B* as guides and



are simply riveted to *B*. The piece *A* at *d* is filed in any shape which will give a graceful look to it. Underneath *d* a spring *c* is placed to hold *A B* together. The spring *c* is held by the screw *f* At *i* are shown three small notches in *B*. Two or even one notch would answer. These notches are simply to hold the jewel pin upright and steady while being set. The notches at *e* are filed in from the lower edge and are to admit the staff. The method of using this tool is to select a jewel pin of the proper size and place it in one of the three notches shown at *i*. If it is an American jewel pin having one flat side, the straight flat edge of *A* pressed gently by the spring *c* will hold the jewel pin in place and perfectly upright. Of course, it is understood that enough jewel pin extends upward from the clamp *A B* to extend through the roller. The hole for the jewel pin in the roller is cleaned out so the jewel pin will go readily into place. A transverse section of the tool is shown on the line *g* at fig. 2. This view is as if seen in the direction of the arrow *h*, fig. 1. Fig. 2, at *E*, a balance staff is shown extending downward on the dotted line *j*. With this device a jewel pin can be set by holding directly over the lamp, for as long as the staff lies in the notch *e* there is no danger of overheating and bluing the staff. The notches at *e* can be filed in from the outside and should not be much wider than the diameter of a staff When such a tool is used to move a jewel pin outward to cure a shallow depth, the jewel pin need not be removed; all that is necessary is to insert the jewel pin in the notch *i* and warm up the holders *A B*, and gently move the balance outward in the direction of the line *g*. It might be well to countersink slightly around the notch at *i* to prevent the shellac from adhering to *A B*. The hole for the jewel pin can be filled from above whith shellac dissolved in alcohol or strong spirits of ammonia; no matter which solution is used it should be as thick as molasses. A very good way to apply shellac is with a match stick whittled down as shown at *m*, fig. 2; the extreme end can be bent slightly down as shown. A match holds shellac better than pegwood as it is more spongy. In the American factories they use shellac drawn out into fine threads, and the girl setting jewel pins will set two correctly before one could get a jewel pin setter of any kind fairly in operation. But such skill is only acquired by long experience and maintained by constant practice. A jewel pin can be set either in or out from the staff and in this way cure depths which are too great as well as too shallow. So far we have not considered the result of this last mentioned fault in a separate problem, and, indeed, it would be troublesome to determine with certainty, except we had such a tool as we have been making for ourselves for measuring the angular motion of an escapement. Now, let us take thought together about the condition of our escapement; if we should test our pallet and fork action with the little tool we have just made and found our fork to have just 10° action, and of this 1½ or 2° was lock and 8½ or 8° were impulse, and this condition is alike on both pallets, well, this is as it should be. If, now, our jewel pin will not pass out of the fork on either side we know the depth is too great. If it will pass out on one side and not on the other we know our lever is oblique, and most of our workmen would open the bankings a little on that side, and get too much lock on that pallet. This is not as it should be; we should do our work as well as we know how, and know how to do it as well as anybody. If we do not, some skilful fellow will go into opposition to us and people will find him out and he get the work to do. No matter how much we may hate to tackle the problem we must do it, or it will end like the boy who plays truant to school, find out in the end that cuteness alone will not match cuteness and education combined. To resume our problem: Some American watches have the lever loose as regards the staff, the pallets and staff being joined by two screws. In this case the screws can be loosened and the fork turned a little; but it is a job attended with dangers to the inexperienced; but to all who read these papers I would say, *conquer the dread by mastering the problem;* you know your pallet action is all right by testing and keep at the fork until it is all right. There can be no specific directions given for setting a lever fastened with screws which is found to be oblique, except to possess a thorough knowledge of the principles involved and an exact conception of the condition of the parts when right. In such levers as are rigidly attached to the pallets we have no way to proceed, except to move the pallet stones to match the correct fork and roller action by setting the pallets to conform to the fork. For instance, we banked the fork to exactly 10° action, by means of the indictor we have made, and the jewel pin passed freely in and out of the fork, and no trouble indicated as shown at fig. 2, June number; we should be well assured that our fork and roller action were very near correct. We now bring the pallet action to conform to the banking and get correct lock and impulse action; we can feel tolerably well assured our escapement is in good order, and if the balance has good free pivots our watch will run on half time as described in June number. We have another lack of power which our indicator will detect by applying to the arbor of the scape wheel, but this must be carried over until next interview.

The Stem Winding Mechanism.

[BY MORITZ GROSSMANN.]

Continued from page 189.

AFTER THE foregoing observation on the nature of these two principal classes of stem winding mechanism and their essential functions, it remains to make a few remarks about the way in which they are applied to the movement. The movement represented in fig. 1 admits, for hunting watches, the application of the stem winding mechanism without the slightest change in its disposition, except setting the pillars a little further toward the edge of the plate, in order to have the pillars a little further toward the edge of the plate, in order to have the pillar screws free of the large winding wheels. The lower pivot of the third wheel pinion, also, will have to be set in the pillar plate instead of the bar, because the room at this place will be required for the minute wheel.

If the winding wheels are to be level with the upper plate, this latter must be left so much thicker—a very commendable plan, because it utilizes the additional height required for the winding wheels to give greater length to the axis of the train. In any other respects the disposition of the movements and all its parts is the same, whether it is a stem winder or a key winder.

The arrangement of the stem winding mechanism in an open-faced watch, on the contrary, is rather difficult if the winding operation is to be performed at the pendant, which is the most convenient of all the places that might be assigned to it. The pendant of an open-faced watch always corresponds to the XII of the dial, and if the watch is to have a seconds hand on an eccentric dial, which is the general rule for the watches of our period, the position of the barrel with respect to the pendant can only be altered within very narrow limits, if essential deviations from the principles of the train are to be avoided.

In a well-constructed movement, see fig. 1, the angular distance between the pendant line and the barrel center, taking the center of the movement to be from the summit of the angle, is about 20°; while in the same movement, when put in a hunting case, the pendant of which is at the III of the dial, this angle is 90—20=70°, a very convenient distance for the placement of the stem winding mechanism, while 20° are wholly insufficient for the purpose.

For avoiding this difficulty several methods have been invented, and there was hardly any proceeding showing more forcibly the necessity under which the constructor of a watch constantly finds himself to subordinate his better knowledge to the taste and to the habits of the public. Making the stem winding open-faced watches without seconds would do away altogether with the difficulty, since the place of the barrel may then be chosen quite freely, but the public want all watches with seconds.

It has been tried for a considerable period to arrange the dial in another way, so as to have the seconds dial at another place, say at the VIII or IX of the dial, but the taste of the public refused the offer, though irreproachable from the constructional point of view. Symmetry of the dial was pronounced an imperative necessity.

In this awkward position it may be called a very ingenious expedient that some manufacturer tried to establish the sacrificed symmetry of dial by adding a date hand to it, symmetrically situated with the seconds hand; but the additional cost of this dial, for which no essential want was existing, was again an objection.

Others, again, provided the train with an auxiliary fourth pinion, serving merely to carry the seconds hand. This system realizes a sufficient distance between pendant and barrel for the placement of the stem winding mechanism, with the seconds dial at its usual place; but it must be objected to so much the more, as it not only burdens the train with moving an auxiliary axis, but also with the friction which must be applied to this pinion by a small spring in order to prevent the shake of the toothing being indicated by the seconds hand.

It is possible to increase the above-mentioned angle by adopting essentially smaller train wheels. In the generally adopted type of the Swiss manufactures, this angular distance is often increased up to 30°, and even 35°, on account of the wheels being much smaller than they might have been with respect to the room afforded by the dimensions of the frame. A further increase might be obtainable by approaching the third wheel to the barrel, so as to have it go under the toothed rim of the latter, at the proper distance for leaving it just free from the cylindrical part of the barrel. But with all these various efforts and the constructive defects involved in them, it is not possible to establish sufficient room for the stem winding mechanism.

For attaining this purpose a step of greater boldness was necessary, which, notwithstanding its infringements against the principles of sound and correct construction, has been sanctioned by the trade and public in the absence of a better expedient.

It consists in placing the third wheel pinion with its arbor quite close to the periphery of the barrel, and the necessary space for the wheel must be granted above the center wheel. The drawbacks of this arrangement are evident; the additional height of frame required by the super-position of the wheels, and the close disposition of three large moving parts, one over the other, are certainly very grave objections, but a watch is, more than many other articles, dependant upon the reigning taste, to the tyranny of which its construction must be subjected; and this must account for the fact that almost all open-faced stem winding movements are disposed of in this way.

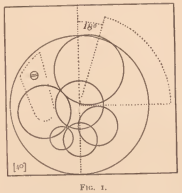


FIG. 1.

It must be said in favor of this method that all the parts of the stem winding mechanism are the same, and may be indifferently used for open-faced and hunting watches, and that all the parts of the train may be executed of the same regular dimensions as in a key winding watch of the same size.

If there be any way of overcoming the inconveniences in the construction of stem winding watches, it must be found in the employment of another system of transmitting the winding power. As long as flat, bevel and contrate wheels are exclusively employed, the difficulty can only be eluded by a construction just as vicious as the before mentioned ones. A combination of an endless screw and one or two angular gears seems to afford a greater liberty of disposition; but I have not seen as yet a commendable construction of this kind. It seems the idea has not yet been sufficiently studied.

The source of difficulty lies evidently in the following circumstances: If the winding operation is to be performed with a certain moderate number of revolutions of the winding knob, a very small wheel on the barrel arbor must be selected for receiving the action of the screw, but then the place for this latter must be granted above or under the barrel, and this necessarily increases the height of the movement. If, on the contrary, the wheel in the barrel arbor is large enough to admit the screw gear beyond the circumference of the barrel, the winding would be so excessively slow as to necessitate a transmission of power by a multiplicative train.

Some time ago I combined an open-face stem winding movement

with greater ease in the arrangement of the train, by having a rocking platform under the dial. The pendant and barrel are at an angle of 45°, taken from the center, and the sizes of the train wheels are quite normal. The third wheel is fastened to a collet on the lower end of the pinion arbor, and moves in the space between the barrel head and the lower bridge. This space is quite sufficient for having the barrel and the third wheel amply clear of each other, and on the other side of the barrel the center wheel is placed quite in the usual way. A movement on this plan is hardly any higher than a key winder of the same breadth of mainspring.

It remains now to speak of some other designs for winding in which the force is not applied by the pendant. There were some old watches with a kind of keyless action, by turning the dome of the watch case. This, however, has found no adoption, in consequence of the impossibility of a dust proof adjustment of the case, and because there were no means of setting the hands, except in the usual way, by using the key.

Other inventors had a circular rack, operated on by a slide pro-

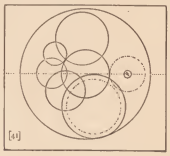


FIG. 2.

jecting from the outside of the case, then winding by an intermittent or reciprocating action.

Others, again, utilized the up-and-down motion of the front cover of a hunting case for winding up a small part of the spring on the supposition that a hunting watch will undoubtedly be opened a certain number of times during the day, and thus be kept going. It is not difficult to estimate the value of an arrangement based upon such suppositions for its efficiency. If a small number of repeated openings and shuttings of the case is sufficient to maintain the daily march, then the strain on the joint of the front cover of the case must be excessively strong, and the consequence of it is the rapid wear of that joint. If, on the contrary, a considerable frequency of manipulations are required, this strain is less dangerous, but the device is liable to fail if the watch is not opened so many times.

(*To be continued.*)

RECENT PATENTS

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of June 14, 1887.

364,971—Clock, Street. A. Staib, Baltimore, Md.

365,023—Clocks, Electric Synchronizing Apparatus for. A. Ramel and W. W. Dean, St. Louis, Mo.

365,032—Watch. F. B. Von Wechmar, Hanover, Germany.

Issue of June 21, 1887.

365,257—Bracelet. T. C. Hudson, Providence, R. I.

365,115—Chain, Ornamental. S. O. Bigney, Attleboro, Mass.

Issue of June 28, 1887.

365,493—Clock, Electric Alarm. M. Strecher, Philadelphia, Pa.

364,688—Watch Regulator. C. E. Jones, Elgin, Ill.

365,595—Watch, Stem Winding. W. W. Hastings, Jersey City, N. J., Assignor to New York Standard Watch Company, New York, N. Y.

Issue of July 5, 1887.

365,981—Watch Case. R. E. Fenner, Assignor to C. K. Giles, Chicago, Ill.

365,984—Watch Case. C. K. Giles, Chicago, Ill. (6 patents).

365,825—Watch Case. W. Lang, Brooklyn, N. Y.

365,826—Watch Cases, Process of Manufacturing. W. Lang, Brooklyn, N. Y.

365,085—Watch Dials, Making Enameled. E. C. Fitch, Newton, Mass.

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WM. H. JENKS.....With Tiffany & Co.
A. A. JEANNOT.....Of Jennot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address "*Jewelers' League, Box* 3,444, *P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee held Friday evening, July 1, 1887, there were present Vice-President Bowden, and Messrs. Greason, Bardel, Jenks and Sexton.

There were 5 changes of beneficiaries granted.

One application was rejected, one was referred for investigation, and the following applicants were accepted:

Harry Ankel, San Francisco, Cal., recommended by J. Dinkelspiel; Polk Harris, Columbus, Ga., recommended by Wm. Bardel; Geo. A. Jewett, New Haven, Conn., recommended by F. E. Morgan; Louis W. Wise, North Attleboro, Mass., recommended by T. I. Smith.

The following communication was received from Messrs. H. W. Rupp, W. F. Michael, J. W. Shuler and others doing business in Philadelphia:

To the Executive Committee of the Jewelers' League:

GENTLEMEN—The undersigned members of the League doing business in Philadelphia, request that you present for action at the next Annual Meeting an amendment, or if necessary, a series of amendments which will, if adopted, give the members of the League who reside outside of New York City some voice in the management of its affairs.

The communication was referred to a special committee to be acted upon at a future meeting.

The next meeting of the Executive Committee will be held on Friday, August 5, 1887.

The following communication was sent to the members of the League with the last assessment notice. A generous response is being made to the appeal.

NEW YORK, July 2, 1887.

To the Members of the League:

An appeal is made to you in behalf of the family of a recent member of the League, the late Charles F. Glover, of Providence, R. I.

He joined the League January 11, 1878, thus being one of its earliest members. He dropped from membership in March, 1887, having paid every assessment made up to that date. On May 7 he died, leaving in destitute circumstances his family, consisting of a wife and three children.

The only action that your Executive Committee can take, is to lay this case (a pitiable one indeed) before you for your consideration.

Any remittances made in reply to this appeal will be immediately forwarded to Mrs. Glover. Yours respectfully,

WM. L. SEXTON, *Secretary.*

GOSSIP OF THE MONTH.

WE HAVE alluded to the fact that Mr. W. G. Ascher, of New Orleans, had been arrested in Texas for neglecting to take out a license under the "drummers'" license law. He sued out a writ of habeas corpus, returnable before the Court of Appeals of that State, and a hearing was granted. Judge White refused to release Ascher, thus holding the State law to be valid, notwithstanding the decision of the Supreme Court of the United States. In his decision, Judge White ridicules the decision of the higher court, saying that it is contrary to previous decisions rendered by the same court, and that it virtually offers a premium for non-citizenship. It is interesting to learn that down in Texas they have a legal luminary capable of teaching law to the highest judicial officers in the land; he should be secured at once and located in Washington, where his advice could be more readily availed of by the government. But this decision serves to confirm what we have said relative to this matter, which is that those States that still preserve the oppressive tax on commercial travelers will not recognize the decision of the Supreme Court until their own special law is made the subject of such decision. In other words, Texas and other States will continue to enforce the law of its own making until a case has been carried to the Supreme Court and the law there declared to be unconstitutional. The shortest way to overcome this difficulty will be to have Congress pass a law based on the ruling of the Supreme Court, declaring all such laws unconstitutional. Congress has declined to do this heretofore because it would look like interfering with State rights, but if the States refuse to obey the Supreme Court, there would seem to be good reason for the legislative branch of the government to interfere for the protection of trade and commerce.

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THE Jewelers' Exchange in the Astor House was formally opened last month. Three rooms have been nicely fitted up, on the Barclay street side of the house, for the accommodation of the members, and it is expected that they will be extensively used by the trade. At the meeting held for organization, the following-named gentlemen were chosen officers for the current year: President, Theodore J. English, of Newark; First Vice-President, Walter Gardiner, of Providence; Second Vice-President, Stephen Albro, of Providence; Secretary and Treasurer, John W. Scobell, of New York. A governing Committee and sixteen Directors all members of the trade, were also elected. There is a good field of usefulness open to the Exchange, which may be cultivated to advantage under active and efficient management.

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DIRECT and extended postal intercourse between foreign countries is calculated to stimulate and develop more intimate commercial relations between such countries. The recent postal treaty entered into between the United States and Mexico, whereby parcels are permitted to be transmitted the same as in the home mails, has already made overtures in this direction, and, as the policy of our government favors the greatest possible postal facilities, it is highly probable that such treaties will be entered into at no distant day. Under our laws, it is permitted to send through the mails packages of merchandise, not exceeding four pounds in weight, at very reasonable rates, and, if such packages are properly put up, they are delivered in good order and with commendable promptness. The mails are thus utilized to a considerable extent in sending merchandize possessing no excessive value and that is not perishable, but jewelers do not avail themselves of this method for the reason that their goods are generally too valuable and offer too great temptations to those who have the handling of the mails. Still, if other branches of trade so use the mails, it is good for commerce in general, as it lends to promote international intercourse. The jewelry trade, like all others, has a capacity for production that exceeds the demand for their products, and the opening up of new markets would be a great boon to them. Our merchants ought especially to control the trade of this continent, and their facilities for transacting business both North and South of the United States should be such that the merchants of no other nation could compete with us on this side of the Atlantic. Whatever the government can do towards facilitating international commerce is a step in the right direction, and should receive the hearty endorsement of all trades.

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DURING the recent session of the legislature, the Board of Trade and Transportation attempted to secure the passage of what was known as the Cantor Anti-Preference bill, prohibiting the giving of preferences in cases of bankruptcy. It soon became evident that this bill could not be passed, so the friends of it resolved to accept the next best thing, and concentrated their efforts on the Walker bill, which passed both houses and was signed by the Governor about the end of June. This law is amendatory to previously existing laws, and provides that in the assignment of the estates of debtors for the benefit of creditors, any preference created therein, except for wages and salaries of employees, shall not be valid "except to the amount of one-third the value of the assigned estate left after deducting such wages and salaries, and the costs and expenses of executing such trust; and should said one-third of the assets be insufficient to pay in full the preferred claims, to which, under the provisions of this section, the same are applicable, then said assets shall be applied to the payment of the same *pro rata* to the amount of each of said preferred claims." This is now the law of the State and while it does not do away entirely with the evil of preferred

claims, it restricts it somewhat, and is better than nothing. The Board of Trade and Transportation does not propose to give up the fight for the Cantor bill, but will renew it each winter till something better than the above is secured.

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THE celebration of the fiftieth anniversary of the reign of Queen Victoria was the occasion of one of the grandest pageants of modern times. London was filled with sightseers from all countries, including many representatives of royalty, and the festivities were kept up, in various forms, for many days. But the great event was the procession to Westminster Abbey, wherein the Queen and the royal family participated. Several representatives of Maiden Lane jewelry houses were among the onlookers, and they say that nothing they ever saw equaled the magnificence of the display on that occasion. The trade in London reaped some benefit from the event, as many very valuable jewels were given away by the Queen and others in commemoration of the event. Many thousands of pounds found their way into the coffers of the jewelers in consequence of the Jubilee.

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EARLY in July there was a very quiet and orderly revolution in the Sandwich Islands, which deposed the extravagant ministry of the King, and compelled the King himself to make concessions to all the demands of the people. This bloodless revolution was provoked by the extravagance of a dissipated King, who had practiced all the tricks known to 'boodle" aldermen to obtain money to maintain himself in idleness and to cater to his vicious passions. He had a cabinet that abetted him in his wild and reckless career, for in doing so they were enriching themselves. Already the credit of the Islands has been mortgaged to its full value, and still the King cried for more money. Business has been greatly depressed there for several years because of this condition of things, and the loss of trade has been very considerable. The straw that broke the patience of the people was the fact that the King sent for one of the wealthy Chinamen and offered to sell to him the right to bring opium to the Islands, to demoralize his subjects, for a money consideration. The Chinaman mortgaged his plantation and gave the King $75,000, after which the opium permit was given to another person who probably paid more. The Chinaman demanded his $75,000 back, but the King refused on the ground that it was bribe money. Soon after this transaction placards were posted about the city offering a reward for the head of King Kalakaua, and the Chinamen seemed so determined to earn it that the King barricaded himself in his palace. Finally, a grand mass meeting was held, at which were present representatives of all nations, and resolutions were passed requiring the King to immediately dismiss his cabinet officers, and to select a person named in the resolutions to form another. They also demanded that he should not in future interfere in the election of members of the legislature nor with legislation, and also that he should restore the $75,000 bribe money. The committee appointed to deliver the resolutions to the King was instructed to demand an immediate answer, and the King seeing that they meant business, sent an answer to the meeting promising everything that had been asked. The cabinet minister against whom feeling was strongest attempted to escape from the Islands, but was arrested and held prisoner at last accounts. All this may seem to be of little interest as a matter of jewelry news, but dealers in San Francisco will rejoice at this turn of events, for they have enjoyed a liberal trade with the merchants of Honolulu. Many Americans are located there, and they, together with some Englishmen and Chinamen, virtually make up the business population of that city. They are active and intelligent, and form a community that is exceedingly enterprising. Many of these merchants are liberal buyers in New York and Boston, where they have correspondents employed constantly in sending them goods. The large sugar plantations make a great demand for machinery, etc., and, as they have made their owners wealthy, these indulge liberally in all the luxuries of life. All persons familiar with the condition of the Sandwich Islands will rejoice that a revolution has been effectualy consummated without bloodshed, that promises to restrain their "bummer" King and restore the former prosperity of the Islands.

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IT WAS a big bill that the country has to pay for its fourth of July fireworks this year. For some reason there was a demand for an old-fashioned celebration, and the ordinances relating to the setting off of fireworks were relaxed in all sections. As a necessary result there was an unusually large number of fourth of July fires, and the losses were many times greater than is ordinarily the case. In New York city there were ninety-four fires during the twenty-four hours including the fourth, fully two-thirds of which were due to fireworks. One that occurred on Broadway Saturday night originated among fireworks in the cellar and two lives were lost, so quickly did the flames spread through the building. This occurred in the heart of the dry goods district, where are stored hundreds of millions of values, and but for the heroic efforts of the firemen the flames would have devastated this whole district. In Pennsylvania, one thriving village in the oil region was almost entirely destroyed by fire, the inhabitants being rendered homeless and obliged to live for some time in tents, while neighboring towns supplied them with food. In other sections the number of fires was excessive, and the losses for that one day were greater than the value of all the fireworks in the country. It is all well enough to celebrate the anniversary of our national independence, but we ought to devise some better way of doing it than destroying life and burning up property. We might imitate our English cousins in this respect, who have recently had one of the grandest celebrations of modern times without accident of any kind to mar its success.

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SPEAKING of fires, underwriters have been having a scorching time this year in New York and vicinity. The losses for the six months past have been greater than were the losses for the whole of last year, and some of the companies have paid out for losses three times as much as they have received in premiums. The total losses for the country for the six months ending with June are stated at over $62,000,000, while for the whole of last year they were $110,000,000. When it is conceded that these losses are due almost entirely to carelessness, recklessness or malice, it behooves every individual to cast about and ascertain to what extent he is responsible, or whether certain of his careless acts are not liable to invite a visit from the "fire fiend." Whatever the loss may be it has to come out of the pockets of the property owners, for the insurance companies do nothing more than collect from the many and pay the losses of the few. If premiums collected will not pay losses, expenses and dividend to stockholders, they put up their shutters and retire from business, for they do not propose to use their capital for these purposes. In some of the European countries when a fire occurs through the carelessness of an individual, he is liable in damages to his neighbors for any injury resulting to them in consequence, and is debarred from collecting anything from the insurance companies. Such laws in this country would very speedily reduce the amount of our fire losses materially.

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THE Jewelers' Board of Trade makes but little noise in the world, but goes right along with its good work all the more effectively for not stopping to talk much about it. Its officers believe more in performance than promises, and all who are familiar with its work-

ings are satisfied with what it does. It keeps its members well informed as to what is going on in the trade of material interest to them, and is thoroughly practical in all its work. Secretary Condit has proved to be the right man for the important position he holds, and discharges his duties with intelligence and discretion.

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ONE of the members of a prominent firm in the trade who recently returned from an extended tour through the South and West, says that he never found the retail dealers in better spirits or more hopeful than they are this season. They have had a good trade for two years, nothing remarkable, but fair, steady selling throughout the entire year; they have liquidated their indebtedness to a very large extent, and are in better condition to enter upon the fall trade than they have been for years. Add to this the fact that the crops have been excellent everywhere, and that this promises to place plenty of money in the hands of the producers, who will distribute it liberally among the merchants, and the outlook is regarded as particularly good. He says few can appreciate the magnificent progress made throughout the South unless they have been there to witness it. Villages have grown into cities, and old cities have put on the vigor of youth to keep pace with the progressive spirit that is moving over the country, and all are showing more enterprise than it formerly was thought possible to work up in the South. In addition to the progress manifested by those cities that have been persistently "boomed" in the newspapers, there are many of the old places that one hears but little about that have taken on a new growth and are manifesting wonderful improvement. It is as though that part of the country had been asleep for many years, and has now awakened to the fact that, with all its advantages, it has permitted itself to fall far behind the age, and that it is necessary to put forth its very best efforts to catch up. Public improvements are being made in almost every place, and private enterprise seems to know no limit. Our informant says that he attributes much of this to the generation that has come up since the days of slavery, and have escaped the education that formerly led the young men of the South to think that it was degrading for them to engage in money-making undertakings. So many of the old property owners lost their property that their sons have found it necessary to go into business, and when they have once made up their minds to do so they do it with all their heart and all their intelligence. They have ascertained that their country is overrunning with undeveloped wealth, and that they can make fortunes out of their own soil quite as readily and as quickly as to go elsewhere. As a consequence, all kinds of business is improving, and the South to-day offers one of the best fields for enterprise that can be found in the country. As a result of his tour, our informant looks forward to an excellent fall trade, and proposes that his house shall be in a condition to take advantage of it.

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WE HEAR that one gentleman connected with the jewelry trade who occasionally takes a "flyer" in stocks, was badly nipped in the same deal that squeezed Cyrus W. Field so badly. When Manhattan Elevated stock took such a serious tumble our friend happened to be well loaded with it, and rumor says that it cost him a sum written with five figures to unload it. It is a ticklish thing to play with fire, and a person engaged in legitimate business has no right to be fooling with stocks that are but gambling instruments in the hands of expert players, who rejoice in sacrificing the lambs every little while. The Manhattan business was a nice little game of diamond cut diamond between Jay Gould and Cyrus W. Field, and whoever came between them was sure to be pulverized. Field got a taste of the same sauce he once served to Samuel J. Tilden, but he does not swallow it with the same good grace. There seems to be a great fascination in the Stock Board for some, as there is in faro banks for others; for ourselves, we would quite as soon put our trust in the faro bank as the Stock Exchange, but should expect to be loser in either place.

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WE ARE continually receiving from our subscribers acknowledgements of the value to them of the monogram plates that we are publishing with THE CIRCULAR from month to month, and it is exceedingly gratifying to us to know that our efforts to supply the wants of the trade are appreciated. These plates are, we believe, the only ones of the kind published, and are conceded to be not only artistic, but very practical. From the series any dealer will be able to satisfy any reasonable customer who may want a monogram engraved, and for this purpose they should carefully preserve THE CIRCULARS containing them. Every subscriber, at a cost of $2, obtains a series of monogram plates that would cost him $10 in book form.

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WHEN Queen Kapiolani, of the Sandwich Islands, was in Boston recently, she and her suite were entertained by the city authorities. It is asserted that some of the aldermen and other officials behaved in a most scandalous manner at the entertainments, and that those who were responsible for the property exposed—knives, forks, spoons, napkins and table furniture generally—found themselves short in consequence when they took an account of stock. Next day the papers were full of the scandal. Among other places of interest visited by the queen was the factories of the American Waltham Watch Company at Waltham. Having been appised of their coming, the president of the company, Mr. E. C. Fitch, desiring to make as good a display as possible of completed work, went to the Boston office of the company and had sent to the factory a number of movements and cases, which were carefully packed in boxes. Then the queen and her suite, accompanied by Boston aldermen and city officials, descended upon the factory, and were genially and hospitably entertained by Mr. Fitch and the other officers of the company. But after looking over the crowd and sizing up the Boston contingent, Mr. Fitch concluded it would not be policy to expose to view the movements, cases and completed watches he had brought out from Boston, so the packing cases were not opened. The queen expressed her delight with all she saw as to the manufacture of watches, etc., but will probably never know of what she was deprived, by reason of the bad company she was in, unless she happens to see this paragraph. Boston aldermen are not regarded as desirable visitors where valuable property is left about promiscuously.

An Improved Trial Frame.

WE ILLUSTRATE below a new trial frame for the use of oculists and opticians that has several points of excellence not found in others. Fig. 1 is a front view, fig. 2 a side or sectional view. The steel rods *P P P P* are fastened rigidly in the metal block *M* and make the backbone of the frame. The screw *B B* governs the distance between the temples and the lens holder, carrying them towards or away from the center by the right and left hand thread. The nose rest is faced with shell and is easy to the wearer, and has an up and down and in and out motion, and can be placed in any desired position with reference to the lenses. The lenses can be

adjusted to the pupillary distance quickly. The lens holders *K K* are attached to steel shanks *I I* which pass up into tubes *H H*, and are

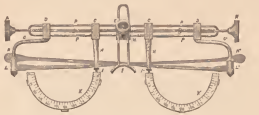

FIG. 1.

held there by cap, nut and spring, but free to rotate on their axis as shown in fig. 2.

The cumbersome rotation rings are omitted, and the operator finsd the method of holding the lenses is practically easier to manipulate than with the concentric rings. The principal points of superiority are that it is but about half the weight of the Nachet or other ordinary frame. It is made of steel where possible, and is therefore more rigid and durable. It allows three lenses for either eye, or, after a combination of spherical and cylindrical is made, it allows that they

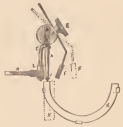

FIG. 2.

may remain in position while testing the other eye, a solid disc being placed with them to shut off vision.

The frame does not have to be taken from the face to exchange the lenses or to test improvements made by the lenses, as either eye can, by a touch, be swung on its shank outwards. This frame allows the lenses to be brought about one-half inch nearer together to get pupillary distance on children or narrow-faced people than any other, a point frequently of great value.

The nose rest is much easier than any other as it is faced with shell. The vertical adjustment to nose rest is excellent, and the horizontal movement in and out to throw lenses away from or towards the eyes is a great improvement. The frame is made by the Geneva Optical Company, Geneva, N. Y., who have kindly permitted the use of their illustrations in advance of their use in catalogues.

Fashions in Jewelry

A Lady's Rambles Among the Jewelers.

THERE is every reason for believing on this, the threshold of a new season, that manufacturers, generally, have made unusual efforts to please the trade. The new goods seen do credit to the brains that conceived and the hands that designed them. While it cannot be said that any radical changes have appeared, either in jewelry or in silverware, it is safe to assert that patrons will find this autumn a bewildering variety of pattern and finish in all lines of goods. This diversity of styles runs through the several grades, affording thereby wide field for selection, with a correspondingly wide range as regards prices.

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MUCH ingenuity has been exerted in the production of fresh fancy articles that may please by the novelty of their form or finish. Much thought and labor have been expended, too, in the perfecting of old favorites and standard articles, many of which appear in new dress and are therefore entitled to the name of new goods. In illustration of an attempt at leaving the ordinary groove of brooches in favor of a unique pin, may be cited a luscious strawherry formed of rubies, placed in a gold setting that simulated the seeds of the fruit. Another novelty in way of brooches seen simulated an oyster shell, in the center of which rested a remarkably fine pearl.

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A QUAINT design in match safes likely to have a big ran is the one that copies in silver an old shoe with turned down top, the nails in the sole being represented by diamonds or other gems. This novelty furnishes a pretty and convenient gift to a friend on the eve of a voyage; also a graceful offering from ushers on the occasion of a wedding. In a word, this bauble affords an elegant substitute for the literal throwing of an old shoe after departing guests and brides for "good luck."

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QUITE new bracelets are spiral ones with overlapping ends, enameled and set with gems. Then there are bracelets, the overlapping ends of which are finished in imitation of Indian arrow heads with variegated gold. Woven wire bracelets, on which are set a square solid gold medallion incrusted with gems, are other novelties in this line. Open curb chain bracelets, in the center of which appear diamonds, rubies and sapphires, have appeared with new designs. Another novel style is represented by a wide band bracelet with a rough surface, in which are set three stones of contrasting color.

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THERE appears to be no diminution in the demand for enameled jewelry. Flower pins are, if possible, more worn than ever, and, at the present time, the white enameled jewelry is having a run. Not only have appeared white enameled flowers in gold and silver, but there are white onyx pins as well, with long polished stems of gold and a diamond center. English violets, pansies, the clover leaf and daisies continue to be favorite models in the flower pins.

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NUMBERED with new brooches are round ones in red gold, with a gem set center and grain work ornamentation. There appears to be quite a tendency to the making of brooches with a fancy stone of large size in the center, bordered either with gems or a band of carved gold.

THE present popularity of the finger ring has never been exceeded in this country. It is an ornament literally worn by everybody. Young old and middle-aged, of both sexes, patronize it. Our women, even during that season of suspension of much jewelry under the decree of Dame Fashion, did not lay aside their finger rings; these they continued to wear in face of the decree that induced the sterner sex to hide away their watch chains under their waistcoats, and drop finger rings, along with gold studs and other jewelry, into the recesses of jewel cases and bureau drawers. With the resumption of gold ornaments, the feminine portion of humanity simply doubled the number of their finger rings, while the men appeared to be making up for lost opportunities, not only by wearing a larger number of rings than was admissible previous to the suspension, but by selecting unique and striking combinations.

RINGS are again worn on both hands by both sexes, all fingers being free to receive them, the thumb alone excepted. While the third finger is the preferred one among men on which to wear rings, the little finger, in many cases, comes in for its share of decorations. Two leading styles of rings for men are the ones previously described, as a gold band with three stones imbedded therein, and a one stone ring or a medium sized seal ring. When the gentleman confines himself to these two styles, he usually wears one on each hand, the third finger being in each case the one that is decorated. It is not unusual to see on the same finger and hand a gem ring and a silver ring of unique pattern.

THERE is, among the New York men, a decided *penchant* for gold and silver rings of unique form, such as serpents, links and chains of intricate pattern, ram's head rings and the like. Rings of silver, wrought in curious patterns, are much worn, and there is a fancy among the younger men to wear a silver ring of the sort described on the same finger with a gold ring. Indeed, it is not unusual to see a silver ring in company with a gem set one. Again, one sees a fine gem or a remarkable stone in a silver setting.

SINGLE stone rings, especially where the gem is a fine one, continue favorites with ladies, and afford a pleasing contrast to gem rings in other styles. Clusters are all the while gaining in popularity, as are all sorts and kinds of fancy rings.

FOR the fall trade are being made up in endless variety fancy rings set with choice garnets, spinels and opals; the latter, it is believed, will have a decided run. Fine ruby cluster rings are highly prized by those who can afford the genuine gem with its pigeon blood hue. When these are not obtainable, spinels of choice color are patronized. It may be explained, in this connection, that many of these spinels cannot be distinguished by the average buyer from genuine rubies, although the difference is evident to a jeweler or connossieur. Some very beautiful finger rings seen recently were set with spinel rubies surrounded by brilliants.

THE superstition regarding the opal appears to be dying out rapidly, and the feeling very generally exists that this most beautiful gem is destined to have a successful run. With the revival of opals has come to the public's notice, very naturally, Mrs. Leland Stanford's famous opals, representing an intrinsic value to the amount of $4,000, and no end of additional interest on account of the fact that they were formerly owned by the ex-Empress Eugenie. These jewels consist of a pin and a pair of ear rings, of opals set around with brilliants. The opals, which form the center stone in pin and rings, are unusually large and are oblong in shape. They are, furthermore, admirably matched as regards their possessing the same milky blue luster, and down in the heart of each burns a fiery red spot that greatly enhances their value. The opal in the brooch is about one-third larger than the ones in the rings; this is surrounded by diamonds the size of small peas. Before dismissing the subject of Mrs. Stanford's jewelry, it may be well to tell what every reader may not know, and that is, there are in her diamond and ruby necklace, for which she paid Bellezza, the Italian jeweler, $45,000, one hundred and thirty-five stones, of which fourty-four are rubies.

NUMBERED with other jewelry in Mrs. Leland Stanford's collection are a pin and ear rings made of pink pearls, set with brilliants and simulating moss rosebuds. These latter suggest admirable models for future productions, and go to show that our American women are pleased, occasionally at least, to wear ear rings that are not solitaires or even clusters, but fanciful in design.

BUT coming back to finger rings, a word must be said regarding the new designs in fancy rings. These show many combinations, such as clusters, trefoils, squares, cubes overlapping shanks and the simulating of two or more rings in one. In these fancy rings are employed with good effect the smaller specimens of such popular stones as brilliants, opals, cat's-eyes, garnets and the like.

SEAL rings, worn by both sexes, are much affected by middle-aged and conservative men. These are also patronized to some extent by women with large hands, being a decidedly becoming ornament. A seal ring, known as the "glove ring," and a recent production, bids fair to figure conspicuously in the fall trade. This ring, previously described it will be remembered, has a curved intaglio, with the shank so shaped that the ring fits snugly to the finger, and is, therefore, less cumbersome, though equally effective, than the usual style of seal rings.

THE growing demand for decorative watch cases has been met with a sufficient variety of styles and grades of ornamentation to afford a wide range in prices as well as in selection. For the new season has been made ornamented cases at comparatively small prices; cases that can hardly fail to find a popular trade. In some of these cases small rose diamonds are grouped in the center in form of a star or trefoil; again, these stones are set in pleasing designs of engraving. In some of the flower patterns appear not only the rose diamonds, but small sapphires and other colored stones. Some of the fancy watch cases seen the past month, owed their ornamentation to floral patterns wrought in fine gold, colored with alloys. Other cases are decorated with a combination of enamel and gems, while others owe their decorative appearance to the fanciful design of the case.

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THE Queen chain continues to lead in watch chains for ladies wear. Manufacturers appear to have copied every object that by any possibility could be worn as a charm on these chains in gold and silver. There are bells, buckets, baskets, vases, lockets, strawberries, flowers, cubes, horseshoes, hearts, etc., etc. Compass charms, also seals, are again in demand for gentlemens' chains. Fancy vest chains are in sufficient demand to warrant these being made for the fall trade in new patterns. Very attractive are the vest chains for ladies' wear, composed of three strands of light gold chain, connected at regular intervals with little balls of lapis lazuli.

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CHATELAINES of all kinds are in demand. Pretty little watches on chatelaines are worn, especially the open-faced silver ones, with decorated backs. Then there are chatelaines from which are suspended all sorts of objects, such as silver tablets, pin cushions, scissors and pencils.

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SILVER belts, also leather belts with silver buckles, are more fashionable than ever, being a convenient as well as attractive accessory to the present style of dress bodice. Quite new, and especially desirable, are the flexible ventilated belts, made of loosely woven silver threads. An attractive belt seen recently consisted of a series of oblong medallions, one-half of which were quite plain, the alternate ones being decorated with an elaborately engraved design. Very pretty belts are made of antique medallions fastened together by little silver chains. The silver girdles continue to find patrons and show the usual patterns in silver rope, chains and links.

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POCKET knives of gold and silver, variously finished, are patronized by both sexes, being worn by the ladies as one of the pendants to a chatelaine, and by men on one end of a double watch chain. Some of these knives are decidedly unique in finish, in instance of which may be mentioned one with an enameled handle that simulated closely the rough surface and color of buckhorn.

***

PLEASING summer ornaments are silver necklaces representing strands of flowers; these are worn around the neck of the dress, or over a band of velvet. Very pretty gold necklaces consist of slender chains from which hang a fringe of daisies or other flowers.

***

FOR an exclusive fine trade are now made dress trimmings of jewels. A favorite form of ornament is what Parisian jewelers call "garniture de corsage," and consists of a long spray of blossoms or artistic trail of gold leaves and gem buds. This ornament may be placed at one side of the corsage, fixed across the front of the corsage, or it may be worn as a sort of epaulette over the sleeve.

***

PENDANTS are as fashionable as ever, being too convenient an ornament to go out of style. What was said last month about ear rings holds true at the present time.

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WITH the widespread revival of horseback riding has come a number of pretty brooches in suggestive patterns, such as a horseshoe, a whip, a saddle, etc. English crops divide favor with whips among the fair equestriennes. Both whips and crops are out with decorative handles that cannot fail to attract universal admiration. Some have flat knob handles with etched ornamentation and oxidized finish; others show a remarkably pleasing combination of silver and ivory. On some of the handles the silver work is wrought into artistic forms, while on others a smooth surface is etched in odd designs.

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THERE was an active sale last month in traveling flasks, drinking cups and field glasses, all of which articles, by the by, command throughout the year a fair trade. Velvet and leather bags, with silver clasps and trimmings, have also gained a large patronage, being a special convenience to travelers.

ELSIE BEE.

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*A Complete History of Watch and Clock Making in America.

[By CHAS. S. CROSSMAN.]

Continued from page 195.

Number Fourteen.

THE MOZART WATCH COMPANY, OF ANN ARBOR, MICHIGAN.—THE ROCK ISLAND COMPANY, OF ROCK ISLAND, ILLINOIS.—AND THE FREEPORT COMPANY, OF FREEPORT, ILLINOIS.

IN THAT part of the history of the New York Watch Company which referred to Mr. Don J. Mozart, we spoke of his removal to Ann Arbor, Michigan. He took up his residence here with his family in 1866. He now gave his time to making experiments to perfect, if possible, his chrono-lever escapement. He, however, did not neglect meanwhile to talk of a "watch company" to the magnates of

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the town, and, as a result, the Mozart Watch Company was organized the following year and incorporated with a capital stock of two hundred thousand dollars, about one hundred thousand dollars being paid in. Mr. Mozart was assisted by Mr. Wm. A. Benedict, of Ann Arbor, in the organization of the company, he having become interested in the enterprise. The names of the incorporators were Messrs. Don J. Mozart, Charles Tripp, C. T. Wilmot, Wm. A. Benedict, Harvey Cornwell, W. W. Wheedon and A. J. Sutherland, of Ann Arbor, and Messrs. Geo. Doty, of Detroit, Michigan, and Geo. S. Roe, of Elmira, New York. Mr. Tripp was elected President, A. J. Sutherland, Secretary, and W. W. Wheedon, Treasurer.

The stock was divided into four thousand shares of fifty dollars each, and five hundred shares were given to Mr. Mozart for his patents which they were to use. He was, of course, appointed superintendent. The company hired the building in the north part of the town, now known as the Rodgers Agricultural Building, and commenced operations. They employed a number of mechanics from other watch factories to build machinery, but, owing to Mr. Mozart's peculiar ideas, they were unable to produce machinery well adapted for watch manufacturing purposes.

The second year they moved to the south part of Dr. Chase's steam printing house on North Main street, where they commenced making parts of watches with a force of some twenty operatives. The watch was essentially the same as Mr. Mozart had tried to produce at Providence, R. I., viz., a three-wheeled movement with a chrono-lever escapement. It was 17 size, and about the same thickness as the regular 18 size American movements.

The train had a main wheel with the usual number of teeth in American barrels, and a ten-leaf center pinion of usual size, but it had a large center wheel of one hundred and eight teeth and a third wheel of ninety-nine teeth, with six-leaf, third and escape pinions.

The escape wheel had thirty teeth, and the escape pinions had long pivots that carried the seconds hand, which makes the circuit of its dial once in twelve seconds. The escapement was a difficult one to make, as we have already described, and Mr. Mozart concluded that it had better be jeweled. The jewels were also difficult to make, and it was necessary to secure the services of Mr. James Queen, an expert watch and chronometer jeweler of New York City, to make the escapement jewels. He remained in the company's employ over a year.

Perhaps, however, a more detailed description of the escapement than was given in connection with the New York Watch Company may not be out of place. As already stated, it has thirty teeth in the escape wheel. It takes its impulse directly from the roller on the staff, while the escape wheel teeth locks on the intermediate lever pallet. That it was a difficult escapement to make may, perhaps, be shown to some extent by the expression of Mr. Mozart in speaking to the writer of it. He said: "No living man can set that escapement until I have shown them how." The immediate cause of the remark was the subsequent failure of Rock Island Company to produce watches, which Mr. Mozart thought was owing to the fact that they could not make his escapement, but was not the real reason, as will soon be seen. It illustrates, however, Mr. Mozart's idea of the escapement. The greatest objection that the writer has observed after a careful examination of the movement is, that the power comes too direct onto the escapement and soon wears off the ends of the teeth which are sharp, and a new wheel is required which could not be put in by every watchmaker, and by none until he had carefully studied the functions of the escapement.

For various reasons, however, no watches were gotten out, and the directors were becoming impatient because so much money had been expended and no watches produced. They concluded in 1870 to close the works for a vacation; it was the same old story. Several hundred "parts of watches" had been made. Mr. Mozart, however, assisted by Mr. Ernest Sandoz, finished up ten movements after the factory closed, and, casing them in Ladd gold filled cases, presented them to the stockholders. They afterwards finished and cased some twenty others, one of which, now the property of Mr. Geo. B. McElwain, of Chicago, he has kindly loaned for the cut.

The company found themselves in straightened circumstances after the shut down, and decided not to go on with the enterprise, and in the winter of 1870 and 1871 issued a circular announcing they had a line of watch machinery for sale. A company was formed at Rock Island, Illinois, about this time, who said if the Ann Arbor Company's machinery was what they represented it to be they (the Rock Island Company) would take it at once without an inspection, but this plan was objected to by the Ann Arbor people, as they evidently had some doubts about its being fully up to the ideas of the Rock Island Company. A committee was therefore sent, consisting of Geo. B. McElwain, of Chicago, and C. M. Aiken, of Rock Island, to examine the machinery and report. First Mr. McElwain was opposed to its purchase on the ground that it was not what they wanted, but Mr. Aiken overruled in the matter, and the machinery and tools were bought by the Rock Island Company for $40,000. Thus ended the career of the Mozart Watch Company as watch manufacturers. The work done afterwards in the Ann Arbor factory being in the name of the Rock Island Company, who took possession of it in April, 1871.

Thus again it falls to the writer's lot to record the history of another horological failure.

Mr. Mozart's idea of cheapening manufacture by having one less wheel and pinion, and having an escapement that cost several times

MOZART WATCH MOVEMENT.

as much to make as alever and then was not as good, was now fully proven as false economy. One of the stockholders, in conversation with the writer, said that he preferred watches with the usual number of wheels, at the same time showing a Mozart watch, which was all he had to show for $12,000 he had invested in the company's stock.

THE ROCK ISLAND WATCH COMPANY.

was organized in the winter of 1870 and '71, at the jewelry store of Mr. Geo. B. McElwain on Lake street, Chicago, Illinois, where the gentlemen interested in the enterprise met several times, and the organization of the company was completed in February, 1871. The capital stock was placed at $100,000. Mr. J. A. Wilson, of Rock Island, was elected President, Mr. C. M. Aiken, a dry goods merchant of the same place, was elected Secretary and Business Manager, and Mr. Frank Leman, who had been with the Mozart Company at Ann Arbor, Michigan, but who at this time was with the Elgin Company, was engaged as Superintendent. They purchased the entire stock of tools and machinery of the Mozart Company for forty thousand dollars, the negotiations being consummated by Mr. C. M. Aiken for the Rock Island Company, and by Mr. A. J. Sutherland for the Mozart Company. In payment for it the latter company received a six months note for fifteen thousand dollars, and the remaining twenty-five thousand dollers in stock of the Rock Island Company. Although called the Rock Island Watch Company, they

selected a site on the Rock River, at the town of Milan, about six miles south of Rock Island City, where they at once commenced the erection of a brick factory sixty feet square, four stories high, with a wing one hundred by twenty-seven feet, two stories high, with basement.

It is but justice to Mr. Leman to say that, knowing the machinery and movements at Ann Arbor to be a failure, he at first refused the position of superintendent, until he was assured that the Rock Island stockholders were going into the enterprise with their eyes open to the fact that new machinery would have to be built before watches could be turned out. Receiving a telegram the first of April, 1871, from Mr. Aiken that all was right, he left Elgin with seven men from the Elgin Company's machine shop, whom he had contracted with, and proceeded to Ann Arbor for the purpose of manufacturing machine shop tools to make watch machinery with, until such times as the Rock Island factory should be completed. Meanwhile, Mr. McElwain in Chicago set about making a model movement. It was similar to the Mozart, having the same train and escapement, but the balance was differently arranged.

Mr. Leman and the men who came with him started the machine shop at Ann Arbor about the tenth of April, 1871, and worked until the twentieth of August, when Mr. Leman received instructions from the Rock Island Company to pack up all the tools and machinery and come there at once. Supposing the factory at Milan to be ready for occupancy he immediately put the order into effect, but on arriving at that place they found the building unfinished, having neither doors nor flooring. No power had been provided, it being the intention of the company to use water power whenever they should begin work.

For some reason the stockholders had become suspicious that all was not running as favorably as could be desired under the management of Mr. Aiken, and taking advantage of his absence, they held a meeting and decided to have a look at the machinery. Boards were laid as a temporary floor in the factory buildings, and the machinery was unpacked and spread out before their view. On the return of Mr. Aiken a stormy meeting of the stockholders was held which resulted in a determination on their part to stop operations.

They called in two experts in watch machinery to inspect their purchase, Messrs. J. K. Bigelow and C. M. Mason, of Springfield, Illinois who gave it as their opinion that the machinery was poorly adapted to the use for which it had been bought. As the note for fifteen thousand dollars given to the Ann Arbor Company as part payment for the machinery was just falling due, they resolved to make a legal fight if necessary. Prof. Allen A. Griffith, who was at that time connected with the Michigan State Normal School, was sent to Milan by the Mozart Company, of Ann Arbor, to effect a settlement with the Rock Island Company. Arriving at Milan he found the machinery had been badly stored, and, after some legal squabbling, he secured $5,000 for the Mozart Company and the return of the machinery.

The closing up of the Rock Island Company's business, of course, threw the machinists out of employment, leaving them no other resource but to make the best settlement they could. They were paid the sum of one hundred dollars each and their wages to date. The factory at Milan never turned out any watches, but some very good wagons have been made there, however, which doubtless are as useful in their way, and help go to make up the manufacturing industry of the town of Milan.

THE FREEPORT WATCH MANUFACTURING COMPANY.

The organization of this company, it appears, was really the outgrowth of a desire on the part of Mr. Eber B. Ward, at that time a prominent capitalist of Detroit, Michigan, who wished to organize a company for the manufacture of the "Hoyt watch," or, as it was more commonly known, the "Smith watch." Mr. Hoyt was at this time with Messrs. M. S. Smith & Co., a large firm of Detroit jewelers, and made the watches for them with their name on them. But the movement, which was an 18 size, ¾ plate, key wind lever, was designed by Mr. Hoyt, who got out about 100 of them while there.

The name of Prof. Griffiths has been mentioned in connection with the settlement of the Rock Island Co. with the Ann Arbor Co., and while he ostensibly went to Rock Island for this purpose, he in reality had been deputed by Mr. Ward to look out for a suitable place to start a watch factory.

At first Prof. Griffiths thought Rock Island would be the place, but soon found there was too much jealousy between the towns of Milan, Rock Island and Moline, situated but a few miles apart, to have everything go along pleasantly, and he decided to visit Freeport, on the invitation of Mr. Geo. P. Rose, of that place. They met Messrs. D. A. Knowlton, J. Krone and M. Hettinger, the latter being the President of the German Fire Insurance Company. The matter was subsequently talked up with prominent business men, and a committee appointed who visited Rock Island and reported favorably on the purchase of the machinery which still remained in Rock Island, although the ownership had passed back to the Mozart Company.

No immediate action was taken in the matter, however, but in 1874 a stock company was formed. Capital was placed at $250,000, and officers elected for the first year as follows: Mr. Chas. Tripp, formerly President of the Mozart Company, was elected President; Mr. Geo. P. Rose, of Freeport, Vice-President; Mr. L. L. Munn, also of Freeport, Treasurer; and Mr. A. A. Griffiths, Secretary.

In 1875 Mr. C. J. Fry was elected President, and L. K. Scofield, Vice-President, both of Freeport. The other officers remained the same. After the company was organized they purchased the Mozart machinery by the terms of the sale the Ann Arbor company received, $50,000 in stock of the Freeport Company and $1,000 in cash. They also purchased of Mr. Hoyt his little plant and some unfinished watches for $4,000, and engaged him as superintendent, intending to make a watch practically the same as he had made in Detroit. While these negotiations were going on, a site was secured in the south part of the town containing about 16 acres of land, and a brick factory building was erected, 40x100 feet, three stories high. The machinery was being set up preparatory to commencing active operations, when a fire occurred on the night of October 21, 1875, which entirely destroyed the building and the greater part of the machinery. There was an insurance of $30,000 on the plant in various companies which was paid, but the German Insurance Company, of Freeport, required Mr. Fry to give a bond for the company, agreeing to pay back their $3,000 if it should turn out to be a fraud. Being armed with this bond the tongues of gossip in Freeport were set to wagging, and, to make a long story short, two years afterwards, or in September, 1877, an indictment was found against L. L. Munn, L. K. Scofield and Professor A. A. Griffiths, charging them with setting fire to the factory on the night of October 21, 1875, for the purpose of obtaining the insurance. The trial came off in December following, Mr. Leonard Sweet appearing for the prosecution and Hon. Emory A. Storrs for the defense. We cannot go into the details of the trial. Mr. Munn was charged with setting fire to the factory, and Mr. Scofield with taking kerosene oil there a week previous to help the matter along. Mr. Munn was the last one to leave the factory the night of the fire. As to the oil, it was proved it was for the lamps which were bought at the same time. They had been working nights some in order to get the machinery set up and ready to work. It was also proved that the value of the building and machinery was over $60,000, while the insurance was but $30,000.

Mr. Storrs' speech, made on Christmas Day, 1877, was really very interesting. Suffice it to say that Mr. Munn and his colleagues were entirely exonerated from the charges brought against them.

Thus it will be seen the Freeport Watch Company met a sudden death, but perhaps, all things considered, it was as well as though it had succumbed after a long and severe struggle for an existence.

(*To be Continued.*)

Precious Stones.

[D Appleton & Co. have in press a new series of Geographies which bids fair to eclipse all previous efforts of the educators in this field. The Physical Geography has as contributors the following well-known specialists: Professors John S. Newberry, Charles H. Hitchcock, W. Le Conte Stevens, and Henry Gannett, William H. Dall, C. Hart Merriam, Nathaniel L. Britton, Geo. F. Kunz, and George M. Stoney. By permission of the publishers we reprint the beautifully illustrated pages of Mr. Kunz's chapter on gems.]

THE DIAMOND.—The most valuable of precious stones is the diamond—pure crystallized carbon—the most highly refractive and the hardest of gems, and the only one that is combustible. This latter property was discovered in 1691 by Cosmo I. of Tuscany, who ignited the diamond with a burning-glass; and later it was found that when burned in a crucible this gem converts iron into steel. The diamond generally occurs as an octahedron, and surpasses all other gems in the property of dividing light into colored rays, causing that peculiar flash of prismatic hues called its *fire*.

Diamonds are rated by the *carat*. The term carat is derived from the name of certain small leguminous seeds which, when dried, are quite constant in weight. They were used in India for weighing gems.

In 1871, the syndicate of Parisian jewelers, goldsmiths, and gem-dealers, suggested .205 of a gramme as the value of a carat; and this was confirmed in 1877, all the leading diamond-dealers of London, Paris, and Amsterdam, accepting it. The English carat is equal to 3.1683 + grains (commonly reckoned as 3.17 grains) troy, hence there are 151½ carats in an English troy ounce. The jewelers' carat is subdivided into halves, quarters, eighths, sixteenths, thirty-seconds, and sixty fourths. A quarter-carat is called a grain; pearls are always sold by the grain.

The earliest known mention of diamonds is supposed to be that in the Indian epic "Mahabharata" (*ma-hah'-bah'-ra-ta*), B. C. 1000. Before 1728, the date of the discovery of the Brazilian mines, all diamonds were brought from India and Borneo. There are three distinct diamond-producing regions in India; the familiar word Golconda is not the name of a mine, as popularly supposed, but merely the general term for the market where diamonds were bought and sold. To-day all the mines are nearly closed.

Indian diamonds occur in a conglomerate, and also in alluvial or superficial deposits, together with pebbles, ferruginous quartz, and jasper. Early methods of mining were very crude. The conglomerate was dug out, and carried to small square reservoirs, raised on mounds, where it was carefully washed and sorted, the wet diamonds being readily recognized by their peculiar vitreous luster.

DIAMOND-MINING.

At present India yields very few stones, while Borneo produces only about three thousand carats annually. Diamonds are also mined in New South Wales, and are met with in California, the Ural Mountains, North Carolina, and Georgia. In 1856, the "Dewey Diamond," that cut eleven and a half carats, was found near Manchester, Virginia.

SOUTH AFRICAN DIAMOND-FIELDS.—By far the greatest portion of the diamonds now obtained come from the mines of South Africa, which were discovered near Hopetown, in 1867, by some Dutch children. They are situated in Griqualand West, now a part of Cape Colony, in latitude 28° 40′, longitude 25° 10′, east, about 640 miles northeast of Cape Town and 500 miles from the sea-coast. Although they are at an elevation of nearly 4,000 feet above the sea-level, the heat is excessive during the summer months, when the work is principally carried on. There are four large mines, all within a radius of a mile and a half. The celebrated Kimberley covers seven and a half acres.

The African Mines were originally worked in individual claims. 3,143 in number, each thirty-one feet square, with a roadway seven and a half feet wide between each pair of claims. These small claims are now consolidated into about ninety large companies and private firms, having a gross capital of nearly $50,000,000. Thirty-three million carats (over six and a half tons) of diamonds have already been taken out, valued in the rough at £45,000,000, and after cutting at £90,000,000. The absorption of the smaller by the larger companies (*unification*) is constantly going on, and it is proposed to consolidate all the companies into one gigantic monopoly.

Ten thousand natives, each receiving one pound a week, are employed in the mines under the supervision of twelve hundred European overseers.

The enormous sum of over £1,000,000 is annually expended for labor. This mammoth investment of European capital has been profitable to the shareholder, and it would have been still more so were it not for the thievishness of the native diggers, who, instigated by the vicious whites that congregate on the fields, steal and dispose of from one-fifth to one-fourth of the entire yield. More improved methods of surveillance, recently introduced, have diminished this loss. None but authorized agents are permitted to purchase or possess rough diamonds, and a large detective force is on the alert to prevent any infringement of the rules. The lengths to which the natives and their white accomplices go in their fraudulent traffic may be judged from the fact that chickens have been

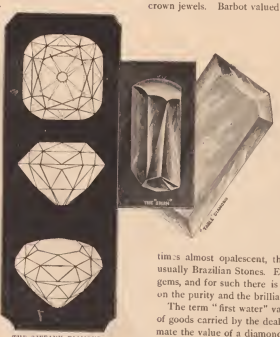
decoyed to the mines by them and made to swallow diamonds. A *post mortem* recently held on the body of a Caffre, who had died suddenly, revealed the fact that death was caused by a sixty-carat diamond which the native had swallowed. (On the mines of Griqualand West, *consult Leland's "A Holiday in South Africa," p. 93.*)

THEORY OF FORMATION.—At the Kimberley mines, the diamonds were first obtained on the surface in a yellow earth, the result of the decomposition of strata found 100 feet below, and known as "blue-stuff." Scattered through it are angular pieces of carbonaceous shale, garnet, mica, etc. At a depth of 600 feet, a hard rock (peridotite) was found, containing the same shale. This shale has evidently been altered by the action of heat produced by the penetration of the volcanic rock through it; and this heat, causing the liberation of some volatile hydrocarbon, has doubtless produced the diamond. The mines are so surrounded by carbonaceous shale that they form, as it were, "pipes" in the center of it.

In the Kimberley mine a depth of 600 feet has been reached. The number of obstacles which have been successfully overcome and the novel machinery in use make the mining at Kimberley the most systematic of the kind in the world. Progress has been rapid. On the site of the desert there is now a city of 25,000 inhabitants, with water-works, railroads to the coast, and many other improvements of modern civilization.

BRAZILIAN MINES.—In Brazil, diamonds are found in several localities. At Diamantino, in Minas-Geraes, 4,000 feet above the sea, the stones occur usually in the gravel and sands resulting from disintegrated rock. Up to 1850, over 7,000,000 carats, worth £1,000,000, had been taken from the Minas-Geraes mines alone. Perhaps the entire yield from Brazil may be estimated at 13,000,000 carats, worth £20,000,000.

The beds of rivers have been turned aside to aid in the search for diamonds, but the methods of mining have always been very crude. Little machinery has been used, the work of sorting being performed by slaves, who were rewarded for any exceptional find.



THE TIFFANY DIAMOND. NATURAL SIZE. CROWN, SIDE, AND ANGULAR VIEWS.

REMARKABLE DIAMONDS.—Some diamonds are celebrated for their size or the interesting legends connected with them. The Regent, or Pitt Diamond, weighing 136¼ carats, and originally purchased by Lord Pitt for £1,000, is the finest large diamond in the world. It was discovered in India, in 1701, and weighed 410 carats in the rough. Valued at 12,000,000 francs, it was the most precious of the French crown jewels, and was one of the few retained by the government at the great sale in 1887.

The finest blue diamond is the "Hope," which is almost sapphire-blue and weighs 44½-carats. It is an Indian stone and evidently part of Tavernier's blue diamond which was stolen from the Garde Meuble in 1792. It was purchased by Mr. Henry Hope for £18,000. The Dresden Green Vaults contain the finest green diamond, a pear-shaped 48½ carat brilliant, the "Dresden Green."

Among the largest diamonds is the Orloff in the scepter of the Emperor of Russia, weighing 193 carats. It is fabled once to have formed the eye of an Indian idol, and to have been stolen by a French deserter. In the Russian treasury is also the Shah, 86 carats. Tavernier's Great Table weighed 242 1/8 carats.

The Tiffany yellow diamond, the largest diamond in America, is a flawless double-cut brilliant. It was found in South Africa, weighs 125⅜ carats, is of a rich orange-yellow color, and is the finest yellow diamond in the world. It is valued at $100,000.

The "Great Mogul" was described by Tavernier, the famous traveler, in 1678. He states that its weight was originally 795⅝ carats, but in cutting it was reduced to 279⅛ through the stupidity of the cutter, who is said to have been fined his entire fortune for his carelessness. This magnificent stone was named after the founder of the so-called Mogul dynasty in India. It has disappeared, though some identify it with the Koh-i-Nur (*Mountain of Light*), which weighed when first brought to England, 186⅓ carats, but was reduced by recutting, in 1852, to 106 1/16 carats. The Koh-i-Nur, "the great diamond of romance," is now among the English crown jewels. Barbot valued it before recutting at £140,000.

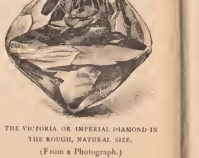
A diamond, weighing 457½ carats, was brought from the Cape in 1884; it has been cut into a brilliant weighing 200 carats. The finding of this great stone is enveloped in mystery. The name "Victoria" was given to it in honor of the queen, and it is undoubtedly the largest brilliant in the world. (*Read Streeter's "The Great Diamonds of the World."*)

VALUE OF DIAMONDS.—In diamonds, perfectly white stones or decided tints of red, rose, green, or blue, are most highly prized. Fine cinnamon, and salmon or brown, black or yellow stones, are also esteemed. If flawless and without tint of any kind, they are termed "first water." If they possess a steely-blue color, at times almost opalescent, they are called blue-white. Such are usually Brazilian Stones. Exceptionally perfect stones are termed gems, and for such there is no fixed value, the price depending on the purity and the brilliancy of the stone.

The term "first water" varies in meaning according to the class of goods carried by the dealer using it. It is impossible to estimate the value of a diamond by its weight—color, brilliancy, cut, and general perfection of the stone, are all to be taken into account. Of two stones, both flawless and weighing ten carats, one may be worth $600, and the other $12,000. Exceptional stones often bring special prices, whereas off-color, or imperfect stones sell at from $50 to $75 per carat, regardless of size.

The probable value of all the diamonds in the world is about $1,000,000,000. The world's diamond-trade is carried on by about eight thousand dealers, with a total stock of not far from $350,000,000. The stones are prepared for market by, perhaps, forty-five hundred cutters and polishers, principally in Amsterdam, Antwerp, Paris, and the Jura. A limited amount of cutting is also done in England and the United States.

THE RUBY AND THE SAPPHIRE are varieties of the species corundum. The yellow variety is known as Oriental topaz, the Green as Oriental emerald, and the purple as Oriental ame-



THE VICTORIA OR IMPERIAL DIAMOND IN THE ROUGH, NATURAL SIZE. (From a Photograph.)

thyst. The two latter forms are rare. The sapphire belongs to the hexagonal system, is next to the diamond in hardness, and is composed of nearly pure alumina.

The most highly valued rubies, which are of the color of pigeon's blood, are found near Mandelay, in Burmah. In Ceylon they occur of a lighter color, and in Siam of a very dark red. Although the diamond is more generally esteemed, the rarity of rubies of from three to four carats' weight is such that they are worth five to ten times as much as diamonds of the same size. The choicest colors of the sapphire are the cornflower and the velvet-blue.

PEARL-FISHING.—PEARL SHELLS.

The Chrysoberyl gems, next to the sapphire in hardness, include the varieties of yellow, brown, green, and an endless number of intermediate shades. The variety of chrysoberyl in which impurities are found between the layers, or the layers are so arranged by twinning that, if the stone is cut across the layers, the light is condensed in an even line, is called chrysoberyl cat's-eye.

Beryl is a silicate of glucina and alumina. Golden-colored beryl is found in Maine, Pennsylvania, and Connecticut. When the beryl is colored with chromium, we have the emerald. The finest emeralds are from the Muso mine, near Bogotá, where they occur in a rock containing bituminous concretions filled with fossils. This mine has been worked for the past three centuries by Europeans, and was previously opcrated by natives and ancient Peruvians.

Some of the finest crystals of emerald known have been found in Alexander County, North Carolina; one weighing ten ounces, but of small gem value, has been found there. When really fine and flawless, emeralds rank with diamonds in value. (*See George F. Kunz's "American Gems."*)

Topaz occurs yellow, blue, cherry, green, and white. Tourmalines are found in Brazil, Siberia, and in remarkable perfection at Paris and Auburn, Maine.

Quartz gems are pure silica colored by iron or other oxides. When pellucid the crystalline varieties are called rock-crystal; when colored purple or violet by oxide of manganese, amethyst. The cryptocrystalline varieties of quartz are chalcedony, gray, bluish-gray, or brown, with a waxy luster. When banded with rock-crystal, jasper, etc., it is called agate. When translucent like horn, yellow, yellowish-brown, or red, it is called carnelian. When in bands of white, gray, and other colors, it is called onyx (used for cameos); with moss-like markings produced by oxide of manganese or iron, moss-agate. Moss-agate occurs in immense quantities in parts of the West; agatized wood (in which the wood-fibres are changed to agate by the infiltration of silicious waters) is found in Arizona and the Yellowstone Park.

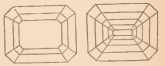
Noble opal is milky, almost opaque, with a play of brilliant, red, green, orange, and other hues. Hungary, Honduras, and Mexico, are the localities for this stone. When yellow, red, and green colors combine like flashes of fire, the name fire-opal is given to it. This species is found mostly in Mexico. California furnishes beautiful opalized wood.

PEARLS are small bodies found either in mother-of-pearl shells or in those with a nacreous lining. They are formed either by a disease, by the presence of a parasite, or by an effort on the part of the mollusk to rid itself of some foreign substance which has found its way into the shell.

Pearls are composed of many layers of carbonate of lime with organic matter between, are not always entirely pearly throughout, and invariably have some small central core or nucleus. Round pearls of fine luster and color are very valuable, and their value increases rapidly with their size.

The finest white pearls are from India, the Persian Gulf, and Panama; the finest black and gray pearls, from the coast of Lower California. Beautiful pink-tinted pearls are often secreted by the common brook-mussels. One valued at over $2,000 was found near Paterson, New Jersey, in 1856, and quite a number have been met with in Ohio, Tennessee, Kentucky, and Texas, and also in England, Scotland, and Germany.

THE FORMS IN WHICH GEMS ARE CUT, are divided into two groups—those with plane and those with round surfaces. To the first belong the brilliant, step or trap cut, and the table-cut or rose-cut; to the second, the single, the double, and the hollow cabochon or carbuncle cut.

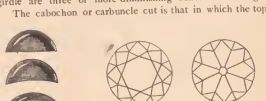


CROWN. BACK, OR PAVILION.
STEP OR TRAP CUT.

The brilliant cut is usually modified, but when perfect fifty-eight facets are required—thirty-three constituting what is called the crown or upper part, the large facet being termed the table, and twenty-five the back, pavilion or base. The small facet at the bottom is called the collet or culet, and the edge of the stone the girdle. This form of cut is most extensively used for diamonds, but is occasionally employed for other stones.

ROSE.

Emeralds, rubies, sapphires, and other colored stones, usually have the step-cut, so called from the fact that the facets on the crown are in a step-like series, and below the girdle are three or more diminishing zones terminating in a culet. The cabochon or carbuncle cut is that in which the top is



SINGLE, HOLLOW, AND DOUBLE CABOCHON. CROWN. PAVILION, OR BASE, SHOWING CULLET.
BRILLIANT CUT.

rounded off and the back flat, hollowed out, or the same as the top. Garnets, turquoises, opals, cat's-eyes, are cut in this manner. In the rose-cut, the back is flat and the top covered with triangular facets generally from twelve to twenty-four in number.

BRILLIANT CUT.
SIDE VIEW.

IMITATION STONES.—Rhine Stones, the Lake George, California, Swiss, and Swedish diamonds, with the so-called diamond-coated stones, are all paste or lead glass.

These imitations have been recently improved by the addition of little metal cups or coatings filled with mercury, for which reason they are known as foil-backs, brilliants, etc, but the hardness of all is below that of flint-glass. Paste gems are made of silica and oxide of lead, colored with metallic oxides to produce the required shade of color.

In doublets, the crown is made of quartz, garnet or some equally cheap and hard stone; but all below this is paste of the desired color, the two parts being joined by cement or fire.

Imitation pearls are small, blown spheres of slightly opalescent glass, roughened and lined with a preparation made from the scales of a small fish (the bleak) found in Switzerland, and then filled with wax.

COMPARISON OF GEMS.

Table showing approximate composition, color, specific gravity and relative hardness of the principal Gems.

	Hardness.	Specific Gravity.	Colors.	Composition.
Diamond.....	10	3.52	White, red, green, black, pink, blue, brown, etc.	Carbon.
Sapphire	9	4	Blue, shades of	Alumina.
Ruby	8.8	4	Red, shades of	
Chrysoberyl....	8.5	3.76	Yel'w, brown, gr'n	
" cat's-eye	8.5	3.7-3.76	" " "	Alumina, 76; glucina, 18;
Alexandrite....	8.5	3.65	Dark-green by day columbine-red by night.	ferrous oxide, 4; with trace of chromium.
Spinel.....	8	3.65	Red, blue, gr'n, etc	Alumina, 72; magnesia, 28.
Topaz	8	3.55	Yellow, blue, pink, white, etc.	Silicon, 15.5; Oxyg'n, 36.8; aluminium, 30.2; fluorine, 17.5.
Beryl.....				
Emerald	7.8	2.7	Velvet-green.	Silica, 66.8; alumina, 19.1; glucina, 14.1.
Aquamarine .	8	2.7	Sea-blue and gre'n	
Zircon.	7.8	4.1 to 4.6	Red, brown, yel'w, greenish-white, etc.	Zirconia, 67; silica, 33.
Tourmaline ...	7.5	3.1	Red, brown, yel'w, greenish-white, etc.	Boro-silicate of alumina, lime, soda, lithia, with fluorine and ferric-oxide.
Phenacite.	7.5	2.97	White.	Silica, 54.2; glucina, 45.8.
Garnet.....	7.3	3.75	Red, purple.	Magnesia, iron, lime, alumina, silica.
Iolite	7.3	2.63	Blue one way, white the other.	Silica, 49; ferrous oxide, 7; magnesia, 9; alumina, 32.
Chalcedony	7.3	2.66	Gray, bluish-gray, yellow, brownish-blue, etc.	Silica with oxides coloring.
Agate				
Jasper				
Eosonite.....	7	3 66	Honey-yellow.	Lime-alumina garnet.
Jadeite	7	3-35	Emerald, leek-gr'n	Silica, 59; alumina, 23; with magnesia, lime, soda.
Spodumene....	7	3.2	Yellow, green, and colorless.	Silica, 64.2; alumina, 29; oxide of iron, 4; lithia, 5.
Hiddenite....	7	2.65	Colorless, smoky.	Silica; Chromium.
Quartz	7	2.66	Purple, pink, violet	Trace of manganese oxide, iron.
Amethyst.				

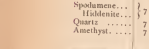
	Hardness.	Specific gravity.	Colors.	Composition.
Tiger-eye.	7	3	Indigo-blue, yellow-green, brown	Silica, 51; oxides of iron, 34
Pyrite.....	6.5	5.2	Brass-yellow.	Sulphur, 53.3; iron, 46.7.
Jade.....	6.5	3	White, green, or with blue tinge.	Silica, 58; magnesia, 27; soda, 12; oxide of iron, alumina, etc.
Hematite.....	6.3	5.3	Metallic black.	Iron, 70; oxygen, 30
Labradorite. ...	6.3	2.72	Gray, with play of colors.	Silica, 55.5; soda 4; alumina, 26.5; iron, 32; lime, 11.
Peridot.....	6.3	3.38	Olive-green.	Silica, 41; magnesia, 50; ferrous oxide, 9.
Moonstone	6.3	2.58	White, with pearly reflections.	Silica, 64.5; alumina, 18.5; potash, 17.
Obsidian.....	6	2.4	Brown, black, mottled.	Silicate of potash and alumina
Demantoid, or Green-garnet.	6	3.85	Yellow, green, emerald-green.	Silicate of iron, lime, traces of alumina and magnesia.
Turquoise.....	6	2.75	Sky-blue, blue-green, green.	Oxide of copper, 5.3; oxides of iron and manganese, 2.5; alumina, 40.2; water, 19.3; phosphoric pentoxide, 32.8.
Opal.....	6	2.20	White-yellow, etc.	Silica, 90; water, 10.
Lapis-lazuli....	5.2	2.4	Azure-blue.	Silica, 49; alumina, 11; oxide of iron, 4; lime, 16; sulphuric acid, 2.
Malachite	4	4	Green.	Copper oxide, 72; carbon dioxide, 20; water, 8.
Marble.....	3	2.6	Yellow, brown, gray, etc.	Carbonate of lime, 98; coloring and impurities, 2 and over.
Coral, (precious)	3	.....	Red, yellow, pink.	Carbonate of lime, magnesia, trace of organic matter.
Pearl....	3	2.7	White, gray, rose, black, brown.	Carbonate of lime with organic matter.
Amber.....	2.5	1.08	Yellow, brown, black, white.	Carbon, 79; hydrogen, 10.5; oxygen, 10.5.
Alabaster.....	2	2.32	White, pink, yellow.	Sulphuric acid, 44.8; lime, 33; water, 21.

How to Become a Skilled Optician.

[By C. A. Bucklin, A. M., M. D., New York.]

Continued from page 120

I have received a long letter from an optician who send a card upon which there are two black spots about two and one-half inches from each other, thus:



He remarks when I look intently with my right eye at the left spot I can see both spots at most distances, but there is a certain point within a few inches where the right spot entirely vanishes, but when I look at the right spot intently with my left eye the left spot fails to vanish; why is this and where can I find an explanation of this optical delusion?

Every text book explains the existence of the blind spot, but they do not explain what this writer desires to know: why he can make the spot disappear on one side and can not cause it to vanish in like manner on the other.

The entrance of the optic nerve in every eye forms a small spot which is not sensitive to light. Now, by fixing his eye intently on one spot, then by adjusting the card at the proper distance from the eye, and giving the card the proper slant so that the image of one spot falls on the entrance of the optic nerve, he fails to see this spot because it falls upon a place in the eye which is always blind.

Why he could not bring it about in the left eye is simply due to his failure to so adjust the card that one of the spots fell upon the blind spot in the eye. The optic nerve and the fovea centralis (visual spot) not being on exactly the same level the card must not only be adjusted for distance, but must, in each case, have the proper slant to allow the image of one spot to fall upon the point of entrance of the optic nerve.

The failure on his part to make the experiment work on both sides was due to a simple lack of adjustment. It is in no way an optical delusion, and requires no further thought or explanation to make it easily understood.

Dear Doctor:

I studied Fenner well and am now on Donders. Being deficient in mathematics I get "knocked silly" at times. Have a case now that a friend oculist in a neighboring town wrote me "is not correct mathematically."

R. V. $\frac{6}{12}$ — $\frac{1}{24}$ c. axis 55 = $\frac{6}{9}$.

L. V. $\frac{6}{18}$ — $\frac{1}{18}$ ⊃ $+\frac{1}{24}$ c. axis 50 = $\frac{6}{12}$.

They are perfect, except the ground rises when she walks. *No*

other combination will do for the L. E.— He claims this "makes the R. E.—1.5 cyl., which will make the ground rise up."

The other case is:

No. 2. { R. V. $+\frac{1}{16}=\frac{16}{16}$ / L. V. $+\frac{1}{8}\bigcirc-\frac{1}{8}$ c. axis $20=\frac{18}{18}$.

Of this he says: "I do not think will work mathematically." I would like to know why and have it proven. We had quite a contention on the use of atropia. I will esteem an explanation of the mathematical part a great favor. What would you give No. 2 for reading—age 53—especially the L. E.

This letter contains a sample of the difficulties which I am questioned about daily.

There is but one way in any case of arriving at an intelligent conclusion, and that is by a series of systematic experiments, first with each eye, then with both eyes.

How to experiment with test lenses.

Place the person at 20 feet from the black letters used for testing distant vision, and determine what he can read with each eye, recording the same.

This is the first step in this systematic method of exclusion. If the person reads the **XX** line promptly at 20 feet, we have excluded any marked myopia, astigmatism, obscurity of vision or diseased condition of the optic nerve. The second step of exclusion is the patient's age. If under forty, presbyopia is excluded. Consequently, if he have asthenopia it must be due to either hyperopia, paresis of the accommodation or a defective ocular muscle. Hyperopia is excluded in a moment by the rejection of all convex lenses for the distance. Frequently in young people having asthenopia, where no muscular defect or error of refraction can be demonstrated, the asthenopia can be cured by beef, rest and a change of air.

When persons accept convex lenses for the distance, they should be as strong as it is possible to retain distinct vision through at a distance. A child of twelve requiring a convex nine lens to see through at a distance should not astonish one.

The second condition we have to consider is where the distant vision is not normal.

This leaves the possibility of the existence of myopia, excessive hyperopia, astigmatism, obscurities of vision or a diseased condition of the optic nerve or retina. It is necessary to test for and exclude or demonstrate the existence of each of these errors of refraction successively.

First—We try convex lenses; if they are not rejected for distant vision we conclude that hyperopia exists; we then crowd on the very highest convex lens with which it is possible for the individual to see distinctly distant test letters. If through this glass distant vision is up to the normal standard, we have probably finished our tests. If distant vision has only been improved by the glass, it is our duty to improve distant vision further, if possible, by the trial of convex cylinders over the convex lenses; exceptional cases will require concave cylinders over their concave glasses. When the above additions decidedly improve distant vision we give the combined lens when there is no further improvement from the cylinders we have demonstrated notwithstanding distant vision is not normal, hyperopia is the only error of refraction we have to correct. Convex lenses are frequently rejected for distant vision. Concave lenses are then tried; if they improve vision give the weakest possible lens which produces the most satisfactory vision; distant objects should not appear small. Concave lenses being accepted, but only partially satisfactory, we next try convex and concave cylinders over the concave lens already selected. Concave cylinders are usually joined to concave lenses, and convex cylinders are usually used with convex lenses; there are occasional exceptions to this rule, however.

When convex and concave lenses have been both positively rejected, we next try convex cylinders; if these are accepted, concave cylinders are never to be substituted for them, as a person who is able to see through a convex cylinder can also see through a concave cylinder; but persons who should use concave cylinders cannot see through convex cylinders distinctly.

We therefore only use concave cylinders after it has been demonstrated that convex cylinders will not answer. After having tried convex or concave lenses on a person who has not normal distant vision, whether accepted or rejected, we call the attention of a person to the radiating lines of the astigmatic disk; when there exists a faulty curve in the cornea, causing astigmatism, the faulty curve will be represented by the line the patient declares to be the darkest, and the axis of the cylindrical lens required to make them appear equal is set at right angles to the dark line on the astigmatic disk. When the vertical lines appear darker, a concave cylinder is usually required with the axis horizontal. When the horizontal lines appear darker than the others, a convex cylinder is usually required with the axis vertical.

The above is only true where the astigmatism is simple or has been made simple by the correction of any defect the patient may have which is correctible with spherical lenses.

Having failed with convex, concave, convex cylinders or concave cylinders to produce satisfactory vision, but having improved vision by the use of a convex cylinder, we next try a concave cylinder over this cylinder, with its axis at right angles to the convex cylinders. Thus, Mr. M. finds that a $+\frac{1}{16}$ cylinder axis 90° improves his dissant vision; he has rejected promptly all concave and convex lenses; his distant vision is not perfect. I next cross the axis of this convex cylinder with a concave cylinder—$\frac{1}{16}$ ax. 180° (at right angles to the convex cylinder). His vision becomes promptly normal. This was the only experiment by which it could be made normal. While I could not bring out this result when experimenting with a spherical and cylindrical lens, having found out what will make him see, I simply reduce the crossed cylindrical combination to its spherocylindrical equivalents and obtain the same practical results. Thus, $+\frac{1}{16}\bigcirc-\frac{1}{16}$ c. ax. 90° converted into $-\frac{1}{16}\bigcirc+\frac{1}{16}$ c. ax. 90°, which gives sufficiently near the same result to be satisfactory to the patient. Mr. W. accepts $-\frac{1}{16}$, and further accepts a $+\frac{1}{16}$ c. ax. 90°, on the first trial, which is a striking contrast with the other case.

The first case must have had a faulty corneal curve in two directions, while the second case must have had slight myopia combined with hyperopic astigmatism.

With this rule try first, convex lenses, second, concave lenses, third, convex cylinders, fourth, concave cylinders, carefully noting the result of each experiment. Then, having fitted each eye, allow the person to use both eyes and carefully note any complaint he makes, which, with a little experience, you will be able to remove by changing an axis or reducing the power of a lens in one eye or the other. The lenses must feel comfortable when the person uses them with both eyes.

Remarks on the above letter:

"Mathematically incorrect." is badly chosen. There is nothing mathematical about the entire operation; it is purely *experimental.* The moment you depart from your experimental results you are lost. I would suggest to the writer of the letter to experiment more. Study less mathematics and he will have less of his friendly oculist's cold tongue to digest.

The next private class in practical optics will probably commence about the 15th of September. Those desiring to take the course should apply early, as I desire to have only one student in each town excepting the larger cities.

CORRESPONDENCE.

Chicago Notes.

To the Editor of the Jewelers' Circular :

"You may safely put it down that business is booming," said a perspiring jobber to your correspondent, on an unusually sultry July day, as he looked complacently on a huge pile of order packages, while the aspiring mercury was climbing into its second century. "Where can you find a summer resort like Chicago on the habitable globe? Talk about your Coney Island, and your Newport, and your Narragansett Pier. Our wives and daughters must go to these alleged fashionable summer resorts, because Mrs. Grundy is inexorable on the point, but where on this wide continent can a dissolving business man look for a spot to compare with the cool, breezy shore of Lake Michigan, where the glass registers 100 in the shade? Five weeks of this weather anywhere else would have driven the trade to the North Pole."

In spite of the excessive heat Chicago jobbers have not in years experienced such satisfactory June and July business. Not a single grumbler was discovered by the writer in his peregrination around the wholesale stores. Every jobber looked bright, smiling and contented, and was confident in declaring that the prospects for the fall trade were exceptionally flattering. The good feeling among jobbers is reflected in the retail trade, which is stocking up with unstinted hand. In spite of the poor wheat crop that is being realized in many parts of the State of Illinois money seems to be easy, and collections are generally reported good. All indications point to a rushing fall trade, which will open up about the beginning of September. Most of the large houses called their travelers in about the middle of July, and they go on the road with their new lines of goods between the beginning and middle of this month.

Benj. Allen, who is at all times one of the most conservative men in the trade, declares that he has done better business this year than ever before. He considers that the July trade was surprisingly good for the hot weather. Dealers, he said, were encouraged, and were stocking up heavily for the fall trade. He finds collections very fair. Mr. Alister, of B. F. Norris, Alister & Co., reports trade as holding up finely. Every month was better than the corresponding months of last year, and the order business was immense. The firm was experiencing a nice increase in the sale of diamonds. Trade was a little light on the road, but that would change when the new goods were sent out in August. Mr. Alister is busily engaged on his new catalogue, which he hopes to get about the beginning of September. Giles, Bro. & Co. are having an unusually good run of business in both their wholesale and retail departments, and their anti-magnetic shield business is on the increase.

C. H. Knights & Co. are meeting with phenomenal success in their handsome, admirably equipped store at the corner of Madison and State streets. Mr. Knights reports very good business for June and July, June being at least 50 per cent. ahead of last year, and July coming hard in the same direction. Collections were unusually good for the time of year. The firm sends out its travelers on August 10 with their new lines of fall goods. Cogswell & Wallis feel much encouraged with the outlook. Their business has been on the increase right since the beginning of the year, almost every day giving a better showing than the corresponding days of last year. Stein & Elbogan are receiving more than an average share of the prosperous run of business, and are meeting with remarkable success in their diamond department. The firm is fast taking its place as one of the leading jobbing houses in Chicago. Glickauf & Newhouse find trade good and steadily improving, every month being better than last year.

Samuel Swartchild & Co. are fast regaining their old trade. Mr. Swartchild did an excellent stroke of business in purchasing cheap the fine tools and material stock of Clapp & Davies, and his stock in this department is now one of the finest in Chicago. The firm is finding a ready sale for its unique improved bench and French's improved side rest, of which Swartchild & Co. have the exclusive sale. Attention is called to the firm's advertisement in this issue.

Louis Manheimer is finding Chicago a splendid place for business. He says he ought to have quit Indianapolis for the "Garden City" long before he did. His trade is increasing every day and money is coming in readily. Mr. Manheimer is doing a nice business as agent for the Ingraham Clock Co.

The Excelsior Sign Co., L. S. Grout, manager, has a full head of steam on, and is turning out large quantities of new designs in signs for jewelers and opticians. Mr. Grout has been shipping goods to Canada and California, and last month sent a magnificent watch sign to Honolulu to be placed over the store of King Kalakaua's court jeweler.

The Executive Committee of the United States Jewelers' Guild at a meeting held early in July, adopted the *Watchmaker and Metalworker* as the official organ of the body. The Guild, however, assumes no financial responsibility in the concern. The committee during its session also passed a resolution suspending from the privileges of the Guild all members in arrears until their dues are paid up. The Guild now claims a membership of 2,000.

The Chicago and Northwestern Railway Company, following in the wake of the Wabash Western, has decided to institute on August 1 a Time Inspection Service, under the provisions of which they will require every superintendent, train dispatcher, conductor, engineer, fireman and yardmaster to have his watch examined every three months for a certificate as to quality and condition. The object of the innovation is to take every precaution against possible accidents. The minimum standard of excellence for watches will be of a grade equal to what is generally known among American movements as the "15 jeweled, patent regulator, adjusted to heat and cold," and protected from magnetism and electric influences by the anti-magnetic shield. As Giles, Bro. & Co. look after the time inspection service of the railroad company, they should have right away a great boom in their anti-magnetic shields.

Giles, Bro. & Co. have been making extensive improvements on their retail store. They have had an elegant set of new red oak sides cases put in, and a beautiful arched ceiling in the same finish, with paneling of papier maché after their own designs. The improvements give the store a particularly bright, attractive appearance, and render it one of the most artistic looking stores in the city.

The recent convention of the National Educational Association drew to the city no less than 10,000 of the leading educationalists of the country, one-half of them being ladies. The large influx of pretty schoolmarms was warmly appreciated by the retail trade, which got off no small quantity of its "chestnutty" goods on the unsuspecting pedagogues, and so prepared the way for big purchases of the most recent goods for the fall trade.

B. F. Norris, accompanied by Mrs. Norris and his two sons, Messrs. B. F., Jr., and Charles G., sailed from New York for London, England, on July 9. Mr. Norris will place his oldest son, who is developing quite a taste for art, in one of the leading London art schools. Mrs. Norris and her younger son will stay in England for some time, but Mr. Norris will return to America about September 1, and, after spending a month in Chicago, once more seek out his Californian winter retreat.

William Alister goes to Shelton, Neb., early in August for a month's shooting. Mrs. Alister accompanies him.

Mrs. Benj. Allen and family went to Narragansett Pier for the

summer on July 18. Mr. Allen joins them August 1, and will spend a month at the favorite summer resort.

Mr. Wallis, of Cogswell & Wallis, goes to Iowa on a sporting trip early in August.

C. H. Knights is dividing his time between his Chicago store and his beautiful cottage at Lake Geneva, where his family are domiciled for the summer.

Mr. Zimmerman, a large dealer at Warrensburg, Mo., was in the city on a business and pleasure trip early in July.

S. O. Ebersole, of Independence, Kas., looked in upon Benj. Allen the second week in July, and ordered a large stock of new goods.

E. J. Ingersoll, a prominent jeweler of Carbondale, Ill., and one of the commissioners of the Southern Normal School there, was in Chicago attending the teachers' convention and buying a new line of goods. Mrs. Ingersoll came along with him.

Peter Robelstadt, the well-known retailer of Elgin, Ill., was in the city on business early in July.

William Hastings, of Hastings Bros., Winona, Minn., passed through Chicago on his way East.

H. F. Higbee, of Ashland, Wis., was in the city attending his sick wife.

Henry Robinson and daughter, of Council Bluffs, Ia., passed through the city July 12, en route for Indianapolis to attend a musicale.

H. H. Pratt, of Fremont, Neb., was in Chicago July 12 and 13. He then left for the Straits of Mackinaw on a pleasure trip.

J. C. Haep, of Montpelier, O., was in the city the second week in July.

William Kassel, formerly of Wichita, Kas., who retired from business lately after making a fortune in real estate, visited Chicago with his wife. He is doing the country for pleasure.

Fred. A. Nesler, formerly with A. R. Staufenbiel, of Dubuque, Ia., has opened a retail store at the same place.

Mrs. Bagley, the mother of Mr. Bagley, of Bagley & Obercich, La Porte, Ind., died June 29.

John C. Ellis, of Calumet and Lake Linden, had the misfortune to be burned out at both places within a month.

J. B. Scott, of the Aurora Watch Factory, was in Chicago, July 15, after making a business tour of the entire State. He found business in the northern towns excellent, and there was not a town north of the Vandalia line in which he did not sell a bill of goods. South of that line he found business rather dull, and accounts for it by the failure of the wheat crop. The Aurora Watch Company is going to double the number of its finishers owing to the wonderful increase in its manufacture of movements.

Among the arrivals in Chicago during July were the following well-known dealers: A. R. Murphy, Woodstock, Ill.; A. T. Hall, Janesville, Wis.; C. W. Hawley, Osage, Ia.; G. M. Rigden, Streator, Ill.; C. A. Stevenson, of Holland and Rockford, Mich.; N. P. Benoit, Rockford, Ill.; J. R. Parsons, La Porte, Ind.; Charles Waldin, Burlington, Ia.; Andrew Jackson, Eau Claire, Wis.; M. H. C. Klein, Muncie, Ind.; and Sol. Bergman, of Max Meyer & Bro., Omaha, Neb.

The Dueber Watch Case Co. propose soon to build 500 cottages, costing from $800 to $1,200, for their operators, near their new factory at Canton, O.

J. E. Stancil, formerly of Camache, Tex., has removed to Red Bud, Ill.

E. L. Penner, formerly of Athens, Ill., has commenced business at Barry, Ill.

C. G. Wennerlund has moved from Willmar, Minn., to Litchfield, in the same State.

L. B. Westbrook & Co. have bought out W. E. Reeve at Newton, Ia., and will carry on a retail business.

F. W. Burgeser & Co. succeed Burgeser & Messer, at Clayton, Ill.

N. Cohen, a former traveler for A. Hirsch & Co., of Chicago, has opened a jewelry store at Woodhall, Ill.

The store of A. K. Lord & Co., Hurley, Wis., was seriously damaged by fire.

Wimmer, the jewelcr, of Indianapolis, had his chronometer stolen from a case in front of his store on the evening of July 9. The thieves forced the case off its attachments and broke it up in an adjoining alley.

C. S. Forrest, of Winnepeg, Manitoba, will settle with his creditors for 65 cents on the dollar.

Nash & Muckel, Rockford, Ill., have retired from business.

A. Malone, formerly a jeweler at Appleton, Wis., is now in the service of the North Side Street Railway Co., of Chicago.

G. P. Gorham, of the Gorham Manufacturing Company's Chicago store, has returned from his pleasure visit to Oconomowoc, Wis.

The Western Silver Plate Co. will move from 114 Wabash avenue, to more commodious quarters at No. 54 Madison street, Chicago.

Thomas M. Hubbard, formerly with Norris, Alister & Co. and The Theodore Kearney Co., has recently met with a series of sad misfortunes. His house, which was uninsured, was burned; he was then attacked with typhoid and scarlet fevers, one after another, and is now in the county hospital to have an operation performed on his eyes. His friends are getting up a subscription to aid him.

W. A. B.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular:

Now that the manufacturer has awakened from his long spell of lethargy since the spring trade closed so abruptly, you may look for some very fine results as having grown out of his long Rip Van Winkle sleep in the way of new and elegant designs in all lines of goods, for one and all have been on the alert to get out patterns that would please the eye and meet the popular demand. It is safe to say that many concerns here located will not want for orders during the fall season, to judge from the lines of samples which they are showing for the first time to the trade. Salesmen who have already gone on the road to catch the early orders report the business in a very satisfactory manner, and orders placed are for good amounts, and no dating on invoices ahead from six (6) months to a year as formerly. Of course, it is too early in the season to predict what will be done in this line, but should the manufacturers all take a decided stand against the practice they could eventually stamp out this pernicious habit which has so long existed and ruined so many firms just commencing in business, because they could not carry their customers from one to two (2) years, as is done by some firms, but were compelled to turn their capital over as often as possible so as to be able to keep things running at all. Most certainly a jobber would not buy his goods of a firm on thirty (30) days' credit simply because the firm was hard pushed for means to carry on his business affairs, when he could buy the same of another concern who would sell him on six months' time, and give him the same discount as his impecunious competitor, who finds himself placed at a great disadvantage at once, and eventually unable to get any orders at all, so is consequently forced to the wall.

The pirates of the trade, who live on the ideas furnished them by the live manufacturers, whose goods they copy and imitate in the best possible manner, have not been idle since the closing of the spring trade, but have preyed on all the popular selling goods in nearly all lines, and have exact copies reproduced in cheaper material, so that popular spring patterns can now be bought for about one-half their former prices, but on close examination they will be found

to be of inferior make and finished in a very poor manner, and to have a decidedly cheap look. Jobbers will find the better grade of goods to be the cheapest in the end and the easiest to sell to the trade, as the public does not care to have worthless imitations palmed off as the genuine articles, but would rather pay a trifle more for goods that have some merits. Manufacturers have about decided to draw the line on the vultures of the trade, who copy nearly every design they sell during the season, by putting the prices so low on all such pirated ideas as to force them to manufacture them at a loss or to furnish their own ideas, which they will not do as long as they can get some one else to do it for them. The manufacturer who goes ahead and always has something new gets the cream of the business, and those who follow him and copy his ideas take up with that left behind, which he takes particular care will be indifferent and little profit in, by reducing his own prices and letting the concern copying him furnish to those firms wishing to buy inferior goods at low prices.

Collections during the past month have been very good, and the absence of any failure of importance would seem to point to a healthy tone of trade for the fall season. Firms, as a general thing, are more conservative in extending credit since orders are beginning to come in more lavishly. Those concerns whose standing is not gilt-edged stand a poor show for getting their orders filled, as the manufacturers prefer to let such wait and fill those that pay promptly and are considered a safe risk.

Mr. Charles Downs, the well-known manufacturing jeweler, recently gave his employees a holiday, which was pleasantly enjoyed at Crescent Park, where Manager Boyden provided one of his excellent dinners for the forty (40) gentlemen. After dinner base ball and other amusements were indulged in; during the afternoon the party was photographed. They returned to the city per the six (6) o'clock boat, after a hearty expression of appreciation of the thoughtfulness of their employer in providing such an enjoyable afternoon's outing.

The remains of William H. Clewley, a manufacturing jeweler, were brought to this city on Sunday morning, per steamer *Massachusetts* of the Providence Line, from New York, where he was found dead in bed. He formerly lived at 157 Bridgham street.

The property of Nathan F. Matthewson, jeweler, on Bradford street, has been attached by W. C. Greene for $15,000.

Mr. E. E. Kipling, of the firm of Messrs. E. E. & A. W. Kipling, arrived home from Paris, per the French Line steamer, *La Normandie*, last month after a very pleasant passage. Mr. Kipling is as jolly as ever and shows many novelties in the precious stones line, which manufacturers will do well to inspect before placing orders elsewhere.

Mr. J. L. A. Fowler, has arrived home from Europe, where he had a most enjoyable time, looking healthy and very much bronzed. He likes the scenery, especially in Switzerland and the Italian lakes, but prefers to remain a citizen of the United States for some time to come.

Messrs. Fred. I. Marcy & Co. are having great sales on their new collar button, "The Sensible," which should be seen to be appreciated.

The late Charles F. Glover, of Providence, a local jeweler, doing business at 85½ Weybosset street, joined the Jewelers' League on January 11, 1878, and remained a member in good standing, having paid all assessments, until March, 1887, when he allowed an assessment to be passed, thereby being dropped by the Association. On May 7 he died, leaving in destitute circumstances his family, consisting of a wife and three children. Through the Secretary of the League, W. L. Sexton, an appeal was made to its members of the case, and we are pleased to announce that his efforts have been rewarded by contributions of $300 for the relief of Mrs. Glover, which has been forwarded to her.

Messrs. James W. Barney & Co., manufacturers of ladies' dress buttons, have made an assignment and gone out of business.

Mr. C. Anthony Fowler, of Messrs. Fowler Bros., has been confined to his bed at the Narragansett Hotel for the past three or four days, suffering from a bad attack of malarial fever, but hopes to be about in a few days.

Mr. Charles F. Irons continues at the head of the list in the manufacture of gold emblems and lockets, all of which being of the very latest designs, some of which are extremely unique.

Messrs. S. W. Bassett & Co., formerly of Providence and now of Newark, N. J., are pleasantly located at 69 & 71 Bruen street, where they have more extended facilities for carrying on their growing business.

FAIRFAX.

Providence, R. I., July 16, 1887.

COMMUNICATIONS.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

OUR "FASHIONS IN JEWELRY."

To the Editor of the Jewelers' Circular:

I have been receiving for some time your advance slips of the articles on "Fashions in Jewelry," and I want to thank you for your enterprise in sending them out. I have extracts from them printed each month in our local paper, as you suggested, and I find that the editor is always glad to get them. I can see that they are read and appreciated by the readers of the papers, for I have had several customers come in and ask for articles that had been noticed by "Elsie Bee" in her rambles. I feel confident that these articles have helped my sales materially, and they have also given me many good ideas regarding articles to keep in stock. If I am about to send an order for goods I wait till the fashion article reaches me, and often modify my order to correspond with the suggestions it contains. THE CIRCULAR is the best trade paper I ever saw, it is so full of sensible and practicable articles. After reading it I always turn it over to the men in the shop, and they value it as highly as I do. I frequently hear them discussing the practical articles on watch and clock repairing and regarding various tools, and they have quite often made tools in accordance with descriptions they have found in THE CIRCULAR. I send you postal order to renew my subscription.

H. E. S.

NO HALF-HOLIDAY IN THE COUNTRY.

To the Editor of The Jewelers' Circular:

I have observed with much pleasure that the members of the trade in New York are enjoying a half-holiday every Saturday during this hot weather, and I congratulate them on the fact. I hope, however, that they will sympathize with the hundreds of their brethren who are employed in country places outside of New York State who do not have this recreation. I work at the bench in a city not far from New York where a holiday seldom puts in an appearance; on the contrary, we are required to work ten hours a day six days in the week and fifty-two weeks in the year. It is the custom of the place and extends to all classes of workmen, and if our employer should let us off occasionally or give us the Saturday half-holiday, he would be regarded as introducing into the community a demoralizing innovation. It is but fair to him to say that he works as long and as

steadily as he requires us to, and is, on the whole, a just and kind man, but we do not have the same incentive to work that he has, for all the profits are his. Possibly he does not realize how acceptable a little indulgence would be to us, for this is a community of workingmen and money grabbers who seem to think that there is nothing else to live for. I do not doubt that after their enjoyment of the afternoon of Saturday and all of Sunday, the workmen in your city return to their labors on Monday morning refreshed and thankful for their brief respite, and, by their increased zeal and industry, more than compensate their employers for the favor shown them. I hope the new order of things will work so well with you that employers in every section of the country will see that it is to their interest to give more consideration to the comfort and health requirements of their employees. C. T. B.

New Jersey, July 15.

BASE BALL AND ITS INFLUENCE.

To the Editor of the Jewelers' Circular:

You have in your July number a communication from a correspondent who signs himself "Merchant," deprecating the game of base ball, and deploring the fact that the clerks of New York are fond of going out Saturday afternoon and indulging in this pastime. He sees in it great demoralization. "It demoralizes the *mind, the body and the voice*, and not only that, but it leads to insanity." This certainly is a serious charge and alarms me, from the fact that I have in my employ a young fellow who is fond of this game, and I have been in the habit of paying his way that he might get a little fun of an occasional afternoon witnessing a game, and occasionally I have gone on that pilgrimage myself, and if wrong and worse than poker, it is time to stop.

A Centurian one day found Æsop at play with a lot of boys and began to jeer and laugh at him, but the old fellow rather took the crusty old hater of amusement down, when with the bow he illustrated that it would not do to keep it strung up to its greatest tension all the time, but it was necessary to let it relax to make it useful.

So it is with the human mind, and it is a question with me whether the New York merchant is not inclined to run in the business groove with too much intensity, up to the point of becoming a mere business machine, serving everything, forgetting everything in his rush to make money. Some of this is made compulsory on account of his expense and business cares, and, when a necessity, must be excused; but when a Merchant intimates that amusements of an athletic character must be given up as worse than poker, it is about time to appoint a committee of inquiry.

Now, I am old and well stricken in years and rather inclined to indoor amusements, but I am decidedly in favor of base ball as an amusement. My reasons are these: *First*—It is an outdoor amusement and of an athletic character, suggestive, like the gymnasium, of physical development, and it is a well-established and undisputed and indisputable fact that when the physical part of man weakens the intellectual will weaken also. If it were not for the constant influx of the rural element, the population of cities would become liliputian in mind and body.

Second—All nations have their games, their amusements, and the only people opposed to them in this country as a clan, are the puritanical element, who seem to have conceived the idea that "everything," to use the language of Beecher, "that was pleasant was sinful;" so, he says, he was taught. The Spaniards have for their national fun bull fights; the English, men fights and cricket. In the West India Islands they indulge in cock fighting. There is, probably, no national game so interesting to the many, the masses, in this country, as base ball, and to all who take an interest in athletic sports. The country is to be congratulated that an amusement is popular that in itself is so harmless, so exciting, and the enjoyment of which lasts so many hours. The mere money-maker does not like it. He sees in it a waste of precious time. He thinks it commendable to devote twelve or fifteen of the twenty-four hours to active money-getting labor, and all the remaining time, when not asleep, to planning, forgetful of the fact that eighty-five per cent. of all the merchants break, and that if a man don't spend or lose all he makes before he dies, that somebody will do it after he has gone.

All things considered, it is my opinion that if the boys can have a little enjoyment in the popular game as they trot along through life they may as well take it, but try and divide the time fairly between business and amusements, so that one shall not interfere with the other, and remember that a man who cannot govern his appetites and desires in every way and in all things is weak, and is likely not to be a success. As the object in the large accumulation of wealth is to increase our comforts, and among them buy such amusements as will gratify us, and as the very rich only can have their yachts, their operas and their seaside enjoyments, we heartily advise all who can find pleasure in base ball to indulge in it, and take the risk of "insanity" or the loss of the "voice." DUPLEX.

COPYING DESIGNS.

To the Editor of the Jewelers' Circular:

In conversation last week with a man well known in the jewelry trade, who has been the inventor of several valuable patents, and who is constantly thinking of some new idea with which to startle the trade, I was much impressed at one point of the conversation where my friend spoke of the prevalence of copying of patterns and designs among jewelers. He said that there is little profit to a man nowadays who designs a new pattern of jewelry, for before he has had a chance to take many orders for it, it is copied by perhaps a dozen competitors and made up in cheaper quality. It is so in all kinds of goods. I heard of a man who designed a new watch case and neglected to patent his design. It was seized upon by a rival who quickly patented it, and soon stopped the original inventor from making that design. My friend at times became so excited in his indignation at the methods of these "brainless imitators" that he sometimes used strong language. He himself, though at one time a large manufacturer of jewelry, has recently devoted himself almost entirely to a specialty upon which he has a strong patent. Now, my object in writing to you is to inquire whether these evil practices cannot be stopped. Is there no law that the inventor of a design, whether of jewelry or anything else, can invoke, and so have the exclusive right to use that design until he can secure it by patent or copyright? Or is it necessary for him to get up some pattern of jewelry, good or bad, and keep it hidden in his sample case until he has received sufficient orders for it to make it pay him, then take it out and let his competitors see it? It often happens that a new design is not a popular one. A manufacturer cannot tell whether his new design is worth patenting until he has shown it among the trade. Often a seemingly good design proves to be of no commercial value when put to the test of selling it. Now, all my suggestions may be against the law, but they seem to be founded on

New York, July 12, 1887. EQUITY.

WHAT BECAME OF THE KEYSTONE.

To the Editor of the Jewelers' Circular:

A good story is told at the expense of Aaron Herman, representative of D. Schroedcr, of Cincinnati. Herman aims to arrange his trips so as to enable him to reach Cincinnati Saturday night, as he is very strenuous in regard to spending Sunday at home. Recently he was at Nashville on Saturday, and at the same hotel were several other travelers, including Jacob Dorsch. As Herman found it late when he had closed his business, he asked Dorsch to help him pack up his traps so he could catch the night train. Dorsch, with his customary amiability, consented, and the two proceeded to Herman's room, where they made short work of packing samples, clothes

for the wash, tooth brushes, combs, etc. While so engaged, Dorsch espied a heavy marble keystone, belonging to the mantle piece, that had become displaced and was lying around loose. Persuading Herman to rush off for his supper, Dorsch wrapped the keystone, weighing about twenty pounds, in a newspaper, and put it into Herman's "gripsack," which he closed and locked. Then he bribed the porter to bring down the baggage, and gave him special instructions not to let Herman handle the "grip" at the train, but to carry it himself to his sleeping section. Herman came out from supper in a hurry, saw his baggage was on the coach, bid good-bye to the boys and away he drove to the train. The porter observed his instructions faithfully, and placed the "grip" carefully in Herman's section. Next morning when Hermrn went to the dressing room to perform his matutinal ablutions, he called for his "grip" which the faithful sleeping-car porter, looking for his "tip," hastened to bring him. Herman grasped it, but the unusual weight caused him to drop it suddenly on his favorite corn. He at once accused the porter of bringing him the wrong "grip," and used language which was not becoming in a Sunday school teacher. He was finally convinced that it was his "grip" and proceeded to open it, when the full extent of Dorsch's villiany was exposed. The first article brought forth was the marble keystone belonging to the Nashville hotel. It was fortunate for Dorsch that he was not within sound of Herman's voice at that particular juncture. But there was the keystone and it would not do to throw it away, so Herman replaced it in the "grip" and toted it all the way home Sunday morning. Scarcely had he finished breakfast when he was handed a letter from the landlord of the Nashville hotel (written by Dorsch), charging him with stealing the keystone of the mantle and demanding payment for the same. Herman at once wrote a letter, apologizing for carrying off that portion of the house, declaring that he did not intend to commit larceny, and accusing Dorsch of conspiring to injure his reputation. He concluded by assuring the gentlemanly owners of the hotel that he would return the feloniously acquired property by express next day. And he did, paying charges in advance. There is a good laugh on Herman now among the travelers, but he vows he will get square with Dorsch if it costs a wooden leg. The hotel proprietors are congratulating themselves that Herman did not carry off the entire building.

TRAVELER.

Cincinnati, July 20.

The Various Arrangements of the Barrel and Barrel Arbor.

[By F. ROSENKRANZ, in "GROSSMANN'S *Notiz. Kalender*."]

READERS of this *Calendar*, who are acquainted with the general literature of our profession, will know that much has been written on the parts of the barrel. Nevertheless the question is often asked, "How many arrangements or kinds of barrels are there?" A question which has either been answered not at all, or at best in an unsatisfactory manner. Especially are the terms employed for the various kinds, very vague and indefinite, and whoever will take the trouble of noting all the designations applied to barrels, will hear of going barrel, plain barrel, fixed barrel, rotating, suspending, and all other imaginery kinds of barrel. The same term is often used for two distinct constructions, and special attention in the reading of an article is necessary to understand what kind of barrel is meant.

In watches we generally have to deal with only two kinds—the barrel with one bridge and that with two bridges. Each of these kinds has its object: The first is applicable to ladies' watches, or watches of inferior quality, and the latter, or those with double bridge, for a higher class, and especially stem winding watches.

. . . . The general question will run, "Which construction of barrel is most serviceable and commendable in watches with cylinder or lever escapements; those with suspended barrels or those with barrels which run between two bridges?"

The terms spring arbor and winding arbor are not in all cases synonymous, which is clearly seen in fusee watches; these have a barrel arbor which always remains stationary, and a winding arbor which moves as well in the process of winding as of going; in all toothed barrels, however, the barrel arbor is also the winding arbor. According to these considerations simply result two cardinal kinds of barrels—barrels with teeth and barrels without teeth. Neither of these is mentioned among the terms we noticed previously. Further we distinguish stationary and revolving barrels; the former are to be found only in Vienna mantel clocks and repeating watches, the latter by all barrels, toothed as well as smooth. Barrel arbor is that part of the barrel upon which is attached the inside eye or end of the mainspring; this arbor, as was stated heretofore, does not always serve for the winding of the spring itself, because it is easily seen that a spring can be wound, either by turning the arbor while leaving the barrel at rest, or by revolving the latter and leaving the arbor stationary (as is the case in fusee watches).

The following is a summing up of all the systems of constructions of the barrel with its arbor; the barrel arbor is taken as the leading feature:

I. The barrel arbor always remains stationary (figs. 1 and 2).

II. The barrel arbor is moved in winding, and remains stationary while the watch runs down (figs. 3–6).

III. The barrel arbor moves round continually, as well in the winding up as the running down of the spring (figs. 7–10).

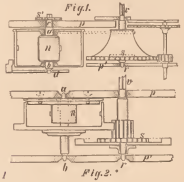


Fig. 1.

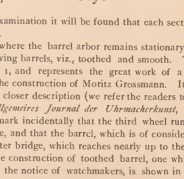


Fig. 2.

On closer examination it will be found that each section can again be subdivided.

To case I., where the barrel arbor remains stationary, belong two kinds of revolving barrels, viz., toothed and smooth. The latter is shown in fig. 1, and represents the great work of a fusee watch according to the construction of Moritz Grossmann. It is irrelevant to enter into a closer description (we refer the readers to his Geneva prize essay *Allgemeines Journal der Uhrmacherkunst*, 1880). We would only remark incidentally that the third wheel runs in a recess of the top plate, and that the barrel, which is of considerable height, runs in a counter bridge, which reaches nearly up to the dial.

A remarkable construction of toothed barrel, one which very seldom comes to the notice of watchmakers, is shown in fig. 2. It is employed in apparatus for electrical illumination, and serves as motion for the carbon points. Instead of fusee and chain, a wheel and pinion are used. The hollow barrel arbor *n* is, together with a disc, serving as barrel cover, screwed to the watch plate. The barrel, which on all other occasions revolves around the pivots of the barrel arbor, here has pivots which have their corresponding bearings in the plate. The winding square *p* and the ratchet *s* here have the same action as that of a fusee (fig. 1).

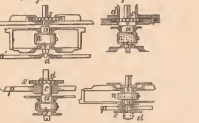
In case II., where the barrel arbor only turns in winding, but remains at rest during the going of the watch, we have two leading systems of construction of toothed rotating barrels, viz., as already

observed, barrel with one bridge (fig. 4), and with double bridge (fig. 3).

In the one with the single bridge (fig. 4), the barrel arbor and ratchet form one piece, while in fig. 3 it is mounted separately. A solid ratchet and arbor is not an absolute requirement in barrels with single bridges, as will be seen in figs. 5 and 6. Fig. 5, which is an unusual construction, has a barrel similar to fig. 3, but with this difference, that the pivot *c*, which runs in the bridge, is much longer, and therefore has more force to protect the entire arbor against side shake; the ratchet wheel *s* is above well fitted on and retained in its position by a pin *d*. The construction shown in fig. 6 is found only in old flat cylinder watches, where the third wheel, as well as the barrel teeth, are close to the plate. The barrel arbor has no bridge in this case, because its pivot moves in the bridge. On one side it has a thin steel disc, made solid with the arbor; upon the other side is mounted the ratchet wheel *s*, with a round center hole and steel pipe, through which the pin *d* is inserted. This mode of construction possesses little stability, because the pivot *c* is very short, and, besides this, it may happen that if the barrel cover should through any occurrence get loose, it may fall out of the case when the dust cap is opened.

In case III., where the barrel arbor revolves by winding as well as by the going of the watch, the stationary barrel, rigidly connected with the plate, is to be used. In ordinary American clocks it is even entirely left out, and only a few pins limit the expansion of the pin, while the outer end of the spring is fastened to one of the pillars. In this, as well as in case II., the barrel arbor serves at the same time for the winding of the spring, just as in all clocks driven by weight, the axle of the drum serves for winding.

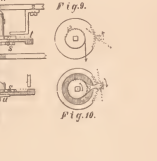
In ordinary practice two other kinds of stationary barrels are met with, viz., the so-called Vienna mantel clock, fig. 8, and in repeating watches of both old and modern construction. Fig. 7 shows one of



the old construction, where the ratchet *s* is attached on the side next the plate, whereas in the Vienna clock is next the spring. In each instance, the ratchet wheel *s* is mounted firm on the arbor *n*. In fig. 7 both are made of one piece, because the steel disc *t*, screwed upon it, with the twelve teeth for lifting the hour hammer, retains the ratchet wheel well at its place; in fig. 8 this duty is performed by a slide *u*.

It is evident that in the second division only barrels with teeth can be used, and on superficial examination it might appear that in the third division barrels without teeth can be used only. This, however, is not the case, and although the construction of a stationary toothed barrel is not at all, or very seldom, employed in our trade as perhaps in elliptical trains or in cases similar to the tourbillon, it has some attraction as an exceptional mechanism. In fig. 9, to render a comparison with fig. 10 more easily, the great wheel of a Vienna clock, which for the sake of simplicity depths direct into a pinion with fly. In fig. 10 we find the same size of wheel cut into the rim of the stationary barrel. The shaded part shows the interior of the barrel, the spring of which acts to the right, similar as in fig. 9; the winding arrangement naturally is in both cases to the left. The click, which is in fig. 9 mounted upon the great wheel, has here a place on a special arm, which is mounted in the place of the great wheel. Into the end of this arm is pivoted the fly pinion, while in fig. 9 it runs in the plates. The lever arms with the pinion moves about the fixed wheel in the same direction as the great wheel, fig 9, but the pinion in the opposite direction as that in fig. 9.

Simple though the use of the stationary barrel appear for mantel clocks, it is open to serious objections; apart from the fact that the oil of the spring can easily spread upon the plate, it has the disadvantage that the power is taken off during winding, whereby the train is forced backward, and the injurious effects of which can only be corrected by a maintaining power similar to that used in a regulator. In fusee watches we have the same loss of power during winding; hence the best English watches are supplied with a maintaining power.*



from its great simplicity, one of the detailed characteristics, and is therefore adopted universally.

After we have thus briefly considered the various styles of constructions in their several connections, we would solicit the reader to take a closer view of the elements of the movable arbors, their pivots, and corresponding bearings; the diagrams delineating the positions of the pivots will assist him in this; those of the barrel have a different direction than those in the plate.

The great work of the fusee watch, fig. 1, has 6 pivots, besides bearings: 2 on the fusee, 4 on the barrel arbor, of the latter of which only *c* and *d* are used for winding the spring. In fig. 2 there are 4 bearings besides pivots—2 belong to the barrel, 2 for the winding arbor. In all watches with toothed barrels, in contrast to fusee watches, a smaller number of pivots are necessary; in fig. 3 the barrel with the counter bridge, 4; in the figs. 4 to 6, each only 3. The barrel pivots are in all cases marked with *a* and *b*, while those moving in the plate are designated *c* and *d*. As in figs. 4 to 6, the lower pivot *d* is missing; we have assigned the same letter to the part which is in place of it. In fig. 4 it signifies the small cap with three or four screws; in figs. 5 and 6 it is the pin which keeps the ratchet wheel in its place; and lastly, in figs. 7 to 10, as in the mantel clocks and repeating watches, we have only two pivots and two bearings.

The barrel in figs. 1, 3, 4 and 5 of a fusee watch, and the barrel with single and double bar, rotates about its bearings and the fixed pivots. The reverse is true in fig. 2; and in figs. 7 to 10 the barrel has no pivots at all.

The above considerations could be easily extended if it were not that our space is very limited, and since we are in possession of a trade organ we will recur to this matter at some future time.

* There is a kind of American watch made, otherwise well constructed, which, strange to say, has such a barrel arrangement, and the above mentioned maintaining power.

Importance of Technical Education.

THE CIRCULAR has been at all times an earnest advocate for the establishment in this country of a technical school wherein the arts and sciences pertaining to the jewelry trade could be thoroughly learned by the young men who are to be our future workmen. In the present condition of labor and the organized opposition of workingmen to the employment of apprentices, it is rapidly becoming a serious problem to ascertain where the skilled workmen are to come from in the future. The subject of technical education is attracting world-wide attention at present, and the following report of a recent meeting of the British Association for the Promotion of Technical Knowledge will be read with interest. Lord Hartington presided, and in opening the discussion, said he had been struck by the facts relating to technical education at home and abroad, which had been presented in very voluminous form to the public in the reports of our consuls bearing on this question, and he had been particularly struck by the observations on the subject made in the speeches and letters of such men as Professor Huxley and others. The question presented itself to him in this way. We had attained to a great industrial and commercial supremacy in the world. That supremacy, while making us a great nation, entailed upon us great responsibilities. We had a vast population, the very existence of which depended on the maintenance of the position of supremacy which we had gained. Concurrently with our attainment of this supremacy, wonderful scientific discoveries had been made, and science was being applied more and more to the industrial occupations of the world. Other nations had been quick to perceive this, and they were still striving as far as they could to make their position equal to ours, and to supply the want of material resources which we possessed by extending and developing, at an immense cost to the State and public funds, that scientific instruction which would enable their manufacturers and their workmen to compete successfully with ours. If we were passive in this matter, if we were indolent, it was conceivable not only that foreign nations would rival us, but that they might also succeed in passing us, with a consequence which it would be difficult for us to contemplate. We already had a vast educational machinery, a large amount of scientific knowledge, and a still larger technical knowledge of industry and commerce. It did not require to call these things into existence, but to combine and supplement and organize them into a system which would impart more completely than was the case at present scientific knowledge in the various business of industry and commerce, and which would enable our masters, foremen and workmen to compete successfully with the rising industries of the world. They were not to suppose that it was the object of the Association to disparage our existing educational agents. There existed in this country a system of education which was doing a great work. All that was desired was that the present system should be applied in a more practical way to the subject of technical, commercial and agricultural legislation. Neither was it their object to in the slightest degree undervalue or underesteem what had been and what was being accomplished by voluntary associations which had taken this matter of technical education more immediately in hand. He would only mention, as an instance, such institutions as the City and Guilds of London Institute. It was not their object to supplant those associations by the creation of a great State agency expending State or public funds, but they desired at present to take stock and ascertain what were the already existing technical educational materials at their disposal, and if possible to organize and combine them into a more perfect system than at present.

Sir Lyon Playfair moved that a National Association for the promotion of technical (including commercial and agricultural) education be formed. He said more than a generation of men had passed away since, in 1851, he addressed a large and enthusiastic meeting in that very room, trying to prove that the lesson of the great exhibition was that other nations were making greater progress than we, and that it was necessary, if England was to keep her position, that the technical education of her people should be attended to. It was sixteen years after that that a meeting took place in that room, presided over by Lord Granville. He (Sir Lyon) had the honor to move the first resolution on that occasion, and Lord John Russell seconded it. At the time of the second meeting there was only one college in the country for higher education, and now almost every large town had established its provincial college for higher education. The nation was now aroused to the fact that it must train the intellects of its managers and others so as to be able to carry on its business in the most intelligent way. All localities were asking for advice in the matter. The training must be scientific and artistic and adapted to the wants, not only of the locality, but of each individual who had to be engaged in industry. It was the desire of the association to show localities how best they could adapt their schools to the wants of the locality; to show the individual how his intellect could be trained to enable him to take part in the work he had to perform. There was no chance or fear of over-education. There could be no over-education when that education was adapted to the purposes of life. No nation ever had an intellectual fund too large. Industry had changed rapidly by inventions. The industry of one decade was not the industry of another decade, and it was their desire to educate the working industrial men that their inventive faculties might be brought forth. It was partly the vanity of nations which led them to think that they had arrived at the end of inventions Inventions would never cease until we had exhausted and understood the problems of nature. A nation could not stand still, and if it did not progress it must go backwards.

Mr. John Morley, in seconding the motion, said every one would be of the opinion that the time for further inquiry has gone past. The country and Parliament now knew all that it was necessary for them to know on the subject, and the time had arrived when they could no longer with wisdom, or even with safety, delay the movement they that day commenced. The only match for the development of industry during the last fifty years was that of science. The most important branch of the legislative activity of the last fifty years had consisted in the great mass of legislation the object of which had been to regulate labor. The workshop and factory of the future must be the great educating centers and schools. We had to place our artizans in as good positions as those of other countries. The Technical College at Zurich far exceeded any similar institution in this country, and the enormous wealth of England, as compared with that of Switzerland, made this not a creditable fact to this country. When the Germans took Strasburg they gave £700,000 to found a college for technical instruction, and £40,000 or £50,000 a year for its maintenance.

Sir John Lubbock said that so much had been done in the last twenty years in the cause of elementary education that there was a growing feeling that we had trusted too much to the development of the memory rather than of the mind, and had based education too much upon books instead of going directly to nature herself. The result had been that the minds of children had become the grave rather than the treasury of learning.

Mr. Garnett said our boys should have more continuity in their education, and urged the co-operation of those who were practically engaged in the several trades in the development of apprenticeship classes.

Lord Rosebery thought the meeting indicated that public opinion was waking up to one of the most important questions of our time. A great deal had been said lately about the state of the agricultural laborer, but, though the ignorance of the agriculturist had had a great deal to do with his trouble, he took a lively interest in commercial education. A great deal had been said by our consuls about the shrinking of our commercial relations abroad, but he was consoled by the Germans making even more bitter complaints. When he was in the East he saw some of the causes operating against us.

The Germans had learnt one very important branch of commercial education, viz., a very frugal system of living. They devoted themselves entirely to the object for which they had gone out. They learnt the language at once. At Aden, on our highway to India, and a place which we kept up at a great expenditure, there was not one single English commercial house, although there were several German houses. The same thing occurred on the Somali coast. He was of opinion that more might be done by us in ascertaining the wants of the various countries and what they preferred, a point to which great attention was given by the Germans.

Gems and Gem-Hunting.

THE "interviewer" of the *New York Tribune*, recently had a "Seance" with a gentleman in the trade, whose identity he does not reveal, relative to finding precious stones in this country. The interview proceeded as follows:

"No sir," said the expert, spreading out his ringless fingers and stroking his chainless waistcoat, "I don't wear any jewelry whatever."

"And what is the reason of that?" asked the reporter.

"Simply that I don't approve of those who are in the trade doing so. For one thing, it causes bother with customers, who are likely to compare what you have on with what you offer them, and altogether I think it is better to do without it. I have gold cuff buttons, as you see; but I think I'll discard them, too."

"Are any native diamonds worn in this country?"

"Well, only about 100 American diamonds have been found as yet; but I dare say a few are worn here. There would be plenty if all the alleged diamond finds had been genuine. Why, there have been at least 100,000 bogus finds! Well-known firms like Tiffany & Co. are perfectly pestered by geniuses who can't tell a bit of cut glass from gems of the first water. Tiffany & Co. get as many as twenty or thirty letters of inquiry in a week."

"But the genuine finds were mostly discovered by accident weren't they?"

"That's true enough. The first American diamond—the Oninoor, as it was christened—was picked up at Manchester, Va., in 1855 by a laborer. Then you will remember the native diamond that came to Tiffany's about a year ago. They sent their mineralogist, George F. Kunz, to inquire about it recently, and he learned that it had been found by a small boy called Willie Christie on the Alfred Bright farm, near Dysartville, McDowell County, N. C., sixteen and one-half miles from Morganton and twelve from Marion. He got it on the side of a little hill, near a spring. He was attracted by its luster, took it home and put it on a shelf for two weeks. Then he showed it to a village storekeeper. A man who had been in the South African diamond mines was called and he immediately tried to buy it, beginning by offering $5, and finally offering $50. But he didn't get it; and it was sent to Tiffany & Co. and bought by them for a handsome sum."

"Are people who are well informed on the subject ever misled by a stone?"

"Well, some are fooled who you would think should know better. Now, there was a certain geologist—I won't mention his name, for he's dead—and he once sent a common paste imitation to a jeweler as genuine. But I could tell you some queer things about him. He was a kind of John the Baptist of diamonds. He had an idea that there were diamonds at the place where he lived; and he wasted a good deal of his time in grubbing around and in prophesying about it. He would get up on a stump and shout: 'As truly and as surely as the laws of nature are immutable, so surely will diamonds be found in this here locality!' But they haven't been yet. Diamond-seeking cranks would make more money in dry goods. They always remind me of the old school-book story of Whang, the Chinese miller. Old Whang ran a grinding-mill in the flowery land (no pun intended), and he fell to dreaming about a lot of treasure buried beneath the foundation-stone of his old mill. For two nights he laid the blame on a heavy supper of birds' nests; but the third night he dreamed that identical dream once more; so he banged out of bed and yelled 'You git!' to Mrs. W. 'The house is coming down, and we're going up. I shall be a mandarin as sure as my name's Whang!' Well, he didn't rest till the old place was levelled. Lastly the foundation-stone was disembedded. There was nary a treasure; so, seeing that he had brought beggary on himself, he hanged himself with his own pigtail."

"How did he manage that?"

"Oh, I dont know. Cut it off first, most likely. That's not the point. It's the moral of the tale that's worth remembering. Now here are some stories about bogus finds. They have their moral, too, and I think I would make it, 'Don't give a cat's imprecation for the opinion of the average local country expert.' They have caused no end of trouble, anxiety and expense by their hasty and half-trained judgments. Some years ago a poor fellow called James M. Smith, a ploughman, at Gibsonville, Guilford Co., turned up what he thought was a gem with his ploughshare. He took it to one of those 'local experts,' who went through some farce of examining it with a microscope, and said it contained various small diamonds. Of course the finder was overjoyed, and thought he was going to make lots of money. He took a trip to New York and was at a jeweler's at 7 o'clock in the morning, only to learn that his treasure was a pretty quartz pebble worth perhaps about $5."

"That was hard luck."

"Yes; but he's not the only victim of quartz—with a z of course. I know of a lady who kept a supposed diamond for thirty years, and then was rudely disabused by being told by an expert that it was only a quartz crystal."

"Is there ever a 'diamond furore' over a supposed find?"

"Oh, yes; it's as bad as the gold fever and turns a neighborhood upside down while it lasts. About a year ago the people of Danbury, N. C., had a 'time' they won't forget in a hurry. James Pepper, a farmer there, picked up a diamond-like stone while he was ploughing. These 'finds' are made that way often. He submitted it to the local jeweler, and was overwhelmed with delight to learn that he was the possessor of a fine American diamond worth at least $7,000. Well, Sir, the whole village went a-ploughing for diamonds. The farmers reaped fancy prices for allowing enthusiasts to scratch their land; and whenever a hen made a scrape and sat down in it she got no peace till all the diamond-hunters had examined it. It was lively for the hens, and they were harassed so and had to get into so many scrapes in a day that they must have wished that they could go to pot at once and be done with. All of this resulted in plenty of dust but no diamonds, and when at last old man Pepper sent his jewel to New York and got back word from an expert, that it was a quartz crystal, there was a bigger how-d'ye-do than a bank failure makes. I think there'll be no more diamonds from Danbury!

"And it's not only diamonds that people get left on," continued the expert, fanning himself. "Such a thing as a six-ounce ruby would cause considerable commotion. None of that size has been found yet; but a James W. Thomas, of Elmore County, Alabama, recently thought he had one that would weigh six ounces, 'after cutting off all the roughness,' as he expressed it. He was so careful of it that he deposited it in a local bank for safety, and said that he would on no account send it to any one on approbation. He got out sale circulars, asking for bids; but the opinion of experts that it was worthless dashed all his hopes to the ground."

"People must regard you experts as very malevolent beings," said the reporter.

"Yes, they do sometimes get the idea that there's something wrong. Now, the fact is there's often 'something wrong' on the other side. Turquoises of a lovely blue color have been sent from

New Mexico to the East, and an expert has discovered that in dipping them in ammonia the blue color disappears and green asserts itself. Now, a green stone worth only ten dollars would bring one thousand dollars as a blue stone. The natives of Arkansas are also up to a thing or two. A nice rock crystal pebble used to be found there, but tourists were so fond of the stones, and bought and carried off so many, that they grew scarce. A native, determined not to lose the snug revenue they had yielded him, hit on an ingenious plan for making them. He got a lot of natural rock crystals, put them in a box, and let a stream of water run on them, with the result that they were worn into the desired size and shape."

"But you don't mean to tell me that there is no trickling on the part of the jewelers?"

"Oh, for that matter, they are up to some dodges, too. I wish you would warn ladies who have a horror of 'imitation diamonds' that when they wear Lake George, Colorado, California and other 'diamonds,' as well as Rhinestones, they are wearing nothing more nor less than what is technically called 'lead paste.' Here's something else: A great many people find transparent pebbles, take them to be cut, and often get back a stone twice the size of the original. Sometimes they notice the difference, but generally they don't. Well now, suppose you take an interesting walk with your young lady, find a pebble, and intend to have it cut and presented to her as a memento of the occasion. You carry it to a lapidary. What does the lapidary do? As soon as your back is turned he chucks your pebble out of the window, selects a ready-cut stone from his collection as near the size of yours as possible—if he can't get one exactly the same he takes a bigger one, thus showing a sublime knowledge of human nature. You call, pay for the 'cutting,' and your girl wears the lapidary's stone contendedly. 'Where ignorance is bliss,' you know. The fact is that these ready-cut pebbles can be brought from abroad at about one-tenth the cost of cutting. They are extremely common in some countries.

"Now, I'll 'give away' one more interesting fact. At one of our fashionable wateringplaces—I dare say about the most fashionable in the Northern States—the local lapidary does a nice business in moonstones; this is how he does it. He has a few on view, and if a stranger asks about them he is told that they are to be found on the beach, and that they are well worth looking for. The guileless stranger straightway begins to take his sea-shore constitutionals, with his eyes fixed on the ground. By and by he finds a pebble and takes it to the lapidary.

"'Sure enough. You've struck a moonstone. Your luck's in,' says the man, who so palpitates with philanthropy that he puts all his brethren in the way of picking up precious stones, as a pigeon picks up peas.

"'Better take it and cut it for me,' says the stranger.

"'Certainly,' replies the philanthropist. Accordingly the stranger departs and comes again in a few days. He receives a genuine moonstone; but when it is understood that it costs the lapidary much less than his charge for the fictitious cutting, it will be seen how he comes out ahead.

"But we in America are not yet so far advanced as they are at Brighton, England, where bogus emeralds are continually being found and cut, the supply being kept up by green glass thrown into the water, so as to give the lapidaries something to do.»

"By the way, I must tell you of some curious things that have come under my observation. In Montana pretty little red, green and blue sapphires are often found in the sluice-boxes when washing for gold. In Arizona garnets, called there rubies, and peridots, known as 'Job's tears,' from their form, are found frequently on ant-hills, whither they have been carried by ants and scorpions. Again, there are microscopic diamonds. These have been discovered in America in platinum sand."

"They must be rather small, might make a breast-pin for a fly, I suppose?"

"No, they wouldn't. I think they would hardly be big enough for a mosquito," said the expert. Then he reached down a box and began to finger a fortune in jewels, and the reporter departed for fear of kleptomania.

How Diamond Mines were formed.

IN THIS age of free speech and free expression, the formulation of theories is a hobby in which every one may indulge to the extent of his education; and the theory formulating mind has a vast range of subjects at his command—from the probable uses of the rings around Saturn to the possibility of raising a certain number of good-sized potatoes in the hill. This of course, includes diamonds and diamond mines. The latest theory concerning the latter we take from a European exchange as follows:

"There are various theories as to how diamond mines were formed, but all agree in attributing them to volcanic action. They are all funnel-shaped, the sides of the funnel being composed of a close igneous rock, known in miners' parlance as a 'reef' It is of a soapy nature, easily acted on by the atmosphere, consequently most dangerous, as large pieces in some instances weighing hundreds of tons, get detached. There are no means of shoring it up and without warning these enormous slices will slide off into the working portion of the mine, burying the claims and sometimes killing the employees.

"It should be remembered that the diamonds were not formed where they are now found. The hot liquid containing the diamonds was forced by some cataclysm of nature through the solid earth, the bulgings in the sides of the mines being very soft and shaly, showing where the rock was not sufficiently hard to resist the enormous pressure.

"It has been observed that in Kimberly there must have been ten distinct upheavals; in Dutoilspan, twenty-five; in Bullfontein, three or four; and in De Beers, three; and this has been proved by the varying nature of the ground. If one upheaval only had taken place, the center of the funnel would have contained one particular kind of soil. As the miners go deeper a great alteration is noted in the character of the soil. They have actually found pieces of the top reef and top soil at a depth of 900 feet. This shows that in the succeeding upheavals vacuums were formed, and the whole funnel became in a state of tumult, the upper layers of oxidized earth returning to the ancient depths to give place to the other carbonaceous matter which, by successive exposure to the atmosphere, became oxidized, and assumed the yellow color seen so frequently in the heaps and embankments of rejected debris.

"It is a remarkable fact, and one which is difficult to account for, that all the diamonds coming from the various African mines, have a distinct personality. Experts will tell the difference between a parcel of Kimberly gems and Dutoilspan gems; between those from Bullfontein and Jagersfontein"

A Curious Clock.

A CLOCK recently patented in France, is in imitation of a tambourine, on the parchment head of which is painted a circle of flowers, corresponding to the hour figures of ordinary dials. On examination, two bees, one large and the other small, are discovered crawling among the flowers. The small bee runs rapidly from one flower to another, completing the circle in an hour, while the large one takes twelve hours to complete the circuit. The parchment surface is unbroken, and the bees simply laid upon it, but two magnets connected with the clockwork inside the tambourine move just under the membrane, and the insects, which are of iron, follow them.

BROKEN SCREWS.—I have two methods for taking broken plate screws out of American watches: 1. When it can be done, I turn them out with the sharp point of a graver. When this cannot be done, with a thin screw file I file into the end of the post, until the broken screw is reached and a slot made in it by which it can be easily raised. Some may be disposed to call it botchwork, but I cannot see that it injures the post, and when the upper plate is on and the screw in, the place cannot be seen.

BUBBLES IN BAROMETER TUBES.—Air bubbles will sometimes show themselves in barometer tubes filled with mercury; they are generally formed by violently laying down the barometer; the mercury is hereby forced upward and the air above it finds its way through said column. These bubbles are removed by holding the barometer in a vertical position and striking it from the side; it is advisable, also, to strike it an occasional blow from below. These bubbles will sometimes disappear after a few jars, while at others they remain with great obstinacy.

CEMENT FOR REPAIRING DIALS.—Scrape pure wax and mix it with equal parts of zinc white; next, melt the mass in a clean vessel over the alcohol flame and let it get cold. The obtained cement can, in a cold state, be easily pressed into the damaged parts of the slightly warmed dial; it adheres very firmly, and assumes a high polish when scraped with a knife. Should the cement have become too hard, add a little wax; in the contrary case a little zinc white. Cleanliness in mixing and a low degree of heat, contribute essentially to the production of a very white wax.

A HANDY KNIFE.—A good cutting knife is highly appreciated on the watchmaker's bench. To get it, take a large piece of Stubbs' wire, take it to a good blacksmith and have a blade forged from one end, of the length desired; have it hardened in a charcoal fire if possible, although coke will answer the purpose. Take it home and cut off, leaving enough for a shank, which file to a square taper and drive into a sound piece of wood for a handle. Brighten a little on sand paper and draw over a lamp to a light straw color, a little softer toward the shank. Grind up, and if too hard, draw again to the same color, which will reduce the temper a little.

GREY SILVER (JAPANESE SILVER).—An alloy is prepared in Japan which consists of equal parts of silver and copper, and is colored by boiling in a solution of alum, to which sulphate of copper and verdigris were added, whereby it receives a handsome gray color. The so-called mokerine, another Japanese alloy, is manufactured by laying thin plates of gold, copper and the above specified alloy upon each other and hammering them together; a metal of thin plates is prepared in this manner, which, when cut across, shows a peculiar striped appearance, and is used chiefly for ornamenting gold and silver articles.

FOOT PIVOT IN A CYLINDER.—A correspondent who signs himself R. G., says in one of our exchanges, that for this job a steel stake with a large number of closely graduated holes is essential; stakes of this kind, especially made for the purpose, being kept for sale in many watchmakers' material stores. Having tried the cylinder into the holes until one is found that fits it tightly, then the hole immediately smaller is the proper one to use while punching out the plug, which is done with an appropriately-shaped plug, made from a piece of mainspring hook wire. A new plug is then turned up and fitted carefully, so that a tap of a hammer will drive it home to its place. Before placing it in the cylinder the end should be polished off square with the lap in the screw head tool. The plug is then driven into its place.

THE SHAPE OF THE DRILL.—The operator, after being satisfied that his drill has a truly central point, he must see to the getting of his cutting edges in positions which is largely influenced by the material he desires to drill. If it is brass, he may make the cutting edges at about right angles; if he desires to cut copper, he may make them about an angle of 75°, and, at the same time, give them a little more clearance, so that the drill will not be so likely to bind; he will find, if he has to drill pretty far into soft metal, that it is somewhat difficult to keep the drill from binding, unless he is careful and gives it a good clearance.

FERRULE FOR PIVOTING.—The best form of ferrule or collet for accomplishing the pivoting of the cylinder center plug, is a light ferrule made from a piece of brass, and attached to the balance arms by melting a small piece of beeswax on it, then placing it on the balance and holding it over the flame of a spirit lamp until the beeswax melts; it is then allowed to cool. This is a very useful form of ferrule for many purposes in which the use of a screw ferrule is impossible, and in others, where it is unadvisable, because of its weight. Should the cylinder not run true, the center is filed up until perfection is obtained; the pivoting is then done.

PUTTING A HOOK INTO THE BARREL.—The following is, perhaps, as good a way as any to put a hook into the barrel. Take a piece of soft steel wire, file up about one-half inch of it, not to taper, and tap it in a hole one size larger than that in the barrel. In threading it, leave enough unthreaded so that it can be caught in the slip tongs. When quite screwed in cut it off or file it up to the size required for catching the spring inside the barrel, and notch it with a screw head file to make a proper hold for the spring. When all is ready, insert the small end from the inside of the barrel, when you can catch it with slip tongs and turn it to your left, so that the wire will tap the hole and just leave enough for the spring to hold by. If you do this properly, you may be sure that it will not be forced out by the breaking of the spring. The hook, in fact, with the exception of the cutting, ought to be finished in the screw plate.

TO MAKE A GOOD DRILL.—If we wish to make a drill that will act satisfactorily, we must be particular about getting the point exactly in the center; but this is just what is often neglected. Now, it will not be difficult for the youngest reader to understand that when the point is out of the center, one side of that point has to cut a larger share of the metal under operation than the other does; hence the side that is cutting its smaller share does not do all it might and could do if working under different circumstances. This of course, is detrimental to the speedy action of the drill, and if the reader would verify this statement, he should make two drills alike in every respect, except that one shall have its point central and the other not, and temper both alike. Then let him drill through a sheet of brass and notice the time it takes in each case, when he will find that the result will be considerably in favor of the centrally pointed drill.

HARD SOLDERING.—The matter of cleaning up after hard soldering is but imperfectly understood, says Chas. Weber, in one of our exchanges. Say, when working an eighteen karat chased ring, I use sulphuric acid and water, mix as wanted and throw it away when done with it. I don't trouble myself to measure or weigh. It should be mixed so that it tastes like strong lemonade without the sugar, and should be used in a glazed earthenware vessel of suitable size. I let my work cool slightly, and dump it into the bowl of pickle. If it does not come out clean I rinse in clear water, re-heat and dump it in again. The proper heat can best be ascertained by experiment. Extreme care should be taken not to allow the least particle of iron to get into the pickle. Clean off first every trace of binding wire, otherwise you will have a deposit of copper on your work that you will find troublesome to get off. This process works gloriously on silver, but when it comes to cheap gold work, I find it necessary to stone off that dirty yellow color before polishing if I want my work to look well.

IN MEMORIAM.—The Society of German watchmakers in London sent a memorial tablet in memory of Moritz Grossmann, which was set up recently at Glashütte.

INTERESTING APPARATUS.—The apparatus once constructed by Philipp Reis, the actual inventor of the telephone, have been presented to the Imperial German Post Office Department by their possessor, Mr. Léon Garnier. Immense sums were offered for them by various American lawyers contesting Bell's priority, but Mr. Garnier refused them all. The collection includes the artificial ear which Mr. Reis constructed first, and which became the incentive to the invention of the telephone.

ASTRONOMERS AS ENEMIES OF LIGHT.—It is well-known that astronomers are lovers of night and darkness, in which to prosecute their calling, although let it not be said that therefore they should be counted to the criminal classes. But in Berlin they begin to be known as enemies of light, especially electric. The vicinity of the observatory is nightly illumined by a great number of electric lamps, which throws their bright reflex on the sky and renders stars of smaller magnitude invisible. Hence the anger of the astronomers at Mr. Edison and his disciples.

THE STEEPLE CLOCK AT BASEL.—Until last century all the clocks in Basel were one hour ahead, and tradition tells the following tale: More than five hundred years ago the city was besieged closely, and the enemy concluded to make a night attack when the large steeple clock should strike the hour of one. Late in the evening the clockmaker who attended to the clocks heard of this plan and rushed up to the clock chamber, and, after the clock had struck twelve, he set it to strike two, thereby foiling the enemy. In memory of this escape the clock was permitted to go one hour in advance; an attempt was made a few hundred years ago to set it right, but the citizens rebelled against the correction.

DIFFERENCE IN REFRACTIVE POWERS.—Very remarkable illustrations of the difference in refractive indices in glass are made in the form of lenses, which magnify and yet are perfectly flat on both sides, constructed by Schott & Co., of Jena, Germany. These lenses are great curiosities. They consist of single discs of glass, such that the refractive index decreases in a regular manner from the surface inward. A noteworthy comment on the invention is made by *Nature*, as follows: "The properties of this arrangement have been investigated by Professor K. Exner, of Vienna. It is very funny, the way in which one man invents and makes a thing or a discovery, and then another of a different sort comes along and 'investigates it.'"

A MYSTERIOUS CLOCK.—Upon a foundation appropriately ornamented and representing a country scene, stands the stump of a tree, around which twines a serpent; it raises up in a half circular shape, and above carries a large transparent crystal ball. Above the serpent is another glass ball, one-sixth smaller. The hours from 1 to 12 are engraved around the circumference of the large sphere, the 60 minutes around the small. Upon the foundation on one side of the stump also lies a rock, upon which is sitting Father Time with the scythe, and with one hand he points out the hour upon the large sphere, while the upward bent tongue of the serpent indicates the number of minutes. No clockwork can be seen, and the clock attracted crowds of people, each of which, of course, knew what actuated the timepiece. The constructor finally explained the performance. The clock is hidden in the rock, upon which Time is sitting; from this runs a shaft through the foundation and the tree stump, and by a crown wheel moves the large glass sphere, which, in turn, communicates the corresponding motion to the small sphere resting immediately upon it.

TOWER OF ELECTRIC LIGHT.—The iron light tower, which is to be erected at Paris, to be used for illuminating purposes during the international exposition to be held in 1889, will have a height of 300 meters (984 feet). The visitors will be hoisted up to the top of the tower in an elevator, which will take 15 minutes. It is expected that from the top a view of about 85 miles will be possible, and the light radiated from there will illuminate the adjacent parts of the city for 12,000 yards around. After the exposition the tower will be used for meteorological and astronomical observations, especially for the observations of the rotation of the earth. Wrought iron is to be used, and cast iron is strongly objected to because it does not possess the necessary homogeneity.

"JEWELRY IS ALWAYS INTERESTING."—At a recent ball in Rome, Italy, several reporters were introduced to King Humbert. The king asked one of them, Signor Menusti, what was the most difficult part of his duties to-day. "To describe the dresses correctly." "Then I will refer you to an assistant," said the king smiling, and catching the journalist by the arm he led him to Queen Margherita, and, introducing him, he said: "You can render the press of the country a great service to-day by assisting to describe a few of the handsomest dresses worn here." The queen eagerly entered into the spirit of the proposition, and furnished the journalist with most copious details, and when in doubt about the name of some color or material, she called the lady herself to correct. Finally, she cautioned the reporter, "But do not forget to mention my nine strings of pearls. Jewelry is always interesting to ladies!"

DIFFICULTY IN POLISHING LENSES.—One of the greatest difficulties to be contended with in the polishing of large lenses is that of flexure during the process. It may appear strange that in discs of glass of such considerable thickness as those used for objectives any such difficulty should occur; but a simple experiment will demonstrate the ease with which such pieces of glass can be bent, even under the slight strain due to their own weight. If we take a spherometer and set it upon a polished surface of a disc of glass of only 7½ inches in diameter and ¾ inch thick, the micrometer head not being sufficiently tight to allow the instrument to spin around, the glass being supported on three blocks near its periphery, and then place one block under the center of disc and remove the others, the instrument will spin round on the center screw. It is thus evident that not only is this strong plate of glass bending under its own weight, but it is bending in a quantity easily measurable by this instrument, which is quite too coarse to measure such quantities as have to be dealt with in figuring objectives.

SHOD WITH GOLD.—In the year 1855, a storekeeper, named Donald Cameron, carrying on business at Woolshed, Australia, was elected first member of parliament for the Queen's district, and he had the honor—unique in the history of the colony—of being driven in triumph from the Woolshed into Beechworth in a gig, with tandem team, the leading horse of which was shod with gold. An old resident of the district gave the following particulars of the occurrence: "Just before the election, an eccentric individual known as 'Tinker Brown,' who had made a lot of money on the diggings, suddenly purchased a circus, with tents, horses, wagons, etc., complete, and, coming into Beechworth with his company, he offered to drive the newly-elected member and supply golden horse shoes for the occasion. The Woolshed 'bosses,' who were greatly elated at the result of the election warmly took up Brown's idea, and they resolved, in addition, to present their new member with a diamond scarf pin. The horseshoes were made by a working jeweler named Tofield, and weighed nine ounces each. The team was driven from Woolshed to Beechworth, and back as far as La Serena hill. On removing the shoes of the leader, (a piebald circus horse) they were found to have lost a total of one and three-fourth ounces. Before 'Tinker Brown' he willed them to a married daughter keeping a public house. They were in existence until about four years ago, when the owner had them melted and turned into sovereigns."

TRADE GOSSIP.

Mr. Philip Bissinger sailed for Europe on July 16, on the *Fulda*.

The latest estimates of the population of Kansas City is 170,000. That of Omaha 96,000.

The firm of Henry Smith & Co., of Philadelphia, has been succeeded by W. L. Headley & Co.

Mr. C. E. Rose, of Corsicana, Texas, has closed out business there and gone to Colorado Springs, Col.

Japanese goods in every variety are to be found at Mr. A. L. Tuska's establishment, 25 Warren street.

Mr. N. Kauffman (Vve. L. B. Citroen & Co.) arrived from Europe about the middle of July on the *Etruria*.

The Kibler Watch Case Co. is the name of a new firm in the watch case business, at 3 Province Court, Boston.

An excellent assortment of novel styles in plated jewelry is shown this season by Messrs. F. Ira Richards & Co.

Messrs. Heller & Bardel have secured the services of Mr. A. Rutherford, late with Mr. John A. Riley, as traveling salesman.

The Trenton Watch Co. is averaging 100 watches a day. In three or four months they expect to average three times as many.

Mr. S. F. Gordon, of Shreveport, La., has associated his son, Charles F., in business, and the style of the new firm is S. F. Gordon & Son.

The travelers of Messrs. R. & L. Friedlander are now on the road, and among their varied stocks the gold jewelry is not of the least importance.

Mr. Royal Robbins, Jr., has been admitted into the firm of Robbins, Appleton & Co., in the place of Mr. Henry A. Robbins, who recently retired.

Mr. Henry Dinkelspiel will represent Mr. L. Kaufman in the Eastern States and Mr. Gus Rees in the West. They have now started out for the fall campaign.

Mr. Charles C. Haensler, manufacturer of fine velvet, plush and morocco cases, has established an agency in the West, with Messrs. Merker & Co., 82 State street, Chicago, Ill.

The travelers for Messrs. Marx & Weis have some excellent things in watch cases to show to their customers, and in "half shell" cases especially they have some beautiful new designs.

Mr. Wm. B. Stewart, manufacturer of emblem signs of all kinds for jewelers, of 587 Carroll street, Brooklyn, has on hand a particularly fine stock of carved and plain watch signs.

Several new patterns of initial rings and lockets have recently been added by Messrs. Odenheimer & Zimmern to their already large line, and they will soon bring out some new designs in fancy rings and jewelry.

In Wilson, Wis., a mining company has decided to put a diamond drill in operation as soon as possible. People in that town are all agog over recent results, and all the larger mining companies are keeping men steadily at work.

A fine line of diamond goods in all kinds of mountings has just been made up by Messrs. Oppenheimer Bros. & Veith, who have recently been doing a large diamond business. Their salesmen are all out on the road at present.

The stock of the Elgin National Watch Company is quoted at 200 bid and nobody willing to sell. On July 1 a dividend of one million dollars was made, the stockholders considering that they had been carrying too large a surplus.

A nice line of gold scarf pins set with pearls, turquoises, etc., is shown by Mr. L. Sauter. His stock of rings is also quite large. He reports an increasing business in all lines, and especially in hair jewelry, of which he makes a specialty.

The store of the Spencer Optical Co. presents the appearance of business at flood tide. Every day, and every business hour of that day, finds every one in the establishment busy. This company only keeps in stock what it manufactures at its own factory.

Mr. C. A. Gallagher, of Messrs. Sinnock & Sherrill, has a cottage at Atlantic City, N. J., where many of our western friends spend their vacations. He spends a few days there every week with his family, and if he meets a buyer he does not mention initial rings.

The new patterns of watch cases shown by Messrs. Lissauer & Sondheim are beautiful. A glance at the illustrations of a few of them in another part of this issue will give an idea of their beauty. They are made only in 14-k., and consequently the finish and appearance are rich.

A novelty in inkstands, which promises to revolutionize the trade in these goods, is made by a man well known in the jewelry trade. The new inkstand, which is patented, saves the ink from evaporation and from the evils of dust and dirt. The ink is kept air tight and is forever fresh and pure.

Queen vest chains in gold are still in demand, but the patterns must be new and pretty to sell well. Messrs. Alois Kohn & Co. have just made a few new designs of charms that are handsome. One of these is a kind of urn or jar which comes to a sharp point below and is beautifully polished.

Rubies, pearls, emeralds, sapphires and spinels of finest material and cut, were received by Messrs. Mulford & Bonnet in their latest shipment from Europe. There was also a large alexandrite amongst them, which surpasses in every respect a remarkably fine one noticed in these columns a few months since.

When precious stones are to be set into mountings of intricate or unusual design, they should be taken to a good designer. Mr. Leon P. Jeanne, of 1 Maiden Lane, who does much special work of this kind, is also making many good designs of mountings in fancy ornaments, brooches, etc., for regular stock.

A few of the latest novelties in fancy rings are set entirely with turquoise. Messrs. H. C. Bryant & Co. have some that are quite attractive, with several different combinations of squares, each square set with four turquoises. Part of the attraction also lies in the shanks, which are made in handsome designs of scolloped work.

Mr. H. J. Hallock, Wyalusing, Pa., writes: "I have fourteen consecutive volumes of THE CIRCULAR, and it is interesting to note its growth to the present time. It has been a companion and counselor through my business life; has always held first place (though I take other trade journals), and we have both prospered. May it continue many years in its career of usefulness."

A thousand new Manhattan watches come from the factory of the manufacturers every week, and yet the demand is greater than the supply. Recently the company have been sending out to the trade designs for engraving the plain cases, and they are now receiving many orders for these watches with the cases engraved according to such designs. The engraving is done only on special order.

A dozen or more elephants stand in the show windows and upon the stands of the New Haven Clock Company in Park Place, continually wagging their tales and shaking their heads in a most doleful manner. They present an odd picture. Upon their backs is a gorgeous red velvet cloth trimmed with gold, and a dial of a clock is fixed upon the cloth. This elephant, however, is one of the novelties for the fall. He appears as natural, except in size, as his great prototype "Jumbo," and the motion to his head and tail proceed from the works of the clock in his body. It is an attractive clock for a show window or a mantel.

The run on the new gold filled chain, manufactured by Messrs. Hamilton & Hamilton, Jr., has been fully up to that firm's expectations. The jobbing houses have ordered liberally of these new goods and the manufacturers are as busy as they can be filling orders. The goods need only be seen to be appreciated, for truly this line of gold filled chains is a revelation of what can be done in the way of an unthought-of novelty.

An annual meeting of the United States Watch Co., Waltham, Mass., was held recently, and the following gentlemen were elected officers for the ensuing year: Thomas B. Eaton, President; Emil C. Hammer, Treasurer; Charles E. Edgecombe, Clerk. The directors of the company are Messrs. Emil C., T. F. and A. E. Hammer, Charles V. Woerd and Thomas B. Eaton. The factory was closed for the last two weeks in July.

Joseph Frankel of Jos. Frankel & Son, 38 Maiden Lane, suddenly died at his home in this city on July 1. He was born in Cracow, Austria, and came to this country in his eighteenth year. He entered into partnership with J. Folkart, and for many years the firm of Frankel & Folkart was well known in the trade. After the dissolution of this firm Mr. Frankel continued in business with his son, Joseph. He died at the age of 54.

A locomotive spark from an engine passing through a lumber yard in Marshfield, Wis., destroyed the whole business portion of that place. Nearly 2,000 people were made homeless, and many of them left without food or clothing. The probable extent of the loss is about $1,000,000. The neighboring towns and cities have been contributing to the relief of the unfortunate ones, and from all accounts Marshfield will soon be what it was before the fire.

Mr. Israel Manchester Hopkins, of Providence, R. I., died on the 8th of July of heart disease. He was born in Scituate about 1824. In early life he was engaged in the wool business, and up to about 1876 was in other lines. At that time he entered the jewelry business at 53 Friendship street. His death, though sudden, was not unexpected, as he had been in poor health for a year, and had given up business on that account. His widow and a son survive him.

It is the latest fashion for actresses to publicly admit that their stage jewels are mere paste. In this city an actress recently swore upon the witness stand that her jewels, which had captivated her audiences, were glass, much to the consternation of her manager and the surprise of her friends. Madame Patti, who claims to own many large gems, says that she wears duplicates of them in glass upon the stage, and that the real ones are kept in a vault at her home in Wales.

Henry Clay Whittaker, manager of the Providence Jewelry and Stone Co., Providence, R. I., died on July 5, of apoplexy. He was born in Providence in 1818, and had a varied career. He was engaged in many kinds of business at different times, and was well educated and of excellent literary taste and ability. In 1882 he connected himself with the Providence Jewelry and Stone Co. as its manager, and this concern has closed up its affairs since his death. Mr. Whittaker leaves a widow and a step-daughter.

Imitation marble clocks are springing up this season in great variety and the designs are excellent. Those of the E. N. Welch Manufacturing Co. are as fine as are made, and this company is taking particular pains with this class of goods. They have produced some beautiful designs in iron and also in polished wood. The iron clocks are fitted with fine grades of movements, and the tone of the bells with which they are supplied is attractive and pleasing. They have also recently added several new designs in hard wood clocks—cherry, ebony and antique oak. Many novelties are shown in nickel, bronze, brass, etc. The pretty little plaque, made of plush, with a brass plate mounted upon it, with an etching entitled "The Jolly Beggars," has proved so successful that several other poets are to be used in the same manner. Shakespeare is represented with a scene from "Twelfth Night," having an appropriate line in scrawling letters at the bottom.

The real marble clocks of the Seth Thomas Clock Company are the ones which this company expects to do a large business in this fall. They have made extensive preparations and have a large assortment of attractive patterns. The business in these marble goods has already started in briskly, and the company based its preparations on the favorable indications from the jobbing and retail field. The cheap clocks will soon make their appearance in new styles. Seth Thomas watches cannot be turned out fast enough to supply one-half of the demand.

The line of rings shown by Messrs. Hutchison & Huestis this season is superior to that of previous years, and the assortment of new designs in fancy and seal rings is very large. Garnets seem to be popular, and, clustered with opals or pearls, are set into some excellent designs of ladies' fancy rings. Those, also, set with clusters of small garnets are quite pretty. In seal rings there are several new shapes of stones, cameo and intaglio, and the new shanks are neat and elegant. Business thus far has been very good with this firm, and indications point to a large trade in the fall.

Fancy brooches which may be used as pendants or hair pins seem, from the orders placed with manufacturers of diamond mountings, to be in great demand for the fall trade. Notable among the lines of brooches this season is that of Messrs. A. Luthy & Co., who are rushed with orders. Most of their workmen are artists at their trades, and the work is remarkable for the skill shown in the designs and finish. The "loop ear ring," made by this firm, is also selling largely, and the demand seems to keep far ahead of the facilities of the firm to supply them, notwithstanding they are produced in large quantities.

Some of the handsomest of hair pins, mounted with precious stones, were shown last month by Messrs. A. Pinover & Co. at their new place, corner of Ann and Nassau streets. The designs include stars, crescents, bugs, butterflies, leaves, flowers and other fancy designs. There is one design of a snake, set alternately with fine emeralds and diamonds, coiled about a bug or fly, whose wings and body are made gorgeous with fancy colored stones. Another design is a large dragon fly. Its body is very long, with a row of emeralds set in the top, and the double wings are set with five brilliants. This is a remarkably graceful design, and it is a faithful copy from nature.

J. P. Hall is a young man of gentlemanly appearance and habits, who has been imposing himself upon our friends in Canada, and representing himself to be the son of J. G. Blaine, of Maine. He is a swindler. He lived in grand style at the best hotels and moved in the highest social circles. When he wanted money he had only to offer forged checks to the jewelers of Montreal and they readily accommodated him with the cash therefor. He usually made purchases of jewelry at the same time to show off his liberality. He has recently been arrested and some of the purchased goods recovered. It is said that the father of the young man, a Mr. Nathan Taylor, of Massachusetts, has offered to settle all his son's fraudulent transactions.

The robbery of the jewelry store of G. W. Fairchild, Bridgeport, Conn., is the largest which has been reported for several years. The value of the goods stolen is about $10,000, and no silverware or other cumbersome articles of value which were at hand were disturbed. The robbery occurred after midnight, July 17, and was not discovered until 7.30 the next morning. The large safe, an old fire-proof one of Marvin make, was forced open with wedges and other tools, and diamonds, watches and valuable jewelry were all taken away. Another safe stood near by containing money and other valuables, but the thieves did not touch it. They seemed to have selected what they wanted and to have taken their time about it. Many valuable watches which had been left for repairs were also taken, and Mr. Fairchild regrets this mostly, as they were, in some instances, valued by their owners as keepsakes. Pinkerton's detective agency has commenced work upon the case, and there are already some good clues to work upon. The Jewelers' Security Alliance is interested in the case, and it has a good opportunity to show what it can do.

The Geneva Non-Magnetic Watch Company has sent out a price list to the trade.

The death of D. O. Calkins, the old and well-known umbrella maker, of 42 Maiden Lane, is announced.

The trade is requested to be sure and look for King & Eisele's "Snap No. 2," as it will be to their interest to do so.

The new catalogue of Messrs. B. & W. B. Smith, manufacturers of show cases and store fixtures, has been issued. Every jeweler should write for one.

The death of Joseph B. Matthewson, of the firm of J. B. Matthewson & Co., Providence, R. I., occurred on the 18th of July. He was seventy-two years of age.

Messrs. J. B. Bowden & Co. have torn down their cosey private office and fixed up their whole space for business. The office is now much larger and more comfortable.

Pins were first brought from France into England in 1542. Previous to that invention, ribbons, loop-holes, laces, hooks and eyes of brass, silver and gold were used.

A large sample line of French clocks of all description has been received by the New York establishment of Mr. Chas. Jacques. The display at the salesrooms is elegant, especially in fancy clocks for show windows.

A pretty pattern of locket, shown this season by Messrs. Wightman & Hough, is an oblong one with the surface obliquely divided, one-half being richly chased and the other plain. A white stone is set in the center of the plain corner.

A handsome catalogue of the famous self-winding clocks will soon be issued to the trade by the American Mfg. and Supply Co. It contains some good illustrations of their handsome clocks, including some of the new mantel clocks.

Mr. S. F. Myers, of Messrs. S. F. Myers & Co., is at the Thousand Islands for a short vacation. When he returns he will find that his employees have prepared him a surprise in the shape of elegant furnishings for his new private office.

Eight pin manufactories in New England produce annually 2,000,000 packs of pins. Each pack contains 3,360 pins, which makes a total yearly production of 6,720,000,000 pins. These pins are usually put up in large cases, each case containing 672,000 pins.

Messrs. Falkenau, Oppenheimer & Co. have introduced a contrivance, consisting of a threaded pin catch, which affords safety against accident and theft, and which can be applied to any piece of jewelry which has a pin tongue. It is also simple and durable.

It gives us pleasure to announce to his friends in the trade, the marriage of Mr. Frank W. Sackett, for many years connected with the firm of Mulford & Bonnet, to Miss Grace Van Hoesen, of St. Paul, Minn. The wedding occurred on July 6th, at the residence of the bride's parents, in St. Paul.

Fifty watches, most of them repair jobs, were stolen lately from the store of Mr. H. P. Middleton, 493 Sixth avenue. They were taken early in the forenoon, while the clerk was attending to his duties in another part of the store. The loss is between $700 and $800.

A marine chronometer, a "Coyden, No. 1,240," was stolen on July 9th from Mr. J. Wimmer, of Indianapolis, Ind. Mr. Wimmer writes to us and says it was stolen during business hours while the street was crowded. Jewelers and pawnbrokers are warned not to purchase it.

The report of the deputy master of the British Mint contains a statement of the coinage of gold and silver for 1886 at the chief mints of the world. By this it appears that the total net amount of new coinage added to the existing circulation in that year was, in gold, $80,561,020, and in silver, $126,320,880. Of this latter amount nearly $52,000 000 was coined in India, $30,000,000 in this country, and $27,000,000 in Mexico.

One of the most attractive stores in the silver plated ware trade is that of Messrs. Rogers & Brother, in Cortlandt street. It is convenient to the other branches of the jewelry trade, and this firm keep a large stock of their goods upon the premises. The salesroom is fitted up handsomely, and the wares are displayed in a tasteful manner.

Mr. Jacob Stern, of Messrs. Stern & Stern, will start on his fall trip shortly, and is satisfied that his diamond ornamented fancy watch cases cannot be surpassed in beauty of finish or astonishing lowness of price by that of any other traveler. The goods are really very beautiful and cheap, and Messrs. Stern & Stern report a large demand for them.

Edward Langton, of Philadelphia, dicd last month at the age of seventy-four years. He was born in England, and came to this country when quite young. From 1843 to about 1866 he was engaged in the jewelry business in Philadelphia, first as a salesman, and then as a partner in the firm of James E. Caldwell & Co. He was widely known and respected.

We are in receipt of a communication from Messrs. E. Ira Richards & Co., saying that they have purchased of J. A. Smith, of 14 W. 14th street, the right to manufacture his buttons in rolled gold and silver, and asking us to notify the trade of the fact, and to request manufacturers to abstain from making them. These buttons are stamped "Pat. Oct. 8, '78, R."

The Inter-State Commerce Commission has rendered a decision in the case of Louis Larson against the Grand Trunk Railroad, declaring that the selling of thousand mile tickets to commercial travelers at a less price than is charged the general public is a violation of law and cannot be permitted. Commercial travelers hereafter will be required to pay full fare on all inter-State railroads.

Band rings and diamond mountings are two lines of goods which Messrs. Ripley, Howland & Co. manufacture in large assortment. For the coming fall they have added many new designs of band rings, and introduced novelties in the different classes of diamond mountings. In brooches they have some excellent designs, and in rings, ear rings and lace pins their assortment is complete.

In the advertisement of the Illinois Watch Company, in this issue, may be seen illustrations of the six grades of the four-size movement made only by this company. There is quite a demand for this small size movement, and since the company has begun to make it in cheaper and higher grades it has become very popular. Orders should be placed soon to insure a stock of them for the fall.

It seems likely that the towns of North and East Attleboro, Mass., will have an interesting time before they become united under one government as a city. Many are opposed to such a scheme, saying the places cannot grow by means of the jewelry trade alone, which is now the main business of the places, but that they should bring in new industries, and build up the four miles of comparatively unsettled ground that lies between them.

A decision was made last month in a petty case before a court in this city, which is of considerable interest to the trade. The plaintiff left his watch with the defendant, a jeweler, to be repaired. When he returned for it several weeks afterwards, the jeweler had misplaced or lost it, but offered him another watch in its place. The man would not consent to receive any other watch in exchange, but wanted his own, or its equivalent in money. When the case was brought in court, the jeweler defended himself by saying that he had a sign displayed conspicuously in his store, which reads: "Not responsible for goods left over thirty days." He claimed that the man saw this sign, and that he was thereby relieved of all responsibility in the premises. But the court held, that such a sign does not take away the responsibility of the dealer in the goods of his customers, and the jeweler was ordered to pay the plaintiff the full value of his watch.

The word "Gazette" is of Venetian origin, and is taken from the smallest coin in use then many years since; and, as the first newspapers there sold for this coin, hence they come to be called gazettes.

A female rag-picker in Louisville, in sorting over a lot of old rags, found a pair of diamond earrings amongst them. She gave them to a friend who volunteered to take them to a jeweler to ascertain their value. He remained out about an hour, and upon his return offered her ten dollars for the earrings. She grew suspicious, and upon examining the earrings, found that the diamonds had been replaced with white stones. She had the man arrested.

In our advertising page appears a few illustrations of diamond-ornamented watch cases, made by Messrs. Albert Lorsch & Co. The designs are graceful and are well executed in the cases. The centers of these cases are thickened where the diamonds are set, and the appearance is neater than those which contain the stiffening piece of gold about the stones. Messrs. Albert Lorsch & Co.'s office now looks quite elegant after the siege of carpenters, painters and paper hangers.

A mercurial thermometer held in the sun's rays, and not in contact with any other body, will show but little rise in temperature, the radiant heat being reflected from the bright surface of the mercury like light from a mirror. But, if the bulb be coated with lampblack or some absorbent of heat, a rise in temperature will be indicated at once. So the heat rays from the sun may be passed through a lens of ice, and concentrated to a sufficient degree to ignite combustibles placed at the focus, without melting the ice of which the lens is formed.

On June 27 occurred the marriage of Mr. Charles S. Crossman to Mrs. Harriet B. Peck. The ceremony was held at the residence of the bride, 114 West 69d street, by the. Rev. R. S. MacArthur, D.D., after which the young couple went off on a short wedding trip. Our readers who have followed Mr. Crossman's "Complete History of Watch and Clock Making in America," will be interested to know that he has received much assistance from Mrs. Crossman for a considerable period before the marriage, and that the future articles will have her further attention.

On Saturday, June 25, the newly-uniformed base ball nine of the employees of Leroy W. Fairchild Co. played their first match game with the somewhat famous nine of the Amasa Lyon Umbrella Manufacturing Co., at Mountevoide's Park, Brooklyn, E. D. The result of the game was 14 to 13 in favor of the "Fairchild's." The latter part of the game caused great excitement, owing to the lead which the "Lyon's" had over the "Fairchild's" at the start, of ten runs, and the manner in which the "Fairchild's" caught up to and defeated the "Lyon's."

We have received from Mr. Herman Bush, of Hull, England, a copy of the book entitled, "The Watch Jobbers' Handy-book. A Practical Manual on Cleaning, Repairing and Adjusting: Embracing Information on the Tools, Materials, Appliances and Processes employed in Watchwork," by Paul N. Hasluck, A.I.M.E. The book contains 140 pages and over 100 illustrations. It is neatly printed and well bound, and is intended as a practical companion to the young apprentice, or a helper for the advanced watchmaker. Copies can be procured of Mr. Bush upon receipt of fifty-six cents, which includes the postage to any place in the United States or Canada.

Jewelers in search of novelties for the coming season should see the stock of the Boyd & Abbot Co., of 23 Warren street. It is impossible to describe the goods here exhibited, except with the word "novelties," for there are many things here which the average person of this generation never dreamed of. Small things in brass for the desk, such as paper cutters, ink-stands, paper racks, etc., are here in the most novel but elegant forms. Bric-a-brac of pleasing figures are shown, and all of them are fresh from the factories of Europe. Fancy thermometers, mantel ornaments, new styles of call-gongs, which are suspended on a silken cord from a brass frame, ornamental frames for photographs, novelties in wood, brass, copper, leather, in fact, if we would attempt to speak of their stock in our small space, we can only say, novelties.

The Fourth of July was used by several enterprising firms as a means of advertising. Imitations of fire-crackers which looked even more dangerous than the real article, were distributed to the trade in a lavish way. After frightening the recipients a bit, they were approached closer and closer, until the discovery was made that the stems were of twine. The cover was then discovered, and the secret was out. From the inside of the bogus fire-cracker was extracted an announcement of fall styles in gold pens or pencils, or of the intended arrival of a salesman.

The new designs of silver-plated ware which are constantly coming from the factory of the Middletown Plate Company, are original and striking. For the fall of 1887, the company has made extensive preparations for a large business, and they began by making designs to suit the popular taste and requirement. Upon another page of this issue is an illustration of the "Moorish" tea-set, one of the new designs of this season. It is made in silver or old silver finish. The New York and Chicago branches of this company carry in stock a complete line of the company's goods.

Messrs. J. Eug. Robert & Co. have recently received a large line of ladies' ornamented watches. The line is composed of all sorts of designs in open-face and hunting cases, and they are all, without exception, most elegant and unique. In colored gold, enameled, heavily chased or finely engraved, the designs are various and widely different. Of the open-face watches many of the dials are richly ornamented and are of gold or fancy enamel. This firm has specially imported these goods because of their novelty, and the designs are original with them.

A $500 clock, which pipes thirty-six Italian, French, German and American tunes with wooden flutes, besides telling the hours and minutes in silvery chimes, has been placed in the vestibule near the dining room at the executive mansion at Albany. The timepiece is of natural carved oak and was purchased at Berlin. The flutes are said to be over a century old, and were presented by Frederick the Great to a favorite lady of his court. Three years ago the music box was placed under the hammer at Berlin, and an enterprising jeweler combined the mechanism with that of a clock.

The American Waltham Watch Company was recently charged with importing foreign workmen under contract by some trade organization. A representative of Robbins & Appleton has publicly denied that the company has done any such thing. He admits that many foreigners have recently been admitted into the company's employ, but says there were no contracts made nor representatives sent to foreign lands to procure such men. He says that on account of the scarcity of good engravers in this country they are compelled to take foreigners. They would very likely prefer Americans to do all the work of their factory, but will always require good workmen whether they be native or foreign.

A party of treasure-seekers, backed by several Philadelphia capitalists, have chartered a schooner for a period of six months to look for nine hundred thousand Spanish doubloons which, they assert, are buried off the Delaware capes on the English privateer, *De Braak*, which sank in 1798. A London lawyer has been at work for six months past in looking up from English records in London the full particulars of the foundering of the *De Braak*, and has furnished to the parties interested the minutest details of the craft. It seems that the vessel had been privateering on the Spanish main and had captured two galleons loaded with the precious coin, which was lodged in the lockers of the *De Braak* for shipment to England. The vessel foundered in a gale, however, before she could make the Delaware capes in safety. The experienced divers, with all necessary apparatus, steam boilers, pumps and a party of ten men, will accompany the schooner, and work will be started immediately. A powerful tug will be chartered to remain by the schooner to tow her to the Delaware Breakwater when the sea shall become too heavy for work, and to assist in moving the divers about in their work in the water, which is not less than fifty feet deep.

Trays for traveler's trunks are perhaps one of the greatest causes for despair that the otherwise hopeful commercial ambassador has. If they are not made properly, they break from the hard usage of the genial baggage smasher. Messrs. Wiggers & Froelick, who make a specialty of these trays, have acquired the art, after many years' experience, of making them strong and durable, yet of light weight. During the past few years many slight improvements have been made, suggested by the actual experience of travelers, and at the present time these trays and jewelers' cases are made stronger than ever before. Messrs. Wiggers & Froelick have been rushed with special orders recently.

President Cleveland has recently received several elaborate and strong invitations to visit some of our western cities. He has accepted that of St. Louis, which was presented to him personally by the hand of its Mayor, accompanied by a hundred delegates from other parts of the State of Missouri. Kansas City, with its customary enterprise, hopes to receive the President, and we almost suspect it is partly as a scheme to "boom" the town. However, we would respectedly suggest to our manufacturers that the President's tour in the west offers a legitimate opportunity to dispose of much jewelry. The jeweler who can get up a good pattern of jewelry especially for this event will find a good sale for it, we think.

Notwithstanding the fact that watches are made in America by so many thousands a day, and that every American watch company is working to its fullest capacity, and still have more orders on hand than it can fill for some months, we find that watches have to be imported in almost as large quantities as ever before. Messrs. Henry Ginnel & Co., for instance, recently imported a lot of Swiss movements called the "Newport," which literally went like hot cakes. They are made to fit American cases, and are key-winders of a very low price. This firm have had to place another large order with the Swiss watch company, and they say that they can dispose of all these movements that they can get. American movements, key-wind and seven-jeweled are very scarce at present, and the cheap Swiss movement is being largely used in its stead. Messrs. Ginnel & Co. report the outlook for the fall very bright and promising.

An interesting instance of the nerve of experienced swindlers is shown in the daily papers of last month. Two men ingratiate themselves into the favor of a watch dealer. They represent themselves to be jewelers, and ask to be shown some cheap watches. They select a few and pay for them in cash. Further up the street they call upon an engraver who allows himself to be lead away into their evil ways. He consents to engrave upon the watch movements the name of an American movement of medium grade. He also stamps the case 14k. inside, and thus becomes a full-fledged swindler himself. The two men next enter the establishment of a man who is not strictly honest, a gold-plater, who plates the cases for them, notwithstanding the 14k. mark is scarcely cold upon them. Next, the two men take the watches, which have now cost them about ten dollars apiece, and deposit them with several pawnbrokers about the city, receiving loans of twenty-five or thirty dollars on each. They make a clear profit of fifteen to twenty dollars on each watch, which is not large considering the trouble they took, and the nerve they had to have in the first place. It isn't every one who can enter a pawnbroking establishment and deceive the proprietor in this way. We congratulate these men on their fine display of cheek.

The American Association for the Advancement of Science, the purposes of which are to promote intercourse between scientific men, to give a stronger impulse and more systematic direction to research, and to procure for the work of scientists better facilities and recognition, will hold its thirty-sixth meeting in this city, August 10th to 17th. The association now numbers upwards of 1,900 members, comprising the most distinguished scientific men of the country. Of this number some 1,200 are expected to be at this meeting, and the local committees having charge of the arragements for their entertainment now appeal for subscriptions for that purpose. General Thomas L. James has consented to act as treasurer, and subscriptions may be sent to him at the Lincoln National Bank, 32 East 42d street. Circulars explaining more in detail the necessity for this appeal to our citizens are being sent out generally to business men. The names attached to this circular include the following: F. A. P. Barnard, President; Chauncey M. Depew, Abram S. Hewitt, J. George William Curtis, Henry M. MacCracken, Morris K. Jesup, J. S. Newberry, Charles P. Daly, Vice Presidents; Thomas L. James, Treasurer; H. L. Fairchild, Secretary. Finance Committee: Gen. T. L. James, Chairman; Geo. F. Kunz, Secretary; S. L. M. Barlow, Walter H. Barret, Heber R. Bishop, M. C. D. Borden, Lucius E. Chittenden, Thomas B. Clark, Henry Clews, Alfred R. Conkling, Edward Cooper, Charles F. Cox, Frederick W. Devoe, Henry Dudley, Henry C. Duval, Prof. Thos. Egleston, Charles D. Freeman, James A. Garland, James Gaylor, George J. Gould, Dr. John H. Hinton, N. D. C. Hodges, Robert Hoe, Jr., Brayton Ives, Frederick Kane, Vice-Chanc. H. L. MacCrackin, A. M. Palmer, Charles C. Parmelee, Justus F. Poggenburg, Howell C. Rees, Elliot F. Shepard, J. Edward Simmons, Appleton Sturgis, Russell Sturgis, Charles L. Tiffany, Frederick W. Vanderbilt, J. K. Van Rensselaer, Col. J. R. Van Wormer, H. Walter Webb, William A. Wheelock.

Music boxes will be in larger demand this fall than ever before, if the indications of trade and the experience of those in the business can foretell. Messrs. Jacot & Son have heard from one of their principal customers, that he is expecting to sell a great many this fall. Mr. C. H. Jacot, of this firm, who has been to Switzerland attending to the manufacture of novelties for the fall, is expected home during the present month. His new safety check is having its merits appreciated wherever seen, and is now used on all their music boxes. The demand this fall will probably be for the cheap and medium grades. In these goods, Messrs. Jacot & Son have made what they consider sufficient preparation, and they are now taking many orders. In expensive goods they have a fine stock, and several that we saw and heard last month seemed to be the acme of perfection.

Upon page LXV of our advertisements this month will be found an illustration of the "Ideal" cuff button, which is being manufactured in gold and silver by several manufacturers. The "Ideal" is made with a patented back, which is admitted by all who have seen it to be as good a back as can be made. The post is made flat, with one edge curved, so that while it is narrow at the top, it is quite wide where it joins the shoe. At the shoe, the curve of the post serves as an entering wedge to pierce a stiff buttonhole, and almost like an automaton, the button gives half a turn of itself and settles into its position on the cuff. There is nothing about the button which may get out of order, and the style of the post and shoe admits of their being made very strong. While substantially made, the button is not ungraceful in appearance, but is very similar to the old style button. Readers are referred to the advertisement for the names of the firms which have secured the right to use this back upon their sleeve and collar buttons.

Silver was extensively abundant in olden time. The richest silver mine in the world is Potosi. Total product of silver in Nevada, $352,000,00. Annual silver product of North America, $85,000,000. The yearly profit of the mines of Africa is estimated to be $50,000. Silver, as regards its mines, is represented in every portion of our planet. Asia (including Australia, New Zealand and Oceanica) produces $1,950,000 a year. The annual product of the silver mines of South America is estimated to be $26,000,000. The export of silver from the United States since 1848 has amounted to $51,746,771. Silver mines of Europe yield annually $13,000,000, and their total product has amounted to $3,628,000,000. The highest silver deposit in the world is on King Solomon's mountain, in Colorado, 14,000 feet above the Pacific Ocean. The largest nugget of silver yet obtained was dug up in Arizona, and weighed 43,200 ounces, valued at the same number of dollars. The silver mines of Mexico were wrought long before Cortez revealed them to the eyes of Europe, 1513. Their product per year at the present time is estimated to be $32,000,000.

Numismatists will be interested in the following: "The recent course of the Director of the Mint in interfering with the sale in New York of United States mint pattern pieces, which were advertised as part of the effects of Dr. Linderman, the first Director of the Mint under the new law, has been followed by the issue of a circular which is of particular interest to numismatists, collectors of coins, coin dealers and others. In this circular Director Kimball says it is unlawful to traffic in United States pattern pieces of unauthorized coins, impressions from the United States Mint, experimental dies or replicas, or copies of United States experimental dies or replicas, or copies of United States coins other than that of authorized weight and fineness. The purpose of the circular is to warn numismatists, collectors of coins, coin dealers and others that the impression of experimental dies, whether in soft metal or in metal of the same weight and fineness proper to coins of the same denomination, is unlawful except in the case of pattern pieces of such denominations of coins as are coined for general circulation during the calendar year of their date. All impressions taken in copper, bronze or other soft metal from an experimental die, to prove the die, are required to be destroyed, and the die itself to be defaced at the end of the year of its date. Any experimental coin or impression in soft metal from a die prepared by the United States Mint, is required to be destroyed as soon as the purpose for which it is struck is subserved."

It was our attention to call the attention of the trade to the advertisement of the Chas. D. Pratt Company in this issue; but we find that it gives but a faint idea of the stock kept by them. Therefore, the trade is invited to make them a call at their place, at 32 Chambers street, where visitors will be utterly amazed at the display. The company have recently secured the floor above their old quarters, and now have two full floors reaching through the entire block, for the display of their fancy goods, clocks, bronzes, etc. On the lower floor are spread the miscellaneous novelties, which are only seen in a complete stock of fancy goods. Leather goods, which, we note, are to be hereafter designated "leatherware," are shown in all kinds of useful things. Pocket-books, portfolios, albums, photograph frames, purses, etc., are seen in every conceivable shape and every variety of leather. Fancy ink-stands, paper-weights, stationery-boxes, smokers' sets, are arranged on this floor in a neat and artistic manner. Upstairs is the art room. This floor will contain gems of art in the way of statuary. Fine statues in marble, bronze and terra cotta, candelabra of richly polished brass, marble clocks of every description, and fancy mechanical figures for the show-window are here seen. This floor is to be fitted up as an attraction to dealers in art goods, and concerning prices, we can say that the Chas D. Pratt Co. is not a high-priced place to buy.

Mr. Martin Lewis is not so far advanced a swindler as some men of whom we have read, but he had ambition, and had he not been checked recently, there is no reason to doubt that he might soon reach the position of Jacob Sharp. He was a plausible talker, and gave himself out as a broker. His appearance favored him, too, and he moved in the best social circles. On July 6th, Lewis entered the store of Mr. J. W. Bloomfield in John street, and purchased a diamond ring for $120, presenting in payment a check for $300 on the Second National Bank of Boston. Mr. Bloomfield, after making investigation, allowed the ring to go, and gave the man a check for the balance, $180. Messrs. Howard & Co., up-town, gave the gentlemanly swindler a seventy dollar watch and $230 in cash for another of his $300 checks, which also proved worthless. Mr. E. A. Thrall got rid of a pair of diamond earrings in somewhat the same manner. These latter have been recovered from a pawn-shop, where they had been placed to secure a loan of $85. Mr. Lewis might have gone on indefinitely and received more jewelry in return for his plausible stories and worthless checks, had he not entered the office of Messrs. Alfred H. Smith & Co. The suspicions of this firm were aroused, and they would not sell him anything. Later in the day one of their clerks, in a casual conversation with Mr. Bloomfield mentioned that a man had called at their office who had every appearance of being a swindler. He described his appearance, which coincided with the man Lewis, much to Mr. Bloomfield's surprise, for he had been looking for him for two weeks without success. Mr. Bloomfield sent his boy out to search around the Lane, John street, etc., to find his friend Lewis, whom the boy also knew by sight. The boy shortly found him, and quickly dispatched a messenger to his employer. Mr. Bloomfield immediately went out and found Lewis in the cigar store on Broadway, near Maiden Lane. He took him to his store and sent for the police. The arrest was quietly made, but the following day the newspapers contained full accounts of it, giving all the credit to the police. The next day the Tombs Police Court justice complimented the officer who had made the arrest upon his sharpness. Lewis was held for trial in default of $1,500 bail, and is now awaiting the action of the grand jury.

The wonderful resources of the nation, its immense development and its future possibilities, are well illustrated by the statement of the farm products and their value prepared by Professor J. R. Dodge, statistician of the Agricultural Department. The itemized statement is a revelation of wealth and power possessed by no other country. The Valley of the Nile, the granary of the Old World, even in the seven years of abundance predicted by the fat kine of Pharoah's dream, did not render such enormous returns to the labor of the husbandman. Here are the figures:

Indian corn, 1,900,000,000 bushels	$527,000,000
Wheat, 450,000,000 bushels	440,000,000
Dairy (milk, butter and cheese)	370,000,000
Hay, 45,000,000 tons	360,000,000
Beef, veal (dressed), 4,300,000,000 lbs	370,000,000
Pork, dressed, 5,000,000,000 lbs	360,000,000
Cotton, 3,120,000,000 lbs	250,000,000
Poultry products, estimated	200,000,000
Oats, 500,000,000 bushels	168,000,000
Potatoes, 200,000,000 bushels	100 000,000
Fruits	100,000,000
Vegetables	50,000,000
Wool, 300,000,000 lbs	45,000,000
Mutton, 500,000,000 lbs	45,000,000
Tobacco, 483,000,000 lbs	42,000,000
Barley, 60,000,000 bushels	33,600,000
Rye, 25,000,000 bushels	14,000,000
Sugar, 250,000,000 lbs	12,500,000
Molasses (syrup), 45,000,000 gallons	11,250,000
Buckwheat, 13,000,000 bushels	7,280,000
Rice, 98,000,000 lbs	4,900,000
Honey, 30,000,000 lbs	4,800,000
Beeswax, 1,300,000 lbs	325,000
Other soil products, seeds, wines, etc	408,945,000
Total	$4,014,000,000

The five million farms of the United States produced an average of $800 worth to each. The three hundred million acres of cultivated land in these farms gave back an average of over thirteen dollars to the acre. The ten million people employed in tilling the earth each gave an average addition to the wealth of the world of $400. All this would have been impossible but for the improved machinery which the inventive genius of the American has given us for use in all the varied branches of agriculture. Agricultural machinery added at least one-quarter to the amount and value of the agricultural products of the country. Such exhibits of the production of the country are calculated not only to stimulate the pride, but the ambition as well of the American citizen. No man in America need suffer for the necessities of life. The teeming soil needs but to be called on and it produces an abundance to feed and clothe every man who will obey the formal law, "In the sweat of thy brow shalt thou earn thy bread." There is no place here for the discontented, because the earth offers of its abundance to all who seek it.

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THE

JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW

Official representative of THE JEWELERS' LEAGUE *and of* THE NEW YORK JEWELERS' BOARD OF TRADE, *and the recognized exponent of Trade Interests.*

A Monthly Journal devoted to the interests of Watchmakers, Jewelers, Silversmiths, Electro-plate Manufacturers, and those engaged in the kindred branches of art industry.

SUBSCRIPTION.

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$2.00 Per Annum; Postage Paid.

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☞ *Advertising rates made known on application.*☜

An Unusually Hot Summer.

FOR nearly the whole of July and during the first week in August, the weather in this city has been the hottest and most uncomfortable of any season since 1876, when the weather was so hot as to nearly ruin the prospects of the Centennial Exhibition in Philadelphia. This year the weather set in very hot immediately after the Fourth of July, and for the remainder of the month there was scarcely a day that the thermometer did not register 90 degrees or more. At the same time, the air was filled with moisture, what the weather bureau terms "humidity," so that the heat was far more oppressive than the register of the thermometer would indicate. There were frequent showers, but these seemed rather to add to the oppressiveness than to mitigate it, and those business men who were required to remain in the city suffered greatly. But every one who could possibly do so rushed off to the seaside or the mountains, and business was left to take care of itself to a great extent. Of course, there was a falling off in the volume of business done during this heated term, but no one seemed to mind this, being, on the contrary, rather rejoiced that they were not called upon to exert themselves while it was so sweteringly hot that life was a burden.

Editors suffered in common with the rest of humanity, while added to their troubles was a dearth of news and interesting events for publication, so that it was a marvel that they succeeded in getting out their papers at all. The seaside had as many attractions for the hard worked journalist as for any one else, and many of them, including some from THE CIRCULAR office, went fishing, letting their work get ahead of them for the time.

Other sections of the country suffered nearly as much, possibly more, from high temperature as New Yorkers did, but they did not have the same degree of "humidity" to contend with and consequently were not reduced to that enervated condition when the least exertion produced actual physical suffering. An accompaniment of the heated term were atmospheric disturbances of greater or lesser extent, resulting in cyclones and other wind storms in some localities, and deluges of rain in others. In still others, no rain fell for weeks, and the crops were suffering from droughts. Relief to all this came early in August, when the temperature fell many degrees, and the drought-stricken regions were visited by copious showers, thus saving crops that had been regarded as almost destroyed.

But all this is now but a memory, for August put a new face on the weather, and its cool, refreshing breezes put new life into the enervated systems of our business men, and they enter upon September with renewed courage, unbounded hopefulness, and a firm determination to get out of the Fall trade all there is in it. That it is to be active and lively, is the belief of all. Money is plentiful, crops are good, the country is not overstocked, dealers in general are in excellent financial condition, and everything promises an unusually good Fall trade. That there will be a brisk demand for goods we do not doubt, but what the pecuniary results to dealers will be rests wholly with them. If they choose to press competition to a degree that renders it necessary to cut prices till there is no profit in sales, the active demand anticipated will be of little value to any one. There is no necessity for doing this, for there will be demand enough to go around at good prices. But there are some men so determined to swell the volume of their sales that they are willing to sacrifice not only their own profits, but so cut up the business that no one else can make anything. The trade and the country are better off when every business man is getting profitable compensation for his time, labor and capital. We hope to see this done this Fall, and trust there will be even less of cut-throat competition than ever.

Pirating Patents.

A WELL-known manufacturer writes to us to complain of the manner in which a certain valuable patent recently taken out by him upon an article for which there is a large sale, has been infringed upon by other manufacturers without in any manner acknowledging his rights in the matter. He spent considerable money in preparing designs, patterns, and machinery to make the article, and

produced it in fine gold, but scarcely was it introduced to the trade before it was reproduced in cheap metal, and the trade flooded with the goods. Of course, the cheap article drove out the better goods to a great extent, and the patentee in consequence lost most of the advantage he had expected to reap from his invention. This is the same old story that has been so often repeated in the history of the jewelry trade, and about all the consolation we can offer the victim of this latest piracy is that there have been hundreds of sufferers in the same manner before, and that such robbery is by no means confined to any one calling or industry. A gentleman of our acquaintance, a few years since, devised the system of automatic cash delivery now in use so generally in stores all over the country, and expended a large amount of money in putting up the first one ever used in a dry goods store on the east side of the city. It worked satisfactorily, and the proprietor of the store was able to dispense with his army of cash boys at a saving of $200 a week. In less than a year the gentleman owning that patent found themselves involved in no less than thirty-three suits against infringers of their patents, and most of those suits are still pending. The inventor of the driven well, to which we recently alluded, had a legal contest on his hands from the first issuance of the patent until two years after the patent had run out. During the seventeen years of the life of the patent, he received scarcely a dollar for the use of it, while over $300,000 were spent in litigation. Finally, when all persons interested in it had impoverished themselves, the Supreme Court of the United States decides that the patent was valid from the first, and that all persons using driven wells are liable for a royalty. History is full of similar instances showing where the inventors who have done the most for mankind, have been robbed of the fruits of their genius and their labors.

That this should be so in a country that boasts of giving greater encouragement to intelligence and skill, is a lamentable fact, but such is the condition of our laws that the products of brain labor have little protection against thieves and pirates. Authors complain of the lack of efficient copyright laws, and inventors complain that their patented ideas are stolen with impunity, and that it costs more to obtain redress than it would to suffer the robbers to go free. There are patent sharks who make a business of ascertaining when a patent is issued for a thing that promises to be valuable, and forthwith set about appropriating it. Some of these sharks represent foreigners, and as soon as a desirable patent is issued here, copies of it are sent abroad, where it is patented in foreign countries by others than the inventor. So far as protecting our patentees at home is concerned, the fact that the government has issued a patent to an inventor should be accepted by every United States Court as *prima facia* evidence that the owner has property rights under such patent that are to be protected by the court, and entitle him to an injunction to restrain any and all infringers. If a legal contest results, the burden of proof to show that the patent is invalid should rest with the infringer, and the patentee not be compelled to show that his invention was new and patentable. Under the present laws, the man who takes out a patent virtually serves notice on the community, that he has something worth stealing, and invites unscrupulous persons to take advantage of the fact. We can give our correspondent little hope of obtaining redress for the injury done him. If he deems the injury sufficient to warrant him in prosecuting the infringer, the possibilities are that after four or five years of costly litigation, he may get an order of court restraining the production of the goods covered by his patent and holding the infringer to an accounting for damages. In the end, however, he would probably ascertain that he had incurred a large bill for legal expenses, without obtaining compensation therefor.

Efforts have been made in the interests of inventors to reform the patent laws, but this has been met by a counter effort aiming to abolish the patent laws entirely so as to give the public the use of every new invention without compensation to the inventor. There should be thoroughly organized effort on the part of all persons interested in the patent business to secure legislation that will afford complete protection to inventors and owners of patents. A movement with this end in view is on foot and should find hearty encouragement in the jewelry trade.

Commercial Travelers and Railroad Rates.

AS THE August number of THE CIRCULAR was being printed, the Inter-State Commerce Commission rendered a decision relative to the right of a railroad company to sell mileage tickets to commercial travelers at a less rate than they sell the same tickets to the general public. The decision of the Commission is adverse to the travelers. The case was that of Louis Larrison against the Grand Trunk Railroad Company, and the case of the Michigan Central Railroad against the Grand Trunk, wherein complaint was made that the former road had sold mileage tickets at less than regular rates, was disposed of at the same time. The Grand Trunk was selling thousand-mile tickets to commercial travelers for $20, and Larrison demanded that they should sell him one at the same rate. This being refused, complaint was made to the Commission. In their decision the Commissioners review the law, and hold that while railroad companies may issue mileage tickets at reasonable rates, it was the purpose and intent of the law to prevent discrimination of any sort, and to provide that the entire public should be on an equality in this respect. The Commissioners say: "Persons belonging to the class known as commercial travelers are not privileged to ride over railroads at lower rates than are paid by other persons. Whatever reasonable rates commercial travelers are made to pay, other travelers may be made to pay. To charge one more than another is unjust discrimination;" and this is true whether the tickets issued are mileage tickets or in some other form. In defending its action, the Grand Trunk road set forth very fully the fact that commercial travelers patronize the road to a greater extent than any other class of travelers, that they are a benefit not only to the road but to the places along the line, and that by virtue of the benefits they confer in numerous ways, they are entitled to lower rates. The defense was of no avail, however, for the law is inflexible, and the Commissioners have no discretionary power; they have to enforce it as they find it, and are not permitted to take cognizance of special cases that seem to warrant exceptions being made. It is this feature of the Inter-State Commerce law that excites so much adverse criticism. There is a general feeling that the law is right in its purpose, which is to prevent discriminations being made in the shipment of freight especially, whereby heretofore large shippers were given very great advantages over the smaller ones, but even in this there should be discretionary powers vested in the Commissioners. Exceptional cases are constantly arising, and to bring them under the operation of a cast iron regulation is unjust both to the railroads and to their patrons. In the case of the commercial travelers, it is conceded by the railroad managers that they are entitled to lower rates of fare than the general public because they are wholesale travelers, and consequently entitled to jobbers' discounts when they come to buy their tickets, but the law says the railroad must not sell them tickets for any less rate than they sell to a man who does not ride more than a hundred miles a year. Owing to this and other inequities in the law, it is more than probable that it will be amended in various particulars at the next session of Congress. Its adoption in the first place was in the nature of an experiment, and it will be subjected to such modifications in the future as experience demands. Until it is modified, commercial travelers will be required to pay full fare, precisely as other passengers do. The additional cost will come out of the people at large, for, of course, the extra charge will be added to the price of the goods they have to sell, and the consumer will have the bill to pay.

Arbitration and Labor Strikes.

SOME time ago, in commenting upon the fact that the State Board of Arbitration had interfered in the matter of the silversmiths' strike, we said that this board of arbitration, appointed by the State and maintained at heavy expense, was a humbug of the most absurd proportions. It assumes to arbitrate between strikers and their employers, yet has no power either to compel the strikers to resume work or the employers to employ them. Such an absurdity could only be perpetrated by politicians who wanted to make places to be filled by their friends at good salaries. The employing silversmiths refused to recognize the board of arbitration, saying that they had nothing to arbitrate, and if they had they could find arbitrators who knew something about the business. Still, the board concluded to go ahead and take testimony to ascertain if a strike or lockout existed, and they examined various witnesses to prove a self-evident fact, and then retired to their rural homes, having accomplished absolutely nothing—not having even made a recommendation of any kind to either the strikers or the employers. A little later the board came down again to investigate the strike of the elevated railroad engineers in Brooklyn, and again their services were rejected and their advice repudiated as an impertinence. Nevertheless, they announce that they will submit a report of their proceedings to the next legislature, as they will also do in reference to the silversmiths' strike. Both these strikes were terminated weeks ago by the unconditional surrender of the strikers, and what possible good a report made six months after the settlement of the difficulty can do it is impossible to surmise. The strikes will have afforded the political arbitrators an opportunity to claim that they actually did something to earn their $5,000 a year each, and if the tender of their services was regarded as an impertinence or a huge joke, that was not their fault. The failure of this board to accomplish any good during the whole period of its existence, ought to teach our legislators that it is folly to attempt to interfere by law between employers and their employees, or to dictate as to the relations that shall exist between them. All that law makers can do to advantage towards the settlement of labor troubles, is to enact laws recognizing as crimes certain acts that strikers have resorted to for the purpose of injuring the business of their employers, and provide severe penalties for them. When workingmen boycott, by words or acts, an employer whom they do not like, or seek to prevent other workmen from doing their work, such conduct should be declared a misdemeanor, and punishable accordingly. Riot and bloodshed have resulted from practices of this kind, but the laws seem to be insufficient to prevent them. Our legislators had better give some thought towards enacting laws for the better preservation of the public peace, than passing absurd arbitration laws that can result in nothing but additional expense to the people of the State. They might do something towards preventing combinations of workingmen from injuring the business of the country, by passing a law to the effect that any workingman who leaves his employment without giving at least thirty days' notice, shall forfeit all wages that may be due him. When the engineers on the Brooklyn elevated railroad went on strike, they did so without giving any notice whatever, and the consequence was that thousands of persons were discommoded and many subjected to considerable expense. The strike lasted about a week, when the strikers found that their places were nearly all filled, and they offered to return under the old conditions, thus admitting that their strike was not justified. Had they been required, under penalty of forfeiting wages, to have given thirty days' notice of their intention to quit work, there is no doubt that they would have been met half way by their employers, and many who are now idle would have retained their situations. Such a law would give opportunity for arbitration by the only persons competent to arbitrate, the employers and the employees, those having a grievance and the only ones who can remedy the grievance. Wherever outsiders have interfered between workingmen and their employers, it has proven an expensive business for the workmen, whether such interference came from outside workmen or State authorities. But the most absurd interference of any that has occurred was that by the State Board of Arbitration, that has no authority to arbitrate.

The Apprentice Question.

A SINGULAR anomaly is presented in this country at present in the fact that while statesmen and educators are striving to devise means for giving to the youth of the country a more practical education, and manual training is being introduced into the public schools in order to teach boys the rudiments of industrial pursuits, the fathers of these boys, the workingmen, are striving to prevent them from learning trades. At least, this is the practical result that is being gradually accomplished by trade organizations. Trade unions have adopted rules limiting the number of apprentices that may be employed in shops and factories, and the consequence is that thousands of boys who might make self-supporting and self-respecting men become idlers, tramps, and, too often, criminals. The large cities are full of half grown boys and young men who are virtually living by their wits, doing odd jobs, serving as office boys, messengers, etc., simply because there is no opportunity for them to learn trades. Where the skilled workmen are to be found in the future is a problem. We have referred to this matter before, and have suggested that a school should be organized by persons connected with the jewelry trade expressly for the purpose of teaching boys those industries that belong to the production of jewelry and kindred goods. It is very likely that arrangements might be made with the managers of the Cooper Institute to have these arts taught in their industrial course, but the trade would scarcely care to accept a proposition of this kind without endowing such department in a proper manner. The industrial training received at the Cooper Institute has been a blessing to hundreds of young men, giving them the basis of a good trade, but these have been more in the building trades than in special industries, or in the arts and sciences. But there are thousands of boys left who have not these opportunities, and anything that will help them to become good able mechanics is not only a benefit to them, but to the community at large.

An intelligent Chicago workman recently wrote a letter to one of the papers of that city, which so fully sustains what we have said heretofore on this subject that we quote it:

> I have four sons, all free-born Americans, so-called, and all now grown to manhood. I tried to give them trades, as they respectively reached the proper age, but in every instance I was forbidden to do so by the laws of the trades. All four of them are now men, but not one of them was permitted learn a trade in the land where they were born, and which they have been taught to call a land of freedom. The oldest got a job as fireman on the railroad, and after a few years managed to steal the trade of engineer; the next drifted off to that undefinable country known as "the mountains," and there he is wasting away his life digging holes in the ground searching for silver and gold. The next picked up a book and taught himself the short-hand trade; he gets twice as much wages as I ever got with my wheelbarrow and shovel; the youngest gets a dollar a day in a store in the handiest capacity, but hopes to work up in time to the grade of a clerk. That all four of them didn't become hoodlums and tramps is not the fault of the unions. A boy with a heart in him, even if he has no brains at all, must see in a moment that the policy which robbed those boys of their rights to learn a trade cannot be right, and not being right, it cannot be economical or wise.
>
> It appears to me that if the policy of shutting up our trade in order to prevent competition is good for that, it must be good for every other calling or profession, and all the trades and occupations being closed, the people outside must be either rich, or tramps, or thieves. The trades, having shut everybody out, have shut themselves in, and having deprived a large part of the community of the means of buying anything, trade diminishes, there is less demand for labor, and less money to pay for it. Another exclusion then becomes necessary, until we get back to the wigwams, where we don't need any mechanics at all.

Experiments in Profit Sharing.

IN NEARLY every contest that labor has entered into with capital during the past two years the workmen have been the sufferers. Strikes, lockouts and labor agitation have kept everybody on the alert, and no employer has been sure from one day to another that his business would not be brought to a standstill, and the accumulations of years wasted in a prolonged struggle with the men to whom he was giving opportunities to earn their living. Yet it has been during this very period when workingmen have displayed such hostility towards their employers that the latter have been doing most for their workmen and seeking to improve their condition. A number of persons who are extensive employers, have tried the experiment of profit sharing with their workmen, and thus far the results have been satisfactory so far as is known. Some of these experiments have been most interesting, as indicating a basis upon which capital and labor can unite to mutual advantage, and as such are worthy of notice.

Two or three years ago Mr. Pillsbury, one of the great flour manufacturers of Minneapolis, voluntarily offered to divide a certain percentage of the profits of his business with the men who remained in his employ five years or longer. He has since made dividends to his workmen at the rate of five and ten per cent. per annum on the basis of their earnings. He pays good wages, and this plan tends to draw to him the most capable, steady and industrious workmen, who are assured of permanent employment, and who only have to perform their duties intelligently and satisfactorily to earn their wages and a liberal dividend in addition.

Mr. John Wanamaker, the millionaire merchant of Philadelphia, has announced that he will set aside a certain portion of his profits to be divided at the end of the year among his employees according to his judgment. As he has not announced the plan on which he will make such division, the probability is that he has not fully matured it. But who can doubt that those workmen who are intelligent, industrious and best look after his interest will be the recipients of his liberality? Not long since, the great shoe manufacturers of Auburn, Maine, Ara Cushman & Co., distributed among their workmen four per cent. on the wages earned by them, while Norton Brothers, tinworkers, of Chicago, divided 7.7 per cent. among their employees on the same basis. The New England Granite Works, of Westerly, are trying the co-operative experiment, and announce that it is entirely satisfactory, the business promising a liberal dividend to the stoneworkers when the proper time comes around. The Nelson Manufacturing Company, of St. Louis, has paid to employees five per cent. on the amount of their earnings. The stockholders of the Toledo, Ann Arbor and Northern Railroad have notified their workmen that each should have a dividend upon wages earned precisely as though the sum earned was so much stock of the company. The workmen employed by Noe & Gamble, of Cincinnati, recently accepted a proposition made by them that profits, above interest on capital, should go into a surplus fund to be divided between employers and employed in the proportion of capital invested to wages earned. While all these experiments were untried when adopted, both parties to them express satisfaction with them. The men have a direct and personal interest in the business, while the capitalists receive better service from a better class of men. Thus there is an incentive on the part of both to deal in good faith with each other, and to get out of the business the best there is in it.

Reports from the Cushman shoe factory, referred to above, show that the business had been increased to the extent of $150,000 owing to the increased production which was due to the increased interest taken in their work by the workmen. A committee of these reporting the facts to their fellows, say:

"How much could you contribute to the profits of the business? You had provided for the firm, now what was to be done to insure you a good profit? Every cent's worth of waste lessened your profit. Every cent saved increased it. Every mite of poor work returned (and there has been a good deal the past year) has been the diminishing of your dividend. The dividend might have been 1 per cent. more if we had all realized just how much rested with us. We have seen time and again 10 cents wasted by one person in a day. 'Oh, that is nothing,' you say. Well, if every one of the 700 or 800 waste that amount in a day, is that anything? Of course, this does not happen, but you can all see how a mite from all would count up big at the end of a year."

The tendency of the profit sharing plan is to not only make more careful and industrious workmen, but to keep them free from all labor organization entanglements. They see that they are getting for their work all that they are entitled to, and have no occasion to mix with outside organizations that promise to redress grievances that they do not know anything about. Whether profit sharing is to be the great panacea to cure all labor troubles remains to be seen. As against the misleading and dangerous teachings of professional labor agitators, these experiments made by the "detested" class of employers, may lead intelligent workingmen to considering which is best serving their interests and which has their welfare most at heart.

Gilding and Gold Plating.

Continued from page 209.

DILUTED BATH FOR GILDING.

BEFORE concluding with the enumeration of formulæ for gilding baths suitable for the dipping method, I must mention one which is often applied on account of its easy manipulation and the large amount of work which can be done with it. The work is, however, not of a durable nature, and this process should only be employed as a complement to the cleansing, before a more solid gilding. The bath is composed of:

Water	1 gallons.
Bi-carbonate of Potash	7 ounces.
Caustic Potash	63 ounces.
Cyanide of Potassium	3 ounces.
Metallic Gold, to be transformed into Chloride	½ ounce.

The whole is brought up to the boiling point, and a pale gilding is obtained even upon articles imperfectly cleaned, and without using nitrate of binoxide of mercury. It is possible to add one-sixth of an ounce of chloride of gold several times to this bath without any other substances. Afterward maintain it at the proper strength by the addition of gold and salts, in the above proportions, and it will last for an indefinite period. This bath will gild about 140 ounces of small jewelry with one-thirtieth of one ounce of gold, whereas a pyrophosphate bath gilds only about 35 ounces of small articles with the one-thirtieth of an ounce of gold extracted from the liquor. Large bronze articles are submitted to this bath before passing into the electric bath.

Gilding by Stoning and Gold Amalgam.—This is another of the earlier methods used by gilders for obtaining bright and adherent coats of gold on small copper articles, and the results are analogous to those obtained by the simple dipping process just described. Proceed as follows:

In the center of a charcoal stove put a crucible holding a given quantity of pure and dry mercury, and when the temperature has reached about 212° F., add half the weight of gold. Stir with an iron rod until the amalgam has acquired the consistency of butter, throw it into cold water, and keep it there for use. Cleanse the articles to be gilded in aquafortis, put them in a stoneware pan, and pour over them a dilute solution of nitrate of binoxide of mercury, taking care to move the articles about all the time, in order to cover them with a regular white coating of mercury. Add the desired proportion of amalgam; on stirring the articles this is spread all

over them. Then rinse the articles in cold water, place them in a large and deep copper ladle perforated with numerous small holes, and having a long handle, hold the ladle over a charcoal fire, and constantly stir it about in order to have the heat equal everywhere. The mercury of the amalgam is soon volatilized, and the gold remains adherent to the articles. If instead of a yellow gilding a red be desired, this is produced by waxing, which consists in pouring upon the pieces kept in the ladle and upon the fire, in a well mixed and fluid state :

Oil	25 parts.
Yellow Wax	25 parts.
Acetate of Copper	10 parts.
Red Ochre	40 parts.

The articles must be constantly agitated, and the mixture allowed to burn out, when the whole is thrown into a very diluted solution of sulphuric acid. The waxing is only to be done after the complete volatilization of the mercury. When removed from the pickle, the gilding has the dull ochre appearance, and must be scratch-brushed. Small articles are brightened in a long, narrow bag, where they are put with copper pearls or the waste from these pearls, and wet with vinegar water ; a to-and-fro motion is imparted to the bag, and the gilt articles and the copper granules polish each other. Rinse and dry in sawdust, and burnish if required.

The following process is very simple and often useful for gilding silver. It was formerly, and also at present, occasionally used for gilding the inside of snuff-boxes and similar articles. It is called

Gilding with the Rag.—Dissolve finely laminated pure gold in aqua regia, made of

Nitric Acid	5 parts
Sal-ammoniac	2 parts.
Saltpeter	½ part.

Heat carefully upon a gentle fire ; when all the gold has disappeared, pour the cooled contents of the flask into a flat-bottomed stoneware pan. Into this liquor place one upon the other, and in sufficient quantity squares of linen cloth, strike them with a glass rod, in order that they may equally absorb the chloride of gold. Each square of cloth is taken out with wooden pincers, well drained, and spread for drying in a dark chamber. When nearly dry, each piece of cloth, supported upon glass rods, is placed on top of a charcoal fire, and soon burns. The combustion is aided by the presence of the saltpeter, and is finished upon a marble slab. Grind the ashes under a muller, collect and keep them between the folds of a parchment leaf, around which a wet cloth has been folded. The powder is then ready for use. Mix it upon a slab with a few drops of water, and with this paste rub the well cleansed surfaces of the silver to be gilt. The smooth surfaces are rubbed with the thumb ; the fillets or grooves with a fine cork cut to the proper shape, and the corners or angles with a stick of soft wood, such as linden or poplar : the articles are then burnished. This gilding is very thin but quite resisting, especially after the action of the burnishing-tool, which forces the gold into the pores of the silver. If a red shade be desired, add a small proportion of pure copper to the gold to be dissolved in aqua regia. By the action of the fire during the combustion of the linen, a considerable part of the chloride of gold is reduced to the metallic state, and the remainder is transformed into proto-chloride. The presence of the latter body in the compound appears to us to have a great deal to do with the coherence of this kind of gilding ; protochloride of gold decomposing readily in the presence of silver to form chloride of the late metal.

Gilding with the Brush or with Shell-gold.—This gilding process offers very little solidity, and is only applied on very small surfaces. It answers the purpose of repairing slight defects in finished articles, defects not serious enough to require a repetition of the gilding process. A gold powder is simply mixed with gum water, applied with a brush upon the parts to be covered and allowed to dry. The gold powder is prepared by rubbing the cuttings of gold-beater's foil under the muller ; to prevent them from being blown away, add a small quantity of white honey. When fine enough, put the paste into water, by which the honey is dissolved. After several washings, settlings and decantings, allow the powder to dry. In case of hurry, the washing may be performed upon a paper filter. The dry powder is again dried with a little mucilage water, and the paste spread over the inside of a mussel shell. If a green gold-powder be desired, mix silver foil with the gold dust. An addition of red copper foil produces a red gold. The preparation is the same for silver powder, employed for correcting small defects in silver articles not exposed to friction. Gilders should always have these different powders on hand, as their use often saves considerable labor.

Electro-Gilding.—Gilding by the battery has two great advantages; it can be applied to all the ordinary metals, and the thickness of the deposit is entirely under the control of the operator. It is not always necessary in electro-plating to use a battery, for the contact of two heterogenous metals, especially if immersed in an acid solution, is quite sufficient to develop electricity ; thus, if articles attached by zinc wires, are plunged into a gold bath prepared for the use of a battery, the gilding process will take place in the same manner as with a separate battery. It must, therefore, be understood that under electro-gilding, or, more generally speaking, electro-deposits, we mean every application by means of an electric current, independent of its mode of production ; but we shall describe more particularly the methods and formulæ which require electric generators separated from the bath.

There is a hot and a cold electro-gilding process ; the latter is principally employed for large articles, such as clocks, lusters, candelabra, etc., which would require the heating of large quantities of liquids ; the hot process, on the contrary, is well adapted to small articles. We may state at once, that with the hot gilding a deposit is obtained, much smoother and cleaner, and of richer color than by the cold method ; and the articles may often do without coloring after coming from the hot bath. There is an erroneous impression prevalent among industrials, that gilding by heat is less resisting than gilding in the cold. We assert on the contrary, that *for equal quantities of gold*, hot gilding is infinitely more solid than cold gilding. It is evident, that a cold metallic surface plunged into a hot bath becomes dilated by the action of the heat, thus a larger surface is offered for deposit. On cooling, the surface shrinks back again, and the small and numerous particles forming on electric deposit are brought closer, an advantage which could not be obtained by the cold method. But the best proof that hot gilding is more solid than cold, lies in the fact that neither steel nor tin, nor lead, can be gilt by the latter method. Finally, the hot baths have a tendency to dissolve any greasy bodies or oxides, which may remain on the surface of the articles, and thus secure a successful operation.

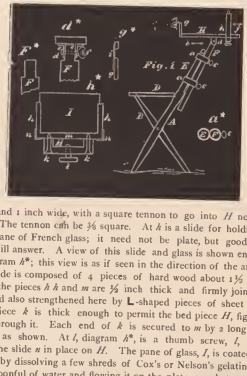
(*To be continued.*)

Free Hand and Mechanical Drawing.

BY EXPERT.

AMONG the purely intellectual delights none, save perhaps music, afford the pleasure of sketching from nature. The ability to seize and place on canvas or paper such objects as strike our fancy is a source of exquisite enjoyment. And the power to do so is not so extremely difficult to acquire even unaided by any mechanical device; but a modified form of the perspective apparatus described in a former article of this series one can soon make creditable sketches. By combining the three-legged sketching stool described in the July number of this journal with the device described some months since a very desirable machine can be made. But to avoid any referring to former numbers, the arrangement will be combined

and given; but as most of the parts are new the giving can hardly be called repeating. In the July number of this, where the sketching box and umbrella are shown strapped together, the engraver failed to engrave the white line at the left hand end of the japanned color box. At fig. 1 (present cut) is shown the three-legged sketching seat (which closes into a cane) and the attachments for making sketches. The sketching stool is shown in fig. 1 at *A B D E*, and the sketching apparatus proper at the parts at and above F. The piece F is a round of hard wood about 26 inches long and 1 inch in diameter, and flattened on each side, as shown at diagram F*, which is a view as if seen in the direction of the arrow *b*. The piece *F* slides through two clips which fit tight on *E*, which is tapered. At diagram *a** is one of these clips as if seen from above. These clips let *F* slide up and down when the screws *c c* are loosed. At *d* is a joint. This joint is formed of two pieces of thick sheet brass, bent to an **L**, as shown at *c c*, diagram *d**. At *f* is shown a thumb screw and bolt for clamping the upper end of *F* firmly. The piece *H* is made of a strip of black walnut or some nice wood board about 3 inches wide and 20 inches long, and should be about ¾ of an inch thick. The eye piece *g* should rise about 3 inches above *H*, and can be made either of wood or metal. But if of the latter material, it should have a metal piece for the eye hole, as a thick piece of wood would obstruct the vision, as in diagram *g**, where *g* shows the wood, and *i* a metal strip with an apparatus about ⅛ of an inch in diameter to look through. If made of wood it should be about ⅜



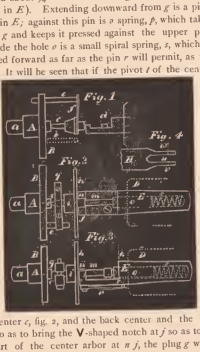
thick and 1 inch wide, with a square tennon to go into *H* near the end. The tennon can be ⅜ square. At *h* is a slide for holding an 8x10 pane of French glass; it need not be plate, but good clear glass will answer. A view of this slide and glass is shown enlarged at diagram *h**; this view is as if seen in the direction of the arrow *f*. The slide is composed of 4 pieces of hard wood about 1½ inches wide; the pieces *h h* and *m* are ⅛ inch thick and firmly joined at *n n*, and also strengthened here by **L**-shaped pieces of sheet brass. The piece *k* is thick enough to permit the bed piece *H*, fig. 1, to slide through it. Each end of *k* is secured to *m* by 2 long wood screws, as shown. At *l*, diagram *h**, is a thumb screw, *l*, which holds the slide *n* in place on *H*. The pane of glass, *I*, is coated with gelatin by dissolving a few shreds of Cox's or Nelson's gelatin in a tablespoonful of water and flowing it on the plate as photographers flow on colodion, i. e.: put say a teaspoonful of the gelatin solution in the middle of the glass and by tipping the glass in all directions cause the gelatin to flow over the entire surface when it is set up on edge to drain and dry. The best coating is white of an egg beat up with twice the quantity of water, and the froth allowed to rise, when the clear mixture of water and egg is used to flow on the glass. The side of the glass coated should be marked, or no one could tell which was coated. A lead pencil (about a No. 3 Faber) marks distinctly on this gelatin (for white of an egg is gelatin) surface. Inside of *n n* is a small groove into which the glass *H* slides. A small quantity of very fine punice stone can be added to the white of an egg mixture without sensibly diminishing the transparency of the coating, which causes the lead pencil to make more decided marks. But it is doubtful, all things considered, if there is any gain, as the pumice stone cuts the pencil rapidly and one has to sharpen the point often. With the simple gelatin coating a pencil makes a clean, sharp line which it is well to ink before a tracing is made. It is well to take two or three panes of glass along and make such outline sketches as strike one's fancy. Do not attempt any elaborate drawing at first. A bit of stone wall with a clump of weeds or bushes—a single tree, or a cow or horse lying down, giving suggestions when the shadows come by short strokes of the pencil. Experienced artists will pooh! pooh! at what they call so much fuss; but, for an experiment, go out with such a person and both make sketches of the same object, and you in't over your outline and make a tracing on transparent paper ready for transferring, and you will find you have done about as quick as your competitor. Another test, have him make his drawing on the same scale, or, in other words, if you use a glass 8x10, let him make a drawing on the same size paper. Now lay your outline over his drawing and when it comes to accuracy you will have distanced him a hundred per cent. In direct sketching from nature on paper or canvas, the great advantage is in giving the correct value to light and shade. But by making say two or three visits to the object one is sketching, with a correct but faint outline, one soon learns to put in the shadows in their proper value. About the best way is to take two or three outline sketches, each on different plates of glass; take these home and carefully ink the outline, copy on transparent tracing paper by allowing the light to shine through the glass after the manner of putting drawings up to the window. But copying in this way is very tiresome, consequently a frame for setting on a common table should be provided. Such a frame is very simple to make, but it would require too much space for the present article to describe it in detail, but it will be given in next communication, together with specimens of pen drawing executed from outlines produced by the process just described by a child 12 years of age, with no experience in drawing except such as are given in our public schools, of conventional and geometric form, and, I might add, no exceptional talent for drawing. These examples will only be given to show how readily a fair knowledge of this useful art can be acquired. These will be followed by more finished sketches of natural and mechanical objects to show the accuracy and range of the system.

Lathes and Lathe Work.

BY THE MODEL WATCHMAKER.

IN USING the little affair for burnishing pivots described in July number, the spring *f* can be made to rest on the balance bar instead of the shoulder to the place where the hair spring goes, as illustrated in fig. 1, where the whole device is reproduced. Here it is supposed the balance arm is pointing directly toward us and the spring *f* resting on it. The great point in getting up such an attachment for a lathe is to have the spring *f* hold the staff so it will lie in the axis of the lathe. The attachment for smoothing out the "cut," so common in center arbors under the cannon pinion, is somewhat similar, only the piece *c* and spring *f* are dispensed with, and the part of the center arbor where the cannon pinion goes is placed in a loose spring center so as to allow the bearing of the arbor where it goes in the plate to be run down and burnished quickly. The chuck *A* and the face plate *B*, with the hollow cone center *c*, are precisely like the one just described; indeed the same one can be used, only the spring *f* on the pin *c* is dispensed with and the rotary motion is given to the center wheel by the dog *g*, screwed on the arbor of the center wheel, as shown in fig. 2. The idea is, a **V**-shaped notch is provided in the tail stock similar to the one used

for balance pivots, only a spring center with a hollow cone is provided for the upper end of the center arbor to run into which permits the arbor to run free of the V-shaped notch until pressed down by a pivot file or burnish. This is accomplished by having a taper fitting the spindle of the tail stock which extends out of the spindle about ½ an inch and about the same into the tail stock spindle. The taper for going into the tail stock is put into the live spindle and drilled nearly the whole length with a drill cutting about $\frac{1}{8}$ of an inch. From the dotted line *k* forward about one-half is filed away, as shown in fig. 3, which is a horizontal view seen at right angles to the axis of the lathe. At *j* is left a lip into which the V-shaped notch is made to receive the lower bearing of the center arbor. At *l* is shown a hardened screw which guides the pivot file or burnish. The hole which was mentioned as extending nearly the whole length of the taper *E* is indicated at dotted lines *o*, fig. 2. Into this hole is put a loose plug, *g*; this plug (*g*) is the back hollow center and holds the end of the center arbor when in the lathe. The plug *g* is loose, and about ½ of an inch long and about $\frac{1}{8}$ in diameter (in a $\frac{1}{8}$ hole in *E*). Extending downward from *g* is a pin, *r*, working in a slot in *E*; against this pin is a spring, *p*, which takes the lost motion from *g* and keeps it pressed against the upper part of the hole *o*. Inside the hole *o* is a small spiral spring, *s*, which keeps the plug *g* pressed forward as far as the pin *r* will permit, as it works in a slot in *E*. It will be seen that if the pivot *l* of the center arbor is



set in the center *c*, fig. 2, and the back center and the plug *E* are advanced so as to bring the V-shaped notch at *j* so as to receive the bearing part of the center arbor at *n j*, the plug *g* will recede by compressing the spiral spring *s*. Now let us understand how our device works: The slight spring *p* holds the plug *g* up so *n* does not rest in the V-shaped notch in *j* until a file or burnish is applied to *n*, then the spring *p* yields and *n* is pressed into the V-shaped notch, while the hardened screw (which is capable, by screwing up or down, of adjustment) holds the file or burnish level. It will be understood by having the plug *g* loose that different sized arbors can be run down and polished without any change of the tool except to turn the screw *q* a little. It is very seldom we have a center arbor cut at *n*, so that it is necessary to put color on it. In nine cases out of ten the process described will fix the arbor all right, except to bush the hole in the plate, which will be spoken of shortly. In cases where the pivot is cut at *t*, the device for balance pivots can be used; the spring *f* will hold the center wheel. If the bearing at *n* is only a very little cut, the hole in the pillar plate can be closed with a round of ball-faced punch, and the hole smoothed out with a round burnish. But if necessary to bush, the bush should be drilled, turned and screwed in. What one needs for such a job is a screw a little larger than the center hole but with an extraordinary fine (close) thread; but an ordinary screw plate will answer, only it is best not to cut a full thread. Put a piece of extra hard brass wire into a split chuck and center and drill, as shown at *u*, fig. 4, then turn off the outside, as shown at *v*. If now a light screw thread is cut on *v* and a still lighter thread topped in the center hole, and the fitting accurate, the bush will screw in and hold to face off in the lathe. Many workmen are bushing such holes with 10 or 12-k. gold; the actual expense cannot be more than 2 or 3 cents, and most customers would be willing to pay at least 10 cents extra for a gold bushing, as there is no doubt about its extra wearing qualities. In cases where it is absolutely necessary to put a collar on a center arbor, it (the collar) should be made of spring-tempered steel wire, drilled and turned after it is tempered. To all those who can buy a center arbor I would advise putting in a new one, but all, indeed most workmen are so situated that they cannot get a new arbor without some trouble and delay; for the benefit of such, I would say: turn down the arbor at *n* by putting the center arbor into a wax chuck, or by running down with the device shown in figs. 2 and 3. A collar to go on a center arbor is turned precisely as the bush shown in fig. 4, except it is cut off at the dotted line *w*. In putting such a collar on an arbor it is difficult to fit it so perfectly that it will hold to turn and finish after it is driven or forced on the center arbor; and it is almost imperative that it should be turned off, especially faced off, where it meets the cannon pinion. The course pursued by many good workmen is: Drill the steel collar so the hole is a mere trifle larger than the hole in the cannon pinion, then turn the outer part at *v*, fig. 4, a trifle too large; the bush should now be cut from the wire and put on the pinion arbor at *n*. It is not necessary to fit tight, but go on and make a loose fit. The bush is now soft soldered on being careful not to overheat any part. As soft solder melts at 450° F., and it requires 600 to blue steel, the process of soldering should in no way injure anything. Care should be taken that the steel collar or bush should go firm against the shoulder of the pinion, so that when turned off it will give a perfect bearing in the plate. Next boil the pinion and wheel in alcohol and scraped chalk to destroy any effect of the soldering fluid. If now the center arbor is put in a wax chuck and the bush or collar just put on turned up to perfectly fit the hole in the plate and faced back so the cannon pinion goes down to place, the pinion is as good as new; and if the job is well done no man can see, even with an eyeglass, that the arbor is not just as it came from the factory.

The Relation between the Seconds Pendulum and the Yard.

THE UNITS of length, of surface and of volume and capacity, are all ultimately referred to the length of the pendulum vibrating seconds of mean solar time at the level of the sea in the latitude of London, and their invariability depends on that of the length of such a pendulum. The following is a brief statement of the principles which assure us of their invariability. They are as follows:

1. So long as the shape of the earth and the amount and distribution of its water undergo no sensible change, the intensity of the earth's gravity at the same place must remain constant.

2. The time of vibration of a pendulum at a given locality in a vacuum is constant when the arcs of vibration are very small, and the friction of the axis of suspension is virtually destroyed.

3. In any pendulous body there is a point in the perpendicular that is drawn from the center of gravity of the body to the axis of suspension, which vibrates in the same time that it would if the other parts of the pendulum were without weight and served only to connect this point with the axis. This point is called the *center of oscillation*, and the line drawn through it parallel to the axis of suspension is the *axis of oscillation*

4. The axis of oscillation is the reciprocal of the axis of suspension; that is, if the former be taken as the axis of suspension, the

latter becomes, with reference to it, the axis of oscillation, and the time of vibration about the one axis is the same as that about the other. Hence, when in any body two parallel axes are found, about which, taken alternately as axes of suspension, the times of vibration are equal, such axes are related to each other as axes of suspension and oscillation. The perpendicular distance between these axes is called the *length of the pendulum*.

5. Having found by principle 4 the length of a pendulum that vibrates in a given time, the length of the pendulum is readily found that would vibrate in any assumed time, as the mean solar second, at the same place

6. It is evident that if the length of what has been called the mean solar second should change, the length of the pendulum whose vibration marks such second would undergo a corresponding change. But it is known from astronomical investigations that there is no variation in the length of the mean solar day; hence the length of the mean solar second is invariable. By a process in which care was taken to guard against errors, Captain Kater, a member of the commission appointed to consider the question of weights and measures for the Kingdom of Great Britain, determined the distance between the axes of suspension and oscillation of a pendulum at the latitude of the Tower of London. This distance is the length of the pendulum, and from it is deduced the length of the pendulum that would vibrate seconds of mean solar time at the same place.

The length of the seconds pendulum at London, as determined by Kater, has been ascertained by experiments subsequently made to be too small, its true length being 39.14056 inches. The standard yard, therefore, instead of being to the length of the pendulum vibrating seconds of mean solar time at London in the proportion of 36 to 39.1393, as the Act of Parliament of 1824 provides, bears to the length of such pendulum the ratio of 36 to 39.14056. After the destruction of the Parliament House in 1834 by fire, and with it that of the Imperial Standard yard, commissioners were appointed to consider the question of restoring the lost standard. They recommended that four standard yard measures should be constructed from the best authenticated copies of the old standard. This was accordingly done, and these copies, one of which was delivered to the U. S. Government, constitute the fundamental unit of length both in Great Britain and in this country.

Watch Repairing.

AN EXCESSIVE end shake to a barrel will often cause considerable trouble in more than one way, says *British Horologist;* but with the Geneva barrel we mostly notice the effect by seeing where the center wheel has left its marks by coming in contact with the surface of the barrel in some cases, while in other cases the teeth of the barrel have been left in such a rough state that freedom is impossible. I think that every barrel ought to have the top part of the teeth beveled off, which would insure freedom in this part, providing that the height of the center wheel was above the flat surface of the barrel; but, as it is, the barrel teeth are cut and the burr is left in its rough state, hence so many foulings of the center wheel, and all this would be avoided if the barrel teeth were properly beveled at the time of manufacture.

Of course, some of the better class of watches are left correct in this respect, but, for the sake of so little extra trouble, I think the commonest watch might be done so, as the job would not take a minute to put right, but if it is left for the repairer to bevel off, in order to free the center wheel after it has had considerable chafing, it not only spoils the appearance of the under side of the center wheel, but the gilding is taken from the edge of the barrel teeth, therefore we have an unsightly piece of patchwork. I am aware that the job may be done without spoiling its appearance very much, if we are a little careful in the shape of the bevel, and polish the part that has been in contact with the graver; but to do this we should not let the graver go much beyond the bottom of the teeth, only just enough to make sure of removing all the burr, then it will look very well with its polished edge. I have sometimes really made an improvement in the appearance by this operation, for it does not look first-class to see gilding done upon a wheel that has such rough burrs left after the cutting engine.

Now, there are times when this beveling off will not free the center wheel and barrel; when this is the case we must look for other cures; or, perhaps, I should rather say, we should look for other causes. In most cases the cause that is more frequently found than any other is the end-shake of the barrel arbor. There is more than one way to correct this. We will suppose the excessive end-shake will allow the barrel to get too high and foul with the center wheel when the inside shoulder of the barrel is in contact with the top shoulder of the barrel arbor; yet we find that if we press the barrel down so that the shoulder on the barrel lid is in contact with the bottom shoulder of the arbor, there is then sufficient freedom for the center wheel. Some would cure this by simply striking the center of barrel a sharp blow on a large round-headed punch, which would lessen the end-shake of the barrel arbor, and most likely correct the fault. But suppose this blow also puts the barrel out of truth, and the workman will very likely have produced a greater evil than before, and one which is corrected with much greater difficulty. It is better, therefore, to try some other method sooner than run the risk of ruining the barrel. Suppose we plant a small collet upon the barrel arbor—in this case at the top shoulder—this will have the required effect. Of course, we must have the collet a little smaller in diameter than the barrel arbor, while the hole in the collet should be only just large enough to fit on the shoulder; the thickness will vary according to the required amount in order to correct the end-shake. I may say here that a barrel end-shake should never be more than just free. Just see the detrimental effects of, in some cases, even the least amount of end-shake, where the fusee and chain are used. I have no doubt but that the most of my readers have, at some time or other, had a little trouble in this particular. With a very flat fusee watch the least thing in end-shake, either in the barrel or fusee, will cause the chain to run out of the fusee grooves. We then know what follows. Now, there are many who try to remedy this defect by closing the holes in the plate, which is done in many cases with a punch; this simply means that the next man who sees the job will be liable to ask if there has been a blacksmith at work. Yes, there are times when these punches are used, when it is a shame to use them. Why hammer and bruise a plate when the job can be done without any such methods? There is nothing that looks so bad to a practical man as to see a plate smashed about with a punch. It may be excusable to use a punch to close a hole in an old thirty-hour clock, but even in this it is doubtful, in these days of bouchons. I have seen watches and clocks hammered about in such a style that we are inclined to ask if the man had any conscience to smash plates about in such a wanton manner. Then, again, it is not only the look of the butchery; but just see what kind of a surface the hole has for the pivot to work in. Take, for instance, the top hole of the fusee, it will always near toward the barrel; hence, if the hole is closed, it has to be done on the side nearest the barrel, in order to bring the fusee upright to its original position. But when it is punched on this side, in all probability, there is only just one part of the hole in contact with the fusee top pivot, and most likely this prominent part will very soon become worn down again, and the whole job be just as bad as before. In fact, in some respects, it is worse, for now the plate has been made a trifle thinner where it has been punched, in addition to the bad appearance.

Now, all this can be put right without any such botching. If a top-plate hole has become worn somewhat oblong, the proper way to put it right is to put a new hole in the place of the old; and this is very readily done, if we know the proper way of doing it. First of

all, we notice if the fusee is perfectly upright, when it is brought back to the side farthest from the barrel. If this is right while the fusee is held in this position, we then know that the hole will have to be filed with a round file, on the opposite side, until it is as far from the central position as the other side has been worn. If the hole is opened with a broach before this filing is done, the fusee will not be upright when the job is finished, simply because the center is, under such conditions, brought to the center between the outside of the worn part and the opposite side that has not been worn; and hence it is half as far out of its original center as the amount the hole was worn. I speak of this particular here, because I know there are plenty who commence the job by simply broaching the hole from its oblong shape to a round, regardless of the detrimental effect it will bring in its train; for they often find that when they have the hole finished, it is just in such a position that the square of the fusee is making its obeisance to the barrel; and they wonder how that could have happened, for they have been particular in turning the hole upon a perfectly true turning arbor; but it seems that they had overlooked the fact which I have just commented upon. It is a well-known fact that many will do this job without ever thinking about such an important item. But I hope these remarks will help them to remember it in the future.

To resume, in this manner we get the hole filed on this opposite side as nearly as possible to the same amount. Of course, if the fusee has to be brought up a little more, we then file this side more in proportion to such requirements. There are times when the teeth of the fusee wheel run too near to the center wheel; this can now be altered by using the file to open the hole a little in the opposite direction to the center wheel. After the filing has been done, we can then use the opening broach, and make the hole perfectly round. We are then ready to turn up the bouchon to fit. See that the turning arbor is perfectly true. If there is room for putting a deep hole, put it—that is, if the fusee square has not been squared down to the level of the top plate, leave the hole standing up above the plate. When this is done the bouchon should be turned with a very nice shoulder, so that it rests firmly upon the top surface of the top plate. It should also be turned to a true fit in the hole. I should also say that, in this case, the hole should be opened with the broach from the top side, so that the bouchon can be turned to an exact fit. Before it is rivetted in, the under side of the hole should be chamfered to receive the rivet. If we are particular in getting the exact length for rivetting over, we may perhaps finish it all right without having to use the mandril in order to take off the surplus brass so that the end-shake is free. When we have made the hole secure, we then have to be particular in opening the hole to fit the fusee top pivot. If we let the broach get out of upright, we shall give a very queer shape to the hole, as it will not go through the plate at right angles, hence the sides of the hole will not touch the pivot all along their entire length so that the pivot would be free when not in position, but as soon as the bottom pivot is in its hole, the top pivot binds; this is all avoided if we keep the broach upright while getting to size. When right, we simply chamfer the top a little for the oil, and the job is complete. If careful in rivetting, it would take a close examination to tell that the new hole has been put in.

Commercial Opportunities in Spain.

SPAIN is by no means so poor a country as is sometimes imagined. Owing to natural conservatism and timidity if such matters, largely the result of inexperience and a lack of appreciation of the natural resources and capabilities of the country, the natives have largely held aloof from important commercial undertakings, and a greater part of the capital has had to be raised in other countries. There is, however, capital in the country, and the development of its resources, which is now rapidly proceeding as the result of opening up rich mineral districts by means of railways, will speedily add to the wealth of the people and increase their confidence in those enterprises and undertakings which are essential to prosperity. There is a great field for investment and business in Spain; it only needs cultivating.—*British Trade Journal.*

Separating Gold from Gilt Articles.

IRON and steel articles, says A. Roseleur, are ungilt without any injury to themselves, by dipping them into a bath of 10 parts of cyanide of potassium and 100 parts of water, and connecting them with the positive pole of a battery. A wire or foil of platinum is fixed to the negative pole. This is inverting the position of the poles, and in this case the gold applied upon the iron or steel is dissolved in the solution of cyanide, and partly deposited upon the platinum anode, from which it is removed in a regular gold bath. When there is only a film of gold upon iron or steel, it may be removed by the cyanide alone without the aid of electricity, but the method is slow.

Silver, copper, and their alloys, may also be ungilt by this process, but the cyanide dissolves, at the same time, the gold and part of the other metals; it is, therefore, preferable to operate as follows: For ungilding silver, it is heated to a cherry-red heat, and immediately thrown into a pickle of more or less diluted sulphuric acid. The gold scales off and falls to the bottom in the shape of spangles. The operation is repeated until gold no longer appears upon the surface of the silver, which is then white and frosty. This process is not adapted to light and hollow articles, for which the preceding process is better. For copper and its alloys, in small articles such as false jewelry, thinly gilt, either by battery or by dipping, use the following bath: sulphuric acid, 10 parts; nitric acid 1 part; hydrochloric acid, 2 parts.

The large quantity of sulphuric acid allows of the solution of gold, whilst it does not sensibly attack copper or its alloys. The sulphuric acid is put alone into a stoneware jar, and the mixture of hydrochloric and nitric acids, kept in a stoppered bottle, is gradually added to it as the operation proceeds. The same sulphuric acid may last a long time if it is kept well covered, and its dissolving action promoted by successive additions of nitric and hydrochloric acids. The articles should be often withdrawn to watch the operation, which is terminated when no gold is seen, and when the copper has acquired a uniform blackish-gray coat; or, by plunging the objects into the compound acids, they will be perfectly cleansed when the gold has all dissolved.

Saltpeter and common salt may be substituted for nitric acid and hydrochloric acid; the salts must be finely powdered and stirred with a glass rod.

For large objects, such as clocks or chandeliers, concentrated sulphuric acid, 66° Beaumé, is put into a glass or stoneware vessel supporting two brass rods. One of these rods is connected by a conducting wire with the last carbon of a battery of two or three Bunsen's inserted elements, and supports the objects to be ungilt, which are entirely covered by the sulphuric acid. The other rod supports a copper plate, facing the object, and is connected with the last zinc of the battery. The electric fluid traverses the sulphuric acid, and carries the gold from the positive to the negative pole; as the copper plate is not prepared for retaining the gold, it falls to the bottom of the bath in a black powder, which is easily recovered. So long as the sulphuric acid is concentrated, and even under the action of the galvanic current, it does not sensibly corrode the copper. As it rapidly absorbs the dampness of the atmosphere, the vessel in which it is contained should be kept perfectly closed, when the

ungilding process is not in active operation, and the pieces for ungilding should be put in perfectly dry.

If it is intended to sacrifice the gilt articles of copper or silver, let them remain in pure nitric acid, which dissolves all the metals except gold, which either floats on the surface of the liquid as a metallic foil, or falls to the bottom as a blackish powder. If the liquor is diluted with distilled water and filtered, all the gold will remain in the filter and the solution will contain the other metals.

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For further information, Application Blanks for Membership, By-Laws, etc., Address F. O. BOX 3277. 170 Broadway, New York.

A special meeting of the Jewelers' Security Alliance was held in their office, 170 Broadway, on July 27, for the purpose of discussing the burglary committed in the store of Mr. Fairchild, Bridgeport, Conn.

It was decided to spare neither money nor talent in bringing the culprits to justice, and the matter was placed in the hands of the Chairman, Mr. J. B. Bowden.

The names of the following applicants were received for membership, viz.: S. D. Mills, A. M. Jewett, F. A. Drexel and Arch. Murphy, and submitted to the judgment and investigation of the Chairman and Secretary.

After considerable minor business the meeting adjourned.

What the Optician Should Know About Optics.

[BY C. A. BUCKLIN, A. M., M. D., NEW YORK.]

Correspondence:

MR. E. H. Hopkins, one of the students of the school of optics, announces that he succeeded in earning one hundred dollars last week through his knowledge as a skilled optician. I conclude that Mr. H. understands "human nature" quite as well as optics. I am forced to believe that a knowledge of how to deal with the peculiarities of individuals is one of the necessary elements of financial success in this calling. It is a knowledge which cannot be imparted to one in a school; it can only be gained by close observation and practical experience.

Letter No. 1.

Enclosed please find a lens of double focus in which the glass is solid, but is ground for near and distant vision. Please inform me what causes double vision, when the eye crosses the ridge from far to near vision. This question has been put to me, and I think that the double prismatic effect of the construction of the lens is the cause, but I would like your opinion on this point, and also why it is not present in a regular bi-focal spectacle with two separate lenses.

I have examined the above described lens, and find that it has about the same effect as if you observe objects by looking just over or under a prism of 7° which is not encumbered with a thick rim.

A few persons can wear bi-focal lenses. Most individuals find them very disagreeable. More persons can wear the split bi-focal lenses than any other form of bi-focal lenses.

The following letter is of interest as illustrating how oval defects of the cornea may be inherited. I find very frequently astigmatism running through several members of a large family. Myopic astigmatism and hyperopic astigmatism are, however, frequently found in the same family, which at first thought appears strange. When we consider, however, that the parties simply inherit an oval cornea, which is sharper in the vertical meridian than in the horizontal meridian, it is not so strange. If the horizontal curve is of the proper standard, then the vertical curve must be sharper, causing simple myopic astigmatism. If the horizontal curve is below the normal standard in its curvature, then the vertical curve must be sharper to be normal.

In either of the above cases you simply have an oval cornea, the vertical curve of which is too sharp. Nature might not have been so exact in forming the oval cornea.

Both vertical and horizontal curves could have been too flat and given the same oval relations in the form of the cornea. Both curves of the cornea could have been too sharp, and still retain the same relation between the curves of the two principle meridians of the cornea.

One curve of the cornea can be too sharp and the other too flat, and still retain these same relations.

Letter No. 2.

I had a very nice case last week. A child of about 13 years of age was brought in for examination. I found 1.50 D. myopia in the vertical meridian and 1.75 D. hyperopia in the horizontal, both eyes having the same amount of ametropia. I gave her cross cylinders which increased her vision from $\frac{4}{5}$ to $\frac{5}{5}$. I then examined her mother and found that she had 1.50 D. myopic astigmatism, and her father had 1.75 D. hyperopic astigmatism. And instead of the union neutralizing the ametropia, the child had inherited both the myopic and hyperopic astigmatism. AUGUST MORCK.

Mr. Morck has been thoroughly instructed upon the necessity of carefully testing with simple spherical lenses before commencing any tests with cylindrical lenses.

I take it for granted that the child refused to see distinctly through any form of spherical lens, which, being the case, it is safe to conclude that the corneal curve is sharper than normal in the vertical meridian, and it is too flat in the horizontal meridian, thus giving a case of pure mixed astigmatism as the result of corneal deformity, and not a case of hyperopia combined with myopic astigmatism or a case of myopia combined with hyperopic astigmatism. My experience is that where the defect in all but one meridian is due to a faulty length of the eye ball, they will accept some spherical lens at the time of the test, but where it is entirely due to defective corneal curves they will not accept any spherical lenses.

It is a question if Mr. M. could not have ordered a less expensive lens which would have answered the purpose as well. He could not have arrived at the proper conclusions during his trial test with any other lenses but the crossed cylindrical lenses. It would have been proper to reduce this formula to its approximate sphero-cylindrical equivalents and determine if the vision was not practically as good through these lenses before incurring the expense of grinding crossed cylinders, which are liable to have incorrectible mistakes in the relative positions of their axes.

There are many cases which during the trial tests cannot be improved by anything but cross cylinders; having found the combination with which they can see they will usually accept the nearest sphero-cylindrical equivalent.

In the above case the formula which produced distinct vision was

-1.50 c. ax. $180°\supset+1.75$ c. ax. $90°$, or, $-\frac{1}{8}$ c. ax. $180°\supset+\frac{1}{4}$ c. ax. $90°$. Let us take a convex No. 24: this lens would not only correct the horizontal meridian, but it would add a $+24$ to the already myopic meridian; the — cylinder in this case must not only neutralize the myopic astigmatism of $\frac{1}{8}$, but it must also neutralize in the vertical meridian the $+\frac{1}{4}$ lens; consequently the strength of the cylinder will be $+\frac{1}{4}+\frac{1}{8}=\frac{1}{8}$, or, $1.50+1.75=3.25$ dioptrics, the strength of the concave cylindrical lens which would be required in this case. In the table giving the value of lenses in the inch and dioptric systems, we find that a concave cylinder of 3.25 dioptrics or a concave lens No. 12 would be required to neutralize the astigmatism existing and the defect the plain convex lens produces in this meridian; consequently the formula for the sphero-cylindrical equivalent in this case would be $+1.50\supset-3.25°$ c. ax. $180°$; or, $+\frac{1}{4}\supset-\frac{1}{8}$ c. ax. $180°$. When the nearest sphero-cylindrical equivalents are tried and they will not produce the results, there is nothing to be done but to use the cross cylinders. I, however, advise my readers to avoid their use as frequently as possible. The methods and tables necessary to reduce crossed cylinders to their sphero-cylindrical equivalents will be published in detail in our next number.

The next class in practical optics will commence Sept. 15, at two o'clock. There are at present only two vacancies in the class which will undoubtedly be filled before the time.

The School of Practical Optics, for the special training of opticians is an entirely new departure, and as such is meeting with success. The interest which the jewelry trade have shown is best illustrated by the list of names of the patrons of the enterprise during the first six months of its existence.

List of Graduates.

Applegate, George H.....Trenton, N. J.
Appleton, Henry W.....New York.
Aurnhammer, Henry.....Newark, N. J.
Ayres, E. H.....Elmira, N. Y.
Bailey, Otis.....Calais, Me.
Bnowe, Thos. H.....Bridgeton, N. J.
Dodge, John F.....Millbury, Mass.
Dutcher, Dwight.....Port Jervis, N. Y.
Freeman, Teresa.....Blosburg, Pa.
Gomph, Charles P.....Utica, N. Y.
Gorton, Charles H.....Gloversville, N. Y.
Guthman, Elias L.....Youngstown, Ohio.
Guyott, Federic.....Malone, N. Y.
Harmon, S. A. I.....Philadelphia, Pa.
Haseltine, Will L.....Kokomo, Ind.
Hopkins, Willis L.....Havana, N. Y.
Hopkins, Edward H.....Penn Yan, N. Y.
Johnquest, R. N.....Ansonia, Conn.
Kimball, Chas. C.....Watertown, N. Y.
Little, Saml. S.....Cumberland, Md.
Monson, Curtis J.....New Haven, Conn.
Ludwig, Geo. H.....Chambersburg, Pa.
Morck, August, Jr.....Warren, Pa.
Morrow, T. J.....Holyoke, Mass
Pagan, Rudolph.....Wellsborough, Pa.
Prentice, Chas.....New York.
Preston, Stephen, Jr.....New York.
Robinson, Edward F.....Elsworth, Me.
Rogers, Geo. H.....Lowell, Mass.
Safford, Charles.....Kingston, N. Y.
Sammis, H. C.....North Port, L. I.
Sanborn, F. B.....Salem, Mass.
Sedgwick, W. P.....Bath, N. Y.
Skinner, Isaac W.....Waltham, Mass.
Smith, Ewing.....Nashville, Tenn.
Taylor, Robert.....Cedar Rapids, Iowa.
Thompson, L. W.....Cherry Valley, N. Y.
Vanderbilt, A. R.....Amsterdam, N. Y.
Voorhees, A. C.....New Brunswick, N. J.
Wentworth, A. M.....Portland, Me.
Zoellner, Chas.....Portsmouth, Ohio.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of July 12, 1887.

366,429—Clock Winding Mechanism. A. Robinson, Brooklyn, N. Y.

Issue of July 19, 1887.

366,683—Clock, Window. H. Pennington, Philadelphia, Pa.
366,834—Clocks, Wind Motor for. A. Hitt, Rushville, Ind.
366,668—Finger Ring. A. Kaffeman, New York, N. Y.
366,778—Watch Cases, Machine for Making. E. Keller, Bienne, Switzerland.

Issue of July 26, 1887.

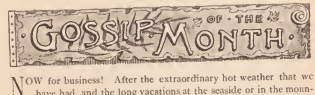
367,288—Watch Case. C. K. Giles, Chicago, Ill.

Issue of August 2, 1887.

367,663—Clock, Electric Programme. A. J. Reams, Augusta, Kansas.
367,662—Clock, Programme. A. J. Reams, Augusta, Kansas.
367,449—Finger Ring. J. Scott, Denver, Colo.

Issue of August 9, 1887.

367,976—Jewelry. C. H. Hartmann, Newark, N. J.
368,100—Watch Case Spring. C. A. McCay, New York, N. Y.
368,002—Watch, Repeating. A. P. Pfister, Locle, Switzerland.
367,995—Watches, Push Button for Repeating. C. Morlet, Jersey City, N. J.



NOW for business! After the extraordinary hot weather that we have had, and the long vacations at the seaside or in the mountains that most persons have had in consequence, advantage should be taken of the pleasant weather September always brings to get to business with renewed energy and increased ardor. There is plenty of work for everybody, and those who settle down to it with intelligence and enterprise are the ones who will reap the most valuable harvest. All business men are unusually confident that there is going to be an extremely active Fall trade, and the indications are that the jewelry trade will enjoy its fair share of the general prosperity. It is seldom that there is the same degree of unanimity in reports as to the business situation, but this year every man whose opportunities for ascertaining the sentiment of the country, agrees with every other that all the conditions are favorable for an unusually good Fall trade, and they are making their preparations accordingly. Commercial travelers, returning from their trips through the country,

and jobbers from other cities visiting New York, concur in representing the situation as most promising. Manufacturers have been inspired by these favorable reports to put forth unusual efforts to please their patrons, and, as a result, the new goods that have been prepared for the fall trade excel the productions of previous years in attractiveness of designs and excellence of workmanship. The demand for novelties will be fully met, and there will be no falling off in the supply of standard goods. After the vacation season all hands should turn in to work with a will to make this the best season the jewelry trade has known for many years.

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"BUFFALO BILL" and his daughter, together with their cowboys, Indians, squaws, etc., have been the great and particular sensation of London for several months. They have been patronized by royalty, and the aristocracy have gone wild over them, while the press has been filled with accounts of their doings. One paper recently gave quite an account of "Buffalo Bill's" diamonds and jewelry, not forgetting those possessed by his daughter. Most of these were purchased in New York, the sage William deeming it prudent in the days of his prosperity to put by something against the time when his luck should go back on him. He made money rapidly, and much of it was laid out in Maiden Lane and vicinity in the purchase of gems, that could be readily converted into cash should circumstances require the sacrifice. While "Buffalo Bill" is a good deal of a humbug, he is endowed with a large amount of native shrewdness, and the indications are that he will make the Londoners pay roundly for the privilege of making a lion of him.

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ONE of the most unique defenses ever made in behalf of a criminal, was that recently put forward in behalf of a government clerk in Washington who had been detected in embezzling. When brought up for sentence his counsel held that he was entitled to consideration from the fact that he had a monomania for living beyond his income. We know whole families that are afflicted in that same way, and the States Prisons are filled with victims to this popular form of lunacy. Fortunately in the case of the Washington clerk, the court did not regard his monomania as in any way mitigating his offense.

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THE readiness with which slang terms become adopted into our language is something surprising. During the war the soldiers adopted many catch phrases expressive of conditions surrounding them, but these were so expressive that many of them are still in common use, and are defined in the big dictionaries. The latest slang creation is the word "boodler," and when applied to bribe-taking aldermen is decidedly expressive. It has come to be commonly applied in this connection and no one any longer regards it as slang, but every one understands precisely what is meant by the term. How it originated no one knows, but it was so pat to the subject that it at once became popular, and to speak of one as a "boodler" is to convey the idea that he is or has been a public officer, and that he misappropriated public funds or sold himself for a bribe. But why should so expressive a term be reserved especially for public officers? There are many others who play havoc with public money or with trust funds, and who, in common with the recognized "boodlers," find the climate of Canada more agreeable than that of the States, who are equally deserving of such designation. But perhaps it is better to draw the line between ordinary thieves and embezzlers and those guilty of the more heinous crime of betraying a public trust.

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THE man who will invent a light, neat and airy costume for gentlemen to wear during extreme hot weather, will deserve a monument to his memory and will make a fortune besides. Business men have been going about during the excessively hot and muggy weather with heavy woolen suits, supposed to be summer goods, and with stiffly starched shirt fronts that might as well be constructed of lath and plaster for all the ventilation they afford, with collars and cuffs to match. Usually the collar was wilted and a fit subject for the washerwoman's attention before he got to his office, and his entire body was drenched with perspiration. Yet in this condition he was obliged to drag through the day, only obtaining relief when he reached home and could exchange his hot street costume for a negligé shirt, slippers and a gauze coat. In the matter of light summer clothing the ladies have decidedly the best of the gentlemen. They dress in light gauzy materials, and always look cool and comfortable. This season many business men adopted light woolen shirts with collars to match, and while these are not especially elegant, they were found to be extremely comfortable as compared to the lath and plastered shirt bosoms and collars. Perhaps the day will come when gentlemen will dress as sensibly in hot weather as the ladies do. Here is a good opportunity for some inventive genius to make a fortune.

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SEVERAL representatives of New York jewelry houses were on the *Umbria* during her recent trip to this city when she struck a tidal wave at sea. It was a terrible experience, and there was danger for a few moments that the great steamship would go to the bottom with all on board. When the tidal wave was first discovered the ship was but a short distance off, and the wave towered above her to a height of fifty feet or more. The vessel's head was at once turned to take the wave head on, and then the waters came crashing down upon the decks, deluging her with tons upon tons of water. The hatches were broken in, the bridge twisted out of shape and considerable damage done to the ship in other ways, but she rose on the crest of the wave and was saved. This occurred early in the morning before the passengers were on deck, otherwise the loss of life would have been very great. One of the gentlemen who was on board said that he had crossed the ocean many times, but had never been in such peril before. What occasioned this terrible disturbance at sea has not been ascertained. Another steamship, since arrived, reported having encountered the same wave on the previous day, sustaining considerable damage in consequence. It may be a pleasant thing to visit Europe to buy diamonds and other elegant goods, but one encounter with a tidal wave is apt to detract materially from the pleasure of a sea voyage, and the gentlemen who brave the dangers of the deep are not so much to be envied after all.

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AND still they come. The chief of the bureau of statistics at Washington reports that the total number of immigrants arrived at the principal ports of this country from Europe, was greatly in excess of the arrivals during the corresponding period of last year. The figures for the year ending June 30 were: For 1887, 484,116; for 1886, 328,825. Germany led the van with something over 100,000, England and Wales contributing two-thirds as many, and Ireland following with nearly 70,000. It is beginning to be a very serious

question whether or not this government should place some limitation upon foreign emigration. This country is a very large one to be sure, but complaint is now being made that all the avenues of commerce and industry are overcrowded and business suffering in consequence. The laboring men are the ones that complain the loudest, yet they are the ones who are constantly sending money home to bring over their brothers, sisters, cousins and aunts. It is this continual and increasing influx of foreign labor that keeps down wages and makes dissatisfaction among workingmen.

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HENRY GEORGE and Father McGlynn are now going about the country talking a mass of buncombe about abolishing poverty. They would be far better and more reasonably employed if they would preach the doctrine of prudence and economy. Any man of ordinary ability can make money readily enough, but the trouble is to keep it. We are undoubtedly the most extravagant people on the face of the earth according to our means. Every man with a dollar in his pocket imagines himself a millionaire, and at once proceeds to spend his dollar on that basis. The great majority of men live so nearly up to their income, that losses, by reason of sickness or other causes, readily put them on the downward track, which, once entered upon, is so hard to retrace. It is far easier when money is plenty to devise ways for spending it, than it is to forget those ways when money grows scarce. The art of using money sensibly is a difficult one to acquire. In the cases of the poorest, the larger share of their scanty earnings often goes for what does them more harm than good. With many a ten dollar bill broken into leaves them nothing of it but what they term "change," to be wasted on drinks and cigars. Instead of fighting windmills, and attempting to abolish poverty by confiscating the savings of the prudent, George and McGlynn might accomplish some real tangible good by conducting a crusade against improvidence and wastefulness. The annual increase in the nation's wealth scarcely averages two per cent., and all the earnings of labor and capital above that go for subsistence and waste. A small sum saved yearly, compounded and secured from any charges, soon rivals in its earnings the profits of an extensive business. But the wage earners are not all improvident by any means. It is conceded that they constitute the bulk of the depositors in the savings banks, and the semi-annual reports of such institutions in this state show an increase of $20,000,000 in the deposits since their report at the close of last year. Seven savings banks in this city show an increase of 6,307 in the number of depositors, and $3,231,078 in the amount of the deposits. A small sum put in bank every week soon grows to an amount that can safely be designated as capital and used to improve the condition of the owner, enabling him to engage in enterprises that will bring in money more rapidly and more easily than by day labor.

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IN THE elegant mansion of Mr. T. A. Edison, the electrical inventor, at Orange, N. J., is a remarkable memento of the late Rev. Henry Ward Beecher. The inventor's phonograph for recording the utterances of the human voice and then emitting them again at will by simply turning a crank, has never been put to any valuable use, nor has it brought the inventor much in the way of revenue. It is, in fact, little more than a toy that a few persons have exhibited as a curiosity. But Mr. Edison utilized it to make a collection of famous voices. The visitors to his workshop have been numbered by the thousands, and when he was visited by distinguished persons, instead of asking them for an autograph he took a sample of their voices, by inducing them to talk into his phonograph. He has kept the soft metal plates upon which their utterances are recorded, and occasionally he runs some of them through the machine to recall the words spoken months or years before. Mr. Beecher was one of his visitors, and left a memento of himself in the shape of afew sentences recorded in the phonograph. Mr. Edison is probably the only man who can revive the silenced voice of the great preacher.

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AN interesting case, involving the right of a person to use his own name in business, was lately before the chancery division of the High Court of Justice of England. The case was that of Nicholl *vs.* Kimpton. The plaintiff represented the estate of one Henry Kimpton, who had for years carried on the business of a medical bookseller. The defendant, H. B. Kimpton, was the son of the original proprietor, and had acted as manager for his mother in carrying on the business of his deceased father. He finally got married and immediately started an establishment in the same line of business and in the same locality, trading as "Henry Kimpton" and as "H. Kimpton," and representing that the business belonged to his wife. The plaintiff brought suit to restrain the defendant and his wife from using the trade name of "Henry Kimpton" or "H. Kimpton" in such a way as to lead customers to suppose they were the successors of the old firm. The court gave a decision in favor of the plaintiff, holding that the defendant was wrongfully using the name of the old established business. Similar cases have occurred in the jewelry trade in this country, but the courts, we believe, have held the opposite of the English decision, maintaining that a person had a right to use his own name in business, even though it was similar to that of another person who had established a lucrative business under that name. This is one of the complications that is likely to bring trouble to parents who name their children after themselves. There are numerous instances where the son has infringed upon the business rights of his father by setting up a rival establishment. "How worse than a serpent's tooth it is to have a thankless child."

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TEXAS has never been a paradise for commercial travelers, for what with their license tax and the careless manner residents have of slinging dangerous weapons around, one's life was made a matter of unwonted solicitude. But a law has been passed in that State making it a misdemeanor for any one to carry a revolver, Bowie knife or other dangerous weapon. Travelers who have provided themselves with outfits of this character, will be under the necessity of packing them with their baggage and checking them out of the State. No one will hereafter consider himself justified in "getting the drop" on a man who incautiously makes a movement towards his hip pocket. If this law is enforced, as it is promised that it will be, Texas will indeed be turning over a new leaf. Its lawlessness, especially in jeopardizing human life, has been notorious throughout its entire history, and has done as much as anything else to repel law-abiding men from her borders. It is probably the consciousness that this reckless disregard of the value of human life was operating against the prosperity of the State that has induced this change. A revolution of even greater importance in regard to the temperance question is in progress, and the advocates of prohibition have strong hopes of being successful eventually. Others, equally in favor of temperance, prefer to actual prohibition, local option and high license to sellers of intoxicating beverages. At the recent election the prohibitionists were defeated, but the returns showed that they polled about forty per cent. of the entire vote of the State. But that the temperance question could ever be seriously considered in Texas would have been ridiculed by Texans a few years ago. That it is

now the all-absorbing topic in that State is an indication that the ear of progress does move in spite of all that croakers may say to the contrary.

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MANY inventions are made by workmen in the course of their daily duties, using the time and material of their employer in the usual course of experiments necessary to the successful development of a new idea. When afterwards the thing turns out to be of value, or a dispute arises between the workman and his employer, the patent frequently becomes the subject of litigation which is very difficult to determine with anything approaching exact justice. The Supreme Court of Wisconsin recently decided a case of this kind in favor of the workman who furnished the ideas that resulted in a patent being obtained. The court laid it down as a principle that it is the conception of the perfected machine, not the material, workmanship or skill employed in working it out that constitutes the invention, and hence that the workman who suggested the idea is the lawful owner of the invention. Whether this decision will simplify the settlement of future disputes that may arise is doubtful, for the application of the principle in many cases of inventions that grow up in a shop would be exceedingly difficult, but it is founded upon reason and justice.

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THE dual cities of St. Paul and Minneapolis, notwithstanding their extreme jealousy of each other, are among the most enterprising communities in the country, and when an enterprise is suggested designed to aid the further development of the State, they lay aside their jealousy and unite with vigor to push it through. They are now projecting a low grade railroad to run from the two cities to Duluth, or the head waters of Lake Superior, there to connect with a line of fast steel steamers that are to run through the lakes and transport freight rapidly and at low rates. It is claimed that freight can be laid down in either city by such a route as cheaply as it can be delivered in Chicago, and thus the twin cities will gain a great point, and one that will tend to make them the great distributing center of the Northwest for all time to come. They already have an immense trade that Chicago is jealous of and would steal away from them if possible, but the enterprise of the Minnesota cities is not likely to permit this to be done. It is announced that work on the railroad and also on the steel steamboats has actually been commenced, and that in a few months the great wheat crop of that State will reach the seaboard without paying tribute to Chicago.

The Stem Winding Mechanism.

[BY MORITZ GROSSMANN.]

Continued from page 226.

N OLD and very original plan of stem winding watches is still to be observed in a few specimens. In these watches, the winding of the main spring takes place through the motion imparted to them by the walking of the wearer, and which requires a good long walk every day for the sake of keeping it going, or, instead of this, a good while of shaking up and down.

This idea was, some years ago, seized on by A. von Löhr, Vienna, Austria. He has completely remodeled the old watch, and improved its weak points, so that it begins to enter earnestly into the competition with the modern "keyless" watches. The most important of his improvements consists in a better relation between the movements of the swinging body, to the quantity of winding operated by it; so that a walk of one hour is sufficient to re-wind the spring as much as it requires for keeping it going for twenty-four hours. Then the daily movements of even the most sedentary person are more than sufficient for this purpose.

Besides this, the better qualities of this watch (he calls it the "Perpetuale") are provided with an indicator, showing, by a hand on the dial, the actual tension of mainspring in each given moment.

When constructing a stem winding mechanism, it is very desirable to establish a certain relation between the turns of the windingknob and those produced at the barrel arbor. In the greatest past of carefully-made keyless watches, each revolution of the winding-pinion operates one-third of a turn of the barrel arbor, or nearly so. This is a proportion which ought not to be much deviated from, in whatever direction; for if a greater speed is given to the winding, the operation is too hard to perform, especially for tender fingers. If, on the contrary, the winding effect is distributed over too great a number of turns, the action will be very easy, but, at the same time, a great power is put into the hands of the person winding, and this power may prove fatal to the acting parts, if not used with appropriate discernment. Especially the end of the winding operation, in such cases, is attended with dangers for the stop-work, the teeth of the barrel and center pinion, etc.

With the rocking bar mechanism, the relation of turns is simply in the ratio of the numbers of the winding pinion and the barrel wheel. But the other group of keyless works having a multiplication of speed by the flat wheel moving on the axis of the contrate wheel, the ratio between the numbers of these two must be taken into calculation. If, for example, the winding pinion has 12 teeth, the contrate wheel 24, the flat wheel on it 40, the barrel wheel 60 teeth, the result will be:—

$$\frac{12 \times 40}{24 \times 60} = \frac{1}{3};$$

that is, one revolution of the pinion operates one-third revolution of the barrel arbor.

There is another danger resulting from violent winding in those watches which have a large winding wheel with fine teeth, and the click-work acting in the teeth of this wheel. Any immoderate winding effort suddenly cut off by the action of the stop-work, and generally at the opposite end of the barrel arbor, produces a small degree of torsion of this latter, and one more tooth of the wheel is forced to pass the click. From this moment, the watch acts under the influence of the full power of the mainspring, increased by the reaction of this torsion transmitted by the stop-work, and it begins to bank violently, and often continues so for some minutes. This is always accompanied with no small danger for the acting parts of the escapement, and, in case of no lasting injury to the watch, it produces a considerable deviation of rate.

Many a good stem-winding watch, carefully executed, with an irreproachable rate, has been discredited by irregular performance, resulting from rough treatment in winding.

A very simple remedy against this inconvenience consists in giving the click a small shake on its screw or stud. The recoil resulting from this shake is sufficient to ease any torsional strain of the kind above described.

I have also made keyless watches with an extra ratchet underneath the large winding wheel on the barrel arbor, and found them to answer quite well. The ratchet was taken of the size of that in a key-winding watch, and, with rather vigorous teeth, it has sufficient recoil to make up for any torsion. The room for this ratchet is abundant, and the tail of the click, if made rather long, allows for letting down the spring without taking off the barrel wheel. A click-work of this kind never causes any trouble in casing, while those click-works which are laid in the level of the winding wheels and at the edge of the larger ones of them, sometimes are trouble some to get clear from the dome of the case.

The movements of a stem winding watch ought not to be charged with extra friction of moving parts, if it can be avoided. In some watches of this kind the motion work has to carry with it one or two setting wheels, and sometimes a pinion, all of them adjusted in a way which does not reduce friction to its least amount. As soon as one of these stop screws has been overlooked, when the repairer provides the movement with oil, the friction created by it will bring the watch to a standstill especially when the sink for the screw's head fits rather closely. All these accessories ought to be brought into action only in the moment of setting the hands, and should recede afterwards and leave the motion work entirely free. Care must be taken that the setting wheels act in the direction to the center of the minute wheel when pushed into gear. The teeth of this wheel, to, ought to be pointed and thin, so that its entering into gear causes no sudden displacement of the hands if the teeth of both wheels chance to meet with their points.

The form of the teeth of the winding wheels and pinions, as usually made, may be classified into two kinds: the one is the usual form of wheel teeth, and the othcr, much in favor with the Swiss makers, has a ratchet-like tooth, both for the flat and angular gear. This latter form, if properly made, is by no means objectionable, since these wheels always act in but onc direction, so that the shape of that side of the tooth not called into action is of no consequence, and the only consideration for it must hc to give it the greatest possible degree of strength. The very thin wheels generally used in Swiss stem winders justify fully this way of shaping the teeth, but then the natural character of the tooth ought to be an epicycloid on the acting side, with a hollow back-put affording the necessary room for the tooth of the other wheel to pass freely. Most wheels of this kind, however, have so strangely-shaped teeth that they make the impression as though taste had a principal share in their construction. Winding wheels of proportionate thickness may, without fear of breakage, have the common shape of teeth. Certainly the teeth ought not to be too fine, and the flanks and bottom must offer the best conditions of strength; therefore they must be short, and may be so, since they have only to lead through a very small angle, after which they are rclieved in the gear by the next tooth. The sides ought to diverge slightly, this giving an increase of breadth to the lower part of the tooth, and the bottom ought to be hollow.

The size of teeth is, with the stem winding mechanisms of the rocking-bar category, essentially prescribed by the toothing of the motion work, and in consequence of it, most of these mechanisms have finer toothed wheels than desirable. A little extra wheel, concentrically adjusted upon the setting wheel, and of the same size teeth with the minute wheel, will relieve from all restriction, and enable the constructor to use teeth of the proper size. With the mechanisms of the other class, the size of the teeth is quite optional.

As a material for the winding parts, steel is generally used, and for the pinions no other known metal would prove suitable. With respect to the wheels, and especially the large, I always thought steel, when hardened, might not be sufficiently reliable, since nobody can know whether there is not a tendency to break in some part of it. For thcse reasons I made them of aluminum bronze for a time, but I had to give it up, not that they had given any reason of complaint, but only because customers seemed to prefer the look of steel wheels.

The casing of stem winding movements requires some extra work as compared with that of key winding. The fixingpin, contrary to the general rule heretofore given, must here be near the pendant, because if not, the movement could not be put in. In the stem winding watches with the setting parts on the winding axis, I find it a good plan to have this axis removable, and have it secured by a bridge fixed at the end of the pillar plate. The inner pivot of the axis moves, as usual, in a brass stud rivcted into the pillar plate.

The pinion and the setting cannon must have just the necessary freedom in the sinks made for them in the pillar plate, so that they remain in their places when the axis is drawn out, lest they should make the re-insertion of the axis rather difficult.

This arrangement greatly facilitates the casing, and has also the additional advantage that the action of the winding pinion and the contrate wheel can be verified without the movement being in the case.

The winding knob is fixed to the outer extremity of the axis in the common way, and the axis is held in its place by a screw going through one-half of the pendant, the inner end projecting into a notch turned into the axis. The head of the screw is sunk into the outside of the pendant.

With this disposition, a movement, after taking out the axis, can be taken out of the case and put into it with the same ease as a simple movement. For hunting watches, a little allowance must be made for a small motion of the axis in the direction of its length for the purpose of opening the front cover of the case. For effecting this, the shutting spring has a hole through which the axis passes freely, while a shoulder of the same pushes the spring inward by a pressure on the knob.

The push-piece in many stem winding watches projects from the periphery of the rim of the case. If such is the case, it ought to be adjusted in a way as to completely shut the opening in the case. A round pin with a head outside generally answers very well, and so does also a round disc of about half the thickness of the rim, and projecting a little less than half its surface.

The projecting push-pieces, however, have been much objected to from several points of view. The first and most serious objection was, that any accidental pressure might push the motion work into gear, and thus alter the position of hands or arrest their course. With the large-linked, heavy chains now worn, it is not a rare occurrence that a part of the chain gets into the pocket, and by some chance, presses against the push-piece. Another objection is the apprehension that dust may find its way through the opening for the push-piece. This is, however, of no great consequence, for a push-piece fitted in a careful and judicious way will not allow much dust to penetrate it. The projecting push-pieces have also been objected to on the ground of good taste, which will not suffer any unsymmetrical protuberance. This argument is not of great weight.

(*To be Continued.*)

The Lick Observatory.

THE five large castings, that, when together, will form the supporting column of the largest telescope the world has ever seen, reached San José the last week in July, and are now being conveyed to the top of Mount Hamilton, twenty-six miles away. The castings in the aggregate weigh about thirty tons, so the task of hauling them up the mountain road to Observatory Peak is no easy one. Capt. Floyd, the President of the Lick Trust, is still at the mountain personally superintending the work that soon will conclude the great undertaking, so costly in money expended and time applied, but of which so much is expected by the scientific world. The great dome is all completed. The lens, to which all other things are subordinate, is in the safe, where it has been since it came overland several months ago. No crown jewel or golden nugget was ever more carefully guarded than that glass, upon which the most expert artisans of the world have spent years of labor. Now all that is needed to make the telescope complete is the long steel tubing, three feet in diamcter. Into an end of this the lens is to be fitted, and through it, when carefully adjusted on pier and pivot in the great dome, astronomers are to gaze and endeavor there to fathom some of the hitherto hidden facts of the starry realms. The tubing

is being made in Cleveland, Ohio, and, it is expected, will be ready at the furthest in the course of two months.

Next best to a trip to the lofty summit of Mount Hamilton is an inspection in the rooms of the trust of the photographs of Secretary Matthews. During all the period of construction he has been actively at work with his camera, and there are few sights of interest in connection with the work that he has missed. Chief of all, by clever adjustment, he has secured a long panoramic view of the mountain ridge showing in detail all the observatory property among the clouds. There are many other smaller views representing periods in the progress of the work or interesting incidents.

The bronze monument of Francis Scott Key, whose song of the nation's flag has made him immortal in history, is now on the way by sailing ship from Rome to San Francisco. It was made in Rome by the famous sculptor, W. W. Story, at a cost of $60,000. It will be placed in a conspicuous position in Golden Gate Park. Its erection there will fulfil the provision of the twelfth section of the trust deed of the great philanthropist. The monument in sections is shipped by water the entire distance because there is less danger of damage in that way. The voyage through the Mediterranean, across the Atlantic, and around Cape Horn is a long one, and the vessel may hardly be expected to reach this port before December or January next.

Several of the leading artists in the East have stated their intention to compete in offering designs for the three groups of statuary to be erected on the east side of the new City Hall in fulfilment of the thirteenth section of the trust deed. Among others are C. Bubert, of New York, who recently completed an elaborate statue of Garfield, and Karl Gerhardt, of Hartford, whose statue of General Putnam in Hartford, and of Nathan Hale, of New York, have attracted much attention and favorable comment. A number of local artists will also offer designs. The time for completion will close September 15.

It is expected that the next benefaction to be carried out in accordance with the fourteenth section of the deed will be the establishment of the "California School of Mechanic Arts," at a cost of $540,000. A few months ago the sum of $5,000 was paid to the special trustees on account to enable them to proceed with necessary preliminary work. These special trustees are Horace Davis, President; John H. Boalt, Secretary; and Dr. J. D. B. Stillman, A. S. Hallidie, John O. Earl, and Judge Lorenzo Sawyer. It is stated by one of the gentlemen concerned that as soon as the work on the observatory is fairly completed, steps will be taken leading to the establishment of the school. The purpose of the school, as outlined in the deed, is to educate men and women in the "practical arts of life, such as working in wood, iron, and stone, or any of the metals, and in whatever industry intelligent mechanical skill now is or can hereafter be applied." The school is to be open to all youths born in California.—*San Francisco Bulletin.*

Strength-Giving Food.

FEW people realize how large a proportion of the intemperance of our time is due to poor food. The overtaxed system seeks the deceptive relief of stimulants to make up for the lack of strength which it should get from food. Of course this is a terrible mistake in the end. The effect of stimulation passes away, leaving the system more exhausted than before and crying for fresh stimulant to take the place of that whose strength has been exhausted. The worst of all is that stimulant gives no nourishment. It is constantly borrowing, and compounding interest at that, and the end is a system either hopelessly wrecked, or so debilitated that it can only be recruited after months of living on correct systems of eating and drinking.

A great deal of this debilitation which seems to call for stimulants may, with healthful stomachs and good digestion, be avoided by cooking and preparing the best strength-giving kinds of food for hard-working men. Wives have themselves partly to blame when their husbands go wrong in the matter of stimulants. Have they provided the nourishing, strength-giving foods demanded by hard workers in a time when extraordinary muscular exertion is necessary? If not, they cannot be held wholly guiltless of the almost inevitable result. The housekeeper should seek information on this important subject and govern the cooking accordingly.

Of course the husband is largely to blame. He should not, however, when pressed beyond his strength, seek refuge in the delusive stimulation of alcoholic drinks. Affirmatively he should guard against any such need by providing, in due time, the food that will give strength against the labors of the day, hayfield and the harvest. These despite the saving of labor by improved harvesting implements, are still the most critical periods for hard-working farmers. Happy are those who provided against this time by sowing last Spring successive patches of green peas, to be used during the busy season. There is probably no more strength-giving food at this season than green peas cooked in milk. They are appetizing, healthful and strengthening. So also are green beans. These are probably the pulse on which the Hebrew children fed when we are told that they were fairer and better looking than all who fed on the king's meat.

The strength-giving foods, however, are not by any means limited to these green and palatable vegetables. Dried beans contain a great proportion of albuminoids, and we never saw a hard-working man or woman who would not relish a dish of these if properly prepared. Oatmeal with milk or sugar is quite as good, and perhaps for most appetites better adapted to warm weather. Milk alone is always good for workingmen, and if given as a drink between meals will furnish strength for the labors of the harvest fields, and do away with much of the seeming necessity for stimulants for overworked laborers.

Much of the cooking for workingmen is pernicious. Fat meats, pies, cake and pastry are all, with potatoes, pernicious, because not essentially strengthening foods. They are carbonaceous, excellent for giving heat and making, fat, but these are not required in warm weather. The people of Ireland have doubtless lived far too much for their own good on the potato. The natural result has been an immense amount of drunkenness and deterioration of physical and moral character. As the potato did not give strength to work, stimulants was resorted to. The Scotch, living on oatmeal, also use stimulants, but with less deleterious effects physically than the Irish. The truth, however, is that in Scotland as eating oatmeal has gone out of fashion the drinking of whiskey has come in.

The cure for reliance on any stimulants is necessarily slow, for while urging the men to deeds requiring the greatest strength, they are necessarily debilitating. It requires time and patience to counteract the effects of a debauch continued for days and weeks, because the strength-giving food does not act immediately like a stimulant. But when it is learned, as it should be, that proper dieting is the best remedy against improper drinking, the most important step will be taken in a much-needed temperance reform.

Does Labor Produce All the Wealth?

THE REV. Dr. G. M. STEELE, in *Work and Wages:* "Is it really true that 'labor produces all the wealth of the world?' Of course, by labor here is meant the putting forth of physical energy, otherwise the succeeding sentences have no meaning. Does any one who thinks at all about the subject believe that the great factories, the docks, the vast buildings of stone and brick and iron in our great

cities, the railroads, the mighty steamships, the complicated machines and innumerable other structures are the result of manual labor alone? Suppose there is a line of railway fifty miles in length to be built, and five thousand steady, intelligent and reliable laborers are told to go and build it. Will they be able to build the bridges, to make the deep cuts, to construct the causeways through treacherous swamps, to calculate the grades, and other equally difficult parts of the work? How many ordinary wage laborers would it take to produce a Corliss engine, the first of its kind? No; there must be much besides muscular effort in order to attain these results. There must be toil of brain, long and protracted, and often exhausting thought, sometimes accompanied by great sacrifices and great hardships. In order to extend production there are required great mental qualities, some of them of a rare kind. There is needed power to contrive, to invent, to organize, to direct, or little can be achieved. The man who blows the organ might claim that he produces all the music of the instrument. It is true he is generally an essential condition, but not by any means the only or the most essential condition. No more is manual labor the only or the most essential condition of the production of great wealth."

Fashions in Jewelry.

A Lady's Rambles Among the Jewelers.

It is not necessary to interview manufacturers and dealers to ascertain if the demand for jewelry is on the increase. One has only to look over the fashion notes of our leading daily journals, our weeklies and the regular fashion magazines to gain an answer. These all, with one accord, now incorporate in their fashion reviews notes on jewelry, with as much freedom as they do notes on bonnets and gowns. This means that jewelry is again universally worn, and that it has the sanction of the *creme de la creme* as well as the well-to-do purchaser with modest aspirations as regards society. It is true that many of these notes sound strangely familiar to The Circular's readers, leaving in their minds a suspicion that its advance sheets containing "Fashions in Jewelry" have in one way or another become responsible for much of this (to the jeweler) welcome literature. One has but to recall how short a time ago it was that fashion writers, as a class, tabooed the subject of jewelry, to appreciate the full significance of their present willingness to write the subject up. It may all be told in the one brief sentence—jewelry is fashionable.

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With this increased demand manufacturers have been exceedingly fortunate in that Dame Fashion has laid down no strict rules, but, on the contrary, affords the widest scope ever before known to workers in precious metals to carry out their own designs. The consequence is a bewildering variety in all departments.

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Neck pins afford an admirable illustration of the wide license given in matters of personal adornment. Brooches, lace pins, flower pins, nondescript pins coming under no regular class, are all out in new patterns for the fall trade, and it is a wise person who can tell which is the most fashionable.

Old favorites reproduced are the enameled flower brooches, the regular lace pin, and brooches in such old time shapes as crescents, horseshoes, stars, and the knot and rope pattern. To the first mentioned, new flowers are being constantly added to the list, such as thistles, corn flowers, arbutus and eidelweiss. The rope pattern has appeared knotted so as to form square, round and diamond-shaped brooches. Lace pins are out in the form of twisted rope, the fringed ends of which are tied with gold threads. The morning glory has lately appeared, sometimes enameled to represent its true colors, sometimes in all gold in Roman finish and sometimes covered with diamonds. The flower pins in which the flowers are represented by colored stones set in a cluster of tinted gold leaves, are very beautiful. In illustration may be cited a cluster of amethyst violets.

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A very pretty ornament designed to be worn as either pin or pendant, consists of a carved head on topaz or other stone and set round with pearls or diamonds. Cluster pins and pendants are much worn. A costly one seen consisted of a colored pearl as the central stone. Around this was grouped five white pearls of uniform size, each one of which was encircled with small brilliants. Lace pins were seen during the past month in as great variety as ever in the stock of a manufacturing house that does an immense trade on the road. In this stock appeared, along with new patterns, many of the old favorites. The double scroll pattern, with a stone in the center, is retained; so is the knife-bar set with gems. Some of the bar pins are rendered attractive by odd little pendants that hang from the center. In both silver and gold come lace pins in form of a parasol, a whip, a fan and other familiar models.

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Some of the brooches and lace pins show a combination of metals as well as gems. A new pin that promises to have a big run is of gold and silver. The gold in Roman finish forms the background for silver flowers through which a Cupid's arrow is inserted. Another pretty brooch seen is of red gold and platinum.

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One enterprising manufacturer has been clever enough to make some gold horseshoe brooches, in which are set opals, the idea being, doubtless, to overcome any foolish superstition in regard to the opal by the proverbial lucky horseshoe.

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In gem jewelry the combination arrangement of brooch, pendant and hair ornament remains popular as ever. To the ever favorite star, crescent and horseshoe patterns, has been added the heart-shaped ornament of olden times. A very pretty conceit in this same direction is an enameled pendant in shape of a shell, delicately tinted, and bordered with small diamonds. New models seen in the long-stemmed flower pins are poppies. A very effective one was a poppy in gold filigree set with diamonds.

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The little bonnet pins are still worn, and not a few of the scarf pins designed for men's wear find their way to ladies' toilets. In scarf pins there appears a continued demand for those simulating

birds in enamel. Dogs' heads are also favored, and one sees occasionally a horse's head. The shell pattern in Roman gold also appears in scarf pins; so does the spider, and there are a great number of flower patterns.

BRACELETS which are now worn on both arms continue to be made in both stiff and flexible patterns. Chain bracelets are very fashionable. These, of late, have been much made with little padlocks. This latter style is patronized by engaged people, the lady wearing the chain about the wrist, while the gentleman wears the key that fastens the padlock on his watch chain as a charm. Heavy plain link bracelets continue fashionable. So do the ball links, hand chased and oxidized. Quite new are bracelets composed of little blocks of different colored gold and platina linked together. Some of these show alternate blocks and circles of metal linked together. A dainty bracelet is composed of two or more slender chains of gold held together by sapphires or cat's-eyes, set at regular intervals. Very slender bracelets are seen side by side with broad band ones. A fancy indulged in by some ladies is that of wearing two or more slender wire bracelets, surmounted by gem-set clasps, on one arm, the gems differing in color. Pendants appear on some of the bracelets to which they are attached by a little gold chain. One seen was a tiny vinaigrette.

MANY of the new finger rings for ladies' wear show clusters in colored combination. In these fancy clusters are employed sapphires, rubies, emeralds, vari-colored diamonds and pearls. The semi-precious stones are much used for these clusters in connection with small brilliants. A present style, which will probably prove a passing one, consists in wearing four gold wire rings on the same finger, each being set with a single small stone, as a sapphire, diamond, emerald and ruby.

THE turquoise, of late, has appeared in finger rings, surrounded with brilliants. It must, of course, be of true color to make it desirable. Brown and yellow diamonds, also canary-colored sapphires, are being much used on finger rings. These are surrounded by fine brilliants that set off the central stone.

HOOP rings are being made in which the gems are imbedded in gold. Marquis rings show in their settings a combination of colored stones. Initial finger rings, formed of fine gold wire, are also in the show cases.

HOOP ear rings, both plain and filigree, are worn. Some of the latter, made up especially for the fall trade, are exceedingly beautiful. Young ladies incline to screw ear rings of pearls or small solitaire diamonds. Married ladies have lost none of their admiration for large diamond solitaires. There is a decided inclination, also, for diamond ear rings, from which hang long, pear-shaped pearls.

AMONG pretty sets seen was one in which amethyst violets were mounted on gold leaves as brooches and ear rings. Other sets represented the violets in enamel.

HAIR ornaments of gold, silver and gems were never more fashionable than now. These ornaments come in a variety of forms. There are pretty little combs and hair pins of massive gold, with and without an ornament at the head.

A PRETTY hair pin is an amber one, on which appears a large oxidized ball of silver. Tortoise shell often forms the pin, a design in gold appearing for the head.

THE fly pin with patent spring, which is freed when the wings are pressed together, and previously described in THE CIRCULAR, has become an exceedingly popular ornament, especially when made to simulate a butterfly or humming bird. These ornaments, when made of gold filigree and gem-set wings, are very beautiful.

THE silver belts and girdles, described early in the season, have met with unprecedented success. Every woman who can afford it wears a silver belt, or a handsome leather one showing silver links and buckles. The girdles, which were at first confined to wearing with tea gowns, are now worn with great freedom on other styles of dress. These girdles, to be quite *recherché*, must be heavy, and finished with a chatelaine from which hang all sorts of objects, such as tablets, pin cushion, vinaigrette, etc. This fashion of girdles is by no means confined to American women. English women have also adopted them. These latter prefer them in crude form, and, when an antique can be obtained, are more than delighted. Our manufacturers have succeeded in imitating the hammered work chains of the Norway peasant women, as well as originating many pleasing patterns in girdles.

IF IMPORTERS of precious stones are correct in their prophecies, rubies and emeralds are to run a neck to neck race for popularity in the fashionable world. There will also be a brisk demand for colored pearls as well as white ones. Young ladies have suddenly wakened to a realizing sense of the fitness of pearls where youth and beauty rule.

OPEN-THROATED corsages encourage the wearing of necklaces of one kind or another. Gold beads continue to be worn. Quite new in neck ornaments is the cable-link necklace, with or without pendants. In silver necklaces those simulating flowers in form and finished with colored enamel are much worn. Silver bead necklaces are also popular. These are composed of two or more strands.

PRESENT indications are that Roman gold jewelry will be an exceedingly popular kind during the season to come. The most trustworthy of our New York manufacturers agree in prophecying a profitable season in lace pins as well as in brooches. These same manufacturers also speak confidently of the Queen chain as the leading one for the season of 1887-88 There is no question about enameled goods. These are in as great request as ever.

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SILVER jewelry has unquestionably come to stay. Much of this appears in antique patterns, there being a rage just now for a repetition of old time ornaments. The silver belts, girdles and chatelaines, already described, will have a big run, as will brooches and lace pins set with Indian moonstones, opals and fancy stones in antique framework.

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IN WATCHES the tendency is still to decorated cases in small sizes for ladies' wear. While many of these cases are quite round, others are irregular in shape, as the Queen Anne, the escalloped cases and the shell cases. There are diamond ornamented cases, etched and engraved cases, and cases on which appear enameled miniatures. A pleasing finish is that of a nugget surface set with brilliants.

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THE Queen chain still leads in chains for ladies' wear, and a popular pendant is the original one of a ball. These chains are made in many patterns. There is the curb-link chain, the barrel-link, made of Roman gold, the trace-link and the square-curb. Gold and platina chains, which have so long been popular for gentlemen, are made also for ladies. Numbered with new and attractive charms for Queens are gold filigree ones, in the interstices of which are placed tiny enameled Marguerites. These Marguerite balls are also introduced in new ear rings for the fall trade, and very handsome they are. The vinaigrette continues a favorite charm for Queens. Recent novelties in this direction are little pin cushion charms. While the Queen is by far the most popular chain for ladies' wear, there are in stock some very pretty ones in fancy vest chains. Silver watches are much worn on chatelaine chains.

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FOR men's wear, the chain commonly known as the "pony vest" leads, though there is a good patronage for the double chain. Quite new is the square-curb pattern made in platinum and gold. This square-curb pattern also appears in new bar cuff buttons for men's wear. The newest idea in the way of pendants for men's chains are lockets of gold and platina, with and without gem decoration. Seals and pencil charms continue fashionable.

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THERE is little that is new to tell in way of cuff buttons. Both links and single buttons are worn. In the link button cross patterns are of frequent occurrence; as, one a slender bar of gold and the other an oval shape in platina. Link buttons set with gems show differing stones, as a diamond and a sapphire. Very pretty buttons for ladies' wear, seen recently, were of pale blue enamel, on which was overlaid a wire decoration in gold. The new cuff buttons, with a pin and chain attachment, have already gained a profitable patronage.

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DECORATIVE gold thimbles are well to the front. A new stock examined recently, bewildered by the variety of its finish. In it were thimbles with plain octagon flange, plain concave flange, octagon engraved flange, chased rim with engraved flange, and flanges variously decorated with applied work in vari-colored golds, applied enamel, floral patterns in enamel and floral and other designs, engraved.

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QUITE a boom has been given to gautalines in both gold and silver this summer, as these have been much used at fashionable resorts for lawn-tennis prizes. It naturally follows that some of the newer gautalines show designs borrowed from out-door sports. Such as tennis, racket and the like. ELSIE BEE.

The Tipsy Watch.

A MAGNETIZED watch is a "tipsy watch." It behaves very like a man who is "under the influence." It is "groggy," and cannot go straight. Will go sometimes backwards, sometimes forwards, staggers to the right and then to the left, or brings up against a lamp post to make ready for a fresh start, or may sit down on the curb stone and take a rest, as many a fond owner has found to his cost, when he has missed a train, or something more important. A watch loves magnetism as a toper loves his toddy, and will drink it in at every possible opportunity. After it has once got a little, is very susceptible, and will reach out for more, as it were.

The balance wheel and hair spring is the heart, which is very sensitive to the silent forces, vibrates in the influence, and is drawn a little to the right or to the left, trembles a little, hesitates and is lost; throws off the old allegiance, and falls under a new power. This toper of a watch hungers after magnetism, and seeks it out at every turn—it finds it in the atmosphere, and it may be had in intoxicating quantities on the sidewalk, from the dynamo placed there-under to furnish electric light for a block. It is lurking in mischievous quantities in the telephone receiver; it is in every electric light wire, telegraph wire, and in a thousand and one places where least expected—in fact, it is hard to keep a watch temperate and virtuous in the midst of so many temptations. When a watch gets tipsy on magnetism, it does not get over it so easily as a tipsy human his spree, but hangs on indefinitely. A dose of seltzer or bottle of congress will not clean it out. It requires a heroic course of treatment which will change the constitution, and which must be administered in a sort of *allopathic* dose of similia similibus curantur. A watch may be demagnetized, but to be demagnetized *effectively* there must be left in it no residual force, or at least it must be reduced to a minimum. You will frequently hear an engineer say that he can demagnetize his watch by revolving it by means of twisted string before the poles of dynamo—but the watch is not *demagnetized*—only the surplus force is removed. The steel parts of the watch still retain the same intensity of magnetism as the force through which it has passed last. The amount may not be sufficient to stop it, but it will affect the time just the same. The average watchmaker will tell you that *if* the steel parts of the watch do not pick up iron filings, that it is not magnetized. This is a mistake—it is a fatal error—because it

throws him off his guard, and he will look for the trouble elsewhere. Very many, if not most of the watches have this residual force strong enough to vitiate time, but not quite strong enough to gather iron filings, or iron dust.

Again, many watchmakers and electricians, to test for magnetism, try their watches by moving a compass needle around them on the outside. This is no test at all and proves nothing. In most cases the springs in the case of the watch will move the needle of the compass when the watch is lying flat, and will always do so if the watch is held in a perpendicular position. The watch, or any piece of steel material in the watch, can be made to move the compass needle according to the position in which they are held, and these pieces may only contain the natural or earth's residual force of magnetism. The best test possible, and practical, that has yet been discovered, is to take a small compass needle, say ¼ to ½ inch in diameter (care being taken to have the needle nicely poised and very sensitive); now pass this little compass needle over the movement, taking each part in detail, and the needle will tell you, in no uncertain manner, exactly where the invisible force is hiding. The compass must be held with the fingers (steel must not be used). This test is infallible, and yet simple, and if watchmakers learn to use it more frequently they will, to an extent, reduce the uncertainty as to whether magnetism exists in the watch. This force will sometimes be found to exist only in the hair spring—again, the regulator—but more frequently the balance wheel—there is always more or less in the balance wheel; and then again, the lever or fork may have it. When a watch is thoroughly magnetized, all the moving parts of steel become demoralized, and the watch will be found to be very groggy.

And, still another way of expressing it is this: Magnetism in a watch is an unmitigated evil. It may act as a tonic or corrective, and may be just what is needed to brace up the shaky timer; but the right dose in the right place is a difficult thing to accomplish, and like most medicine, the wrong quantity applied in the wrong place does the mischief. Magnetism in watches has always been a malaria resulting in chills and fever, but at the present time it has become epidemic and as virulent as small pox, but like that disease, may be guarded against by vaccination. Vaccinate your watch with the Anti-Magnetic Shield, and it will be a proof against the disease. This shield corrals and holds sufficient quantity of the earth's induced charge of magnetism to keep within its circle a field of constant polarity, which is equal on all sides, and sufficiently strong to keep the watch from malaria or epidemic disease which may be in its surroundings.

CORRESPONDENCE.

Chicago Notes.

To the Editor of the Jewelers' Circular:

In spite of the stereotyped talk about August being the dullest month in the year, Chicago jobbers have been doing a surprising amount of business. The fears engendered by the long-continued drought have been swept away by the fall of copious rains, and jobbers and retailers are now respectively entering on the fall trade with light hearts, and the almost assured promise of doing heavy business. It was generally believed until about the middle of last month that the corn crop would prove an almost total failure in many parts of the State of Illinois, but the clouds have burst and put new life into the parched fields, and the farmer has now a pretty good chance of making his wife, and daughter, and sweetheart an acceptable Christmas present from among the beautiful new lines of goods which the travelers of all the leading Chicago houses are now showing around the country. Nearly every house in Chicago reports a better August than last year, and with some the increase has been as much as 50 per cent. Collections are generally reported as good, and an easy, confident feeling prevails in the town.

Mr. Moore, the manager for Benj. Allen, reports excellent business for August. All the firm's travelers have been out since the middle of July, and are making ready sales of the fine lines of fall novelties which they carry. C. H. Knights & Co. have their six travelers on the road, and are already receiving favorable indications of the prospective fall trade. Mr. Knights reports business as considerably in advance of last year.

Mr. Lapp, of Lapp & Flershem, is busily engaged in his new, nameless catalogue, which will be considerably larger than last year's, and hopes to get it out early in October. Lapp & Flershem claim an increase of 50 per cent. all over on their business for the first six months of this year, in spite of the dullness caused by the drought. B. F. Norris, Alister & Co. find their order business unusually large for the season of the year, and have no doubt of a rushing fall trade. Otto Young & Co. are having such a boom that Manager Schnering has hardly time to talk to his friends.

Giles, Bro. & Co. consider business exceptionally good for the summer. C. K. Giles has been appointed Chief Inspector of the Time Service of the Chicago and Northwestern Railroad, and has his hands so full with the cares and responsibilities of his new office, that his very dreams are haunted with railroad whistles and magnetic shields.

Samuel Swartchild is having an unprecedented demand for his patent jewelers' hench and slide rest, and declares unhesitatingly that his advertisement in THE JEWELERS' CIRCULAR brings him more business than his advertising in all the other trade journals put together.

The Elgin National Watch Company is so busy at the present time that it can with difficulty fill its orders. Manager Cutter reports that jobbers are eagerly taking goods even without orders, and that things are so strained at the factory that they are unable, in spite of their constantly increasing facilities, to keep pace with the demand. This argues well for the popularity of the Elgin movement.

The American Watch Co. report an unusually heavy business during the past month and their collections good. Their chronographs are quite a success, and jobbers here cannot get enough of them.

The Howard Watch & Clock Company, and all the other important eastern concerns in that line having branches here, report satisfactory, steady business.

Baird & Dillon, a firm doing a large business in silverware on the installment plan, at Nos. 141 and 143 Wabash avenue, failed on Aug. 7, and made an assignment for the benefit of their creditors to F. E. Morse. The best estimates of the liabilities of the firm place them at from $175,000 to $200,000, while the total assets of all kinds will not reach $50,000. The principal creditors are Cephas B. Rogers & Bro., Meriden, Conn., $30,000; the Derby Silver Co., Birmingham, Conn., $25,000; the E. N. Welch Manufacturing Co., $20,000; and the First National Bank of Chicago, $13,000, with a contingent liability of $21,000. Among the smaller creditors are the Bristol Brass and Clock Company, Bristol, Conn.; the Pierrepont Manufacturing Company, New Bedford, Mass.; and Koch, Sons & Co., New York The failure is mainly attributed to dull trade, but its primary cause was the entering up against the firm of $15,000 worth of judgment notes held by Thomas E. Hill. Mr. Morse, the assignee, considers the action of Hill in pushing the firm to the wall as outrageous, and Baird & Dillon have brought suit against Hill for $100,000 damages.

Deep regret was caused among the trade on July 28 by the announcement of the sudden death from rheumatism of Newell Matson, the well-known Chicago jeweler, at Clinton, Conn., in his seventy-third year. A native of Hartford County, Connecticut, Mr,

Matson began his business career in a country store in his native place. In 1845 he began, at Oswego, N. Y., an extensive trade in jewelry and general merchandise, employing, as was the custom of the time, peddlers, who retailed his wares throughout the country. To accommodate increasing business he opened branch houses at Dansville and Painesville, O. In 1857 he began business in Milwaukee, and in 1864 came to Chicago. The fire of 1871 destroyed his stock of goods, his loss being $250,000. Nothing daunted, he resumed business at once, and soon secured all the prosperity the house had previously enjoyed. The members of the family surviving him are Mrs. Matson, his son, Rollin, and daughters, Mrs. A. H Andrews, Mrs. Hayden, of Denver, Mrs. Samuel Perry, of Denver, and Miss Anna Matson. Personally Mr. Matson was a man of great kindness of heart. He gave abundantly of his means to charitable institutions. He was a member of Plymouth Congregational Church, of which his son, the Rev. L. E. Matson, now deceased, was pastor prior to the pastorate of Dr. Bartlett. His death will cause sincere sorrow among legions of friends. The interment took place at Simsbury, Conn.

No little interest was created in certain circles on Aug. 12, by the sale by the customs authorities of the diamonds belonging to "Jerry" Monroe, the notorious dive-keeper. The goods in question were smuggled into this country by the wife of a Chicago saloon keeper known as "Cockney Charley" Lloyd, and sold to the unfortunate "Jerry," who has lost his liquor license as well as his sparklers. The diamonds made prices reaching from $19 to $300, and realized an aggregate of $1,950 for the government.

Max Ellbogen, of the firm of Stein & Ellbogen, sailed from New York on the *Elba*, Aug. 3, for Amsterdam, to make his annual purchase of diamonds. Mr. Ellbogen will also look up his relatives many of whom live in the vicinity of Vienna. Mr. Stein, the other member of the firm, is sticking closely to the store, and reports very satisfactory trade for August.

C. W. Wallis, of Coggswell & Wallis, went to Osage, Ia., on a pleasure trip, July 31, and will return to the city about the beginning of September.

Mr. Lapp, of Lapp & Flersham, returned to the city on Aug. 5, after spending a very pleasant three weeks' vacation at Carlton Island, in the St. Lawrence.

Benj. Allen joined his family on Aug. 6, at White Mountains, N. H., and remained there for the remainder of the month. Mrs. Allen and family had been summering prior to this at Narragansett Pier, but are enjoying the change immensely.

Mr. William Alister and wife are spending their vacation among the hills of Colorado.

Leopold Newhouse, of Glickauf & Newhouse, left on Aug. 9 for a four weeks' business trip through Illinois and Iowa.

J. H. Dustin, formerly with Clapp & Davies, is now on the road for Lapp & Flersham in Wisconsin.

Mr. A. E. Matthews, a thriving jeweler at Odebolt, Ia., was married on Aug. 11 to Miss Blanche Dockstader, a favorite belle of the same place.

Among the well-known retail jewelers in town during the early part of August were: C. S. Cutting, Joliet, Ill.; J. J. Higgins, Du Quoin, Ia.; A. W. Hawver, Sharon, Wis.; J. R. Parsons, La Porte, Ind.; W. C. Schroeder, La Porte, Ind.; W. P. Sedgwick, Bath, N. Y.; H. F. Higbee, Ludington, Mich.; and J. B. Weller, St. Paul, Minn.

J. V. Ridway, of Giles, Bro. & Co., went down to St. Louis Aug. 11 to keep cool, but finding the thermometer at 103°, transacted all his business in three days and started off for the shores of Lake Michigan.

W. T. Smith, late of St. Louis, has settled in Chicago.

Mr. Bunker, of the E. N. Welch Clock Co., returned to the city at the beginning of the month, after a pleasant vacation at Camp Lake, Wis.

Louis Manheimer returned to the city in the end of July, leaving his sick mother much improved in health.

Jerome B. Chambers & Co. are exhibiting specimens of gold and silver bullion, from the mines of the La Victoria Mining and Milling Co., of Honduras.

William Hirsch, of A. Hirsch & Bro., was married to Miss Mina Hirsch, his cousin, in Paris, and sailed for home July 23.

At a meeting of Chicago jewelers held July 29, resolutions expressive of regret at the death of Newell Matson were adopted, and copies ordered sent to his widow and family.

The late firm of Rosenkrans & Weber, which failed some time ago, has been incorporated into a joint stock company by A. A. Baldwin, of Milwaukee, Alfred Church and J. H. Johnson, with a capital stock of $20,000. It will henceforth be known as "The Weber Company," and will be managed by C. M. Weber.

The Wichita Watch Company was organized towards the end of July at Wichita, Kas., with a capital stock of $250,000.

Mr. Matthews, Secretary of the Crescent Watch Case Co., was in Chicago during the early days of August.

Mr. Baehr, of Max Myer & Bro., of Omaha, Neb., passed through Chicago on his way East on Aug 30.

Theodore Kearney, of the Theodore Kearney Co., spent his vacation at St. Catherine's, Wis.

Benjamin Kramer has become city traveler for Mr. Zuckerberg & Co.

T. G. Nind, formerly with the William Rogers Manufacturing Co., is now with the Holmes & Edwards Silver Co.

Messrs. Elmer Rich, of Alfred H. Smith & Co., and C. J. Horton, of Robbins & Appleton, have had arrivals of young American citizens at their homes. Mr. Horton's boy is said to have weighed 9 pounds on his first introduction to American life.

The Western Silver Plate Co. has taken a commodious office at No. 54 Madison street.

Part of Clapp & Davies' fixtures have been purchased by J. H. Purdy.

M. N. Burchard, L. W. Flershem, H. S. Peck, W. F. Tompkins and E. D. Barnum have drawn up suitable resolutions on the death of Mr. E. N. Welch, at the request of the Chicago Jewelers' Association.

W. A. B.

Trade Matters in Providence and Viciniiy.

To the Editor of the Jewelers' Circular:

The manufacturing jewelers located here are realizing just such another business boom as characterized the fall trade of 1883, which up to that time had been the best they had ever experienced in regard to the amount of business transacted and profits on same, but from appearances the present year will go far ahead of it in the gross amount of sales, although possibly the profits may be a great deal less than in '83, from the fact that competition has increased to a much greater extent. Those parties who before the election of President Cleveland did so much croaking about the country going to the dogs in case he was elected, must be (or should be) completely crestfallen to see their predictions come to naught, and such a healthy state of business as exists in all lines except stocks at the present time, which is liable to continue until the nominations of the two great parties are announced next summer, which may change the aspect of things for the time being. The President has decided not to convene an extra session of Congress, before the regular one in December, to canvass the advisability of passing some measure to relieve the money market of the country, he having deemed it unnecessary, as the Pension Bureau has done much in the past two or three months to relive it in granting back pensions involving the payment of several millions of dollars to the worthy defenders of the

Union, who have been so long kept out of their just rights, and being, as a general rule, men of slender means, they will not keep the money out of the regular business channels for a very long space of time, and the manufacturer will be benefitted indirectly if not directly from the effects of its being put into circulation. It will make the money market easier if nothing more. The crops generally throughout the country are reported good excepting in portions of Wisconsin, Illinois, Iowa, Indiana and Dakota, where the extended drouth of the early part of the season did much to destroy them, but, as a whole, they may be counted on as being up to the average standard, if not a trifle ahead. The frequent copious rains of late have done much to bring on those crops which were not injured so much by the dry weather, such as corn, potatoes, etc., which means a low figure to the consumer, together with the immense wheat crop which has just been harvested. It is hard to see how very much want can prevail in the United States during the coming winter if the poorer classes are kept employed so as to earn the cash to buy their supplies with, which everything seems to point to that they will, and at such figures that they will still have a neat surplus left after their living expenses are paid, when they will naturally look to personal decoration with jewelry costly as their purses will buy; if not of the highest grade, possibly of the second or third. The manufacturer in some line is benefitted, however cheap the goods may be.

Collections during the past month have been only fair amongst the jobbers, and the appearance of trade paper warrants the belief that cash payments on watches, etc., are being met, and the manufacturer is forced to wait a month or more after invoices become due in order to allow the jobber to make heavy payments in other directions where sales of goods are considered cash on delivery. The dating ahead of invoices has been requested by several reputable firms the past month, and the Manufacturing Jewelers' Board of Trade cannot make a decided move in this direction too soon for the welfare of the manufacturer, to have the abuse abated, which is growing to greater proportions every year it is allowed to continue.

A pleasant feature of the past month's business is the absence of any failure of importance to the manufacturer, and it is to be hoped that they have disappeared for some time to come so that confidence can be restored in a measure once again, and the manufacturer feel assured when selling an invoice of goods that ultimately he will receive compensation for the same, and not be forced to place it to the debit of profit and loss, as he has been called on to do so often during the past twelve months.

Messrs. Chandler & Shader, who made an assignment some two months since, have the present week, through their attorneys, paid their creditors the amount on which they compromised of twenty-five (25) per cent., less the fees of attorneys, amounting to two and one-half (2½) per cent. on each claim, making a net payment of twenty-two and one-half (22½) per cent. to the creditors, which was considered quite favorable by those interested, allowing for the short space of time consumed in effecting such a settlement.

The Manufacturing Jewelers' Board of Trade report that eighty-three (83) members, of a total of one hundred and twelve (112) have signed the articles in regard to the abatement of the abuses of the trade, as recommended by the Board at their meeting of June 1. The interest taken in the movement by the members is pleasing to note to the able Secretary. On June 1 the Board of Directors ordered an assessment of twelve dollars and fifty cents ($12.50) to be made for dues for the current year. The number of members at present is one hundred and twelve (112), a gain of eighteen (18) during the past year, representing all of the largest firms in this city and Attleboro.

The firm of Messrs. Barston & Luther has dissolved by mutual consent. Mr. Barston is a gentleman of genial disposition and has hosts of friends. He will continue the business as formerly at the old number. We wish him great success.

No new developments as regards the settlement of the affairs of Messrs. Fay & Schieber have been heard of, and those most interested are beginning to wonder if they are to realize anything from the wreck, or whether it is to be another case similar to the failure of Messrs. Engel & Clark, or Messrs. Simons & Wolf, of Philadelphia, and others, where they seemingly dried up as the dew before the morning sun during July or August.

Messrs. Hutchison & Huestis have outdone themselves in their immense display of seal and other rings in new and decidedly fancy designs for the fall trade, and this growing and popular house is on the high road to success, and their untiring energies are only reaping their well-merited reward. This house is one of the largest in the country in the manufacture of rings of all kinds.

Messrs. Howard & Son are having a great run on their new line of silver goods, and find it almost an impossibility to keep the supply equal to the demand, by employing one hundred and fifty (150) hands and working them over time.

Messrs. Fred. I Marcy & Co. have all they can possibly attend to in the way of orders on their new button, which has become very popular with the jobbing trade.

Mr. Jno. F. Trescott, formerly bookkeeper for the extinct firm of Messrs. Sackett & Davis, died on Wednesday last at the advanced age of seventy-one (71) years, respected by all who knew him. Mr. Trescott suffered from an attack of paralysis which he experienced some years since and from which he never fully recovered.

The local jewelry store of Mr. Wm. K. Potter, of 252 Westminster street, had a night visit paid it on Wednesday last, which was detected at 5 A. M. by Officer Peter Cannon. The visitors evidently did not care much about visiting the inside of the establishment, but coveted a certain tray of solid gold rings which had been left in the window inadvertently, and worth probably about two hundred and fifty dollars ($250). The miscreant was not particular as to the means employed in removing the glass in the show window.

The Rosenkrans & Weber Company have paid the amount of their compromise, twenty-two and one-half per cent. (22½) net to those who were members of the Board of Trade, while those who were not members received only fifteen (15) per cent., thereby showing the benefit derived from belonging to the Board.

Mr. Walter O. Whipple, connected with Messrs. Wm. M. Fisher & Co., of 226 Eddy street, spent a very pleasant day last month boating on the Pawtuxet River with a party of friends. Mr. Whipple pulls a heavy oar.

FAIRFAX.

Providence, R. I., Aug. 15, 1887.

Our Foreign Correspondence.

BIRMINGHAM, July 30, 1887.

To the Editor of the Jewelers' Circular:

Since I last wrote you the jewelry trade is in some respects better, but in others worse. There are rather more orders to be had; in fact, a few manufacturers are busy, but money is scarcer than it ever was. Not only cannot accounts be collected, but in many cases the manufacturer and factor have to take up their customers' bills.

The epidemic of failures which occurred during the first few months of the year is again occurring, and seems likely to continue for some time. Three weeks ago Mr. J. Otto Schuler, of Hatton Garden, London, stopped payment, and eventually called his creditors together; and his is a large business, doing in English and continental jewelry, and many Birmingham makers are in very heavily. A fortnight after that, Messrs. J. Myers & Sons, of Caroline street, Birmingham, an old respected firm, not doing a large trade but always considered most respectable, were obliged to call a meeting of their creditors and make an arrangement with them.

Last month Messrs, Bishton & Fletcher, Albion street, Birmingham, manufacturers and factors, stopped payment. This firm is in a very large way of business, and the liabilities will be consequently pro-

portionately heavy. They report that they have over 20 shillings in the pound, and that it is only an extension of time in which to pay what is wanted.

All these failures of factors, are as might be expected, causing some of the small manufacturers to fail. Fortunately so far the large manufacturers have withstood it, but unless there is soon an end to it there will certainly be some of them in difficulties; in fact, if reports are true, in the course of a mail or two I shall have to report the failure of one of the largest and oldest firms of manufacturers in the trade.

I notice your correspondent, Elsie Bee, is constantly advising jewelry shopkeepers to introduce other goods into their shops, such as high class ornaments. This is a very common practice here, especially at fashionable seaside resorts, and it must pay to do so, for in going to several this summer I notice that not only does every jeweler do so, but in those shops where it was first introduced some years ago, the stock of fancy goods is very largely increased; in some instances one side of the shop being laid out as a show room for best class of ornaments.

This season there is a very large sale of mosaic goods, principally brooches. The beauty of design and arrangement of colors making it a great favorite, especially as they can now be got so much cheaper than formerly. A good brooch mounted in silver and beautifully inlaid can now be bought retail for 4 shillings, whereas a few years since the mosaic alone would have cost more wholesale.

Should any of your readers see the new jubilee coins, I hope they will not think that English die sinkers have deteriorated to the extent the coins would make one think. There has been a great outcry about these, for not only is there no depth or sharpness in the die, but the design is bad, and the queen's head is more like that of a Greek or Roman empress than a woman of the present day. Still, as long as the sovereign has the choice of how her head shall appear on the coins, I suppose we must bear it.

The fashion for wearing solitaires is still on the increase, and, as a consequence, bracelets are less and less worn. This is more so among the middle and lower classes than in high society, and, as a consequence, makers of medium class goods are busy, whilst those who only made best goods are slack.

SOLITAIRE.

COMMUNICATIONS.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

STEALING PATENTED IDEAS.

To the Editor of The Jewelers' Circular:

On several occasions I remember to have seen articles in your magazine denouncing the practice that is all too common among manufacturers, of copying styles and designs that have been patented. It seems, however, that nothing will stop this most reprehensible practice, for I have recently been victimized by it. Having conceived something entirely new as an article of jewelry, I spent much time and considerable money in working it out satisfactorily, and finally had it patented. I also had special tools and machinery made for the purpose of manufacturing the goods, and last season put them on the market. They sold well, and, as they were fine goods and well made, I had every reason to expect that they would be popular for several seasons. What was my surprise to find, a few weeks ago, in the store of a retail dealer, a perfect imitation of my goods made in cheap metal. The workmanship was inferior and the gold of degraded quality, but to the casual observer they seemed to be identical with my productions. Of course, they would not wear as well, but, as the price was less, they probably sold more readily. In fact, the dealer frankly told me that he could sell considerably more of the lower priced goods than of the fine ones, and that his profit on them was nearly as great. These cheap goods will virtually drive my productions out of the market; in fact, I shall make no more of them except to fill positive orders. Now, what redress have I? To prosecute the infringer will involve me in a lengthy and costly lawsuit, and before the decision could be reached the goods will have gone out of style and I shall be fighting over a dead issue. Then, too, I am satisfied that the infringer is not solvent, and if I should get a judgment against him he would beat me on the execution. There seems to be nothing for me to do but to grin and bear it, for the trade will not help me in any way. I have sent out circulars warning the trade of the infringement but it does no good, for the dealers continue to buy the cheap imitations when they know that every article made is an injustice done me. But the dealers are looking only to their own sales, and say if these manufacturers want to go to law let them do so. Of course, every one knows that stealing a patent is just as much a theft as stealing a pocketbook, but, unfortunately, it is not so regarded by the community in general. There seems to be no redress whatever for the owner of a patent against an infringer, without spending as much money in litigation as the whole product is worth. Why cannot the trade be educated to respect a patent as they would a pocketbook or any other article of property? The man who stole my patent robbed me of a good business, upon which my profits would have been liberal, and I have got to put up with the outrage. There is something wrong with our patent laws when pirates are permitted to perpetrate their robberies with impunity.

VICTIM.

Newark, N. J., August 10.

WHY INSURANCE RATES ARE SO HIGH.

To the Editor of the Jewelers' Circular:

I observe that you try to keep the trade informed in regard to insurance matters, and have especially cautioned insurers to look after their policies to be sure that they were all in good companies. I wish to call the attention of insurers to a great abuse in the insurance business, and that is the high rates of commissions paid to brokers. I am told by underwriters that nine-tenths of the business done in New York is placed by brokers, and these receive from twenty-five to fifty per cent. of the premium, according to the character of the risk. If the risk is a good one all the companies want it, and the broker gives it to the one that will pay him the most commission. If property owners would attend to their insurance business themselves instead of employing brokers, the companies could afford to reduce their rates from one-quarter to one-half. As it now is, the insurers are supporting an immense army of middlemen who are of no earthly use to the business, or would not be if the property owners would attend to their own insurance as they used to do. The broker claims that he knows all about the solvency of the different companies, and can place the insurance at lower rates than the owner can, which is not true. The broker may know all about the companies, but he will not hesitate to give you a policy in a weak one, provided that weak one will pay him a larger commission than a perfectly trustworthy one will. I took your advice some time ago and "overhauled my policies," and as I found that some of the companies were unknown to me, I consulted a friend, who is an officer of a company. He picked out two of my six policies and said that the companies were expected to wind up any day, they were in such financial straits, and said the reason my broker had given them to me was solely because of the high commission they paid him. He further said that all the companies would lower their rates at once

if property owners would do business directly with them. What is the sense in supporting these hundreds of middlemen when it is so little trouble to do the business one's self, and also be sure that it is well done. My underwriting friend told me that the rates of commissions paid now kept the companies poor, while the brokers were getting the cream of the business. If one wants to let things drift and save himself a little trouble, he will find the broker a convenience; but if he wants first-class insurance and would like to see the rates come down, he should attend to the matter himself. It is not much labor for any one in the jewelry trade to look aft r his insurance; it is not as though they had several warehouses full of goods and required a million or more dollars of insurance, as some of the dry goods merchants do, but a few policies in good companies can be obtained by any man without difficulty. Any good responsible company will advise as to others, and there is no more necessity for a broker than there is for a missionary. Try it and see if it will not be a saving to you. ANTI-BROKER.

New York, August 15.

DRIVEN WELL ROYALTIES.

To the Editor of the Jewelers' Circular:

Recently the agents of the men who claim to own patents on driven wel's have been going through this State demanding a royalty on every driven well they can find. It makes no difference whether the well is ten years old or only one, they demand a royalty of $10. I have one at my house, another at my stable and another at my store, and it did not cost me over $50 to put down all three of them. Now, if I have to pay $30 for royalty, it seems pretty hard. Will you please advise me through your magazine if the patent is valid, and if owners of driven wells are obliged to pay royalty.

Ohio, August 19. A. WOOLSTON.

[The patent issued to Col. N. W. Green for driven wells expired in January, 1885, and any well put down since that time is not subject to pay a royalty. There has been a prolonged contest over the validity of this patent, and cases have been tried in half a dozen different States, in all except one the decisions sustaining the patent. But they were appealed to the Supreme Court, and in May last that court decided one that came up from Connecticut and one from Ohio. The decision not only affirms the validity of the patent, but declares that Col. Green was the discoverer of a great natural principle, by means of which natural forces—atmospheric pressure—are made to force from the bowels of the earth an abundant supply of pure water at a less cost than it could be obtained by any other process. In accordance with this decision, the owners of the patent are proceeding to collect royalties from all who have infringed their patent. The decision of the Supreme Court is exceedingly broad, for it declares that not only are the owners of driven wells infringers of the patent, but every person who uses one is also an infringer of the principle discovered by the inventor and consequently liable to him. This being the case, we see no way for our correspondent but to pay the royalties demanded. He might refuse, in which case he would be sued, and eventually would have not only the royalties to pay, but the costs and the fees of the plaintiff's lawyers. At least, the courts have so ordered in many cases, making the expense not far from $100. There is this to be said in favor of the driven well patent, and that is that every one who uses a driven well is doing so in place of an open or dug well, which would have cost five times as much to put down. If he has thus obtained a better well at less cost, he ought not to complain if he is asked to share his savings with the man who showed him how to do it.—ED.]

RAILROAD EMPLOYEES' TIMEPIECES.

To the Editor of the Jewelers' Circular:

I see that certain railroad companies out west are seeking to compel their employees to carry watches of a certain grade. They say their watches must be of a standard equal to that of a 15 jeweled watch, must have patent regulators, must be adjusted to heat and cold, and protected by anti-magnetic shields.

I think that this arbitrary rule is unjust, and will work a great injury. Why need a watch be of a certain grade to keep good time? Hitherto, the employees of railroad companies have carried the best watches they could afford, and I know from personal experience that railroad conductors and engineers take great pride in the accuracy of their time-pieces. But recently there was an accident occurred through the carelessness of the engineer of a train, who allowed his watch to get fifteen minutes slow. This set the press a-thinking of the great danger to the traveling public. And the railroad officials began to think how to overcome the difficulty, and here is the result they arrive at: "our employees must carry watches that cost them fifty dollars apiece"! This is about the conclusion they have reached, and, as usual, the railroad officials are wrong.

A watch may be of the finest grade and still go wrong, while a Waterbury may keep correct time to the minute for a month. The only way to preserve the traveling public from danger by this cause, is to inaugurate a rigid system of inspection. Let the railroad companies put their hands down into *their own* (and not their employees') pockets. Let them pay a corps of "watch inspectors" who shall regularly inspect every watch upon which the running of the trains depends, and then whether the watch have four, seven, fifteen or five hundred jewels, a gold case or a brass one; as long as it keeps correct time, there will be no danger to the public. JOHN D.

Jersey City, August 18, 1887.

ENCOURAGING CRIME.

To the Editor of the Jewelers' Circular:

In the daily papers the other day appeared an account of a man who had been robbed of valuable jewels, who advertised a reward for their return. For a month he advertised without success, offering $2,000 "and no questions asked." At last he received a communication from the thief, demanding $3,000 for their return. The victim had meanwhile been publishing abroad the fact that the jewels were worth a great deal to him as keepsakes, besides their large intrinsic value. When he received the letter from the thief, he replied immediately, accepting his terms. When the thief sent another letter, and this time demanded $5,000, saying that he would not let them go for less, but promising to immediately forward them if the terms are acceptable. The victim accepted the terms, and was soon in the possession of his jewels again.

Now, what I want to ask, is, whether nothing can be done to this man? He has publicly encouraged and rewarded a criminal, for whose crime an adequate penalty is provided by law. Can not the State prosecute such a man? It seems to me, the penalty of the thief's crime should be meted out to this man. G. A. S.

New York, Aug. 10, 1887.

TO FIT HAIRSPRINGS WITHOUT TIMING.

To the Editor of the Jewelers' Circular:

I would inquire through your honorable body of watchmakers if they know of a means by which hairsprings can be selected and fitted correctly without timing them as described by Excelsior. I was called upon by a man last week who claimed he could select and put in a hairspring in five minutes *without* timing. All of which he would teach me for $2.50, together with pivoting in some length of time to be dished up at some figures, etc., etc. I think I am an average fair workman but can't put in a hairspring without timing it, nor can I put in a pivot in five minutes. If any of your honorable body can dispense us light on this subject, I am sure it will be greatly appreciated by many of the uninformed craft, for in this place alone I know of the "Modern Excelsior" getting $25.00 for

his information, and the purchasers claim to be well pleased. For the $25.00 he of course gave some other "bottled up" information.

WM. BURNS, JR.

Coshocton, O., Aug. 1, 1887.

KIND WORDS DULY APPRECIATED.

Mr. E. S. Pendexter, of Portland, Me., says, "THE JEWELER'S CIRCULAR is an old and valued friend."

Mr. F. P. Fisk, of Epping, N. H., says, "You may consider me a life-long subscriber, for I could not get along without THE CIRCULAR, for with it I can keep posted even if I do live 'way up in the woods of New Hampshire."

Mr. E. L. Hecox, of Ilion, N. Y., who started in business a year ago, and has worked cautiously but successfully, and is now quite firmly established, says, "I consider the magazine very valuable of itself, but the designs of monograms place its value above any fair estimate that could be made."

To the Editor of the Jewelers' Circular:

SIR:—In your August number, I am pleased to notice you are getting on well with your Jewelers' League. Here in England, however, we have no such thing, there existing too much jealousy amongst the trade.

If it is in order, I should be glad to belong to your society and to be appointed your English agent. I am fairly well known in the trade as the author of "Precious Stones and Gems," "Great Diamonds of the World" (mentioned in your paper this month, page 236), "Pearls and Pearling Life," "Gold" (which has run through the 20,000th edition), etc., etc., also as the only jeweler who for upwards of a century has kept and manufactured but one quality of gold, namely, 18-ct. I am sorry to see from time to time by your CIRCULAR, that in America you are going in for a very low quality of gold work, which, I think, for a nation with such splendid prospects before it like yours, should not be the case.

If your league do not see their way to placing me on their list of members, then kindly let the matter drop, and oblige.

I may mention Mr. Kunz, of Tiffany's, who knows me very well, and with whom I am constantly in correspondence, and Dr. S. Hunt, of your city, who is over here at the present moment, and to whom I have given some valuable information.

Awaiting the pleasure of hearing from you,

I remain, sir, yours faithfully,

ED. W. STREETER.

Carriers of Contagion.

ASIDE from being pests, flies are actual conveyers of contagion. The fly can communicate virus from an open sore, and can carry this from one person or place to another. This may not be credited, but it has been proved by direct experiment to be not only possible, but an actual fact. The common house fly, by lighting on a diseased spot, either in an animal or a man, and thence passing to a healthy subject, has been known to impart the infection to the latter. Whether the poisonous matter be an animal virus or a germ of disease, a bacillus, does not matter; and in this connection it is well to speak of other common methods of possible disease infection. A postage stamp may in various ways convey contagion. One of the simplest and most plausible is that in which a postage stamp, partially attached to a letter to pay return postage, is sent by a person infected with some disease to another person. The disease is transferred, in the first place, to the adhesive stamp through the saliva, and in being attached to the letter by the receiver, the poison may be transmitted to him in turn through the saliva.

Another cause may be the infection of the stamp with disease germs. The stamp, having been exposed in a room where a diseased person lies, may become slightly moistened and thus retain the germ. That this is true can be proved very simply by a microscopical examination. It is even possible that an active and tangible poison, as arsenic, may accidentally or intentionally be attached.

We often see a person holding change for a moment in the mouth, probably not knowing that investigation has shown that disease germs can be carried by money. If one could see through what hands the money has passed, they would hesitate before using such a third hand. Silver money is as bad as paper money; but while many would hesitate to hold a dirty bank note in their mouth, they think that a silver piece, because bright, is apparently clean.

Cigars may convey contagion, especially syphilis. We have seen a note in which a physician gave as an excuse for not loaning a light to a friend, that he was afraid of contagion; but if he was so afraid he should have been consistent and refused to smoke the cigar. Cigar wrappers are in the cigar factories, especially in Cuba, moistened with the lips and tongue, and the girls who roll the wrappers are by no means of the highest reputation. Diseases can be carried in this way. Tobacco, contrary to the common belief, does not destroy disease germs, and smoking will not confer immunity from contagion.

Any one who uses a towel in common with the public, or a piece of soap, or brush and comb, or any requisite of the toilet, runs the risk of possible infection. The subject of antisepsis, simply another word for cleanliness, has not necessarily brought to light many new facts, but has set people to thinking of old ones. The germ theory of disease is to most people a very vague one. There is a general idea that disease is carried by germs, and that the air is filled with these, and it is a wonder to most people that every one is not so afflicted; the laity conclude that the germ theory is an absurdity and a contradiction. They do not consider the element of a fertile soil. The germ is the same as a seed, and all organic bodies are reproduced by a seed. We must plant seed in a soil suitable for it, and the surroundings—heat and moisture—must be adapted to it if it is to grow. As we descend in the scale of organic life, we find that some of the lower animals can hardly be distinguished from plants, and these are reproduced not by seed, but by a process of division or budding. A part of the animal is divided and separated, and forms a new animal.

As we descend in the scale, we find that instead of seeds we have spores, as in ferns; but these serve the purpose of seeds, and demand a fertile soil before they can grow. Of many million spores, but one or two may serve their purpose; the rest die without giving any result. As we descend still lower, we find that fungi and moulds need not only a fertile soil, but a peculiar soil, and many of them will not grow except in or on another organic body.

In medicine, a common example is the ergot of rye. Another is corn smut. These, in addition to requiring a peculiar soil, undergo an "alternation or generation." For example, corn smut is first reproduced on the barberry leaf as "rust," and this rust in turn produces corn smut. The theory of disease germs is founded on the knowledge of the action of the lower animals and plants. The bacillus may be an animal or it may be a plant, poisonous in itself or simply a carrier of contagion. It may even be a result of disease, and have nothing to do with its cause except as a foreign body. Still, as we find it present, and find it always present, we are necessarily induced to believe that it is an active agent, but in order to reproduce itself it must have a fertile soil. This it finds, as a rule, in a person whose constitution is run down from overwork, lack of rest, poor living or disease. It may be introduced into the system, directly into the blood, through an open wound, thus inducing septicæmia—a state of poisoned blood, or it may be introduced indirectly into the blood through the alimentary system. In this case it must

W.

be inhaled or eaten with food. In either case it is absorbed, or perhaps actively works itself through the mucous membrane. Once in the blood, the bacillus grows, as a rule, by division, and multiplies to an enormous extent. Disease may also be carried by a virus, which may in turn consist of bacilli or of organic putrefactive matter. The common example of this is the virus of cowpox or of a snake, an actual poison.

Either of these factors may be present on a piece of soap or money, or a soiled towel, or a book that has been in constant use; in fact, any article that has been handled by a number of people; and we can perhaps realize how omnipresent disease germs are, when we consider that washing our hands is an antiseptic solution, and wiping them on a perfectly clean antiseptic towel, and shall find they are still, scientifically speaking, unclean. Cleanliness, then, is above all to be inculpated as a preventive of disease. If not next to godliness, it is surely next to health.—*M. E. T., Technics.*

*A Complete History of Watch and Clock Making in America.

[By Chas. S. Crossman.]

Continued from page 234.
Number Fifteen.

ILLINOIS WATCH COMPANY.

THE ILLINOIS SPRINGFIELD WATCH COMPANY.—THE SPRINGFIELD ILLINOIS WATCH COMPANY.—THE ILLINOIS WATCH COMPANY.

THE Illinois Springfield Watch Co., as originally organized, owed its birth mainly to the efforts of Mr. J. C. Adams, who presented the matter before the local Board of Trade of Springfield, Ill., in such a favorable light that it resulted in the formation of the Illinois Springfield Watch Co. in January, 1869, with a capital of $100,000. Mr. John T. Stuart was made President, and Mr. W. B. Miller, Secretary. The Board of Directors was composed of Messrs. J. T. Stuart, W. B. Miller, John Williams, John W. Bunn, George Black, and George Passfield.

Mr. Adams then visited Elgin and engaged six experienced men to take charge of the different departments as follows: Otis Hoyt, train room; W. F. Dean, die maker; C. E. Mason, escapements; John Nickerson, jeweler; D. G. Currier, modeling and finishing room; and George White, pattern maker. Mr. John K. Bigelow afterward came from Elgin to fill the position of Superintendent.

The six first mentioned came to Springfield in April, 1870, and went to work in a temporary machine shop hired for the purpose. They commenced making machine shop tools to build machinery with for watch manufacture. It may be said that the compay commenced under favorable auspices, as they had a staff of men of proven mechanical ability, and experienced in the horological line. This was an advantage over some companies that were obliged to educate a large part of their employees.

One reason why the business men of Springfield were anxious to establish this industry in Springfield was that a larger part of the cost of production would be paid for labor than for material used, and would benefit the business interests of the city.

The location selected for the factory is just north of North Grand Avenue, which bounds the city on the northern side, and is, consequently, outside the city limits, in the township of North Springfield. The land on which the factory is located is a portion of a tract formerly owned by Mr. Henry Converse, proprietor of the rolling mills in the vicinity. It is in the form of a square and comprises fourteen acres, ten of which were presented to the company by Mr. Converse, and the remaining four purchased.

Work on the building was commenced May 2, 1870, and the present north wing was completed December 2 of the same year, being 30x100 feet, three stories high. The center building was not erected until 1879.

The factory was occupied as soon as completed, and work on the machinery was pushed forward. In four or five months after moving into the factory they commenced to manufacture parts of watches, and in January, 1872, twenty-one months after starting to make the machinery, the first complete watches were turned out. The grades were given the following names: "Stuart," after John T. Stuart, the President of the company, and former law partner of Abraham Lincoln; "Bunn," after J. W. Bunn, a Director; "Miller," after W. B. Miller, the Secretary, and a prominent hardware merchant of Springfield; "Currier," after D G. Currier, first foreman of finishing room; "Hoyt," after Otis Hoyt, foreman of train room; and "Mason," after C. E. Mason, foreman of the escapement room. They were all brought along together and put on the market about the same time, and were all 18 size, full plate, and key wind. The models were made by Mr. D. G. Currier, assisted by Mr. John K. Bigelow, the Superintendent.

The company found considerable difficulty in introducing their goods to the trade in such a manner as to give satisfactory results to the company. The first idea was to sell directly to the retail trade, and they acted on this plan for some time. Mr. Miller, who, during the first few years, was also acting as business manager, would often take trips East, visiting the large cities for the purpose of introducing the watches. It broke down his health, however, and the company soon found they needed greater facilities for disposing of their goods, so Mr. Miller came to New York in 1873, and started a New York office, and appointed Mr. J. M. Morrow as agent. The office was located at old No. 11 (now 7) Maiden Lane. He subsequently removed to No. 21, where he remained the agent until 1884. The goods were thus placed in the hands of jobbers with more satisfactory results than before.

At the end of the first year of production, thirty-eight thousand dollars' worth of watches had been made. One hundred and twenty-five operatives were employed, and the factory was producing watches at the rate of about twenty-five per day.

The company began making their own balances in 1873, having previously imported them. They were made under the direction of Mr. John Leman. In the same year they commenced to manufacture duals under John Pegler, who came from the Cornell Company. About the same time Mr. Daniel Currier made the first hair springs and Mr. Jelly made the first jewels, which had before been imported. Thus it will be seen that the year 1873 was one of progression so far as manufacturing facilities were concerned.

The panic, however, of that year caused their sales to dwindle, consequently a large surplus of watches was accumulated which amounted at the close of the year to $100,000 in value. The company soon found themselves involved, as they had been obliged to borrow money on the surplus production in order to meet current expenses. They were solvent, but for want of ready cash were unable to proceed further under the old management. The stockholders numbered seventy, all told, and under the circumstances agreed that they did not care to put any more money into the enterprise. The company had also, previous to this, issued $50,000 worth of preferred stock which would take all dividends in case any were paid, and this did not tend to help matters to a favorable issue. Mr. Currier succeeded Mr. Bigelow as Superintendent in 1873, but was unable to infuse any new life into the company. They paid in scrip, which was in the form of a note for six months bearing 10 per cent. interest. They were worth ninety cents on the dollar cash, or face value for goods. They ran along until 1875, when something in the way of a change became necessary, so the old company abandoned the enterprise to a new company, which took the assets and

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assumed all liabilities, the old stockholders losing the full amount of their investment. The liabilities reached nearly one hundred thousand dollars, but the assets were somewhat in excess of that amount. The new company necessarily made something by the transaction, but it was better than to have lost the enterprise to the city, as it has been worth more to Springfield than the capital itself.

There were fewer stockholders in the new company, and some of them had been stockholders under the old management; the new company was, however, a separate and distinct organization from the old one.

The capital was put at $250,000, of which amount $110,000 was paid in. There was a bonded indebtedness of $50,000 on the plant, and the $50,000 of preferred stock was capitalized in the formation of the new corporation.

Mr. D. N. Bates, Ex-Treasurer of Illinois, was elected President, and Mr. Otis Hoyt was made superintendent, and continued in that capacity for about two years. Under Mr. Hoyt's superintendence the first stem wind movements were turned out, but a new stem wind attachment was adopted in 1876 which was designed by Mr. Mason. The company also commenced to use nickel during Mr. Hoyt's superintendence.

In 1876 the company began to make ladies' movements. They had been experimenting in this direction since 1874, and had produced a key wind movement known as the "Stanley," but it was never manufactured as a product. The new ladies' movements were both key and stem wind, all 8 size, and were made in four grades, the principal one being the "Mary Stuart," named after Mrs. General Stuart. Another was known as the "Arlington." They were patterned largely after the Waltham ladies' movement, as they were made to fit Waltham cases.

In spite of the apparent financial success of the new company, the books showed a net loss of $44,000 for the year ending December 31, 1877. At the same time the assets exceeded the liabilities by $162,000. Mr. Mason was appointed Superintendent, as it was thought he could carry it on to success, and it may be said that under his superintendence the business received a new impetus. The number of employees was increased to two hundred and sixty, and the production increased from seventy-five to one hundred and thirty watches per day. But still the business was not satisfactory from a financial point of view, and in 1879 another reorganization took place and the name of the company was changed from "Illinois Springfield" to "Springfield Illinois Watch Company." Mr. Bates gave up watch manufacture to go into the wholesale grocery business in Chicago, and Mr. Jacob Bunn, formerly a banker, of Springfield, who had failed for upwards of a million dollars, but whose brother, Mr. J. W. Bunn, had bought up a considerable part of the watch company's stock, was elected President. Mr. Charles Schmrowski, the present Secretary, was also elected at that time. The following year Mr. Bunn assumed the general business management of the company.

In 1879 a large square building, to which allusion has been made, was erected, being forty by fifty feet, and four stories high. This was designed for the center building from which the others should radiate. Since then the following additions have been made: 1880, South Wing; 1881, East Wing; 1882, Annex, Gas House, etc; 1883, Square Addition on the West. The cost of these additions has been $100,000. Several new grades of 18 size movements were added during 1879, during which year the train of the 18 size watches was changed from a 16,200 to an 18,000 or quick train by changing the number of teeth in the fourth wheel. This was done by Mr. Mason, who had succeeded Mr. Hoyt as Superintendent in the early part of 1878. In open face movements the company use an extra pinion with a long pivot to carry the seconds hand, the fourth pivot, which carries this hand in hunting case movements, being made short; the train otherwise remaining the same in both movements. A Chicago office, under the management of Mr. L. W. Arnold, was also opened in 1879 at 169 Dearborn street. In 1881 it was removed to 71 Washington street, and in April, 1884, to 104 State street, the present location.

The first main springs were made by them in 1882, and since that time they have manufactured all their own main springs.

The company began using soft enamel dials in the summer of 1883. They were first made by Mr. Tisdell, formerly of Elgin.

A strike occurred in April, 1881, and forty-eight out of fifty-four hands employed in the finishing room went out, owing to a dislike to the assistant foreman, Christian Anderson, who had been appointed by Mr. Bunn. The strike lasted one week, and, as the company found themselves unable to procure finishers from elsewhere, the employees were paid full time and the foreman withdrawn.

At present each foreman is held accountable to the factory office, and is a superintendent of his own room, so to speak; but the whole is under the general superintendence of Mr. Bunn.

The patents of the company consist of a patent center pinion invented by John K. Bigelow, and assigned by him to the company, and a patent dust band. The Elgin Co. claimed that both of these inventions were infringements on patents held by them, and accordingly brought suits. In the matter of the patent center pinion, the Springfield Company were victorious, but in the other suit, the Springfield Company were obliged to pay a royalty to the Elgin Company for the use of the dust band. A patent regulator is also used on the best grades of full plate movements. Attention must also be called in this connection to a patented appliance of Mr. Frank Ide, who is foreman of the springing room, by which he is able to test balances for heat and cold before they are put into the watches. The machine is a micrometer with a hand measuring the the expansion of the balance in degrees on an index. By the use of this gauge, the exact amount of expansion and contraction of each segment of the balance under varying temperatures is measured, and the changes required to bring it within the limits of compensation thereby determined. These changes are made from a scale or table prepared by Mr. Ide, from the results of tests made by him on a large number of balances. The expansion and contraction is in regular geometrical ratio.

In the matter of making balances, Mr. Eben Hancock, while with the company, made the improvement of rolling the wire flat before dropping it into the capsule. This method requires less solder than in the old plan, and has come to be in general use among all balance makers.

And now with a few words with reference to the company's production we bring our brief history to a close. The total production reaches nearly a million movements, the average yearly production for the last few years being not far from 100,000. They have a larger capacity, but, like many other companies, are not up to the full limit. Most of the production is sold through the New York office, by its able and enterprising agent, Mr. S. M. Cony, who now represents the company there.

(*To be continued.*)

The First Use of Gold?

THE most interesting question of all about gold is, how did it come to be the root of all evil? What has made this particular yellow metal, above all stones and minerals, the standard of value, the medium of exchange, and the object of all men's ardent devotion? In order to solve that curious problem, we must look at the origin of its use among mankind and the gradual evolution of its employment as money. Primitive man, hunting about in the rivers for fish and in the forests for venison, had other wants, philosophers tell us, than those of mere vulgar food and drink; the noble thirst for trinkets, the æsthetic desire for personal decoration, which now gives rise to fashion plates, and drapers' shops, and jewelers' win-

dows, was already vaguely alive within his swelling bosom. He adorned himself even then with necklets of bears' teeth and shining fossils and girdles of shell and belts of wampum, all which things are found, in company with the white chalk and the red ochre that made primitive woman beautiful forever, among the concreted floors of the Dordogne caverns. Primitive woman was not fair to outer view, as other maidens be; on the contrary, she was no doubt distinctly dark, not to say dusky; somewhere about the precise complexion of the modern negress, her nearest surviving representative; but already she knew how to keep in the fashion; she loved gold, as Walpole long afterward remarked of her remote descendants, and, when she could get them, diamonds also. Ages before any other metals were smelted or manufactured into useful implements, gold and silver had attracted the attention of our savage ancestors, and probably still more of our savage ancestresses. There was every reason why this should be so. They are generally found in the native state, they have glitter and brilliancy and beauty of color; they are soft and workable and easily pierced; they can be readily strung in ingots as beads for necklets, and, at a somewhat higher grade of culture, they can be hammered with ease into rude ornaments. Hence it is not surprising that from a very early age primitive man should have prized nuggets of gold and ingots of silver for personal trinkets, just as he prized the shells and pebbles, the garnets and carnelians, the jade and crystal, the ivory and feathers, from which he manufactured his rude adornments.—*The Cornhill Magazine.*

The Growth of Minneapolis and St. Paul.

TWELVE years ago I was a resident of this city. At that time I removed to New York, which has been my home since. I am here now on a short visit, and it is like coming into a new and unknown city entirely; the changes have been so great and the progress so marked that I fail to recognize much that I knew a few years ago.

In coming West, I was particularly impressed with the growth of many Western cities, bnt none in such a marked degree as Minneapolis, which has not only grown in a business point but has become one of the most lovely places of residence that I know of. The marvels wrought in the development of the country by increased railroad facilities rivals those of the Arabian Nights. All through the Western States the country is interspersed with short lines of road connecting with the great trunk lines, and cities and villages have sprung up with wonderful rapidity along side them. No one who has not visited the West can have any fair appreciation of the wonderful development that is going on and the great increase in the nation's worth.

Reaching Chicago, I spent a day or two looking about, and while I am pretty familiar with the activity of New York City, I could see a marked difference in the business men of Chicago and the East. One thing that struck me as especially notable was the greater display made by merchants of the goods they have to offer to the public; occupying elegant buildings upon the main thoroughfares, their store fronts are given to display. Large plate glass windows abound, and these are filled with most attractive goods; especially is this true of the dealers in jewelry. I had occasion to drop into two or three of the large stores and was amazed at the wonderful exhibit they make of their goods. Elegant show-cases line the walls and are conspicuously arrayed throughout the stores and filled with goods calculated to catch the eye and impress visitors favorably. There seems to be little hesitation too in exhibiting costly goods in the show windows, and the art of "dressing" seems to be possessed by all. From inquiries I addressed to some of the dealers, I learn that business is excellent now, and they are extremely confident of having an active fall trade. Although prolonged droughts have injured crops somewhat in the West, still there is an air of prosperity hanging over the country that gives confidence to business men of all kinds.

Reaching St. Paul I find the same degree of activity prevailing and the same degree of confidence. The streets seem filled with life and enterprise, and although my time was limited in this city I could not fail to observe the immense growth that has been made during the past few years. When I formerly knew it, the center of trade was along Third st., but now it seems to reach back from the river through well paved and handsome streets, lined with elegant buildings, for the distance of a mile, or more. Back on the hills I could see magnificent residences of its prosperous citizens, but did not have time to take a look around. Reaching Minneapolis, a city that from long residence I supposed I was familiar with, I find myself entirely lost; the old landmarks all gone and a new city occupying the place of the one I knew so well.

Here too the same pushing, driving energy was to be observed in the streets, and I note also that the merchants generally follow the example of their Chicago brethren and make the most liberal display of their merchandise. The principal streets are virtually elegant bazaars attractive to the eye and offering every variety of goods either of necessity or ornament. The jewelry stores are especially noticeable, and the stock of goods carried by some of the dealers in this city rival those of the dealers in Chicago and far excel some of the pretentious retail stores in New York. Minneapolis may be called now a city of magnificent buildings, with its new and elegant hotels, its great mills, factories and other structures given over to industrial pursuits, and its magnificent business blocks, many of which have become famous throughout the country. The hotel from which I write this letter is unquestionably one of the most elegant in this country, both as to size, finish and management. The main lobby is not excelled from an artistic standpoint by any hotel in the East, while its large dining-room far exceeds in beauty anything I have ever seen. The adjoining business blocks occupied as offices are simply magnificent, having every convenience possible, giving to the city an air of substantiality that is entirely unexpected. Street cars run in every direction and the facilities for traversing this city of magnificent distances are unequalled.

While Minneapolis and St. Paul maintain their old-time jealousy of each other, yet when a matter requiring enterprise and capital for the up-building of this great Northwest are required, the two cities strike hands together and give to it all their energy. This is evidenced by the network of railroads leading into them, and by the other railroad projects now in hand, which will connect them more directly with the East.

It is their purpose here to make of these two cities a great distributing point which shall supply the West and the Northwest with merchandise of all kinds, this too without the intervention of Chicago. A line of road reaching from St. Paul through Minneapolis to Duluth is now under way. At Duluth it will connect with a line of steel steamers now being constructed to ply between that city and Buffalo direct, thus cutting off Chicago entirely. When completed, this will place these two cities in as close connection with the sea-board as Chicago now is, and will give them the control of this rapidly developing section of the country. I find that most of my old friends and acquaintances of twelve years ago who have remained here have become rich in spite of themselves. Having put money in land at that time, the city has overrun the surrounding country, and their property has become immensely valuable. A residence that I occupied a few years ago, and which could then have been purchased for $2,500, was recently sold for $26,000. And this is simply an indication of the advance in residence property. As to the streets they are given up to business, the enhancement in value has been simply phenomenal; still, there is plenty of room for good investment here yet. While real estate is held at high figures, it is plain

to be seen that the growth which is inevitable during the next few years would make the fortune of any man who should put a little money into real estate here at this time. The beauty of it all is that it is not a speculative "boom" that attracts attention to these cities, for their growth has been steady and fully warranted by the conditions surrounding them.

St. Paul is the head of navigation of the Mississippi, and Minneapolis has the immense water power furnished by the Falls of St. Anthony, by which the whole Mississippi River becomes available for industrial purposes. Back of all this is an immense territory which is conceded to be the best wheat growing region in the world and from which are produced millions of bushels of wheat annually. Last evening I was shown through Pillsbury mill A, where flour is produced that is famous the world over. This mill has a capacity of 7,200 barrels of flour a day. It is built of stone, eight stories high, and cost a million and a half dollars. Flour is manufactured by the roller process, whereby the wheat is more completely utilized than under the old process. I saw here thousands of bags of flour put up for export, and by the marks upon them I could read that this particular lot completed 1,500,000 car loads that have been shipped abroad from this mill during the past twelve months. There are in addition the great Washburn mills and numerous others consuming the wheat production of this region, while adjacent to them are lumber mills that stand unrivaled in their productive capacity. There are many other industries here equally prosperous and the demand for their productions comes from all quarters of the globe.

It pays a staid old New Yorker to come West occasionally and inhale a little of the aroma of this enterprising spirit that is encountered on all sides.

WEST HOTEL,
Minneapolis, Minn., Aug. 17, 1887.

American Patent Laws.

AN ENGLISH writer (Mr. James Keith) in the *Nineteenth Century* for June, in speaking of the American patent laws, says: "Invention, which is the life and soul of progress to any nation, is welcomed and encouraged by the Government as well as by the people of America. The Government makes it easy for inventors to patent and protect their inventions, the fees for any single patent only amounting to the sum of £7 for a period of seventeen years, and a body of experts being provided to see that every invention is novel before a patent be granted, thus insuring its value and giving it the best possible protection if the patent comes afterwards to be disputed."

"This is rather a rose-colored view of our patent laws," says *The Patentee*, "and when the statement is compared with the actual facts it is found subject to some very serious modifications. It is a fact, that the methods under which we 'patent inventions' are too easy, and when we come to 'protective inventions' we find the road a thorny one.

There might be many changes made in the patent laws of the country, and in the rules and regulations of the Patent Office, which would benefit the inventors of the country and stimulate the inventive spirit. It is a shame and a disgrace to a great nation like this that poor inventors should be forced to pay high fees, when many of them, in fact most of them, are struggling with poverty, barely able to 'keep the wolf from the door' whilst their seething brains work out the problems which God gives them to consider.

Yet it is a fact that the fees paid by inventors largely overpay all the expenses of the patent Office, and that millions of dollars have been paid into the Treasury of the United States, a tax upon the intelligence of the country—upon the brains of inventors.

At least the fees should be reduced so that they would not more than cover the expenses of the Patent Office. The brains of the inventor should not be taxed to support the Government.

Mr. Keith is mistaken in another matter we are sorry to say, that is to the complete protection afforded by our patent laws to the inventor. The body of experts in the Patent Office was originally intended to afford this complete protection, but under changes that it would have been better not to have made, the system is not at all perfect. Originally a most careful examination was made before a patent was issued to discover if it in any way infringed upon rights already granted, and that was the correct method. The granting of a patent under this plan gave the patentee the assurance of the Government that he had an exclusive right. Under the methods now in vogue this is not the case. The sooner a return is made to the old plan the better for all parties.

A patent now may, and often does, involve a contest with some other patentee as to priority of invention, and the courts of the country have dockets crowded with such cases, when a rigid examination would reduce these vexatious suits to a minimum."

Luck In Opals.

THE most popular thing in the way of gems just now is the opal, says a writer in the *New York Commercial*. Not that anyone objects to presents of diamonds, but the opal is enjoying a boom in the best society. A veracious Maiden Lane jeweller says the reason for this is that late researches into ancient lore have entirely reversed the old notion that the opal is an unlucky stone. The exact contrary is the fact. A man may have all kinds of luck with the biggest diamond that was ever found. Nothing but good fortune goes with the opal.

Young women who are going to Europe get a set of opal jewelry, this jeweler says, to keep them from going to the bottom. Gentlemen who are going to Coney Island to take a flyer on a race buy a pair of opal sleeve buttons and win on a short horse.

"A customer of mine," he went on, "came in here the other day and told me a little story which illustrates the power of the opal. Last Christmas his wife made him a present of a scarfpin, set with one of these marvellous stones. At that time he had a mortgage on his house; his business—he is a coffee broker and had been fooling with the wrong end of the market—was in a desperate condition; he was threatened with paresis, and things were going wrong with him generally. Pretty soon, coffee began to rise. It kept going up and carried this man right along with it. He got his business into shape, paid off his mortgage and went along swimmingly. Now, here's the most remarkable part of the story. Some one slipped the pin out of his scarf one day in a crowd. The very next day he fell down stairs and broke two ribs; his wife upset a bottle of purple ink all over his new summer clothes; his little boy played truant from school and got arrested for tying a package of firecrackers to a dog's tail; the parlor maid smashed the new chandelier to flinders with a step-ladder; one of the horses developed glanders, and the hired man poured a ladle full of melted lead down his boot leg.

During the next week a shutter fell off the front of the house and hit a policeman on the head; the gas metre man brought in a bill 767,000 feet for the month; the cook set the house on fire with a pan of melted grease, and moths got in the new parlor carpet. When things came to this pass the man saw that he would have to draw the line. He sent for two detectives and told them to get that opal back if it took all the money in New York. The next day they found the opal in a pawn shop. And do you know, sir, that man

just got his opal back in time to get out of the coffee market before the panic, and if he hadn't got out he would have gone higher than a kite. There's nothing in the world like an opal. Horseshoes and four-leaved clovers, are nothing to it."

Obituary.

HON. E. N. WELCH.

THE death of the Hon. E. N. Welch, founder of the E. N. Welch Manufacturing Company, occurred at Forrestville, Conn., August 2. Mr. Welch was born in February, 1809, and his life has been a most active one. His health remained to him until a short time before his decease. He was born at East Hampton, Conn., but at an early age entered the employment of an iron foundry at Bristol. As soon as he was of age, however, he commenced business for himself, and for upwards of fifty years has been prominently identified with the various industrial enterprises of Connecticut. He was the founder of the E. N. Welch Manufacturing Company of Forrestville, extensive manufacturers of clocks, which has its agencies in every civilized country on the globe. He was President, also, of the Bristol Brass and Clock Company, which, with various offshoots, gives employment to nearly one thousand persons. Not only was Mr. Welch a shrewd, enterprising manufacturer and business man, but he was a financier of rare ability. This latter quality led to his identification as a Director in the National Fire Insurance Company, the First National Bank of New Haven, the Travelers' Life and Accident Insurance Company, and several other important financial institutions in Connecticut. He was the President and the largest stockholder of the Bristol Manufacturing Company, which is now one of the most extensive manufacturers of knitted underwear in this country. He was for several years a representative of his district in the State Legislature, and later a Senator from his district, where his influence was pronounced. Mr. Welch was uniformly successful in his business ventures, and had accumulated an immense fortune which was said to exceed three million dollars at the time of his death. He was twice married, his second wife surviving him, as do two married daughters and his son J. Hart Welch, who has for a number of years been identified with his father in his various enterprizes. Mr. Welch was a man of great enterprise, of indomitable will, and, as an executive officer in the various industrial enterprises with which he was identified, had no equal. Although somewhat brusque in his manners, he possessed a kindly heart and never turned a deaf ear to a plea for assistance on the part of any of his many thousands of employees when the case was a deserving one. He was a man of the utmost integrity, esteeming his word as good as his bond, and any engagement that he entered into was sure to be carried out in a spirit of justice. Any legitimate demand made upon him was always met with the utmost promptness. Among his associates his advice was eagerly sought and readily adopted. His charities were many, and while he never published the fact of his giving, yet he gave liberally and ungrudgingly. The Baptist Church at Bristol, of which he was a member, received many evidences of his liberality. Mr. Welch led an active life, full of physical and mental effort, but his constitution was apparently of iron, and in his advanced age he could endure far more than many a younger man. His name was known throughout the world among the members of the jewelry trade, all of whom will regret his death and sympathize keenly with the surviving members of his family in their bereavement.

NEWELL MATSON.

Newell Matson, the head of the corporation of N. Matson and Company, of Chicago, died at Clinton, Conn., July 28, in the seventy-second year of his age. Mr. Matson was born at Hartland, Hartford County, Conn., and after receiving a common school education removed to Oswego, where he opened a jewelry store. He made several changes of location in the interior of New York, but in 1857 he removed to Milwaukee where he continued the jewelry business with marked success. In 1864 he removed to Chicago where he became established in business with Mr. Hoes, in Lake st., but subsequently acquiring Mr. Hoes' interest in the business the firm name was changed to N. Matson & Company. The great fire of 1871 consumed his place of business, involving him in a loss of upwards of $200,000. Like other Chicago business men he was virtually ruined by that conflagration, but he re-established himself promptly and began business again immediately in Wabash ave., having for partners E. S. Pike, L. J. Norton and W. E. Higley. The business was successful, and in 1872 the firm occupied the new building that had been erected for them and which they occupy at the present time. Mr. Matson was the active manager of the business, which position he continued to fill but at the cost of his health. Two years ago, desiring to relieve himself as much as possible from the care of business, he organized a stock company under the name of N. Matson Company, of which he became president, but resigned the active management of its affairs to younger hands. Mr. Matson lost his first wife soon after the birth of her first child, who afterwards became the Rev. L. E. Matson, but died a short time ago. By his second wife he had five children, all of whom are now living; among them being one son, R. N. Matson, a prominent lumber merchant in Chicago. Mr. Matson was a gentleman of great energy and activity and was well known throughout the trade and possessed its entire confidence. He was of a genial, pleasant, social disposition, and extremely considerate of all persons in his employ. When the news of his death was made known, a meeting of the jewelers of Chicago was held at the rooms of the Jewelers' Association, at which Mr. T. Coggeswell presided, when the following preamble and resolutions were adopted:

Whereas, It has pleased Almighty God to remove from life Newell Matson, for many years an esteemed member of our fraternity,

Resolved, That while we bow in due submission to the decree of an all-wise Providence, we keenly feel the loss of one who for so many years past has maintained an enviable place in the trade by his courtesy, fair dealing, and high standard of business honor;

Resolved, That a copy of these resolutions, properly engrossed, be forwarded to his bereaved family as an expression of the esteem of the jewelry trade of Chicago.

A telegram was also sent, as follows:

To Mrs. Newell Matson and Family, Simsbury, Conn.—

The Jewelers' Association and jewelry trade of Chicago beg to express their grief at the death of Mr. N. Matson, and extend condolence for our mutual loss.

COMMITTEE.

ALBERT S. MARSHALL.

Albert S. Marshall, of Rutland, Vt., died August 7, after an illness of several months. He was a young man of great promise, and worked hard. His brother, Nathan S. Marshall, will continue the business.

Another Landmark Gone.

DANIEL O. CALKINS, whom everyone who has done business in Maiden Lane for thirty-five years or more knows as "the umbrella man," died on July 20, 1887.

With him passed away another of those old-timers of which there are but a few left—men who have seen the city grow from a mere village into a large and populous commercia

center. He was born on the 11th of August, 1808, in Waterford, a small village near New London, Conn. Here for over a century his ancestors had lived, having come to this country during the latter part of the seventeenth century. After his school days were over, and about the year 1830, he came to New York City, alone.

About April 1, 1830, he started business as umbrella maker and repairer in a store on the east side of William st., a few doors below John. At that time, New York City had Wall st. for its center, and the streets hereabout were filled with the dwellings of the rich and great. All the old families which figure in the history of the city lived below Maiden Lane, and many of them came to Calkins' shop to have their umbrellas repaired.

He next moved to Maiden Lane, a few doors above Windle's. Windle's was an old established house furnishing-goods store, well known and well patronized in those days. Calkins' place was then located at about 52 Maiden Lane, where the Waterbury Watch Company now has its New York office.

From this place he removed for some cause or other—it is beyond the recollection of any now living—to the south-east corner of Maiden Lane and Nassau st, from whence, by reason of a slight fire, he removed to No. 34 Maiden Lane. Here, also, a slight fire attacked him, and he removed to No. 42.

At No. 42 Maiden Lane we have him within the recollection of everyone in business on Maiden Lane.

Everyone knew "old Calkins." Maiden Lane at that time was a street busy with retail business of all kinds. In old times, men would take their old whalebone umbrellas to Calkins', to have them fixed while they waited, and many of the aristocrats of those days sat and chatted him while he himself repaired their clumsy umbrellas.

Great changes have come about since those old times, yet Mr. Calkins always remained the same. His store, at 42 Maiden Lane, appears about the same as it appeared after he first got settled into it, and all the old counters, shelves, desks and tables, which were put up forty years ago, still remain to tell the story of a man, one of whose characteristics is shown in this old-fashioned, plain, yet substantial and complete arrangement of the old umbrella store.

He was a quiet, unobtrusive man. He never made a great mark in any direction, but was simply honest and industrious. He started with nothing, and leaves an estate of a quarter of a million.

We are indebted for many of the dates and facts relating to the life of Daniel O. Calkins to Mr. E. D. Watrous, an old gentleman eighty-two years of age, a cousin of the deceased.

Casting.

CASTING is the shaping of metals, by pouring them, when in a molten state, into moulds, says T. J. Fairpoint. The method of casting varies with the kind of work to be produced and the metal or material of which the article is to be made. To take a plaster cast where the exterior form only is desired, it is only necessary to pour the liquid plaster into the mould, which will give an impression of its interior surface, but in casting in metal, articles that are required to have a definite thickness and weight must be moulded with a core or inner wall.

Casting is divided into three parts: first, to prepare a mould of the work to be cast (assuming that the pattern had been previously prepared); the second part is to melt the metal to the required fluidity, and the third part is to pour the metal into the moulds, and allowing it gradually to cool. Silver can only be cast in moulds made of sand or loam, the metal, in cooling, will not adhere sufficiently close to a mould made of any other substance to produce an exact impression, but Brittania metal can be cast in metallic moulds with perfect success; this causes the manufacture of silver ware to be a great deal more costly than that of the softer metals, as the process of making sand moulds is both difficult and tedious, and after the article is cast, the mould must be destroyed, and each cast must pass through the chasing department after it is cast, to allow the casting to be taken out; which necessitates the whole process of moulding to be repeated for each piece that is cast.

A figure is usually cast in two or more pieces, a skilful founder not needing to divide the work into so many parts as a less experienced workman would find necessary, but it is not always best to avoid division; the chief difficulty in casting figures whole, is the contraction of the metal when cooling, which frequently causes a straining and cracking in parts; but if the figure can be cast very thin in every part without any irregular masses, this difficulty can be avoided to a great extent, as in casting a figure is sections the smaller masses of metal are more manageable and less liable to crack, the parts can be joined together so skillfully that the seam is quite invisible, and by this means a great deal of tedious labor is often saved.

In making a sand mould for a stuatette, the moulder lays his model in a horizontal position upon a bed of loose sand, which is held in an iron frame or flask, and in which the statuette is also to be cast; the workman presses his pattern well into the sand, adjusting it so that the sand bed affords a firm support to the model. The sand that is used is of very fine yet peculiar properties, being adhesive yet porous; the best kind is imported from France, and has a proportion of magnesia in its composition. It is ground in a mill several times, until very fine. The moulder, after sprinkling the pattern plentifully with potato flour, to prevent the mould adhering to it, takes a small quantity of the sand and presses and hammers it into sections upon the model, covering only such portions of it at a time as will allow its being drawn or lifted off. Each sand piece is notched and made to fit exactly with the pieces which come next to it. When the upper side of the statuette has been completely enveloped in this way, another iron flash of the same size as that already used is fastened with bolts to the first one and filled up with sand, which is beaten hard; the mould is then turned over, the loose sand removed from the model, and the sand pieces beaten on the same as the other side. Each of these sections must fit firmly together over the whole surface of the model, making them of sizes and shapes that will be most convenient for drawing from the model, and also for supporting each other after the pattern is removed. After the piece mould is completed parts of it are taken off and the pattern removed, and the founder or moulder commences to make the core, forming it within the cavity of the mould. It is made of the same fine sand as the outside mould, sometimes having a little molasses or paste mixed with it; the workman places some loose sand in the cavity, hammering it the same as the mould, taking care at the same time not to beat it too hard, for fear of injuring the mould; this is repeated until the whole space is filled and a perfect copy of the model is produced in sand. The core is then taken out and a certain thickness of sand pared off all over, the part taken off being the intended thickness of the metal. In some cases where the shapes are regular, as in handles and spouts of tea and coffee pots, the cores are made by passing sand into boxes, made of the required shape and size, giving it at once the necessary form. The inner surface of the sand mould is washed over with powdered charcoal and water or plumbago, in order to give it a fine texture, after which it must be thoroughly dried in an oven, leaving it quite dry and porous. Vent holes are cut through the mould to allow the air to escape when the metal is poured in, and also to allow any gas to escape that may have been produced from the various components of which the mould is composed. If the air or gases cannot readily escape from the mould, when the molten metal is poured in, it will cause the work to be porous or spongy in parts, and in casting large works it might even cause the mould to explode.

Britannia metal is cast in metallic moulds which are made in two

or more parts, held together by pins or hinges. In casting a figure or any other ornament in Britannia, the molten metal is poured into the mould, and that portion which comes into direct contact with the mould cools very quickly and becomes solidified. When the workman thinks that sufficient metal has adhered to the mould, he pours out the remaining molten mass, leaving all the center hollow, when the casting is sufficiently cool, the mould is opened and the casting removed.

Formation of the Diamond.

AMONG the many theories existing as to the formation of the diamond, that of Professor Simmler, of Switzerland, is certainly not the least probable. The diamond often encloses cavities, which, in some instances, contain a gas, in others a liquid. Sir David Brewster, who had given much attention to the subject, found, in investigating the nature of the liquid, that its refractive power is less, but its expansive power greater, than that of water. In comparing the results obtained by Brewster with those calculated for other liquids, Simmler found the numbers for the expansive and refractive power of the liquid referred to to coincide singularly with those for liquified carbonic acid. But other facts observed by different savants, tend to prove also the presence of this agent in the coating of the most valuable gems. Upon the bursting of such crystals, there often occur two liquids in the cavities, the one behaving like water, the other like liquid carbonic acid. On one occasion, it was observed that the liquid in a quartz crystal, which was dashed to pieces, scattered its contents around with a great noise, burning holes in the handkerchief wound around the hands of the experimenter. The acid content itself had disappeared. Upon these observations, Prof. Simmler based his theory. If carbon be soluble in liquid carbonic acid, it would then only be necessary to subject the solvent to slow evaporation; the carbon would thereby be deposited, and, by taking proper care, assume crystalline forms. In evaporating quickly, the so-called black diamond, which, in the state of powder, is much used for polishing, the colorless diamond might be produced. Though the liquid referred to has never been subjected to chemical analysis, the formation of liquid carbonic acid in the interior of our globe may, nevertheless, be considered as highly probable. In the gaseous form, we know it to be evolved in immense quantities from fissures, volcanoes and mineral springs. When, now, this gas is produced in the cavity of a rock which is free from fissures, it will finally be compressed so highly that it will assume a liquid form by itself. Certain rocks may be considered strong enough to resist the expansive force of this agent, and if soluble carbon were there present, it might get taken up and redeposited, the carbonic gas escaping through some newly formed fissures. If this theory is correct, the artificial production of diamonds may some day be accomplished.

The Use of Shellac in Horology.

SHELLAC, says J. Beau, in the *Revue Chronométrique*, is used in two forms, in rolls, and dissolved in alcohol or pheryl, as will be specified farther on. Solid shellac is suited best for fastening parts that either have much shake between each other or are badly fitted together, while the fluid is used for cementing closely fitted pieces; for instance, anchor pallets, because, owing to its fluid condition, it can penetrate better into smaller interstices.

When shellac in rolls is used it is advisable to draw it out, an operation that should not be performed with the fingers; it is to be warmed over on alcohol flame, and drawn out with two pair of tweezers, in which manner it can be drawn out as thin as desired, at the same time protecting it against the perspiration of the hand.

This drawing out is really not the best method, although, perhaps, the large majority of watchmakers employ it; the roll of shellac loses thereby part of its rigidity, and will no longer give results as perfect as those obtained by the following method: The shellac is to be heated, and a part of it is taken upon the point of a pegwood sufficiently strong to manipulate the shellac, with which it is placed upon the pieces to be cemented.

Again, the pieces to be cemented should never be warmed directly, but they are to be placed into a chuck or other suitable utensil, which is heated, the shellac placed upon the point until it becomes soft; when in this condition, a small quantity is taken away with the pegwood; in this way, there will never be any danger of overheating.

Shellac dissolved in alcohol would comply with all the demands of horology, if the solutions were not open to the following objections: If a drop of the solution is only for a few seconds exposed to the air, a pellicle, analogous to boiling milk, will form on its surface and prevent the spreading of the drop, so that it can enter into the interstices, especially if very small, as in the case of pallets. For this reason, I preferably have used for some time the solution effected in pheryl. Pheryl, also called phenyle alcohol, has properties placing it between alcohol and acid; it exerts no imperious effect upon the metals used in horology, and, therefore, no objections to its employment exist. The only disagreeable characteristic is, that it etches the skin when coming in contact with it.

Some Swindling Gold Mine Transactions.

TOM JOHNS took the St. Louis and Boston folks in in good style, and has made more money selling mines which nobody has ever seen or heard of than any man in Western history. He sold a mine in St. Louis for $100,000 that paid $24,000 dividends in two years. He paid the dividends himself, and when he got tired of paying them he just quit, and I believe the owners of that mine have been looking for it ever since. I don't suppose old Tom himself knew where it was—or cared either.

"He broke one family in Boston, Tom did, and got $300,000 out of a syndicate at the Hub that were the worst fooled lot of moneybags that ever struck Colorado. This syndicate, or it may be only a delegation of them, came West to see the mine for which they had paid their money, and of which Tom gave them an account ten times more glowing than the Book of Revelations. When Tom got word that they were *en route* he was not worried in the least. He hired a big house up in the mountains just beyond Georgetown, some kind of a hotel, I think it was, and he got servants and groceries and champagne, and made all necessary arrangements to furnish first-class entertainment. He met them at Denver and escorted them the rest of the way. The party were tired and stood the entertainment for three or four days; at the end of that time they wanted to see their $300,000 mine. Old Tom took them out a piece and up a bit, and pointing to a row of stakes driven in the snow, said:

"There she is, gentlemen, right under them stakes, which I had put there by a surveyor; just over my stakes in the ground, is your mine. You can't see it now because the snow's on it, but when the snow goes she'll be all hunky, and you can bet it's a bonanza."

"That's all the Boston syndicate ever saw of their mine, which was located on Gothic Peak, I think. Those stakes in the snow cost them $300,000. Oh, Tom Johns was a dandy for placing mines.

St. Louisians will recollect him, and so will Bostonians if they hear or read his name. I don't know where he is now or what has become of him, but I guess he is comfortably located somewhere enjoying the fortune he made in mining, which is all the more astonishing, as he was never known in the mining region as anything more than a day laborer."

"Talking about snow investments," said a mining expert who was in the party, "did you ever hear of the man who ran a 200-foot tunnel into a snow bank? No? Well, this man was some kind of an engineer, and some Eastern people who had bought a mine—maybe they were St. Louisians—engaged him to run a tunnel for them, and he did it—he ran it through 200 feet of snow and got paid for it, and when the snow melted and the greenhorns went out to look for their tunnel it had been dissipated by the sun and was skirmishing down toward the basin of the Mississippi Valley by way of the Arkansas River."

Then another story was told about a young man who belonged to an Illinois syndicate that purchased a mine in some part of the mountains and came out to look at it. This was two summers ago. Somebody helped him locate the claim, and they found it under a mass of snow.

"How can we get at it?" he asked.

"You can't get at it till the snow melts," was the answer.

"And when will the snow melt?"

"Don't know."

He waited all that summer and the snow was still there, when he packed his grip and started back for the Sucker State. The following summer he tried it again, but the snow was there still. He has not been around yet this summer, but he's expected. If this should meet his eye before he starts, he may save himself a long and mean journey, for the memory of the oldest pioneers is authority for the statement that the same old snow has been covering the side of the mountain on which his claim is supposed to be located ever since Denver was a settlement, or the white man came to these foothills in search of gold.

*Is There a Diamond Field in Kentucky?

J. S. DILLER AND GEORGE F. KUNZ.

THE great similarity of the peridotite of Elliott County, Kentucky, to that of the South African diamond fields, has attracted considerable attention, and hundreds of prospectors, moved by "interesting possibilities," have visited the region in search of gems and precious metals.

In May, 1885, when the peridotite of Kentucky was studied in the field, the character of the diamond-bearing rock in South Africa was not yet fully understood, and consequently no search was made at the time for diamonds. Recent developments, however, rendered it desirable that they should be intelligently sought for, and upon the invitation of Mr. J. R. Procter, the State Geologist of Kentucky, we were sent by Major J. W. Powell, the director of the U. S. Geological Survey, to make the investigation.

The locality is easily reached by way of the East Kentucky Railroad, which ends in Carter County at Willard, where conveyance may be obtained of the farmers to traverse the remaining ten miles, to the best exposures of the peridotite along Ison's Creek, in Elliott County.

The peridotite alters and disintegrates readily, but from the fact that the declivity of the surface is considerable, the transportation of material almost keeps pace with disintegration, and there is no great accumulation of residuary deposits upon the narrow divides and hillsides. The specific gravity and durability of the gems found in connection with peridotite are generally greater than that of serpentine and other products of its alteration. On this account the gems accumulate upon the surface and in favorable positions along adjacent lines of drainage. Our plan was to search by sifting and carefully panning the stream beds receiving the drainage directly from the surface of the peridotite, and to enlist the services of the people in the neighborhood to scrutinize the steep slopes where gems weathered out of the peridotite might be exposed. Particular attention was directed also to the examination of the solid rock and residuary deposits which so clearly resemble the diamantiferous material of the South African mines.

*The accompanying map introduced with corrections and additions from the U. S. Geological Survey Bulletin, No. 38, shows the distribution of the exposed peridotite and the soil resulting from its disintegration. It is only a sketch map and does not pretend to a high degree of accuracy, but will be found of great service in the field.

The embankment which was formerly regarded as the site of an old furnace, has proved to be an Indian mound in which arrow heads and fragments of celts have been found. Several years ago the mound was opened to a considerable depth by Mr. James Maggard, who reports ashes near the center. The excavation made for us during our brief sojourn did not reach the ashes. The mound is composed chiefly of the sand resulting from the disintegration of the adjacent peridotite, and a number of pieces of peridotite preserving all their forms but entirely altered with the exception of the garnet and ilmenite, which only appeared broken up. The olirine, however, had changed to a dewylite-like mineral of such a structure that it has received the local name of "mutton tallow," and can be worked as readily as that substance when it is first taken out. The mound is about 100 feet in diameter and 30 feet in height, and some large trees had originally grown on top of it.

Until our recent visit the actual contact of the peridotite and shale had not been observed. It is exposed in the bed of a small branch of Ison's Creek, within 100 yards of Charles Ison's house. The intrusion of the peridotite has displaced and greatly fractured the shale, besides locally indurating it and enveloping a multitude of its fragments. The latter are dark colored like the peridotite and are strongly contrasted with the light-colored dolomitic nodules of secondary origin.

Besides the pyropes, a few of which are good enough for cutting, several fairly good specimens of a green pyroxene have been found and are here reported for the first time, resembling the same transparent mineral from Arizona. The South African occurrence of the mineral is a little more opaque, but of a richer green however.

When suitably prepared they will make worthy additions to the gem collection of the National Museum, the altered biotite being identical with the South African vaalite. During a careful search over a small area for nearly two days no diamonds were found, but this hy no means demonstrates that diamonds may not yet be discovered there.

The remarkable similarity between the peridotite of Kentucky and that of the Kimberley and other diamond mines of South Africa is very striking, and when this alone is considered the probability of finding diamonds in Kentucky seems correspondingly great; but when we reflect that the carbonaceous shale and not the peridotite itself is the source of the carbon out of which the diamond is formed, and thatthe shale in Kentucky is much poorer in carbon than that of the South African mines, the probability of finding diamonds there is proportionally diminished. H. Carvill Lewis (*Science*, Vol. VIII., pp. 346) remarks concerning the South African mines that "recent excavations have shown that large quantities of this shale surround the mines, and that they are so highly carbonaceous as to be con-

*Read by George F. Kunz at the American Association for the Advancement of Science, August 18th, 1887, and was illustrated with a large series of specimens from Kentucky, loaned by the Geological Survey and a full series of the diamond rock and associations from South Africa from his own cabinet.

*Will appear in our next issue.

bustible, smouldering for long periods when accidentally fired." In the chemical laboratory of the U. S. Geological Survey, Mr. J. Edward Whitfield determined 37.521% of carbon in the shale from near the Kimberley mine, while the blackest shale adjoining the peridotite near Charles Ison's in Kentucky he found to contain only 0.681% of carbon. After all the carbonates were removed by dilute hydrochloric acid the residue was combusted in oxygen and the carbon weighed as carbonic dioxide. The peridotite at the time of its intrusion must have been forced up through a number of coal beds and at a greater depth it penetrated the Devonian black shale which is considerably richer in carbon than the shale now exposed at the surface. It is possible and not improbable that if the theory of the igneous origin of diamonds first proposed by Roscoe Manchester Cohen (Proceedings Manchester Literary and Philosophical Society, Oct. 17, 1884, pp. 5), and later independently advanced by H. Carvill Lewis, be true, a number of diamonds may have been formed in the Kentucky peridotite, but the general paucity of carbon in the rock adjacent to the peridotite is certainly discouraging to the prospector.

The best time to search for gems in that locality is immediately after a heavy rain when they are most likely to be well exposed upon the surface. It is proposed to keep up the search economically by furnishing to responsible individuals living in the vicinity a number of rough diamonds mounted in rings for comparison, that they may know what to look for under the most favorable circumstances.

On a Remarkable Crystal Skull.

GEORGE F. KUNZ.

[Read at the New York Meeting of the American Association for the Advancement of Science, Aug. 12, 1887.]

The skull which I herewith exhibit was originally brought from Mexico by a Spanish officer, before the Maximilian conquest, and sold to Mr. Evans, the English collector, at whose death it passed into the hands of M. E. Boban, who sold it to Messrs. Tiffany & Co. It is now in the possession of Mr. George H. Sisson, of this city, who has kindly loaned it to me for exhibition to-day.

As to its origin, little or nothing is known beyond the above facts. The inclusions of vermicules of prochlorite in the rock crystal are identical with those in the quartz in the rock crystal from Calaveras County, Cal. It is plain that the working of the skull is not Chinese or Japanese, or nature would have been more closely copied; and if the work were of European origin, it would undoubtedly have been more carefully finished in some minor details, which would have added more to its value. In the Californian locality large masses of crystal have been found, and from near Pachuca, in the State of Michoacan, Mexico, large pieces of rock crystal has been found, and small skulls, made of this same material, measuring rarely more than two inches across, have often been found in Mexico. On account of these interesting facts, the writer exhibits the skull, and presents his paper, to draw out any opinions from the members of this section.

The skull weighs 5442 grams (175¾ ounces), and it measures 8⅜ inches (210 mm.), 5⅜, 136 mm. wide; 5⅛, 148 cm. high. The eyes, as will be observed, are very deep hollows. The line separating the upper from the lower set of teeth has evidently been produced either by a string held in the hand or possibly by a small wheel rotated on a reed and is very characteristic of Mexican work. Their skill in making such objects has been questioned; but the large masks, mirrors, and other objects of obsidian which they made, the objects of agate and the numerous jade and jadeite ornaments, especially the votive adze presented at this meeting, and their well-known veneration for these things, for we find not only small skulls of rock crystals, but skulls inlaid with turquoises, notably the one in the Christy collection, all these might have suggested to them the making of a large skull if a suitable block of rock crystal came into their possession. The making of this skull was nothing as compared to the fashioning of the above objects. They procured the turquoise with which they inlaid the skulls from Los Cerillos, New Mexico, and why should we doubt that they were acquainted with the Californian locality for rock crystal?

Prof. E. S. Morse, of Salem, Mass., who resided in Japan for many years, and Mr. Tatvi Barba, of Japan, now of New York City, both assert positively that the skull is not of Japanese origin, the latter stating, as one reason, that a skull is not considered a fit decorative object in Japan, and that so precious a material would not have been used for that purpose.

On a Gigantic Jadeite Votive Adze from Oaxaca.

GEORGE F. KUNZ.

[Read at the New York Meeting of the American Association for the Advancement of Science, Aug. 12, 1887].

This jadeite adze of Mexican origin is, as far as the writer has been able to ascertain, the largest yet found, and is notable not only for its great size, but also for its peculiar character and the excellenced of the working in so hard a material. It is said to have been found about twenty years ago in Oaxaca, Mexico. It measures 272 mm. (10⅞ inches) in length, 153 mm. (6 inches) in width, and 118 mm. (4⅝ inches) in thickness, and it weighs 229.3 oz. Troy.—Across the ears 153mm. (6 inches), across the lower axe end 82mm. (3¼ inches), height of head to neck 158 mm. (6⅛ inches), height from chin to foot 115 mm. (4½ inches), and the legs 50 mm. (2 inches). The piece removed at the back is 160mm. (5 inches) long and 50 mm. (2 inches) wide. The color is a light grayish green, with streaks of an almost emerald green on the back. In style of ornamentation it very closely resembles a gigantic adze of granite (57cm. long and 34 cm. wide) mentioned by A. Chavero in the *Mexico d. través d. Los Siglas*, 1886, p. 64, and has almost an identical counterpart in the avanturine quartz adze now forming part of the Christy collection at the British Museum, and formerly in the possession of Mr. Percy Doyle of the English Diplomatic Service; differing from these two objects, however, in having no ornamentation on the forehead, and having in addition four dull markings on each ear, one under each eye and one near each hand, which seemingly could have served no other purpose than to hold thin plates or films of gold, which the polished surfaces would not do. Of the gold used here no trace can at present be seen.

From all appearances, this adze is the result of the shaping of a boulder, since weathered surfaces would only be found on a fragment that had been exposed. The lapidarian work on this piece is probably equal to anything that has ever been found, and the polish is as fine as that produced by modern man.

Of additional interest is the fact, that, although this adze is undoubtedly one of the finest objects which these Aztecs or Maya possessed, yet they desired to "extend" the material, as it may be termed, as has been described by Dr. J. J. Valentini in the American Antiquarian Society as to the origin of the Leyden plate, April 27, 1888, p. 11, and more recently by Prof. F. W. Putnam in his paper before the American Antiquarian Society, new series, vol. 5, April, 1886, on the Central American Celts, showing how these had been cut, not only into two, but four pieces.

There have been two fully successful and one partly successful attempts to remove pieces from this object, evidently for the purpose of making other objects (the supply of material being exhausted), to bury a part with some dead chief, and possibly from the wish to bestow on new branches of the same tribe portions of a material which they held as sacred. Enough has been cut from the back of the object to equal one-eighth of the entire weight, and the manner in which the material they used in cutting it was held has produced a rounded cut on each opposite side from where the cutting was done, lending credence to the theory that some abrasive was used, such as sand or sapphire, by

means of a string held in the hands or stretched across a bow. In the *American Journal of Science* for July, 1882, the writer has described a sapphire pebble found in a brook in Oaxaca, almost equal to that from Ceylon. If they knew of the existence of this sapphire, we can more readily understand how they worked so large a mass of tough and hard material. The material is jadeite; it is in the mollis scale of hardness.

So far as the writer has been able to ascertain, no similar object of equal magnitude and archæological interest exists. The Humboldt celt, the Leyden plate, the Vienna Adze, and the one in the Ethnological Museum at Dresden, which weighs only seven pounds, and is entirely devoid of ornamentation, can scarcely compare with it.

This paper will be published in full by the Bureau of Ethnology, and the adze will be figured in color and natural size. During the discussion at the meeting it was agreed by all present that this was the finest aboriginal jadeite object known to them.

Rock Crystal From Ashe County, North Carolina.

GEO. F. KUNZ.

[Read at the New York Meeting of the American Association for the Advancement of Science, August 12th, 1887.]

At the last meeting of this association I presented a paper on the occurrence of rock crystal in what I was then informed was a part of Virginia, but which, on visiting the locality, I found to be really the mountainous part of Ashe County, N. C.

My attention was first called to this locality by the sending from there to Messrs. Tiffany & Co., of a 51-pound fragment of a large crystal, which was said to have been broken from a mass weighing 300 pounds by a twelve-year-old mountain girl. This large crystal had been found on the Mintor Blevin Farm, on the Long Shoal Creek in Chestnut Hill Township, though crystal had also been found at two places, 600 feet apart, on the L. C. Gentry Farm, about one mile from the former locality—all three places being fifty miles from Abingdon, Va., and forty from Marion, Va., and also close to the north fork of Piny Creek, on the St. Leger Brooks Farm. At the latter place was found a remarkably clear 20¼-pound distorted crystal, which is herewith exhibited, and is absolutely perfect, and is the finest piece of rock crystal that has been found in the United States; and on the Gentry Farm one crystal weighing 188 pounds, also exhibited, and another crystal weighing 285 pounds, that was 29 inches long, 18 inches wide, and 13 inches thick, showing one pyramidal termination entirely perfect and another partly so.

All these localities are on a spur of the Phœnix Mountain, and the crystals have all been found in decomposed crystalline rocks, principally consisting of coarse felspathic granite, which has all entirely decomposed, even to a greater depth than these crystals occur in. Most of them are obtained either by digging where one crystal is found, or by driving a plough until some hard object is struck. Altogether several dozen crystals have been found weighing from 20 to 300 pounds each, and undoubtedly future working will bring many fine ones to light.

Some of these crystals afford larger masses of clear rock crystal than have ever been found in the United States, and suggest its use for such objects of luxury as crystal balls, clock cases, mirrors, etc., which are now to be seen in the Austrian Treasury at Vienna.

Jasperized and Agatized Woods of Arizona.

GEO. F. KUNZ.

[Read at the New York Meeting of the American Association for the Advancement of Science, August 16th, 1887.]

In the March (1886) number of the *Popular Science Monthly*, the writer described jasperized and agatized woods of Arizona, and called attention to the magnificent colors and the remarkably large sections of trees, which, to all appearances, would furnish art objects such as had never been seen before, and it was suggested that possibly perfect sections could be produced from two to three feet in diameter. Until very recently, however, it has seemed as if, although the material might exist, it would be impossible to have art so assist nature as to show all its beauties.

After many attempts both here and abroad, the task of polishing such large sections was about given up; but recently American ingenuity and perseverance have at last conquered this hard material, and we have here to-day the finest sections of silicified trees that have ever been seen—finest not only for their beauty of coloring and polish, but also for their large size.

The following objects were exhibited: One column cut transversely across the tree, so that the heart was visible on two sides of the column, the rings radiating from it in all directions. It is 11¼ inches wide and 21 inches high, and is a most remarkable piece of lapidary work. Five sections measuring 25, 19½, 24, 17½ and 13 inches respectively in diameter, with such a high polish that when turned with the back toward the light a perfect mirror was formed. The color of all was unsurpassed. They were cut by a gang of seven saws and polished on wheels 14 feet in diameter, at Sioux Falls, Dakota, the power being furnished by water from the falls.

Failure of N. Matson & Co.

FROM OUR CHICAGO CORRESPONDENT.

ONE OF the oldest and best-established jewelry houses in Chicago, N. Matson & Co., made an assignment on August 18th, for the benefit of their creditors, with liabilities of about $150,000 and assets unknown. Although the firm has been a little slow in its payments for the past few years, its solvency was not questioned, and the news of the failure created tremendous excitement. The first intimation of the assignment was had when the following confessions of judgment were entered in the Circuit Court in behalf of the firm:

First National Bank, Chicago, $25,250.

Garfield National Bank, New York, $25,035.

Gorham Manufacturing Company, Providence, R. I., $37,255.

Z. & S. Holbrook, Chicago, $20,204.

Deputy Sheriff Burke took the judgments and went into immediate possession at the store. About an hour later he was handed an order from Judge Gresham of the United States Court, directing him to turn over possession to Edward Forman, who had been appointed receiver. At the instance of the Gorham Manufacturing Company, with the consent of the other creditors, Mr. Forman took immediate possession.

Mr. Forman was seen a few minutes afterward by a representative of THE CIRCULAR, and said:

"The suspension is entirely due to the fact that the heirs of the late Mr. Matson wished to withdraw from the business. Mr. Matson owned practically the whole of the company's stock, and since his death his heirs have expressed their unwillingness to continue in the business. After consultation this method was decided on as the one calculated to secure full payment to all the creditors. After we take stock the business will be conducted as usual, with myself as receiver. I was secretary of the company, but did not have immediate control of the books and cannot say what the liabilities are. An approximate estimate would be $140,000. We do not know what the assets are until the completion of stock-taking. When we took stock last February there was a handsome surplus over liabilities. There is excellent prospect of the company becoming reorganized."

Mr. L. J. Norton, vice-president of the company, who has been connected with the firm for more than thirty years, said:

"The death of Mr. Matson was the sole reason why the company will cease to exist as at present organized. The firm has done an

extensive and prosperous business for many years and has never been in difficulties before. It would not be in difficulties now but for Mr. Matson's death, which precipitated action by his heirs, who wished to close out their interests. There is no doubt about all creditors being paid in full. The confessions of judgment in all four cases were to secure moneys which the firm had borrowed in the ordinary course of business. The other creditors are eastern houses for small amounts. The appointment of Mr. Forman as receiver will secure the continuance of the business for the present at least."

Judge Gresham's order appointing a receiver was due to the Gorham Manufacturing Company. It filed a confession of judgment against Matson & Co. for $5,543 in the United States Circuit Court. The execution was placed in the hands of the United States Marshall to levy upon the stock of the firm, but when he arrived at the store he found Deputy Sheriff Burke already in possession on executions issued from the Circuit Court. A creditors' bill was then filed by the Gorham Company against N. Matson & Co., which charged that the firm was insolvent and had liabilities amounting to about $200,000. Their stock, it was claimed, if sold at sheriff's sale would be sacrificed and would not bring enough to pay the judgments already confessed, to say nothing of the unsecured creditors. The bill asked for the appointment of a receiver, holding that if the goods were sold from the store in the usual course of trade, the proceeds would be sufficient to pay the judgment creditors and leave something for the unsecured creditors.

The defendants filed an answer, admitting all the allegations of the bill, and the judgment creditors in the State Court consented to the appointment of a receiver, who should use the proceeds of the sales to satisfying their respective liens before any other claims were settled.

Judge Gresham then appointed Edward Forman receiver. He qualified in bonds of $250,000, with Gilbert B. Shaw, J. W. Harvey, and J. L. Woodard as sureties.

R. G. Dun & Co. report Matson & Co. as having a capital of $200,000, with but fair credit. The firm is reported by this agency to have been slow pay for some years, and a limited credit only was advised so long as Mr. Matson should live and remain in the firm. Since Mr. Matson's death, on July 28, last, the firm has not been recommended for credit, and has been pushed to make settlements of long-standing accounts by several of the firms with whom it was doing business.

"The failure is all straight—nothing crooked about it," said Mr. O. Peckham, attorney for the First National Bank. "I knew nothing about it until this morning, when I went to the bank. Mr. Gage told me the firm had given him notice the evening before that it must fail, and he wanted a lien on enough assets to cover $25,000. I guess I got it. Our claim was for money loaned. The firm had a line of credit and we had its note. Ziraphim S. Holbrook is claimant for $20,000—money loaned in his private capacity. He is a member of the Gorham Manufacturing Company, for which Matson & Co. were a valuable outlet. His attorney is William S. Plumbe. The Gorham Manufacturing Company and the Garfield Bank are represented by Smith & Pence. The firm is a corporation, and claims the assets will pay all claims, and failed because there was nothing in the business to pay the creditors and carry on trade."

The authorized capital stock was $500,000. Of this $350,000 was reported to have been paid up. The original officers under the incorporation were N. Matson, president; Z. S. Holbrook, vice-president, and L. J. Norton, secretary and treasurer. The firm did not organize under their incorporation for several months owing, it is said, to the failure of Z. S. Holbrook to pay for his subscribed share of the capital stock. The majority of the stock paid in was owned by Mr. Matson himself. Mr. Holbrook's stock is said to have been held in trust for him on his giving his notes for about $150,000. He was unable to raise the amount, and retired some time later by withdrawing his interest and taking back his notes. It is said no money was paid in by him, nor was any paid to him on his retirement. In June, 1887, the firm was again reorganized, with Mr. Matson, president; L. J. Norton, vice-president; Oscar C. Sabin, treasurer, and Edward Forman, secretary. Since Mr. Matson's death there have been no other changes in the firm, Mr. Matson's stock being held by his heirs—Kollin N. Matson, Chicago; Mrs. A. H. Andrews, Chicago; Mrs. S. M. Perry, Denver, Col.; Mrs. T. S. Hayden, Denver, Col.; Miss Anna Matson, Chicago.

President, HENRY HAVES,.....Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON,.....Of Celluloid Show Case Co.
Second Vice-President, JAMES P. SNOW .....Of G. & S. Owen & Co.
Third Vice-President, JOSIAH B. BOWDEN .....Of J. B. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS .....Of Randel, Baremore & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON,.....Of Sexton Bros. & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*,.....Of Carter, Sloan & Co.
WM. BARDEL,.....Of Heller & Bardel.
J. R. GREASON,.....Of J. R. Greason & Co.
GEO. H. HOUGHTON,.....With Gorham Mfg. Co.
WM. H. JENKS,.....With Tiffany & Co.
A. A. JEANNOT,.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box* 3,442. *P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee, held on Friday afternoon, 5th inst., there were present Vice-Presidents Snow and Johnson, and Messrs. Bardel, Houghton, Greason, Jeannot and Sexton.

Ten changes of beneficiary were granted, and the following members were admitted:

Eugene A. Crawford, Pawtucket, R. I., recommended by L.W. Wise; Edwin T. Dahlberg, Beloit, Wis., by Alex. Krailsheimer; Karl Dahn, Providence, R. I., by Ralph S. Hamilton, Jr.; Edw. B. Kittle, New York, by Thomas W. Winter; Samuel F. Myers, New York, by William Bardel; Archibald Rutherford, New York, by William Bardel; James F. Lane, Jacksonville, Fla., by Joseph H. Crosby, Jr.; Leverett S. Lewis, Brooklyn, N. Y., by Charles Lewis; and Robert Munro, Port Arthur, Ont., by William P. Cooke.

TO BROACH A HOLE VERTICALLY.—A hole in a plate, as, for instance, that in a barrel, is seldom maintained at right angles to the surface by young watchmakers when they have occasion to employ a broach. By adopting the following very simple method success may be assured: Take a long cork or a diameter rather less than that of the barrel or other object operated upon, and make a hole in the length of the cork through which the broach can be passed. When the cork has been turned quite true on its end and edge, the broach is pushed through and used to enlarge the hole; by pressing against the back of the cork it is always kept against the barrel, and the verticality of the broach is then maintained.

WORKSHOP NOTES

How to Supply Oil.—Be very careful in lubricating. The manner of doing this is much more important than many imagine, and has a greater influence upon the duration of the good performance and timing. To single out the escapement: Many watchmakers put too much oil into the cylinder, under the impression that when the wheel passes through each tooth will take its required amount. This is a bad method, because it stands to reason that those teeth which pass through first will take so much oil, that instead of adhering to the lifting faces of the tooth where it belongs, the oil will run down the tooth pillars and swim upon the bottom, acting there as a dirt trap. It is more advisable to place only a small quantity of oil in the cylinder, then pass the teeth through, and additionally lubricate the lifting face of each third or fourth tooth.

Taking out Temper of Staff.—In taking the temper out of hard staffs in order to drill without injury to adjacent parts, the following method has been found to work very nicely: Take a small piece of charcoal, as large as a pea, or larger, according to size of staff; make a hole in it, into which the end of the staff is to be inserted; then holding the staff with the pliers, direct the flame of the lamp upon the coal until it is ignited, when it can be kept in a red hot glow by the blowpipe alone, until all is consumed. This will not even blue the rest of the staff, and will usually take out the temper sufficiently to drill. If once will not do, it may be repeated several times till the end is accomplished.

Broken Screws.—I have two methods for taking broken plate screws out of American watches: 1. When it can be done, I turn them out with the sharp point of a graver. When this cannot be done, with a thin screw file I file into the end of the post until the broken screw is reached, and a slot made in it by which it can be easily raised. Some may be disposed to call it botchwork, but I cannot see that it injures the post, and when the upper plate is on and the screw in, the place cannot be seen.

Old Files.—The process of cleaning and renewing old files will be found useful, whenever there is a lot of apparently worthless files lying around the shop. Very often they do not need recutting, but are merely clogged up with dirt and grease and are of little service. To restore them, take the following advice of a correspondent: Some time ago I gathered together a lot of old worn-out files, both large and small, coarse and fine, and boiled them for half an hour in saleratus water (4 oz. saleratus to 1 quart water). I then washed them in clean water and placed them in a solution of sulphuric acid and water (4 oz. of sulphuric acid to 1 quart water). I removed the smaller and finer files at the end of forty-five minutes, but the larger and coarser I let remain for two or three hours, looking at them occasionally to see that they didn't cut too much. I then washed them thoroughly with a stiff brush and plenty of clean water, then dried and oiled them a little to prevent their rusting. I have used them for several months and think they cut as well as new files, and have lasted almost quite as long.

Gold Friction Powder.—The following is an advice given by an expert: I use a gold friction powder, which I find very handy in removing or covering over spots on gold or plated articles where the plate is worn off, and where I do not care to dip the articles in a solution. I dissolve twenty-four grains of fine gold (coin) in one-half ounce of nitro-muriatic acid, and then absorb the acid with a clean blotting paper. When the paper is thoroughly dry I burn it and pulverize the ashes, which I rub on the bare spots with chamois skin moistened with water. The spots should first be well cleaned, the same as for plating with a battery, to resist the deposition of gold upon them.

To Polish Pivots.—There are a number of ways to polish pivots. After turning the pivot down about to size, it is ground with oilstone dust and oil till the marks of the graver are removed, and a smooth "gray" or dead-white surface is obtained—the pivot now being of a size to barely enter its hole and perfectly shaped. It is then polished with sharp or hard rouge. Both the grinding and polishing are best done with slips of bell metal filed to shape and used like the old-fashioned pivot burnishers. Many workmen finish off with Vienna lime or diamantine to give a fine gloss, but this is hardly necessary if the polishing with sharp rouge is well done, as that gives a splendid black luster that is the ideal of perfect polish for steel. The polishing should not be continued too long, or the surface will become a sort of brown color and of inferior appearance. If the "gray" has been well done, a very little further manipulation will be sufficient to produce the polish, and, as soon as it is reached, the process should stop. But if the brown shows itself, the surface should again be stoned off and the polishing repeated. Some workmen take the trouble to finish the pivot in the lathe with the pivot burnisher, in order to harden the surface and make it wear better, and less easily scratched and marred. The forgoing refers to working with the live spindle lathe, but if the repairer uses the old-fashioned steel verge lathe or "turns," he is, of course, confined to the pivot file and burnisher for finishing the pivots.

The Size of the Cylinder Pivot.—To establish the size of the pivot with relation to its hole, is apparently an easy thing to do correctly, but to an inexperienced workman it is not so. The side shake in cylinder pivot holes should be greater than that for ordinary train holes; one-sixth is the amount prescribed by Saunier; the size of pivot relatively to the cylinder about one-eighth the diameter of the body of the cylinder. It is very necessary that this amount of side shake should be correctly recognized; if less than the amount stated, the watch, though performing well when the oil is fresh, fails to do so when it commences to thicken. The only accurate way of getting at the correct amount of shake is to make a pivot or two to a jewel hole by means of a micrometer; the eye will soon become capable of correctly estimating the amount necessary. If any doubt exists, a round broach can be used to size the pivot hole, and the micrometer will then decide the question.

To Clean Pearls.—Soak them in hot water, in which bran has been boiled, with a little salts of tartar and alum, rubbing gently between the hands when the water will admit of it. When the water is cold, renew the operation until the discoloration is removed; rinse in luke warm water, and lay the pearls in white paper in a dark place to cool and dry.

Influence on the Balance.—An ordinary watch beats 5 times per second, 300 per minute, 18,000 per hour, 432,000 per day. An influence brought to bear on the balance or its spring to change revolution, $\frac{1}{18}\frac{1}{8}$th part would make a variation of about one-half minute a day.

To Fix a Cap Jewel.—To fix an endstone, the cap must be held by its edge in the sliding tongs and shellac carefully applied round the edge of the hollow. It is advisable to hold the cap in a small tool formed of two parallel blades, as, when reversed so as to press the stone on a flat surface, the shellac will be spread over the endstone, from which it will be removed with difficulty.

To Straighten a Pivot.—Some watchmakers will object to the straightening of a pivot, and rather break it off and put in a new one. Some may try to avoid the labor and expense, and sometimes a pivot can be straightened and act as well as a new one, in the following manner: I put it in a pivot lathe, with or without screw collet, place in a rest just a little smaller than the pivot, first springing it as near straight as I can see or tell, then carefully run a small steel burnisher over the pivot, pressing sufficiently hard to spring it straight; the wheel will revolve under the pressure (if it does not, use collet and bow). Great care is necessary to keep the pivot from rolling out of the rest

OLD AUGSBURG MANTLE CLOCK.—An old mantle clock, made in 1563 by Jeremias Metsker, was recently auctioned off in Leipzig, Germany.

DIAMONDS IN A DUST PILE.—The wife of a nobleman, who had given a ball at his mansion in Vienna, lost a very valuable diamond centerpiece, consisting of 17 large brilliants, in the course of the evening. As is usual on such occurrences, everybody in turn was suspected of having stolen it, but the diamonds were lost nevertheless, and finally it was imagined that the centerpiece might have early next morning, together with the sweepings of the room, been thrown into the ash pit of the palace. It was emptied forthwith, its contents most carefully sifted and washed—when finally the missing centerpiece, worth a fortune, was brought to light uninjured. It is very probable that while the lady was doing the honors of the house, the piece became detached and dropped to the floor, and was providentially pushed aside instead of being troddcn on.

BEADS.—The manufacture of beads is estimated to employ 15,000 of the work people of Venice, the average value of the beads exported during the last five years exceeding $200,000. The invention of beads is said to date from the thirteenth century, and to be due to two Venetians—Miotti and Imbriani—who were urged to make experiments by the celebrated Venetian traveler, Marco Polo. As far back as 1670, the Morelli, who were then the principal bead manufacturers, had four ships at sea, carrying beads to the East on their own account, and they became so rich that in 1686 they entered the rank of the Venetian nobility, on the payment of the sum of 100,000 ducats to the republic. An extraordinary stimulus was given to this industry a few years ago by the prevailing taste for beads for trimming ladies' dresses. A great extension of the manufacture took place, and the labor was paid so high that all who could do so gave up their usual trades for bead making.

WATCH GLASSES.—The *Revue Chronométrique* once made the interesting calculation concerning the number of watch glasses used annually. It assumed the number of watches manufactured annually at 2,500,000, and that during the last fifty years more than 70,000,000 had been put on the market; there remains yet for us to add a stock of not less than 50,000,000 of old watches, which makes a total of 86,000,000 to 87,000,000 watches requiring glasses. The new watches consume nearly 4,000,000, which makes an annual consumption of not less than 47,000,000 of glasses. But we must add that every watchmaker away from a town must always have on hand an assortment responding to the wants of his customers. Then, if we take into account children's watches, lockets, compasses, etc., we find the astonishing annual consumption, which cannot be less than 100,000,000 glasses.

WATCH CENTERS OF SWITZERLAND.—Geneva is the central point of the manufacture of fine watches, the progress achieved by decorative art at that center of industry allowing of considerable ornamental taste being displayed. In the canton of Neuchatel, La Chaux-de-Fonds is the commercial center, while Locle is the home of the watch industry. The various factories are distinguished by the variety of their productions, as they produce not only ordinary watches, but also complicated instruments of precision. Jauxthal (Vaud) is known as being the principal center for the manufacture of repeaters, while Sainte-Croix produces good watches for the ordinary trade demands. The manufacture of watches by machinery has made special progress in the canton of Berne, ordinary descriptions forming the chief part of the wares produced. Machine work is also the specialty of Soleure, Schaffhausen and several other districts.

THE EARTH LOSING TIME.—After having wagged so long it is possible that the oil at the pivots of the earth is beginning to get thick; at any rate, astronomers have ascertained that it is losing time at the rate of one-half second per century. There is one consolation, however, if it ever does cease to revolve on its axis, it will be more than six thousand million years before it will stop, and in all likelihood the present generation will have died out by that time.

REWARDS FOR WORKMEN.—By a decree of the French Government, which has lately appeared, the Minister of Commerce has the power of granting medals to French workmen or employees who can show a consecutive service of more than thirty years in the same establishment, situated upon the territory of the French republic. A diploma is also presented on which are recorded the services for which the distinction has been granted.

INTERESTING DISCOVERY.—An interesting discovery was made the other day by M. Quentin-Bauchart, of Chalons-sur-Marne, in a bookstall of that town. This is the *Office de la Divine Providence*, the sole comfort of Marie Antoinette in her weary captivity at the prisons of the Temple and Conciergerie. The book, the binding of which is much worn, contains on a fly leaf the following inscription, dated October 16, 4.30 A. M.: "Lord, have mercy on me; I can no longer weep save in spirit for you, O, my children! Farewell, Farewell!—MARIE ANTOINETTE."

"NOT FOUND."—A few months ago the Council of the British Royal Institute of Painters in Water Colors, elected a foreign lady as an honorary member, and the Secretary duly sent her notification of the fact. Within a reasonable time thereafter the lady, who lived abroad, wrote to accept the honor, addressing her letter to "M. Everill, Sécrétaire, de la Société Royale des Aquarellistes." Only the other day it reached its destination, being covered back and front with post marks, and endorsed, "Not known at the Royal Aquarium."

SILVERING ON GLASS.—A process for gilding or decorating glass with gold and silver has been brought out. It is stated to be a revival of an older process, or, in other words, the discovery of a lost arts. The metal is precipitated on the back of the glass, and then coated with a protective composition which excludes the atmosphere.

MALLEABLE NICKEL.—The manufacture of malleable nickel, as the result of Mr. Garnier's experiments, has been realized by the addition of 0.3 per cent. of phosphorous or manganese; and others have found that by adding from $\frac{1}{8}$ to $\frac{1}{5}$ per cent. of magnesium, it is practicable to weld the nickel thus obtained to iron and steel, roll it out in sheets and shape it into tubes, pipes, etc. A series of tests made with the solid malleable nickel gave the following results: In the case of a 0.465 inch round bar, there was exhibited a limit of elasticity of not far from 60,000 pounds, a tensile strength of about 96,000 pounds, with an elongation of 17 per cent. and a contraction of area of 50.6 per cent. A second, 0.44 inch in diameter, had an elastic limit of nearly 41,000 pounds, a tensile strength of about 79,000 pounds, an elongation of 20.25 per cent. and a contraction of area of 45.5 per cent.

A WAY TO GET DIAMONDS.—The story is going the rounds that a young lady visited a West End jeweler, and told him that her father was going to buy her a pair of diamond ear rings, and that she would like to look at some. The jeweler, knowing her father by reputation, spread out a number of costly gems before her. She looked them over critically, and, having selected the most handsome pair, asked if she might take them home and examine them more at her leisure. The permission was promptly accorded, and the next day the young lady brought back the ear rings and said that she was not quite satisfied with them, and she thought that, after all, it might be some time before her father would indulge her taste for diamonds. "That's a great pity," replied the jeweler; "I was at —— reception last night, and I thought them very becoming to you."

TRADE GOSSIP.

Special Announcement.

From this date Mr. L. J. Mulford will take general charge of the advertising department of THE JEWELERS' CIRCULAR, and is fully authorized to represent it in business matters. Mr. Mulford needs no introduction to the jewelry trade, having been identified with the watchmaking and jewelry interests for many years. He is personally known to most persons engaged in the business, and will be a valuable assistant in maintaining the high character THE CIRCULAR has heretofore acquired.

The following persons were noticed in town during last month:

Eufaula, Ala., Mr. J. Milton.
Peoria, Ill., Mr. J. C. Woelfle.
Lancaster, Pa., Mr. E. J. Zahm.
Pittsburgh, Pa., Mr. W. Wattles.
Sherman, Tex., Mr. G. E. Cook.
Oneonta, N. Y., Mr. C. E. Ford.
Fort Worth, Tex., Mr. H. Tully.
Montreal, Canada, Mr. A. Eaves.
Goshen, N. Y., Mr. H. C. Payne.
Zanesville, O., Mr. A. H. Bonnet.
Boston, Mass., Mr. G. W. Brooks.
Corning, N. Y., Mr. T. G. Hawkes.
Augusta, Ga., Mr. Wm. Schweigert.
Poughkeepsie, N. Y., Mr. E. Caldwell.
Cincinnati, O., Mr. C. Duhme, Mr. C. Steinau.
Birmingham, Ala., Mr. Gluck, of Gluck & Black.
Syracuse, N. Y., Mr. L. Levy, Mr. D. McCarthy.
Chicago, Ill., Mr. M. Mendel, Mr. M. C. Eppenstein.
St. Louis, Mo., Mr. A. S. Mermod, Mr. Isaac Swope.
Detroit, Mich., Mr. R. J. F. Roehm, of Roehm & Son.
White River Junction, Ver., Messrs. T. M. & F. J. Bogle.
Philadelphia, Pa., Mr. J. A. Schwarz, Mr. W. J. Atkinson.
San Francisco, Cal., Mr. W. P. Morgan, Mr. G. Marcus, of Levison Bros., Mr. G. Greenzweig, who has just returned from Europe.
Cleveland, O., Mr. M. Jacobs, Mr. L. M. Sigler, Mr. P. L. Miles.
Louisville, Ky., Mr. Harris, successor to Bourquin Bros., Mr. F. J. Bourquin.

The Vacheron & Constantin watches are liked by all who use them.

The Cheshire watch is made in ten karat gold filled and nickel cases.

The Illinois Watch Company makes a large assortment of ladies' watches.

Jewelers in need of tools should write for Mr. W. W. Oliver's catalogue.

Canada Cowan, of Asheville, N. C., died on August 5, aged sixty-four.

The Jewelers' and Tradesmen' Company is advancing in popularity and usefulness.

Messrs. J. T. Scott & Co. especially invite the trade to see their "Success" initial ring.

Mr. Charles S. Platt, of 6 Liberty Place, is now in Europe, and will return in September.

Some of the prominent jewelers of Buffalo are trying to organize a jewelers' club in that city.

The eye-glass holders made by Mr. S. F. Merritt, of Springfield, Mass., are convenient to use.

Mr. Jacob N. Bonnet, of Messrs. Mulford & Bonnet, sailed for Europe early in August to buy.

Mr. Charles F. Irons, of Providence, has a large line of emblem pins and chains in solid gold.

Mr. Wm. Smith returned from Europe on the *Ethiopia* August 17, after a two months' trip abroad.

Messrs. J. B. Bowden & Co.'s stock of fine rings is perhaps more attractive now than ever before.

Mr. William Riker, of Union Square, shows some beautiful brooches in fine enameled work.

The gold filled chain of Messrs. Hamilton & Hamilton, Jr., is now well known to all "live" jewelers.

Mr. W. S. Stanley, of the Stanley & Camp Co., Milwaukee, has withdrawn from that organization.

Mr. W. H. Vogell, representing Alfred H. Smith & Co., sailed for Europe August 20, on the *Etruria*.

Mr. A. J. Lewis, of Messrs. Geo. C. Shreve & Co., San Francisco, Cal., returned from Europe last month.

Mr. G. R. Howe, of Messrs. Carter, Sloan & Co., arrived from Europe on steamer *Umbria*, August 28.

The stock of the Phœnix Glass Co. is well worth the inspection of jewelers who aim to have a complete stock.

Mr. Geo. L. Streeter, of New Haven, Conn., advertises his business for sale. See our Special Notice column.

Mr. Alfred Krower, of Messrs. Albert Lorsch & Co., has gone on a two weeks' hunt for fish in the Adirondacks.

Messrs. Smith & Holmes, of Providence, have dissolved partnership, and are succeeded by Mr. George H. Holmes.

Messrs. David F. Conover & Co., of Philadelphia, have an interesting announcement on another page of this issue.

The Hartford Silver Plate Company expect to have their new catalogue ready for distribution by the first of September.

Business is very good at present with the E. Howard Watch and Clock Co. The New York office is at 41 and 43 Maiden Lane.

The Meriden Brittania Company has a complete assortment of emblem pieces, intended as prizes in athletic and aquatic sports.

Mr. Louis Kahn, of Messrs. L. & M. Kahn & Co., who with his family has been making a tour of Europe, is expected home this month.

Mr. George A. French, representing the diamond importing house of Wm. S. Hedges & Co., sailed for Europe by the *Etruria*, August 20.

Messrs. Westen & Co., of 18 East 14th street, have removed down stairs in the same building, and now have a much handsomer office than formerly.

The Elgin is the only watch factory that runs from January 1 to December 31 without a stop, except for Sundays and legal holidays. —*Every Saturday.*

Messrs. Oppenheimer Bros. & Veith are very busy in all lines, but particularly in diamonds, of which they have a large stock, loose and mounted, in special designs.

A large lot of glass window clocks was purchased by Messrs. R. & L. Friedlander last month at a low figure, and they are now able to sell them to the trade very cheaply.

The Providence and Stonington Steamship Co. are having a new passenger boat built, which is to surpass all the others in size and elegance.

A large fire at Salt Lake City, Utah, last month, did considerable damage to Messrs. Joslin & Park, but their loss is covered by insurance.

Messrs. Barstow & Luther, of Providence, have dissolved partnership. Mr. Nathaniel Barstow will continue under the name of Nathaniel Barstow & Co.

Messrs. Corn & Clark, who recently had a sample trunk lost by the Lehigh Valley Railroad Co., secured a favorable settlement of their loss shortly afterwards.

The Towle Manufacturing Company are having marked success with polished ware, and the "shell" pattern in spoons and forks is noted as especially desirable.

If Keokuk, Ia., is such a city, as a recent issue of the *Daily Democrat*, of that place, seems to indicate, then it is indeed a wonderful city of enterprise and growth.

The Columbia Watch Spring & Jewel Co., of Elgin, Ill., is a new organization incorporated by Messrs. H. N. Mosely, L. N. Jackman, E. C. Lovell and V. S. Lovell.

Messrs. Goddard & Moses, of Richmond, Va., are having a new store built which they expect soon to occupy. Mr. Harry M. Moses, of this firm, was in town last month.

Mr. P. L. Miles, of Messrs. P. L. Miles & Co., Cleveland, O., was in town last month, and took a look into the office of THE CIRCULAR, of which his firm is an old subscriber.

The value of the gold raised from the Russian soil in 1886 was computed at 25,736,000 roubles, as compared with 30,869,000 roubles in 1885, and 32,084,000 roubles in 1884.

Mr. Herman Werner, of Ansonia, Conn., has sold out to Mr. D. H. Blinn, formerly salesman for Mr. J. F. Bullard, of Middletown. Mr. Werner expects to open another store soon.

The newly patented street clock, made by Mr. A. Staib, of Baltimore, Md., is easily put up, and should be seen by jewelers in need of such a convenience in front of their store.

Microscopic air and liquid bubbles exist in many crystals of minerals, no less than 4,000,000 having been estimated to have a place in a cube of quartz one twenty-fifth of an inch square.

The show rooms of the New Haven Clock Company in Park Place are arranged in excellent taste. Many new designs in novelties for the fall are shown, and the array of new clocks is imposing.

The Dennison Manufacturing Co. is up to its usual standard of excellence in the matter of novelties for jewelers, in boxes, cabinets, bags, etc., for jewelry, opera glasses and other knick-knacks.

An excellent assortment of precious stones of all kinds is to be found at Mr. Charles Magnus' office, 18 John street. He has some particularly fine rubies and fancy stones mounted in rings and brooches.

Messrs. L. Straus & Sons, of 42 to 48 Warren street, who carry a complete line of artistic china, glassware, clocks, bronzes, etc., make a specialty of such goods as are best adapted to the needs of the jewelry trade.

The watch material and tool department of Messrs. Cross & Beguelin is in the hands of a most systematic corps of clerks. We notice also that the jewelry department is enlarging its stock of fine diamond goods.

Some theatrical managers have a good deal of enterprise. Last month one of them sent a Mutual District messenger boy to England to deliver a few "souvenirs" of his latest play. The boy was gone thirty-two days, and though his expenses were large, sufficient return was brought to the manager in the advertising of the play as a result of the boy's trip.

Messrs. Rogers & Brother have put a large mirror at the rear end of their beautiful store in Cortlandt street, which entirely covers the wall. It also reflects the store, which thus appears to run through the entire block.

The Gorham Manufacturing Company illustrate "The Laurel" design on spoons and forks in their advertisement this month. This design is quite up to the standard of artistic merit for which this company is noted.

The Wichita (Kansas) Watch Company was incorporated on July 25. Capital stock, $250,000. The directors are Messrs. William Griffenstein, George C. Strong, M. Ady, N. A. English, C. F. Coleman and James S. Coleman.

The sixty-first issue of the Waltham price list, quoting all the newest goods and changes, has been published, and can be had upon application to Messrs. Robbins & Appleton, the general agents for the American Waltham Watch Co.

Mr. Henry W. Price has been elected president of the Rockford Watch Company. He formerly held the position of vice-president. He is the right man for his new office, and the company is to be congratulated in having so efficient an officer.

Messrs. Howard & Son are making their famous American lever buttons in an improved manner. The post, in the "perfected" style, is shorter than in the old style, and yet, when the lever is open, it allows more space for insertion into the cuff.

Mr. R. N. Peterson, of the firm of Peterson & Royce, during his recent visit to Europe procured a fine assortment of very choice goods in the line of blue white diamonds, fine rubies, emeralds, sapphires, etc., in addition to the usual grades of goods.

Mr. Henry Schade, the manufacturer of silver plated ware, cutlery, etc., of 56 Ainslie street, Brooklyn, has just issued a very handy pocket catalogue. It is of convenient size for the pocket, yet contains a full set of illustrations of his excellent line of goods.

The "perpetual motion" ear ring, made by Messrs. W. C. Edge & Sons, is made on so good and simple a principle, that the makers have begun to manufacture some brooches and lace pins with a white stone pendant, hung in the same manner as upon the ear ring.

We are pleased to learn that the Julius King Optical Co., owing to their rapidly increasing trade, have moved their Cleveland office into much larger and more convenient quarters. The office and factory are now located at Nos. 177, 179 and 181 Superior street.

Messrs. L. Adler & Co., 44½ Maiden Lane, have placed a new electric motor in their establishment which makes their facilities for manufacture much larger than before. Mr. Jacob Adler is now on his western trip, and his stock of diamond goods is quite complete.

Messrs. A. Krailsheimer, Millard Veit, D. H. Lohman, E. M. Bracher, A. Green and S. H. Veit, travelers for Messrs. Lissauer & Sondheim, are on the road, and all send in reports of good business, with very bright prospects for the fall. The new designs of watch cases are selling well.

Emblem pins and charms are illustrated handsomely in the catalogue of Messrs. J. W. Richardson & Co. This firm is well-known as making a specialty of everything in this class of goods, and the quality and workmanship are of the best. The catalogue is sent to jobbers on application.

Messrs. W. C. Edge & Sons, the patentees and manufacturers of the well-known woven chains, are about to commence suit to protect their patent, which is No. 143,503. This patent covers their new style of knot and loop vest chain, and the trade is warned against using infringements of it.

The old firm of C. Preusser & Bro., of Milwaukee, Wis., has been organized into the C. Preusser Jewelry Co., with Mr. C. Preusser, President, Mr. C. J. Kasten, Vice-President, Mr. W. F. Gustav Kuechle, Secretary, and Mr. H. Preusser, Treasurer. The store will be enlarged to twice its present size.

The *Bretagne*, on its last trip from Europe, brought home Messrs. C. H. Jacot, of Jacot & Son, R. A. Kipling, C. Cottier, Jr., J. Wertheimber and A. Becker. Messrs. Max Freund, Albert Lorsch, D. Valentine and H. T. Cook (Jos. Fahys & Co.) came home on the *Etruria*.

Messrs. Jacot & Son exhibit in their advertisement this month a few illustrations of their novelties in music boxes for the fall. They have made extensive preparations for the coming season, and have ample stock to supply orders, and a large assortment to satisfy particular buyers.

The Julius King Optical Company exhibit in their advertisement this issue, an interesting illustration of their "pupilometer," an instrument to determine the exact distance between the pupils of the eyes. The utility and value of the pupilometer is at once seen in this illustration.

The *Atlanta* (Ga.) *Constitution* takes half a column to tell of the beauties of the new decorations in the store of Messrs Freeman & Crankshaw, in that city. If the description of the place is not exaggerated, there are but few jewelry establishments in the country that will compare with this one.

Messrs. Hutchison & Hnestis are having an excellent trade. For the months of July and August their sales surpassed in amount those of the same months of the previous years since they have been in business. They manufacture a large line of rings for ladies and gentlemen, mounted with all varieties of stone.

Mr. James W. Hagan, of Miller Bros., was married on August 24, to Miss Emma J. McKibbin, at the residence of the bride's parents, No. 236 W. 48th street. The wedding was a private affair, only a few friends being present. After the ceremony the young couple went on a trip which is to last about two months.

A full line of ladies' silver girdles can be seen at Mr. Geo. W. Shiebler's, 6 Liberty Place. For those styles which have the chain attachments, Mr. Shiebler has all sorts of articles to hang on them, such as vignettes, memorandum books, snuff boxes, and everything else of which only a woman knows the name and use.

Rich quality of stationers' ware of all kinds forms a large part of the stock of the Boyd & Abbot Co., 23 Warren street. Much of this kind of goods, such as fine cut glass inkstands, brass pen racks, ornamental paper cutters, fancy rulers, envelope openers, etc., is now carried in the stocks of all retail jewelry stores of the better class.

By Beyrut, Syria, papers we observe that Consul General Bissinger gave a fine entertainment on the Fourth of July, to which was invited all the representatives of foreign governments. The celebration was kept up far into the night, and there were fireworks and feasting upon a style creditable to the representative of the United States.

The first coining of money is attributed to Pheldon, King of Argos, in 895 B. C. Coined money was first used in that country twenty-five years before the Christian era, but gold was not coined there till the eleventh century, and money was not given the round form to which we are accustomed until the lapse of another hundred years or so.

An excellent opportunity to start in the retail business in one of the finest locations in Boston, Mass., is offered by one of our advertisers this month. Any person interested may note the advertisement of J. W. S. in our Special column notice, and put himself into communication with him. The store is one of the finest retail stores in Boston.

A subscriber wants to know the process of oxidizing copper or other metals a chocolate color, by means of a bronze known as "Gorham" or "Royal" bronze. This chocolate color or finish is being used much upon chandeliers, lamps, etc., and it may be interesting to know how it is done. Can any of our readers enlighten us? Our correspondent uses a solution made of grape sugar and tincture of vitriol, but can only succeed in producing the desired color upon one side of the copper.

Messrs. Roehm & Son, of Detroit, Mich., opened their fine store on August 6, and several local papers give them a lengthy notice. It is a fine store and one of which Detroit may well be proud. And we notice that the safe, made by the Detroit Safe Company, is so well made, that the most expert burglar will require a steady job of sixteen hours to open it.

Joseph Stewart, recently the head porter of Messrs S. F. Myers & Co., died August 21, aged 43. He resigned his position with Messrs. S. F. Myers & Co. a short time ago on account of ill health, and secured the position of janitor of the building. He had made many friends by his obliging and painstaking disposition, and his death is regretted by all who knew him.

Messrs. King & Eisele, of Buffalo, are removing their factory to the building Nos. 198 and 200 Terrace street, in that city. In the new factory they will have double their present capacity, and will put in a 20-horse power engine. In a communication which they sent us before their removal, they said that they were unable to manufacture goods enough to supply orders.

Messrs. B. & W. B. Smith desire to have it remembered among the jewelry and silverware trades, that they are willing to offer suggestions to any who are contemplating fitting up an establishment. All they need is a ground plan of the store, and, with their long experience in the business and facilities for prompt planning, they will soon send back a valuable "suggestion."

The Middletown Plate Company illustrates in this issue an elegant pattern of a French coffee set. The rich design in scroll work is beautifully done, and the peculiar shell-like edging of the waiter, which is matched on the covers and handles of the other pieces is very neat. A new catalogue has been issued by this company, and will be sent to any reliable dealer upon application.

Messrs. Bowman & Musser, of Lancaster, Pa., insert a beautifully printed inset in this issue to which we desire to call attention. A fine illustration in colors is given of "The Lancaster" engraving block, but the block must be seen and used to be really appreciated. Messrs. Bowman & Musser also give a few points upon the manner of their doing business which are worth imitation.

A million and more of patented wire glove buttoners, with chain and charm attachment, are being made by Mr. C. B. Wilkinson, 42 John street. Mr. Wilkinson has secured the order for them from the patentee, and is making them in silver plate, oxidized. The buttoner is of very simple construction, being merely a wire bent and twisted to the proper shape and size. They are also made in solid silver and in gold.

Mr. G. A. Paillard, of M. J. Paillard & Co., while bathing at Elberton, N. J., on August 7, attempted to rescue a friend from drowning. The tide was going out rapidly, and Mr. Paillard and his friend were carried out to sea. Among the other bathers was a Mr. Mitchell, who swam after the two men, and, after overcoming great difficulties, rescued them both. Mr. Paillard was confined to his house for several days.

In a conversation with a retail jeweler recently, the jeweler said he sold a large quantity of Waterbury watches. He said he liked the new arrangement the company had made with retail dealers, and liked to sell the watch. "There is very little trouble to sell the watch," said he, "and no need to guarantee its keeping good time; consequently the profit on a Waterbury watch, taking everything into consideration, is very satisfactory."

The assortment of elegantly cased self-winding clocks at the salesrooms of the American Mfg. and Supply Co. is growing larger every week, and the display now made is quite sufficient to show the desirability of these accurate timepieces. Small glass signs with the words "self-winding" are now furnished with each clock, and are placed across the glass door beneath the dial. They are neatly made and lend attractiveness to the clocks.

Messrs. L. Hammel & Co., of 35 Maiden Lane, wish to call the attention of the trade to the fact that they are the sole importers of the gravier mainsprings, manufactured by J. Robert & Co., in Chaux-de-Fonds, and in proof of this direct attention to the fac-similes of the wrappers in which they are packed, which have not been changed for forty years. The fac-similes and price list of the above will be found in the August number of THE CIRCULAR.

Among the latest novelties in clocks for window display are several attractive ones imported by Mr. Charles Jacques. One of these is a large balloon which revolves incessantly. The idea of a balloon is a happy one for a display clock, and when Mr. Jacques had one in his window a few weeks ago, every passer-by stopped to look at it. Many other designs said to be equally as good are now on the ocean, and may be seen shortly at Mr. Jacques' salesroom, 2 Maiden Lane.

The Chas. D. Pratt Co., of 33 Chambers street, has been continually receiving cases of novelties from Vienna, Paris, Berlin and other places in Europe, and some of the goods are now displayed in their show rooms. This is a good field for jewelers to pick up all sorts of new things in bronze, brass, terra-cotta, porcelain, onyx and wood. Fine articles of stationery, smokers' sets, leatherware and artistic pieces of a new kind of ware are shown among the novelties. French clocks and bronzes form an imposing part of the stock of this company.

An interesting display of illustrations of new clocks may be seen in this issue, in the advertisement of the E. N. Welch Mfg. Co. The cuts there shown represent a few of the new styles which this company has introduced for the coming season. In all varieties of cases new designs are shown, and in novelties especially there is a fine display. In the matter of finish upon fine polished wood and iron cases, this company has achieved a high standard, and superior movements only are used in them. Catalogues can be had upon application.

An attempt was made a short time ago upon the safe of Messrs. F. M. Whiting & Co., in their office in North Attleboro, Mass. It was unsuccessful, however, and it is believed that the thieves were foiled by the approaching daylight. There were three men in the party, and they overpowered the night watchman at one o'clock and gagged and bound him securely. Then they worked upon the safe. But it was a tough job evidently, as they departed without success, leaving some of their heavier tools. No clue has as yet been discovered of the burglars.

Among nine new patterns of enameled iron clocks made by the F. Kroeber Clock Co., are several particularly showy ones "for little money." One of these is the "Cimbria," a medium size clock, with imitation marble columns at each side and a handsome bronze figure on top. The other patterns are a trifle more expensive, and are rich and elegant. The "Saxonia" has some fine ornamental bronze work at the sides, which, with a neat figure of bronze on top, contrasts well with the other portions of the clock. A supplemental catalogue will soon be issued by this company.

Such a large stock of mounted diamonds and precious stones as that of Messrs. Falkenau, Oppenheimer & Co., is rarely seen. A representative of THE CIRCULAR was shown through a portion of the stock one day last month, and the size and complete assortment of all sorts of articles astonished him. There was a great variety of fancy pendants and brooch ornaments; a long roll of fancy bracelets, with clusters of superb gems and beautifully cut emeralds, rubies and sapphires. One roll of rings was literally filled with the most complete line of cluster rings ever seen. Some elegant combinations of opals, turquoises, rubies, sapphires and emeralds with diamonds are shown, and the goods used are all of the finest material and some are especially cut to match. The large stock of goods at the office is only a fractional part of the entire stock of this firm, and several travelers carry quite as large a stock with them on the road.

The country round about Waltham, Mass., seems to be bothered with the tricks and fraudulent devices of some traveling spectacle and eye-glass peddlers. "Nine times out of ten," says the *Waltham Free Press*, "they are arrant frauds, and as one does not know which of the ten is the honest one, it is best to shun them altogether. The eyes are too delicate organs to trifle with. Our local dealers, as a general thing, can sell our people just what they want at a reasonable price, and if the article is not satisfactory, the customers know where to go to have any mistake rectified."

The Jewelers' Mutual Aid Society, of San Francisco, held its fourth annual meeting in the latter part of July, and installed a new set of officers. The objects of this society are to unite fraternally those connected with the jewelry trade; to educate its members socially, morally and intellectually; to establish a fund for the relief of its members when sick or in distress; to interest themselves for the welfare of the various branches connected with the jewelry manufacturing trade, and to assist each other in obtaining employment. The society has had gratifying success so far.

"A young man who works in the timing room of the Elgin watch factory," says *Every Saturday*, "claims to have at his home a machine which he has invented which solves the question of perpetual motion. He made his great discovery in Switzerland several years ago, but has kept it quiet for fear the fame that would fall to his lot, should his discovery be discovered, would be more than he could bear. The large rewards offered for a perpetual motion machine by the governments of numerous countries is another reason for our inventor keeping dark. He abhors publicity and wealth."

Messrs. Tiffany & Co. recently shipped to Halifax the cups for the jubilee regatta, which have been subscribed for by prominent residents of New York and Boston. The large cup is over 2 feet in height, elegant in design and rich in workmanship. It cost over $1,000. Among the subscribers are Oliver Wendell Holmes, George William Curtis, Gen. Butler, Allen Thorndike Rice, John Jay Knox, Commodore Bateman, Erastus Wiman and others. Mr. Wiman has acted as treasurer, and, with Mr. T. McGrath, has approved of the design. The races took place last month and attracted much attention in yachting circles.

Messrs. R. G. Dun & Co. have issued a classified list of all the jewelers and others in kindred lines in the United States and Canada, giving the name, business and commercial standing of each firm. This is a new departure for Messrs. R. G. Dun & Co., and should prove of advantage to the trade. Hitherto this firm has included in its reports of business changes, the ratings and changes of all branches of trade in the country; and now, with many years experience and larger facilities than ever, they have begun to issue this special book to the jewelry trade. Attention is called to an advertisement of the book upon another page.

Mitchell, Vance & Co., the largest dealers in gas fixtures in the country, went into liquidation last month. Mr. Thomas F. Gilroy, a Tammany Hall politician, was appointed receiver, much to the dissatisfaction of the stockholders of the company. The *New York Tribune*, in one of its reports of the failure, cast a stain upon the memory of the late Dennis C. Wilcox, formerly president of the company. It said that the corporation was brought to its insolvent condition through Mr. Wilcox's speculations, etc., whereas the truth really was that it was mainly through his endorsements of the paper of the company that it held up as long as it did.

Mr. N. J. Felix, of 71 Nassau street, makes a specialty of repairing watch cases, and it makes little difference how badly a case be broken, if it only have enough of it left to fix, he can fix it. Recently a jeweler in Virginia sent a broken locket to a watch case company to be repaired. The company sent it back with the remark that they could repair pretty bad cases, but that that locket was beyond repair. Then the jeweler sent it to Mr. Felix. It is probably as bad a job as Mr. Felix has ever undertaken, but the locket has been repaired in very good style and is now in the possession of the happy owner. This is what may be called a "triumph of skill."

One of the most novel styles of finish upon silver plated ware is shown by Messrs. Simpson, Hall, Miller & Co. It is called the "Vienna" style. It is made in several varieties of fancy baskets, and consists of an oxidized silver outer surface, either ornamented or plain, and a gold lining. The baskets are all of odd shape, and the handles of some are ornamented with flower and leaf work in oxidized silver. Smokers' sets are also made in this "Vienna" style of plated ware, and the effect is most novel and pleasing. This firm have also introduced several new designs of fairy lamps, mounted in silver, and some have a small clock attached, making a convenient night clock.

A watch having but one wheel is still in existence in France, though manufactured in Paris more than a hundred years ago. This watch was presented to the National Institute in 1790, being then in a deplorable state, but under the skilful treatment of an expert, harmony between the various organs was successfully re-established, so that it is even now in going order. The great wheel, which gives the watch its name, occupies the bottom of the case and the center of the plate; it has sixty teeth, its axis carries two pinions, one of which receives the motive force from a barrel, and the other carries the minute work. The function of this great wheel is quadruple. First it acts on a lift, then on a lever operating on another destined to lower the axis of the watch, and lastly on a third lever, the latter serving to return power to the great wheel at the moment when the action relents by the rise of the axis.

A watchmaker in Providence, R. I., was in the habit of putting a ticket on watches he had repaired, and hanging them in his window. On the tickets he wrote the names of the owners and the amounts to be collected for the work. One day last month a shrewd sharper came along, and, spying a fine gold watch in the jeweler's window, took note of the name and the amount on the ticket. Soon afterwards he procured the assistance of a messenger boy, who took a letter to the jeweler, together with $1.50, the price of the repairs. The letter was signed with the owner's name, and informed the jeweler that he could not come in person, but to deliver the watch to the messenger who would pay for it The jeweler thought it was all right and gave the boy the watch, and received the $1.50. Later in the day the real owner of the watch called, and both he and the jeweler were much surprised, and the fraud began to dawn upon them. A search among the pawnshops in town, however, resulted in finding the watch, and the jeweler willingly paid for his lesson. It's a poor plan to hang watches in a window with the owner's name and price for repairs in full view of the passing public.

The *American Stationer* says that from two to four million dollars' worth of gold are used annually in the shape of foil for gilding, lettering, edging of books, sign and ornamental painting, and dentistry; gilding taking the greater share. A cubic inch can be beaten out so as to cover 3,500 square feet, and twenty double eagles can be drawn out into a wire that would girdle the globe. For foil, bars 8x1x½ inches are cast, and then rolled into "ribbons" as thick as a finger nail. These are then weighed into packages called "beatings," of 2½ ounces each. One of these is divided into 180 pieces one inch square and built up into a "kutch," a layer of gold alternating with one of prepared paper 2½ inches square Then with an eighteen pound hammer a kutch is beaten till the gold has spread out as wide and long as the paper. Next they are piled in "shoder" (which are made of pieces of square goldbeater's skin each four inches), and beaten till the slips of gold spread as large as the slips of leather. The prepared paper is a peculiar kind of parchment made from calfskin, and the goldbeater's skin from the large intestines of the ox. These four inch "shoderleaves" are quartered into pieces of two inches square, and packed again into moulds five inches square, and beaten till spread to nearly the same size as the moulds, which are made of the same stuff as the shoder. They are now ready to be sent to girls to be trimmed and put up into books holding twenty-five leaves, each three and a half inches square. These books are sold singly or in packs numbering twenty books.

One of the finest—probably the very finest—music box ever made, is to be seen at Messrs. M. J. Paillard & Co.'s. The case was made in this country by one man, an employee of the firm. The works were specially imported and are of the best quality. The case is composed of a large table resting on curved legs, and above stands the music box. Beneath this are six drawers for the extra cylinders, each drawer having places for six. The case is finished with the most beautiful veneering highly polished, and the insides are black. The instrument will play something like a hundred and twenty pieces, and is worth in the neighborhood of $4,000. Messrs. Paillard & Co. are doing an extensive business at present in their "Gem" boxes, made in the best style and with all the latest improvements in patented safety checks, etc. The cylinders are all changeable, and in all grades of boxes made by this firm the airs can be changed at will. The "Gem" boxes are made in styles ranging in price from $60 to $150 at retail. Extra cylinders can also be procured to fit them, which cost from $10 to $30. For the fall trade Messrs. Paillard & Co. have a large stock of novelties. Besides music boxes, they keep in stock a fine lot of cuckoo and musical clocks. They must be seen to be appreciated.

Enameled iron clocks are having their day. There is nothing so popular just now in the clock line as one of these imitations of marble clocks. And well may they be popular. In appearance they are rich looking—none but an expert can distinguish them from a real marble clock—they are cheaper and quite as durable. Most of the clock companies make them, and are producing new patterns all the time to acquire a sufficient variety to meet the demand. There is much capital expended, too, in making these iron clocks. In the first place is the design, which requires the skill of no common artist. Then a model has to be made in solid bronze. Then another in polished steel. From this the castings are made in iron, and then each piece of iron must be polished separately, after which the enameling is put on. As an instance of the popularity of iron clocks, may be mentioned what a prominent dealer said the other day. He said that he recently received an order for a few from a country in South America, where the duties are exacted at so much a pound. On these iron clocks the duties were very high because they weighed so heavy; yet, notwithstanding the high duty, he has since received large orders for them.

The accident to an excursion train on a bridge near Chatsworth Ill., last month, is a timely though a sad and costly warning to all who have read it. Nearly a hundred people were killed, and many more were confined to beds of lingering suffering, while those who remain uninjured have learnt as severe a lesson as needs only to be once learned in a lifetime. A bridge, over which trains had run daily for many years without the slightest danger, at last gave way beneath the tremendous weight of this excursion train. Nearly a thousand souls were aboard, and the engineer sped the train along at a remarkably swift rate. All of a sudden the bridge gives way, part of the long train falls into the stream bed below, and a thousand men, women and children are in peril of their lives. Luckily no fire started or the horror would have been tenfold, and the uninjured were at liberty to help and extricate the others from the debris. The cause of the disaster has been assigned to the weather. It had been so warm in that section lately, and there had been so little rain, that this was given as a cause for the decay of the rapidly drying timbers of the bridge. Fires had been noticed about the structure shortly before the accident, said to be caused by the heat of the sun's rays, and it seems that this may be cause of it. But is well known that all through the West the railroads are but poorly and cheaply built affairs. The tracks were built many years ago when railroads were mere investments, and not subject to strict laws regarding stability and strength. Illinois and other States will now do well to look into the affairs of their railroads, to examine the conveniences and safeguards they offer their patrons, and to pass laws for the protection of the lives of the traveling public.

It is only in recent years that elegant and sightly lamp chinneys have been designed. In one of the latest forms for table lamp the foliated tinted border of cut glass, encircling the central glass, supports at different points a single artificial flower with stem, colors being selected with reference to pleasingly contrasting hues. The circular base is of beveled plate glass, with border of small concave mirrors sunk beneath the surface level.

The house of the near future, says the Boston *Journal of Commerce*, will have no fire-place, steam pipes, chimneys or flues. Wood, coal oil and other forms of fuel are about to disappear altogether in places having factories. Gas has become so cheap that already it is supplanting fuels. A single jet fairly heats a small room in cold weather. A New York artist has produced a simple design for heating entirely by gas at a mere nominal expense. It is a well-known fact that gas throws off no smoke, soot or dirt. The artist filled a brazier with chunks of colored glass and placed several jets beneath. The glass soon became heated sufficiently to thoroughly warm a room 10x30 feet in size. This design does away with the necessity of chimneys, since there is no smoke; the ventilation may be had at the window. The heat may be raised or lowered by simply regulating the flow of gas. The colored glass gives all the appearance of fire; there are black pieces to represent coal, red chunks for flames, yellowish white glass for white heat, blue glass for blue flames, and hues for all the remaining colors of the spectrum. Invention already is displacing the present fuels for furnaces and cooking ranges, and fast does away with such disagreeable objects as ashes, kindling wood, etc.

Though there are many kinds of inks made, and many different grades and qualities and colors, there is none which can be produced which can of itself withstand the damaging effects of time. When air attacks the fluid parts of which ink is made, it causes evaporation, and the solid particles settle at the bottom as a kind of sediment. In one day sufficient evaporation is thus caused to materially impair the quality of the ink. Then again, if ink be exposed to air it will allow particles of dust to fall into it, which also settle to the bottom and increase the amount of sediment, and consequently spoil the ink to a greater degree. But recently a jeweler invented a new kind of inkstand, which is perfectly air and dust-proof. It is provided with a glass tube and funnel through which the ink reaches the pen, but no air can get through it to attack the ink. The ink, consequently, is pure and fresh, and remains so always. There is no loss of ink through evaporation, and it is a well-known fact that a great proportion of the ink of the world escapes in that way. During the past month we received inquiries of this inkstand, and we would say in reply that they are made by Mr. P. Hartmann, of 36 Maiden Lane. They are sold to the jewelry and stationery trades, and are made in a style especially adapted to the jewelry trade.

It has gotten to be a chestnut for a man to speak of the "prospects" for the fall trade, and yet a careful look at the present condition of things shows trade to be in a remarkably active and healthy condition, and extensive preparations are being made on all hands for a large fall trade. This is most noticeable at the fancy goods dealers' and dealers in kindred lines, possibly because of their wares being kept in sight upon shelves and tables; and the quantity of novelties for the fall is truly astonishing. It does not seem that the buyers for these houses have used sufficient caution in purchasing such large stocks, but when spoken to they speak most confidently of their ability to dispose of them. In jewelry a brisk demand is noticeable for all classes of goods. Manufacturers of all kinds of gold, silver and plated goods have made up an imposing variety of patterns for this season, and have made them in large quantities. The jobbers are not buying largely, so they say, but they are still buying more than in previous years. The best sign of all, however, is that retail dealers are exercising more caution in buying. They are buying many goods, it is true, but not more than they are able to dispose of. Goods are moving fast, and the coming autumn months will tell whether the strong indications for good business have had any foundation under them.

Mr. H. J. Olney is the new representative in New York and on the road of Messrs. C. E. Smith & Co.

A meeting of the creditors of J. C. Wilber was held on August 9 at the Board of Trade rooms, in response to a call from the trustees. at which a full report of affairs was to be made. Mr. Wilber was expected to be present but he did not come. There were not many creditors represented, probably owing to the season, as many are away on vacations. The meeting chose Mr. George C. White, Jr., of Rogers & Brother, Chairman, and Mr. R. Mason, Jr., of Potter & Buffington, Secretary. Mr. Marsh, Secretary for the trustees, read their report, and also several interesting letters, telegrams and other documents which have come into his hands as such Secretary, which show conclusively that Wilber is not doing all that is in his power to further the interests of his creditors. As an instance of his opposition to the work of the trustees, was mentioned a mortgage of which the trustees had possession, and which had not been formally transferred to them. Wilber obtained an assignment of this mortgage to his wife without the knowledge of the trustees. Other telegrams show that Wilber was doing all he could to prevent the trustees from collecting some of his accounts, by representing to his debtors that he would protect them and asking them not to pay. There were somewhere in the neighborhood of $47,000 of accounts due Wilber, and of this large amount not the slightest estimate can be made as to how much is collectible, if indeed any is collectible. Mr. C. N. Thorpe, one of the trustees, spoke of the work of the trustees in the matter, and of the thanklessness of their undertaking. They had been hampered in every direction, had gone to much personal expense and labor, and had done the best they could. Before the meeting adjourned, Mr. Thorpe moved that the Chairman and Secretary be authorized to issue a circular to the creditors giving a detailed result of the meeting, and that a meeting be called for the latter part of September to take further and decisive action.

The robbery of Mr. G. W. Fairchild, of Bridgeport, Conn., on July 17, was the first one of importance which ever occurred to a member of the Jewelers' Security Alliance, and there is no doubt that it will be a great while before another occurs. Mr. Fairchild is a member of the Alliance, and immediately upon learning of his loss, he telegraphed to Mr. Bowden, chairman of the Executive Committee, and to Pinkerton's Detective Agency. In a short while expert detectives were detailed upon the case, and they soon struck upon the right clue. The clue was a piece of black silesia. The burglars had used it as a screen while working at the safe, and the detectives found the dry goods store where it had been bought and got a description of the man who had purchased it from one of the clerks. This description also tallied with that given by the barkeeper of the saloon next door to Fairchild's store, and it also tallied with that of a noted criminal in the records of the detective bureau. All that remained was to find out the whereabouts of Mr. George Feyth, alias this, that and the other, who is noted as a professional burglar, and an expert at fitting keys to locks and all the other mysteries of his craft. His past history was at the fingers' ends of the detectives, and they knew that he had but recently returned from Europe laden with the spoil of many burglarious enterprises. He was found and kept "shadowed" for several days, and then arrested in Jersey City. While being "shadowed," the detectives found him investigating the style of locks used in different makes of safes, and visiting jewelry establishments in the vicinity of Maiden Lane. They believe he was contemplating a burglary hereabouts. But now he's in jail, thanks to the good work of the Jewelers' Security Alliance, and our congratulations are extended to it and to every member of it. Mr. Fairchild's goods will be recovered, most of them, and he will be better able to stand a small loss than a large one. And we congratulate the whole jewelry trade that they have this Alliance for their benefit if they will but join it. The Alliance has the able Pinkerton Agency in its employ, and practically an unlimited capital to spend to hunt up a criminal who dares to tamper with the safes of any of its members. Success to the Alliance!

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GOSSIP OF THE MONTH.

AFTER the recent earthquakes at Charleston, the insurance companies that were interested in the losses there appointed a committee to examine the buildings all through the city and ascertain the number that had been injured and the extent of such injuries. The report of the committee shows that 6,956 buildings were damaged more or less seriously. The relief committee distributed $640,000 for repairing 2,200 buildings, the remainder being repaired at the cost of their owners. The average amount allowed by the committee for repairs was $290. Few cities would have pulled through so great a calamity with so little help from the outside.

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WHEN a break in the machinery causes a factory to be closed for a day during the busy season, the workmen regard the enforced stoppage and the loss of of wages as a great hardship, but when an idiotic legislature enacts a law naming a certain day in the very heart of the busy season as "Labor Day," and directs it to be observed as a legal holiday, the workmen make haste to take full advantage of it, no matter how much inconvenience it may cause their employers. It is to be hoped that the workingmen see the utter folly of idling away a day when their services are greatly in demand, and that another year they will dispense with their procession and other nonsense. Such a holiday at such a time is "better honored in the breach than the observance."

A SUCCESSION of heavy gales made a sea voyage during the past month anything but pleasant. Nearly every steamship that arrived at this port bore evidence of having had a most boisterous voyage, and passengers who have crossed the ocean on numerous occasions report that they never had such a rough time as during their last September trip. Among the arrivals were various representatives of jewelry houses who had been abroad in the interests of their firms, and they were pretty badly shaken up. One of these, who prides himself on being a good sailor, who experienced no difficulty during the voyage out, was unable to leave his stateroom on the return trip from the time the vessel sailed till she arrived. He says the sight of salt water now makes him sea sick.

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DEALERS who are in the habit of sending out voluminous catalogues, price lists, etc., will be both surprised and annoyed to learn that the Canadian government has recently taken to seizing all such as are sent into the Dominion by mail and levying a duty on them. At least a dealer in machinery complains that a catalogue sent by him to Hamilton, Ontario, was so seized and on his writing to the collector at that place, he was informed that all such publications were dutiable. This is rather a petty business for a great government to indulge in. It has always been represented that Canada desired to cultivate the closest commercial relations possible with us, and our people have reciprocated that sentiment fully, but if such paltry hindrances as this are to be thrown in the path of trade and commerce, it is not likely to be developed very rapidly.

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THERE are 50,000,000 silver dollars stored in the vaults of the Philadelphia Post Office, as the Mint in that city is so crowded that there is no room for them. It is expected that this silver coin will be shipped to Washington eventually, as the vaults now being constructed in the Treasury building will be capable of holding just about the amount above named. Notwithstanding the trouble and expense of storing and guarding this coin, the Philadelphia Mint continues to coin silver dollars at the rate of $1,700,000 a month, and the New Orleans Mint turns out $900,000 a month. The country is already flooded with silver dollars, which every one declares to be a nuisance, and it is becoming quite a rarity to receive bills in change. A short time since persons used to apologize if they were forced to offer two or more silver dollars in change, but now the only excuse for loading one down with them is that there is no other change to be had. A half-a-dozen silver dollars in one's pockets is about enough to anchor him permanently to one place. They are in every way an abomination, and the sooner Congress stops their coinage, and authorizes the issue of bills of small denomination to take their place, the better the business community will be satisfied.

EMPLOYERS have, we presume, noticed that the traveling expenses of their representatives on the road have been increased somewhat of late, and may have been puzzled to know the reason for it. The inter-state commerce law is responsible for it, at least to some extent. Under the recent decision of the Inter-State Commission, railroads are prohibited fro n selling tickets to commercial travelers at less than the regular rate, as they had been in the habit of doing previously. Commercial travelers must in future pay full fare every time they take a trip, and, of course, their employers find the extra amount charged in their bills of expense. While the railroads are complaining loudly of the law in some respects, in others they are great gainers. For instance, it has virtually destroyed the deadhead system, and it is stated that the money value of the passes given on some of the leading lines of road was from $500,000 to $1,000,000 a year. If they now receive such sums in lieu of passes, they ought to be able to reduce the price of passage all around.

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IT WAS rather amusing that the very first use made of the life-saving rope which the last legislature required to be placed in each room of every hotel in this State, was to enable an enterprising young man to escape without paying his bill. The landlord was naturally very indignant, and his remarks regarding the legislature were anything but complimentary. The law is certainly a most absurd one, for a plain rope in a room on the seventh or eighth story of a hotel on fire would be of questionable utility fore life-saving purposes. It requires a level-headed man to even come down an ordinary ladder from such a height, and most men would quite as soon trust themselves to the tender mercies of the flames as to a rope upon which neither hand nor foothold was provided. The hotel men are all opposed to the law, and while the mayor has notified them that they must comply with it, he intimates that he regards it as a piece of sublime assininity. Efforts will be made this Winter to have the law repealed and something practical adopted in its stead.

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WHITELEY'S bazaar in London, that was destroyed by fire a few weeks ago, was said to be the largest place of its kind in the world, and was famous from the fact that whatever a person wanted could be found there, from a toothpick to a complete outfit for housekeeping. Whiteley had incurred the displeasure of the small dealers of London because he was cutting into their trade, and his place had been set on fire so many times that the insurance companies would not insure it, so that the immense loss fell upon him individually. The nearest approach to such an establishment in this country is John Wanamaker's in Philadelphia. It is his boast that there are only two things that cannot be found in his store, and these are playing cards and dice. We presume no other gambling implements could be purchased there, for Mr. Wanamaker is a church member and very strict. That he carries a large stock of jewelry is well known, but where he gets the goods it would puzzle a Philadelphia lawyer to say, for there are few manufacturers who will admit that they sell to him. But we have always maintained that the man who wants to buy goods of any kind, jewelry, clothing, hardware, or anything else, can get them if he has the money to pay for them, whether he is regularly identified with that particular line of trade or not. What is more, the man who has cash to pay for goods will get them on better terms than one who wants four or six months' time on every dollar's worth he orders. So long as the bazaar men buy liberally and pay promptly, they will be able to get any kind of goods they want. As an illustration of Whiteley's enterprise, it is stated that on one occasion he learned that the butchers in a certain portion of the city were charging extortionate prices for meat, whereupon he opened a butcher shop in connection with his store, and thereafter sold meat of all kinds at lower prices than any any of the butchers had been charging.

IN CONVERSATION with a prominent manufacturer and jobber the other day, he remarked that quite a number of his customers who had been in the habit of buying goods on four months' time now only asked thirty days, and were prompt in paying their obligations when due. He attributed this to the fact that the retail dealers generally had been doing a good business during the past year, and had taken advantage of their prosperity to liquidate their indebtedness as much as possible, and were, consequently, in a position to do business on very nearly a cash basis. How much better it would be for all of them if they could eliminate that item of interest charged against them entirely. But this is not likely to happen till the millennium arrives, and that is not yet visible. The credit system is so interwoven with and twined around our business methods that it may be said to be one of our national institutions, and to destroy it would be our ruin, as the payment of the debt of Great Britain would impoverish the people of that country, where so many are dependent upon the interest government pays annually.

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THERE is a dealer in Maiden Lane who seems to be a special favorite of fortune. He has been well prospered in business, and it is fortunate that his business has kept him so actively employed that he has been kept out of mischief, for he is phenominally successful at all games of chance that he is occasionally tempted to indulge in. If he goes to a horse race with a buyer from the country, he makes a practice of putting five dollars in a pool, and always selects the most unpromising horse on which to stake his money. He invariably wins, and has more than once received as much as $100 on his $5.00 investment. He seldom plays cards, but once or twice has been inveigled into a little game of poker "to please the boys," but they always wish they had left him out—they would have been just as wise and considerably better off had they done so. He has occasionally given "tips" to persons desirous of buying stocks, and they invariably made money by following them. He seems to have been born lucky, yet the probability is that if he were to take to speculation, which is the fashionable way of speaking of gambling, he would be cleaned out in short order. He is sensible enough to know this, and so sticks closely to business, only taking chances occasionally to please his associates. He never deals in stocks, visits horse races not oftener than once a year, plays no games of chance for more than the pettiest of stakes, but he is always lucky in anything he undertakes that has an element of chance in it. We dare not mention his name, lest he should be overrun with less scrupulous persons desiring "tips" on stocks, horse races or base ball games.

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MR. POWDERLY, Master Workman of the Knights of Labor, recently issued a circular to the order outlining a new policy in reference to strikes which he will endeavor to have adopted at the next general assembly of the order. His proposition is to give to each trade the right to organize a national trade assembly, under the jurisdiction of the General Assembly, said national trade assembly to meet at least once a year for the election of officers and for the better regulation of the affairs of the trade and district. Each national trade assembly to have exclusive control over the affairs of its trade without let or hindrance, so long as the Constitution of the General Assembly is not violated. In matters concerning strikes, no trade local assembly to enter upon one until all of the assemblies in the national trade assembly have voted on the question, and have by a three-fourths vote agreed to render assistance (the general laws of the order requiring attempts at arbitration to be observed). No assistance from the general order to be given until the case has been presented to the General Executive Board, and by them submitted to the order at large. In case no assistance from the general order is required, the General Executive Board is not to interfere with the

matter. It is doubtful if Mr. Powderly will have the influence in the next General Assembly that he had in the last, for there are many who are jealous of him, and already several candidates are announced who are ambitious of succeeding to his place. Great opposition to the order is also growing up among those who believe more thoroughly in trade unions than they do in the Knights of Labor. Then too, there is another organization that is rapidly gaining strength, that is utterly opposed to strikes, so there seems to be no end of trouble for the Knights.

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IN SOME of the Western states the immense increase in foreign population is raising an important political question, and societies are being formed on substantially the same basis as the old Know Nothing, or Native American party. It is said that in Minnesota there are more Scandinavians than there are in the whole of Europe, while in Wisconsin the Germans have achieved an equal degree of prominence. At the local elections, it has happened more than once that not a single native American has been placed in nomination by either party, and the Americans are growing tired of taking a back seat all the time. In the field of labor, the foreign element predominates, and is becoming altogether too dictatorial. The statistics show that during the five years ending December 31, 1885, the number of immigrants landed in this country was 3,839,417, and it is stated that more have arrived the present year than ever before in a single year. If they keep coming at this rate it will not be long before a native of the country will have no place to lay his head. The demand at the West is, not that immigration shall be stopped entirely, but that it shall be restricted, and only such persons permitted to come here as are able-bodied, possessed of some means and fully able to support themselves. It is also proposed to have Congress pass laws that will restrict the franchise somewhat, so that citizens of foreign birth will have to remain longer in the country before acquiring the right to vote or hold office. The feeling is becoming very strong on the subject in some sections, and it is probable that this question of foreign supremacy in our own country will be one of the great political issues before long. We allude to it because of some very strong expressions recently made in our presence by Western gentlemen connected with the jewelry trade.

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SPEAKING of catalogues reminds us that we have heard comparatively little complaint regarding the practice that used to be so much in vogue among manufacturers and jobbers, of sending out catalogues and price lists promiscuously to persons not connected with the jewelry trade. Retail dealers complained that this enabled outsiders to send directly to the manufacturers for what they wanted, and that the goods were sold to Tom, Dick and Harry, at the same prices the retail trade could buy them for. The issuing of catalogues will probably never be done away with, but we believe the protest made by the retail dealers has done much to restrict their circulation, and to confine them within the limits of the trade. Catalogues are a necessity with certain branches of the trade. There are manufacturers who have accumulated patterns without number, and who are constantly adding new styles of goods to their products, and these have become so numerous that there is no way of letting dealers know what they have except by means of illustrated catalogues. Jobbers are similarly situated, and have such an endless variety of goods in their stocks that the only way to let dealers know what they have is to issue a catalogue. There would be no harm whatever, but, on the contrary, much good, result from the circulation of such catalogues if they were sent to jewelers exclusively; it is only when merchants engaged in other lines of trade are served with them that their promiscuous distribution becomes a serious evil, for those who receive them are frequently induced to enter into competition with the retail dealer. Nor would this be so bad were it not for the fact that too often these outsiders have been enabled to get their goods at quite as low a figure as the regular dealers. But this evil, while not wholly eradicated, does not exist to the same extent that it did a few years ago, although we occasionally have a complaint regarding it.

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WELL, the Fall trade is here, and, what is better, it is as brisk and active as the most sanguine person has predicted that it would be. Manufacturers and jobbers alike have been kept unusually busy during the past month, and no one is now heard to complain of dull times. The universal response to the inquiries regarding trade is, "never better," and instead of the former complaints of dullness, with which we have been so familiar in previous years, the grumbling, when there is any, is because of overwork. One extensive jobber informed us recently that his business for the first eight months of this year was forty per cent. more than it was for the corresponding months of last year, and that if he were to close up then he would be ahead of last year's business so far as the quantity disposed of was concerned. Others speak with nearly equal satisfaction as to the condition of trade, and unless something unforseen occurs, the quantity of goods sold will be largely in excess of the sales of 1886. But there comes in the old cry regarding excessive competition and the cutting of prices, till the margin of profit is whittled down to a point that is almost indistinguishable. A large manufacturer of a general line of jewelry informed us that his firm kept a large force employed in making chain, yet he did not believe that they had made a dollar on chain in several years, because the prices had been cut away until there was scarcely enough left to pay for material and labor. When asked why he continued to make goods in which there was no profit, he replied that they were obliged to in order to keep up their stock and sell their other goods. Their customers demanded full lines, and so they had to go on making chain and to sell it without a profit because the competition was so great that prices were cut all to pieces. He was certain that he could make chain as cheaply as anyone, and if he could not make a profit out of it he was sure no one else was getting rich by it. So it is with other goods, and the general feeling seems to be that the profits of the business this year will not be commensurate to the quantity of goods sold. It is something, however, to have sold the goods.

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ONE of the methods every dealer should adopt to secure popularity and consequent success, is to display his goods attractively. To capture the eye is to half capture the pocketbook. Some dealers who possess artistic tastes will make a captivating display with a comparatively small stock of goods, while others could not make an attractive exhibit if they had all the goods that are in the market. The public, however, attaches considerable importance to this matter, especially ladies, who are among the best customers of the jewelers. A show window into which all kinds and classes of goods are pitched helter-skelter, has nothing more attractive about it than the hodge podge of an old junk dealer; on the contrary, it is more apt to repel customers than to entice them inside. A few articles, harmonious in themselves, displayed with taste, surrounded by rich velvets or plush, will make a pleasing appeal to the eye, and there will be more passers stop to examine them than would pause to look at a wagon load of goods thrown together incongruously. We noted a a show window recently that was piled full of watches; some of these were exceedingly costly, the movements of the best, and the cases elegantly etched or engraved, yet their beauty was entirely lost by their being mixed up promiscuously with cheap grades of silver watches, of various styles and sizes. The idea sought to be conveyed by the dealer was that he had an extremely large assortment of gold

and silver watches, but two or three of each properly displayed would have been a far more pleasing advertisement, and provoked much more inquiry. He offered a surfeit when the stomach was craving a choice tid-bit. In the large dry goods stores persons of good taste are employed as "dressers" of the show windows and cases, and they are constantly striving to produce new and pleasing effects. Their employers understand that the first appeal is made to the eye, and that when that is once captivated the battle is half won. With the most beautiful goods in the market to work with, the show windows of dealers in jewelry ought to be the most attractive to be found. The point may seem trivial to many, but the most successful merchants are not above striving to please their customers in every possible way, and to hold out every inducement to entice persons into their stores.

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IF THE "new deal" regarding the Baltimore and Ohio Railroad is carried into effect, it will bring $10,000,000 of foreign gold into this country to be put into circulation to liquidate the floating indebtedness of that road. This ought to be a good thing for trade in general, for when money is plentiful everybody feels rich, and this, together with the other prosperous features of the year, ought to satisfy almost any reasonable man. Congress will assemble in a few weeks, and the probability is that among its first acts will be the passage of some act to relieve our national treasury of a portion of the surplus that is lying there doing no one any good. There is no good reason apparent for continuing the present rate of taxation when the government has no need of the money. The fact that a surplus has accumulated will probably lead some of the free trade advocates to attempt to tinker with the tariff again this Winter, and to secure the free entrance of various kinds of goods and material that now pay duty. For many years most of the Southern people have been in favor of free trade; they could afford to be so, for they produced certain staples that were always in demand and no other country could produce in competition; so, while they did not need protection, they were in favor of free trade for everything else. As soon, however, as it was proposed to make a treaty with the Sandwich Islands, by which the sugar manufactured in those Islands was to be admitted free of duty, the South was up in arms in a moment, declaring that the market for one of their principal staples was about to be ruined. Since then many large manufacturing industries have been established in the South, and the free trade sentiment is far less pronounced than it was in consequence. Free trade is most excellent in theory, and probably every man would like to have free access to the markets of the world in which to purchase the particular articles he uses most of, but when it comes to selling his own products, he would be glad if he were able to monopolize all the markets of the world. It makes all the difference whose ox is gored when this free trade topic is under discussion. It is very nice in theory, but practically it treads on too many corns to be universally accepted. If tariff tinkering is indulged in by Congress this Winter, it will be most unfortunate, for the business situation at present is too good to be imperilled by any fantastic legislation.

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ELECTRICITY is each day becoming more and more an important factor in the world's economy. It has already made itself indispensable in numerous ways, and no one would dare to set a limit to its uses in the future. It transmits messages, enables persons to talk together although widely separated, is demonstrating its capacity as a motive power, and in a thousand and one ways is catering to man's necessities. Mr. Johnson, president of the Edison Electric Light Company has recently erected a magnificent residence on the Sound, near Greenwich, Conn., and has there made almost every application of electricity that has yet been conceived. His house stands on an eminence 340 feet above the sea, and so many electric lights have been introduced about the house and grounds that it forms the most conspicuous object along the coast at night. Brilliant lights have been placed about the house in the greatest profusion, and upwards of 200 illuminate the veranda and lawn, while the lawn tennis grounds are made as bright at night as they are in the day time. But the subtle fluid is made to do much other work besides giving light. It pumps the water from six wells upon the place, it opens gates, it sends signals of various kinds through the house and grounds, it works an organ, it regulates the temperature of the house in Winter and Summer, it curry combs the horses, it runs and lights up a fountain, it makes ice, and does many other marvelous things. Five hundred incandescent lights are used in and about the house, those lighting the main hall being concealed in the ceiling, and sending their light through beautifully-stained glass, so that one is puzzled at first to know where the subdued light comes from. The fireplaces are fitted up with stained glass imitations of live coals, and these are lighted by electricity, thus representing a glowing coal fire. These lights are controlled individually or singly by means of a switchboard which anyone can use. A forty horse power engine drives the dynamo that supplies the electricity thus used, in addition to which there is a battery of 150 cells, giving a ten horse power current. An electric motor drives a fan which is connected with pipes leading through the house, and when the thermostats placed in the different rooms indicate that the temperature is too high, the fan is set in motion automatically, and a draught of cool air is diffused throughout the house. In Winter, warm air is distributed in a similar manner. Experiments with electric motors are being made in various cities, and it will not be long before we shall see our street cars propelled by electricity. When this is done, means will have been discovered for generating electricity so cheaply that it will be economy to use it as a motive power in factories and workshops. This universal force is yet to play a far more important part in the industries of this country than has yet been dreamed of.

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THE destruction of the Theatre Royal at Exeter, England, and the loss of over one hundred and fifty lives, was reported as having occurred September 5th. The flames were first discovered among some gauzy material composing a portion of the scenery, and in a moment all the scenery and stage fixtures were in a blaze. A panic siezed upon the audience, and they rushed for the doors leading to the street, but the building soon filled with smoke and many were overcome. The greatest loss of life occurred at a point leading from the gallery, where there was a sudden turn in the stairs. A jam was created here by the crowd in the rear pressing upon those in front, many of whom were thrown down and trampled to death. The piles of prostrate and injured persons on the stairs soon became so great as to completely block this, the only avenue of escape for those in the gallery. Many persons leaped from the windows and were killed or maimed for life. When the fire was extinguished, the work of recovering the dead bodies was begun, and in a very short time 140 were taken from the ruins, and fragments of others were found so badly burned that there was no possibility of recognition. It was in precisely this same manner that over three hundred persons lost their lives at the burning of the Brooklyn Theatre a few years ago, and in the numerous theatre fires that have occurred, the principal loss of life resulted from the audience being thrown into a panic, becoming absolutely uncontrollable and positively regardless of each other. The reason for men losing their self control on such occasions comes from the fact that they are cooped up in a box from which they know that the chances of escape in an emergency are very slim, and so each one seeks to be the first to get out. If it was understood that there were plenty of exits from the building, and these were at once made available, there would be no panic and no loss of life. Such calamities ought not to be possible, and to pre-

vent them, laws will have to be passed and rigidly enforced compelling every theatre to be made fire-proof, and all scenery and wood to be covered with some non-combustible substance. That this is perfectly feasible has been demonstrated repeatedly, and exhibitions have been given in this city of theatrical scenery chemically prepared in such manner that it would not burn in the hottest fire that could be built around it. There is not a theatrical landlord in the country that does not know this, and that does not also know that the average theatre is a death trap, in which his audience is liable to be caught and roasted at any moment. It would be a good thing if everybody would refrain from going to theatres until their proprietors have made them reasonably safe. As it is, the man who goes to a theatre in city or country, virtually does so at the peril of his life. In ordinary circumstances of danger one has some chance for his life, but in a theatre he is like a rat in a trap, and stands but a remote chance of getting out alive.

A National Bankruptcy Law.

IN ANTICIPATION of the coming session of Congress, we recur to the subject of a National Bankruptcy Law. For five years or more this question has been before Congress, and the business men of the country, through their Boards of Trade, Exchanges, etc., have petitioned for the passage of a law that would secure uniformity of practice throughout the country in all insolvency proceedings. The draft of such a bill was made by Judge Lowell, of Massachusetts, and this has been generally endorsed by business men, and is now before Congress for consideration. Whenever it comes up however, there is manifested a degree of opposition, coming mainly from representatives of states whose citizens are largely of the debtor class, that has heretofore been strong enough to prevent a vote being reached. If such a law is to be secured at all, it is necessary for the business men of all sections to unite their influence, and bring it to bear on Congress in such force that members will no longer dare to ignore the subject. During the past year there have been numerous disastrous failures, some of which were characterized by fraud of the most outrageous character, resulting in the swindling of the general creditors of the insolvent and the gobbling up of his assets by a few preferred creditors. In several instances there was a moral certainty that the preferences were not legitimate, but that the preferred creditors and the insolvent debtor were in collusion to rob the estate. In the absence of national legislation regulating bankruptcy proceedings, creditors are largely at the mercy of their debtors. At present, owing to the diverse laws of different states, most of which are designed to protect resident debtors against non-resident creditors, a debtor has every advantage, and may convert a case of bankruptcy into a profitable transaction, as is too often done. The old national bankruptcy laws were crude and their enforcement expensive, nevertheless, they were better than the chaos that has reigned since their repeal. In the light of experience, the errors of the old laws can be avoided and a more effective code enacted. What the business community requires is a code of laws relating to insolvency that shall be uniform in all parts of the country, so that a man selling goods on credit may know that he has some sure remedy in case of the failure of his debtor, and that the same laws exist where his debt was collectible as exist where the debt was contracted. The jewelry trade has been badly victimized during the past year by cases of fraudulent bankruptcy, where the debtor was protected by peculiar state laws, and large sums have been expended in litigation with a hope of recovering what was left of the insolvent's estate, but generally the results have not been at all gratifying; on the contrary, it has been very much like sending good money after bad and losing all in the attempt to recover anything. If there is anything the trade can do to influence Congress to take early action on the Lowell bill, that ought to be done. It matters not that Boards of Trade and local Exchanges have heretofore endorsed the bill, for such endorsement did not have the effect intended; similar endorsements should be forwarded again this year, together with such other petitions and resolutions as are calculated to arouse Congress to a realizing sense of the fact that this is a measure that the business interests of the country demand for their protection and for the general welfare. In two months from now Congress will convene, and it is none too early to begin preparing such memorials as are calculated to produce immediate action on the bill. If it is not taken up early in the session its opponents will find means to postpone its consideration till too late to pass it. Every organization of business men in the country should take immediate action to impress its views upon Congress, and to follow these up with all the influence they can command.

Jewelers and the Criminal Classes.

THE number of jewelers who have been victimized by burglars, sneak thieves, embezzlers and others of the criminal classes within the past few months, is something astounding. We have chronicled the more important of these from month to month, but many occur that escape our notice. If the aggregate of losses from this source could be definitely ascertained it would be found to be a very large amount, so large that when it is deducted from the net profits of the entire business it is doubtful if there would be any remainder. These losses, however, fall upon individuals and cannot, therefore, be figured as against the entire business—each victim must stand his own loss, and cannot "pool his issues" with the trade at large. Many of the losses of late have occurred through the skilled and daring work of professional burglars. These are desperate characters, and in their raids upon the trade have left behind them evidence that they were so determined upon the perpetration of crime that they were prepared for anything, and would not have stopped at murder had murder been necessary to secure their escape from justice. This raises the question as to how far a man may go in the protection of his property. It is generally supposed that any one has a right to kill another who is caught in the act of robbing him of his property; that a thief caught robbing a hen roost may be shot down without mercy by the owner of the hens. But this is a great mistake. The law will not justify a man in killing a thief, not even a burglar, unless his life is in danger. At least such is the law, as construed strictly, but in these days, when it is a well known fact that burglars are usually prepared to defend themselves even to the extent of taking life if necessary, the man who should kill a burglar while in the act of committing robbery, would be acquitted of any crime by any jury in the land. Recent murders committed by burglars while prosecuting their nefarious calling have established a justification for killing them on sight, that most citizens would avail themselves of without hesitation.

As above stated the jewelry trade has suffered severely of late from the depredations of the criminal classes, burglars as well as others who work by less dangerous methods. There seems to be no way to prevent these losses except to keep continually sounding the warning, and cautioning the trade to be exceedingly wary in all their dealings with strangers. Confidence operators resort to so many devices for deceiving the unwary that it is impossible to enumerate all their tricks, and consequently only possible to sound the old alarm, "Beware of strangers!" When a stranger calls to look at goods, keep a watchful eye upon him, and note that he does not conceal valuable property in his sleeves or capacious pockets; take no check unless it is certified, or is drawn by some one whose signa-

ture you are familiar with; while it would be impolitic to be discourteous to a stranger, if he is an honest man he will not object to being placed under surveillance, while if he is a rogue, the closer he is watched the better. Bogus checks have played so important a part in recent swindles, that it is well to lay down the rule to never deliver goods for which a check is tendered till the genuineness of the check has been ascertained. For the ordinary sneak thief, who secretes anything he can get his hands on at every opportunity, nothing but eternal vigilance will prevail against him.

For stolen goods there is no redress. The thieves are sharp enough usually to dispose of them immediately and while a search of the pawnshops will occasionally bring some of them to light, the majority that are stolen are consigned to the melting pot at short notice. There is no insurance against losses of this kind, and each victim has to stand the whole of his loss. There is, however, a degree of protection afforded against burglars by the Jewelers' Security Alliance, which has been so successful in hunting down burglars who have robbed its members. When a member is robbed, the Alliance undertakes to capture and prosecute the burglars without cost to the person robbed, and in capturing the criminal, it usually happens that the stolen goods are recovered. The best detectives in the land are employed in every instance, and their instructions are to make no compromise with the thieves, but to land them in prison if that be possible. The Alliance has been wonderfully successful in every prosecution it has undertaken, as numerous burglars now suffering the penalty of the law can testify. A marked instance of their persistency was given last month, in the successful capture of two of the burglars who robbed Mr. Fairchild, of New Haven. Not only did the detectives run down two of the culprits, but a large amount of the stolen goods was recovered. The trial of the burglars has not taken place at this writing, but that they will do the state service there can be no doubt. This is the sort of protection that every jeweler should have, and as it costs but a trifle to become a member of the Alliance, it is a duty dealers owe to themselves and the trade to secure the protection such membership affords. When protection from the depredations of the criminal classes is so much needed as at present, no dealer can afford to ignore that which has been especially provided for him.

Labor Day and The Saturday Half Holiday.

WE HAVE often asserted that Americans overworked themselves, and that it would be better for them if they would take more holidays. But there is such a thing as having too much of a good thing, and the last legislature of this State succeeded in giving us a surfeit of holidays. At the time it was in session, the labor movement was at its height, and the petty politicians in that body, hoping to catch the votes of workingmen, passed a law making a permanent half holiday every Saturday throughout the year, thus converting what had been a Summer practice, indulged in to compensate for the exhaustion caused by the extreme heat of the three hottest months of the year, into an irksome and burdensome nuisance for the other nine months. The same body also made the first Monday in September of each year a legal holiday, to be known as "Labor Day." Just what is meant by this, or what the holiday is intended to commemorate, no one appears to know, but the leaders among the workingmen's organizations demanded it, and the legislature granted their request. The law relating to these two holidays was the result of the very worst kind of demagogism, petty pothouse politicians catering to a class that is supposed to control a certain number of votes. Had either proposition come before that body as emanating from the business exchanges, it would have been denounced by these same legislators as an attempt to rob the workingmen of a portion of their working time and an effort to reduce the amount of their earnings. But coming, as it did, from "walking delegates" and professional labor agitators, our legislative Solons truckled to the imaginary vot behind them and passed the bill.

"Labor Day" has come and gone for this year, and what it all means and what the laboring men have gained by observing it, no one can tell. In a number of places they turned out in procession and paraded the streets, with bands playing and banners waving, but what did it all amount to? If such display was intended to impress the general public with the idea of the number of workingmen, it was a failure, for not one-tenth of the whole joined in the procession. Thousands, having a holiday thrust upon them against their will, took advantage of the occasion to go off on excursions with their families, while as many more remained quietly at home and enjoyed a rest. The idea of a holiday for workingmen at this particular time of the year seems to have been derived from the agricultural districts of some foreign country, where, according to the traditions of the stage, the peasants are in the habit of having a holiday merry-making after the harvests have been secured—at least such merry-makings are shown upon the stage quite frequently, and some travelers have recorded the fact that in some small sections of Europe such a holiday is indulged in. But such a demonstration is wholly out of place in this country, where the harvests are never fully gathered, and the work is never done. The time set apart for this holiday is just when the Fall trade is beginning to get especially active, and when every factory, mill and workshop is expected to be crowded with orders and driven to its utmost capacity. To stop these for a day, that the workmen may enjoy a senseless holiday, is to entail great loss upon the community. It seems a little inconsistent, too, on the part of the workmen, that they should throw away the opportunity for earning a day's wages at a time when they are complaining that they cannot earn enough in six days a week to support themselves and their families. It is extremely doubtful if "Labor Day" ever again commands even as much respect as it did this year. It causes too great a hiatus in business to be tolerated in the height of a busy season.

To perpetuate the Saturday half holiday was also a mistake on the part of the legislature. No one actually engaged in business wanted it, for the same reason that they did not want "Labor Day." During the extreme heat of Summer, the Saturday afternoon relaxation was most welcome to employers and employees alike, and there was a general concurrence in granting it. But when the cool weather of September comes upon us, and business becomes brisk, a new energy is infused into every one, and the working days are regarded as being scarcely long enough. Then the half holiday is not a matter of physical necessity, and the great majority of persons would far rather be attending to their regular business than attempting to enjoy an enforced holiday. Where men are employed on piece work, the loss of time is their own, and there are thousands who prefer to work the whole of the day to frittering away half of it in idleness. Many employers gave notice on the first of September that their stores would be open all day Saturdays thereafter, and thus far they have had no trouble with their employees. This is a matter that is bound to regulate itself in accordance with the laws of supply and demand; if business requires work to be done every day in the week it will be done, and if one set of workmen do not want to do it another set will be found to take their places. The business of the country will not come to a standstill simply because a few workmen desire to spend part of their time in idleness. Workmen are too plentiful, and more coming all the time, to warrant any particular number in attempting to dictate the terms of their employment.

The G. W. Fairchild Robbery.

NO ROBBERY that has occurred in the jewelry trade of late years has attracted so much attention as has the burglary that was committed in July in the store of Mr. G. W. Fairchild, of Bridgeport. We alluded to this robbery in our issue of last month, and to the fact that a well-known burglar named George Feyth had been arrested for the crime. Since then an accomplice of his named

McManus, has been arrested for complicity in the crime. There is little doubt that the right men have been secured, and great credit is due to the Jewelers' Security Alliance for the energetic manner in which they were followed, and also to the Pinkerton detectives for the intelligent manner in which they worked out the clues given them. The robbery was discovered on the morning after its perpetration, and Mr. Fairchild, who is a member of the Alliance, telegraphed to Mr. J. B. Bowden, Chairman of the Executive Committee, who at once placed Pinkerton's detectives at work to capture the burglars. But these had evidently taken their time to do their work, and, after having secured all the goods they desired, they removed all traces of their presence. The only thing they left behind was five yards of silesia which they had used as a screen about the safe while they were plundering it. The detectives soon ascertained that the silesia had been purchased in Bridgeport, and the clerk who sold it remembered the sale simply because five yards happened to be an unusual quantity to sell, ladies generally buying four or six yards for dress linings, and the fact of selling five yards induced the clerk to notice his customer, and he felt confident that he could identify the man who bought the goods. He was brought to New York and shown the pictures in the Rogue's Gallery, and while he thought the picture of Feyth resembled the purchaser of the silesia, he could not be sure for the photograph was an old one. Then another person who thought he could identify the man who bought the silesia was brought down from Bridgeport, and while walking down Nassau street with a detective he suddenly halted, and pointing to a man on the opposite side of the street, said "there is the man you are after." It proved to be Feyth, and from that moment he was shadowed by a detective until sufficient evidence was secured to warrant his arrest. His subsequent confession proved that no mistake had been made. He refused, however, to tell who were his accomplices, and the detectives had to work out that problem for themselves. Certain circumstances tended to show that a person whose picture adorned the Rogues Gallery, named McManus, was one of the burglars. But it was necessary for them to be very cautious, for he has influential friends who would do everything in their power to get him away. Finally, however, McManus was arrested, and after a sharp legal contest in Brooklyn he was taken to Bridgeport for examination. There his friends appeared in force and spared no effort to secure his release, but he was held in $20,000 bail to await the action of the Grand Jury. As Feyth had previously been held in $15,000, it was a surprise to the friends of McManus that his bail should be more, and they did everything in their power to have it reduced, but in vain. It was well understood that a friend was on hand with $15,000 in cash to deposit in court if bail had been reduced to that amount, then McManus would undoubtedly have disappeared. As he is supposed to own considerable property, Mr. Fairchild began a civil suit against him to recover the value of the property stolen, and in this suit he was held in $20,000 bail additional, so that if his friends had succeeded in giving bail in the criminal case he would still have been held in the civil suit. (The bail, however, has subsequently been reduced to $10,000.

It is not proper to reveal at present all that was disclosed while the chase for these thieves was going on, but the officers of the Alliance and the detectives were astounded to see the influence that they commanded and the men who interested themselves in their behalf. But for the zeal and persistency of the officers of the Alliance, whose chief object is the punishment of thieves, these men would unquestionably be at large to-day. When the detective was shadowing Feyth it was found that he was examining certain jewelry stores in this city, doubtless with a view to forcing an entrance some night, and his arrest with that of McManus is calculated to relieve the trade of much danger that was impending. These two men are supposed to have been the most active workers on that occasion; had they required more help they would have called upon other members of the gang to which they belong, and which was so active in trying to secure their release. This case shows the desperate character of our criminals, and how exceedingly dangerous they are to the community because of the influence they exert in high places, leading to the conviction that not even the judiciary, in some instances, can wholly close its eyes to the importance of dealing leniently with criminals who have intimate friends in high positions. It also shows the importance of having some organization within the trade that will prosecute such criminals regardless of their political influence. It is safe to say that no individual member of the trade could have conducted this case so as to have secured the arrest of two such noted criminals, for no individual could have afforded the time and money necessary to run them down or to overcome the many obstacles thrown in the way of their imprisonment. It was only the pertinacity of the officers of the Alliance and the backing they gave to the detectives that secured success. Those of the trade who are members of the Alliance can but feel that their interests are committed to good hands, and that they are being protected to a degree that more than repays them for the slight cost of membership.

Coming Centers of Trade.

WHERE the principal center of trade in this country will be fifty years from now, no one can predict with any degree of certainty. If any one had asserted fifty years ago that in the mud hole where Chicago now stands there would be a city of nearly a million of inhabitants, he would have been deemed a fit subject for a lunatic asylum. Yet to-day Chicago is one of the greatest cities in the United States, and her growth has only fairly commenced. In the same time, New York has extended her area from about Bleecker street to away beyond the Harlem river, and what was Westchester County is now embraced largely within the City limits. Fifty years ago Michigan was regarded as a frontier state, and whoever removed thither took a fond farewell of all his friends, none of whom expected ever to see him again. Now there is no frontier; the tide of civilization has swept over the vast prairies of the West, climbed the Rocky Mountains and, descending upon the Pacific coast, has only been checked by the waves of the great ocean that beat upon those shores. Wherever the flow of humanity has appeared it has been characterized by the same indomitable spirit that caused the Yankees originally to rebel against the mother country, and to determine to carve out a future for themselves on a comparatively new and unknown continent. Westward has been the cry, and now where once stood the huts of the pioneers are prosperous and growing cities. Some of these that are, comparatively, but infants yet, are among the most promising, and no one can now set a limit to their development. New cities are coming into prominence almost daily, and each has some special feature on which to hang its hopes of future greatness. Here is a magnificent water power, while there coal and iron have been discovered in unlimited quantities; another is the center of a mining population, while another boasts of its unrivalled industrial and manufacturing facilities. With countless railroads reaching in every direction and catering to the development of every industry, it is scarcely surprising that new cities and towns are constantly springing up, and that our map makers are scarcely able to keep pace with the progress we are making. So many immigrants are arriving upon our shores that the census takers find their work nearly doubled every ten years, while the increase in the native population keeps pace with the fondest expectations.

It is inevitable that great trade centers must be interspersed at frequent intervals over this vast territory to provide for our rapidly increasing population, and to provide marts of exchange where their products can be made to bring the necessaries of life and such luxuries as can be afforded. Already the foundations are laid for some of these, and the few years of life that have been accorded them have been so full of progress that they are fully justified in enter-

taining the most extravagant hopes for the future. Our population is now estimated at sixty millions in forty-four states, while in 1860 there were but thirty-eight states and thirty millions of population. As the increase in population has broken down the frontier barriers, the increase in the future must go to "thickening up" already existing communities, so that the most enterprising ones are predestined to become important commercial and industrial centers. This, too, without prejudice to existing cities, for it is not recorded in the history of this country that any city has gone backwards, so that while the West and South are destined to experience a rapid growth, New York, Boston, Chicago, and other important cities, will continue to grow proportionately, and to maintain the positions they have won by their enterprise and energy. But west of the Mississippi there must be numerous large and thrifty cities, and already Kansas City, Omaha, Minneapolis, and several others, have attained an importance that they did not give promise of a few years ago. These are all surrounded by an industrial population that is daily becoming more dense, and it is inevitable that they shall become distributing points for such population. They must also become more or less productive centers, for no community exists by trading alone. How great they may become in the future time alone can tell, but it will not do for any one to deny their possibilities. It is only those who are hidebound in their own conceit who believe that the entire nation hovers about the shores of the Atlantic ocean. The greatest development this country will know for the future will come from the region west of the Mississippi river.

Competition and Cut Prices.

WHILE competition is generally regarded as a good thing for the public, there is such a thing as carrying it too far. When the railroads get to cutting rates the public rejoices, and many hasten to take advantage of the low rates for traveling. But if such competition is prolonged and the rates received by the railroads are not remunerative, the tendency is for them to curtail their expenses, and, as a result, the road and the rolling stock are neglected, passengers suffer many inconveniences, and positive danger lurks in the neglect that overtakes the road in general. So it is in trade; no manufacturer or dealer can afford to do business without a profit, and if competition becomes so aggressive that he has to sell goods at less than cost, he is going to retrench in the cost somewhere, and the result is that the quality of the goods is deteriorated by the manufacturer, or the dealer substitutes a cheap article for one of better class. Nothing so much tends to demoralize trade or the morals of traders as unbusinesslike competition that cuts down the margin of profits to so thin an edge that it is imperceptible to the naked eye. The public may be a temporary gainer by such competition, but in the end it has to pay for it, and if it does not do it in one way it will be compelled to in another. Men do not do business for love alone, and if they cannot make something more than a mere living from their business legitimately, they will resort to illegitimate methods to make good the deficiency. In the jewelry business excessive and unprofitable competition leads to the degradation of quality, and to the substitution of inferior grades of goods for those of better quality, to misrepresentation and fraud. There is no remedy for this so long as the purchasing public continues to be governed more by price than by quality. Retail dealers are constantly saying that their customers demand cheaper goods, and so they ask manufacturers to degrade the quality of their productions that they may meet this demand. As a consequence, the manufacturers make the concession by cheapening the quality of their products, and some go so far as to stamp the debased metal with characters indicating a greater degree of fineness than they actually possess. When one manufacturer hits upon something new and produces it in a good quality of metal, forthwith some envious rival reproduces it in cheaper metal and catches the trade by underselling his competitor.

The public is the great sufferer in all cases where excessive competition comes to the front, whether it be in railroad transportation or in jewelry, for it is inevitable that the consumer has to pay the bills, and if there is fraud extant, they are the sufferers from the fraud. Of course, the individuals who indulge in cutthroat competition often come to grief, not having sufficient capacity or capital to "see the thing through," and then the public is the sufferer, for the community at large eventually has to bear the brunt of every failure. In some way the cost of every business failure falls upon the dear people, sooner or later, and it is therefore always to the interest of the public that all persons engaged in business should make a fair and reasonable profit upon their transactions. Broadly speaking, it is unfortunate for the whole people of the country when competition reduces the price of any manufactured article below that which permits the manufacturer to pay liberal wages and make a fair profit, always supposing him to use the best means at hand in conducting his business.

Improved Machinery and Wages.

MANY OF THE professional labor agitators are wont to assert that inventions and improvements in machinery tend to reduce the wages of workingmen. The assertion is, of course, easily disproved by the facts, and it can be shown with equal ease that labor was never so much in demand as since the multiplication of labor-saving machinery. The greater the facility for producing manufactured goods the lower the cost, and the less the price the greater the demand for them. This is abundantly illustrated by the history of the sewing machine; when that was first constructed the cry went up that it would take the bread out of the mouths of the sewing women, but, as a matter of fact, it has added tenfold to their opportunities for earning a livelihood, for there never was such a demand for sewing women, nor so many ways in which the needle could be employed. In comparison with the wages paid in olden times, those of to-day, when machinery is more universally used than ever before, are very much higher. In this country, where machinery is found in greater abundance than anywhere else, wages are very much higher than in any other. The Illinois Central Railroad publishes a record of locomotive service for thirty years that has a strong bearing on this point. According to that record, the running cost per mile has fallen from 26.52 cents in 1857 to 13.93 in 1886. This reduction has all been effected by inventions and improvements in machinery. During the same time the wages of engineers and firemen have risen from 4.51 cents to 5.52 cents per mile run. Demagogues may dispute these figures, but it is nevertheless true that improvements in machinery, not only in railroads, but in other industries as well, are a benefit in every way to everybody concerned. The general public is served at cheaper rates and the mechanic receives increased wages. Those peculiar individuals who advocate a return to "good old times," who prefer hand work to machinery, and who preach that invention is really a curse to labor, should try to understand the situation. A very little actual knowledge of the subject will show them that the workingmen of this country owe a debt of gratitude to inventors that they will never be able to pay.

TO PREVENT RUST.—Carbolic acid and olive in equal parts make a good preservative against rust. It is very useful when rubbed on steel instruments; but the fingers should get as small a share of it as possible.

Persian Jewelers.

THE goldsmiths' and jewelers' shops in Persia present little attraction to the eye. Perhaps there is a small glass case containing a few of the less costly objects; but the owners are not wealthy men, and keep little or no stock, merely working to order. The artificer, with his one or two grimy journeymen, and perhaps a couple of apprentices, may be seen hard at work in the open air from morning till night. There they sit in the little brick archway, with a tiny furnace of live charcoal, at which the youngest apprentice is seen blowing with primitive bellows made of a goat skin. Their tools are few and rough, but their work is invariably original. With the silversmith it is another affair. So common is the use of silver that it is hardly looked upon as a precious metal. Electro-plating is not unknown, but it finds no favor in Persian eyes, coming under the head of badel or sham. The silversmiths' bazar in all the great Persian cities is a sight to see. In the East every trade has its own special quarter. There is the shoemakers' bazar, the coppersmiths' and the silversmiths'. There the rival artisans work side by side, and the result is a sort of perpetual competitive exhibition. Pipe heads in endless variety, coffee pots, trays, bowls, basins, ewers and bottles here stand in glittering array and bewildering variety. There is no middleman; the maker is the vender, and stands or falls by his own work. Woe be to the wretched silversmith who adulterates or alloys. There is no need of hall marks when the Darogah, or police-master, is ever on the alert to apply the bastinado to the feet of the swindler.

The Persians are particularly clever in both incised and chased work, and in repoussé work of the highest class. The incised work resembles the best of the Scinde work. As for chased work, the Persian is inimitable. Every artisan is prepared to produce scroll work and tracery strikingly original. Many a ragged workman can turn out representations of men and animals in motion, wonderful little groups, battle scenes, hunting scenes and representations of birds, fruits, foliage and flowers. Engraving upon metal, in fact, is carried in Persia to its highest perfection. Pipe heads, water bottles, basins, ewers, and even spittoons, are often made of silver, and sometimes of gold; horse furniture and stirrups, trays, dishes, sword hilt and scabbards, dagger and knife handles, boxes and mirror frames, drinking cups and goblets, as well as tea urns and services, are ordinarily made of the precious metals. Every villager has his silver-mounted pistol; the stock of his gun is often ornamented with silver plates. No lady, however poor, would think of wearing aught but ornaments of the purest gold. Silver ornaments are only worn by the poor, the women of the wandering tribes, and by the negresses. Coral, too, being out of fashion, is relegated to slaves.

The Value of Gold.

OLD is found in its pure state—not in chemical combinations with any other element. So far it has only been found in restricted localities in sufficient quantity to pay for the labor expended in mining and collecting it. Two pennyweights, about $2.00 worth of it, represents the hard labor of one day, at an average. Eight thousand pounds of iron or lead are easier obtained than one pound of gold. I wish my readers had in their hands at this moment a sheet of pure gold, say $\frac{1}{4}$th of an inch in thickness, to admire its beautiful color and its softness. As easily bent as lead. And yet it is one of the most indestructible substances we know of. No acid or alkali will corrode it. The most intense fire will only melt it, but not change its color of volume.

We can only imagine some world, where this rare metal might be as plentiful as lead, zinc, copper or iron are on this our own globe. Iron, which rusts so easily, and lead, zinc or copper, whose oxides and salts are poisonous. What a beautiful glittering world it would be, could all utensils and constructions, now made of base metal, be fashioned in imperishable gold. And they could be, for although pure gold is soft, yet different alloys give us all varieties of hardness and elasticity. A certain alloy of 14 karat gold equals steel in these qualities. Imagine then all water and gas pipes, all fixtures, instruments, kitchen utensils, stoves, ships, railings, houses, pillars, posts, machines, engines and what not, made of this precious everlasting metal! What a saving there would be of labor and health, what a gain in beauty and permanence. Gold is indeed a valuable metal and it is a pity, there is so little of it.

As a means of exchange, gold coin is wasteful, as it loses, when in active circulation, as much as one per cent. by abrasion in a year; not considering the many accidents, by which gold coin becomes utterly lost to man's use and needs.

But gold, outside of these mere utilitarian purposes to which it is put, has a value as an element in artistic decoration and ornament. The analytical thought and research that characterize our times in all matters appertaining to human life and interest, have also made apparent to us the true value of gold in these directions. Especially through the study of Eastern nations—who have always excelled in harmonious effects of color—have we now begun to appreciate the true value of gold and other metallic tints in their application to objects of ornament. To modify the violent juxtaposition of primary and secondary colors and to relieve the somberness and softness of tertiary tints, gold is invaluable and can not be replaced by any other substance. While we have made the most of gold and other metallic tints in our home decorations and house furnishings, we have somehow forgotten their value as an adjunct to personal adornment. Feminine apparel that luxuriates at the present day in a profuse choice of material and an endless variety of color, texture and combinations, lacks, to our mind, the hard glitter of metallic surfaces by the contrast of which the beauty of all other things becomes enhanced and pronounced. Nothing will accentuate the beauty of a delicate peach-bloom complexion or the soft silky texture of wavy hair, as when these are contrasted with the hard metallic luster such as may be supplied by the judicious use of some good jewelry.

Some of us may recall a parade of the Garde-Kürassier-Regiment in Berlin, and may have noted their white uniform, the polished cuirasses, their helmets and general glitter of steel, silver and gold, and also the contrast by which the complexion, hair, eyes, lips and beards of the most weather-beaten soldier attain a delicacy and softness truly remarkable and charming. The same result may be noticed by anyone who will take the trouble to change an oil-painting, especially a portrait, from a dull black walnut frame into a gilded one.

In the use of jewelry, there is of course this to be noted, that good taste shows itself in subtle discrimination. For good taste, like many another virtue, rests primarily, on our intelligence and our will to see and to submit to the "eternal fitness of things." Hence from youth and dimples to stately womanhood—to age and matronly dignity—each period demands a special application in the kind and style of jewelry. When one goes "slumming" or marketing, good taste dictates to one a subdued personal appearance, that one may not oppress the minds of the poor by mere outward show of distant superiority, nor on the other hand benumb our perceptions and good judgment by the conciousness of being out of harmony with our surroundings. While at a social gathering a cheerful, gay personal appearance not alone proclaims our own joy and happiness but helps to diffuse them around us.

As mentioned before, the value of gold as an artistic and æsthetic agent in personal adornment has of late years been overlooked, but is beginning again to be recognized. Since the court festivities have taken place in England, quite a revival in the jewelry business in the trade centers of Europe has been noticed. The number of skilled workmen and workwomen engaged in this industry in our

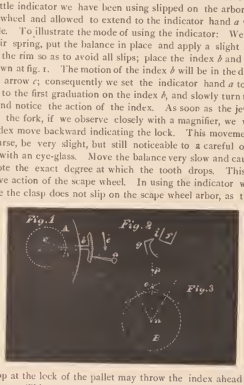
own country can be counted by thousands. They include many crafts such as goldsmiths, stone setters, chasers, engravers, enamelers and others, who often combine skill with artistic abilities of the highest order. Both labor and capital invested in this industry have under the past tendency of fashion not been as highly rewarded as they might have been. But the value of gold—doubly valuable to them—is happily beginning to be more and more appreciated.

L. Kranz.

Problems in the Detached Lever Escapement.

BY DETENT.

THE ANGULAR motion of a 15 tooth scape wheel is 12 degrees; 10 of these are utilized in a ratchet tooth escapement, and 10½° with the club tooth. But in many American watches, since the general introduction of exposed pallets, the pallet stones have been made so thin that seldom more than 9°, and frequently not more than 8°, are utilized. We have fine Swiss escapements where actually 11° are utilized. At any rate, a good workman will insist on 10 or 10½°. Our little indicator we have been using slipped on the arbor of the scape wheel and allowed to extend to the indicator hand *a* will tell the tale. To illustrate the mode of using the indicator: We remove the hair spring, put the balance in place and apply a slight friction under the rim so as to avoid all slips; place the index *b* and hand *a* as shown at fig. 1. The motion of the index *b* will be in the direction of the arrow *c*; consequently we set the indicator hand *a* to correspond to the first graduation on the index *b*, and slowly turn the balance and notice the action of the index. As soon as the jewel pin strikes the fork, if we observe closely with a magnifier, we will see the index move backward indicating the lock. This movement will, of course, be very slight, but still noticeable to a careful observer aided with an eye-glass. Move the balance very slow and cautiously and note the exact degree at which the tooth drops. This is the effective action of the scape wheel. In using the indicator we must be sure the clasp does not slip on the scape wheel arbor, as the sud-



den stop at the lock of the pallet may throw the index ahead of the true drop. This can be determined by noticing two consecutive escapes, and if they aggregate 24' the grasp of the jaws on the scape wheel arbor are doing their duty. If we find our drop too much, that is, more than 1½° or 2°, we should put in thicker pallet stones, and after this is done, test our pallet action to see if the lock and impulse angles are all right. I tell you, my reader, these seem like little points, but they are the ones to make your reputation. By living up to the instructions given and testing your escapements with the indicator, you can make a common cheap watch do miracles. After the eye has been educated with such tools and tests, it is seldom necessary to use them, but no man's eyes are good enough without proper culture to detect "how" much an escapement is out. Let any careful workman notice the distance between the tooth and pallet, as shown in fig. 2, in three-fourths of the watches which pass through his hands, and if he is a thinking man (as most good workmen are) he surely will be struck by the loss of power which must occur. Of course, any workman can change a pallet stone, but to know exactly how much thicker a pallet stone he can substitute is the question. But with the indicator as shown and a pair of micrometer callipers he first knows how much is lost in drop and with the micrometer callipers selects a stone of the proper thickness. We have another source of annoyance in American lever escapements and this is in the size of scape wheels, *i. e.*, they are not all the same size even in the same grade of watch made by the same company. The writer does not propose to discuss how this came about, but to take the problem in hand and reason how a change in size of a scape wheel will affect the action. We will first consider how a scape wheel too small will affect the pallet action. It will act somewhat like a shallow depth and if we had an escapement model as urged by the writer early in these papers it would be quite easy to set our pallets so as to show the most casual observer the effect. But in the present case we will begin by making a statement of the conditions involved, and then aid the reasoning by the cuts. But it is to be lamented that our cuts must necessarily be so small that it is very difficult to convey the idea properly. To resume the problem of too small a scape wheel. If we could conscientiously set the pallet stuff forward to cure the lack of depth in a scape wheel too small we would find our pallets too close outside of the "escapement matchers" would express it, that is the egress pallet would strike the back of the tooth just passed out. If our pallets are exposed as they most all are in these days, and we should undertake to move the pallets for correcting the trouble, let us see the consequences. If we move the ingress pallet inward we destroy the lock on the pallet and diminish its impulse action. If, on the other hand, we seek to correct the trouble by moving the egress pallet inward we increase the locking angle on this pallet, but have slightly diminished the actual lock on the pallet stone we just moved, but we have added to the action of the impulse plane and thereby increased the lock on the ingress pallet. So it is seen that our change begets a half-dozen complications before it is through. Now, suppose a watchmaker is in some interior town gets a watch with a scape wheel all stubbed up against a single pallet stone (the other being lost out) and finds he has no scape wheel the exact size of the old one, but has one smaller, the customer can't or won't wait to send—and even if he does wait, the material man makes a blunder between old model or new model, or some other mistake, and at the end the watchmaker finds himself in the predicament just supposed.

Such readers as have followed these papers from the commencement will be able to draw the errors of such changes and strike out such corrections for themselves as would probably enable them to use the small scape wheel. Now, I do not want the reader to imagine that the writer would propose this course of using too small a scape wheel if one of the proper size could be readily obtained. No, it is only a case of dernier resort. And there is another feature which prompts me and that is to awaken a feeling of analysis in the mind of the reader to understand the principles and conditions involved in such problems. Now let us make a mental analysis of the conditions and results if we simply draw out, or perhaps a better term would be to say advance both pallet stones a little. Practically this is the best course to pursue for the conditions for good and correct actions will be less affected than by advancing the pallet staff, as we first assumed. But let us consider how the advance of the pallet stones has affected first the lock. The lock on the ingress or entrance pallet is increased in force, *i. e.*, the angle of the locking force is greater, and diminished on the egress or exit pallet, but not enough to materially affect the action without the scape wheel is much too small. To aid us in this investigation of pallet action in our next interview we will take this subject up and see what can be done for a correct pallet action to change the pallet staff from *o* (the correct position as escapements are now made) to *p*, fig. 3, and still get a good action. Of course, it will need a modification of all the parts,

but it is a good and efficient drilling for those who like to know for themselves.

I should have said, perhaps, when speaking of applying the indicator *b* to the arbor of a scape wheel that after each escape is made the indicator is moved back by slipping on the scape wheel arbor to zero.

Trade With Japan.

YOSHIDA JIRS, late Japanese Consul-General to New York, when recently on board a steamer bound to Japan, remarked to a newspaper correspondent, as follows: "Last year our exports amounted to about $38,000,000, made up in this way: To the United States, $15,000,000; to China, $5,000,000; to France, $5,000,000; to England, $3,000,000; to other countries, $10,000,000. The three principal products we export to your country mentioned in the order of their importance are silks, tea, camphor and curios. Especially are we increasing our exports of manufactured silk, the making of cheap silk pocket handkerchiefs for export to America being now a recognized industry. Our imports last year amounted to $30,000,000, made up as follows: From the United States, $4,000,000; from England, $15,000,000; from China, $5,000,000; and from France, $4,000,000. You will see by this that while we export more to your country than to any other, we take from it no more than we do from France and not much more than a fourth of what we do from England. From Great Britain we principally import cotton goods, cotton yarn and mixed goods. From China we get most of our sugar; from France a large amount of mousseline de laine, and from the United States coal oil, canned goods, flour, machinery, and I should say that was all unless we add a certain quantity of sheeting and an uncertain amount of horns and hoofs for making imitation tortoise shell. As against yourselves then, and England, the trade conditions are exactly the reverse of what they should be. We send to England $3,000,000 worth of goods, but we take from her $15,000,000 worth. We send to the United States $15,000,0000 worth of goods, and take from her but $4,000,000 worth. The discrepancy, as you will see, hinges upon the item of cotton goods. Now, why cannot you overcome that discrepancy and make for and send us all our cotton goods as well as sheetings? You take our silk: let us take your cotton and a fair balance will be struck. You are making good cotton in Connecticut, I think it is; the new South is waking up, and I cannot see why you should not make every class of cotton goods as well as grow cotton."

Acceleration.

[BY F. J. BRITTEN.]

IT IS noticed that new chronometers and watches, instead of steadily gaining or losing a certain number of seconds each day, go faster day by day. There is no certainty as to the amount or ratio of this acceleration, nor as to the period which must elapse before the rate becomes steady, but an increase of a second a month for a year may be taken as the average extent in marine chronometers.

It is pretty generally agreed among chronometer makers that the cause of acceleration is seated in the balance spring, though some assert that centrifugal action slightly enlarges the balance, if the arc of vibration is large, as it would be when the oil is fresh, and that as the vibration falls off, centrifugal action is lessened, and acceleration ensues from the smaller diameter of the balance. Though thin balances do undoubtedly increase slightly in size in the long vibrations from centrifugal action, this theory is disposed of by the fact that old chronometers do not accelerate after re-oiling. Others aver that the unnatural connection of the metals composing the compensation balance is responsible for the mischief, and that after being subjected to heat the balance hardly returns to its original dimensions again. If true, this may be a reason for exposing new chronometers, before they are rated, to a somewhat higher temperature than they are likely to meet with in use, as is the practice of some makers, but then chronometers accelerate on their own rates when they are kept in a constant temperature, and also if a new spring is put to an old balance, or even if a plain uncut balance is used.

When the overcoil of a balance spring has been much bent or "manipulated" in timing, it is noticed that the acceleration is sure to be excessive. This is just what might be expected, for a spring unduly bent so as to be weakened, but not absolutely crippled, recovers in time some of its elasticity. But however carefully a spring is bent, the acceleration is not entirely gotten rid of, though the spring is heated to redness and again hardened after its form is complete. There is little doubt that the tendency of springs is to increase slightly in strength for some time after they are subjected to continuous action, just as bells are found to alter a little in tone after use. As a proof that acceleration is due to the bending of the overcoil, an authority asserts that if the spring of an old chronometer is distorted and then restored to its original form, the chronometer will accelerate as though it were new. Helical springs of small diameter have been proposed by some as a means of lessening acceleration, on the ground that the curves are less liable to distortion in action than when the springs are larger. Springs elongate in hardening, and it has been suggested that they afterwards gradually shorten to their original length, and so cause acceleration, but there does not seem to be much warrant for this assumption. Unhardened springs do not accelerate, but they rapidly lose their strength, and are, therefore, not used. Flat springs do not accelerate as much as springs with overcoil. Palladium springs accelerate very much less than hardened steel springs.

The Compensating Pendulum of Zorzi.

THE PROBLEM of discovering a means for producing an instantaneous and a perfect correspondence of the pendulum to the changes of the ever-varying temperature has led to many ingenious devices. Each, however, has its preferences and its objections, and it is a question whether anything better than the mercury or grid-iron pendulum will ever be found to respond to these changes and thereby regulate the escape of the motive power with the most perfect precision. A notable attempt was some years ago made by an able Italian horologist, M. Zorzi, the description of which we append so as to inform ambitious inventors in this field what has been tried already.

The compensating pendulum of M. Zorzi is composed of two rigid rods of steel of equal dimensions, placed one behind the other in such a way that, while the dilatation of one by the effect of heat takes place downwards, the other operates upwards. The first has the pendulum bob at its lower extremity, and constitutes the pendulum proper; the other, which serves for compensation, carries soldered to its lower part a small moving arm, corresponding to another arm, which sustains the rod carrying the pendulum bob.

When the temperature varies it produces in the two rods a lengthening or shortening in an inverse manner in one or the other; and the lowering or rising of the pendulum bob is corrected by the play of the two arms, so that the position of the center of oscillation remains invariable.

It is the same with the center of suspension, which remains con-

stant in the plane of two parallel rods, and so closely placed that they leave a very small gap, by which the spring carrying the stem of the pendulum bob—that is to say, the rod of the pendulum—passes freely. In this manner, the positions of the center of oscillation and the center of suspension remain invariable—the length of the pendulum does not vary, whatever may be the changes in the temperature.

In case the rods, although made of the same steel, have not the same co-efficient of dilatation, M. Zorzi essayed to correct this fault by the following plan: A micrometric screw is placed at the bottom of the fixed rod; this screw subdivides the height of a millimeter in ninety parts and serves to lengthen or shorten the fixed rod by this small amount in such a fashion that the variations of the rod of the pendulum can be perfectly compensated.

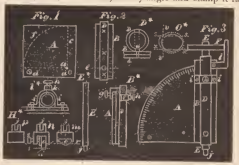
In addition, this excellent workman placed above a graduated arc, on which a hand marks the smallest dilatation or shortening; and beside this, a graduated circle of an arc below, on which a hand indicates the smallest displacement of the axis of the pendulum bob, either ascending or descending. It remains to be seen if, in practical application, the pendulum here described gives exactly and constantly the compensation desired. It is probable that the arrangement of the arms might prove a source of imperfection—but this is only conjectural; and certainly, M. Zorzi, who is an able workman, has certainly experimented in this direction, and was able to judge how far these doubts are well founded. But of this we are assured, that there is no system invented as yet which surpasses for simplicity that of the wooden rod, and for exactitude, pendulums with mercurial compensation. Those having a wooden rod have a dilatation so small that it need not be taken into account; at the same time, they could only serve for regulators of the second class. Regulators of the first class are at present constructed with steel pendulum rods, with a vase, likewise of steel, to contain the mercury, and the compensation is so perfect that they leave nothing to be desired.

M. Saunier said that the Zorzi pendulum is described in the old work of Thivot, and, in our own day, Jarossay has revived it, but without any great success.

Advice to Watchmakers' Apprentices.

BY A MAN WHO HAS SPENT TWENTY YEARS AT THE BENCH.

ALL WHO have handled American cut diamonds must have noticed a greater regularity in the facets than exists in most imported stones cut abroad. This is owing, in a great measure, to our employing superior machinery in cutting. Here it is, in a sense, the perfection of machinery, while in Europe a great deal depends on the skill of the artisan. In this article it is taken for granted the person reading and desirous to learn is not a professional lapidary, but one who would like to be able to cut an occasional stone, or, what is a commoner job, regrind and polish a scratched stone. In the August number of this journal I described and illustrated in a broad sense the so-called "dial" for getting the proper angles. In the present issue it is proposed to give the details so any person who is so disposed can go on and construct the parts. All I will require of the reader is to make note of the size and shape of the **T**-shaped piece described and illustrated in the August number of THE CIRCULAR at fig. 2 for details. The dial on which the degrees are shown is made of No. 10 sheet brass 3½ inches square, and on this is swept a quadrant with a pair of dividers set at 3 inches. This quadrant is shown in fig. 1 at the dotted lines. It will be noticed that at the bottom and at the right hand there is a margin of sheet brass ½ an inch wide. Two holes are drilled in the plate *A*, fig. 1, at the points indicated at *d d*; these holes are large enough (and countersunk) to receive ¾ inch screws for securing *A* firmly to the **T**-shaped piece. The margin to the right and shown at *c* serves to steady and support a brass plate *B* 3¾ inches long by 1 wide, which holds a brass tube that carries a steel rod which holds the stone to be cut. The brass plate *B* is also made of No. 10 brass. Attached to *B* is a brass tube about half an inch in exterior diameter. I say "*about*," for exact size is not important; the thing to be looked to is to have the brass tube fit a piece of Stub's steel wire about ⅜ or an inch in diameter. The best way practically is to get a piece of brass tube 4 inches long, and the interior diameter as near ⅜ as is practicable; a ⅜⅛ of an inch more or less will not make a material difference; next get a piece of Stub's steel which will just slide into the tube. The sides of the brass tube should be about ⅛ thick to secure strength. The next thing to do is to secure the tube *D* to *B*. Three small screws placed at the points indicated by the × × ×, fig. 2, will effect this. These screws should be countersunk in *B*, and not extend into the tube far enough to press the steel rod which subsequently passes through this tube. It is well to add a little soft solder to attach the tube *D* to the plate *B*. The next point is joining *B* to *A* so it will turn on a screw situated at *a*, fig. 1. A good way to do this is to make a hole through the tube *D* from side to side, large enough to admit the screw head. This will be understood by inspecting diagram *D**, which is a magnified section of fig. 2 on the dotted line *e*. The dotted lines at *a* indicate the hole through *D* and the screw. The plate *A* is cut off to the curve shown at the dotted line *f*, fig. 1. We have now the parts *A B* and *D* joined, but we need to have a clamp so arranged that we can set the tube *D* (and, of course, the ⅜ steel rod) at any angle and clamp it fast to *A*.



It will be remembered that the plate *B* was 3¾ inches long; consequently if *B* is attached at *a* so the lever edges come even, the top will rise ¼ of an inch above *A*; to this portion of *B* is attached a lip and set screw shown at *g*, diagram *B**, which is an edge view of fig. 2. This lip and set screw can be riveted to *B*, as in taking it apart by removing the screw at *a* the lip will raise off of *A*. At fig. 3 the parts are combined and also showing the top and bottom of the ⅜ steel rod *E*. This rod *E* is also shown separate at diagram *E**. It is a simple piece of steel rod 6 inches long with the lower end turned to ⅛ of an inch, and a screw cut on it to receive holders of different forms for holding stones to be cut, as will be explained further along. For clasping the steel rod in the tube *D* a bridge *i* is screwed to *B*, as shown in fig. 3 and also in diagram *B**. A screw could be tapped in the tube *D*, but there would not be sufficient hold for the screw *h*. To make this bridge take a piece of No. 10 sheet brass ½ an inch wide and 2¼ long, and bend it as shown in diagram *i**, which is a magnified view of *i*, fig. 2, as if seen from above. At *k*, diagram *i**, is shown a socket for getting a longer hold for the screw *h*. This socket should have a loose plug in it between the screw *h* and the rod *E*. On the rod *E* goes a wheel *F*, as shown in fig. 3; this wheel should be 2 inches in diameter and divided on the edge into degrees (360). The index hand *l* serves to read off the angles from *F*. The wheel *F* is attached to the rod *E* with a small set screw. At the lower end of *E* the screw *j* will allow different shaped holders to be attached. To make the description plain we will suppose we are to grind a stone shaped as shown at fig 1, August number. There I spoke of grinding off one side. After this flat side is

obtained we put the stone in a holder shaped as shown at *m*, diagram *H**. These holders are best made of hard red brass, and of such sizes as the reader will think best adapted for his purpose. The holder for the present job (we will suppose our rough garnet or amethyst is near half an inch across) should be shaped as shown at *m*, diagram *H**, where *o* represents the stone we are cutting. These holders, *m n p*, are vertical section, and the holes at *j* are to screw on *j* at diagram *E**. The recess in *m* at *o* should be about ½ across and near $\frac{1}{8}$ of an inch deep. In this we place our rough stone, as shown at *o*, diagram *H**, with the flat side up, and grind off to the dotted line *r*. There is no rule for this only to know the depth we wish our stone. The stone can be simply put in the recess (at *o*) as the flat side already ground resting on the recess in *m*, will hold the stone steady while grinding the face on the line *r*. To grind the face *r* parallel to the upper one, we have to resort to the screws *h h* in the **T**-shaped piece described in August. After the stone is ground to a slab flat on both sides we must square it on the edges. We will suppose our stone is shaped as shown at *o*, diagram *O**, where the full lines show the shape of the stone at the flat ground face, and the dotted lines swelling outside represent the stone as it extends away uncut. We prepare a holder shaped as shown at *n*, diagram *H**, with two jaws and a set screw *t*. A small piece of wood should go between the set screw *t* and the stone *o* to prevent breaking. It is well to secure *o* (the stone) from turning, by melting on it a little cement composed of resin, 2 parts, black pitch, 1 part, sifted brick dust or yellow ochre, ½ part. The stone is now ground to the line *s*, diagrams *H** and *O**. This line is supposed to represent one edge of the stone after it is finished. I would like to call the reader's attention to diagram *O**, where the dotted lines cross one another as it seems (and is) outside of the flattened surface of *o* shown by the full line. This is all right, as when we come to cut the facets this imperfection will grind out as will be understood by noticing the line *u*, diagram *H**. This facet is ground after the edge on the line *s* is ground by setting the plate *B* on the quadrant *A* to about 60°. After *s* is ground the stone *o* is turned half around in *n*, and the side corresponding to the side *s* ground. It will need no cement now to hold *o*, for this, as the edge *s*, will rest on the holder. To determine if the sides *s* and *x* are parallel, we must calliper and correct by the screw *h h* (August number) in the **T**-shaped piece.

Repairing Swiss Watches.

TO REPAIR a broken Swiss balance staff, the repairer may procure a rough one from the material warer house, says Hy. Ganney in his excellent series on the above subject, or make one by driving a piece of steel wire into a brass collet or stopping, hardening it by heating it to a cherry red, and plunging it into oil or water; then it must be tempered by brightening a portion with Arkansas stone, or otherwise, and, being held near a flame, let down to a full blue; in this condition the center must be filed in the jam vise, the arbor turned true, and the brass collet turned an approximate size. All parts of the arbor and collet must be forwarded in equal ratios, or it will come to grief if one pivot is turned nearly right size before the other arbor and back hollow has been turned sufficiently small. The douzième and pinion gauges should be freely used on the broken staff, and if both pivots are broken, and the staff otherwise a good one, the broken staff will be a good guide for the new, and show where the shoulder must be for each pivot. The douzième applied outside cock and foot jewels in the plate, with end stones removed, will give the length of arbor and pivots, one division of the douzième being allowed for end shake. The arbor should be turned as short as convenient, as long arbors, besides giving unnecessary trouble in turning, are apt to get bent in polishing.

When the arbor has been turned small enough, the roller must be carefully fitted in the process of polishing with cutting crocus, and the arbor must be only slightly tapered, as Swiss rollers have no pipe like the English; they must be driven on when fitted with a brass hollow punch, the right distance, the last thing, when trying the escapement; if too tight, they will be difficult to get on or off, and if at all loose, will not hold. Taking them off is not contemplated in the ordinary routine, and the rivetting clams and a punch over the pivot must be used to remove them. A very convenient stake is made by using a piece of metal with a hole large enough for the roller to go through; a slot is cut from this hole some distance to allow the arbor to pass along it, and the roller is thus supported all over at the back, and allows of force being used to remove it. This tool is very useful, also, for putting on the hairspring collet, as the roller can be passed underneath, allowing the seat for the balance to rest on the outer face, and saves injuring the roller, which must occur if the roller itself is in contact with a stake.

Having finished the arbor, and roughly formed the part for the bottom pivot, and what is called a safe, that is, turning the arbor nearly through below the pivot, so that in case of a slip or catch it may break there, we finish the collet, and fit the balance and hairspring collet. The height from bottom of brass collet to top pivot must be carefully noted by gauging or actual juxtaposition of the old and new piece, as the eye is apt to be deceived; and leaving the rivet rather high and the collet a little too long, the inexperienced will be surprised to find that the pivot and shoulder which appeared all right is just a pivot and shoulder too high, and the pleasure of turning or breaking a new pivot and shoulder out of the rough brass and steel will show the error he has made. The excellent practice of undercutting rivets and shoulders makes them appear as long again as they are, and a good graver and skill in using it are the sure roads to success at this job, the pivots being turned nearly right size and shape with a sharp-pointed graver. Then a cutting burnisher made from a piece of polished steel, hardened when made, with a rounded edge to form the conical shoulder; this, when sharpened on rough emery sticks to cut, and fine emery to burnish, will do all that is required for a perfect job in the ordinary turns. If not capable of turning anything finer than an arbor, the Jacot tool and pivot files may be ussd, and a nick being cut where the pivots are to be, by shifting the arbor from the large to the small nicks in the tool as it is reduced, a pivot may he worried out of the arbor with the pivot file, which will only be good enough for the commonest work. The pivots should be left full long and rounded the least thing after the balance is rivetted, so that a chance is given of improving the freedom of the balance by making the end shake and height right by shortening top or bottom pivot, as may be most desirable. The rivetting should be done by a half-round punch, with the back whetted to a sharp edge nearly. This will go into the rivet and drive it down as well as out. A blow at four different parts of the rivet should tighten it flat and true, and then the hammer applied lightly to the punch, whilst the balance is continually moved with the finger, would finish it. If not flat, the rivet must be hammered at the part where the balance projects. If there are three arms to the balance, it may need flattening by striking them with a light hammer, or the pliers may be used with advantage; resting the point of the pliars near the center of the balance on the arm, and using the edge of the balance as a fulcrum; or the balance may be held in the fingers and pressed against the edge of the work bench to flatten it. A combination of these plans is sometimes necessary.

Escapement makers usually rub and burnish their balances on the staff before turning the pivots, by holding a pointed center against the rivet whilst revolving in the turns; but repairers will find this not so convenient or safe as the other plan of rivetting, which must be adopted in the replacing of cylinders, and they will not get enough practice at both to be very reliable at either.

Most of the directions given for the balance staff are applicable to the pallet staff, though it differs from it, being secured to the lever and pallet by screwing. Working usually in thorough level holes

will require a square-edged polisher and burnisher to finish the pivots. The arbor has usually a very thick bottom arbor or shoulder, which is held in the pliers when it is desired to unscrew the pallets and lever.

In making a new staff, a piece of steel wire may be turned whilst it is soft, and the screw made on it by using the lever itself as the screw plate ; when a good thread has been formed on the arbor it should be hardened and tempered, and the height from the shoulder, on which the pallet rests, carefully gauged, and the bottom pivot made and finished. The action of the wheel on the pallets should now be observed by screwing lever and pallets together, and putting them in, and holding the arbor as upright as possible; or putting the escape cock lightly on in contact with the top arbor. If the position appears right, the height should be gauged from the old arbor, or by filing a piece of brass wire until it fits between top and bottom holes, and gauging that for the height. Internal gauges may be bought, which are very useful for this purpose.

When the pivot is finished, the escapement should be tried first without the balance. On moving the lever and pallets the tooth should have an equal amount of drop on to each pallet ; this will prove the correct sizing and depth of the wheel and pallets, and an equal amount of run of the pallet after the tooth drops, before the lever comes against the banking which limits its motion. If there is much run on one pallet the other may not leave the tooth at all, or only just as the lever comes to the rest; this shows it out of angle ; and if the steady pins are tight in pallet and lever the hole must be opened, or the pin filed or bent to allow it to be shifted on the lever, so that the pallet may leave the tooth before the lever has traveled the full distance. If both pallets refuse to leave the teeth, it would show that the bankings are not wide enough ; but if the watch has ever gone, the fact proves the bankings to be wide enough; and the inability to leave one pallet is the same effect as inability to leave both, and all alterations which make one pallet deep make the other shallow in the same ratio. Common levers have considerable drop, and run up the pallet as well as variable draw or retentive action of the wheel on the pallet. Fine watches allow of these actions being very close if the wheel drops at equal distance of the lever's motion, and allows a little more motion of the lever before it comes to the banking ; and then the ruby pin leaves freely and the guard action has a little shake between the hanking and roller edge, without danger of sticking in the roller or allowing the wheel teeth to get off the locking face on to the impulse plane, until being pulled off by the action of the ruby pin, the escapement being free may be considered correct.

The Stem-Winding Mechanism.

BY MORITZ GROSSMANN.

[On examination, we find the further remarks of our author devoid of interest to the watchmakers of this country, and we therefore conclude the article.]

Prize Essay on the Balance Spring.

[BY MORITZ IMMISCH.]

THE balance spring has often been called the soul of portable time-measuring instruments, and anyone at all partial to figurative language will own that it fully deserves the appellation, inasmuch as from its importance, delicacy, sensitiveness, and independence of action, it may well be likened to the predominating Mind, which, though it derives its sustenance from the Body, governs in its turn all the actions of the latter. Watchmakers are all the more tempted to make a comparison of this kind on account of the uncertainty under which a majority of them labor with regard to its properties and the laws which govern its actions.

One can scarcely be surprised at the prevailing ignorance in this respect, as there is very little reliable information to be found in books on watchmaking which could at all serve as a guide, and as a sound basis for self-improvement.

The principal aim of watchmaking is correct measurement of time, and it must be confessed that in this respect, judging from the average performance of what are called first-class watches, there is ample room for improvement. There is no doubt that a proper knowledge of the nature and correct adjustment of the balance spring, especially with regard to isochronism, is of the utmost importance.

This manifests itself very strikingly, when we see that frequently a watch or chronometer of inferior make and even faulty construction goes admirably, and with a regularity which in some cases is perfectly astonishing ; while on the other hand, the highest degree of perfection of the escapement, the most exquisite finish of the train work, is unavailing to produce good performance if the balance spring is faulty or imperfectly adjusted.

It is to the introduction of the balance spring that watchmaking as an art may be said to owe its very existence.

There certainly was a kind of watch made before its invention in which the vibration of the balance was kept up by the recoil it met with in the escapement, the momentum of the balance being alternately destroyed and renewed solely by the direct operation of the motive force. This method of obtaining a vibrating motion was no doubt extremely ingenious, but it is evident that any of the unavoidable irregularities to which the available impelling force of the fly-wheel is always subject would tell immensely upon the balance, modifying its speed to such an extent as to make the watches next to useless for practical purposes. The principles upon which these machines were constructed precluded the possibility of their being materially improved, and they would have remained, what in fact they were then, objects of curiosity rather than utility.

It was reserved to the genius of the celebrated Dr. Hooke, who, in the middle of the seventeenth century, discovered the use of the balance spring, to supply the wanting elements of perfectibility, and to raise watchmaking from its primitive state to the rank of a beautiful and beneficial science.

His keen intellect perceived at once the immense advantage of giving to the balance an independent motion of its own, by means of which it was enabled to exercise a proper control over the irregularities of the motive force and to neutralize their effects. His scientific investigations of the nature of springs, and his inquiries into the laws that govern their action, led him to his celebrated maxim, "*ut tensio sic vis*" (the force of the spring is as its tension), that has made his name famous forever. With a view to solve the problem of determining the longitude at sea by means of a correct timekeeper, he applied for a patent ; it was not carried into effect, however, on account of a serious disagreement between him and some enterprising gentlemen of position, in conjunction with whom the Doctor intended to work the patent at first, and he determined to leave the mater dormant for a time. It soon transpired, however, and "pendule watches" were made by several watchmakers in London soon afterwards. We find, too, that later on, several French watchmakers were quarreling among themselves about the priority of the same invention, but this can only mean the priority of application, inasmuch as from documents still existing it appears that some of them had been in communication with the same parties who had failed to come to terms with Dr. Hooke, and it is more than probable that they suggested the idea to their French correspondents.

Considering time and circumstances, the beautiful combination of balance and spring must be put solely to the credit of Dr. Hooke.

Applied to the old verge escapement, the difficulties in the way of

good performance were still very great on account of the recoil; but as this could now be dispensed with as a means of bringing the balance after a first impulse back into its proper position to recieve the next, the idea of dead-beat escapements suggested itself, and Hooke contrived one which, though it had still a slight recoil, contained the elements, and was suggestive of, the duplex escapement, which was invented some fifty years later by Dutertre, a French watchmaker.

In the course of time a good many of these escapements came into existence, but it was not until the free detached escapements made their appearance in the latter part of the eighteenth century, that the real properties of the balance spring could at all be tested with any chance of arriving at some definite conclusions.

Before that time, the greater or lesser friction of the acting parts of the escapements continuing throughout the whole of the vibration made it a matter of great perplexity to reconcile the results actually observed with Hooke's "*ut tensio sic vis*," and as the theories founded on experiments with one escapement were at variance with the results of experiments made with another, we cannot wonder that the opinions concerning the spring were undecided and sometimes contradictory.

As an instance illustrative of the extreme difficulties in the way of properly understanding the conditions under which the balance spring acted, I may mention that in 1766, more than a hundred years after Hooke's invention, Cumming, in his book, "Improvements of Watchwork," describes a dead-beat escapement, and in experimenting with it finds that its behavior in long and short vibrations was so different to what it was with other escapements that he comes to the conclusion "that hitherto the effects of the mantaining power have been mistaken for the natural tendency of the pendulum spring."

The detached escapements, as they were invented and gradually improved, reduced the friction—that great enemy to steady motion—to a minimum. The emancipation of the balance and spring from the influence of the maintaining power permitted the conditions of their motion and their relation to each other to be considered as separate features; by means of influences, the remaining friction in the escapement became a known quantity with determinable limits, which could, by turning the acquired knowledge of the properties of the spring to a proper account, be successfully contended with; and what was before quite illusory—the realization of the much-cherished idea of determining the longitude by means of a watch—now became more feasible. We see watchmakers of that period exerting their utmost skill to obtain that end, the large reward connected with it no doubt acting as a powerful stimulant to their energies.

The spirit of controversy being aroused, various and sometimes contradictory theories were advanced in books and pamphlets. The principal aim still seemed to be the further perfection of the escapement, and it makes one sad to think that so much incessant labor should have been thrown away without directly advancing the end in view; as, for instance, in the case of Mudge, who constructed a remontoir escapement so bold and original in conception as to find, simply considered in the light of an ingenious mechanical contrivance, scarcely a parallel in the whole history of watchmaking.

This memorable period of watchmaking was, notwithstanding the frequent mistakes, productive of results extremely salutatory to the advancement of horology as a science. Failures of some artists served as examples not to be followed, marking a path to be avoided, and inducing others to look for success in other directions.

The detent escapement being almost exclusively adopted for chronometers, as combining the least friction with the greatest simplicity, the balance spring now received a greater share of attention than heretofore.

Up to the time of Arnold, balance springs were made in the flat spiral shape. With him originated the cylindrical helical spring. The ends of this spring are bent inward, forming a curve, within the circular space of the coils; the greater or lesser abruptness of these curves affects greatly the action of the spring in long and short vibrations, and is therefore determinable by the exigencies of each case.

Somewhat later, the Breguet spring made its appearance, deriving its appellation from its inventor. The body of this spring is flat, but the outer coil is bent upward with a gentle sweep; at some distance from the flat part of the spring it again forms a knee downward, in order to bring its length parallel to the plane of the spring; from there it is bent inward, forming a curve, gradually tending toward the center, similar to that formed by the ends of the helical spring.

I have to mention another spring, which, on account of its form when seen sideways, is called the spherical spring. It was invented by Houriet, a Swiss watchmaker. While in the cylindrical helical spring all the coils, except the curved ends, are of equal diameter, the diameters of all the coils of a spherical spring are different from one another, being largest in the middle and lessening toward the ends.

The specific advantages and disadvantages of these different forms of springs will hereafter be gone into.

I may here mention that the cylindrical form has, with very few exceptions, been adopted by the English makers for marine and pocket chronometers, and the high reputation of superiority which the English chronometer enjoys, and always has enjoyed, speaks volumes in its favor. One of the principal advantages afforded by this form of spring consists in the facility with which it permits those manipulations to be performed which are necessary to enable the spring so as to control the motions of the balance that the long and short vibrations are performed in equal times.

This state of uniformity is called isochronism. We find that it is practically impossible to procure equal arcs of vibration for any length of time; the gradual increase of friction on account of the thickening of the oil will soon make the vibrations fall off, and in the case of pocket watches, the motion imparted to the balance while being carried and the varying friction in different positions cause a considerable fluctuation in the length of the arcs; and as, in order to obtain a steady motion of going, any given number of vibrations (whether long or short) must be performed in a given time, it is evident that isochronism is the most important feature connected with balance springs.

A good deal has been said and written on isochronism, and whether these writings have confined themselves to the practical side of the question in promulgating the results of experiments, describing the manner of procedure, the means by which isochronism can actually be obtained, they have no doubt done a great deal of good, but all endeavors to create a sound, comprehensible basis for the various phenomena exhibited by different springs have proved more or less unsatisfactory.

(*To be Continued.*)

Magnetized Chronometers and Watches.

AT A RECENT meeting of the Electric Club, at Brighton Beach Hotel, one of the members, Lieut. F. W. Toppan, U. S. N., read a paper of considerable interest in relation to the "Recent Scientific Discoveries Regarding the Effects of Magnetism on Marine Chronometers and Watches." We copy from the *Electrical Review* the following extracts from the article:

The practical application of electricity has made giant strides, and electricity applied mechanically means magnetism in some form. The appliances for generating electric light and motive power are pregnant with magnetism, contaminating the whole atmosphere surrounding dynamos, motors and wires.

The chances of injury to chronometers and to watches especially, by magnetism, have been greatly multiplied by the development of the dynamo and its extensive application to electric lighting and

other purposes; so it is very common to find magnetized watches in the hands of persons having no connection whatever with electrical appliances. A watch readily becomes sufficiently magnetized to derange its action and render it entirely unreliable. If the regulating part of a chronometer or watch—that is to say, a balance, together with the hair spring—should be badly affected by magnetism, which happens very often, it is clear that the timepiece will suffer more or less, according to the fineness of construction and delicacy of adjustment.

All these changes herein referred to have their influence upon magnetic metals, and, as I have before stated, those metals entering largely into the construction of the balances and balance springs of chronometers and watches, can we wonder why our timepieces are found inaccurate and unreliable?

The greatest cause of error, as may be inferred by the foregoing, is our present compensation balance and our steel balance spring.

Little did John Harrison imagine, when trying to provide a corrective for the expansion and contraction of the balance and balance spring in changes of temperature, that, as shown by Berthoud, the changes in the elasticity of the balance spring were the real evil, and the expansion of the metal was really an insignificant factor compared to the former, as the combined expansion or contraction of the balance and balance spring is about one-fifth in effect, demanding compensation, while the changes in the elasticity of the balance spring demand the other four-fifths of the compensation needed.

The invention of the compensation balance is rather the result of inventive genius and practical experiment than a contrivance based on well-defined mathematical and scientific principles. But without entering further into this part of the subject, it can be stated as a fact that having a steel compensation balance and hardened steel balance spring, and our present annular compensation balance, the laminæ of which are made of steel and brass, we can obtain compensation for changes of temperature approximating accuracy for a change of 30 degrees Fahrenheit only, unless the auxiliary compensation device is used, when we can obtain compensation for a wider range of temperature.

Makers of compensation balances are very particular about the quality of brass they employ for melting on the steel rims of their balances. Unsound balances frequently result from the quality of the brass; but it is not an uncommon occurrence that even in the best balances the laminæ separate, when exposed for a long time to a very low temperature. Chronometers used in whaling ships stationed for a year or more at Behring Straits often meet with such a mishap. A sliding of the brass on the steel may be the cause. The unequal progression of the ratio of the two metals is a source of error, for steel has a decreasing ratio of expansion in heat, and brass has an increasing ratio.

Some English chronometer makers have demonstrated by experiment, without any practical result, however, that the necessity for compensation for temperature can be reduced to nearly one-tenth by employing glass balance springs; but these springs have to be made of great length and require much room, aside from the difficulty of making and applying them; they certainly never could be employed in watches.

In a competitive trial of a number of chronometers at the Bureau of Navigation at the Navy Department, Washington, during the first six months of the year 1888, three chronometers were withdrawn from the trial on account of rust having developed on the balance springs. Now, if rust is liable to show itself so early as that, may I ask how many chronometers at sea are likely to be afflicted with this malady, particularly in the tropics? May I ask how many ships have been out of their reckoning on account of rusty balance springs? For nothing destroys the timekeeping of a chronometer or watch so effectually as the most diminutive speck of rust on the balance spring. The deep-seated conviction of this fact has induced watch manufacturers doing business with tropical countries to fit the better grade of watches with gold balance springs, but the life of the elastic properties of these springs was found to be short, and in observatory trials chronometers fitted with gold springs stood low on the list, and did not compare favorably with those having steel springs.

By the foregoing remarks and by some subsequent references emphasizing the high and growing importance of possessing portable machines for accurate timekeeping, and the difficulty of attaining them, I desire to acquaint the members of the club with what Mr. Paillard, a celebrated adjuster of Geneva, Switzerland, has really accomplished, and to show how far Mr. Paillard's efforts have contributed in eliminating or reducing the errors enumerated; for if he has succeeded, and bulletins from the Government Observatory at Geneva would indicate that he had, then to him belongs the credit of having made a most decided improvement in our portable timepieces, and rendering a great service to modern horology.

Various metals have been suggested to take the place of steel, but it seems to have been left to Mr. Paillard, after fourteen years of experiment, to finally succeed in discovering and producing, in an alloy of palladium, a metal which is uninfluenced by magnetism or corrosion, and still retains those properties necessary to obtain the finest adjustments for changes of temperature.

Balances and balance springs made of this alloy are of an expansive property, and a specific gravity slightly in excess of steel, but possessed of the very important qualification that it retains its elasticity in heat in a high degree, as verified in observatory trials in various countries, thus reducing one of the worst errors, inherent to to a steel balance and spring, aside from its magnetic and oxydable properties, giving us a material which enables us to get a compensation approximating accuracy for a wider range of temperature.

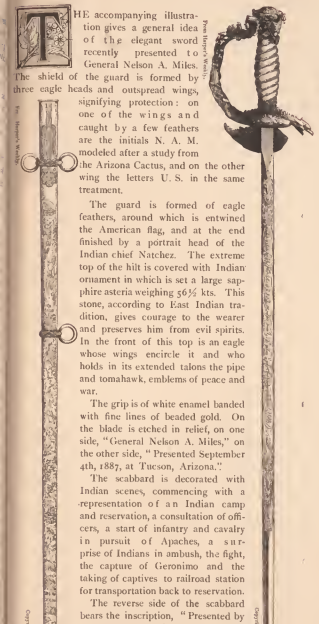
Palladium is a metal of the platinum group, and was discovered by Woldston in 1803. Its specific gravity is 11.3, that of gold being 19, steel, 7.7, and palladium alloy, 8.5. It is more fusible than platinum, and melts easily before the oxyhydrogen blowpipe at 2840° Fahrenheit. In its pure state it is not so ductile as platinum.

In producing his balance Mr. Paillard used two different alloys of palladium having a differential expansive ratio in similarity to that of steel. In so doing he at the same time gave us a superior balance, for the two metals composing the laminæ of his balance are congenial, both being made of a palladium alloy and being fusible under different degrees of heat, having the necessary hardness and other qualifications. Numerous searching tests with balances in connection with the palladium alloy springs have given the most flattering results, and we have in chronometers and watches containing these balances and springs superior timekeepers uninfluenced by the hygrometric condition of the atmosphere, or any spasmodic electrical condition of the same, and excelling all previous attainments with the steel and brass balance and steel balance spring.

This question of magnetism and the necessity for protection of chronometers and watches against magnetic influences, has called forth inventions of machines and devices for demagnetizing timepieces that had become affected; also a sort of soft iron shield or armor for enveloping the watch movement, as a defense or preventive against magnetic influences. These are mostly cures after harm has been done. There would be no need of these devices if those parts of the chronometers and watches which control the timekeeping qualities were made of metals absolutely unaffected by magnetism, and yet possessing the other necessary qualifications.

In the face of the certain fact that electrical appliances shall become wider and wider in their range, and the aggressive tendency of electricity for lighting and as a motive power, both at sea and on shore, we must be prepared to meet its magnetic influence at every step in our industrial occupations. In the discovery of this alloy of palladium, a timepiece has been produced that is strictly non-magnetic and non-oxydable, and possessing those requisite and necessary qualities for fine and accurate adjustments to temperature and isochronism, and will take rank among inventions of the highest order in horological science.

Sword Presented to Gen. Miles.



THE accompanying illustration gives a general idea of the elegant sword recently presented to General Nelson A. Miles. The shield of the guard is formed by three eagle heads and outspread wings, signifying protection: on one of the wings and caught by a few feathers are the initials N. A. M. modeled after a study from the Arizona Cactus, and on the other wing the letters U. S. in the same treatment.

The guard is formed of eagle feathers, around which is entwined the American flag, and at the end finished by a portrait head of the Indian chief Natchez. The extreme top of the hilt is covered with Indian ornament in which is set a large sapphire asteria weighing 56½ kts. This stone, according to East Indian tradition, gives courage to the wearer and preserves him from evil spirits. In the front of this top is an eagle whose wings encircle it and who holds in its extended talons the pipe and tomahawk, emblems of peace and war.

The grip is of white enamel banded with fine lines of beaded gold. On the blade is etched in relief, on one side, "General Nelson A. Miles," on the other side, "Presented September 4th, 1887, at Tucson, Arizona."

The scabbard is decorated with Indian scenes, commencing with a representation of an Indian camp and reservation, a consultation of officers, a start of infantry and cavalry in pursuit of Apaches, a surprise of Indians in ambush, the fight, the capture of Geronimo and the taking of captives to railroad station for transportation back to reservation.

The reverse side of the scabbard bears the inscription, "Presented by the people of Arizona in grateful acknowledgement of distinguished services in the capture and removal of Geronimo and the hostile Apaches."

The toe or extreme end of the scabbard is a carefully modeled portrait of the chief Geronimo. The entire sword, with the exception, of course of the blade, is of gold of a subdued color, or what is termed nugget finish.

The sword was manufactured by Tiffany & Co., who have made many rich presentation swords, and they state that in real artistic excellence it is one of the best, if not the very best they have made.

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*A Complete History of Watch and Clock Making in America.

[By Chas. S. Crossman.]

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Number Sixteen.

THE ADAMS & PERRY MANUFACTURING CO.—THE LANCASTER WATCH COMPANY.

THIS company has probably stopped and started more times during its career than any other American watch company has ever done during a life's period of time.

Organized as it was with insufficient capital, its history seems to show one continuous struggle for an existence.

But not to generalize too much, let us begin by saying that early in the year 1874, Mr. J. C. Adams opened a correspondence with parties in Lancaster, Pa., looking to the formation of a watch company in that city. In the month of April he went to Lancaster and issued a prospectus dated April 23, 1874, in which it was stated that with a capital of $100,000, a company could be formed, factory erected, and ten watches a day turned out. $78,000 was subscribed by 70 stockholders, prominent among whom were Messrs. J. C. Adams, E. H. Perry, and E. J. Zahm, each of whom subscribed $5,000.

At a meeting of the stockholders held June 13th, 1874, a Board of Directors was elected, and on June 15, the Board met to elect officers, and as the stock had been subscribed with the understanding that Mr. Zahm was to be President, Mr. Adams, General Business Manager and Mr. Perry, Superintendent, this operation involved but little trouble. John Best, a $3,000 stockholder, was elected Vice-President, J. C. Adams, Secretary, and John B. Roath, Treasurer.

The company received its charter and was duly incorporated Sept. 26, 1874, being known as the Adams and Perry Watch Manufacturing Co. Some of the stockholders demurred at the adoption of this name, saying that if Adams & Perry should sever their connection with the company, and start another company under the same name, it would bring about unpleasant competition. Their objections were, however, overruled.

The prospectus had spoken of a pay-roll of $15,000 per annum, but this proved to be for officers only, viz.: $5,000 for a President, who had no previous experience whatever in watch manufacturing; $6,000 to Mr. Adams, as General Manager; and $4,000 to Mr. Perry, as Superintendent. Upon the election of officers, a 10% installment of the subscribed capital was called for. After looking for a location for a machine shop in which to commence operations, it was decided June 19, to use Mr. Best's ice-house, he to furnish power in consideration of the improvements they would make.

Most of the first employees were stockholders in the company, and in some instances the figures would seem to indicate that their salaries were somewhat in proportion to the amount of stock for which they had subscribed. The company also contracted for the use of Perry's patents, consisting of a patent design of plate and an improved method of stem-setting device, for which they agreed to pay Mr. Perry a royalty of three dollars on each and every movement produced.

By the early part of August, several propositions regarding a location for the factory had been received, and a committee of six stockholders was appointed to act in conjunction with the directors in choosing a site. It was resolved to accept the proposition of Mr. C. A. Bitner, at that time a merchant in Lancaster, and a stockholder in the company, to deed to the company, in fee simple, 3 acres of land on Columbia turnpike, a mile west of the center of town, and just within the city limits. Mr. C. L. Styles, an architect of

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Lancaster, drew a plan for the factory, and work on the building was commenced in September, 1874. The factory was sufficiently completed by June, 1875, to accommodate the shareholders at their annual meeting in that year. The building stands facing Columbia avenue, about 100 feet from the road, and located on an eminence overlooking a magnificent landscape for several miles around. The center building is 50 ft. square, and 3 stories high, with east and west wings 50x78 ft., 2 stories and basement. A dial house was added on the north in the spring of 1879, and a wing with office, etc., in 1881. The cost of the building had been estimated at $21,000, but really exceeded that figure considerably.

City gas and water works companies have extended their mains to the company's buildings so they have the advantages of the large factories having their own gas and water works.

A statement of the affairs of the company at this date (June, 1875), showed $78,700 of the $100,000 to have been subscribed. Of this amount $48,000 had been paid in instalments as called for, and $14,400 had been paid in full. Up to this time everything was harmonious, but at this time the directors agreed to disagree. It had been Mr. Adams' idea from the commencement to make about ten watches per day, these to be very fine ones. The grades were to be limited to three, and the escapements, hairsprings, etc., were to be imported. By following this plan, he calculated that the factory could be run at a profit. Mr. Perry, however, now proposed to change the old scheme and make everything in the factory. He made a report that he could produce an escapement, etc., at a cost not exceeding $2,000 additional, and that the delay would not be more than two months. The plan was adopted against Mr. Adams' protest, and he resigned his position as manager of the company, and later as secretary, being succeeded in the former capacity by Mr. Perry, and in the latter by Mr. C. A. Bitner. That Mr. Perry shot wide of his mark in that respect, the subsequent history of the company clearly shows.

The new building was occupied by the company in July, 1875. A report of Mr. Perry's, dated Oct. 1, 1875, states that they commenced making material for watches in the month preceding. Mr. Thos. E. Stoddard, formerly with Messrs. E. Howard & Co., was engaged as foreman of the train room, and Mr. C. Bickford as foreman of the escapement room; Mr. J. F. Wright, formerly at Elgin, was also engaged as foreman of the machine shop; and Mr. C. L. Styles as draughtsman. The contracts with foremen were for 5 years, barring fire or failure of the company. In December, of that year, they found themselves in need of further funds, and issued bonds for $25,000, secured by the real estate and machinery of the company, Jacob Bausman and J. C. Hager being the trustees. The bonds were not sold, but were hypothecated with the Lancaster Insurance Co., for $10,000. On the 25th of Feb., 1876, Mr. Abram Bitner made a proposition to take the bonds at 80% of their face value, provided that he should be allowed to convert them into stock at any time he should desire to do so.

This proposition was accepted in March following, and the transfer made.

The company were yet pushed for funds and an inventory was taken to get at the true state of affairs. The result showed tools and machinery amounting to $77,496, with a bonded indebtedness of $25,000, and a considerable floating debt. It was thought that watches could be gotten ready for market by May, but something would have to be done to tide over affairs until then. A statement by the management was accordingly made, reciting that $45,000 additional capital would be required to put the concern on a paying basis. A meeting of stockholders was called, and an effort made to increase the capital stock to $250,000, but no new capital was secured.

On the 7th day of April, 1876, the first movement was reported finished. This movement had of course been rushed through ahead of its regular course. It was 19 size, having snap dials and pillar plates turned down, and was made with Perry's patent stem-setting arrangement. It was thought best to make a movement of a different size from the regular 18 size movement, and thus compel the dealer to buy a case with every movement.

Now came a time when it began to look rather dark, as pay days had to be postponed, and on May 16th, 1876, the company closed their doors, and a week from that day a meeting of stockholders was called to consider what action was best to take. The President, Mr. Zahm, reported the factory closed. He said they had been disappointed in the time it had taken to have watches ready for market, thus entailing upon the company a greater expense than they had calculated upon. The result was that all capital, including the amount realized from the sale of first mortgage bonds had been expended, and an indebtedness of $20,000 incurred. He further said that they were unwilling, as a Board, to go forward under these circumstances, preferring to submit the affairs of the company to the stockholders, that they might decide what was best to be done. A report of the liabilities of the company was then presented, which showed them to be $44,568.06. The following resolutions were then offered for consideration:

First—That the Board of Directors be increased from five to eleven.

Second—That all contracts with operatives be annulled.

Third—That the patents owned by E. H. Perry shall be assigned to the company, with the reservation that if Mr. Perry should leave the company he shall have the right to allow one other company to use them.

Fourth—That the royalty hereafter to be paid to Mr. Perry shall be $1 for each movement.

Fifth—That convertible mortgage bonds to the amount of $65,000 shall be issued and sold to the stockholders at 80 per cent. of their nominal value, and any part of same remaining unsold shall be put on the market at an advance of not over 20 per cent. Also that the capital of the company be increased to $250,000, and Mr. A. Bitner be appointed Manager.

The above resolutions were all carried with the exception of the fifth, which was so amended as to allow the Directors to raise, by convertible mortgage bonds, or by any other means, $50,000. The Directors resigned and a new Board of eleven was elected, composed of Messrs. A. Bitner, C. A. Bitner, Samuel F. Rathfou, Dr. H. Carpenter, J. P. McCasky, E. J. Zahm, H. Baumgartner, B. F. Eshelman, J. Bausman, H. S. Gurra, and John Best.

The new Board proceeded at once to elect as officers, Dr. H. Carpenter, President, B. F. Eshelman, Vice-President, C. A. Bitner, Treasurer, J. P. McCasky, Secretary, and Abram Bitner, Manager. Mr. Bitner, however, did not serve as Manager until a later date, as he desired first to see watches turned out, and to get the opinion of the trade as to their merits.

No stock was subscribed for nor bonds issued, and, as some of the creditors were clamorous, the Board met at special meeting, and on June 10th, 1876, made an assignment to C. A. Bitner, the Treasurer. The public sale of the property took place a short time after, and was bought by Dr. Carpenter for a syndicate that had been formed, the price being $47,000, subject to the mortgage of $25,000, held by Mr. A. Bitner, and to a second mortgage of $5,000, held by C. A. Bitner. The syndicate thought it a good investment at that price. Mr. Bitner, as agent for the syndicate, issued a circular in August, advertising the plant for sale. Several parties came to examine it, but no buyer was found at the price asked. It therefore laid idle for a year. In the summer of 1877, Mr. W. N. Todd, for many years with the Elgin Co., came to Lancaster and examined the machinery and material on hand. He then reported that with $20,000 he could finish up and put on the market 800 movements within a year that were in process of manufacture when the old company closed. In this number were included quite a number of

unfinished movements which the old company had hypothecated for a loan previous to their assignment.

On the strength of this report the *Lancaster, Pa.,* Watch Co. was formed from members of the syndicate in August, 1877, and work commenced Sept. 1, 1877. The cash capital put in at this time was $21,000, divided into seven shares of $3,000 each, and held by the following named partners: Eshelman & Rathfou, H. S. Gurra, John Best, A. Bitner, J. P. McCasky, S. F. Rathfou, and Bitner & Hostetter. This, in addition to $47,000 previously paid for the plant, represented an investment of $68,000. Mr. A. Bitner was General Manager of the new company, and Mr Todd, Superintendent. Mr. Perry remained as draughtsman. Mr. Basney came to take charge of the train room, and Mr. Newton, of Waltham, had charge of the escapement room. The machine shop was first started with a force of 15 men. As many small tools were required for use in the factory, and as much of the machinery was rusty and out of repair, it was found necessary to close the place until the necessary repairs could be made. Owing to the limited amount of capital that could be spared to make these repairs, Mr. Todd was unable to fulfil his contract with the company. He was succeeded in January, 1878, by C. S. Mosely, but remained during the balance of the year to assist Mr. Mosely in designing and modelling the new movement which the company had in prospect. Certainly, if the modelling of a movement can make a success, this ought to have succeeded, as these two gentlemen are accounted among the best in that line in America. The new movement was designed to be sold at a cheap price. It had a solid top ¾-plate, a pillar plate, was full ruby jeweled, 4½ pairs, and was made in both gilt and nickel. Mr. Perry's patent stem wind was not used, the new S. W. device being modelled by Messrs. Mosely & Todd. Only a few of the old Adams & Perry movements were ever finished, as the company began to alter their machinery for the manufacture of the new movement. The bulk of the old movements were thrown into scrap, although some had the jeweling done and escapement matched, and some were gilded.

By the first of February, 1878, the new company had assumed some proportions, as they had then 45 names on the pay-roll. By the first of June, 1878, this number had been increased to 63. Sept. 7, 1878, the capital stock was again increased, and an invitation was extended to the residents of Lancaster to visit the factory and inspect the works. Subscriptions to stock were solicited but none were obtained. September 30, 1878, the factory closed its doors until more money could be raised. The Messrs. C. A. & A. Bitner, joint owners of the $25,000 mortgage bonds, now offered to capitalize their bonds, providing the citizens would raise $10,000 additional. $7,000 was finally raised, and Mr. A. Bitner subscribed the remaining $3,000. This new capital, to the amount of $35,000, was put into the business, although it was only by the liberal offer of the Messrs. Bitner, and the assistance of the local newspapers that this was accomplished.

A meeting of stockholders was called Oct. 7, to revise the apportionment of stock, and to make arrangements for a reorganization on a satisfactory basis for both old and new stockholders.

The company reorganized Oct. 31, 1878, and was called the *Lancaster, Pa., Watch Company, Limited.* Nominal capital was $160,000, and actual capital was as follows:

Buildings, grounds and machinery,	$49,000
Capital *Lancaster, Pa., Watch Co.,*	21,000
New capital, - - - - -	35,000
Making a total of	$105,000

The following gentlemen were elected Directors of the new company: C. A. Bitner, A. Bitner, J. P. McCasky, John J. Hartmann, and Dr. J. P. Wickersham. Officers were as follows: J. P. Wickersham, President; C. A. Bitner, Treasurer; J. P. McCasky, Secretary; A. Bitner, General Manager.

(*To be continued.*)

Queen Henrietta's Signet Ring.

AMONG the many jubilee gifts received by her Majesty, few are more interesting than the engraved signet ring of Henrietta Maria, presented to her by Mr. Drury Fortnum, F. S. A., the well-known antiquary and connoisseur. That such a ring had been made for the unfortunate Queen was proved by the entry in the Privy Seal books of the Clerk of the Pells, now in the Public Record Office, where a warrant of Charles I., dated Jan. 16, 1628, orders the payment of £267 to one Francis Walwyn, "for the cutting and finishing of the arms of England upon a diamond, with the initials of the Queen on either side." Tradition also pointed to the existence of such a signet ring at a later date; it was believed to have been in the possession of Tavernier, the well-known French diamond merchant, whose travels in Turkey and Persia are celebrated; and it was known that a ring of the same description had been in the Earl of Buchan's collection, where it passed for that of Mary Queen of Scots. Copies of it in paste were extant. At last it occurred to Mr. Fortnum to inquire whether it had by chance come into the hands of the late Duke of Brunswick, who, as will be remembered, left his wonderful collection of jewels to the town of Geneva. There, sure enough, he found it, and after a long correspondence he bought it, and presented it a few weeks ago to Queen Victoria. It is now included in the royal collection at Windsor, where it lies side by side with the fine steel and gold signet of King Charles. We may add that Mr. Fortnum contributed an elaborate history of the signet and of other royal rings to the *Journal of the Society of Antiquaries* in 1882.—*London Times.*

Gilding and Gold Plating.

Continued from page 261.

COLD-ELECTRO GILDING BATH.

THE PROPORTION and nature of the salts employed varies almost infinitely, but we shall only give the three formulæ most frequently used, with good results:—

I.—Distilled Water..... 2½ gallons.
Cyanide of potassium, ordinary, 707., 10½ ounces.
Pure gold..... 3½ ounces.
Aqua ammonia..... 17½ ounces.

Heat the gold in a glass flask with 9 ounces of pure hydrochloric acid, and 4½ ounces of pure nitric acid. When the gold is dissolved, continue the heat, in order to expel the acid fumes, and until the color of the liquid is dark red, nearly black. Remove from the fire, and dissolve the crystalline mass formed in cooling in three or four pints of water, and pour into a large porcelain dish. Add the ammonia, which produces an abundant yellow precipitate of gold ammonium, pour upon a filtering-paper, and the filtered liquid, which still contains traces of gold, is kept with the saved waste. Wash the precipitate remaining upon the filter several times with cold water, until it no longer smells of ammonia. It must not be dried, as it is a fulminating mixture, and consequently very dangerous. Next dissolve, in the vessel used as a bath, the cyanide of potassium in the distilled water. Filter, and add the wet gold of ammonium, which rapidly dissolves when stirred, and forms a clear gold bath. But before using it cold, the ammonia should be expelled by boiling for about one hour. For a newly prepared cold electro-gilding bath, the ordinary cyanide of potassium is preferable on account of the potash it contains, which renders the liquid a better conductor of electricity. But for the preservation of the strength the pure cyanide is better, as it possesses the advantage of a constant

composition, and does not load the solution with foreign salts. The gold solution for maintaining the metallic strength of the bath is prepared as follows :—

Transform the gold into precipitate of gold ammonium, as above described ; place it in water, 2 pints of water to 4 ounces of gold, then add cyanide of potassium until the liquor is colorless. If there is not sufficient water with the gold ammonium, the liquor will be dark red. and will not be decolorized by cyanide.

II.—Diluted water.....2½ gallons.
Cyanide of potassium, pure.....7 ounces.
Or, ordinary cyanide, according to strength, 10–14 ounces.
Pure gold.....3½ ounces.

Make a neutral chloride of gold, as in the preceding formula, and when cold and crystallized, dissolve it in 3½ pints of water; filter, if needed, dissolve the cyanide in 14 pints of water, filter, and mix the two solutions, which become colorless. When it is possible to boil this bath for half an hour before using it it becomes a better conductor of electricity, and the gilding is more uniform. Its strength is maintained by additions of neutral chloride of gold and pure cyanide of potassium, from 1 to 1½ of pure cyanide to 1 of gold. Both the above baths may be diluted with once or twice their volume of water ; the gilding will remain firm, but the proportion of gold deposited will be less in a given length of time.

III.—Yellow prussiate of potash.....7 ounces.
Pure carbonate of potash.....5 ounces.
Sal ammoniac.....1 ounce.
Pure gold, transformed into chloride.....½ ounce.
Water.....2½ gallons.

Boil all the salts together, less the chloride of gold ; separate by filtration the precipitate of carbonate of iron, then add the chloride of gold dissolved in a little water, and allow the bath to cool off. Any kind of gold salt, and the oxide, or even finely powdered metal, may take the place of the chloride of gold ; but the latter is preferred, on account of the facility of its preparation, and of its solubility. Any kind of gold salt will be transformed into cyanide by the cyanide of potassium. The small proportion of the chloride of potassium resulting from the transformation of the chloride of gold into cyanide does not prevent the good working of the baths. The addition of a little prussic acid produces a brighter but thinner gilding. The indicated cyanide may be replaced by the cyanide of sodium, calcium and ammonium. Cold gilding baths are generally kept in porcelain or stoneware vessels ; but for larger volumes of liquor use wooden troughs lined with gutta-percha plates. The sides of the trough support anodes of laminated gold, which dip entirely into the liquor, and are held by small platinum wires that are connected with the positive pole of the battery. Suspend the articles by means of metallic slinging wires to a movable frame of clean brass rods connected with the negative pole.

The deposit of gold should be pure yellow, but it has sometimes a dull earthy grey color. In that case scratch-brush with the greatest care, and then pass it through the ormolu coloring.

The gold anode conducts the electricity, and also maintains the metallic strength of the bath up to a certain point ; but it is necessary to add now and then either the oxide or the chloride of gold, and a certain proportion of cyanide of potassium to make up for that transformed into carbonate of potash and cyanide of ammonia. The proportion of cyanide is about double that of the chloride of gold added. This is ascertained by the color of the bath and the shade of the deposit ; if the proportion of the chloride of gold is too great, add more cyanide ; if gold predominates, the deposit is quite black or dark red ; when the cyanide is in excess, the gilding is very slow and grey, and it will sometimes happen that pieces already gilt will lose their gold.

When the bath is not in use, the gold anode must be removed from it, otherwise it will be dissolved. If the anode were partly immersed in the bath, it would be rapidly cut at the level of the liquid. For this reason use the platinum wires, which are not acted upon. It is remarkable that the solution of cyanide, even without the action of the electric current, rapidly dissolves all the metals except platinum in the cold or at a moderate temperature, and that at the boiling point they have scarcely any action upon the metals. Cold electro-gilding should be done slowly, and it is necessary to often look at the pieces in the bath, and scratch-brush those with an irregular deposit, or with dark spots. The intensity of the current should be often changed, by increasing or diminishing the number of the elements, or the strength or the volume of the liquors in the battery. With too much intensity in the current, the deposit is black or red ; it is yellow with the proper amount of electricity. With a weak current those portions opposite the anode get covered with gold ; it is well to change the position of the objects often, in order that the deposit be regular. With a freshly prepared bath, it may happen that surfaces already gilt will lose their gold by changing their positions. This is a sign that the bath contains too much cyanide of potassium and too little gold, or that the electric current is too weak

When the deposit obtained in cold baths is unsatisfactory in appearance, although the quality is sufficient, the proper shade may be imparted by :—

1. The gilt article is steeped in a solution of nitrate of binoxide of mercury, until it has become white. It is heated afterward to volatilize the mercury, and scratch-brushed

2. Place the article into concentrated sulphuric acid ; then heat it, until abundant white fumes are disengaged ; throw it, still hot, into a weak pickle of sulphuric acid. In this case the acid has destroyed the organic impurities which may exist in the deposit, and reduces the subsalts of gold to the metallic state.

3. Smear the article with a thick paste of water and powdered borax, or with bi-phosphate of lime of the consistency of honey, and heat until igneous fusion takes place ; then put the article into diluted sulphuric acid, which dissolves the borax or the bi-phosphate, and leaves the gold with its natural bright luster.

HOT ELECTRO-GILDING BATHS.

As already stated, hot electro-gilding baths are more regular and expeditious in operation, and produce richer tints than can be obtained from cold baths. Their composition also admits of considerable variety, but we limit ourselves to four formulæ, which we employ almost daily, and for the efficacy of which we can answer :—

Crystallized phosphate of soda.....21 ounces.
Bi-sulphate of soda.....3½ ounces.
Pure cyanide of potassium.....½ ounce.
Pure gold, transformed into chloride..½ ounce.
Distilled water.....2½ gallons.

This is satisfactory for electro-gilding silver, bronze and other alloys rich in copper. For gilding wrought and cast iron and steel directly, without a previous coat of copper, the bath is modified as follows :

Distilled water.....2½ gallons.
Phosphate of soda.....17½ ounces.
Bi-sulphate of soda.....4½ ounces.
Pure cyanide of potassium.....¼ ounce.
Gold transformed into chloride.....½ ounce.

The proportion of gold indicated is that of the metal employed, and it is not necessary to mind the weight of the chloride, if the proper amount of gold is dissolved in aqua regia.

(*To be Continued.*)

Fashions in Jewelry

A Lady's Rambles Among the Jewelers.

THE indications, judging from what has been seen the past month in manufacturers' stocks and retail dealers' show cases, are that the jewelers confidently expect an unusually active and remunerative fall trade. Extensive preparations have certainly been made in all lines of gold, silver, plated and fancy goods. Not only is there an imposing variety of patterns for this season, but these have been produced in large quantities. Another apparent fact is the increased amount of finer grades in all lines. Both manufacturers and dealers evidently anticipate greatly increased sales over those of last autumn, not only as regards the number of packages, but the larger sums of money these packages represent. These expectations, it would seem, are likely to be realized. Leading retail dealers, interviewed on the subject, unite in claiming, even at this early date, sales that justify great expectations.

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CONSPICUOUS in the show cases of retail houses that enjoy what is termed an exclusive fine trade, is the large numbers of brooches, pins, representing some object, as a flower, a bird, a wheel, a star, etc. These object pins claim for their models anything, which, reproduced in gold, silver and gems, is liable to please the eye or tickle the fancy of men or women. The consequence is a bewildering assortment from which to make selections.

***

NOTWITHSTANDING the large influx of new patterns, flowers continue favorite models and there is, perhaps, no more popular ornament to-day than a finely enameled flower pin. Numbered with new things are white pinks with diamond centers; richly colored cornockles and graceful tulips. The flower pins with long gold stems are out in large numbers and attractive forms and vie with the stemless blossoms for favor. Very beautiful are the flower pins in which colored gems represent the blossoms.

***

IN GEM-SET pins there is perhaps no more popular design than that of the star. This season, not content with single or double stars, there are broaches that are formed of three gem-set stars, one above the other; the effect, especially when five white diamonds are employed, is altogether startling.

***

BIRD PINS are decidedly popular, so are all sorts of fly pins, especially, of course, when sparkling with gems. The swallow is out this season in a diamond coat and a very graceful ornament it is, whether worn as a brooch or in the hair. The translucent enameled birds so fashionable in scarf pins are also seen in larger sizes for neck ornaments.

TOO much cannot be said in praise of the miniature paintings and limoge enamel pictures, made into brooches by setting them in a quaint framework of gold or silver, or else encircling them with gems. These ornaments are veritable works of art and can never be other than desirable.

***

LACE pins are still demanded by the fair sex, and it is hardly needless to tell, are cheerfully supplied by manufacturers and dealers. As in the case of flower pins and brooches, lace pins show a great diversity of pattern. One may select any style conceivable, from a tiny knife edge bar, set with one stone, to such fancy designs as a peacock's feather formed of rows of emeralds, sapphires and rubies.

***

MOONSTONES, which, if such a thing is possible, are more popular than ever, are largely employed in both brooches and lace pins. Not a few of the finer stones are set in balls and ovals; others are carved and some are tinted. In silver brooches and other pins, the moonstone figures prominently, being often used as the central object around which to cluster fancy colored stones of smaller size. Very pretty silver brooches seen recently, were oval in form and had a fine oval shaped moonstone in the center with an open work border of silver wire.

***

OF THE making of bonnet, ribbon and scarf pins, there appears no end and just where the one leaves off and the others begin nobody appears to know. The one fact about which there is, however, not the slighest doubt, is, that these convenient and pretty ornaments are out for the autumn trade in a more bewildering variety of patterns than ever, and that everybody wears them. When one pin only is worn in the bonnet ribbons, that pin is somewhat large in size, representing oftentimes a flower, sometimes an insect; again it is a horseshoe, a star, a little yacht with sails unfurled, a golden bucket; in a word any object that can be copied in the precious metals. As has been intimated just where the so-called bonnet pins leave off and the scarf pins begin no one appears to know or care. These are found together in the jewelers' show cases and men and women make their selections therefrom regardless of the designer's original object. Gentlemen are now wearing, especially on light scarfs, floral and other scarf pins quite large in size. A single enameled flower set with a small diamond is a favorite scarf pin with both sexes. Numbered with Parisian fancies that found their way into the New York stores last season, are scarf pins simulating birds, the gay plumage of which is represented by colored translucent enamel. Still newer than these are the scarf pins that take small flowers for their models, the tiny stalks, leaves and blossoms being faithfully copied in bright-hued enamel. Very odd are the moonstone pins carved to represent an Arab's head, or an Egyptian sphinx. The small double violet is a popular subject in both scarf and bonnet pins. Another very popular scarf or bonnet pin, is the horseshoe or crescent, set with two rows of gems showing contrasting colors as diamonds and sapphires, or diamonds and rubies.

***

THERE are an immense number too of scarf pins that depend upon one fine gem for their beauty and value, as a gray or pink

pearl held in a gold claw, or a star sapphire similarly set. Fancy stones of rare or pleasing color are much used on scarf pins, so are fine specimens of moonstone. Clusters also appear on scarf pins, the rule being a sapphire or other colored gem in the center and brilliants around it. The gem headed pins that go in pairs, being attached one to the other by a tiny gold chain and said by French correspondents to be effected by the Princess of Wales, are also furnished by our manufacturers and dealers. These pins are not only decorative but useful for holding bonnet strings in place or fastening together a lace-trimmed corsage.

A PLEASING fancy in small pins is that of some swinging objects, as a gold wire basket or bucket, or a catseye ball. A pretty trifle in way of a silver scarf pin represents a lantern from one side of which gleams the red light of a carbuncle.

THE bracelet is another ornament prolific in the variety of its designs. One sees in the same store knife-edge bracelets and wide band bracelets; gold wire bracelets and heavy curb link chain ones; heavy, cumbersome affairs, richly carved, with gems sunk in the gold and bright finished ones with gems set high. Numbered with the newer productions are flexible bracelets in lacework patterns; bracelets of braided gold or silver cord, and bracelets having a gold rope through the center of a band edged with chasing. The East Indian bracelet is out for the autumn trade in silver, and shows the same pleasing characteristics as marks the gold ornaments; that is, they are flexible, reversible, and can be put on and off the arm the same as if the blocks that compose the bracelet were threaded on a rubber cord. So popular has this bracelet, with its spiral cord of gold and silver, become, another pattern has been provided; this consists of a series of gold balls, richly carved, in place of the original blocks.

THE pen of a ready writer is required to convey even a faint conception of the finger rings now in the market. Their number is legion, and embraces as wide and extended a diversity of patterns and finish as do the ornaments already described. There appears to be no doubt about the popularity of the seal ring. Both sexes wear it, and both sexes give preference to the small and medium sized seals. These seal rings, in some instances, show shanks richly carved, though there are many in the plain gold or Roman finish. The seals vary in shape, some being oblong, some round and not a few are square.

THE desire for all gold and all silver rings, in fanciful patterns, continues unabated. A favorite pattern is the knot; many rings show two and three knots of gold or silver cords. The association of two metals in these rings is also seen, as gold and platinum and gold and silver.

THE star sapphire figures in finger ornaments for gentlemen, and is decidedly effective when set in a well-shaped shank. Fine cat's-eyes remain in style, and these too are used in finger rings for gentlemen. Fine amethysts are also in request; new finger rings show these, both plain and carved. A fancy indulged in by some gentlemen is the wearing of finger rings made in imitation of old Roman rings. In these appear a seal on which is cut the profile or head of some Roman emperor, while the ring is made to appear as antiquated as possible.

CLUSTER rings, marquise rings and fancy rings are all fashionable among the fair sex. It is difficult to tell just what is new, though this does not signify a dearth of new things. Finger rings are much more elaborate than they were two years ago, and are worn in much larger numbers. A new ring seen had a shank which, on the underside of the finger, was simply a narrow band; as it approached the top of the finger it, however, branched out into several gold wires, on each of which were mounted tiny gems; on one wire diamonds, on one turquoise, then diamonds and so on. This ring, when on the finger, had the appearance of being several small ones set with stones.

THE demand for colored stones of all kinds, precious and fancy, is as great as ever. There appears to be no diminution in the favor with which sapphires are regarded, and, as has been told elsewhere, moonstones are in stock in large numbers, both mounted and unmounted. There are very few really fine emeralds in the market, hence this stone cannot be termed popular. Rubies are desired by all who can afford them, and others content themselves with fancy stones of similar hue

GEM necklaces make a beautiful show this autumn as they lie in their velvet cases awaiting purchasers. These ornaments, like every thing else in way of personal adornment, follow no rigid rule in their construction. Some are very elaborate, others are extremely simple. Both diamond and pearl necklaces are now seen with exceedingly rich and elaborate decorations in front, decorations that fall down and almost fill in the V-shaped front when the corsage is thus fashioned. These elaborate necklaces have by no means interfered with the popularity of those composed of a simple strand of pearls with a medallion suspended therefrom; or the still simpler form of ornament, a gold chain with pendant attached.

IN SILVER have appeared some exceedingly popular neck ornaments, including new patterns in the dog collars that fasten close about the throat, and necklaces that fall loosely around the neck. The floral necklaces are very attractive; these consist of a series of enameled flowers fastened together so as to make a flexible band. The moonstone necklaces are equally pretty; in these the stones are set in square, oval or round blocks of silver linked together.

WHILE the fancy vest chain, and the double or Dickens' chain, are worn in greatest numbers by gentlemen, one sees now and then the fob chain which is patronized in Paris by both men and women. These fobs, when not bearing a seal at the end, terminate with an antique coin. The Queen still represents the leading chain for

ladies' wear. Numbered with novelties in way of watch charms are those simulating wicker-covered wine bottles with long necks. These bottles, in some instances, prove to be vinaigrettes.

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A FASHION article nowadays without a mention of decorative hair pins and combs would indeed be incomplete, for these ornaments have been adopted by society ladies in all the leading cities of this country. An evening coiffure especially is considered incomplete without one or more ornaments of gold, silver or gems.

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THE very newest things in this line are tortoise shell combs with gold tops, that measure about two inches in width. These tops are, some of them, veritable copies of the old-fashioned, high back comb of one hundred years ago in all but size and material. It is needless to say they are exceedingly quaint and attractive. A beautiful comb seen consists of five graduated balls of gold mounted on a curved top of gold. The central ball is, of course, the largest of the number; both balls and curved top are overlaid with delicate grain work. Another beautiful comb has a crescent-shaped top, the inside portion of which is ornamented with grain work, while the outer edge consists of inter-linked gold rings. The knot pattern also figures on these combs.

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IN DECORATIVE hair pins appear many of the designs and finishes seen in brooches. Gem flies, birds and flowers; also horseshoes, crescents and stars, all figure as ornaments on these pins. The all gold and silver pins, with their carved and twisted tops, are much worn in the hair during the day; indeed, not a few ladies wear these pins as freely as they once wore the plain tortoise shell ones.

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IN ADDITION to the styles of pins mentioned are what, for want of a better term, may be called "securing pins;" pins with which to fasten the bonnet and hold it firmly in place. Then there are numberless fancy pins for the decoration of bonnets which Paris milliners are employing, and which will doubtless be worn in New York.

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THE popularity of silver jewelry is so apparent it is needless to waste words on that point. Its popularity does not conflict at all with gold jewelry, and jewelers all keep it in stock. It follows the same styles as are produced in gold, and employs both precious and fancy stones in its ornamentation.

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STERLING silver tableware is, much of it, made with *repousse* decoration in white finish. Ware in bright finish is equally fashionable and desirable. Comparatively little oxidized silver appears among the newer goods, though this is not saying that silver is no longer oxidized, but that as compared with the *repousse* and bright finish, is not so much used. Oxidizing, however, is still employed wherever the effects of light and shade obtained by it are required to carry out the artist's design. Plated ware shows the same designs and styles of finish as are found in the sterling ware.

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THERE is the usual deluge of cigarette cases, match boxes and other odd pieces in silver. Enamel figures conspicuously on many of these, and not a few are ornamented with fancy colored stones. Little bon-bon boxes and powder boxes with a miniature painting on the top are decidedly attractive.

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THE fact that canes, umbrellas and whips are out for the autumn trade with silver handles, settles the question about silver handles being in style. Buckhorn, natural wood handles and other substitutes are all very well for those who like them, but there evidently remains a big majority in favor of the silver ones.

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SO MUCH has been said in previous issues of THE CIRCULAR about the increased favor shown silver belts and girdles, that only a word is needed now, and that word is that there are some very beautiful waist ornaments awaiting the autumn trade. ELSIE BEE.

The Repairing of Spectacles.

IT HAPPENS sometimes, when repairing steel spectacles, that the screws of the temples are rusted in. In this case, oil the joint with kerosene oil, and let them stand for an hour or two; if the work has to be done immediately, put on lard oil, and warm the joint, then take a good screw driver made of ⅛-inch square steel (it is better than round steel); make on each end a screw driver; harden and draw temper so that you can just file it with a Stub's file; never sharpen or shape your screw driver with anything but a file; it is not so likely to slip and run into your finger. Fit it into a good-sized handle. The reason for making a screw driver on each end is to have a small one for gold spectacles and a large one for steel; put a block of wood into your vise, and hold the spectacle firmly to the block, and push very hard to keep the screw driver in the slot of the screw, and turn gradually; if it does not come then, and the slot is not deep enough in the screw, take a small cape chisel, not too sharp, lay the joint of the spectacle on a block of steel, cut a slot in the screw with the chisel, then try again, and it will most likely come out; if not, take a blunt punch, and with a sharp blow knock out the screw; lay the right hand temple on the table to the right, the glass also; then take off the left and lay it down on the left hand side. If the spectacle is broken in the eye near the joint, bend a piece of thick iron wire the shape of the eye, put on it some oil, and burn off the oil (this is to prevent the solder running upon it); then with fine bending wire tie it into the groove of the eye wire, leaving about one-eighth of an inch projecting; then tie on your joint. Before tieing on, clean off the edges of the steel thoroughly; have your borax very thick; for steel, take solder made of equal parts of silver and copper, and solder with the first heat, because a scale will form, and then, if you have missed, you will find it cheaper to take it apart and clean again; after it is soldered, scrape off some of the

scale, and make the steel a little softer than blue, because it will be very hard after soldering and liable to break. Clean off your work next, and polish; if necessary, blue it over a very small gas flame, care being taken not to get any soot upon the frame, or it will not blue. Before using binding wire, oil it, and will come off better from the work. If the spectacle is broken at the nose-piece, tie it together with binding wire.

It becomes occasionally necessary to put new rivets into steel spectacles. For this do as follows: File the wire tapering, cut off the thin end close to the joint, file it off flush with the joint, cut off the thick end, leave about one-sixty-fourth of an inch out, then give it a good blow with a hammer, file it off flush and blue. Never make a boiler rivet or bowl a head on each end of the rivet; if you do, the spectacle cannot be taken apart.

To mend a gold spectacle, always use a thick piece of iron wire in the groove of the eye wire, and you will not be so liable to melt the frame in soldering, and for repairing silver solder should be used, unless you know the quality of the gold, and are accustomed to soldering spectacles. If you wish to solder a joint of a spectacle, it is well to put a piece of wood into the screw hole, this will prevent the solder from running into the hole. If you want to solder a gold eyeglass with a filled handle, put a piece of wood in the screw hole and cover the handle up well with rouge before soldering.

The Lick Observatory.

[Professor RICHARD A. PROCTOR, in the *Youth's Companion*.]

THE TIME is now approaching when we may expect the great telescope of the Lick Observatory to be set to its work in surveying the heavens for wonders not within the ken of smaller instruments. Assuredly the world will be disappointed if interesting discoveries are not made by means of that great eye—three feet in diameter—with which, from a station on Mount Hamilton, in California, well raised above the denser strata of our air, astronomers are preparing to study sun, moon and planets, comets, stars, star-clusters and star-clouds.

Comparing the Lick telescope with the largest yet made, and still more when comparison is made with the largest yet used, we see that it will have an immense advantage when the air is in such a state that its full power can be employed. With its thirty-six inch glass it will be nearly twice as powerful in light-gathering power as the Washington instrument (twenty-six inches in diameter), and nearly half as powerful again as its nearest rival, the Poulkova telescope.

But even this does not indicate its full theoretical superiority, for the larger an object glass is the smaller is the focal image which it forms of a point, and therefore the neater the picture which it forms of a star or of any portion of a celestial body studied by its means.

Here is the chief advantage of a large telescope. We can use a greater magnifying power without losing clearness and sharpness in the image. It is hoped and expected, for instance, that with the telescope of the Lick Observatory a power of two thousand, which means an increase of apparent surface four million times, may be employed under favorable conditions of weather—that is, when the air is still and clear. If this should prove to be the case, much may be expected from the use of this fine telescope in the study of the moon and planets.

I propose to consider here what may be hoped for in this direction especially. For, indeed, the study of the whole range of survey to which this grand telescope may be applied would require much more space than could here be reasonably allowed me.

It was a favorite subject of congratulation when first the Rosse telescope was applied to the moon, that, assuming the magnifying power of the instrument to be six thousand, the moon would be studied as if at a distance of about forty miles. That instrument, would bear no such power, however. The Lick telescope is far more powerful in reality, though so much smaller. If the Lick telescope will bear a power of two thousand, it might seem that we should get within one hundred and twenty miles of the moon.

But this is hardly right. For, as a matter of fact, the immense quantity of air which is looked through, when a glass one yard in diameter is employed, tends necessarily to diminish considerably the telescope's range of view. Probably if we set the distance at which the moon may be supposed to lie when seen through this telescope under the most favorable conditions at about one hundred and fifty miles, and regard the nearest approach made to her by the next best telescope at about two hundred miles, we shall form a fair estimate of the gain which may be expected. Any one who will stand at a measured distance of two hundred paces from a building, and, having noted what he can see at that distance, will walk fifty paces nearer and note what he sees from this nearer standpoint, will be able to form an idea of the improved view of our moon which the astronomers at Mount Hamilton may expect to obtain.

If we consider the actual position in which the great telescope will place us with regard to the moon, we recognize at once what we may and what we may not hope for. Looking at a portion of the United

LICK OBSERVATORY

States from a distance of a hundred and fifty miles, an observer would not see any of the smaller details of the surface contour. But he would be able to distinguish the different formations from each other—not, perhaps, so much by their tint, as by what may be termed their texture; and, of course, all the greater irregularities would be conspicuously discernible. The larger rivers would be quite obvious at that distance. And, if we imagine an observer so situated watching for a whole year, it is certain that he would be able to recognize the progress of the seasons by the changing aspect of the land's surface, on account of the effects both of varying weather and of various processes of vegetation.

In studying the moon with the great telescope, we may expect that such features as these, already satisfactorily dealt with by large telescopes, will be more clearly discerned. The answer already given to the question whether the moon resembles the earth or is fit to be the abode of life, will be repeated with somewhat more emphasis, that is all.

It will be seen that the various parts of the moon's surface differ from each other, much as the various formations on the earth are

observed to differ; but it will be more clearly seen than ever that on the moon there is neither water nor any appreciable supply of air, that there are no rivers, no effects of seasonal change, no forms of vegetation, no clouds, no rain, in fine, that, in all those circumstances on which the fitness of *our* world for habitation depends, the moon is utterly unlike our earth.

May we not hope for more from the use of the great telescope? It appears to me that we may, but not from direct observation. I can see no chance that the human eye, studying our dead neighbor with a mere increase of telescopic power, even the highest increase men can reasonably hope for, will ever perceive much more than has already been recognized.

But the Lick telescope is to be provided with an eye which has much more power than the human eye, and, moreover, records accurately what it sees, which the human eye, even with the most skilful hand as an ally is unable to do. The great telescope is to be employed in taking photographs of the heavenly bodies, and celestial photography has, within the last few years, developed most wonderful powers. The photographic work done by the Lick telescope may be made to surpass all other such work in much greater degree than that in which the mere optical power of the telescope has been increased. For the conditions under which photography will be pursued on Mount Hamilton will be exceptionably favorable.

Now, the moon can hardly be said to have been photographed at all. The work of Rutherfurd, De la Rue, Henry Draper and Ellery, has served only to give an inkling of what may hereafter be done. To show that this is so, I need only mention that while telescopes of great power have been employed in lunar photography, the best picture of the moon yet obtained, shows no more than can be seen with a two-inch telescope, a tiny instrument, such as one may see in any optician's window.

If this really indicated the limits of photographic power, indeed, there would be nothing to be said or done except to lament. But what is the actual state of the case? The Brothers Henry in Paris have within the last two years taught their telescope to record photographically positive more than it will reveal to the eye? There is no reason why as much should not be done with the moon and planets as has long since been done with the sun.

Now, for this use of the great telescope the moon affords an excellent subject. We may expect to get from her the most interesting information she is capable of supplying. She is an ancient or rather a dead world; but the record of her past life is still to be read upon her worn surface.

Here are great crater rings, such as once existed on the earth, but during her longer and more active life have long since been worn away. Elsewhere are long bands of extruded matter, akin to the great lava masses of Montana and Wyoming. But in the moon they are more interesting, because they belong to earlier stages of the extrusive process.

In other places we have broad tracts manifestly representing deposited strata, the floors of great oceans, the deltas of rivers, showing that, though the moon now has less water by far than the earth, and though she probably had always a much smaller allowance per square mile of her surface, she once had seas and oceans, lakes and rivers. Such features as those are much better studied photographically than in any other way; because their interpretation depends chiefly on delicate differences of tint and texture, which photography can record far more truly than any human hand, however deftly used.

There is one other feature, still more delicate and even more interesting than the rest, which photography with the Lick telescope will admirably render. The floors of lunar seas represent matter washed away from the moon's land surface in long past ages, and deposited over a surface which was once itself marked by irregularities.

Although the matter thus spread over the formerly irregular surface has hidden all differences of contour beneath an almost uniform level, yet slight differences of tint still attest the presence of irregularities beneath. Peculiarities may be noticed, which I have ventured to call the "ghosts" of buried craters—ring-formed marks, something like fairy rings on the earth, only ranging up to thirty or forty miles in diameter—manifestly showing where immense craters lie buried, but not presenting the least difference of level. By means of photography these features were first detected. I believe that by photography, applied as the managers of the Lick Observatory hope to apply it, they may be effectively elucidated.

Thus may the moon be made to tell us her past, instructive alike in those details which resemble the details of our earth's history, and in those which belong to the moon's individuality as a planet. For, even as "one star differeth from another star in glory," even as the life of an oak differs from the life of an ash tree, so also does the history of one world differ from that of another.

In regard to planets, we must remember that a telescope does not even give us a bird's-eye view. We see the nearest planet only as an orb in which all such details as on our earth belong to continents are absolutely lost. Mars, the planet most favorably seen, presents continents, oceans, ice-patches and such cloud masses as extend far enough to cover those larger features from time to time. But we cannot hope to see rivers or mountain ranges on the ruddy planet.

I know not, indeed, what to say about certain markings which Signor Schiaparelli, of Milan, and recently M. Perrotin, of Nice, think they have seen. They are straight, broad bands running across the continents, and latterly Schiaparelli has seen them doubled.

If they are canals they are enormously broad, certainly twenty times wider than the Mississippi at St. Louis. They look too regular and straight (as Schiaparelli pictures them) to be natural formations; and if he is right about their being double they must be artificial. The great Lick telescope may tell us something about these strange features; I must confess I strongly expect that the telescope will tell us that the parallel canals if not the whole set, are optical illusions. It is at any rate worth remarking that they have only as yet been seen with telescopes of moderate power, and when the planet is unfavorably placed for observation.

In the case of Jupiter we have a much more interesting subject of study than the Jupiter of thirty years ago presented. For now we know that this planet is no ice-bound, mist-wrapped world, but a planet still in its fiery youth, the scene of the most intense disturbances.

The great red spot, which has now during many years exhibited marvellous changes of appearance and color—affecting a surface of about one hundred and fifty millions of square miles—may be made, by means of the great telescope, to tell us its story better than it has yet done.

It may be found possible also to prove what Henry Draper believed that he had recognized, that the light from this ruddy spot is in part due to the inherent light of the planet shining—like the light often seen through a great opening in Jupiter's dense envelope of clouds.

The study of the ring system of Saturn by means of the great telescope cannot but be full of interest, now that the ring is recognized as a system of small moons "like the sands on the seashore for multitude," traveling in flights around their mighty primary, looking bright where closely aggregated, dull and gray where so widely scattered that between them the darkness of the sky beyond makes its way.

In all these researches the photographic method will be applicable under most favorable conditions at Mount Hamilton. I have before me as I write, photographs, or rather—yet more wonderful—photographic engravings, of Jupiter and Saturn, made with the small telescope used by the Brothers Henry, near Paris, where the air is thick and the telescope apt to be disturbed by the movements of vehicles. From the fulness of detail in these, I infer that photographs of the planets taken with the Lick telescope may do more, if proper methods are employed, to throw light on the nature of our fellow-worlds than any work done with the telescope for the last half century.

Chicago Notes.

To the Editor of the Jewelers' Circular:

THE fall trade, though still encouraging, is scarcely coming up to the expectations raised by the unprecedented rush of business in August. Excellent business has already been done in all parts of Illinois, Indiana, Missouri and Nebraska, and with the exception of Southern Iowa and Southern Kansas, where the drought has wrought sad havoc, there seems every prospect that a good steady flow of business will be maintained all over the West and North west. Collections generally are reported fair, though a trifle slow, and no important failures have occurred.

Mr. O. Knudson, of Rock Valley, Ia., has bought out Ole Myhre.

Charles Gagle, late of Brookings, Dak., has left for California to select a business location.

Stephen Avery, the New York manager for Robbins & Appleton, was in town the first week in September.

The Blauer Watch Case Co. are now manufacturing all kinds of cases with the Giles' anti-magnetic shields.

Mr. D. F. Sullivan, late with T. C. Cook & Co., Janesville, Wis., is opening a jewelry store at Rockford, Ill.

It is the common talk of the trade that Tiffany, of New York, intends to start a first-class retail store in Chicago.

John Broadhed, a prosperous jeweler of Marshalltown, Ia., was married in this city to Miss Mattie Sutherland, on August 28.

Mr. C. Eppenstein returned from his European business trip in the end of August, with a fine line of watches and other novelties.

C. F. Eckle, of Ottawa, Ill., has sold out to Milo Putney, Jr., of the same place. Mr. Eckle quits the jewelry for the grain business.

P. C. Claflin and family, of Steven's Point, Wis., passed through Chicago on Sept. 8, for Knoxville, Tenn., where Mr. Claflin intends to engage in business.

Samuel Swartchild has sold out the entire stock of slide tests which he advertised in last month's CIRCULAR, and is on the outlook for further selling specialties.

G. A. Loehr, who carries on a manufacturing business at No. 81 State street, was relieved of $400 worth of diamonds and other jewelry on August 26, by a thieving barber.

John T. Smith, who has been in the jewelry business at Whitewater, Wis., since 1847, died there of paralysis, on Sept. 9. He was 60 years of age, and a native of Ashton, England.

A corporation has been formed for the manufacture of watch springs by the new Sedgwick electric process. The incorporators are J. H. Purdy and Fred Sedgwick, and the capital stock is $50,000. The factory will be located in or near Chicago.

Giles Bro. & Co. have no spare time for talking to their friends. In both their jobbing and retail departments they report business away ahead of last year. Norris, Alister & Co. are having quite a rush in their order business, and find collections easy.

J. H. Elkins, a well-known jeweler of Wanpun, Wis., died at his home of Bright's disease, on Sept. 5. He was an old soldier, who went through the rebellion, and his funeral was largely attended by the members of the local branch of the Grand Army of the Republic.

L. S. Grout, of the Excelsior Sign Company, is busily engaged on his newly improved "Father Time," and "Louis XIV." watch signs, and will shortly be out with signs that for artistic beauty and fine emblematic design have not been approached by anything previously offered to the trade.

C. A. Esterberg, of Esterberg & Sons, Waukesha, Wis., met with rather a serious accident on Sept. 5, by the explosion of an alcohol lamp. The entire hair was burned from his head, and he is now diligently trying to cultivate whiskers and eyebrows.

All the big jobbers who have been summering at the various health resorts of the country have returned to business re-invigorated for the fall trade, and the Saturday half-holiday and base-ball games of the clerks have come to an end for the season.

O. W. Wallis, of Cogswell & Wallis, had a pleasant experience while visiting his friend, T. S. James, at Osage, Ia. He came across a large number of friends of his youth, with whom he used to associate in Rock County, Wis., before he went to the war in 1862. Mr. Wallis returned to the city on Sept. 4, but his wife and daughter remained at Osage until Sept. 18.

Max Ellbogen, of Stein & Ellbogen, returned from his European trip by the ship *Eider* on Sept. 14. He bought a choice line of diamonds at Amsterdam, and some very fine garnets at Prague, Bohemia. Mr. Ellbogen is looking strong and well, and the firm means to make a great boom in its diamond department this fall. Mr. Stein, the other partner, has gone on his vacation, to fly from the blighting effects of hay fever.

THE JEWELERS' CIRCULAR continues to meet with the appreciation of the country retailer, as well as his big brother in the city. While your correspondent was on a business visit to Gardner, Ill., he made the acquaintance of E. J. Peck, a thriving jeweler and watchmaker in that town. Mr. Peck was busily engaged in perusing the pages of the CIRCULAR when your correspondent entered the store and said he prized the paper beyond all others that came his way.

Benj. Allen feels a little disappointed over the volume of trade for September, but, like others, finds the month's showing far ahead of last year. He reports collections rather slow, but considers the outlook entirely favorable. Otto Young & Co. have their hands so full of orders that they are working day and night. C. H. Knights reports his September business fully sixty per cent ahead of last year, and says business has been keeping up with him all the time.

Among the well-known jewelers in town during the month were: G. H. Terpany, New Carlisle, Ind.; A. H. Cathcart, Marshall, Mich.; H. R. Holman, Sioux City, Ia.; J. J. Higgins, Du Quoin, Ill.; J. M. Gibbs, Hannibal, Mo.; William Mayhew, Bellevue, O.; William Pulte, Grand Rapids, Mich.; J. H. Gill, Marengo, Ill.; H. H. Miller, Aurora, Ill.; J. A. Duckworth, New York; J. J. Freeman, Toledo, O.; S. H. Padgham, Santa Anna, Cal.; M. Huffman, Quincy, Ill.; M. Larsen, Madison, Wis.; O. J. Linden, Kankakee, Ill.

Mr. Fera, of No. 10 Maiden Lane, New York, started another diamond sensation in Chicago, on September 5. While showing his diamonds to Mr. Juergens, of Juergens & Anderson, Mr. Juergens happened to pick up with a pair of tweezers a two-carat stone, worth $120, when all at once the stone slipped from between the too tight grasp of the tongs, and hopping through the window disappeared in the mud. Both gentlemen ran down stairs and a hasty search was begun for the diamond. But it was not so easily recovered. Then Mr. Juergens returned to his office and sent a paste-diamond of the same size as the genuine one over the course described by the latter. It was thought the real gem would be found somewhere near to the spurious one, but whereas the paste-diamond was found almost at once the very closest search failed to get track of the other. Then recourse was had to flushing the streets, and armed with a hose two or three men turned on streams of water till the surface was washed of the mud, all of which was carefully mopped into the gutter and strained. Meanwhile a crowd of men and boys instituted an independent search, but after laboring for upwards of an hour they were no more successful than the first party. The gem was finally picked up by a ragged little colored boy who received $10 from Mr. Fera.

Marcus Zuckerburg, of No. 170 State street, failed on August 29. Early the same day several of his creditors secured judgment on several notes and at once placed the matter in the hands of the sheriff, who levied on the stock. The creditors who instituted the the proceedings are: Herman Felsenthal, $1,100; Adolph Hirsch, $492.60; Mollie Goldsmith, $165; Henry B. Franklin, $165; M. N. Jaffa, $130.50; Thomas Quayle, $217; William Smith, $127.50, and Isidore Stern, $217.50. The failure is a small one, and will not amount to over $10,000. The firm was formerly Zuckerburg & Felsenthal, but Mr. Felsenthal retired about a year ago. The firm has been in business about fifteen years.

An amusing case of the adventures and mistaken identity of a diamond cropped up here the second week in September. John F. Hobin found a diamond worth several hundred dollars in the street. He sold it to Philip Malcolm, a saloon keeper, for $40, and the latter, thinking there might possibly be something wrong about the deal, informed the police of the transaction. They promptly took hold of the sparkler, and quite a number of citizens have since positively identified the diamond as their property. Ex-Alderman John Sweeney claims that the gem is one that was presented to him on the occasion of his election. John O'Leary, a young Board of Trade man, claims that he bought the stone for $185 some months ago, and lost it while returning with his best girl from a dance. Martin Clyburgh, a clothier, declares that he bought the brilliant for $250, fourteen years ago. Meanwhile Mr. Malcolm is trying to replevin the precious stone from the police, who are looking for further claimants.

Edward Forman, receiver for the firm of N. Matson & Co., has made the following statement, which is dated September 15th:

"Soon after my appointment, I filed with Judge Gresham, by whom I was appointed Receiver, August 18th ult., a statement showing assets as found by inventory, and an approximate statement of liabilities. Upon careful revision I find as follows:

ASSETS.

Merchandise		$245,223.09
Upon which I think at least 10 per cent. should be deducted	24,522.30	$220,700.79
Furniture and Fixtures		$36,000.00
These I estimate not worth over $10,000, and therefore deduct	26,000.00	10,000.00
Accts. and bills receivable		$14,823.08
Of these I estimate not over $10,000 are available for payment of debts, Dis	4,823.08	10,000.00
Total net assets		$230,700.79

LIABILITIES.

Bills payable (Judgment Notes)	$113,288.06	
do. (Mdse. Notes)	21,329.49	
Accounts payable	48,996.99	$183,614.54

I have secured permission of the court, upon consent of the principal creditors, to add to merchandise on hand, by consignment, such other goods as will manifestly facilitate the sale of goods now in stock. I have retained substantially the force of employees I found engaged, and shall avail myself of every advantage to accomplish the earliest practicable payment of indebtedness as above detailed.

Very respectfully,

EDWARD FORMAN, *Receiver.*"

W. A. B.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular:

The face of the manufacturing jeweler wears a very different expression this fall from that noticed during the early spring, and the change may be noted from the fact that he has received numerous large and remunerative orders for the past two months, with the best of prospects ahead for a continuance of the same, which would seem to justify the predictions made by THE CIRCULAR that the manufacturer would experience the best season's trade since the fall of 1883, the manufacturer feeling that "every dog has his day and every cloud a silver lining," sees his time has come to get back some trifling profits for the time he has devoted to his business for the past two or three years without having received much reward, financially speaking.

The orders for the past two months have been very liberally bestowed on the manufacturer by the jobber, and at prices that would seem to warrant a nice margin remaining at the end of the season's business, after paying all the necessary expenses incurred in manufacturing. Duplicate orders have been received by many of the manufacturers where they have popular selling goods in pretty and fancy designs, which would go to show that the business with the jobber is in a good and healthy state, and liable to remain so to the end of the season if they continue to buy as conservatively as when they started out at the commencement, and only order goods that can be moved at short notice. We have heard of only one or two instances so far where firms have overloaded themselves with goods to that extent as to embarass them in meeting their payments when falling due, but a little leniency on the part of the manufacturer bridged the affair over to the satisfaction of all concerned.

The latest reports from the West are all favorable to the late crops which will be fully up to the average in yield, excepting in the States affected by the severe drought of the early part of the season. Good crops in the West means millions of dollars to be added to the circulation soon as they can be moved and marketed, which, it is reasonable to suppose, will be distributed through all channels of trade, including that of jewelry, whereby the manufacturer may be benefitted to some extent. Another good sign of the times is to be noted that the balance of trade is at present in favor of the United States, in consequence of which nearly every important steamer leaving England or France brings to this country a heavy shipment of gold reaching up into the hundreds of thousands of pounds sterling, which cannot help but have its effect on the money market of Wall street. The payment of sixteen millions ($16,000,000) of dollars by the government in pensions during the past month does not seem to have used up the month's surplus, but in addition thereto, the national debt is also reduced over five millions ($5,000,000) of dollars, which speaks for itself of the immense resources of the country.

Collections during the past month have been rather slow excepting with the class who always figure on settling their accounts promptly, and who are generally the most conservative buyers. Trade paper seems to have almost entirely disappeared from the market during the past month, and accounts, where settled, have been generally by check or sight drafts.

Dating of invoices ahead this fall has been little resorted to by the jobbers.

Mr. R. A. Kipling, the stone importer, sailed per steamer *Umbria* for Paris, via Liverpool and London, on the 3d instant. Mr. Kipling will remain away for about three (3) months, and return about December 1 with a full line of precious and imitation stones and novelties. We wish him a *bon voyage* and safe return.

The Treasurer of the Manufacturing Jewelers' Board of Trade issued on August 29 the following notice: "You are hereby notified that Geo. E. Emery is no longer in the employ of the Manufacturing Jewelers' Board of Trade. Per order of the Board of Directors.

H. S. DORCHESTER, *Treasurer.*"

The Board of Directors last month appointed Mr. Marcus W.

Morton, of this city, to fill the vacancy caused by the resignation of Mr. Geo. F. Emery as Secretary of the Board of Trade. Mr. Morton was notified of his appointment and at once assumed his new duties. He has for several years held the post of Grand Secretary of the Grand Lodge of Odd Fellows, of R. I. We trust he will fill his new position with credit to himself, as he has done in his former one.

The creditors of Robert Barton, the cuff and collar button manufacturer, whose note was protested last month, held a meeting in the rooms of the National Eagle Bank at 11.30 A. M. on Friday morning, about forty of the creditors being present or represented. Oscar Lapham, on behalf of Mr. Barton, appeared and made a partial statement of his client's affairs. The liabilities were estimated to be about $110,000, more or less, and the assets about $82,000, his real estate being valued at about the latter amount, but it was mortgaged for $50,000, that sum being included in the liabilities, making his actual assets, over and above the mortgage, about $32,000 or less. Mr. Lapham offered two propositions to the creditors: Firstly, that trustees be appointed to continue the business until a settlement could be effected or the business closed out. Secondly, that twenty-five per cent. of the indebtedness be accepted in lieu of full payment in notes, to run of three, six, nine and twelve months. These propositions were referred by vote to a committee, consisting of Judge W. S. Burgess, Charles Bowen and Charles S. Capron. The former named gentleman is a creditor on notes to the extent of $12,000 and endorsements. The second is for the Richardson & Hicks building in which Mr. Barton was located, Thos. Richardson being a creditor to the amount of about $8,000, being for rent and endorsements. The third is a resident of New York City, but a partner of the firm of Messrs. Capron & Palmer, plated ring manufacturers, of 120 Dorrance street. The committee will meet again after a few days. Last week Mr. Barton mortgaged his residence, No. 14 Jackson street, in the sum of $7,800. No representations were made as to his personal property on Friday.

The shop, fixtures, tools and machinery of the jewelry establishment of Mr. Jno. C. Gray, located at No. 96 Eddy street, were sold at public auction on Friday noon by Charles L. Ellis, Esq., per order of the mortgagee, Horace F. Carpenter. The property was mortgaged for $6,000, and was closed out for $500 over and above that amount. Mr. Carpenter bid it in and will back the shop and business, and make Mr. Nelson W. Davis, formerly salesman for Mr. Gray, manager.

On Friday, the 16th inst., the shop, tools, machinery and stock of Messrs. James B. Richardson & Co., of Nos. 129 and 131 Eddy street, will be sold at public auction by order of the mortgagees. There are two mortgages, one dated July 8, 1884, and the other June 21, 1887.

The friends of the late Charles F. Glover will be pleased, we trust, to hear that the members of the Jewelers' League, of New York, of which Mr. Glover was a member in good standing from January 11, 1878, to March, 1887, have subscribed thus far $1,933.10 for the relief of his widow and five children. Two of the children, twins, have been born since the death of Mr. Glover, some four months since. This act of the members of the League can better be imagined than described as regards Mrs. Glover, as all the subscriptions were voluntary on the part of the donors, and were most acceptably received by the recipient in her sad bereavement. Had Mr. Glover been in good standing at the time of his death, with all dues paid, his widow would have received the maximum limit paid in case of a death of a member of the League, $5,000.

Feeley & Co. have moved from their old quarters, 195 Eddy street, to No. 185 same street, formerly occupied by Messrs. F. W. Barney & Co., the firm which came to such an untimely end by the partners agreeing to disagree.

The recent fire in the Whiting Manufacturing Company's building at North Attleboro, started from a forge in Messrs. Kilkenny & Hugo's jewelry shop on the third floor and burned their establishment out, the loss being estimated at $3,000, loss on building, $600. Their was an insurance on building, stock and machinery of $5,000, being heavy enough to cover all losses incurred.

Mr. Lewis Carr, of the firm of Messrs. Dodge & Carr, died on the 22d ultimo. He was born at Warren, this State, in the year 1808, and was one of the oldest jewelers in the business.

Mr. John L. Fowler, of Messrs. Fowler Bros., 183 Eddy street, left last month for a short sojourn at the family residence on the Hudson River, and afterward attended the international yacht races at New York the latter part of the month. FAIRFAX.

Providence, R. I., September 15, 1887.

Our Foreign Correspondence.

BIRMINGHAM, Aug. 28, 1887.

To the Editor of the Jewelers' Circular :

It is generally thought that the outlook for Christmas trade is rapidly improving. The great number of failures has weeded out most of the wholesale houses who were not thoroughly sound, and has, to a large extent, done the same with the shopkeepers, and there is no doubt that those houses who weather the next six months may be considered thoroughly sound. After the large number of failures among the wholesale dealers, it follows, as a consequence, that many of the small manufacturers are either paying the debts and retiring with everything lost, or, as in many cases, going into the bankruptcy court and paying what they can.

The large number of failures has been the cause of several meetings being held, two of which will, no doubt, use a deal of influence on the future of the trade. The first one was a meeting of bank managers, at which it was agreed that in future when a house files its petition or arranges with its creditors, the creditors shall at once be called upon to remove from circulation all the bills or promissory notes of the said firm instead of, as previously, allowing them to mature. This will cause small manufacturers who are in an unsound position to at once call a meeting of creditors instead of, as previously has been done in so many cases, pawning a little stock or selling at a ruinous price as each bill had to be met. The other meeting was one of the principal trades people, when it was decided to form an association to do all possible to encourage the wearing of jewelry, and also as a trade protection association to enquire into the financial position of dealers and to report to its members, and to do all in its power to limit the excessive amount of credit given.

This latter clause seems an almost impossible one to carry out, but many of the largest manufacturers and dealers present thought it possible to do a good deal in this way, and certainly if anything can be done it must be by combination, for lack of which the jewelry trade has suffered immensely.

Makers of the best class of jewelry report that their sales are rapidly increasing, and look forward to a run of good trade before Christmas. This class of jewelry has suffered least of all from bad trade, and the demand for best diamond goods mounted in hand made brooches, rings and small ear rings, is rapidly on the increase. The fashion of not wearing any jewelry, so prevalent a few years since, is dying out among the wealthier classes and is now having its turn among the poorer classes, so that makers of cheap gilt goods report trade as being very flat. It seems as if the custom of drapers keeping cheap jewelry, which became so prevalent during the silver rage, is likewise slowly dying, as the Manchester dealers who supplied them are buying scarcely anything, and report that things were never so bad.

The run of mosaic goods still continues, and makers report that if only Italy could turn out three times the quantity they could sell it without difficulty, but it is feared that the difficulty of getting the

mosaics and the unbusinesslike dealings of the mosaic makers will prevent this trade ever attaining large proportions.

There is no doubt that in London and among high society the old fob chain will once more become fashionable for evening dress. There will be very few of all gold, but of silk or hair with richly chased gold mountings and swivel, and, of course, the old fob seal altered somewhat, but still the same in general. SOLITAIRE.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

WATCHES FOR RAILROAD EMPLOYEES.

To the Editor of The Jewelers' Circular:

While everyone will concede the necessity for every railroad employee being supplied with an accurate timekeeper, few of us in the trade can see the necessity for railroad authorities prescribing the make and quality of watches their employees must provide themselves with, as has been done on some of the Western roads. This is an interference with the rights of the individual employee, and also an injury to many retail dealers, who look to selling watches to railroad men as a legitimate part of their trade. It tends to establish a monopoly as well, and to give certain manufacturers an advantage over others. A fair and honorable way for railroad authorities to secure the point they are aiming at would be to place a regulator at such points on their roads as trains are made up, and then require each engineer, conductor and train man to compare his watch with such regulator before going out with a train. It might be well, also, to compare their watches with another regulator at the end of their run, and if they find a variation, the watch should be overhauled. This plan would leave each employee free to buy any watch he preferred from whomsoever he pleased, and the railroad company would be quite as well served. I have sold a large number of watches to railroad men, and have many times accommodated them by permitting them to pay by installments. As this is a railroad center, many young men living here, with whom I am acquainted, are railroad hands, and I am perfectly willing to deal with any that I know on this plan. I have sold them almost every variety of watch, but have invariably found that they want good timekeepers and will have no others. In fact, they usually trust to my judgment as to the movement of a watch, and I only sell them such as are trustworthy. To compel these men to change watches would be a hardship that I do not believe even a "soulless corporation" would knowingly inflict upon them. My experience with railroad employees is that they are quite as anxious to secure accurate watches as their employers are to have them, and if regulators were provided at terminal points, as I have suggested, what is sought to be secured would be done. This would not interfere with the patrons of any retail dealer, as the recent orders are calculated to do, and would give no one a monopoly. At the same time the traveling public would be greatly benefitted by being able to set their watches by the same standard of time that the trains are run on. J. H. G.

Indianapolis, September 18.

ENCOURAGING CRIME.

To the Editor of the Jewelers' Circular:

In your September issue a correspondent, "G. A. S.," states the case of a man who had been robbed of valuable jewelry, offering a reward of $2,000 for it, and when the thief demanded $5,000, paying that amount, and making no effort to capture the thief. Your correspondent wants to know if nothing can be done to punish the man who has thus encouraged a criminal. His offense is that of compounding a felony, for which the laws provide adequate punishment. It would be in order for anyone familiar with the facts to go before the Grand Jury and have him indicted, but it is doubtful if any jury could be found to convict him. It is also doubtful if he ought to be convicted. There are many things prohibited by law that must, nevertheless, be done, and in the doing of them the sentiment of the community will hold the perpetrator innocent of all intentional wrong. In the case recited a robbery had been committed; there was no clue to the perpetrator; the goods stolen were highly prized by their owner, even above their intrinsic value, because of the associations connected with them. Under the circumstances the only possible chance he had for recovering them was by offering a suitable reward and "no questions asked." The thief escaped punishment, as he would have done anyway, for he was unknown and unsuspected, and the victim recovered his own by paying the thief's price. Suppose he had refused to pay? The thief would have got away all the same and would have kept the stolen articles, which would, possibly, have served him as well as the cash. We remember the case of a wealthy man in this city who, some years ago, was robbed of securities valued at over a million dollars. The detectives soon found out who were the thieves, but the only way in which they could get the securities back was to pay a large reward and guarantee absolute immunity to the thieves. Of course, this could only be done with the consent of the prosecuting officers of the city, and they did not hesitate long in giving their consent. It would have been asking almost too much from the victim of this robbery that he should sacrifice a million dollars in order to secure the punishment of those who had robbed him, simply for the good of the community. He recovered his securities, the thieves obtained a reward, and the community was no worse off than it would have been if the thieves had remained unknown. Yet, under the law, the victim of this robbery was liable to prosecution and punishment for compounding a felony. Certainly no good citizen would have expected him to sacrifice so much simply to secure the punishment of thieves who were sure to be overtaken by justice sooner or later.

Instances are occurring weekly in this city of a similar nature, and it is well understood that detectives often recover property from well known thieves by permitting them to escape punishment. To do otherwise would be to still further punish their victims and not secure the punishment of those who deserve it. There are, no doubt, instances where individuals are so eager to recover what they have lost that they ignore their duty to the community and permit guilty persons to escape when there is no necessity for it, and in such cases the law relative to compounding a felony might be invoked with advantage to the community. But there are comparatively few citizens who are willing to make a large money sacrifice in the interests of their fellow-citizens when there is nothing more to be gained than the imprisonment of a thief, who has all the advantages afforded by cunning lawyers and the law's uncertainty in favor of his escape in spite of his victim's sacrifice. The sentiment of the community would not sustain a prosecution for compounding a felony under the conditions mentioned by "G. A. S." S. M. E.

New York, September 15.

INSTRUCTION IN PRACTICAL OPTICS.

To the Editor of the Jewelers' Circular:

I have read with much interest Mr. Bucklin's articles on practical optics, and was very much pleased to learn from your September issue that he had been so successful in the classes he established in your city. I only wish I was so situated that I could attend them myself, but as I am too far away and can afford neither the time nor the money that would be required, I suggest that if Mr. Bucklin will

include the substance of his instruction in a book that all who may read can comprehend, he will confer still another favor upon the trade, and, I believe, receive good compensation from the sales of his book.

Every person who is called upon in the course of his business to sell optical goods should be so well instructed regarding the defects of the eye as to be able to fit glasses to almost every customer without doing them an injury. I hear of persons who have trouble with their eyes being warned by their friends against trusting a dealer in optical goods to fit them, and advising them to consult a regular optician. This would not be necessary if the dealer understood his business, which too few of them do. Many think that any glass that will enable a customer to read a little better than he could without them are entirely satisfactory, when the fact may be that they will make permanent a defect that may be only temporary, the result of an accident or recent disease. I have a brother who put on glasses ten years sooner than he need to have done if he had been properly advised. He had been quite low with a fever, and while convalescing found his eyes a little weak. He was foolish enough to buy a pair of glasses on the recommendation of a salesman, and soon found that glasses were indispensable for reading. If he had met an intelligent salesman, he would not only have advised him against using glasses, but against reading at all until his eyes became stronger, as they would have done naturally as he recovered from the effects of his prostration. We can only hope to obtain the best results from dealing in optical goods by bringing intelligence to bear. The time is not far distant when one of the requirements of a good salesman will be that he has attended a course of lectures such as Mr. Bucklin has inaugurated. S. F. D.

Kansas City, September 19.

MORE ABOUT RAILROAD EMPLOYEES' WATCHES.

To the Editor of the Jewelers' Circular:

Enclosed find an order issued by the Louisville & Nashville railroad. Please read it carefully and see what an unjust order it is to others in the trade. I think some means should be adopted that would break up such an order. This order extends all over their system. Could you not suggest some plan for the above, or advance some more reasonable and practical plan for the railroad to adopt I do not think that they really understand their own order. You see, they require a rate to be given on watches carried by conductors and engineers. Well, suppose a conductor comes to me to have his watch repaired. I give him a watch to carry while I repair his. I tell him this watch gains one minute a day. Still, he goes to the authorized agent, and he looks at it and finds it to have 15 jewels, patent regulator, and marked adjusted; then he gives him a certificate on it without knowing whether it runs fast or slow, gains ten minutes per day or loses ten, so what good does the certificate do the railroad man. I have been rating chronometers for a number of years, have all appliances necessary, transit, 3 chronometers, an observatory, and am able to know when a watch comes up to the requirements necessary to comply with the rules of railroad companies.

Order No. 16 says a watch must not gain or lose over 30 seconds per week. The gentleman whom the railroad has appointed as the inspector here has no means of telling whether it gains or loses, only by a common regulator which is not adjusted, so it is rather bad to have my work inspected and probably rejected by such an inspector.

I think and hope you will suggest some means of relief. I also will say to you that I think that net price list pocket editions are a bad plan with wholesale dealers. It would be much better to adopt the plan of half off with them all. They are carelessly laid aside and get into the hands of outside parties, as I now find one of our railroad men with one, and he can tell the net price of all watch movements as good as I can.

I hope you will suggest the above to the wholesale dealers and advise them to adopt the plan of half off. It is no more trouble than if it were a net list. J. I. Stephens.

Pensacola, Fla., September 16, 1887.

THE VALUE OF GOLD NOBLES.

To the Editor of the Jewelers' Circular:

In a recent number of The Circular a correspondent enquired about the rarity and value of an old English gold coin called a "noble."

Gold nobles were made in the reign of Edward III., who reigned from 1327 to 1377. There were three different coins made of various weights, viz.:

One wg. 120 grains.
One " 128½ "
One " 136¾ "

The nominal value is 20/-, 21/- and 22/-. Present value, 28/- to 30/-, according to state of preservation. James Milliken.

Liverpool, England, August 1, 1887.

The Jewelers' Security Alliance.

President, David C. Dodd, Jr.
First Vice-President, Augustus K. Sloan.....Of Carter, Sloan & Co.
Second Vice-President, Henry Hayes.....Of Wheeler, Parsons & Hayes.
Third Vice-President, David Untermeyer.....Of Keller & Untermeyer.
Treasurer, W. C. Kimball.....Of Strange & Brother.
Secretary, C. C. Champenois.....Of Champenois & Co.

EXECUTIVE COMMITTEE.

J. B. Bowden, *Chairman*.....Of J. B. Bowden & Co.
C. G. Alford.....Of C. G. Allord & Co.
Geo. W. Parks.....With Howard & Son.
F. Kroeber.....Of F. Kroeber Clock Co.
N. H. White.....Of N. H. White.
Chas. G. Lewis.....Of Randel, Baremore & Billings.

EXAMINING FINANCE COMMITTEE.

Geo. H. Hodenpyl.....Of Hodenpyl & Sons.
Chas. F. Wood.....Of Chas. F. Wood.

Counsel, Hon. Algernon S. Sullivan.

For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 3977. 170 Broadway, New York.

At a meeting of the Executive Committee of the Jewelers' Security Alliance, held on the 8th inst., the following firms were admitted to membership, viz.:

Peterson & Royce, Edwin Archard, Wm. Koontz, W. H. Heathcote, New York City; Hamilton & Hamilton, Jr., Providence, R. I.; Stanley Bros., Attleboro Falls, Mass.; F. M. Whitig & Co., T. G. Frothingham & Co., North Attleboro, Mass.; A. Horowitz, Hudson, N. Y.; Perkins & Pyne, Harrisburgh, Pa.; Roehm & Son, Detroit, Mich.

The Surplus and the Money Supply.

Some uneasiness has been apparent for a considerable period over the accumulations in the treasury. The principal source of this uneasiness is in Wall street. If anything can make Wall street supremely happy, it is the discovery of something that will disturb the calculations of people concerning the future. The full-fledged Wall street speculator well knows that he can thrive only amidst storms. When business is good and moving along quietly bis occupation is gone. To make money, therefore, he must keep people in a perturbed condition. He must behold frowning skies and howling tempests; and perceiving nothing just now of a threatening charac-

ter in the business world, he has turned his organs of vision towards the treasury vaults, and has discovered there, as he thinks, a real source of danger to the money market. While professing to be unhappy over this discovery, he is really rejoicing, for the evils arising from a tight money market may bring gain to him.

It is true, we believe, that this fear is shared by a few outside Wall street. Now and then a bank president has become infected with the same fear. He really thinks there is some cause for danger in the growing surplus in the treasury. If these gentlemen would stop for a moment to compare the danger of this accumulation of money with the enormous loans made to the speculative class, they would perceive at once, how much more danger there is of a tight money market from the action of the banks, than from the action of the treasury. The loans of the banks may be roughly divided into two large classes—first, to the mercantile class; and, second, to speculators on the security of stocks and personal obligations. The amount of loans to speculators by banks in some of the large cities, especially in New York, Boston and Philadelphia, is very large, and it is possible that they may loan so much to this class as to leave an inadequate supply to the other. The point of our remark is that the few millions in the treasury which might, perhaps, be used for the mercantile class, is very small compared with the money loaned by banks for speculative purposes. Now, if the banks are fearful that there may not be money enough for legitimate purposes of business, they can easily make the supply adequate by reducing their loans to the speculators. Moreover, such a policy would be harmful only to this class.

This is the first fact in the situation to be clearly seen. There is not the slightest danger of a tight money market for legitimate business if the banks keep their loans low enough to the speculators. Of course, it is quite true that if they loan largely to them, there may not be enough to go all around. Should this event happen, it would be the fault of the banks themselves, and could not be ascribed to the action of the government. The banks are easy masters of the situation, and it remains for them to say whether those needing money to move the crops and to carry out the regular pursuits of the country shall be abundantly supplied with money for their purposes. The forty or fifty millions of surplus in the treasury is a very small supply compared with the thousands of millions of capital, circulation and deposits in the discount banks and trust companies.

While all this is perfectly clear and well understood, it is also worth while to consider the policy of the treasury with respect to the surplus. The secretary has adopted two plans for reducing it. One is the purchase of bonds, and the other the payment of interest in advance, with a slight reduction in amount. It remains to be seen what will be the effect of these measures. A small portion of the interest money has been paid, but we have strong confidence that a considerable amount of bonds will be bought by the government. We do not share in the belief of some, as our readers know, that the purchase of bonds at a premium is such a bad thing and not to be done if it can possibly be avoided. We have urged all along the policy of bond purchases. If they are not bought we must pay interest, and whatever be the premium given, it will be very considerably less than the interest that must be paid if the bonds are not purchased. The buying of them at any figure less than the aggregate amount of interest during the period they are to run is a positive gain to the people, and there are growing indications that this fact is dawning on them. As soon as they see that this is real economy, they will recover from their present feeling of repugnance, and favor the buying at a premium, and the old policy will go on as heretofore. That, in our judgment, is the wisest policy to pursue. It may be well enough to reduce the revenue in some regards, but in the main, business having become accommodated to it, we should go on paying the debt until the last dollar has been discharged. The best time to pay it is when the people are in the mood for so doing, and this is the present. Every possible augument is in favor of the continuance of that policy. The Secretary of the Treasury is more timid than he need be in this regard, and if he exercised greater boldness in buying bonds, we are quite sure that his course would meet with increasing favor.—*The Banker's Magazine.*

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of August 16, 1887.

No patents.

Issue of August 23, 1887.

368,814—Isochronal Clock. H. Conant, Pawtucket, R. I.

368,689—Controlling device for clocks. W. S. Scales, Somerville, Mass.

368,743—Finger ring. R. Weidmann, Greenville, N. J.

368,904—Repeating watch. G. Aubert, New York, N. Y.

Issue of August 30, 1887.

369,053—Watch chain. H. Fritsche, New York, N. Y.

368,961—Calendar clock. E. W. Morton, White Plains, N. Y.

369,182—Watchmaker's Tweezers. L. Hirsch, New York, N. Y.

369,006—Watch regulator. J. W. Hurd, Aurora, Ill.

Issue of September 6, 1887.

369,337—Clock-case mold. C. Hellebush, Cincinnati, O.

369,672—Electric alarm clock. A. G. Wooley, Cincinnati, O.

369,462—Universal clock. S. S. Moyer, Allentown, Pa.

369,386—Electric synchronizing attachment for clocks. E. F. Bard, New York, N. Y.

369,544—Eye-glass or spectacle frame. H. J. Minster, Athens, Ga.

369,649—Manufacture of shell jewelry. C. Moegling, Washington, D. C.

369,560—Apparatus for tempering watch springs. F. Sedgwick Chicago, Ill.

Four Large South African Diamonds.

A MODEL of the Victoria, the Great White Diamond, or the Imperial, as it has been more recently called, having been sent to this city lately, and nothing having been published in any scientific periodical concerning this stone, it occurred to the writer that some illustrations showing it in its natural uncut form, as well as after cutting, might be of interest. Concerning its early history very little is known; in fact, where the stone was found is only a matter of conjecture—a remarkable circumstance when we consider that this is the largest brilliant in the world.

An explanation by a letter in the *London Times* was given as follows: "That this stone was not found in English dominions at all, but in the neighboring Orange Free State; that it had been found by a boor on his farm, who, knowing it to be a diamond, but fearing being turned out of his farm by a mob, kept the secret a whole year,

until a Mr. Allenberg, of Port Elizabeth, saw it and forwarded it to London."

It is, however, believed that it was found by some one in one of the Kimberley mines, South Africa. The first intimation that any of the various mining companies had of its existence was when they heard of its safe arrival in London. It is generally supposed that in the month of June or July, 1884, the stone had been found by one of the surveillance officers of the Central Mining Company in the Kimberley mines. It being his duty to search others, he had the privilege of not being searched himself, and so the stone was passed through the searching-house, and he was afterwards supposed to have found

Figs. 1, 2, 3.

means of communicating with four illicit diamond buyers. Owing to the stringency of the diamond laws of Griqualand-West, the trading in rough diamonds is forbidden any one not owning one of the "patents" or "licenses," as they are called, costing £200 and a guaranty of £500. All purchases made by them must also be entered in a special registry, and are duly signed every week by the police authorities. £3,000 was the price paid to obtain the stone from the first possessor. To prepare themselves for the ordeal of transporting the stone out of the district, they assembled at night, commenced drinking, then gambling, and after a night's debauch two of the party lost their share in the big stone. The other two

Fig. 4.

reached Cape Town in safety, where the diamond laws are not in force, and from a dealer there received £19,000 cash for their stone. An outward duty of one-half per cent is collected on all shipments of diamonds from Cape Colony; but this diamond is said to have been carried by one of the passengers of a mail steamer and was hence undeclared.

We next hear from it in London, causing considerable sensation at Hatton Garden, the great diamond market. After considerable time had been spent in trying to find a capitalist who could afford to buy such a gem, it was at last arranged by a former resident of the Cape mines to form a company of eight persons, who bought the stone together for £45,000 cash, on condition that if they should dispose of it each should receive a ninth share in the eventual profits.

Before cutting, it was estimated that the crystal would furnish either of the following gems: If cut as a briollette, 300 karats; as a drop, 230 to 240 karats; as a lozenge, 250 karats; and as a mathematically perfect brilliant, 150 karats. If cut in the latter form it would have furnished cleavages that would cut into one 40 karat, one 20 karat stone, and 40 karats of smaller stones. It was finally decided to cut it into the largest possible brilliant, still preserving a good shape, and Amsterdam was selected as the place where the gem could best be cut.

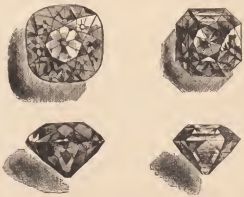
It was accordingly sent to the polishing mills of Jacques Metz,

Fig. 6.

Fig. 5.

Fig. 7.

who erected a special workshop for the purpose. In order to better obtain the brilliant form of cutting, a piece was cleaved off which furnished a 19 karat diamond, and was sold to the King of Portugal for £4,000. The cutting of the large stone, which was commenced on the 9th of April in the presence of the Queen of Holland, took about twelve months, since, instead of being cut by abrasion with another diamond, as diamonds are usually cut, it was polished down on the scaif; and a great amount of time was consumed by the cooling of the stone, as it heated after an hour's running on the wheel. The cutter of the stone was M. B. Barends. The stone in its fin-



Figs. 8, 9. Figs. 10, 11.

ished condition weighs 180 karats, and is a beautiful, perfect, steel-blue diamond, and is the largest brilliant in the world.

It is 39.5 mm. (1 9/16 inches) long, 30 mm. (1 1/4 inches) wide, and 23 mm. (1/8 of an inch) thick, being exceeded in size by one diamond only, the Orloff, belonging to the Russian crown, which weighs 194¾ karats, but is a large deep rose, and not a brilliant. The Victoria exceeds the Regent in weight by 44½ karats. The Kohinoor weighs only 106 1/16 karats.

The three figures (Figs. 1, 2, 3) give the front, back and side features of the stone. It will be observed that the form is not entirely

even, and that on one side of the girdle there is quite a flat place, a natural unpolished surface, necessary, in cutting, to preserve the large weight of the stone. It is, however, a perfect 58-facet brilliant.

The original weight of the stone was 457½ karats, over 3 ounces Troy. The figure (Fig. 4) is drawn from two photos, that, strange to say, had been taken by a Cape photographer, and fortunately passed through my hands; and the stone to-day is held by a London syndicate for £200,000. The ownership is divided into 320 parts, some holding only one and others four or more.

The Tiffany large yellow diamond, shown in Figs. 5, 6, 7, weighs 125⅜ karats, is absolutely perfect, is a "double-deck" cut brilliant, as it is termed, and is undoubtedly the finest large yellow diamond known. It was found in the Kimberley mine about nine years ago, and was cut in Paris. One of the most pleasing features is that it not only retains its rich yellow color by artificial light, but is even more beautiful than by day. It has 40 facets on the crown, 44 facets on the pavilion or lower side of the stone, and 17 facets on the girdle; total number, 101. Because of its deep color, this is a finer stone than the historical Star of the South (125 karats), which was purchased by the Mahratta, ruler of Baroda, for $400,000, at the French Exposition, 1867. It also rivals the Florentine, which, according to Schrauf's determination (*Sitzb. d. k. Akad. d. Wissensch.*, Band 54, Abtheil. i. Nov., 1866), weighed 133¾ karats, and was sold for 2,000,000 florins, but is only a long double rose or drop, and not a brilliant.

The Tiffany No. 2 diamond (see Figs. 8, 9) weighs 77 karats, is of a light yellowish color, is absolutely perfect, and is one of the few large stones that have been cut for beauty and not for weight. It is so evenly cut that it will stand on the culet, which is only of the regular size. This stone was exposed to a strong blazing sunlight for thirty minutes, two thermometers registering 110° to 120° F. during the whole time of exposure; and only a very faint, if any, phosphorescence was observed, although the stone was placed in a dark room within thirty seconds after exposure. It had been laid on a black velvet case during the whole time of the experiment, and nothing came in contact with it while it was being carried to a place of darkness. Its specific gravity is 3.523+ at 60° F.; it measures 26 mm. (1⅛ inches) in length, 25 mm. (1 inch) in width, and 17 mm. (¾ of an inch) in thickness; there are 33 facets on the crown or upper side of the stone, and 25 facets on the pavilion or back; and, in addition, there are 55 small facets evenly distributed around the girdle.

Figs. 10 and 11 show a fine yellow diamond, weighing 51⅜ karats, also from South Africa, and recently re-cut by Tiffany & Co. in New York City. It is absolutely perfect and without flaws. It measures 22 mm. (⅞ of an inch) in length, 22 mm. in width, 23.75 mm. (¾ of an inch) at the corners, and 15.75 mm. (⅝ of an inch) in thickness; there are 73 facets on the crown or upper side of the stone, and 49 facets on the pavilion or back; and the cutting, which is that of a double-deck brilliant with some of the lower crown facets divided in two, is quite unique, forming a remarkably beautiful gem.

GEORGE F. KUNZ.

What the Optician Should Know About Optics.

[By C. A. Bucklin, A. M., M. D., New York.]

IF WILL consider more fully the nature of both simple cylindrical and spherical lenses when in a state of combination, and the practical methods necessary to determine the nature of a lense and its various equivalents.

A prism is the simplest optical instrument constructed. We must observe the effects of a prism on light, as the effect it produces is very frequently confounded with that of a cylindrical lens. If a prism is held base up and one observes a vertical line at a distance of several feet through the prism, the portions of the line seen through the glass and those portions of the line seen outside of the glass will form a continuous line if the prism is rotated slightly in either direction that portion of the line seen through the glass will be displaced to the right or left; the displaced portions of the line, however, will remain parallel with the other portions. The difference between the displacement thus produced and that produced by a cylindrical lens when the observed vertical line corresponds with the axis of the cylinder, is as follows: The portions of the line seen through the lens when it is slightly rotated is not displaced to the right or left; it is simply twisted so that each half of the portions of the line seen through the cylindrical lens forms an acute angle with those portions of the vertical line seen above and below the lens. A prism may be shaken in all directions without causing distant objects observed through it to move; the displacement only takes place when the prism is slightly rotated. To determine the degree of a prism you neutralize this displacement by a prism with the base in the opposite direction. A simple cylindrical lens has three peculiarities. A distant line in the direction of its axis is caused to twist when the lens is rotated. If the lens is shaken in the line of its axis observed objects remain stationary; if shaken at a line at right angles to its axis, observed objects dance about. If the lens is a cylindrical concave, objects move in the same direction as the shaken lens, and in the opposite direction if the lens is a convex cylinder.

A simple convex lens causes objects observed through it to move equally in all meridians in the opposite direction from which the lens is moved.

A simple concave lens causes objects to move equally in all meridians in the same direction the lens is moved.

If we combine a simple convex cylinder with a simple convex lens, the simple lens will cause a shake in all directions while the cylinder will cause an additional amount of motion in the meridian at right angles to its axis. The axis of a compound or sphero-cylindrical lens is therefore indicated by the meridian in which there is the least shake. The reverse is true of a concave lens combined with a concave lens.

In this class of lenses we neutralize the line of the least motion when the lens is shaken with a simple spherical lens. The remainder is a simple cylindrical lens, which we neutralize by placing a cylindrical lens of an opposing value with its axis so placed that the axes exactly correspond. The correspondence of the axes is a very important feature in the analysis of this class of lenses; it can only be determined by placing the examined and the neutralizing lens together, and rotating them upon each other till distant horizontal or vertical lines cease to be distorted from their true position when observed through the combined lenses.

A concave lens may be combined with a convex cylinder or a convex lens may be combined with a concave cylinder. Concave cylindrical lenses of different powers are combined with each other, as are also convex cylindrical lenses of different powers. More frequent concave cylindrical and convex cylindrical lenses are combined with each other for the purpose of clearing up distant vision. It is not always necessary to order as complicated a lens as your experiments call for to obtain the same acuteness of vision. For example: An individual may refuse all spherical lenses when used alone, but accept a convex cylinder, axis 90°, as an improvement to distant vision. All spherical lenses are rejected where tried over this cylindrical lens, but when a concave cylindrical lens is placed over the convex cylinder with its axis at 180°, there is a decided additional improvement in the acuteness of vision. Having determined what will improve the acuteness of vision, we can calculate a more simple lens which will have the same effect as the given combination. We could not, however, have obtained the results by direct trial of spherical lenses, because all spherical lenses were in the first instance rejected, and all spherical lenses when tried over the cylindrical lens giving the best results, made vision worse because they changed the power of the cylinder which was required to correct the faulty curvature of the cornea. The true defect being known, we can make such changes in

the cylindrical lens as to compensate for the disturbing effects produced by the introduction of a spherical to correct the other faulty meridian. Cylindrical lenses of the same kind and same number with crossed axes produce a result which the eye can not detect from a simple spherical lens of the same number or strength.

I introduce here a table containing the numbers and arrangement of lenses usually employed in trial cases, with a few modifications which I have introduced, namely, a set of squares which are true, and an ophthalmoscope for detecting visual obscurities.

CYLINDERS.							
CONCAVES.		CONCAVE.		CONVEX.		CONVEXES.	
Dioptrics.	Inches.	Dioptrics.	Inches.	Dioptrics.	Inches.	Dioptrics.	Inches.
20	2	8	5	8	5	20	2
18	2¼	6.5	6	6.5	6	18	2¼
16	2½	5.5	7	5.5	7	16	2½
14	2¾	5	8	5	8	14	2¾
13	3	4.5	9	4.5	9	13	3
12	3¼	4	10	4	10	12	3¼
11	3½	3.5	11	3.5	11	11	3½
10.5	3¾	3.25	12	3.25	12	10.5	3¾
10	4	2.75	14	2.75	14	10	4
9.5	4¼	2.5	16	2.5	16	9.5	4¼
9	4½	2.25	18	2.25	18	9	4½
8.5	4¾	2	20	2	20	8.5	4¾
8	5	1.5	24	1.5	24	8	5
7.5	5¼	1.25	30	1.25	30	7.5	5¼
6.5	6	1.11	36	1.11	36	6.5	6
5.5	7	1	40	1	40	5.5	7
5	8	0.75	48	0.75	48	5	8
4.5	9	0.67	60	0.67	60	4.5	9
4	10	0.55	72	0.55	72	4	10
3.5	11	0.27	144	0.27	144	3.5	11
3.22	12	....	....	....	....	3.25	12
3	13	....	....	....	....	3	13
2.75	14	....	....	....	....	2.75	14
2.5	16	....	....	....	....	2.5	16
2.25	18	....	....	....	....	2.25	18
2	20	....	....	....	....	2	20
1.75	22	....	....	....	....	1.75	22
1.5	24	....	....	....	....	1.5	24
1.25	30	....	....	....	....	1.25	30
1.11	36	....	....	....	....	1.11	36
1	40	....	....	....	....	1	40
0.75	48	....	....	....	....	0.75	48
0.67	60	....	....	....	....	0.67	60
0.55	72	....	....	....	....	0.55	72
0.27	144	....	....	....	....	0.27	144

With the above table before us and a clear idea of the peculiarities of spherical and cylindrical lenses, we are in position to reduce at a moment's notice any compound cylindrical lens to its simpler spherocylindrical equivalents.

The rule is to add or subtract the refractive indices of the lenses. When both lenses have like signs, we subtract the error created by the substitution of a spherical lens for a cylindrical lens from the cylinder which is to be retained.

The refractive index of any lens in the inch system is represented by the number of the lens for the denominator of a fraction with 1 written above it for a numerator.

The refractive index of lens No. 40 is $\frac{1}{40}$. The difference between $\frac{1}{30}$ and $\frac{1}{40}$ would be $\frac{1}{30}-\frac{1}{40}=\frac{1}{120}$, or lens No. 40.

Let us suppose that it is necessary to use a compound cylinder to bring out distant vision distinctly. For example, the following formula: $+\frac{1}{40}$ c. ax. 90°$\bigcirc-\frac{1}{40}$ c. axis 180°. We will change the $+\frac{1}{40}$ c. to a convex 40, but in so doing we are acting upon the meridian which was already corrected by a $-\frac{1}{40}$ c. In other words, we have added to this meridian an additional error of $\frac{1}{40}$ to be compensated for. This will require the cylindrical lens to be $\frac{1}{40}$ stronger; therefore the cylindrical lens required will be $\frac{1}{40}+\frac{1}{40}=\frac{1}{20}$, the number of the ——— cylindrical lens required when $\frac{1}{40}$ cylindrical is transposed into $\frac{1}{40}$ spherical. The formula will read $+\frac{1}{40}\bigcirc-\frac{1}{20}$ c. ax. 180= $+\frac{1}{40}$ c. ax. 90°$\bigcirc-\frac{1}{40}$ c. ax. 180°.

In the dioptric system the numbers given represent the refractive indices of the lenses. Therefore when the numbers are given in dioptrics we have simply to add or subtract their values as the case requires. +1. c. ax. 90°$\bigcirc$—2. c. ax. 180°. Change +1 c. to spherical —2. c. becomes —3. c. ax. 180°. Resulting formula is +1.$\bigcirc$—3. c ax. 180°.

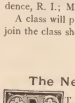
When the numbers are given to us in inches, we can find in the tables the corresponding dioptric number. Then make the addition or subtraction required in dioptric numbers, and in the table, opposite the result, will be found the inch number required. I think from the above that any one with a little thought can rapidly calculate the sphero-cylindrical equivalent of any compound cylindrical lenses, the axes of which are crossed. In most cases this substituted lens will answer as well as the crossed cylinders; occasionally it will not. This fact can only be determined by allowing the person to try the lenses.

General Rule.—In transposing a cross-cylindrical combination into a sphero-cylindrical combination you add the error created by the change to the cylinder you retain in the combination when the signs are unlike. When you have like signs you subtract the error created by changing the cylindrical into a spherical lens. When the cylinder changed is stronger than the cylinder retained, the sign of the *retained* cylinder is reversed.

The class in optics commenced September 15 with the following students: A. W. Hayes, Dover, N. H.; P. W. Whiteman, Beaufort, S. C.; Fred. W. Weidenfield, N. Y. City; Sylvester Eastman, Providence, R. I.; M. G. Lowenstein, Hobert, N. Y.

A class will probably form about October 13. Those desiring to join the class should communicate at the earliest date possible.

The New York Jewelers' Association.



AT THE thirteenth annual meeting of this association, held on the 13th of September, at their rooms, 142 Broadway, a radical change was made unanimously in the by-laws. The object of the revision was to make the administration of affairs less cumbersome, and to remove some of the objections to the old by-laws which have been in force since the commencement of the association. One of the principal changes is the formation of a board of nine directors, who are to have regular quarterly meetings, with special meetings whenever required. This does away with the frequent meeting of the entire association, which hereafter will have but one meeting annually. At the election of officers, Mr. Alfred H. Smith was chosen President, Mr. F. S. Douglas, Vice-President, and Mr. Augustus K. Sloan, Treasurer. The Board of Directors is composed of the following gentlemen: H. B. Dominick, B. H. Knapp, Joseph F. Chatellier, C. G. Alford, George W. Shiebler, James W. Miller, F. H. Richardson, John A. Riley and J. E. Spencer.

The Matrix of the Diamond.

OF MORE than common interest is the paper recently read by Professor H. Carvill Lewis, at the British Association for the Advancement of Science, held at Manchester, England, on September 7, 1887. He says as follows:

[ABSTRACT.]

A microscopical study of the remarkable porphyritic peridotite which contains the diamonds in South Africa demonstrates several interesting and peculiar features.

The *olivine*, forming much the most abundant constituent, is in

porphyritic crystals, sometimes well bounded by crystal faces, at other times rounded and with corrosive cavities, such as occur in it in basaltic rocks. It rarely encloses rounded grains of glassy bronzite, as has been observed in meteorites. The olivine alters either into serpentine in the ordinary way, or into an aggregate of acicular tremolite crystals, the so-called "*pilit*," or becomes surrounded by a zone of indigo blue bastite—a new variety of that substance. The olivine is distinguished by an unusually good cleavage in two directions.

Bronzite, Chrome diallage and *Smaragdite* occur in fine green plates, closely resembling one another. The bronzite is often surrounded by a remarkable zone, with a centric, pegmatitic or chondritic structure, such as occurs in certain meteorites. This zone is mainly composed of wormlike olivine grains, but a mineral having the optical characters of cyanite also occurs in this zone.

Biotite, a characteristic constituent, occurs in conspicuous plates, often twinned, generally rounded, and distinguished by its weak pleochroism, a character peculiar to the biotite of ultra-basic eruptive rocks. It alters by decomposition into the so-called *Vaalite*.

Perowskite occurs in very numerous but small crystals, which optically appear to be compound rhombic twins.

Pyrope is abundant in rounded red grains. Titanic iron, chromic iron and some fifteen other minerals were also found. Rutile is formed as a secondary mineral through the alteration of olivine into serpentine, being a genesis of rutile not heretofore observed.

The *chemical composition* shows this to be one of the most basic rocks known, and is a composition which by calculation would belong to a rock composed of equal parts of olivine and serpentine, impregnated by calcite.

The *structure* is, at the same time, porphyritic and brecciated, being one characteristic of a volcanic rock which, after becoming hard, had been subjected to mechanical movements. It is a volcanic breccia, but not an ash or tuff, the peculiar structure being apparently due to successive paroxysmal eruptions. A similar structure is known in *meteorites*, with which bodies this rock has several analogies. A large amount of the adjoining bituminous shale is enclosed, and has been more or less baked and altered. The occurrence of minute tourmalines is evidence of fumarolic action.

The microscopical examination supports the geological data in testifying to the igneous and eruptive character of the peridotite, which lies in the neck or vent of an old volcano.

While belonging to the family of peridotites, this rock is quite distinct in structure and composition from any member of that group heretofore named. It is more basic than the picrite porphyrites, and is not holocrystalline like dunite or saxonite. It is clearly a new rock-type, worthy of a distinctive name. The name *Kimberlite*, from the famous locality where it was first observed, is therefore proposed.

Kimberlite probably occurs in several places in Europe, certain garnetiferous serpentines belonging here. It is already known at two places in the United States: at Elliott County, Kentucky, and at Syracuse, New York; at both of which places it is cruptive and post-carboniferous, similar in structure and composition to the Kimberley rock.

At the diamond localities in other parts of the world diamonds are found either in diluvial gravels or in conglomerates of secondary origin, and the original matrix is difficult to discover. Thus in India and Brazil the diamonds lie in a conglomerate with other pebbles, and their matrix has not been discovered. Recent observations in Brazil have proved that it is a mistake to suppose that diamonds occur in itacolumite, specimens supposed to show this association being artificially manufactured. But at other diamond localities, where the geology of the region is better known than in India or Brazil, the matrix of the diamond may be inferred with some degree of certainty. Thus in Borneo diamonds and platinum occur only in those rivers which drain a serpentine district, and on Tanah Laut they also lie on serpentine. In New South Wales, near each locality where diamonds occur, serpentine also occurs and is sometimes in contact with carboniferous shales. Platinum, also derived from eruptive serpentine, occurs here with the diamonds. In the Urals, diamonds have been reported from four widely separated localities, and at each of these, as shown on Murchison's map, serpentine occurs. At one of the localities the serpentine has been shown to be an altered peridotite. A diamond has been found in Bohemia in a sand containing pyropes, and these pyropes are now known to have been derived from a serpentine altered from a peridotite. In North Carolina a number of diamonds and some platinum have been found in river sands, and that State is distinguished from all others in eastern America by its great beds of peridotite and its abundant serpentine. Finally, in northern California, where diamonds occur plentifully and are associated with platinum, there are great outbursts of post-carboniferous eruptive serpentine, the serpentine being more abundant than elsewhere in North America. At all the localities mentioned chromic and titanic iron ore occur in the diamond-bearing sand, and both of these minerals are characteristic constituents of serpentine.

All the facts thus far collected indicate *serpentine*, in the form of a decomposed eruptive peridotite, as the original matrix of the diamond.

GEORGE F. KUNZ.

A Lucky Vermont Jeweler.

THE wife of one of Brattleboro's well-known business men has recently received a letter from the family of her nephew residing in Vergennes, with interesting details concerning the discovery of a rich vein of granite just across Lake Champlain from Vergennes, and the organization of a stock company of capitalists for the purpose of developing the quarry. The Brattleboro party is more particularly interested in the fact that the nephew, through this discovery of the vein, comes into possession of a large fortune. The story told by the relative is interesting. Howard Burge, it seems, was for several years a jeweler in Vergennes, and, although he was economical and industrious, his little business hardly afforded more than a comfortable living for himself and family. Gradually he became deeply interested in the subject of geology, to the study of which he gave much of his leisure time, and finally it resulted in his being recognized as one of the most scientific geologists in that section of the State. He was daily investigating the different strata comprising the earth's crust, and he was particularly fond of gathering specimens of minerals and fossils. One day he crossed the lake, and in rambling about came upon a vein of granite which subsequently proved to be of great value and utility. He confided the fact of his discovery to a leading Vergennes physician, who became interested, and was finally offered an interest with the understanding that he was to furnish the capital for developing the quarry, which he did. Buildings and derricks were erected, and the work of quarrying was in time begun, but the capital being limited, immediate results were not encouraging, and the work was, after the lapse of some time, discontinued, though, as it has since turned out, the quality of the stock was such as to insure a large demand. Mr. Burt, fully imbued with the idea that the quarry was rich, and satisfied that ultimately it would be profitably worked, decided to remain on the ground, title to which he had in some manner secured, and thus hold it from trespassers. And now comes the interesting part of the story, which proves the wisdom of his course, and shows how he was amply rewarded for his patience. His faith in his discovery and his determination to hold on, has been heroically maintained through a period fraught with frequent discouragements. A syndicate with ample capital comes forward at last and takes possession of the quarry, which turns out to be of great value, and the aged geologist and discoverer is paid $150,000, and still retains a profitable interest in the company. The little town of Westport gets quite an impetus in consequence of the discovery, while the pecuniary circumstances of one who

has experienced the hardships of life are most pleasantly transformed. People acquainted with the circumstances tell of the discovery by this same Burt of a fossil in the shape of a large serpent, which the geologist has partly uncarthed from the rocks in the vicinity of the quarries. He has already got out about eight feet of the monster, the largest part of which is some five inches in diameter. Beginning with the tail, every joint is said to be perfect in detail, as are the fine petrified scales, while the cavity which held the intestines is a perfectly smooth surface. Burt continues to unearth the fossil as time permits, and he feels sure of obtaining the head, which he thinks, like the body, is encased in solid rock.—*Springfield Republican.*

Tiffany's Semi-Centennial.

MR. CHARLES L. TIFFANY, one of the founders of the house of Tiffany & Co., which reached its fiftieth anniversary on the 21st of September, was presented with a handsome testimonial or address from his employees on that occasion. The address was an illuminated one on vellum, consisting of 11 large sheets attached to an ivory roller. It was encased in a finely polished rosewood case, with a solid gold plate on top, with the inscription, "Charles L. Tiffany, 1837–1887."

The ivory roller was made from a tusk that has been seasoned for 17 years, and is a remarkable piece of this material.

The following is the entire address, and to it were attached in their own handwriting the names of the firm and over 1,000 of their employees. Of these a number had been with with Tiffany & Co. for over 32 years:

UNION SQUARE, N. Y., September 21, 1887.

Mr. Charles L. Tiffany:

DEAR SIR—On this, the fiftieth anniversary of the house of Tiffany & Co., we offer to you our congratulations on your unprecedented success and that of the business founded by you, which, from an humble beginning, has, through your integrity, sagacity and energy, arrived at the position of being not alone the first of its kind in America, but also the representative house of its business in the world. To our congratulations we add our hearty good wishes for the continuance of your health and prosperity, and that you may live long to enjoy the fruits of your labors.

Obituary.

SIMON SILVERTHAU.

Simon Silverthau, of New Haven, Conn., died on August 24 at the age of 72 years. He was born at Tahlheim, Bavaria, and came to this country when a young man. He worked for a time as traveler for his brother, Leopold, who kept a store on the Bowery, in this city. He started a store for himself in New Haven about 1845, and prospered well for those times. He still continued to travel through the State, going on trips of four weeks' duration, always on foot. His business slowly increased, and, as his family grew up, he took his sons into partnership with him, and thus the firm of S. Silverthau & Sons was established. Mr. Silverthau was an old-fashioned, hard-working, honest jeweler. He knew his business thoroughly and devoted himself entirely to it. He had but one severe misfortune in his life, which, however, would have sunk a weaker man. About 20 years ago he was robbed of his entire stock, and, at the time, no clue of the robbers could be found. This robbery left him without anything but the house he lived in and his good name. Through the latter, however, he was enabled to borrow sufficient to tide him over his difficulties. He never failed, and, indeed there was never any danger. He never bought but what he could sell, and among his customers he was well liked because of his honest dealings and pains taking disposition. He leaves three sons, Frederick, Philip and Abraham, to continue the business; two other sons and three daughters also survive him.

HORACE D. HALL.

Horace D. Hall, of Middletown, Conn., died on September 8 after several months' illness, aged 79. He was one of the oldest merchants in Middletown, and was well known in financial and business circles. His jewelry store on Main street, established fifty years ago, was one of the most respectable in town, and his loss is regretted by many friends and acquaintances.

Martin Ryerson.

CHICAGO, September, '87.

At a meeting of the Board of Directors of the Elgin National Watch Co., held this day, the following resolution was unanimously adopted:

"*Whereas*, An inscrutible providence has suddenly taken from among us one whom we honored and loved, the members of the Board of Directors of the Elgin National Watch Co. desire to place upon record an expression of their deep sense of loss in the death of their late associate, therefore,

Be it Resolved, That in the death of Martin Ryerson we mourn the loss of a noble, generous and true-hearted man, one who for nearly forty years has occupied a prominent place in the city and been closely identified with its growth and prosperity. A gentleman of unswerving integrity and pre-eminently upright and honorable in all of his business transactions. He was a man of remarkably good judgment, firm and decided in his convictions, but always careful not to trespass upon the rights of others.

He was a member of the Board from 1868 to 1872, and from 1883 to the time of his death, and during that time won the confidence and esteem of his associates.

To the members of his family, who so deeply mourn in this hour of their affliction, we tender an expression of our heartfelt sympathy.

Resolved, That these resolutions be spread upon the records of the Company, and that a copy be sent to the family of the deceased.

(Signed)

T. M. AVERY, Pres't.
WM. GEO. PRALL, Sec'y."

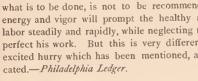
Hurry and Dispatch.

AMONG the many causes of poor and inefficient work is the habit of hurry, which takes possession of some busy people. Having or imagining they have more to do in a given time than can be done properly, they grow confused, agitated and nervous; and, under this pressure, they proceed with the work in hand without requisite deliberation and care, perhaps omitting parts of it—sometimes important parts—and producing at last an imperfect and inferior performance, which can neither be permanent nor satisfactory.

There is hardly any employment, from the simplest manual work to the most complex and difficult mental labor, that does not suffer from this cause. The dwelling-house in process of building is to be finished at a certain time. With proper forethought and system it would have been done, but the time approaches and the work is still incomplete. The future occupants are impatient, the contractor is anxious, the workmen are driven, the work is hurried through, and

annoyance, discomfort, and sometimes danger ensue, and repairs are soon found necessary. The business man undertakes more than he can manage, the days are not long enough for his needs, he is agitated by the constant pressure, driven by conflicting claims, his business suffers for the want of a clear and cool head, his health suffers from continual and unrelaxed exertion, his family suffers from his deterioration, and general disaster ensues. The physician, with many other calls to make, hurries through the visit, neglecting some important symptom, and his patient dies; the lawyer hurries through his plea, and loses his case; the preacher hurries through the preparation of his sermon, and fails to make an impression; the artist hurries on his picture to completion, and his best conception is not there; the teacher hurries through a prescribed course of instruction, and the class is left destitute of the more important elements of knowledge. It is not too much to say that a large proportion of the unhappiness, the ignorance, the loss of property, and even the loss of life, that is endured in the world is to be directly traced to the hurry and drive which characterize so much of the labor performed.

Many persons not only drift into these hurried ways, but pride themselves upon them. They boast of their speed, and contrast it with the slower measures of their more deliberate neighbors. They flatter themselves upon their dispatch, and hold themselves of more value on that account. Slowness in work, lingering or loitering over what is to be done, is not to be recommended. On the contrary, energy and vigor will prompt the healthy and industrious man to labor steadily and rapidly, while neglecting nothing that is needed to perfect his work. But this is very different from the agitated and excited hurry which has been mentioned, and which is to be deprecated.—*Philadelphia Ledger.*



President, HENRY HAVES..... .....Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON.....Of Celluloid Show Case Co.
Second Vice-President, JAMES P. SNOW .....Of G. & S. Owen & Co.
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Secretary and Treasurer, WILLIAM L. SESTON.....Of Sexton Bros. & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
J. R. GREASON.....Of J. R. Greason & Co.
GEO. H. HOUGHTON.....With Gorham Mfg. Co.
WM. H. JENKS.....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, willhereinbe answered. Address *Jewelers' League, Box* 3,441. *P. O., New York*, or the office of THE CIRCULAR.

The regular monthly meeting of the Executive Committee of the Jewelers' League was he'd at the office of the League, 170 Broadway, on Friday evening, September 2, 1887. There were present Vice-President Snow and Messrs. Howe, Jeannot, Bardel, Greason and Sexton. The meeting was presided over by Chairman Geo. R. Howe, who had just returned from a trip to Europe.

The request of one member for change of beneficiary was granted.

William Jansen, Jr., St. Louis, Mo., recommended by Aug. Kurtzeborn, and Chas. W. Bridgman, of New York, recommended by Henry Hayes, were admitted to membership.

The fund for Mrs. Glover exceeds $2,200.

Working in Brass and Copper in China.

THE Chinese are quite expert in the manufacture of various articles for use and ornament, from brass, copper and yellow metal. The importation of late years of yellow metal sheathing has been a great advantage to the Chinese braziers, who use quantities for the manufacture of a great variety of implements, such as pots, pans, cymbals, gongs, etc., which previously were made by the more laborious and expensive method of casting. The manufacture of what are commonly known as hubble-bubble pipes is carried on quite extensively here, some of the establishments furnishing employment to something like a hundred operatives. These pipes, as a rule, are made from yellow metal sheathing, cut with shears into proper shape and size, and the component pieces brazed together. The workman sits on a low stool, before a narrow, wooden trestle or bench, about 3 feet long, having at one end two iron staples or rings projecting above the surface, with another flat staple near the center. All the tools used by the workman have a piece of wood or bamboo, about 2 feet long, affixed to one end, and this passes through the rings or staples mentioned, the handle of the file, shears, or rasp being held by the workman. This arrangement enables the operator to work the tool more steadily, and by exerting more pressure or appplying more force, the work of filing or scraping is much expedited. With the shears the workman first cuts the metal from the sheets in proper form, then fashions it by hammering with a convex-faced hammer upon a block of wood, annealing it from time to time, by heating in a charcoal furnace and cooling by immersion in water, by which process the metal is rendered softer and tougher. The stem is made by putting a piece of metal of suitable shape on a small anvil, with a concavity on its face, and, with a properly-shaped tool, hammering it until the brass has assumed the same shape. All the parts are then adjusted, wired together and brazed. It is then scraped and polished. The rough polishing is done by placing in the flat staple a piece of wood, shaped to fit the inside of the pipe, and on this the pipe is placed, and being thus firmly held, the workman with a suitable tool, cuts away all the inequalities of surface, then files it smooth, and polishes with fine sand, finishing off with a finely-powdered or levigated silicious ash, obtained by burning rice husks.

Gongs and cymbals are made from this sheathing by hammering, the resonance of the instrument being of a higher quality in proportion to the amount of hammering received. Pots and pans are also hammered into proper shape, and a rounded and thickened edge given them by folding the edge over a wire and then soldering it

The Discoverer of Spectacles.

NEWER inventions have conferred a greater blessing on the human race than that which assists impaired vision. Dr. Johnson rightly expressed his surprise that such a benefactor as the discoverer of spectacles should have been regarded with indifference, and found no worthy biographer to celebrate his ingenuity. Unfortunately, however, his name is a matter of much uncertainty; and, hence, a grateful posterity have been prevented from bestowing upon his memory that honor which it has so richly merited. But it may be noted that popular opinion has long ago pronounced in favor of Spina, a Florentine monk, as the rightful claimant, although some are in favor of Roger Bacon. Monsieur Spoon, in his "Researches Curieuses d'Aniduite," fixes the date of the invention of spectacles between the years 1280 and 1311, and says that Alexander de Spina, having seen a pair made by some other person, who was unwilling to communicate the secret of their construction, ordered a pair for himself, found them so useful that he cheerfully and promptly made the invention public. According to an Italian antiquary, the person to whom Spina was indebted for his information was Salvino, who died in the year 1318, and he quotes from a manuscript in his posession an epitaph which records the circumstance: "Here lies Salvino Armota d'Armati, of Florence, the inventor of spectacles. May God pardon his sins. The year 1318."—*London Standard.*

Some Passing Smiles.

A shrewd business man can work up a vast amount of liabilities on a very small capital.

Strange as it may seem, when the odds are against a man it is hard for him to get even.

A connecticut man by the name of Peach overfed his children with watermelon, and it is feared that the peach crop is ruined.

Some queer things happen in Hartford. One of the Hartford papers says that "a car horse had to be bled at the north end."

De Baggs—"Ponsonby, me boy, what do you do in this weather to keep cool." Ponsonby—"Nothing." De Baggs—"By jove! I don't know but that's a good idea."

Ardent lover—"Dearest, I love you! Only promise that you will be my—" Small boy under the window—"Game's called, fellers!" Excited lover at window—"Say bub, what's the score?"

Brown—"Hello, Thompson, old man! Why you're looking like a fighting cock. Been taking a vacation?" Thompson—"Why, no. The fact is, I thought I'd stay home this summer and enjoy myself."

Richard and John Bean, hack drivers in Boston, have fallen heirs to a fortune of $10,000,000. These Boston Beans, served up in a full-dress suit and wearing a wedding ring, would not make an unpalatable dish.

"What is the matter?" asked a lawyer of his coachman. "The horses are running away, Sir." "Can't you pull them up?" "I am afraid not." "Then," said the lawyer, after judicial delay, "run into something cheap."

A Western man wears for a scarf-pin a small thermometer with a [illegible] pointing to 70 deg. and the legend; "This is hot enough for me." The effect has been to produce a coolness between him and some of his friends.

It is said that when an Indian dies his surviving relatives pay all his debts. We are acquainted with a man whom we heartily wish would turn Indian and die. If he reads this it will be just like him to wonder who is meant.

"How much on this watch?" asked a Bohemian of that grand old humanitarace benefactor, uncle Simpson of the Bowery. "I give you two-feefty." "Make out the pasteboard," said the Bohemian promptly, "City Hall clock's good 'nough for me."

Physician (to sick-man)—"What have you been doing to-day?" Sick-man—"I have spent most of the day reading about Henry George and Dr. McGlynn in the newspapers." Physician "You need a couple of weeks rest. You are not sick, simply tired.

If Canada should engage in war with this county, we will be placed in much the same position as the Arkansas citizen who was threatened with a 22-caliber revolver; "If you shoot me with that thing, stranger," he said, "and I ever find it out, I'll paralyze ye."

Doctors are as much affected by the real estate craze in Southern California as any other class, and one of them at Riverside recently appended the direction to a prescription: "Take one third down, and the remainder in one and two years, secured by a mortgage."

"Mourning goods, please," she said to the floor walker. "Yes madam, this way, if you will;" and then he added feelingly, "death is a sad thing, madam." "It is indeed!" responded the lady, "I'll not make any purchases this morning, I only want to see the latest things you have in the mourning line; my husband is a very sick man."

Waiter—"Anyfing mo', sah?" Guest—"Yes; bring me a—(winks)—you know" (winks). Waiter—"Can't do it, sah; dis am a probishun town, sah, 'n' you're a stranger." Guest—"What of that?" Waiter—"De boss says winks don't count for nuffin unless we's quainted wid 'em."

The Chicago *News* declares that the cyclone struck a noted corner loafer in David City, Neb., and slapped him against the side of a brick building 100 yards away. On recovering consciousness the victim threw up his hands and cried piteously, "Don't, Libbie, don't, I'm going right home."

Boston mother—"Then you have concluded to marry James, Clara?" Daughter (a school-ma'am)—"Yes, ma. James will soon be master, and we think it will be an economical measure for us to get married." M.—"Where does the economy come in?" D.—"Well, we both wear the same sized spectacles."

Brown (Sunday evening)—"What a beautiful day we've had, Robinson." Robinson—"Magnificent; the weather is simply perfect." Brown—"Where did you spend the day, at the Park?" Robinson—"Well-er-no, not exactly. I've been playing pool and drinking beer since ten o'clock this morning."

A Kentuckian, with a large jug, made a bargain with a countryman to take him four miles over the hill "How much'll you charge?" "Oh, a couple of swigs of the stuff in that jug'll make it about square, I reckon." After the journey had been made and the countryman had taken a swig, he said: "Stranger, I'm a peaceable man, but if you don't want to be chuck full of lead to-night, you'd better find another way to carry yer molasses."

Scene, Chicago, in 1987. Time, 1 A. M.—Mrs. Jones on front door step—"Missher Jones come dowd an' open 'er door; thissher night key won't work." Mr. Jones, poking his head from the upstairs window—"I won't do it, I told you last election that I wouldn't get up to let you in any more. Here the baby's been sick, and no one to go for the doctor." Mrs. J.—I promise right now thish hell be'er lash time. Wonshe open 'er door?" Mr. J.—"Well, I will this once, but mind you my mother shall hear all about this to morrow. I do wish such a thing as politics had never been invented."

An Iowa newspaper foreman is now in danger of his life for putting together the following. The first is a portion of an account of the concert, and last a partial report of a cattle show. The sentence appeared as follows: "The concert given last night by 16 of Storm Lake's most beautiful and fascinating young ladies was highly appreciated. They were elegantly dressed, and sang in a most charming manner, winning the plaudits of the entire audience, who pronounced them the finest breeds of short-horns in the country. A few of them are of a rich brown color, but the majority are spotted, brown and white. Several of the heifers are fine-bodied, tight-limbed animals, and promise to prove good property."

A gentlemman who lives near Ellijay put his fine watch in his pocket and wended his way to the cotton patch for the purpose of hoeing cotton. Soon after chopping up a few bunches of grass he felt something cold on his leg, and thought it was a sand cutter crawling up. He at once dropped his hoe and grabbed his pantaloons, pulling them tight to his leg to stop the lizard from crawling, and commenced beating on it with his fist. After knocking and stamping all the cotton down in a half-acre patch, his wife appeared upon the scene, and excitedly exclaimed: "what in the world is the matter, are you sick?" "No; there is a lizard up my pantaloons, and I ju-u-st feel him now, biting." By this time he decided to pull off his breeches to see what it had done, and to his chagrin he found that his watch had slipped out of his pocket and fell the length of the chain down his leg, and he had absolutely broken his watch all to pieces, and driven parts of the crystal into his leg.

BRONZE FOR BRASS.—Take one ounce of muriate of ammonia, half an ounce of alum and a quarter of an ounce of arsenic, dissolved in a pint of strong vinegar. This will make a good bronze for brass work.

TO GLUE PIECES OF HORN TOGETHER.—In order to glue pieces of horn together, it is only necessary to heat them slightly above 212° F., and to press the edges together; these must have been thoroughly cleansed, however. The entire piece may in this heated condition be shaped as desired.

TO REDUCE SIZE OF DIAL.—Resting the dial in an inclined position against a block, file its edge with a smooth or half smooth file, which must only be allowed while advancing, and is, at the same time, displayed sideways and turned so as to follow the contour of the dial. The file should be dipped occasionally in turpentine, and when sufficient enamel has been removed, pass a new emery stick over it to remove the file marks.

TO EASE AN INDEX ON ITS ENDSTONE CAP.—It is a common but bad practice among watchmakers, says Saunier, to scrape the inside of the ring of the index or cut it through. A better method is as follows: Resting the index on a cork, cover the inside of its ring with oilstone dust, and make the cap rotate in its seat by means of a pinion calliper, the two points of which are inserted in the screw holes. The operation is replated as often as may be required.

TO RESTORE GERMAN SILVER.—In order to restore the silver luster to articles from German silver, which they have lost by repeated cleaning, use the following silvering process: Ten parts dry chloride of silver, sixty-five parts cream of tartar and thirty parts table salt are pulverized and intimately mixed. This powder is then with water stirred to a thin paste, and the article is rubbed with it, left to dry, rinsed off well with water, and finally rubbed of with washed chalk.

ELECTRO-BRASS PLATING.—Eighty-four grains of sodium bicarbonate, fifty-four grains ammonium chloride and thirteen grains potassium cyanide are dissolved in two quarts of water. To render the bath active, the sides of the vessel are covered with a sheet of brass, which serves as anode, while another piece of brass hangs in the bath and forms the cathode. The current is allowed to pass through the bath for one hour, after which it is ready for use. It is better to use cast brass

TO EXTRACT BROKEN WATCH SCREWS.—Make a **C**-shaped cramp or bracket large enough to reach across the watch plates, very strong at the bow, so as to stand any screwing up without springing. Put a screw hole through each end and provide with two or three sets of steel screws with different sized hardened points which points pass within the cramp. To use it, tighten that screw of the cramp which is against the point of the broken screw, and when you have a firm grip turn the whole tool round, and the broken screw will invariably be drawn out.

MAGNITUDE OF PALLET IMPULSE.—The average magnitude of pallet impulse angles is 10°. It is a matter which depends greatly on the quality of the work. If a pallet with an impulse angle of 7½° has much side shake on its pivots, then the ruby pin becomes the center of motion where the impulse should commence, and hence a greater part of the moment would be lost. Though a large impulse angle gives less moment, nevertheless it will neutralize the evil of badly fitting holes; hence, pallets with small impulse angles should always have jeweled holes, and brass pallet holes require larger impulse angles. This appears so self-evident that diagrams are not necessary to prove it.

FINE LUBRICATING OIL.—By putting pure olive oil into a clear glass bottle with a few strips or pieces of sheet lead, and exposing to the sun for two or three weeks, an exceedingly fine lubricating oil may be obtained that will not gum or corrode. Only that part should be poured off which is perfectly clear.

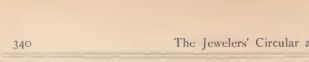
THE WATCH TRAIN.—When examining a watch handed you for repairs, examine the train of wheels. If the scape depth, as often happens, is shallow, as shown by much side shake, drive the scape cock by pressure from behind, if freedom allows, the second pivot hole being always very shallow. A pivot broach pressed by the finger underneath in opening the hole will cut away one side of the hole, into which a French bouchon or stopping is being inserted and riveted, we have a new depth as the result of a few minutes' work.

TO GILD STEEL.—Dissolve a certain quantity of gold in nitro-muriatic acid; boil the fluid to evaporation; again dissolve the residue in water, and add three times as much sulphuric ether. The fluid is then filled into a bottle, in which it is left to stand quietly for twenty-four hours, after which time it will have become fully settled. If the steel is then dipped into this fluid it will be gold plated at once, and if certain portions of it were covered with a varnish reserve, a handsome drawing upon the steel will be produced.

SILVER ALLOYS.—Pure silver is a metal of only an inferior degree of hardness, in consequence of which silverware manufactured from the pure metal would be subject to rapid wear, and for this reason it is generally alloyed, except for articles for the chemical laboratory. Silver is more frequently alloyed with copper; beside this, it is also alloyed with gold and aluminum. Alloys containing silver and nickel, or silver, nickel and zinc, are much employed in the manufacture of table ware and articles *de luxe*, which, while being of a handsome white color, are much cheaper than those from silver and copper, which was formerly much used in the manufacture of silverware.

TO STRAIGHTEN A SCAPE WHEEL.—The *Traité de l'Horlogerie Moderne* contains a method of trueing a cylinder escape wheel that has been cockled in the hardening; the following is a modification of the process there described: In the middle of a square plate that is moderately thick, fit a strong screw with a large and long head; this screw must pass freely through a disc that is perfectly flat and fits easily into the upper side of the escape wheel. Now fix the plate between the jaws of a bench vise, and placing the wheel between this plate and the disc with a moderate pressure applied to the screw, hold a lamp to the under side, gradually tightening the screw as the steel changes color, so as to obtain a maximum pressure when a blue temper is reached. Leave the whole to cool in position.

WHITE-PICKLING SILVER.—The purpose of pickling silver is the same as that of the coloring of gold; the alloy lying immediately exposed upon the surface is dissolved by the acid in the pickle, whereby the metal upon the surface is made purer and appears of the color of the pure and unalloyed metal. After the article has been ground well it is heated to red heat, and, when cold, boiled in water which has been charged with a sufficient quantity of sulphuric acid, so that it has the acid taste of sharp vinegar, in which fluid it is boiled for one or two minutes. The crust formed upon the surface of articles which are to be burnished is rubbed off with fine sand or with the scratch-brush and beer; articles which are to be matted with the mat brushing machine, are brushed off with chalk and alcohol. This process of heating, pickling and brushing is to be repeated three times. There is another kind of pickling, by boiling the heated article in water which contains in solution one part cream of tartar and two parts table salt. Silver articles which are to preserve the hardness imparted to them by rolling or hammering, which consequently cannot be heated, are pickled by being uniformly coated with nitric acid or by being silver plated.



New Year.—The question is frequently asked "When and where does the New Year commence?" The midnight hour of the New Year for the whole earth occurs first upon the Chatham Islands, lying to the East of New Zealand.

Standard Time.—A system of standard time, similar to that prevailing for railway purposes in this country, will probably be adopted by the Norwegian Parliament. The time for the whole of Norway will be one hour in advance of that of the Greenwich Observatory in England.

Platinum Coating.—A satisfactory method of electro-plating with platinum has been patented and put in operation in London. The coating produced is hard, durable and corrosion-proof, having in these respects great advantages over silver, brass or copper surfaces.

A Small Timepiece.—There is a watch in a Swiss museum only three-sixteenths of an inch in diameter, inserted in the top of a pencil case. Its little dial not only indicates hours, minutes and seconds, but also days of the month. It is a relic of the time when watches were inserted in snuff boxes, shirt studs and finger rings. Some were fantastic—oval, octangular, cruciform, or in the shape of pearls, tulips, etc.

Electric Clocks.—An export house in Stuttgart, Germany, has recently supplied to the town of Caracas, in Venezuela, a number of clocks for the public streets. On account of frequent earthquakes clock towers are not advisable, and since the clocks must be placed low, a comparatively large number is required. Among the clocks sent out is one with the dial thirteen feet in diameter. All the clocks will be worked electrically and illuminated at night with the electric light.

The Watch of our Ancestry.—The watch is about 300 years old. The first that were made were almost as large as a dinner plate, and had weights. A man must have felt queer lugging one of those clumsy things about in his vest pocket, with the weights hanging down his trouser legs. Or perhaps he kept them in his coat tail pocket. The early watch had only one hand, though it must have taken both hands to wind it, the operation requiring to be done twice a day. If a man faithfully discharged his duty toward his watch he had very little time for anything else.

Nickel Crucibles, etc.—A writer in an exchange points out the advantages of employing nickel dishes and crucibles in the laboratory. By experiment he finds that crucibles of pure nickel are quite as serviceable as those made from platinum, while only costing one-tenth as much. They do not lose weight when heated; they stand the action of alkalies remarkably well, and are particularly useful in taking water residues and milk solids. They may be cleaned by the use of hydrochloric acid, either concentrated or dilute, without loss of weight; cold sulphuric acid is likewise without action, but nitric acid attack them, causing rapid loss of weight.

Our Globe no Longer Reliable.—A scientific writer remarks upon a problem which is attracting to its study astronomers, namely, that which relates to the earth as a timekeeper. He says we measure time by dividing either the period in which the earth revolves around the sun or that in which it turns on its own axis—by the first method a year being measured and by the last a day. The earth, according to some astronomers, is actually losing time, through two causes—the sun's attraction, and through friction, as it is termed, of the tides—the earth each year is said to revolve more slowly on its axis. The speculative question which is thus being considered and discussed is whether in the end the earth will stop its revolution upon its axis, and will present the same face to the sun—an event which, when it occurs, will cause perpetual day in one-half of the earth and perpetual night in the other.

—In Germany, gold, platinum and silver strips are welded after the mosaic style, upon a metal ground prepared by the incandescent process, then compressed by means of powerful presses, and finally elongated by rolling into long strips or sheets. These sheets, which are now of all colors, yellow, red, green, black, white and grey, are made into scarfs and neckties, which, being indestructible, are considered as of some practical worth. This novelty, it appears, has found great acceptance abroad, numerous orders for export having been received by the manufacturers, who are chiefly in the Pforzheim and Baden districts. Truly, fashion has strange whims.

Weather Errors.—Few erroneous notions are spread so rapidly and cling so tenaciously as those respecting the weather. In noticing common errors of this kind, Prof. Cleveland Abbe, the distinguished meteorologist, urges attention to these facts: That while the moon might well be expected to have an influence on the weather, scientific evidence shows that it has not; that there is no sound reason for believing that sun spots have any appreciable effect in producing storms or other local changes; that animal instinct ranks greatly below human intelligence as a guide to future weather; that the indications furnished by plants are due to the hygroscopic condition of the air, as are also other "signs," and are less delicate and trustworthy than the accurate instrumental tests of meteorologists; that electricity and ozone do not produce the effects often ascribed to them; that thunder storms do not cool the air, but the cool inrush results, like the storm, from the rise of hot air—at least in many cases.

Illicit Diamond Buying.—It has been calculated by persons engaged in the business that 12 per cent of the fall in rough diamonds, which has taken place within the last few years, should be set down to the sale of stolen gems, which to the value of more than £500,000 annually find their way to the markets. These stones are the direct fruits of theft, those selling them having made no contributions whatever to the cost of obtaining them. When first the work of diamond seeking at Kimberley began, there were no thefts of any importance, because each man was then working for his own account, or as one of a limited, but friendly, partnership. It was not until the work of diamond mining required the aid of hired labor that the work of systematic robbery commenced, and "I. D. B." (illicit diamond buying) became an institution of the diamond fields. Many of the persons employed soon fell into the habit of peculation, not being able to withstand the temptation presented by the appearance of a little bit of stone that perhaps might be worth £1,000, if they could succeed in carrying it away without being detected. In every branch of the process of gem finding valuable diamonds are always at the mercy of the men employed, some of whom are never slow to take advantage of any chance that may present itself of securing a stone. The "I. D. B." trade, as it is locally termed, has tended to sap the morality of the place and give rise to the many evils of dishonesty made easy.

Clock Motor.—The Jewelers' Circular, in one of its earlier volumes, described the invention, new at that time, of a clock motor, made by Mr. Silverberg, of Vienna, which he applied to a clock in one of the public parks of that city. According to report, the experiment, consisting in the application of compressed and dilated air to the automatic winding of clocks, has proven entirely successful. Imagine a series of small metal discs, elastic, hollow, and filled with air, in a pile one above another like so many dollars. As the temperature rises during the day, the air dilates, and all the little boxes augmenting in volume, swell upward. On the return of evening, when the temperature falls, and during the night, the air contracts, and all the boxes, diminishing their volume, come down. Similarly when the atmospheric pressure ascends or descends, the corresponding effect is produced. This movement up and down of the discs keeps in movement a mechanism which winds up gradually the timepieces. This is considered a curious application and utilizing of the forces of nature which are wasted. Here is a clock automatically wound up, and working indefinitely under the sole action of temperature and of barometric pressure

TRADE GOSSIP.

The following dealers were noticed in town during last month:

Pittsburgh, Pa., Mr. M. Bonn.
Buffalo, N. Y., Mr. G. J. Weil.
Cleveland, O., Mr. W. Bowler.
Albany, N. Y., Mr. James Mix.
Columbus, Ga., Mr. A. Wittich.
Dunkirk, N. Y., Mr. J. Nelson.
Rochester, N. Y., Mr. E. Bausch.
Montreal, Canada, Mr. E. Eaves.
Columbus, O., Mr. T. A. Simons.
Buffalo, N. Y., Mr. T. Dickinson.
Columbus, O., Mr. M. Hollander.
Toronto, Canada, Mr. S. Frenkel.
Little Rock, Ark., Mr. C. F. Stifft.
St. Louis, Mo., Mr. J. Lowenstein.
Baltimore, M. D., Mr. C. C. Justis.
Montgomery, Ala., Mr. C. L. Ruth.
Greenville, N. C., Mr. W. S. Rawls.
Beaufort, S. C., Mr. P. W. Whitman.
Norfolk, Va., Mr. C. F. Greenwood.
Detroit, Mich., Mr. R. J. F. Roehm.
West Troy, N. Y., Mr. H. E. Eckert.
Catskill, N. Y., Mr. J. A. Hallenbeck.
Knoxville, Tenn., Mr. T. L. McClurg.
Mansfield, Mass., Mr. D. S. Spaulding.
Greenport, N. Y., Mr. W. F. Hammond.
Chattanooga, Tenn., Mr. E. P. Durango.
Mobile, Ala., Mr. J. Goldstein, Mr. E. O. Zadek.
Dallas, Tex., Mr. B. C. Faber, Mr. L. M. Knepfly.
Athens, Ga., Mr. C. A. Scudder, Mr. V. W. Skiff.
Atlanta, Ga., Mr. J. C. Freeman, Mr. J. P. Stevens.
Syracuse, N. Y., Mr. G. E. Wilkins, Mr. J. Stoecker.
Salem, N. J., Mr. Caleb Wheeler, of Wheeler & Son.
Washington, D. C., Mr. E. D. Mayer, Mr. H. Semken.
Elmira, N. Y., Mr. E. H. Ayres, Mr. M. Freudenheim.
Springfield, Ill., Mr. J. Bunn, Jr., of the Illinois Watch Company.
Middletown, Conn., Mr. J. H. Kelsey, of the Middletown Plate Co.
Indianapolis, Ind., Mr. W. P. Bingham, of Messrs. Bingham & Walk.
St. Paul, Minn., Mr. N. Lyons, Mr. T. F. Myers, of Myers & Carpenter.
Philadelphia, Pa., Mr. O. M. Hamrick, Mr. J. F. Bailey, Mr. O. S. Hemphill.
Chicago, Ill., Mr. C. K. Giles, Mr. F. E. Morse, Mr. G. C. Smith, Mr. M. Ellbogen.
Nassau, N. P., Bahamas, West Indies, Mr. J. C. Musgrove, of Messrs. Brown & Musgrove.
Cincinnati, O., Mr. W. S. P. Oskamp, Mr. Harvey Galbraith, of Messrs. Duhme & Co.
San Francisco, Cal., Mr. J. S. Dinkelspiel, Mr. G. C. Shreve, Mr. J. Newman, Mr. G. S. Simons, Mr. J. S. Bonestell.

The Waltham Watch Tool Co. reports a large business.

Attention is called to the notice of the Illinois Watch Company upon another page.

Messrs. Koch & Dreyfus have moved their New York office to 41 & 43 Maiden Lane.

Messrs. Lerenz & Ek, of Milwaukee, were robbed of $1,200 worth of stock last month.

A New Haven paper gives as an item of jewelry interest that circus rings are getting cheaper.

Messrs. M. L. Read & Co. have bought out the business of Hudson & Farnum, of Providence.

Messrs. Hancock, Becker & Co. had a fine display of their goods at the Minneapolis Exposition.

Messrs. Marx & Weiss report an excellent business in all lines, especially in diamonds and watches.

Mr. Charles Jacques is doing a good business in clocks for window display, of which he has a large assortment.

The business in safes is growing active, and the old reliable house of Herring & Company is doing its full share.

The American Watch Company's factory has been running to 10 o'clock many nights last month in certain departments.

The Hampden watches are becoming more and more popular. The company is several months behind orders in some grades.

We have received a copy of the first number of *The Gate City Jeweler*, published by Messrs. A. L. Delkin & Co., Atlanta, Ga.

Messrs. Brady & Williams, of Providence, are the representatives in that city of Messrs. C. Cottier & Son and Mr. Rud. C. Hahn.

The American Watch Tool Company has been running to its full capacity for a month past. Orders are brisk and trade is excellent.

Messrs. S. F. Myers & Co., New York, have placed upon the market a new initial ring of their own make, called "The Regent."

Messrs. Smith & Greene, of Providence, are now represented in the west by Mr. Edw. C. Grow, of 48 Madison street, Chicago, Ill.

The Towle Manufacturing Co. has arranged with Messrs. Peter B. Simons & Son, of San Francisco, to have the latter firm act as their agents.

Many of the large retail stores up-town, which were closed half a day on Saturdays during the summer, have discontinued the half-holiday.

The hunting case watches, made by the Manhattan Watch Company, are selling well. Samples are sent to the trade upon application.

Messrs. Myers & Carpenter, of St. Paul, Minn., are about to move into a new store at 71 West Third street, which they have fitted up handsomely.

Mr. A. Ansell, of Chattanooga, Tenn., formerly of New Orleans, La., has admitted Meyer Ansell into partnership, under the name of A. Ansell & Bro.

Much excitement and indignation seems to have been aroused in Attleboro and North Attleboro, Mass., which were recently made separate towns.

Messrs. Ketcham & McDougall have improved their well-known collar button, and give an illustration of the new style in their advertisement this issue.

The firm of Schott, Cahoone & Co., Providence, R. I., became George H. Cahoone & Co. on September 1, upon the retirement of Mr. John C. Schott.

Messrs. R. & L. Friedlander have become the agents of the "seamless" pin tongue, the advantages of which are known to all who have used them.

Mr. A. Klingenberg, of 37 Park Place, has a beautiful display of artistic pottery this season, among which is a large assortment of novelties and holiday goods.

Robert Barton, of Providence, R. I., failed last month, with liabilities estimated to be close onto $100,000. See the letter of our regular Providence correspondent.

Messrs. Foster & Bailey have sent us a beautifully engraved circular of their popular "Mount Hope" button. The beautifully engraved circular is a credit to the firm, and we have no doubt the button is equally good.

Messrs. Day & Clark illustrate in this issue two new styles of their ever popular link bracelets.

The Geneva Optical Company has an interesting and instructing advertisement upon another page of this issue.

The Howard Watch and Clock Co. finds business more brisk than was anticipated. Its facilities are greater than ever before.

The Trenton Watch Company sells direct from its factory at Trenton, N. J., and to the legitimate jewelry trade exclusively.

The Spencer Optical Manufacturing Co. is more busy than ever. Trade is increasing in all lines, and the outlook is most encouraging.

The "Undine" pattern, a new design used by Messrs. Wood & Hughes upon spoons and forks, is illustrated upon another page of this issue.

Messrs. Oppenheimer Bros. & Veith show a large variety of diamond goods in all kinds of mountings, besides their large stock of loose stones.

Messrs. Simpson, Hall, Miller & Co. have issued a beautiful catalogue for the fall, which they are sending to the trade upon application.

Messrs. Taylor & Brother have an unusually large variety of fancy and art goods, besides a fine assortment of precious stones, in which they report a large trade.

Messrs. Hearn & Braitsch, manufacturers of a fine line of cane and umbrella handles, of Providence, have opened a New York office at 275 Canal street, near Broadway.

An enterprising Chicago theatrical firm have attached by means of a chain a pair of opera glasses to every seat in the parquet. This is a movement which should be encouraged.

Samuel Friedmann, who was to have started in business as a ring manufacturer with Mr. Joseph Cohn, has mysteriously disappeared. It is believed he has met with foul play.

A new partner has been taken into the firm of Stern & Stern. It is a very little partner, only born on the 20th of September, and Mr. Jacob Stern is the happy father. We wish him joy.

The Longines watches, of which Messrs. J. Eug. Robert & Co. are the sole agents, can now be had in 13-line, besides all the other sizes. The 13-line are to be had in silver and gold cases.

During the recent centennial celebration of the Constitution in Philadelphia, Messrs. H. Muhrs' Sons erected a large stand in front of their place for their employees to view the procession.

Jewelry manufacturers in Birmingham, England, are running on short time and with a reduced number of hands. Over 300 jewelry workmen have emigrated to America from that city within a year.

Messrs. F. P. Locklin & Bro., of 208 Canal street, report a very good trade in their specialty of gold and silver-headed canes. They have added many new and tasteful designs to their already large stock of patterns, and this may partly account for their success.

Mr. Tell A. Beguelin has just imported a large line of Swiss watches, which his buyer, Mr. Dreyer, secured during his recent trip to Switzerland. The attention of the trade is called to this line.

The Dennison Manufacturing Company has its fall line of jewel cases, boxes, cabinets and findings ready, and is doing a large business from the branch stores as well as from the store in this city.

Messrs. M. B. Bryant & Co. make a pretty as well as instructive ring for small children. The design is an alphabet in plain letters running around the outside, and a patent on it has been applied for.

The business of the old firm of Geo. W. Du Bois & Co., which, since the death of Geo. W. Du Bois, has been carried on solely by Mr. F. N. Nauman, will hereafter be carried on in Mr. Nauman's name.

Messrs. Simons Bros. & Co., of Philadelphia, are doing a large business at present in their gold and silver thimbles, and their line of novelties in umbrellas and gold and silver handles is excellent this season.

Messrs. Krementz & Co. are enabled, through improved machinery to manufacture their well-known plated button cheaper than heretofore, and have reduced the price. The quality, however, is the same as before.

The Elgin National Watch Company have made many valuable improvements in Elgin Watches, to which they call the attention of dealers They especially recommend the B. W. Raymond movement for railroad purposes.

Among the fancy gems secured by Mr. J. G. C. Cottier, of Messrs. C. Cottier & Son, during his recent trip to Europe, was a beautiful topaz of excellent color and cut. There was also a lot of Siberian amethysts which show a rich ruby color under the gaslight, and a deep purple in the daytime.

Messrs. Le Boutillier & Co. have a beautiful display of their line of importations at their salesrooms, 2 Maiden Lane. In royal Worcester ware, especially, the line is most complete, and buyers visiting the city should see it.

The owner of the *Thistle* had a number of scarf pins made by Messrs. Tiffany & Co. for distribution among his friends. They are made after the pattern of a natural thistle.

Mr. S. C. Jackson, maker of all kinds of cases for jewelry, silverware, etc., has a large assortment in stock at present. Fine cases especially are having their full share of attention, and the demand for them is increasing.

The New Haven Clock Co., in its advertisement this month, gives several illustrations of new patterns of walnut clocks. Their supplementary catalogue has just been issued, and copies are sent to the trade upon application.

Messrs. Bawo & Dotter are making an unusually fine display this season of their art novelties. Their line is quite varied and includes everything in porcelain, china, glass, terra cotta, etc., adapted to all classes of jewelry stores.

Messrs. C. Rosswog & Son, Goldsmiths, of 5 & 7 Maiden Lane, are making a full line of knife edge work, embracing new and elegant designs in rings, earrings, lace pins, etc., etc., equal to the standard so long maintained by this house.

Cut glassware is in demand. Mr. T. G. Hawkes, of Corning, N. Y., makes a specialty of cutting special designs to order, and gives estimates upon special designs. He also keeps a large stock of fine glassware suitable for wedding presents.

The factory of Messrs. Ott & Brewer, at Trenton, N. J., is worth the visit of every jeweler in need of fancy china or porcelain ware, and the line is very complete. A showroom is also open at 58 Barclay street, where part of the line may be seen.

P. H. Peterson, a jeweler, of San Francisco, Cal., accidentally shot himself while out hunting, early last month. He was but thirty-four years of age, in prospering circumstances, and his death was a shock to his many friends. A wife and child survive him.

From the appearance of O. M. Draper's factory in Attleboro it would seem as though his goods ought to be among the best and his prices the lowest. His factory is well located, well equipped with lots of machinery, and has the aspect of a "live concern."

Messrs. Rogers & Brother find their new location at 16 Cortlandt street all they expected. They have been crowded with buyers the past month from all sections of the country—particularly from the South—and are now running nights to get off their orders.

The National Bank of Deposit, of New York City, which was recently organized, has taken a set of offices in the Bryant Building. This institution, which has an able and honorable list of officers, is especially inviting the co-operation of the jewelry trade, and fully deserves success in this direction. Mr. Augustus K. Sloan, of Messrs. Carter, Sloan & Co., was unanimously chosen a director in the bank, representing the jewelry trade.

Messrs. Mathey Bros. & Mathez have a complete line of complicated watches in stock, ranging in grade from the medium to the very highest. In chronographs, also, they carry an extensive line in all grades.

Messrs. Bühler & Nanz, who recently started in business as importers of diamonds and precious stones, have been doing an especially large business in half pearls, of which they have a large stock. They are a branch of the well-known house of Bühler & Co., of Paris.

The Hartford Silver Plate Company has an excellent assortment of goods to show during the present season, and amongst them is a large line of new patterns and many novelties. Upon another page is an illustration of the No. 1,054 water set, to which we would call attention.

The following dealers sailed last month to Europe: Mr. Louis Neresheimer, of Messrs. E. A. Neresheimer & Co.; Mr. D. E. Oppenheimer, of Messrs. Falkenau, Oppenheimer & Co.; Mr. R. A. Kipling, of Providence; Mr. Charles Kuhn, of Messrs. Kuhn, Doerflinger & Co.; Mr. L. Hammel;

Messrs. F. M. Whiting & Co. illustrate the "Hagie" pattern of forks and spoons upon another page of this issue. This is a notable addition to their other line of solid silver novelties in jewelry, etc. In novelties for the fall there are many pretty patterns of match boxes, cups and napkin rings, while in the regular line of jewelry are many handsome new designs.

Messrs. M. J. Paillard & Co. are receiving many novelties in musical boxes for the fall. Cuckoo and musical clocks, too, are being received, of new and pleasing styles, and in one style, upon the striking of the hour, a trumpeter comes to the portals of a castle, strikes up a call upon his bugle, and disappears as suddenly as he came, behind the castle battlements.

The New Haven Clock Company has an elegant display of its beautiful clocks at the Park Place salesroom. Many buyers are seen among the tall bronzes and stately hall clocks, and business appears to have begun in real earnest. Novelties are abundant, and for the fall season many original and beautiful designs in clocks of all kinds are seen upon the tables and shelves.

The manufacturers of the popular "Princess" initial ring are prepared to deliver the initials separate from the rings. They do not recommend an interchangeable ring, however, but will furnish the rings and initials separately whenever desired. Upon another page will be found illustrated a series of old English initials used in these rings. The rings are all stamped "Princess" inside the shanks.

The following dealers returned from Europe last month: Mr. Geo. H. Ford, of New Haven, Conn., Mr. Louis Kahn, Mr. S. Lorsch, Mr. A. Selman, of the American Watch Co., Mr. I. Stern, Mr. S. Wallach, Mr. H. S. Oppenheimer, of Messrs. Oppenheimer Bros. & Veith, Mr. H. J. Muller, of Messrs. Nicholas Mullers' Sons, Mr. D. L. Van Moppes, Mr. E. Ludeke, Mr. H. Semken, of Washington, D. C., Mr. J. P. Stevens, of Atlanta, Ga.

The Gorham catalogue, of which an advance copy has been received, is a work of art that does credit to all concerned in getting it up, as well as to the goods which it illustrates in such handsome style. It merely includes illustrations of spoon and fork patterns. Many of the pages are costly lithographs in several colors, the designs being faithful portraits of the latest patterns used by the Gorham Manufacturing Company upon these goods. Upon another page of this issue, the company tells about the catalogue, and we desire to call attention to that page. Upon another page is also reproduced a page from the catalogue, giving a set of illustrations of the "Old Masters" pattern. This is one of the latest and most popular of styles in spoons and forks. Correct likenesses of the old masters are moulded in excellent manner at the extremities of the several pieces, and the sets are made up with as many different likenesses as there are pieces in the sets.

Messrs. Carter, Sloan & Co. display a set of illustrations in this issue of their beautiful line of thimbles. Thimbles are necessary to a complete stock of jewelry, and the patterns kept by Messrs. Carter, Sloan & Co. are handsome as well as artistic. In regular goods, many new designs are being constantly added, and in oddities, all sorts of things are shown. The latest thing is a line of silver clasp-purses, made of netted chain-work. A gold, flexible ornament is soldered on one side of the purse, neatly engraved and polished; and while the ornament is flexible, moving with every motion of the light chain-work, it is yet graceful and delicate.

Messrs. J. T. Scott & Company report an excellent business thus far this season, with prospects for a still better trade later on. The "Leader," a fine grade, split-second watch, which can be sold at a low price, has become popular through its cheapness, yet it is reliable in every respect. These watches should be seen, as they give entire satisfaction. The "Success" initial ring, also, is having a good sale. The manner of changing the initials of these rings is so simple, that it needs but a glance at the illustration upon another page to see how it works.

Upon another page is the advertisement of the Chas. N. Swift Manufacturing Co., to which we desire to call attention. This company manufactures a line of elegant boxes, of the kind that are being so much used nowadays by gentlemen, for keeping segars and tobacco in a fresh and proper condition. These boxes are made under Swift's patents, and are improvements over the style of boxes formerly used. In these boxes there are no partitions, and space is left for a box of segars—box and all, or anything else in the tobacco line. Instead of a sponge a patent pad is used, which takes up no room and has many other advantages over the sponge. The boxes are made in handsome style, with brass, bronze and silver trimmings, etc., and are good stock in any jewelry store.

Just as our last forms go to press there is great excitement in yachting and sporting circles over the race between the *Thistle* and *Volunteer*. It is only of recent years that more than ordinary interest has been centered in the cup, which the famous old schooner, the *America*, brought from England in 1855. If the Thistle does not take the cup back to England this year, it cannot be doubted that the English will build a faster and a better boat. If she does win the cup, our yachtsmen will without doubt make every effort to recover it next year. Meanwhile it is pleasant to note the friendly feeling between those interested on both sides. There is no doubt that the Thistle is a handsome sloop, and hardly room to doubt that she ought to go fast under favorable conditions. But the question is whether she can outsail the Volunteer.

In the city of Brooklyn there has just been opened a large store, called "The Universal," an establishment intended for the sale of everything and anything that one may wish to purchase, from a leg of mutton to a set of furniture. There are but few such establishments in the country, and it is interesting to note, while jewelers are protesting against the sale of jewelry to any except jewelers, the progress made by these large concerns. There remains no doubt that they are convenient if maintained in a proper manner, but the question arises, do they hurt the trade of other merchants in the same city? And if they do, should they therefore be discouraged?

The Baldwin & Gleason Co., of 61 Broadway, controls a patented process of printing upon celluloid, which has become very popular recently for advertising purposes. Christmas cards, menus, hanging cards, ball and party programme covers, souvenirs of all kinds, book markers, wedding and other cards and announcements are gotten up for the trade, ready for finishing with fringes and ribbons after the usual fashion, or in plain styles ready for instant sale; watch and clock dials, which cannot fade, are supplied to the manufacturers and dealers in those articles; while for practical advertising there is a great variety of articles prepared and kept in stock, which are supplied in large quantities to be given by the advertisers to the public. As these are all articles of usefulness and are gotten up with high artistic taste, they go far ahead of the usual trashy things selected for the purpose, and are therefore appreciated both by large and prominent advertisers, and by the recipients of their gifts. Many firms in the trade have already tested the usefulness of this class of advertising cards, among which are the Manhattan Watch Co., New Haven Clock Co., Brooklyn Watch Case Co., Wilcox Silver Plate Co., Ansonia Clock Co. and many others, to whom they refer. Upon another page will be found an announcement of the Baldwin & Gleason Co., to which we would call attention.

Mr. Lorenzo Cuppia, representative of the house of L. A. Cuppia, of Union Square, recently made a tour of lower Europe, where he obtained many novelties in jewelry for the fall trade. A particularly fine and large assortment of silver filligree jewelry was bought at Genoa, and will be received about the first of this month. Mr. Cuppia has already received many inquiries for this new lot, and it is likely to be sold quickly.

It seems that the simplest things are always discovered last. Messrs. Krementz & Co. have secured the patent for a new manner of connecting link bracelets—a way so simple, easy and practical, that it is only a wonder that it has never been used before. Hitherto, link bracelets have been connected by rings or bolts, in such a manner, that if the size were to be altered, it would necessitate the re-coloring or soldering of the parts which were re-joined. The new idea of Messrs. Krementz & Co.'s, however, is a mere staple, which is simply bent into its position, connecting two links, and requires very little labor to put them together after making an alteration. It is perfectly strong and secure, and so simple, that an explanation would seem ridiculous. Attention is therefore called to their advertisement upon another page.

A new departure in clocks has been made by the E. N. Welch Manufacturing Company, which has introduced a thirty-day clock, called the "No. 11 Regulator." An illustration of this regulator appeared on page 111 of our September number. It is sixty inches high, with a dial ten inches in diameter, and is made in mahogany, black walnut and antique oak. It has a fine, thirty-day duplex movement, with springs so adjusted to insure accurate timekeeping. The pendulum beats seconds. Recently a test was made with one of these clocks to ascertain its accuracy, and, with only one winding, it ran about fifty days with less than thirty seconds variation. This is certainly a notable accomplishment for a spring clock, and this experiment proves that a thirty-day regulator is desirable for accuracy. These clocks are desirable for jewelers, banks, insurance offices, factories and residences, or other places requiring correct time. The salesroom of this company, at 6 Warren street, which was recently refitted, is in fine shape. Many new goods are displayed, fully up to the well-known excellence in quality and finish of its other goods, and the large line of novelties for the fall shows the purpose of this company to command a large fall business.

A Boston private detective, of the euphonious name of Martin Van Buren Hersom, succeeded last month in robbing Mr. F. M. Harris, traveler for Messrs. Smith & Knapp, of $1,500 worth of diamonds. During a recent trip of Mr. Harris' to Boston, he was playing a game of pool one evening at Young's Hotel, after which he was met by Hersom, who had known him for about seventeen years. Hersom, in a friendly manner, offered to accompany Mr. Harris to the latter's hotel, the Tremont House, and upon arriving there, further suggested for his friend's sake, that he be allowed to stay all night. This he did, and while Mr. Harris slept, Hersom abstracted about $1,500 worth of diamonds out of his pocketbook. Mr. Harris did not discover his loss until a day or two later when showing his diamonds to a customer. He then found that several of his parcels had been carefully "weeded," and his suspicions were aroused of his bed-fellow of a few nights before. The case was put into the hands of the Jewelers' Protective Association, which, with the aid of the Pinkertons, soon formed a novel plan of trapping the suspected thief. Mr. Harris was sent to Hersom and informed him of his loss. Hersom, of course, as a detective, immediately had a clue to the robbers, and pretended to enter into negotiations with them. The result was that he said the "crooks" would return the goods for $500. After many delays Mr. Harris promised to raise that sum among his friends. When the time came for the delivery of the diamonds, Hersom was arrested by Pinkerton's detectives, who were on hand with the necessary warrant. Hersom has been held to await the action of the Grand Jury.

Doctor J. Mendelsohn, optician, of Birmingham, Alabama. This is the name, occupation and address given by a man who has visited several jewelers, and, after selecting a bill of goods and having them laid aside for him till the next day or so, when he will call and pay cash for them, makes his departure. After his departure the unsuspecting jeweler discovers that a portion of his stock is missing. Doctor Mendelsohn did the same thing several times too often, and is now awaiting the penalty that severe justice may mete out to him.

"There's many a slip twixt the cup and the lip." In another part of this paper will be found an article, which went to press several days ago, which expresses satisfaction over the capture and imprisonment of "Kid" McManus, one of the notorious burglars implicated in the robbery of G. W. Fairchild, of Bridgeport, Conn. The Jewelers' Security Alliance, which pushed the proceedings against him, began a civil suit for the purpose of adding to the amount of bail required, and keeping him in jail. After the bail had been reduced to $10,000, it was seen by the officers of the Alliance that the amount was small, and that the prisoner's friends could easily have him released. They consequently depended upon the civil suit to keep him in jail by requiring more bonds. But upon a preliminary motion by the prisoner's counsel the civil suit is stayed and may never come to trial, for the judge upheld the arguments of the prisoner's counsel, who said that, as the prisoner was brought into the State by an extradition warrant, he was therefore privileged against arrest in civil proceedings. It was a nice question of law, but, after full consideration, the judge decided in favor of the prisoner. McManus is therefore a free man, and has been carousing with his friends ever since the decision was rendered. It was said that they spent $1,000 in one night for liquors with which to make merry over their victory.

The Jewelers and Tradesmen's Company, which has not yet completed the first year of its existence, has met with wonderful success. It has upwards of four hundred members, and certificates have been issued to the amount of over $900,000. The company, though organized within the jewelry and kindred trades, is liberal in its interpretation of whom it considers entitled to its benefits. Its board of officers comprises men well known in the jewelry trade, and of acknowledged business reputation. The company issues certificates of insurance, ranging in amounts from $500 to $5,000, to persons between the ages of 15 and 60. The benefits thus graded enable young men with moderate incomes to become members. The assessments are graded according to the ages of the members—which is a special feature. The assessment rates are equitably adjusted, so that a two-fold purpose is subserved, first, of reaching the payment of the full amount of its membership certificates three times as soon as if the assessments were arranged to meet one death, and secondly, when the full payments are reached, one assessment producing nearly three-fold enough to pay one death loss, thus making the assessments one-third as frequent. The company at present has very few expenses, and its business is transacted with economy. Annual dues are required from each member, these being graded at the rate of $2 for each $1,000 of insurance. There will also be an admission fee charged after a limited number of names is on the membership roll. Eighty per cent. of the assessments constitutes the mortuary fund, which is used only for the payment of death benefits, and is deposited with a Trust Company. The other twenty per cent. is placed in the reserve fund, which is used only in case of emergencies; it can never exceed the accumulations of ten years, as after the first ten years an equitable distribution will be made to members of ten years' standing out of the first year's accumulation of reserve fund. Thus, at the end of each block of ten years' persistent members will be credited with their proportion of the reserve fund, also of the portion of such reserve fund that has been forfeited by non-persistent members. This, it is clearly seen, brings life insurance to its lowest possible price, and with economical administration, graduated assessments and equitable payments, this new company certainly has a bright future. Its address is P. O. Box 3,140, N. Y. City.

Messrs. Bell & Bros., of San Antonio, Texas, one of the oldest firms in the South, made an assignment for the benefit of all their creditors on Sept. 6, naming Mr. Sam. C. Bell, assignee. The assignee estimates the liabilities at $25,000 or $30,000, with assets sufficient to cover them.

Mr. Emil Cuendet has recently started into business for himself as dealer in musical boxes. He is the sole agent in this country of Jules Cuendet, Auberson, Switzerland, whose boxes are well known in Europe. Mr. Cuendet also gives attention to repairing, and has facilities for doing excellent work.

A recent dispatch from Paris to one of the New York papers says that the net sum of 7,207,252 francs and 50 centimes was realized from the sale of the Crown Jewels. Those which were reserved as heirlooms were worth considerably more, those sent to the Louvre being valued at £510,000 sterling.

The Seth Thomas Clock Co. reports improving business. The new patterns in marble are taking well. Walnut clocks are selling in large quantities, and, since the variety has been increased by the addition of many new patterns, a choice is easily made. The Seth Thomas watches, also, continue popular.

Mr. Sam. Kramer, a popular young salesman, for many years with Messrs. Stern & Stern, was married on September 7th to Miss B. Hess. The wedding was performed at the residence of the bride's parents, after which the young couple went on a wedding trip to Niagara Falls, where they stayed two weeks.

Mr. H. H. Heinrich, of 14 John street, is meeting with great success in his new plan of selling marine chronometers to watchmakers of good reputation on the instalment plan. Watchmakers should avail themselves of this offer, as exactly the same price is charged on instalments as if the full price were paid in cash.

The F. Kroeber Clock Co. has issued its supplementary catalogue, containing illustrations of the latest patterns of clocks. Besides a long list of imitation marble clocks, which are very popular, the catalogue displays many illustrations of novelties in walnut, plush, brass, nickel, etc. The new supplement can be had upon application.

Mr. H. L. Graves, for many years connected with Messrs. Reed & Barton, and the New Haven Clock Company, and who is well and favorably known to the trade throughout the country, has been engaged by Messrs. S. F. Myers & Co., Nos. 48 & 50 Maiden Lane, for the clock and silverware departments in their establishment.

His excellency, Jusiani R. Kuki, Envoy Extraordinary and Minister Plenipotentiary to his Imperial Japanese Majesty, spent the afternoon and evening of Sept. 11 at the residence of Mr. George F. Kunz, in Hoboken, N. J., for the purpose of examining his library of gem literature and other collections. He will very shortly return to Japan.

Messrs. Mulford & Bonnet have just received another lot of Hungarian opals of the finest quality. Since this firm opened its office in London, its facilities for securing gems at advantageous figures have increased. A recent invoice contained some royal emeralds of large size and beautiful color, and also rubies, pearls and fancy pearls in abundance.

Julius Harris, the young man who recently obtained goods from several firms on Maiden Lane in the name of his quasi-employer, Mr. Peter Hartmann, has been sent to the Elmira Reformatory. He obtained in all nearly $2,000 worth of jewelry, and as it was afterwards recovered from pawnshops by the owners, the charges against him were not heavily pressed.

A gentleman in the trade found what is probably a valuable heirloom last month, and the owner can have it upon application. It is a stone probably out of an old seal, and is beautifully engraved with a coat-of-arms. A dragon upon a crown, with a Latin motto above and the initials "H. P." below, form the subject of the engraving, which is most skilfully executed.

Mr. Adolph Goldsmith, of 38 Maiden Lane, has made a large importation of small Swiss watches, to which he directs the attention of the trade. Mr. Goldsmith, in the lines of general jewelry, has a large and entirely new and fresh stock, which he has selected with the greatest care, and which his long experience deems to be "salable goods," and that is what all retailers want.

The Waterbury Clock Co. has been busy upon their supplementary catalogue which will be ready about October 1. The activity displayed by this company in the manufacture of novelties and new staple goods for the fall, will be seen by the many illustrations of new clocks shown in this supplementary catalogue. Business is improving steadily, and the demand for clocks promises to be large this fall.

Messrs. A. Luthy & Co. have recently made a line of beautiful scarf and bonnet pins, composed of little flowers made of real turquoise and opal. Several styles of clusters of forget-me-nots, made of real turquoise, with diamond centers, are exceedingly attractive. In brooches, Messrs. Luthy & Co. show a handsome line, both mounted and unmounted, and business continues to improve considerably.

David Kline, of Denver, Colo., who failed last January, recently offered his creditors 33⅓ cents on the dollar. The creditors in the New York Board of Trade held a meeting a short time ago, and a small majority voted to demand of him a settlement in full, which will be done accordingly. He was prosecuted in a Colorado court some time since for trying to defraud his creditors, but the court there decided that the crime was committed in New York and that it consequently had no jurisdiction.

Messrs. J. W. Richardson & Co., manufacturers of emblems and Masonic jewelry, have issued the largest catalogue of these goods that we have yet seen. It includes in addition to the old standard emblems, charms and badges, all the new society and labor emblems which have appeared to this date, and nothing in this line is wanting in their stock. The reputation of this house for maintaining the quality of their goods as represented, we can cordially endorse. Catalogues can be had of any jobber, from whom the retail trade can obtain their goods.

The Self-Winding Clock Company is making very perceptible advance in the manufacture of high grade clocks, and the American Manufacturing and Supply Co., which has the agency of them, reports a large and increasing business in them. A handsome display of clocks will be made at the American Institute Fair by this latter company, and some practical exhibitions will be made there in order to educate the public in the matter of the desirability of self-winding clocks. The new mantel clocks are well received, and one of the patterns is illustrated in our advertising pages.

A simple contrivance has begun to be used by Messrs. Jacot & Son upon their musical boxes. It consists of a new style of pinion which is screwed on the arbor, instead of being fastened in the old way upon a square arbor. The new contrivance is one of safety, for if the mainspring breaks, the pinion is merely unscrewed and no teeth are broken upon the wheel. This firm also has a new style of box, of fine quality but simple construction, which plays for an hour at a time and only costs about $85. Their little book on "How to Repair Musical Boxes," is now in its second edition, and is receiving flattering comments from many jewelers who have read it.

The Directors of the Providence Jewelers' Board of Trade last month appointed Mr. Marcus W. Morton Secretary of the association, to fill the vacancy caused by the resignation of Mr. George E. Emery. Mr. Morton has for several years held the post of Grand Secretary of the Grand Lodge of Odd Fellows, of Rhode Island. He will, for the present, divide his time between the two organizations until such time as the officers of the Grand Lodge shall appoint his successor, he being unable to fill both offices, as each one requires the entire time of its Secretary. Mr. H. S. Dorchester, Treasurer of the Board, acted as Secretary during the interval, with great credit to himself.

Messrs. Riley & Osborn, of Newark, N. J., exhibit at their warerooms at 323 Broadway, this city, an assortment of elegant designs in brass goods. Their catalogue makes up fifty-six pages of illustrated patterns of their manufacture, and every page contains something that an enterprising jeweler ought to have in stock. Among the many articles that we think deserve special notice we may mention, clocks, candle sticks, easles, ink stands, match holders, mirrors, perfume stands, smokers' sets, thermometers, bells, and other useful and ornamental goods in such variety, that would take up too much space to enumerate. Send for a catalogue.

Even such small articles as matches and sealing-wax can produce dissensions at times. A gentleman in the trade complains of a neighbor with an office in the same building, who continually calls upon him and others in the building for matches and sealing-wax, until it is calculated that he saves more by not buying those articles than his friends do in their extravagant use of them. When the millenium comes people will buy their own sealing-wax. Even now, in such places as heaven, for instance, each man purchases his own matches and there is neither borrowing nor lending there. But that man probably couldn't get used to heaven.

The Bohemian Athletic Society, of Chicago, which has been on a six months' tour in Europe, returned last month, bringing with them a magnificent set of garnet jewelry for Mrs. Cleveland. The set is composed of brooch, earrings and chain. The brooch is in the shape of an eagle, holding in its claws three golden arrows and supported by two standards containing photographic views of Prague. The casket containing the set is lined with white satin and is inscribed: "To Mrs. Cleveland, with profound respect, from the Bohemian excursionists to Prague." Mrs. Cleveland has written a gracefully-worded letter accepting the gift.

Mr. Edward Forman, the receiver of N. Matson & Co., Chicago, deserves credit for the prompt manner in which he completed and filed his inventory of the assets of the concern, which appear to be $265,249. This is a safe estimate, but the receiver has allowed a reduction of ten per cent. as a fair valuation. As the total liabilities of the firm were $178,000, this would leave a surplus of nearly $70,000 assets over the liabilities. This is a very satisfactory state of affairs, and to make matters better, business continues good, and the receiver hopes to wind up his receivership and continue the business.

Another important removal out of Maiden Lane is that of the Waterbury Watch Co. They have secured a large space in the building, 92 & 94 Liberty street, which has been fitted up for the different departments of their business. The woodwork and furniture are of oak, and the building is furnished with an elevator. The company's new method of doing business directly with legitimate dealers only has become very popular, and the old office at 52 Maiden Lane became too small for the work to be done there. The new office is three or four times as large, and has every convenience for the transaction of the company's business.

Word has been sent to this office of a man giving himself out to be Louis Kleinbeck, of Austin, Texas, who gives liberal orders for goods and never calls for them. He has called upon several cutlery and plated ware houses, and, at one cutlery house, gave a monstrous big order. In pocket knives alone he ordered twenty-five gross, ennough to supply all Texas. He promised to call the next day and pay cash for his bill, but he hasn't been seen since. As he is the object of much suspicion among those with whom he has had dealings, we give a description of him furnished us by a clerk who "sold" him a large bill. He is of medium height, has a brown moustache, a scar on the side of his face, and carries an umbrella with a claw and ball handle made of white celluloid or ivory. It is believed he contents himself with any small articles he can lay his hands on while ordering a large bill of goods; and while he has not done anything in the jewelry line yet, to our knowledge, there is no reason why he may not.

In our Chicago correspondent's report of the failure of N. Matson & Co., published last month, he speaks of an interview with Mr. Peckham, of the First National Bank, in which the latter gentleman speaks of Mr. Ziraphim S. Holbrook as a member of the Gorham Manufacturing Co. Mr. Ziraphim S. Holbrook is not a member of the Gorham Manufacturing Co., as is well known to the trade, and and has no connection with it.

A relic of Indian barbarism was received at the War Department recently. It consisted of a necklace of human fingers. Originally there were eleven fingers, strung together after the manner of necklaces of bear's claws, but three of them had been lost. This ghastly adornment was captured in an attack on the Northern Cheyennes in 1876, and each finger represented a life taken by the owner, the "big medicine man" of the tribe. The fingers had been preserved by opening the skin, removing the bones, scraping away all the tissues and fatty substances, replacing the bones and subjecting the skin to some tanning process. The necklace was sent to West Point by Captain Bourke, who is now engaged in preparing some historical matter relating to the Indians. It was brought from West Point here in order that it might be reproduced in *papier mache* at the Smithsonian Institution.

A visit to the salesroom of the Bradley & Hubbard Manufacturing Co. in Park Place, needs to be very prolonged to acquaint with the entire line of goods kept in stock. Bronze figures, of large and small sizes, mantel ornaments in many kinds of metal and various designs, clocks, lamps, gas and oil fixtures, ink stands, sealing sets, brass placques, brass tables and easels; all these are here in numberless designs, yet these form but a fractional portion of the entire stock. Upon many varieties of novelties for the coming season, the beautiful finish of "royal copper" is much used, producing a most beautiful effect, especially when contrasted with the oxidized or antique brass work, as is the case in several designs of vases. A little art room is fitted up in one corner of the large establishment which is a very dwelling place of artistic beauty, and some of the finer goods made by the company are kept there.

Two young men, employed as clerks in two separate jewelry establishments in Philadelphia, were recently detected in robbing their respective employers and pooling what they had stolen. One confined his operations to watches, and the other to precious stones, principally diamonds. The young men were of what are regarded respectable families, and were highly respected and fully trusted by their employers. But notwithstanding the high positions they held they began operations by having private customers of their own, using the firm's goods at cost price and pocketing the profits. Afterwards they unscrupulously took the goods without paying even cost price and disposed of them to pawnbrokers. It is believed that the young men have been dishonest for a long time, and it was only recently that any suspicion became aroused. They became rather loud in their manners and dress, and awakened suspicion by their fast living.

One has to look around him when he comes to the city to keep fully posted in the line of novelties. The Chas. D. Pratt Co., of 33 Chambers street, is doing an extensive business in this line, and their rooms are worth a visit. One variety of porcelain ware, new this season, is meeting with marked success; it is the "imitation ivory" ware. It is made into all sorts of fantastic shapes, odd, curious and quaint. Many of the figures are hard to distinguish from genuine Japanese carved ivory, and while some pieces are representations of vases or human figures, others are the most hideous and repulsive looking Japanese gods. Another new style of ware, which is also quite popular, is made into fancy ornaments for the desk, such as ink stands, blotting pads, paper holders, etc. These are made of royal Berlin pottery, mounted in gilded brass, and the rich, deep coloring of the pottery, blending in beautiful contrast with the fancy brass work, makes a pleasing conception. Messrs. Pratt & Co.'s art room is now in complete arrangement, and is one of the most handsome in the trade.

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GOSSIP OF THE MONTH

DURING the past month quite a number of persons were arrested in this city for smuggling. Among them were several women, who had concealed about their persons diamonds, watches, jewelry, laces and other dutiable goods. It required the services of a female inspector to discover the hiding places selected by the gay smugglers for the concealment of the articles. The amount of revenue they sought to rob the government of was considerable. Probably no one of those who seek to smuggle goods into the country would pick a pocket or rob a money drawer, but they have no scruples about robbing Uncle Sam, and when they are successful in so doing, will boast of the fact and gloat over it as being a most creditable achievement. It is singular how elastic conscience is with some persons.

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THE law journals are poking all sorts of fun at the Texas Court of Appeals that recently decided that the United States Supreme Court was all wrong when it declared that the Texas law imposing a special tax on commercial travelers was unconstitutional. The Texas Court held that the law should be enforced notwithstanding the decision of the Supreme Court. It is something phenominal for a State court to overrule the Supreme Court of the United States, and the monumental conceit of the judge doing so challenges the admiration of the whole civilized world. That particular judge ought to find employment as a book agent. Meantime, the States generally will accept the fact that their commercial travelers' tax laws are invalid, and if the travelers themselves have the pluck to fight whenever they are molested, the odious tax will soon become a thing of the past.

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THE brass workers of this city went on strike early in October because the employers refused to continue the Saturday half-holiday and pay for a full day's work. Some of the employers took the initiative by locking out their men, but the workmen put on a bold front and declared their purpose to fight the fight to the bitter end. The Knights of Labor have promised them support, and they had about $50,000 in hand at the commencement of the struggle. This would go but a little way towards maintaining in idleness the several hundred men who struck. In the jewelry trade the half-holiday matter settled itself, and the stores and factories now run full time on Saturday as on any other working day. Those workmen who want wages for time when they were not working would think it the height of presumption if their landladies were to charge them for board they did not have.

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THE Bridgeport burglar, "Kid McManus, who was associated with Feyth in the robbery of Mr. Fairchild's jewelry store, as described in THE CIRCULAR last month, succeeded in securing his release on $10,000 bail, and the authorities of Bridgeport have, no doubt, seen the last of that enterprising thief. McManus was backed by strong political influence in this city and Brooklyn, and when it was thought that he would be released on $15,000 bail, that amount was promptly raised by his friends; but the court fixed the bail at $20,000, and the "Kid" had to go to jail. Then the application to have the bail reduced was successful, and he was released on $10,000 bail, which will unquestionably be forfeited. Mr. Fairchild had commenced a civil suit against him, and when he was released on the criminal charge he was arrested on the other, but the court held that as he had been brought into the State to answer to the first he could not be held on the other. Bridgeport is getting tired of having New York criminals visit that city for plunder and then when caught, escape punishment through political influence, and the local papers are especially indignant over the McManus case. But what a commentary this furnishes on the morality of cities, whose local politicians are so identified with the criminal classes that they have to secure their escape from punishment, when caught in their villanies, at any cost. But what better can be expected when our wealthiest citizens openly state that their taxes are less when they can buy public officers than they are when they cannot. So bribery runs rampant, and all other crimes naturally follow.

THE use of mirrors in show cases and cabinets for the display of goods has become almost universal, and so effective are they in jewelry stores that they are regarded as indispensable. By the judicious use of mirrors the stock of goods carried by a jeweler may be apparently doubled, and it is amusing often to witness the effect of the optical illusion thus created. A lady was looking at a single bracelet in the showcase of a dealer recently, and insisted upon being shown the mate to it that was apparently lying near by. She could scarcely be convinced that there was but one bracelet, and that what she took to be its mate was only its reflection in the mirror. The first mirrors made were produced in Venice in 1300, previous to which polished metal surfaces were used to reflect the features of beauty and ugliness. One of the first made of the present style of mirrors was the property of Mary, Queen of Scots, and is yet to be seen in Holyrood Palace.

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WHILE American salesmen are noted for sharp practices, they certainly have not a monopoly in that line. An Englishman writes as follows to one of the London trade journals: "I had an appointment with a well-known buyer to be at my stock room at a certain time. He came as arranged, and we had scarcely commenced business when 'Boots' brought a message to the effect that a 'gentleman' wished to speak to him. He went outside and found that a traveler from another house had followed him down the street into the hotel, and actually sent the message to him, and was waiting on the stairs to take possession of him as soon as my business was concluded." That is a trick by no means unknown here, and must certainly be ranked as discourteous. The proper way would have been for the fellow outside to have sent a note to his brother salesman, saying: "When you are through with that customer turn him over to me, I'm something of a liar myself."

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DR. C. A. BUCKLIN has resumed his classes in practical optics and has many applicants for instruction. Those who have taken the course speak in the highest terms of the advantage it has been to them in a pecuniary way. The eye is such a delicate organ that it requires to be dealt with intelligently and with judgment. Its diversities are so innumerable that no one should attempt to adjust glasses to the eyes of any person without first having ascertained the cause of the imperfect vision. It is not necessary that one should be an expert oculist to do this, but instruction in practical optics will enable the optician to deal intelligently with a majority of the cases that come under his observation. Many a good pair of eyes have been virtually ruined by the use of glasses not adapted to their peculiar construction, and a slight defect of vision developed in a material one. Every dealer or salesman who is called upon to fit others with eye-glasses should make a study of the defects and diseases of the eye, and never recommend any until he is fully satisfied they will meet the case.

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WE SAW an announcement recently made by one of the large express companies, warning the public against some adventurers who were soliciting advertising for a book purporting to contain a list of the express stations in the country. The company gave notice that this publication was wholly unauthorized by them, and they did not wish to be held responsible for any statements made in its behalf. This is one of the old dodges of advertising schemers, a similar book having been circulated before—among its advertisers. That is to say, a copy was printed for each advertiser, and this was about the limit of its circulation. There are a good many advertising schemes of a similar nature presented to business men during the year, and it requires considerable backbone to escape them all. But in these days, when every legitimate industry is represented by journals devoted to its interests, which make a business of covering the entire field an advertiser may desire to reach, it is simply throwing away money to patronize these catch-penny concerns. The most successful merchants of this country have repeatedly testified that the regularly established journals are the very best advertising mediums.

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IT IS exceedingly unfortunate for Florida that yellow fever should have broken out at Tampa early last month. Some time ago a case or two occurred at Key West, and Northern people became quite alarmed lest it should extend to Jacksonville and thence North. The authorities at Jacksonville, however, promptly established a quarantine against Key West and the danger was soon averted. But greater difficulty will be encountered in quarantining Tampa on account of its railroad and other connections with the outer world. Many persons will doubtless be deterred from spending the winter in Florida, as has been their custom, and the State cannot but suffer in consequence. The little cholera scare that occurred in this city early in the month amounted to almost nothing. The steamship *Alesia*, from the Mediterranean, arrived with four cases of cholera on board. These were immediately removed to the cholera hospital, the ship and passengers fumigated, and no serious result followed. New York is so well guarded now by its health authorities that there is little danger to be apprehended from the importation of disease—we are in more deadly peril from the torn up condition of the streets, the effluvia constantly arising from them being well calculated to breed disease.

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THERE is a little outrage that the government perpetrates upon some classes of the jewelry trade that is suffered without protest, however great the annoyance may be. It is well known that importers of foreign goods, of whatever character, are apt to receive invoices sometimes that are undervalued, and if these are passed by the customs authorities the government is defrauded of a portion of the revenue rightly its due under the law. Therefore, when undervaluation is suspected, the goods must be appraised by experts. Diamonds are something that government employees know little about, and so when an invoice arrives and an appraisement desired, it is the habit of the customs authorities to send notices to several diamond dealers who are noted as experts, notifying them that they must appear at a certain time and place to appraise certain invoices of diamonds, and that their neglect or refusal to obey the summons will subject them to a fine of $100 or possibly imprisonment. So the dealers are obliged to spend hours away from their business, and give of their knowledge to a transaction that does not interest them in the slightest. This would not be so bad if the government would pay for such service as private individuals would be willing to do. But no; the government says substantially, "we are enforcing the laws for the protection of trade, and as you are engaged in trade, you must give your services gratuitously whenever we require thea." It does not matter that the government is made richer by the services of these gentlemen, it still refuses to compensate them as experts are entitled to be compensated. This being the practice of the government in these cases, it ought to carry the principle to its logical conclusion, and instead of paying exhorbitant lawyers' fees, say to these gentlemen: "The government has got itself into a bad hole and needs the services of a lawyer to pull it out; you are experts in law matters, come, give us your services or you will be fined $100 or go to jail; there is no fee for you in this business, but it is all for the good of trade." What a protest would go up from the bar over such an edict, and how unanimously the bench would sustain them. But it don't happen to be the legal ox that is gored in the case of the diamond experts.

THE government having shown a disposition to improve the postal service as much as possible and to increase its value to the business portion of the public, why would it not be feasible to supplement the parcel delivery with a "C. O. D." delivery, and collect bills as well as deliver the goods for the purchase of which the bills were incurred. Such a system is in vogue in France, Germany, Austria and Belgium, and has been found to be exceedingly convenient. It is possible for a person in Belgium, for instance, to send to Paris for a bill of goods and direct them to be sent by mail "C. O. D." On receiving them he is required to pay the bill, the postage on the parcel and on the letter remitting the money. Many of the dry goods stores in this city have country order departments, and are in the habit of sending many thousands of packages annually by express; if they could be sent "C. O. D." through the mails, their business would be greatly facilitated and largely increased. The greater the facilities the post office service can render to the business public, the more extensively it is used and the more profitable it becomes. Packages weighing not to exceed four pounds can now be sent through the mails, and the next progressive step should be the adoption of the "C. O. D." system of delivery.

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IT IS with keen satisfaction that business men of the North have watched the rapid development of the southern section of the country that has taken place within the past few years. The field for enterprise in almost every line of trade is thus greatly broadened, the wealth of the nation materially enhanced, while the region so terribly devastated by war is giving evidence of growing prosperity. No one is more gratified at this changed condition of things than our merchants of the North who, before the war, enjoyed a liberal Southern trade and entertained the highest respect for the business men of that section. Something of the old time traffic is returning, and there is a satisfaction in noting that the young men of the South are putting forth their best energies to recover their lost position. Southern trade was exceptionally good last year, and promises to be even better for the present one. A notable fact is the gradual wearing away of the old feeling of exclusiveness that formerly prevailed at the South; the cold shoulder is no longer turned to those who would avail themselves of its mild climate and business opportunities, but all comers are heartily welcomed. Under this new order of things the country is becoming more thickly settled, towns and villages are alive with activity, and vast mining and manufacturing interests are being developed. The South is rich in natural resources and has a great future before it.

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WE HAVE referred to the suit brought by O. M. Hartt and Hanan & Son against certain leaders of the Knights of Labor, who were charged with conspiracy in boycotting the complainants. In rendering a decision in their favor, the Supreme Court held that "The law permits orderly and peaceable co-operation to maintain or advance the wages of labor, and undoubtedly, as an incident to this authorized co-operation—that is, to render it effective—a resort to all lawful means of enforcement. Peaceable withdrawal from employment, commonly called a strike, however extensive, is plainly such an incident. It is true that an absolute scale of wages cannot be maintained so long as persons outside of the combination look for less than the fixed rate. Yet such persons have a perfect right to so work, and are entitled to protection against lawlessness—that is, to protection not against a probable strike, but against violence and threats of violence. When, however, there is no relation, direct or indirect, between wages and strikes, the combination which brings the latter about for unlawful purposes is a criminal conspiracy. The strike then involves the diminishing of the quantity of productive labor, which is an injury to the community and an act injurious to trade." The prisoners were remanded for trial. This decision makes intimidation, of either workman or employer, a crime, which may be punished by imprisonment.

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IN COMMENTING recently upon the absurdity of the State Board of Arbitration interfering in the matter of the strike of the silversmiths, and undertaking to ascertain if there was a strike after the workmen had been out for two or three weeks, we stated that the Board was simply a political machine, created to make offices for a few persons who have to be taken care of by their party. The Board itself seems to have awakened to the absurdity of its position, and has recently issued a circular, one of which it has forwarded to us, explaining that the Board can only hope to accomplish good results when it is called upon previous to a strike or lockout, and not after. Referring to the silversmiths' strike, it says that the men were already out when the Board was asked to interfere, and the employers refused to recognize the Board of Arbitration in any way. Why should employers recognize a political board in any manner whatever? These arbitrators, appointed by the State to draw fat salaries' have no power whatever to either compel strikers to go to work or employers to employ them. Without such power, it is simply a waste of time to deal with them. This was shown also in the case of the striking engineers on the Brooklyn elevated railroad, when the companies refused to have anything to do with the arbitrators. The Board has evidently made up its mind that it does not pay to be the laughing stock of the public, and so has sunk into quiescence, and issued a circular to announce that fact.

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POSTMASTER-GENERAL VILAS has recently issued an order to postmasters that has excited a great amount of indignation. It is to the effect that persons sending merchandise by mail are prohibited from writing or printing on the wrapper anything whatever except the address of the person to whom the package is to be delivered. It is the habit of senders to print on such wrappers their name and business address, as they do upon letter envelopes, but under this latest order they cannot do even this. Nor can they write or print a request to the postmaster to notify the sender if the package is not called for. This is an arbitrary and unjust ruling, and is not, apparently, warranted by the law. In January last he sent out an order as follows: "Upon all papers sent as merchandise there may be printed any matter not having the character of personal correspondence, and with such merchandise, and merchandise of other material, there may be inclosed such printed matter, or the same may be attached to such matter." Now he revokes this order, and limits the matter that may be placed on wrappers to the plain address. How this order works may be illustrated by a case of actual occurrence within our knowledge. A gentleman in this city had a package sent to him on which twenty-two cents postage was paid. The address was written on a tag and affixed to the package, but not a word outside of the address. When delivered, twenty-two cents additional postage was demanded on the ground that the tag bore the words, "Dennison's Patent." To protect his patent, the law requires the manufacturer of tags to stamp each one in this manner, while the person who uses one on a postal package must pay double postage, simply because this stamp is printed on the tag. The absurdity of Mr. Vilas' ruling is thus shown.

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A GENTLEMAN enters a jewelry store and finds the clerks variously employed, but two or three of them engaged in conversation—probably disussing the latest game of base ball. Stepping in front of them he waits to have his wants attended to. No attention is paid to him, but the conversation is continued. Finally, disgusted, the gentleman turns on his heel muttering, walks out of

the store and goes elsewhere. Noticing his departure one of the conversational clerks hastens after him and asks if he could do anything for him. The gentleman replied: "You let me stand in front of you like a lump on a log while you were carrying on a private conversation. I am too busy a man to defray for such nonsense, and will go where I can be promptly served and treated more courteously." Many a customer is lost by neglect of this kind. Some clerks apparently think that they are employed for their own convenience, not to serve the interests of their employers, and that they confer a favor on a customer when they condescend to wait upon him. A merchant who expects to be successful should see that his employees attend promptly and primarily to customers. Everything else is secondary to this; all office work, private conversation, personal prinking before a looking glass should be laid aside instantly when a customer enters, and some one should attend to him without delay. Courtesy and prompt attention are the rights of every one, and he who neglects to accord these will inevitably suffer for it. The practice in large stores, where there are several departments and many attendants, of having "floor walkers" or suave and pleasant gentlemen to direct callers to the counter where the goods they desire to see are kept, is one to be commended. Men of business have little time to wait when they have purchases to make, and unless promptly served are apt to conceive a prejudice against the house where neglect is shown them.

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THE Commissioner of Patents has recently issued a circular in which it is stated that recognition will hereafter be denied to specifications in applications for patents which include vague general terms, designed by inventors to cover every possible modification of their processes, so checking the ingenuity of others, and subjecting users to unreasonable claims. This decision is encouraging to artistic and constructive skill. It is for the interest of the community that genius in these lines should be hampered as little as possible, and that those using patented articles should distinctly know what they are paying for. The Commissioner of Patents decides against such indefinite terms as "means," "mechanism" or "substantially as described," which may be construed to so broaden and expand the invention that everything in the art is covered, and other inventors and the public placed under unreasonable tribute. Applications must be approved as to form as well as merits. This is a step in the right direction, for interminable complications have grown out of the very general terms often used by inventors to cover, not their particular invention, but any improvements upon them that others may devise. An inventor ought to be satisfied with his own conception and not seek to shut out others who may follow him. It is a matter of congratulation, also, that the plan formerly in vogue of re-issuing a patent and extending its term of life thereby has been abandoned, no patent having been re-issued since 1877. A patent runs for seventeen years, and if a patentee has not secured adequate compensation during that time he ought to step aside and let some one else try. Occasionally a patentee becomes so involved in litigation that the fruits of his brain and labor are lost to him, and in such instances there should be some redress. Whoever makes a discovery of value to the human family should receive good compensation, even if it is necessary to give his patent a new lease of life.

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THE successful traveling salesman "is born, not made." To travel from place to place constantly, working by day and traveling at night, is of itself an irksome task, and when to this is added the necessity for meeting all kinds of men and presenting to each a pleasant, smiling and insinuating countenance, the task becomes one that it requires positive genius to successfully accomplish. But the traveling salesman must have something more than smiles with which to greet his customers; he must have tact, ability and that peculiar something that makes the difference between success and failure. This something is a natural gift, and it enables its possessor to take the exact measure of his customer and to meet him on his own ground. The strategy that is successful with one customer would fail lamentably with another, for every individual has his peculiarities and must be approached by the way of these. Many employers of traveling salesmen are wholly incompetent to go on the road, and should they undertake to travel on commission they would starve to death. A competent traveler is not only valuable as a salesman, but his suggestions and advice to his employers are invaluable. He feels the pulse of the market, knows what the trade requires and the standing of his customers. An able, competent traveling salesman is indispensable and can readily command excellent compensation. Such men are always in demand and can almost fix their own price for their services. Many a successful traveler has found the road a stepping stone to a partnership in the house he represented, or the foundation for a prosperous business on his own account. But there is another class of travelers, sent out because they are willing to work cheap, that the respectable portion of the trade would gladly dispense with. These do more to discredit the business than any other one thing. They are loud-mouthed, self-asserting, forth-putting, always in evidence, and usually contrive to disgust most of those with whom they come in contact. Such men make it hard work for respectable travelers to preserve the dignity of their calling, and for dealers to tolerate the visits of the representatives of reputable houses. It is some satisfaction to know that the jewelry trade is afflicted with this class of cheap travelers to no greater extent than other callings that require the services of men on the road. Trade journals in general complain of the cheap travelers and the employers who send them out.

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WE DESIRE to direct attention to the many important technical and otherwise interesting articles to be found in this issue of THE CIRCULAR. Mr. Crossman presents the eighteenth article of the very interesting series of sketches he has prepared especially for us, entitled, "A Complete History of Watch and Clock Making in America." These articles will appear monthly until the history of these great industries is brought down to the present time. Mr. George F. Kunz contributes an interesting illustrated article on "Gold Ornaments of Colombia." An article on "Lathes and Lathe Work," by a specialist in that department, will be found full of instruction. "Electrotyping and Molds for the Same," is an article full of interest to those in any way identified with that kind of work. Dr. C. A. Bucklin contributes his customary article on practical optics. There is a continuation of the paper on "Gilding and Gold Plating," and the "Prize Essay on the Balance Spring," by Moritz Immisch. "Free Hand and Mechanical Drawing," by Mr. Ganney, is a treatise on a subject full of interest to every workman in the jewelry trade. There is also an instructive paper on "Inertia," as the term is applied to the action of escapements. "Elsie Bee," the first writer on the subject of fashions in jewelry, contributes another chapter from her note book. An illustrated article descriptive of the great bronze cast of the head of a buffalo, for the eastern entrance of the great bridge erected at Omaha by the Union Pacific Railroad, will attract attention. In addition to these, there are numerous other articles relating especially to the jewelry trade, some of which are original and others were translated especially for THE CIRCULAR. The department of "Workshop Notes" is replete with practical suggestions, and "Foreign Gossip" contains many items of useful information. The editorial pages, "Gossip of the Month," "Trade Gossip," etc., present the current news of the month with comments thereon. This is no exceptional number, but is simply a fair sample of each month's issue of THE CIRCULAR. No other trade journal in the world furnishes so much valuable matter of special interest to jewelers from month to month as THE JEWELERS' CIRCULAR. No other trade journal has so

many experts upon its list of paid contributors or expends so much for technical articles. In short, a volume of THE JEWELERS' CIRCULAR in the hands of a careful reader is equivalent to a liberal education.

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"RETAILING is getting played out," remarked a dealer to us the other day. "First, because expenses are much higher than they used to be, and second, because the large department stores are ruining our business. The retailer has to pay about double the rent he ought to pay compared with the business he does. Ten or fifteen years ago we did double the business we do now and rents were much lower. But this would not be so bad if it were not for the combination stores, which monopolize all kinds of retail business to such an extent that the legitimate retail dealer can scarcely make a living. There are a dozen such stores in New York that boast that they sell about everything one wants to buy, from household goods to jewelry. A few years ago, whoever wanted to buy jewelry went to the regular retail dealers for it, but now these combination stores sell more jewelry than all the retail dealers together. They claim that they can buy goods cheaper than we can, because they buy largely and pay promptly, while retail dealers buy in driblets and want four or six months' credit. If this is true, it is the fault of the manufacturers and jobbers, who have introduced so much competition into the business by giving credit to everybody who asked for it, and by encouraging outsiders to buy their goods, that they have diverted the retail trade away from the legitimate retail dealers, and, of course, they cannot do business as liberally or pay as promptly as they formerly did. The manufacturers and jobbers have absolute control of the trade, and they could keep it in the regular channels and dictate their own terms if they were so inclined. But some of them do not want to do so; they want as many customers as they can get, feeling that the more there are to handle jewelry the more will be sold. They ought instead to encourage the retail dealers. We are willing to handle all the goods the public will buy, and if things were made as easy for us as it is for the outsiders, we would be just as liberal buyers as they and pay as promptly. As it is, these great bazaars are eating the life out of the retail dealers." Which complaint leads us to remark that the owners of these great bazaars are but carrying out the demands of the public, and it is inevitable that trade shall conform to demand. If the public can be bettter served by buying all varieties of goods under one roof, then there will spring up merchants willing to so serve them, and manufacturers of goods in all lines will supply them just as surely as they have the money to pay for what they want. The course of trade has changed very materially within the past few years, and those engaged in it will do better by falling in with the current and keeping on top than sitting down to lament over "times as they used to was." This is an age of change and progress, and in nothing is this more visible than in attempting to supply the requirements of a fickle public.

A Word to our Friends.

IT HAS never been the custom of THE JEWELERS' CIRCULAR to blow its own trumpet, to speak in any way disparagingly of its fellow journals in the trade, or to enter into any controversies with them, preferring that a discriminating public should pass judgment upon THE CIRCULAR solely upon its merits. In these days of rather extreme competition, and when many statements are made by the over-zealous seekers after advertisements for journals that have been established "to meet a long felt want," it seems fitting and proper that THE CIRCULAR should make some general statements in regard to itself that may be considered an answer to the very many reckless and unscrupulous stories put forth by those who would seek to draw business unto themselves by foul as well as by fair means.

THE JEWELERS' CIRCULAR is the oldest journal published in the interests of the jewelry trade and all branches pertaining thereto. It is owned and controlled by a "syndicate of jewelers"—gentlemen whose lives have been spent in the jewelry business and who know thoroughly the wants of their constituents. These gentlemen purchased the paper at the decease of its respected and estimable founder, Daniel H. Hopkinson, for the double purpose of continuing THE CIRCULAR after the same high standard laid out by its originator; for the purpose of securing the widow of Mr. Hopkinson a large and continuing interest in the life work of her husband, which she still retains. The present proprietors of THE CIRCULAR do not "run it for all they can get out of it," nor do they live off of its proceeds; on the contrary, they spend the income of the paper very largely for contributions of scientific articles of great value. The editor, an old personal and journalistic associate of Mr. Hopkinson, who has been with THE CIRCULAR for some twelve years, still continues to edit its columns. THE CIRCULAR is not run in the interests of any clique, and no favors whatever are shown to any stockholder that are not open to all its patrons. Advertisers, therefore, may have full confidence that they receive the benefits THE CIRCULAR is able to afford for a fair and equitable consideration.

Members of the trade throughout the country have been repeatedly invited, and are now invited again, to write to THE CIRCULAR upon any subject of general interest to the trade.

THE CIRCULAR to-day is the largest, and is pronounced by the most competent authorities in the trade, and also by many eminent journalists, to be the best trade paper in existence, and the aim of its proprietors and staff is to make it at all times worthy of such praise. It reaches the trade throughout the country, and is carefully preserved as a text-book of reference, the Monogram sheets and the different series of technical articles now going through its pages making it especially valuable as such. In spite of all competition, the circulation and income was never so great as at present, and never in its history has its list of contributors—experts in their special lines—been so numerous as at the present time. We have thus sought to make THE CIRCULAR something more than a mere chronicler of ephemeral news and a reprint of clippings from the daily papers, and have endeavored to make it a medium of instruction to beginners in the arts pertaining to the business, as well as a valuable assistant to more advanced workers.

The success of THE CIRCULAR has induced many persons, some of whom are in no way identified with the jewelry trade, to seek to establish jewelry papers. We claim no monopoly of the field, but have entire confidence in the ability of the trade to distinguish between merit and pretence.

Purchasers of Stolen Gold.

THE RECENT arrest of a colored porter in the employ of Wheeler, Parsons & Hayes, charged with having stolen several thousand dollars' worth of jewelry, again illustrates the readiness with which employees of jewelers can dispose of the articles they may appropriate. This colored porter, whose name is Kidd, was in the habit, as is charged, of abstracting jewelry from the cases during the day, melting it and selling the old gold. Kidd made a statement to the officers who arrested him, admitting that he had been robbing the firm for several years, and claiming that he had

been induced to do so by a watchmaker, who also showed him how to melt the articles he stole. He had no difficulty in disposing of the products of his melting pot, readily finding small dealers who not only purchased all the gold he brought them, but encouraged him to bring them more. Robberies of jewelers by trusted employees are rendered easy by the readiness with which their plunder is disposed of. There are dealers who will buy old gold or silver—or even manufactured goods—from any one who offers it, even when every surrounding circumstance is suspicious, and would lead an honest man to the conclusion that the goods were stolen. They buy what is offered without inquiry, but seldom pay its market value because they are so sure it was dishonestly acquired. We have before us as we write, the written confession of two boys who were formerly employed in a jewelry factory. They are brothers, the oldest but seventeen years of age. They carried off from the factory bar gold and clippings from time to time, selling their booty to different retail dealers. Their plunder amounted to some $3,000 in the course of three months. They were detected, arrested and confined in the Tombs. Their confession, to which we have referred, was written by them jointly while in the Tombs. An extract from this document will show how easy it was made for them to convert their booty into cash, how they were tempted to go on with their stealing and what an enormous profit the receiver of the stolen property realized on it. As the two boys have paid the penalty of their crime we suppress their real names, but will call them John and Charles. John says:

"The first piece of gold I took I sold to a dealer in Chatham street. I showed him what I had and asked him if he wanted to buy. He said yes, and I gave it to him and he tested it; he said he would give me sixty cents a pennyweight for it; I wanted sixty-five, but he would give me no more than sixty; I told him I would take that and he gave me $6. This was the proprietor of the store. He never asked me any more questions from the time I began selling to him till the end, except about the state of the weather. I think he thought that if he asked questions about how I got it I would stop selling there. After I had sold there three times, my brother Charles went there and sold to him, and he then told us that when we had any gold to bring nights or Sundays to bring it over to his house if his store was closed. Charles went there four or five times, and when the proprietor was not in his wife would buy the gold. We sold him in all about 2,000 pennyweights, and received sixty cents a pennyweight for 18 karat gold and fifty cents a pennyweight for 14 karat. Then we sold some at another place near by, about 300 pennyweights, but were never asked any questions about where we obtained it. This dealer used to give us cigars when we came, and told us whenever we had any gold to sell to be sure and come to him. We sold some more at a place in the Bowery, but they asked us no questions, just weighed the gold and gave us the money. At this place the proprietor said if we would deal with him liberally he would give us a gun to celebrate the Fourth of July with. At one of these places Charles was asked where he got the gold, and he told them he was in business and that it came from his factory. He knew we were too young to be in the business of manufacturing, but he bought the gold without any more questions. At one place the dealer wanted to give me a check, but I would not take it. He said he did not have the money, and so he gave me a due bill, but I never got anything for it. He kept putting me off and finally I got tired going for it. One dealer was suspicious, and said if we were arrested we must not give him away, but said if he got into trouble he would make it hot for us. All those who bought gold of us I am sure were certain that it was stolen, but they always wanted more."

The confession, of which the above is the substance, is very lengthy and is signed by both the boys. The names of the dealers who bought gold from them are given in full and their places of business. As no proceedings were taken against these receivers, for the reason that they could not be convicted on the testimony of confessed thieves, we are not at liberty to publish their names, but we can say that most of them are still in business, and actively engaged in corrupting boys employed in the jewelry trade. How they are to be reached and punished is a problem the jewelry trade would like to see solved. Of course, they are liable to punishment as receivers of stolen goods, but it is almost impossible to obtain sufficient evidence, outside of the thieves who deal with them, to convict them. While such men are permitted to pursue their nefarious occupation, it is not surprising that employees are dishonest.

The Outlook for Trade.

WE PRESUME there are few persons engaged in the jewelry trade who will complain as to the amount of business they have done during the past two or three months. There have been more active periods, but seldom; trade has been good, not coming by spurts, but steady, everyday trade, orders being sufficient to keep everybody quite as busy as they care to be. This condition of trade having been looked for, manufacturers and jobbers have been prepared to meet it, and were well supplied with desirable goods with which to replenish the stocks of the retail dealers. The prospect is that trade will continue active until after the holidays, when there will probably follow the customary season of dullness to enable every one to take an account of stock and close up the year's business. In all sections the same feeling of hopeful confidence is expressed. The harvests have been unusually bountiful, there is plenty of money in the country, and those who have been working so hard to get hold of it will be inclined to spend it with liberality. About the only ones who complain of hard times are the speculators; since the failure of the great wheat corner, when those who undertook to engineer the job were victimized to the extent of eight or ten millions of dollars, speculators have not found such abundant opportunities for their style of gambling as formerly, and complain that the "lambs" do not come up to the slaughter as readily as they used to. Their sufferings ought not to excite any sympathy whatever. Speculators are foes to legitimate business, their purpose being to disarrange and divert trade from its legitimate channels. If speculation suffers, legitimate enterprise should rejoice. Outside of the field of speculation business is in a healthy condition. Profits are not large, but the prosperous season is likely to be more prolonged on that account. Workingmen are generally faring better than they have for several years, for their is plenty of work for all and wages range a trifle better than heretofore. Never before, probably, has so much business been done with so small a share of profit to the manufacturer to repay him for his skill, labor, capital and risk. Yet the wealth of the country is steadily increasing, and in all sections buying, building and manufacturing is going on, with strong confidence in the future.

The Diamond Trade in this Country.

A STATEMENT by the Treasury Department of the imports and exports for the eight months of the year ending August 31, contains some items of interest to all connected with the diamond trade. It shows that during the month of August the value of diamonds, "rough or uncut, including glaziers' diamonds," imported was $41,784, while the value of those imported during the corresponding month of last year was $22,438, a very considerable increase for the present year. But the value of the same class of goods imported during the first eight months of the year was $192,847, as against $213,920 for the corresponding period of last year. But these figures represent only the rough stones, and afford no indication of the volume of the importation of precious stones. As a matter of fact, the importation of these has largely increased. The same statement

shows that during the month of August there were brought to this country $1,293,846 worth of "precious stones and imitations not set," while in August last year the value of such importations was $1,110,858. During the eight months ending with August of this year the value of all importations of precious stones unset was $7,862,377, as against $6,154,095 during the corresponding months of last year. Here is shown an increase of $1,678,282 in the value of unset stones imported during eight months of this year, while there is a slight falling off in the value of rough stones. There was also an increase this year in the value of imported "jewelry and manufactures of gold and silver" of a little over $6,000. A representative of THE CIRCULAR deeming these figures suggestive, called upon Mr. Billings, of the firm of Randel, Baremore & Billings, and obtained from him some interesting facts regarding the diamond trade, which are incorporated in this article. We do not pretend to give Mr. Billings' language, but are indebted to him for the facts.

The falling off in the importation of rough diamonds is accounted for by the fact that there has recently been quite an advance in price, and those who import diamonds and cut them here have been hoping that prices would go down, and so limited their purchases to their actual requirements. The price of diamonds has had an upward tendency for many years owing to the natural increase in the demand for them. This increase is due to the increasing number of wealthy persons in this country, and to the development of refined taste as the result of increased wealth. From 1850 to 1870 the price of diamonds advanced steadily at the rate of about ten per cent. per annum, but since then the advances have been less regular. With the opening of the various Cape mines the prices have fluctuated, but within a short time all the Cape mines have come virtually under one management, or, rather, the owners have formed a combination to limit the production and maintain fair prices. It is asserted that the Cape mines are inexhaustible, and that if the owners were reckless enough to do so they could flood the markets of the world in a year. As this would break prices, they are too sagacious to cut their own throats, and so have, after protracted negotiation, formed a combination to restrict the production within the bounds of legitimate demand. They have also adopted more stringent measures to prevent the products of their mines from reaching the market through illicit channels. One of the trials of these mine owners has been to prevent their workmen, mostly natives, from concealing the precious stones they found about their persons and selling them to dealers who made a business of buying stolen diamonds. The new arrangements prohibit any person from buying diamonds without first securing a license so to do. It is a noticeable fact that many of the largest diamonds discovered of late years have reached the market through illegitimate channels. The large one, known as the "Victoria," which was cut at Amsterdam, came upon the market in a mysterious manner, and no one knows precisely in whose mine it was found. This stone is said to be one of the most perfect gems in the world. In cutting it, it was found necessary to divide it, and the piece taken off was cut into a beautiful stone weighing twenty karats, while the larger stone was finished up into a perfect gem weighing 180 karats. There are several lapidaries in this country who make a specialty of cutting diamonds, and, as their work is quite as good as that done abroad, their business is increasing.

The demand for precious stones is rapidly increasing in this country, and our principal importing houses have their buyers in Europe most of the time, visiting the different markets and buying with great liberality. Formerly they sought out the rarest gems and purchased them almost exclusively, but the demand in this country now requires a supply of stones of all qualities. Diamonds have become, to a certain extent, recognized as a circulating medium, and their transfer in business transactions, in place of cash payments, is of frequent occurrence. There is also a large number of "curbstone brokers" in diamonds, who carry a few in their pockets and pick up customers wherever they can. Many of these are salesmen in other lines of business, but having a taste for precious stones, carry precious stones with them to operate with as opportunity presents. Many of these obtain the stones from regular dealers on memorandum and make large profits on their sales. There is a special demand at present for rare stones, peculiar in color or in shape, and these bring fancy prices. Indeed, prices for rare gems are entirely a matter of fancy, being governed by no schedule or known rule.

The great majority of precious stones imported are used by manufacturers of jewelry, who are racking their brains constantly for new designs and styles in which to mount them. This demand for novel settings has created virtually a new industry, for there are manufacturers who make a specialty of designing and manufacturing settings for gems and selling them to the diamond dealers. When they hit upon a setting that is likely to be popular, they immediately obtain a patent for it, so that almost every setting that includes a mechanical operation is covered by a patent. Quite a business is done in re-setting diamonds and other stones that have been handed down as heirlooms in families, the setting of which is antiquated. To utilize these to the best advantage an artistic designer is required to furnish a drawing of the proposed new setting, and it is frequently necessary to supplement the heirloom with new gems to obtain the effect desired. Many wealthy persons desire to have unique settings for rare stones in their possession, and will not have a thing of which there is a duplicate. The customer may have an idea for a setting that is peculiarly his own, and then he and the designer have to get together and work out something practical, for there is high art in combining precious stones so as to obtain their best effects.

We might extend this article indefinitely with gossip about precious stones, but it is already long enough. We have only to add that would-be purchasers of precious stones should always patronize some legitimate dealer of established reputation. To deal with "curbstone brokers," pawnbrokers or horse jockeys is to invite fraud. It is safe to assume that all genuine stones come through regular dealers, and that they can afford to sell them at lower rates than outsiders who are looking for a special profit for themselves.

The Value of a Good Name.

EN WHO have always been prospered in business, who have contrived to pay dollar for dollar, whose account at the bank is always in their favor, whose name is a tower of strength in business circles, can have little idea of what those suffer who have been unfortunate and unable to stem the current of adverse circumstances. Many of these are quite as deserving of respect and confidence as their more fortunate neighbors; the principal difference between them is that the first had sufficient capital to pull them through and the others did not. Yet the public in general looks with suspicion upon every one who has been unfortunate in business, regardless of the fact that but a very small proportion of business men are successful. One of the unsuccessful ones thus bewails the unhappy lot of the unsuccessful business man: It is surprising, he says, what a wonderful effect the insolvency of a merchant has upon his former creditors. Men who before were only too glad to take him by the arm and laugh and chat with him by the hour, now shrug their shoulders and pass him on the street with a frigid "How d' do?" Every trifling item of a bill is hunted up and presented, that under other circumstances would not have seen the light of day for months to come. If the bill is paid, well and good; but if the obligation is not immediately canceled, the scowl of the sheriff, perhaps, meets him at the nearest corner. A business man who has never failed can know but little of human nature, for in prosperity he sails along gently, his barque wafted over placid seas by favoring smiles and kind words from everybody. He prides himself on his name and spotless character, and makes it his boast that he has not an enemy in the world; but when adversity and misfortune knock at his door, he is forced to

look at the world in a less roseate light. He reads suspicion on every brow, and he hardly knows how to move or whether to do this thing or the other. He beholds spies about him on every hand, and knows that a multitude of suits and attachments are ready for his back. In order to realize what kind of stuff the world is made of, a man must encounter misfortune and stop paying his liabilities, and then, if he has real and true friends, they will come promptly forward and prove their devotion. A business failure is a kind of moral sieve which brings out the wheat and winnows the chaff; and passing through a financial ordeal teaches a man that fair words and affected good will are not the constituent components of a true and reliable friendship. Such an experience teaches the value of a good name. Even though a man be unfortunate in business, if he has established a reputation above reproach he will not lack for friends in the time of adversity, and the cold shoulder of neglect and suspicion will not long be turned to him who has honestly lived up to the golden rule in the days of his prosperity.

A Few Words on Commercial Methods.

NOT LONG since a gentleman of the old school, whose gray hair and beard and generally comfortable appearance betokened that he had been highly prospered in his business career, and had reached a position from which he could dictate to others while he still gathered in the profits, encountered an active, pushing young man of the present generation, whose appearance was proof that he was a business man of the period. The elderly gentleman complained bitterly to him of the times, and of the prevailing methods by which commercial transactions are conducted. "Men seem to have lost all regard for their honor as individuals," said the gentleman with the white beard. "I am impressed from day to day with the constantly growing tendency among men of business to cast aside, in their dealings with their fellows, all Christian principles, all Christian teachings, all neighborly scruples, in short, all considerations save those of the most morbidly selfish kind, uninfluenced by any sense of justice, right or truth." And the old gentleman heaved an honest sigh and gave a decisive little nod to his head, signifying that he had portrayed the whole situation as in a nutshell.

The man of a younger generation begged him to be less severe, and above all things not to commit himself to a position unquestionably antagonistic to his colleagues, since that could only bring about ill will from them (should they devise his sentiments), and discomfort to himself at any rate. "Moreover," continued the young man, "what is the use of desparing because of universal conditions? If you observe this lack of scruple to be becoming a universal condition of trade, let us see if it is not due to some universal principle that must be met the same as any other factor. Now, we must remember," said the young man, "that trade is essentially non-sectarian. In former times, when it was confined in far greater degree than at present to individual communities, this fact was far less observable than now, when the scope of every medium of exchange is constantly growing with the increasing means of communication. It is clear, therefore, that trade, *per se*, is no more Christian than Pagan, and that the Musselman, with his desire to bring confusion to all save the faithful, is as justly entitled to take a part in exchange as the most enlightened scion of the Occident. No, there is but one fundamental law of trade, and that is a universal one, one observed throughout all animate creation, and is the survival of the fittest. And if it be true that the successful men practice falsehood and deceit, then, O, venerable friend, must you either practice falsehood and deceit or yield the palm of success to those who have more nicely adjusted their ways and better fitted themselves to existing circumstances, despite those moral walls which may enclose your chosen road in the pursuit of happiness."

We cannot endorse the exposition of the principles of trade as laid down by the young man. On the contrary, a casual glance will show that, acting according to such a code being incompatible with any civil law, it is a very vicious heresy of exchange. It is a sad fact, however, that this heresy is growing in popularity, as the many complaints about bad faith in the observance of commercial ethics and commercial comity abundantly demonstrate. The doctrine of the survival of the fittest means, in its relations to trade, "look out for no one; every man for himself and may the hindmost suffer disaster and annihilation."

Not long since a young man, well brought up, having what we shall term out of politeness towards all business men, a *penchant* for exercising seven days in the week those principles which his mother had taught him when she taught him to say his prayers, came to a friend who had been highly successful in the one object of his life, money getting, for advice. He was a salesman for, say a patent leather house. (It was *not* a patent leather house, but we prefer not to locate it nearer home for fear of consequences.) All the patent leather houses had entered into a solemn compact or pool for the purpose of fixing the prices at which the various grades of patent leather might be sold, and the heads of the various houses thus combined were required to make a sworn statement each month to the effect that his firm had sold so much patent leather, and no deviations from schedule prices had been made. Now, the head of this particular firm told his salesman that he must *not* permit sales to fall off; that if he did he would discharge him. Also that he would not be bothered about questions that arose; he must be able to keep customers without running to him to find out how to do it. The young man could not afford to be discharged, because his own living as well as that of others was dependent on his retaining his situation.

A customer from Beersheba (who always bought a very large line of goods) came along and said: "Here is an order for two thousand dollars' worth of patent leather. Give me ten per cent. off from schedule prices and the order is yours. If you don't I shall buy from other members of the pool. There is no use in arguing; you know me well enough to omit that—what will you do?" There was but one course open to the salesman; he dared not refer the question to his principal and he dared not lose the customer. Therefore he gave him his ten per cent. and charged the difference up to something else. Not having to make the affidavit himself at the end of the month, he could ease his conscience that the lie was lost somewhere, and it is to be presumed that he thought the recording angel would probably charge it over to profit and loss account, the grounds for debiting it to any individual being indistinct.

Shortly afterwards a less important customer from Dan came in, bought three hundred dollars' worth of goods and paid the schedule rates for them. He only made one stipulation, which was involved in the following question, put to the salesman when he made his purchases: "Are these the lowest rates at which you have sold any goods to any customer since the pool has been in force?" It was to ascertain how he could conscientiously answer this query that the young man sought the advice of his successful friend. The ill-timed and unquestionably evil reply was, "Lie—as soon as I hear of a better course I will advise you. But remember, there is no conscience in business." According to last advice, the pool still remained intact and the young man was making a very successful salesman. We have not heard, however, that the advice given him has ever been recalled.

It may be observed that the dealers in patent leather are not the only ones who do not keep faith with each other, but is it true that "there is no conscience in business?" We do not believe that this delusive doctrine is an accepted article in the creed of men engaged in legitimate business enterprises. It may be the foundation upon which speculators and gamblers build their frail business edifices, to be blown down with each shifting of the wind, but that our solid business houses are tinctured with such heresy is incredible. Yet the sentiment, if not the exact words, are heard pat upon the tongues

of the rising generation, and the query arises, "What is to become of good, old-fashioned commercial integrity when these men assume the direction of trade?" There is a moral concealed herein somewhere, but we have not time to dig it out. Let him who reads search for it.

What Labor-Saving Machinery is Doing for Labor.

THOSE LABOR agitators and socialistic shouters who are constantly declaiming against labor-saving machinery, ought to investigate a little and see how much labor-saving machinery has done for them. They would soon learn that it has greatly reduced the cost of living, has brought many luxuries of life within their reach and furnished employment for thousands upon thousands of men and women who are dependent upon their earnings for their livelihood. Take the manufacture of watches for an illustration. A few years ago watches were a luxury that only a few favored persons could afford to indulge in. A watch represented an amount of skilled labor that put the cost beyond the means of the great majority. Machinery was introduced, and the skilled watchmakers looked with alarm on what they thought was a death blow to their occupation. They argued, naturally enough, that the machines would supply the then existing demand for watches with a much less number of workmen, but they did not count upon the increased demand that would spring up by consequence of the lower price of machine-made watches. But the increase came, and the demand for watches has grown with the decrease in price, till watches are now regarded as absolute necessities instead of luxuries. Watch factories have increased in number to keep pace with the demand, more workmen are employed and wages are higher. Here is another illustration of the manner in which labor-saving machinery and combinations of capital are working to the advantage of the public in general, the wage-earners in particular. A magazine published in Philadelphia in 1818 gave the following as an item of news: "In the course of the twelve months of 1817, 12,000 wagons passed the Allegheny mountains from Philadelphia and Baltimore, each with from four to six horses, carrying from thirty-five to forty hundred weight. The cost of carriage was about $7 per hundred weight, in some cases as high as $10 to Philadelphia. The aggregate sum paid for the conveyance of goods exceeded $1,500,000." To move a ton of freight between Pittsburgh and Philadelphia, therefore, cost not less than $140, and took probably two weeks' time. In 1886 the average amount received by the Pennsylvania Railroad for the carriage of freight was three-quarters of one cent per ton per mile. The distance from Philadelphia to Pittsburg is 385 miles, so that the ton which cost $140 in 1817 was carried in 1886 for $2.87. At the former time the workingman in Philadelphia had to pay $14 for moving a barrel of flour from Pittsburgh, against twenty-eight cents now. The Pittsburgh consumer paid $7 freight upon every 100 pounds of dry goods brought from Philadelphia, which 100 pounds are now hauled in two days at a cost of fourteen cents. These same railroads or combinations of capital have opened up the great agricultural and mineral regions of the West, enabling them to lay their products down at the seaboard at a nominal cost, and thus furnished employment to thousands or millions of persons who would otherwise have been in a condition of poverty as deep as the serfs of Russia. Labor is by no means the only factor in the world's development and prosperity.

Technical Education.

THE IMPORTANCE, in fact, the actual necessity, for providing better means of affording the youth of this country a technical education is being recognized more fully every day. The attitude assumed by labor unions towards the apprentice system is depriving young men of the opportunity to learn trades in the good, old-fashioned way, and the result is that the scarcity of good, trained workmen is already being felt. In no line of industry is this necessity for technical education more severely felt than in the jewelry trade and those that are closely identified with it. The subject has attracted more attention in Europe than in this country, and much progress has been made there in the establishment of institutions for the express purpose of educating boys to special callings. England, some time ago, appointed a Royal Commission to investigate this subject, and an elaborate report has been submitted as a result of the inquiries made. An abridgement of this report has been made by Sir Bernhard Samuelson, which covers the main features of it.

The report of the Royal Commission begins naturally with primary instruction, and shows in detail the striking superiority of German and Swiss schools, and school methods and school regulations over English. In the first place, the German boys' compulsory school attendance begins one year later than the English boys', but it continues two or three years longer, and while in school he has better instruction, and has more abundant apparatus and appliances of every description for the cultivation of his powers. For example, the elementary school on the Lindescher Platz in Zurich is provided with chemical and physical apparatus, geographical relief maps showing the Alps and their glaciers, geological, botanical and mineralogical collections, collections of insects, a complete herbarium, and zoological and anatomical specimens and models. This is but a primary school for boys between the ages of six and twelve years. In this school, which is selected as typical of the German system of education, drawing, natural science and the use of tools are taught systematically. Great attention is paid to drawing, as being the groundwork of all training in the practical arts. "It imparts steadiness and delicacy to the fingers, develops clear and exact perception, and it cultivates the sense of elegance and beauty which, however, feeble in most people, is wholly absent only from the lowest minds." The Commission, after an examination of all that has been accomplished in German, Swiss and French primary schools in the way of training the hand and eye of the child, recommend that drawing should be incorporated with writing as a single elementary subject in English primary schools, and should be continued through all grades, and that school inspectors should be made responsible for such instruction, so that no child can hereafter leave school without being able to use the pencil as well as the pen. Not less than four hours a week ought, in their opinion, to be given to this branch of instruction. If it is necessary to lengthen the school hours for this purpose they think that it can be done without harm, because drawing is not a sort of work that harasses or exhausts the mind.

Instruction in the use of tools is about to be introduced in all the primary schools of France. It has already been introduced in many, and has been successfully tried at such schools in Manchester. It is found that the use of tools furnishes an agreeable relaxation to children, and that compulsory training is not necessary. All that can be done in the primary departments is to give the scholars a chance of making themselves acquainted with the common tools for working wood and iron. Apprenticeship schools, which are the next higher grade, are taking the place of the old apprenticeship system in Germany, France and Switzerland. At a school of this kind in Iserlohn, Westphalia, scholars go through a three years' course and are trained as designers, modelers, wood carvers, moulders, founders, turners and pressers, chasers, engravers, gilders and etchers. The number and variety of these apprenticeship schools in Germany and Austria are very great and their influence incalculable, not merely in the way of enabling the poor people to earn their living, but also in improving their home life and elevating their moral standards.

But it is in the higher departments of technical education that the Commission find the most marked superiority in continental instruction. They take the Polytechnic of Zurich as a particular example, and give a résumé of its course of instruction and results. Here are forty-five professors and thirteen assistants, exclusive of tutors and curators, and twenty-two separate collections of science, art and

industry, all directed to the mastery of nature's laws and the application of acquired knowledge to the arts of civilized life. For the study of chemistry alone there are ten well-equipped laboratories. "Who ever heard," ask the Commission, "of English chemical works so well provided?"

Is it not time we were giving greater heed to this subject of technical education? It is true that in some of the public schools some attention is given to drawing, but where are the schools of apprentices or the opportunities for boys to learn the use of tools? There are also some schools of technology, but these are not within the reach of the masses, from whose ranks the skilled workmen of the future should be drawn. We are as yet far from realizing what is due to the generation that is to follow us.

A Great Bronze Casting.

THE STEPS in the naturalization of a foreign industry in this country are always of interest. For many years monumental bronze casting was peculiarly a foreign art. Munich or Paris was called upon when statues of generals or other distinguished men were to be produced. Within a few years several bronze foundries have been started in this country. One of the most recent is illustrated here. It is of interest, as being in New York City, and as having recently been the scene of the heaviest bronze casting yet made in America.

The Union Pacific Railroad decided to place a bronze buffalo's head over the eastern portal of their new bridge at Omaha. The design was most fitting, as the crossing of the Missouri River signalizes the traveler's entrance into the old buffalo ranges, now unfortunately deserted, and deprived by death and flight of their former tenants. Mr Edward Kemys, Jr., of this city, was the artist selected for the work. His model, executed with great vigor and depth of cutting, represented the well known bison's head, adapted by its boldness of design to the elevation it was to be placed at. It is about nine feet high. Mr. Etienne Favy, was selected as the founder. His foundry, also in this city, is probably the best arranged in the country. He undertook the task of casting the great head in one piece, with the exception of the horns. These were cast separately. To obtain some idea of the intricacy of the mould and core the illustration of the great head should be consulted; the bold contour, with deeply sunken eyes and nostrils, and the surface of the head completely covered with curling hair, involving a great amount of undercut work.

The mould was made under the direct supervision of Mr. Favy. Two men's labor for three months was devoted to it. Probably as many as 1,200 pieces entered into the composition of the mould. Each piece had its own separate frame or backing of iron rods, forged to suitable shape and outline. When finished, it was taken to pieces and removed from the model, and again set up. It was next used for forming the core. This was made within it. Then piece by piece the intricate mould was again taken apart and withdrawn, leaving the solid core, itself a model of the head. This had to be reduced in size. Three days were devoted to carefully reducing it by paring off its surface. The object was to execute this work so as to leave a space of ¼ inch thickness for the metal to run in.

The mould with the core within it, leaving the space alluded to, was set up. The drying of the two parts was executed, not in the usual drying oven, but in the moulding pit itself. The Favy foundry is peculiarly fitted for heavy work, as, in addition to several crucible furnaces, it has a reverberatory furnace, on whose hearth several thousand pounds of metal can be fused in one heat. Directly in front of this furnace the casting pit was arranged. It was deep enough to receive the mould, with three feet or more to spare. Near its bottom several large grates were placed, and on them the fires were started to dry the mould and core. Flues led the products of combustion away from the pit. For ten days the fires were kept up. After this period, they were allowed to die out.

As the object was so large and intricate, it was decided to adopt the process of bottom casting. As will be obvious from the description, this secures the purest metal. A large, deep flask was prepared with clay lining of sufficient capacity to hold over six thousand pounds of metal. In its bottom two holes were made, which could be closed by plugs of iron. The plugs rose above the top of the flask and terminated in eyes, so that they could be simultaneously extracted. The two apertures correspond in distance apart with two openings in the top of the mould. From the latter a number of diverging gates or channels for the metal ran to all parts of the head. The idea was to place the metal reservoir solidly on top of the mould, to set the plugs in position, to fill it with melted bronze, and by withdrawing the plugs to allow the metal to run down through the gates into the space between mould and core.

This plan was carried out. The flask, lined with clay, was lowered upon the mould. Its lining, before the casting took place, was heated by a charcoal fire to avoid chilling the metal. Then, when

the plugs were solidly in place and all seemed ready, the reverberatory furnace was tapped and the melted bronze allowed to run into the reservoir. Three crucibles full of additional metal were added to the bath. These were plumbago or graphite crucibles, holding nearly four hundred pounds apiece. This gave a total of six thousand pounds of the finest bronze. The plugs were then withdrawn, and in seventeen seconds the white hot bronze had disappeared in the recesses of the mould. The entire operation of filling the reservoir and casting only occupied fifteen minutes. On that short period the success of the four months of labor depended.

For over ten days the casting was left undisturbed, so as to cool perfectly. It was then withdrawn from the pit, and cleaned with scratch brushes and washed over with ammonia. The horns were dropped into their sockets and screwed fast. The seam marking their junction with the head was calked or hammered, so as to be imperceptible, and the head was ready for its destination.

When it is remembered that no two important pieces are cast on the same plan, as modifications are continually required to meet the exigencies of the different shapes, the skill required to fill the pr-

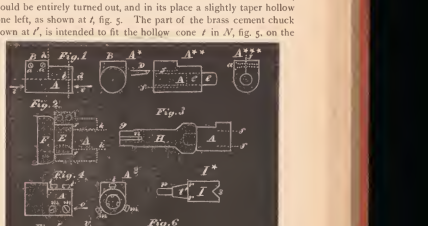
fession of a bronze founder can be realized. It is said that the practice of fifteen years is needed to train a man so that he can execute all kinds of work. A failure is irreparable. Small holes can be filled but if any large part fails in casting, the work must be begun again. This illustrates the responsibility involved in casting so large a piece. When cleaned it represents some four thousand pounds of metal, an excess of two thousand having been provided in the bath. In building and bracing the mould, and in all the appurtenances of the casting, metal, mould, etc., about sixty thousand pounds of material were used.

The casting was executed at the Favy Foundry, Forsyth Street, New York, on August 9, 1887.

Lathes and Lathe Work.

BY THE MODEL WATCHMAKER.

THOSE persons who use the smaller sizes of American lathes, frequently would like it very much if their split-chucks would take a larger piece of wire. With the arrangement shown in fig. 1, a piece of No. 1 Stubs wire can be run through the hollow spindle of a 1½ Whitcomb or Mosely lathe. It is very easily made, and comes in splendidly for turning punches for a Hall staking tool and a hundred and one other uses. We get a piece of hard, red bias cast from a wood-pattern shaped as shown at *A*, fig. 1. It should be about 1 inch long and ¾ of an inch in diameter at the dotted line *b*. At diagram *A**, is shown an end view as if seen in the direction of the arrow *c*, fig. 1. The piece *A* should be cast solid and drilled through the center on the line *d*, with a hole about $\frac{3}{8}$ of an inch in diameter, then insert the plug *e*, diagram *A***. The idea is the plug *e* is only temporary to enable us to fit up *A*. The plug *e*, where it protrudes as shown in diagram *A***, is cut into a screw, which goes into the lathe spindle where the ordinary wax chucks go. The plug *e* can be soft-soldered into *A*. Next the end of *A* at *B*, fig. 1, is turned out to fit the end of the latter spindle on the lines *f*, *f*, diagram *A***. At *E*, fig. 2, is shown the chuck end of an ordinary American lathe arbor; the part at *F* represents the dust-cover to the bearing. Usually the arbor *E* extends beyond *F* about ¼ of an inch, but if it only extends $\frac{3}{8}$, the hold of *A* on the spindle *E* will be ample. We turn out the end of *A* (diagram *A***), so it will just slide on *E*. To do this when we get as near to a fit as we can measure, then we take the chuck from the lathe spindle, leaving *A* fast to the chuck, as shown in fig. 3, when *H* represents the lathe chuck and *A* the piece we are turning out. We fit *A* very carefully to *E*, when we remove *A* from the chuck *H*, fig. 3, take out the plug *e*, saw about half through *A* on the line *h*, fig. 1. We next drill for and fit the clamp screws *a*, *a*, fig. 1 and diagram *A****. After these are fitted, we saw through *B* on the line *j*, diagram *A****. This last mentioned saw, kerf *j*, extends towards the kerf *h*, fig. 1, so that by means of the screws *a*, *a*, the chuck *A*, at *B*, grasps the spindle *E*, fig. 2, firmly. We now place the piece *A* on the spindle *E*, as shown at the dotted outline in fig. 2, and turn out the end of *A* to the lines *k*, *k*. The hole in *A* should be as large as will admit any wire which will clear the guide pin, which ensures the position of the chucks. I mean the pin extending into the slot *n*, in the chuck *H*, fig. 3. We turn the part of *A*, which ext nds outward from *E*, and file and fit the part at *B* nicely. If the dust-cap extends so far forward as to prevent our getting a firm hold on the spindle *E*, the dust-cap *F* can be removed for the time being. In placing *A* on the spindle *E*, the end of the spindle *E* should strike the shoulder formed on the lines *k*, when the screws *a*, *a*, can be firmly set up. We will need 6 grasping screws for holding the wire we are to turn as shown at *l*, *l*, *m*, *m*, fig. 4. In this cut, diagram *A**, is a view of fig. 4, seen in the direction of the arrow *o*. The only fault to find with this chuck is it is a little slow, but by properly manipulating the screws *l*, *m*, a piece of wire can be centered absolutely true. I give a cut at fig. 5 of an entire new chuck for cement or wax, which is a great improvement. It has always been urged against wax chucks, that if you once removed the brass cement chuck, there was no certainty of its going back after taking out, and having the hollow cone absolutely true. While this statement was undoubtedly true in an abstract sense, still, practically in many lathes, the brass cement chuck could be removed and replaced truer than three-fourths of the workmen would true the outer end of a job. The inventor of the chuck shown in fig. 5 is perfectly willing for any and all to make and use it. It is similar in appearance to the ordinary cement chuck, but yet is entirely different in principle of securing perfect accuracy. In making such a chuck, the ordinary steel chuck, which holds and carries, the brass cement chucks can be used by drilling entirely through the center from the bottom of the recess for the female screw, shown at *t*, fig. 5. This hole is shown at *p*, *u*, and should be about $\frac{1}{32}$ of an inch in diameter and topped at *p*, to allow the small end of the wax or cement chuck to screw in. At diagram *I** is shown a brass cement chuck of the new pattern. The thread of the female screw, into which the former cement chuck screwed, should be entirely turned out, and in its place a slightly taper hollow cone left, as shown at *t*, fig. 5. The part of the brass cement chuck shown at *t'*, is intended to fit the hollow cone *t* in *N*, fig. 5, on the



dotted line *v*. The theory of this chuck is, if the male cone *t'*, diagram *I**, exactly fits the hollow cone *t* on the line *v*, and the shoulders *r* of the brass cement chuck is brought firm against the end of the steel chuck *N*, the hollow cone on the line *z* must in all cases be perfectly true. The writer has had one in use for more than a year, and finds it all that is claimed for it. The writer ventured on a change, which is in some respects an improvement; as the brass chuck at *t* only touches on the outer edge on the line *v*, will, after a little, wear some so as to destroy perfect accuracy. For this reason I used the steel chuck *N* to my lathe, which carried the taper center, which had a hole already through it (*i.e.*, the hole *u*, *p*). I turned out the end at *t*, as shown. In fitting up the cement chuck, I turned a piece to fit my old cement chuck, and tapped a thread on it the same as an ordinary cement chuck, as shown at *x*, fig. 6. I now screwed this into my lathe spindle and carefully turned *t'*, fig. 6, to fit the hollow cone I had turned in the chuck I had turned out, as shown at *y*, fig. 6. I next fitted a long screw, shown at *T*, Fig. 6, and on the end *s*, I cut a thread, and drilled and tapped *t'*, fig. 6, to match. It will be readily seen that the screw *T* would draw *L* into place and hold it. I made *L* out of steel and hardened and tempered it; also the screw *T*. This course was taken more on account of the screws at *s*, *t'*, than for fear of the cones at *t* wearing. I then turned out the recess at the dotted lines *z*, fig. 6. The test is to put in an old staff in *L*, and turn a very fine pivot, say $\frac{1}{1000}$, then

remove *L* from *M* and put it back, and see if the fine pivot still runs true. It will do so, and you can turn *L* in *M* to different positions. The only objection is, it takes a trifle longer to put *L* into *M* and run in the screw *T*, than just to put an ordinary wax chuck into place, but the extra surety of superior accuracy pays for this. Flat-faced chucks, cone chucks, and all such fixtures can be fitted to *M*, using the screw *T* for all.

Repairing Swiss Watches.

SPEAKING of centers, another center made of brass is called the rounding-up center, and used for making pivots right lengths and rounding on burnishing them, says Henry Ganney in an exchange. It is simply a number of holes round a brass center, which has been filed sufficiently thin to allow the finest and shortest pivots to protrude; the holes must be of various degrees of fineness, and no more pivot allowed through than necessary, as the file or burnisher will break them off. Usually, the pinions to common Swiss works are very soft; this, though greatly facilitating their turning, when the work is large, becomes a troublesome quality as it gets fine; and it may be asserted that a fine pivot cannot be made from soft steel, as it will not stand the necessary pressure to turn or polish it to any degree of fineness, and no amount of finish can be displayed on soft steel, as it will not polish to advantage. In putting in a new third pinion, it is necessary to undercut the shoulder and leave a hollow in the pinion, or the oil may work into the leaves of the pinion and center-wheel teeth; before the wheel is riveted to the pinion, the balance should be put in to see if it is free, as in some calipers the circle intersects. The undercutting of the fourth pinion at the bottom pivot is also necessary to keep the oil in the sink, and the pinion left no higher than the little finger on a convenient part of the turns, and letting it move with the polisher, is an item in polishing pivots, the finger being used used to regulate the pressure of the arm and hand; the most troublesome pinion to pivot is the Geneva scape pinion, owing to its having no arbor. If a very thin and small brass ferrule is used, well chamfered to allow all parts of the pinion at its shortest to be turned, it may be opened to fit the pinion tightly, and the pinion driven in will hold sufficiently to pivot, or it may be fitted loosely, and shellac used to secure it to the ferrule. The value of good, pointed centers will be proved in pivoting this pinion, as it cannot possibly be done without them. The rivet should be well undercut and fitted to the wheel, or the riveting will raise a burr in the pinion where it acts in the fourth wheel; a few light blows must complete this rivetting.

Good bows being necessary compliments to good turns, the watch repairer cannot dispense with less than four, varying in length from 12 to 24 inches, and in strength from that sufficient only to make a balance pivot, with horse or human hair, without slipping on the ferrule when turning with a fine, pointed graver; and the others increasing in strength to what is required in turning barrel arbors, stoppings, and the larger drilling operations in watchwork; for the ordinary, every-day watch pivots and shoulders are sufficiently well finished with a cutting burnisher, one side of which is rubbed on a board or strip of lead charged with emery, as a few rubs on the small stone used by shoemakers to whet their knives for leather cutting is a handy substitute, and gives the requisite cutting power, and then a few rubs with burnisher, polished on a well-used burnishing-board, on which smooth emery has been distributed, will give a perfectly smooth and black pivot. The best English pivoters finish their pivots with the smooth burnisher in this way to harden them, though they have been previously highly polished with a soft steel polisher, which leaves the shoulder perfectly square and well polished. Using bell-metal polishers to finish, though putting on a higher gloss, destroys the squareness of the shoulder; the shoulders are protected from injury whilst burnishing the pivot by a small tissue-paper collet on the pivot, or by polishing the edge of the burnisher with a bell-metal polisher, and burnishing the pivot by moving the burnisher down (not up) the pivot as it revolves. Arbors are burnished in the same way, left from the steel polisher, and not too fine red stuff in preference to more highly polishing bell-metal, as a square shoulder on the arbor is a *sine qua non* in good pivoting, and a too highly polished arbor will not burnish, but rubs brown or foxy under the burnisher; facing and rivet tools are simply pieces of iron wire, a tin tack, or an old nail with a hole in it, in which the arbor fits loosely, and these being filed and charged with polishing crocus, the pinion is revolved against them with a very weak bow, until the requisite finish is attained; the finest finish on faces is got from a tool made from a horseshoe nail, the iron being a particular Swedish quality, and the hammering it receives in wear imparting qualities that cause the pivoter who finds one to prize it like a diamond; otherwise, a bell-metal tool to finish the face is necessary, but only to give a few finishing rubs, as it soon loses the flatness imparted by the file, and makes the face or rivet rounding: a very careful stroke of the bow is necessary, as only a back center is used, and the tool itself held in the hand forming the other center for the pinion to revolve in. The pressure of the hand is carefully regulated to insure a light and equal pressure; the progress of the face may be known by the noise the pinion makes; as it works the polishing stuff dry, it begins to sing or squeak, and this is the signal for ceasing operations. If all the parts of the face are well polished and the extreme edges as bright as the rest, it will do; if not, the tool must be refiled and fresh stuff applied, and the operation patiently repeated. More patience in this job is required than any other in watchwork, and though apparently most simple, and we may add the most unnecessary in watchwork, there are few who excel at it. The polishing of a square shoulder and pivot being a work of celerity, firmness, and skill, those who do the one often fail at the other, as shown by escapement makers, who make good pivots and bad faces to their one pinion, while the finisher as often as not produces better faces than pivots to his pinions. The repairer may emulate either or neither, but he ought to endeavor to replace old pieces with equally good, or consign the job to those who can. In large towns, he will not gain or lose much honor either way, his business being to get satisfactory performance from the watch, as a whole; but in putting in pieces to jobs, there are certain little numberless details that give success in action, and only the one who is responsible for the performance of the watch seems able to appreciate or develop them. This is why cheap, subdivided watchwork is a failure.

It happens sometimes that the cylinder pivots are bent, continues our author, an event which is of frequent occurrence, in the remedying of which some workmen have recourse to a pair of smooth pliers, made just hot enough to turn the color of the pivot to be straightened to a dulet; but in this class of work, it is rare to meet with a pivot so hard as to require this treatment. It will generally be sufficient, after filling the body of the cylinder with shellac, and at the same time fixing either a bone or brass ferrule, to use a bell-metal polisher on the Jacot tool, taking care to select a notch slightly larger than the pivot, which you have previously measured with the guage that accompanies the tool for that purpose. You will then use a smaller notch, finishing with a burnisher expressly made for this tool, and sharpened No. 1 emery stone, or emery of similar coarseness on zinc or lead block; the latter being the better material, the most convenient size being a square block about seven inches

long and one and one-quarter inches wide, got up true on each of its four sides. The burnisher should be put in a Swiss handle, similar to a pen-holder and nearly as long, fastened in with shellac or sealing-wax; it can thus be set perfectly straight with the handle. In sharpening, the block should rest against the front of the workboard, pointing from you, and plentifully supplied with emery and oil, mixed not too thickly; the handle held lightly in the right hand, and the first finger of the left applied on the top of the burnisher, the stroke should be from point to heel, lifting it from the block for the return stroke. For reducing a pivot, the burnisher should be cut on a No. 2 stone or emery of a similar grade.

Should a pivot be broken in this process, a new plug will be necessary; the removal of the old plug should be done by means of a punch, of a knee shape, resting the shell of the cylinder on a brass stake for that purpose; the stake should have a slight recess turned in it, just large enough to admit the cylinder, and the hole sufficiently large to admit the plug when driven out; a slight tap with a light hammer will remove the plug, and a new one should be turned from a piece of staff steel, which has been previously hardened and tempered, let down to a full blue color. The part which enters the cylinder should be perfectly parallel, not tapered, or the shell would probably be burst in putting it in; if you have a micrometer to measure it with, it is a simple matter. Having fitted the plug to the shell (it should enter about one-third of the distance it has to go), the center has to be cut off and the head made flat and polished; this can be done in the screw-head or balance tool; the portion which is to form the new pivot and arbor you will roughly shape before cutting off.

PIVOTING A CYLINDER.—The plug has now to be fixed in position in the cylinder; some workmen use a punch similar to the one used to remove the plug, only flat on the face, resting the shell of the cylinder on the punch, and tapping the plug in with the hammer; others press the plug in with the extreme end of a thin, flat burnisher, holding the plug in a vise or a stake for that purpose, the latter in my opinion being the preferable plan. The plug has now to be centered; you will use for this purpose a steel runner similar to the one used for rounding up the end of a pivot, but with larger holes; these should be loosely chamfered out, hardened and polished; the extreme end of the cylinder will work in one of these holes, which should be plentifully supplied with oil. The top pivot being protected by running in a brass runner, having a hole sufficiently large to admit the pivot freely, the shoulder taking the thrust, you can thus turn the extreme end of the plug true with the body of the cylinder. Having centered the plug, it only remains to turn the hollow and pivot, leaving the latter three degrees larger than it will ultimately be required, burnishing it down this amount first with the rough and then with the fine burnisher.

If the upper pivot is the one broken, it will sometimes be possible with a high cylinder to do without a new plug, by knocking out the old one sufficiently to allow you to turn another pivot on it; at the same time, this is not so good as replacing the plug with a new one, as the plug has a tendency to draw oil away from the wheel teeth. It will not be necessary to describe the method of replacing the upper plug, as it is nearly similar to the lower.

There is yet another way of replacing a pivot that is broken, viz: by drilling through the old plug and inserting a piece of steel somewhat larger than the shoulder of the old. The centering runner described when speaking of the new plug must be used, and a recess turned in the plug sufficiently deep to start the drill truly. Of course, before doing this, the cylinder is to be filled with shellac or sealing wax, to enable it to stand the pressure. Having turned the hollow sufficiently deep to bury the angle of the drill, the centering runner is to be removed and replaced with one having a hole in it to take a drill which, for this purpose, should be strong and short, and not relieved much behind the cutting part. If ground to cut only one way, and tapered in thickness to the point, it will work quickly and well. Although the plugs of Swiss cylinders are not very hard, it is not well to use oil to the drill; spirits of turpentine is the best lubricator for this purpose. The pressure on the drill which, when cutting, will be considerable, should be relieved at the return stroke of the bow; if the drill is sufficiently hard and not driven too rapidly, the drilling will proceed pleasantly. Having drilled the plug through, you will insert a piece of steel, previously hardened, tempered, and polished down to size, and not too taper, or a piece of a cutting pivot-broach may be blued and inserted. Previous to inserting, you will round up and burnish the end nicely, and any burr thrown up on the plug by the drill must be removed by a steel polisher and redstuff, resting it on cork, while doing so, to keep it flat.

The new piece can be tapped in with a light hammer; while resting the shell on a punch replace the shellac in the cylinder, and with the centering runner turn the extreme end of plug to a center. You can now proceed as described in making a new plug.

Gilding and Gold Plating.

Continued from page 320.

TEN parts of metalic gold correspond to about 18 parts of neutral chloride, or to 23 or 22 parts of acid chloride, such as is usually sold. Steel articles, after cleansing by alkalies, must be passed rapidly through a very diluted solution of hydrochloric acid, wiped and dipped into a very hot bath with an intense galvanic current at the beginning, which is gradually diminished by partly withdrawing the platinum anode. Small articles of steel, such as pent or watch hands, are threaded on a thin brass wire, and separated one from the other by glass beads. After cleansing, they are put into the boiling bath, rinsed, dried, and polished in hot and dry sawdust. It is preferable to give zinc, tin, lead, antimony, or the alloys of these metals, a previous coat of copper, or to begin the gilding in a hot gold electro bath, nearly worn out, and to scratchbrush the articles carefully. The gilding is completed in a new hot bath with a strong current.

PREPARATION OF HOT-ELECTRO GILDING BATHS BY THE PRECEDING FORMULA:

1. Put four-fifths of the distilled water into a porcelain dish or an enameled cast iron kettle heated over a charcoal stove, and dissolve in it, by stirring with a glass rod, the crystallized phosphate of soda. When this is entirely dissolved, remove the liquor from the fire, filter, if necessary, and allow it to cool off.

2. Place the gold in a glass flask, with

Pure nitric acid..... ½ oz.
Pure Hydochloric acid..... 1 oz.

Heat slowly, until the gold has dissolved, and then more rapidly to expel the excess of acid. There should remain a thick liquid of a blackish-red color. Remove the flask from the fire, and by cooling the contents form a brown-red crystalline mass. The cooling is important.

3. Dissolve in a porcelain dish, in half the remaining water, the bisulphite of soda and the cynanide of potassium.

4. Then dissolve the neutral chloride of gold in the remaining water, and pour it slowly, stirring with a glass rod, into the cold solution of phosphate of soda; add the solution of bisulphite and of cyanide. The whole liquor soon becomes colorless; the bath is then ready. If the chloride of gold were thrown into the solution of phosphate of soda while hot, there would be danger of a partial reduction of the gold in the form of a metallic powder. Many gilders substitute ordinary water for distilled water, and dissolve all the salts together, the chloride of gold excepted, which they add to the hot liquor. This method is certainly more expeditious, but the baths are never clean, and do not act with certainty.

The hot electro-gilding baths for small quantities of liquor are kept in porcelain dishes, but for large baths use enamel cast-iron kettles. The temperature may vary from 120° to 175° Fahr. Small articles, such as brooches, bracelets, and jewelry in general, are kept in the right hand with the conducting wire, and plunged and agitated in the bath. The left hand holds the anode of platinum wire, which is steeped more or less in the liquor, according to the surface of the articles to be gilt. Large pieces are suspended to wear more brass rods, and are not moved about. The gilding is very rapid, and sufficient thickness is obtained after a few minutes. The shade of the gold deposit is modified by the amount of the platinum anode dipping into the liquor. If it dips but a little, relatively to the surface of the articles, the gilding is pale; by immersing it more the shade will become deeper and deeper, until it is red. The platinum anode is connected by a conducting wire to the positive pole of the battery, and the conducting wire starting from the negative pole touches or supports the articles to be gilt. As a rule, it is preferable to replace the impoverished baths by fresh ones instead of keeping up their strength by additions of metal, especially for small articles. When gilding large pieces, maintain the strength of the baths by successive additions of chloride of gold, or, what is better, of equal parts of gold ammonium and pure cyanide of potassium. In this manner baths may be made to last a long time, but they are open to the inconvenience of furnishing a red or green gilding, if many articles of copper or silver have been gilt in them.

Articles of copper or its alloys should be perfectly cleansed, and may be passed through a very diluted solution of nitrate of binoxide of mercury. Silver requires to be heated, dipped, and perfectly scratch-brushed. For this metal the gilding should be strong, in order to prevent the corners and raised parts from becoming white and bare, and it is a good precaution to give it a coat of copper or brass, or a first gilding in an old bath.

REDUCTION OF OLD BATHS.

All the liquids which contain gold, except those in which there is a cyanide, are strongly acidulated by sulphuric or hydrochloric acids, unless they are already acid and then largely diluted with water. Precipitate the precious metal by a solution of sulphate of protoxide of iron, copperas, and, after a few hours' standing, it is ascertained that the liquor does not contain any more gold when a new addition of sulphate of iron does not produce a turbidity. The precipitated gold is in the form of a red and black powder; collect upon a filtre, wash and dry in an iron pan with weights equal to its own, of borax, saltpeter, and carbonate of potash. Gradually introgood the powder into a refractory crucible heated to a white heat in a duce air furnace.

When all is introduced, increase the heat and close the furnace, so that all the metal may fall to the bottom of the crucible. After cooling, extract the button of the pure gold which remains. If it is desired to dissolve the powdered gold left on the filtre in a *qua regia*, it will be necessary to wash it several times with diluted sulphuric acid, to remove the sulphate of iron with which it is impregnated.

This mode of reduction is adapted to an impure chloride of gold, to the baths by dipping with the bicarbonate or pyrophosphate of soda, and also to the ungilding acids; but it is imperfect with baths holding a cyanide, which never completely part with all the gold they contain, by this process. The best manner of treating the latter liquors is to evaporate them to dryness in a cast-iron kettle, and calcine the residue to a white heat in a crucible. A small proportion of borax or saltpeter may be added to aid the fusion, but generally it is unnecessary. The resulting button of gold at the bottom of the crucible is red when saltpeter has been employed, and green with borax, but these differences of color have nothing to do with the purity of the metal. Gold may be separated from liquors which contain no cyanide by an excess of protochloride of tin, which produces a precipitate easily reduced by heat. Sulphurous acid will also reduce the gold, but in this case the liquor should be heated.

Granulated gold is obtained by running the molten metal in a small stream, and from a certain height, into a large quantity of cold water.

(THE END.)

Prize Essay on the Balance Spring.

[BY MORITZ IMMISCH.]

Continued from page 315.

THERE are those who are not satisfied simply to know what is to be done to procure isochronism, but are desirous to learn upon what principles these manipulations are based, why a change of form should procure isochronism, and why did it not exist before the change; and upon this important point it must be confessed that general knowledge is certainly deficient, not only among watchmakers, properly so-called, but also among a considerable portion of those who have made springing and timing their specialty. Isochronism is a very intricate and complex topic in itself, but the difficulties in the way of mastering the subject have certainly been increased by the manner in which some writers have treated it.

When an opinion assumes the form of an authorative dictum, without being based upon and borne out by unmistakable facts, it is very apt to mislead the student, waste his energies, and discourage further investigation.

One of these so-called principles is the prevailing idea that isochronism solely depended upon a certain length of the spring; that too short a spring made the small vibrations slower than the long, and too long a spring caused the watch to lose in long vibrations. This is so far from being correct, that sometimes in the case of a very long flat spring, it is a matter of the greatest difficulty to make the long vibrations slow enough to arrive at isochronism, while a shorter spring offers more scope for any manipulation to that end. Everyone with some experience in timing, knows that more length has absolutely nothing to do with isochronism, and if, nevertheless, we frequently meet this assertion in books on watchmaking, it proves that it was simply copied from other books without having been tested by the writer.

Another very general idea is that isochronism is an inherent property of the balance spring. This is also incorrect, and to assume that, because by means of the spring isochronism can be arrived at, the conditions constituting isochronism must be looked for in the spring, is not quite, but nearly as wrong as if anybody were to assert that, because licorice cures croup, the conditions constituting croup must be looked for in the licorice.

I have already mentioned the difficulties Curuning, nearly 100 years ago, experienced in accounting for the different performance of springs when in connection with different escapements, and the very natural and sensible conclusion he came to; and, although escapements of the present day are far superior to those of that time, there still exists sufficient difference between them to make it a matter quite out of question, for instance, that a balance and spring perfectly isochronous while attached to a chronometer, should retain it is quality when attached to a lever escapement, unless it was by the merest chance, viz.: if the chronometer was badly constructed and the lever escapement in a state of perfection, the difference being so proportioned as to make the sum of friction in the one amount exactly to that in the other, otherwise, and under ordinary circumstances, the balance spring perfectly isochronous in the chronometer would be sure to perform the long vibrations quicker than the short ones in the lever watch; but it is not at all necessary to bring the balance and spring in connection with different escapements in order to prove that the resistance in the escapement modifies the isochronal conditions, as carefully conducted experiments with one

and the same escapement will show that every increase and decrease of friction affects the motion of the balance in long and short vibrations more or less sensibly.

A still greater factor in this respect is the balance itself; and before I consider it in its relation to isochronism, I think it advisable to make some personal remarks concerning it.

When a balance without a spring is brought into connection with a chronometer escapement and turned in the direction of unlocking, the escapement will cause it to revolve it around its axis. There is first of all a certain amount of force required to overcome the inertia appertaining to all bodies of rest; this *is a dead loss* and irrelevant as this may seem to many who have applied themseves to the study of the laws of isochronism, there will also be those who, by influence and actual observation, have found that great importance attaches to this point, and that it bears directly upon the subject of isochronism, as will appear hereafter.

The impulse given, the balance revolves round its axis with a speed greater or less, according to the greater or less proportion the propelling power bears to the resistance to be overcome; after a whole revolution it presents itself to another impulse and arrives at this point with a velocity somewhat less than that with which it started, the loss arising from the friction of the pivots, the resistance of the air, and the unlocking of the escapement. To this velocity another impulse is added, which causes the second revolution to complete itself much quicker than the first; the diminution of speed, caused by the retarding influences already mentioned, is now much less apparent, as the greater momentum acquired by the balance enables it to overcome them easier, and soon the balance acquires so much force of its own as to leave no perceptible trace of lessening of speed between the commencement and the end of each revolution. This is, however, under the presupposition that the balance is of some considerable weight and diameter; different balances will behave very differently in this respect; a more substantial one has a greater capacity for retaining and accumulating any force transmitted to it, and will consequently exercise a greater controlling power over the impediments in the way of uniform motion.

In all cases, as impulse is added to impulse, the velocity will go on increasing until a maximum is reached, where the speed remains stationary. After what has been said, it is evident that a slighter balance, owing to its more yielding nature, will arrive at this point of uniformity sooner than a more substantial one; but, irrespective of the time required by different balances to arrive at this maximum state of velocity, that state itself is determined not only by the sum of the various influences, already mentioned, but also by the inertia of the escape wheel and train, which has first to be overcome by the motive force, causing a loss of time.

This loss is of no importance when the motion of the balance is slow, as the acting tooth of the escape wheel will either come in contact with the pallet as soon as the latter has fairly entered the circle of the former, and the balance receives the full benefit of the impulse as it is acted upon through the greatest possible arc; but as the velocity of the balance increases the pallet will enter the circle of the escape wheel quicker and will have proceeded farther in it before the sluggishness of the escape wheel and train has been overcome, and in proportion as the "drop" increases, the effectiveness of the impulse decreases, until at length it is counterbalanced by the above-mentioned retarding influences, and the motion remains stationary. It may be as well to mention here that in the case of the maximum speed, the resistance of the air is a more important retarding agent than when the motion is slower, as it increases in the ratio of the squares of velocity.

All the conditions determining the limits of the various influences acting upon the simple motion of a balance, remain in full force when this balance is connected with a spring.

In the case of a *vibrating* balance the number of the conditions is naturally augmented by circumstances originating with, and various properties appertaining to, the spring.

When any external pressure is brought to bear upon a spring changing its form in any direction whatever, this change invariably implies a shifting, a displacement of the relative position of the infinitely minute atoms composing it.

The spring contracts on the side toward which it is bent, compressing the particles of the material into a smaller compass, and expands on the other; the particles in the center of the spring only retaining their relative positions. Within certain limits this displacement is only temporary; the pressure ceasing to act, the cohesive power of the particles causes them to re-occupy their original relative positions exactly, so that no trace is left of any change of form. If these limits are overstepped, they will only partly re-occupy their former position, and a permanent change of form is effected. It stands to reason that the greater or less thickness of the spring greatly modifies these limits. If a thin spring is bent to a certain angle the extreme contraction and expansion of the particles furthest from the center will be less than when a thick spring is bent to the same angle of inflation.

These limits are also modified by the degree of hardness possessed by different springs; being smaller with softer and greater with harder springs. The force with which the spring returns to or toward its original condition and shape, after having been forced out of it, is called the free elastic force. This free elastic force is in all cases somewhat less than the force employed in its tension, or, what is the same thing, somewhat less than the resistance which the spring opposed to the bending force.

The more the minute corpuscles composing the spring have to be displaced, in order to bend it, the greater this loss will appear.

If a balance is connected with a spring, it strikes us at once that the spring enters the list of those influences which are opposed to the motion of the balance, and it appears here as a very powerful factor, inasmuch as the effect of a single impulse, or the sum of a certain number of consecutive impulses is much sooner absorbed with it than without it. If there was no impulse power absorbed in bending and unbending, if the recoiling force of the spring amounted exactly to the force employed for tension, a spring balance would vibrate just as long as the same force would cause it to revolve round its axis, subject, however, to this qualification, that by the action of the spring the side pressure on the pivots is somewhat increased, which certainly assists to bring a vibrating balance sooner to a standstill; but this influence of increased friction, imported as it is in other respects, bears only a small proportion to the loss occasioned by the change in the granular condition, which may be imagined as a kind of friction within the spring itself. This loss of force also varies slightly with the degree of hardness; being greater in softer, and smaller in harder springs. The force so lost to motion seems to be active in destroying the elasticity of the spring. In very thick and soft springs this diminution is so rapid that sometimes a few years' use will cause such a difference of elastic force as to necessitate the re-springing of the instrument.

A vibrating balance has many points in common with the pendulum of the clock. As a pendulum gradually increases its arc of oscillation till it has accumulated all the force the motive power can impart, and till it is counterbalanced by the force of gravity which also accumulates, so do the vibrations of a balance increase till its acquired momentum is counterbalanced by the resistance which the tension of the spring opposes to a further increase of gyration. Although the force of gravity, which causes the pendulum to continue its oscillation, is of uniform intensity throughout, while the force of the balance spring differs in all points of the vibration, this dissimilating does not prevent the two respective motions from being considered as identical in this respect, inasmuch as the *sum of force* in a spring coincides with that which actuates the pendulum.

(*To be continued.*)

Gold Ornaments from United States of Colombia.

[Read at the New York Meeting of the American Association for the Advancement of Science, Buffalo Meeting.]

GEORGE F. KUNZ.

THIS series of gold ornaments, kindly loaned me for description by Mr. S. L. M. Barlow and Mr. J. M. Muñoz, as found on the banks of the Mingindo river, a tributary of the Artato, in the state of Cauca, United States of Colombia, South America. With them were also found a number of plain undecorated nose rings that weighed 6, 10, 34 and 38 dwts respectively. With one exception required, by means of two small holes near the upper part. The general appearance of the ornament is that of an attempt at a moon-like face, and the style of workmanship does not vary much from that of the gold object No. 2 from the Florida mound described in a former paper. There are three raised ridges or lines around the shield, that bend and geniculate, as it were, at the upper end, running down the center of the shield very nearly to the two raised rings with central dots that seem to have been intended for eyes. Another raised ridge runs around the outside of all these, the raised disk in the center seeming to be the point from which they take their direction. This interesting piece belongs to Mr. S. L. M. Barlow.

A banker of South America informed Mr. Barlow that he had purchased full one hundred of these shield-like ornaments simply for

GOLD ORNAMENTS FROM UNITED STATES OF COLOMBIA.—DECORATED PLAQUE.

these nose rings were all about 920 fine. The only history coming with them was that they were brought in by a negro woman who had found them in a grave and who sold them for their simple gold value to the person who brought them to the United States. The largest is a decorated plaque ornament measuring 7 9-16 inches (20 cm.) across and weighing 5 oz., 13 dwts (193 grammes). See Fig. 1. It was evidently used as a breast ornament or as the center of a shield, being attached with nails or suspended by a string as the case their bullion value, and then melted them and sold them as such, and that of all these no drawing or record had been kept. The abundance of these and other gold ornaments which have for nearly three hundred years been taken from this part of South America, cannot but lead us to conclude that the time when they were worn was truly a golden age.

The nose ring is a beautiful piece of aboriginal work, weighing 26.5 grammes, 17 dwts. It is 3¾ inches (83 mm.) long, 2 1-10

inches (52 mm.) wide. See Fig. 2. The ring can be readily bent on one side, and then adjusted to the nose, and in a semicircle below this are arranged four rows of a woven, gallery-shaped net work of gold wire, between which and the outside of each of the galleries are three straight wires of gold to which the galleries are attached. On the top of this semicircle, on each side of the ring to fit in the nose, is arranged a row of three figures made of a single

SHIELD-LIKE ORNAMENT FOR THE NOSE.

piece of gold wire skilfully twisted into shape. The center figure of the trio is a human-like object with each arm extended out and joined to the bill of a duck-like object, there being one group of these figures on each side of the central ring.

A flat plate of gold found among these objects, 7 cm. wide (2 ¾ inches) and 12 5 cm. long (5 inches) is only a remnant of what was originally a belt long enough to encircle the waist. It is quite thin,

PORTION OF WAIST BELT.

bends readily, and is wholly devoid of ornamentation. See Fig. 3. A number of practical silversmiths who have examined it believe that it was rolled, in fact that it could not have been made in any other way, but a gold worker suggested that it might have been beaten out between two pieces of leather. How this could have produced so even and uniform a strip, and by what means they rolled it, if indeed they did, are not known.

A curious chain is also in Mr. Barlow's possession. It weighs 8 ounces 18 dwts (89 grammes), is over two feet long, and is composed of crescent-like pieces with round eyelets at both ends working in small round links by which they are connected together without the use of solder, forming a very strong chain.

PORTION OF GOLD CHAIN.

An interesting gold ornament from the United States of Colombia, evidently used for a brooch with a raised figure of the virgin and child, said to be eighteenth century work, was identical in workmanship with Fig. 2.

Electrotyping, and Molds for the Same.

ELECTROTYPING is the generic term used to designate the class of galvano-plastic deposits, which are sufficiently thick to form a resisting body, and which may be separated from the object serving as a mold, and which, when so separated, will retain the form and dimensions of the model. This definition will serve to distinguish this class of deposits from those to which the term "electro-

plating" is given. The last are comparatively thin, and are designed to be adherent to the surface on which they are deposited. The term "electrotyping" is often used in a limited sense to refer to the reproduction of typographic work (letter-press, engravings, etc.), but properly speaking, it should be made to include the galvanoplastic reproduction of objects of every description, and in this sense we employ it here. In electrotyping, the metal usually employed is copper, for a number of reasons. It is cheap; it is deposited with great ease and certainty from its solution; it forms a tough and malleable deposit, that requires no annealing; and, as it may be perfectly cleaned in the wet way, it can be gilded or silvered, should this be desired.

To prepare the electrotyping bath, proceed as follows: Select a vessel of suitable size for the intended operation. This should be of glass, stoneware, porcelain, gutta-percha, or other material which will resist the action of sulphuric acid. If of wood, it should be thoroughly coated with an acid-proof varnish, such as gutta-percha or asphaltum. Into this vessel introduce sufficient water for the operation, and to this add from 8 to 10 per cent. of strong sulphuric acid, or say from 6 to 8 volumes of the acid to 100 of water. Pour the acid into the water (*not* the water into the acid, which is attended with great hazard) in a thin stream, stirring the water constantly, so that the acid may be slowly and uniformly mingled with the water. If it be poured in suddenly, so much heat will be generated that a glass or porcelain vessel may be broken, or gutta-percha and varnish melted; so that the precaution to add the acid slowly, in small quantities at a time, and with constant stirring, is necessary to avoid accidents. This acidulated water must now be saturated with sulphate of copper, which is the salt universally used for electro-plating.

The simplest way to accomplish this is to provide a bag of cloth or hair, or, best of all, a perforated cage or box of stoneware or gutta-percha, which should be filled with crystals of the sulphate of copper, and suspended by any suitable means from the top or at the side of the vessel, so that its contents shall dip into the acidulated water. With this arrangement the bath soon becomes saturated with the copper salt. As soon as a portion of the liquid has become saturated with the copper salt, its density is increased, and it flows downward, a lighter layer takes its place, and, becoming saturated, sinks in its turn, and this circulation continues until the entire bath is saturated. In this condition the bath should mark 25° of Beaumé's hydrometer. This addition of sulphuric acid to the electrotyping bath is made for the reason, principally, that it adds considerably to the conductivity of the solution; it likewise greatly improves the quality of the copper deposit, which, without its presence, is disposed to be granular and brittle, and is deposited slowly.

The selection of the molding material will depend on the character of the object to be copied. For many purposes, plaster of Paris is the most suitable. It is most convenient for taking casts from plaster of Paris itself, from stucco, marble, alabaster, metals, and wood. In taking a mold from a medal, for example, the surface of the medal is first thoroughly blackleaded, to prevent the adherence of the plaster and to insure the perfect separation of the metal and plaster surfaces. Then wrap round the rim a stiff piece of paper or cardboard, or lead foil, and attach it in such a manner that the face of the medal to be copied forms the bottom of the receptacle thus formed. Then sink this box to some distance in fine sand, which will prevent the flowing away of the semi-fluid paste around the joint. Then mix with a sufficient quantity of water enough fine plaster to form a thin paste. Take up a small quantity of this with a pencil or brush, and spread it in a thin film smoothly over the face of the medal, then pour on the remainder of the paste up to a proper height, and allow it to set.

After a few minutes the plaster gradually solidifies, becoming heated as it sets. When it has set quite hard, remove the surrounding paper, scrape off with a knife what has run between the paper and the rim of the medal, and with gentle effort separate the plaster cast from the medal. It must then be rendered impervious to the liquid of the bath by dipping in melted stearine. For this purpose, a groove is cut in the rim of the mold to which a brass or copper wire is attached, and the plaster cast, previously dried, is dipped into the bath of melted stearine kept at a temperature of from 175° to 212° Fahr., where it shall remain until all evolution of bubbles has ceased. When it has become nearly cold, it is dusted with the finest plumbago, and allowed to cool off entirely. Then, after breathing on it, it is thoroughly rubbed with a brush covered with plumbago until the surface has become completely black and highly lustrous. This surface should then be "metalized" by dusting on it fine iron filings, pouring over them some sulphate of copper solution, and passing over the surface with a soft brush until every portion exhibits a bright, copper color, or by the use of metallized plumbago, which is prepared for the purpose. Thus prepared, the mold is ready to be placed in the bath to receive the deposit.

Other molding materials are stearine and wax, which are melted and poured on the medal when about to congeal. The surface of the medal is blackleaded as when plaster is used, to prevent the adherence of the stearine. The subsequent operations are substantially like those just described. The same remarks apply to wax. The above named substances are employed for obtaining molds of objects, the surface of which present no deep curves or undercut parts, which would prevent the separation of the original and the mold. For such objects, a material must be employed which will have sufficient flexibility or elasticity to permit of being withdrawn from such undercut or highly projecting parts of the original, and which, when so removed, will retain their original position. For this purpose, gelatine is employed almost exclusively. It is prepared by dissolving 20 parts of best gelatine in 100 parts of hot water, adding one-half part of tonsic acid and the same quantity of rock candy. This mixture is poured hot in the model, prepared as before. This mold is "metallized," and is then ready for the bath.

Gutta-percha, softened by hot water, becomes plastic, and in this condition may be kneaded. It may be applied directly to objects to be copied, and yields molds of admirable sharpness. On the commercial scale, this is usually done with the aid of a press.

Fashions in Jewelry

A Lady's Rambles Among the Jewelers.

Not only are London jewelers jubilant over the encouragement given to the wearing of jewelry *ad libitum* again, by the Princess of Wales, but French manufacturers and Americans join in the general rejoicing. There remains not a doubt but that Her Royal Highness has set the style on the other side of wearing gems of one kind or another on all permissible occasions, and that every lady of fashion, in both London and Paris, is cheerfully following her example. The results of this encouragement are obvious to even a casual observer. Side by side with the new things brought out for the autumn and winter trade by American manufacturers, are a profusion of imported novelties, including the revivals of styles long lost sight of, such as Oriental jewelry simulating Indian workmanship, the Hungarian style of jewelry, the mounting of valuable uncut stones, and jewelry in the Etruscan style.

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The recent importations include large Norman crosses, chevalier rings, chatelaines in the style of Louis XVI., antique watches, tortoise shell Spanish combs set with gems, sets of two or more puff

curl combs, brooches imitating the Scotch thistle, chatelaine bags of old Dutch pattern, lockets and *porte-bonheurs* in Roman and Grecian styles, and so on throughout an innumerable list of personal adornments, as well as choice bric-à-brac and table ware.

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THE tiny puff curl combs of tortoise shell are out in gold and silver tops. Their straight tops are finished in filigree or frosted work set with a row of small brilliants or other gems. These little side combs are by no means relegated to old ladies for holding in place finger puffs and gray curls, but are all the rage with the youngest and fairest of the sex, who place them in the *coiffure* wherever individual taste suggests. Two or three pronged combs of tortoise shell, headed with curved and twisted designs, or else with miniature copies of the colonial high-backed combs, are other novelties in this line. A new hair pin, brought out in silver by a leading New York manufacturer, is in form of a silver coil terminating at one end with a tapering pin and at the other end with an enameled daisy. This pin, when run through a loose knot of hair, shows here and there its slender silver stem, the flower being, of course, the chief ornament.

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IN modification of the Oriental style is the "Theodora" bracelet, originally made by a Paris jeweler for Sara Bernhardt. This is massive and heavy in effect; it is of red gold and shows in its ornamentation a combination of enamels and colored gems.

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SILVER anchors, introduced abroad at the time of the Queen's Jubilee, have been made here to serve as brooches and charms. Some seen recently were perfect copies of yachts' anchors in every detail. As yet, the anchor is more popular as a model in New York than is the old-time cross, but few of the latter have appeared in stock.

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FROM Paris come sets of two pins with which to fasten the high standing collars so fashionable just now on ladies' tailor dresses. One of these pins is in circular form and either decorated with chasing or gems, while the second pin is a simple, plain bar.

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FLOWER jewelry is, if such a thing is possible, more popular than ever. The consequence is a bewildering variety of all-gold jewelry in floral patterns, as well as enameled flowers in both gold and silver. Brooches that simulate a single flower, especially when set with a diamond in the center, are exceedingly fashionable; there also remains a demand for clusters of small flowers.

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THE daisy, for some reason, continues in high favor, not only as a model for ladies' brooches, but men's scarf pins as well. These daisy pins are often enameled in nature's own colors, with the heart of the flower simulated by a yellow diamond.

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THERE is not the slightest diminution in the favor with which the miniature paintings and limoge enamel pictures are regarded for mounting in brooches, bracelets and pendants. It is a difficult matter to decide which is preferable as settings for these little art treasures, gold or silver, when they are not encircled with diamonds or pearls.

Now that chatelaines of all descriptions are again in demand, decorative silver watches have come to be a prominent feature, and the result is a wide diversity of styles. In the new watches are represented many antique as well as quite new patterns. Etching appears on some of the cases, engraving on others, enamel, gems, gold rosette work and gold wire work on the others. A decidedly attractive effect is gained on a surface enameled in a plain color and overlaid, either with gold rosette or gold wire work. Decided novelties are silver watches in form of a frog, a crab or a lizzard.

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THE emerald is again much sought after by ladies abroad; the fact that emeralds are scarce and costly tends to enhance the desire for fine specimens both at home and abroad. Rubies are exceedingly fashionable; indeed, so are all gems of pleasing color. Pearls are in demand, especially for earrings and necklaces.

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RINGS of almost every conceivable style are worn. Men, especially young men in New York, affect oddities in way of silver finger rings, as indeed they do of silver watch chains and watches. Signet rings are much worn by men. In ladies' rings, single stone rings, clusters, marquise and line rings are found among leading styles in gem-set ornaments. There also continues to be a fair patronage for all sorts of fancy rings set with small gems.

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THE moonstone, which had such a successful run in silver jewelry last season, is likely to prove equally successful during the season to come, in gold jewelry. Fine stones, elaborately engraved, serve as the central gem to pendants and brooches, and are usually encircled with diamonds.

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ALL colored stones remain fashionable. Just now garnets of choice color are in considerable demand. Perhaps the fact that Mrs. Cleveland is the possessor of an unique garnet set may have enhanced the value of the stones somewhat.

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SAPPHIRES and rubies are all the rage. The former, surrounded by brilliants and mounted on a slender gold wire setting, are much sought after for finger rings. The sapphire also figures conspicuously in marquise and cluster rings.

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SILVER girdles are out in new and pleasing patterns. Many of these borrow ideas, when not actual copies, of the Orient, and are decidedly barbaric in effect. Enamel in dark red, green and blue shades figures in the decoration of many of these girdles, as do moonstones, garnets and mexican opals.

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SILVER belts divide favor with leather ones, decorated by silver buckles and trimmings. Some of the belt buckles are decidedly effective, as, for instance, those carved in dull silver fretwork and enclosed in a square frame of Rhine stones.

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THERE are any number of novelties in way of buckles for ladies' garters and men's suspenders that will tickle the fancy of the holiday

shoppers and searchers after something new for birthday and other souvenirs. The garter buckle, with new attachment that allows the garter to be slipped over the foot without unclasping the buckle, is a welcome contrivance.

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Some of the new suspender buckles are enameled, while others are studded with gems. Of special interest to men is the new necktie fastener, in silver, with a pin attachment.

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There is quite a fancy again for silver pencil cases and pen holders. A novelty is the English pencil case, which presents a pen holder at one end and a receptacle for an ordinary lead pencil at the other. Some of the English pen holders disclose a little letter opener at one end instead of the pencil.

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Cigar cutters, designed to wear as a charm, are engraved and set with stones. The compass adds another charm quite popular for the watch chain.

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Lorgnettes framed in *repoussé* and etched silver are in big demand, as are the lorgnettes in silver cases. Opera glasses in silver cases are equally fashionable and will figure conspicuously this season at all places of amusement. In this connection it may be well to tell that glove colognes and vinaigrettes show new and pleasing designs. A glove cologne in silver, seen recently, simulated a paint tube, and afforded at the same time an exceedingly convenient and unique trinket. Another glove pungent seen was in shape of a powder horn.

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Effective chatelaine bags of velvet and plush, also leather ones finished with silver trimmings in old Dutch patterns, afford new old styles from which to make selections. These bags have already proven exceedingly convenient arrangements on shopping expeditions, and bid fair to have a long run.

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In ladies' pocket books the newest style is the medium long, narrow leather one, slightly curved at the bottom so as to render it convenient to clasp in the hand. These pocket books are trimmed with pierced work in silver, and are an improvement in every respect on the long shapes as first introduced.

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Silver articles for writing desks abound: there are silver rules, mucilage bottles in *repoussé* work, silver stamp holders on the principle of the old coin holder, etched boxes for holding pens, cut glass ink bottles in silver stands, letter weights, etc., etc. Writing pads, portfolio and other leather goods are out ornamented in pierced work in silver, which is very effective.

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Numbered with toilet articles likely to please everybody, are the new pin-cushions in round, oval and other shapes, which open and disclose a silver powder box, or jewelry case. Silver cases for court-plaster are now made with folding scissors attached, a convenient arrangement. Silver boxes, copies of richly carved old Nuremburg cases, are offered as bon-bon boxes, hair pin receptacles and trinkets. Little pocket pin-cushions that are having a big sale represent a daisy or other flower, in silver, enameled, the cushion part being neatly sandwiched inside the flower.

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For travelers have been provided many conveniences, among which may be cited silver folding cups enclosed in a case, in the top of which appears a compass. Then there are silver cases for tooth brushes, boxes for soap, and woven silver chain bags for sponges, lined with oil-silk. Match safes, liquor flasks and the like, in silver, show new patterns and are some of them etched in suggestive designs.

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Walking sticks and umbrella handles out for the fall trade prove that silver finish of one kind or another remains in favor. Natural crooks and crutches of wood or buckhorn, covered with silver deposit, remain one of the leading styles. It is quite the fashion this season for gentlemen to have sticks brought home from their summer expeditions, mounted to order. In some cases the patron draws his own design, or if he be of a mechanical turn of mind, he carves the top of his stick and has it covered with silver deposit.

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The novelties now being shown in the retail houses, in silver table ware, bric-à-brac, etc., are numerous enough to require a volume for detailed description. Only a hint or two about some of the things that are attracting especial attention can be given here. Silver-mounted glassware, Doulton salad bowls and claret jugs are out to meet an increasing demand for these articles. Cameo glass, which heretofore has been reserved for purely decorative articles, is now made in pepper and salts, salad bowls and the like, with silver trimmings. These articles clearly indicate the tendency to combine silver and glass, and silver and porcelain, again in one article.

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The new spoon patterns are legion. Every manufacturer of any prominence at all has added to the list. Included among the new spoon patterns that give promise of great popularity are the engraved patterns christened "Laurel" and "Hawthorne;" the etched pattern introduced by the names "Clematis" and the "Old Masters" pattern. The designs wrought on the first three are designated by their names. The remaining pattern is the happy result of a clever conception to reproduce in silver correct likenesses of the old masters for the decoration of the tops of the pieces. This enables one to sip soup from a spoon the handle of which terminates with a silver statuette of Rubens, to eat fish with a fork on the end of which is mounted a miniature bust of Michael Angelo, and so on throughout the various courses, keeping close company with those grand old masters who contributed much toward the success, not only of modern workers on canvas, but workers in the precious metals as well.

Elsie Bee.

Watch Repairing.

WATCHMAKERS will continue to repair the fourth pinion as long as it can be repaired, says Mr. Ganney, although in many cases it will not only be better but quicker to replace it with a new one, and I will briefly describe the method of working in a new fourth pinion.

Having selected a pinion of the correct size for the third wheel, and fixed to the long arbor an old screw ferrule, cut a thin boxwood

slip to a thin edge, and with rather sharp redstuff and oil proceed to polish out the leaves, resting the pinion on a hard cork or piece of soft wood. The screw ferrule on the arbor enables you to press the first finger of the left hand against it, and thus the pinion is held while polishing; the natural elasticity of the cork or wood allows the pinion to give a little to the motion of the polisher, thus keeping it flat. The leaves having been polished out with wet redstuff, and finished with fine stuff or diamantine, the truth of the leaves can be tested by running in the turns. (Should the centers of pinion not be perfect, they must be made so before trying it, by turning through a runner.) Should the leaved portion or pinion on trial prove out of truth, it must be corrected in the following manner, at the same time I may caution those whose experience in the work is not great, that pinions are occasionally met with which it is impossible to get true, owing to one or two leaves being cut deeper than the rest from some fault in the cutting engine; such should unhesitatingly be rejected as useless.

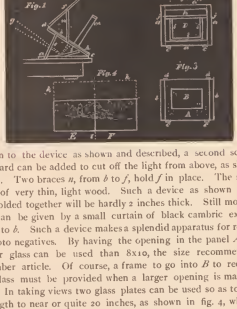
If, while the pinion is in the turns, a piece of soft lead pencil is held on the rest so that its point just touches the top of leaves, those that are furthest from the corner will be marked, thus forming a guide for the correction of the arbor. The *marked side* of the arbor being placed *downward*, in contact with either a soft steel or brass stake, the upper or hollow side can be stretched by a few light blows from the pane of a small hammer; the blows should be distributed at equal distances over the arbor, and, as these pinions are usually rather soft, some care is required not to overdo it. Having by this means straightened the leaves to run true, the arbors can be shortened to little more than the ultimate length of the pinion, and the centers turned true. Previous to commencing to work in the pinion, some little alteration is necessary to the following points: In some watches the banking, instead of being against a steed in the cock, is against the arbor of the fourth wheel; in this case the diameter of the arbor is of importance, as if too small and the watch caused to back by external agitation, the pin would jam against the arbor of the fourth wheel and stop the watch. Again, in some calipers of movements, the fourth pinion head comes close to the plane of the balance, and in some positions, if the pinion head is too high, or from excess of endshake the banking pin touches it, forming a cause of stoppage rather difficult to detect sometimes.

The old pinion being removed from the wheel, all the measurements can be taken directly from it. The first thing will be to turn down the leaves to form a seat for the wheel, measuring the height from the pinion face. Care must be taken in fitting a pinion to an old wheel that the leaves fit into the marks made by the old pinion, otherwise a difficulty will be found in securing the wheel. Having fitted the wheel try its truth in round in the turns, and, if untrue, shift its position on the pinion until it runs quite true, then mark the wheel and a leaf of pinion, so that its position can be found again. You will now shorten the leaves, leaving just sufficient to rivet soundly. If too much is left to be riveted the pinion face will be bulged and split. If the leaves project the thickness of a sheet of paper (10 millimeters), it will be sufficient (if the wheel fits properly) and should be but slightly undercut to insure a sound rivet. You will now rivet on the wheel, using a steel or bell-metal stake to support the pinion, and a polished steel punch of a size that fits just freely over the arbor. A piece of tissue paper between the face of pinion and stake will protect it during the rivetting, and if care is taken to shift the wheel a little every blow, the wheel will be secured true and flat. The face of rivets can be turned flat and glossed and the hollow cut. The arbor should now be turned to size, leaving a slight shoulder close to the wheel to prevent the polisher coming in contact with it. The arbor can now be polished, burnished and the position of the upper pivot shoulder marked on it, measuring from the pinion face with the tenth measure. The pivot being turned down to within three degrees of its proper size, the pinion can be reversed in the centers and the seconds pivot turned down, its position being fixed by measuring from the upper pivot shoulder. The pivots being smoothed with red stuff are burnished on the Jacot tool to size, leaving only the rounding up and turning off the extreme corners to complete the work. I may remark that the size of hollow necessary in the pinion face is regulated by the length of shoulder there is. Where this is extremely short, a hollow of considerable depth and breadth is required; on the other hand, where the shoulder is of considerable length a small hollow will suffice.

Free Hand and Mechanical Drawing.

BY EXPERT.

THE ARRANGEMENT for copying outlines mentioned in September issue of this journal is shown at fig. 1. It consists in part of a frame of wood 15x20 inches. This frame should be made of a strip of board 2 inches wide and about 1 inch thick, joined by halving at the corners. Such a frame is shown at *a a a a*, fig. 2. Attached to this frame by 2 butts or hinges (*c c*) is a panel of thin board ¼ or ⅜ thick, and 15x20 inches square, *i. e.*, the same size as the frame *a a* shown in fig. 2. To stiffen the panel are attached at each end two cleats *b b*, fig. 3. At fig. 1 the panel is shown at *d b A*, elevated at about an angle of 20°. At fig. 3 a plan is shown of the panel *A*, and *B* represents an opening 10x12 inches to receive the transparent sketch made (on glass) with the instrument described in September number. Two braces, one of which is shown at *e*, fig. 1, holds the panel in the position shown in fig. 1. The cleats *b b* extend beyond the panel *A* half an inch to allow *e* to catch and hold. At *D*, fig. 2, is shown a frame holding a plate of cheap German plate looking glass. This looking glass is mounted in a frame as shown at *h i l*. This frame turns at *j j* so the glass can be set at the right angle to reflect the light as shown at the dotted line *g*, fig. 1. In



addition to the device as shown and described, a second screen of thin board can be added to cut off the light from above, as shown at *f*, fig. 1. Two braces *n*, from *b* to *f*, hold *f* in place. The screen *f* can be of very thin, light wood. Such a device as shown at fig. 1 when folded together will be hardly 2 inches thick. Still more darkening can be given by a small curtain of black cambric extending from *f* to *b*. Such a device makes a splendid apparatus for re-touching photo negatives. By having the opening in the panel *A* 10x12, a larger glass can be used than 8x10, the size recommended in September article. Of course, a frame to go into *B* to receive an 8x10 glass must be provided when a larger opening is made at *B*, fig. 3. In taking views two glass plates can be used so as to extend the length to near or quite 20 inches, as shown in fig. 4, where the full lines enclose a view forming a single picture, and the dotted lines at *k* show where sky effects can be added. Of course, it is to be understood that the two glasses *E F*, fig. 4, are not placed in the perspective device shown in September at the same time, but two sketches are made so as to join on the line *t*. By adding an eye piece as shown at *m*, fig. 1, the device, as shown, can be used to sketch direct from nature. One objection, which some would urge

is, everything is shown bottom side up, but a person would soon get accustomed to this. But the principal use for the arrangement shown at fig. 1 is for copying outlines on to transparent paper, to be transferred to the paper on which the finished drawing is to be made. When transferring from an outline which is to be followed with a pen drawing for photographic reproduction as at fig. 5, the tracing paper should be of a light blue color, not a pale sky blue, but a trifle lighter color than dry French ultramarine. This color does not interfere with photographing, as "blue takes white," as photographers say. As suggested in last article, after the outline is complete return to the place where the outline was made and work in the shadows. This can be done with pen and ink, lead pencil or charcoal. Whatever is used, if the shading is made on the ground, that is, at the place where the objects exist you will soon get to shade satisfactorily and express your conception of the view. This is precisely what artists mean by the term "*feeling*," and is always lost to a great extent by persons who make a mere outline drawing on the spot to take home and finish in detail. Make your outline on the spot, work in your shadows there and get your coloring at the same place. Most artists in this day sketch with colors, and in the plan we have been considering it is better, after a few experiments with the pen or pencil in "shading," to put in color effects at the same time you are putting in the shadows at the second visit. For coloring both oil and water colors have their peculiar advantages. All things considered, water colors for the beginner are the most convenient. I will say a few words about the pen drawing at fig. 5, and then take up the subject of water colors in connection with the system of outlining described. The specimen given at fig. 5 of reproduced pen drawing from outline, gives a fair idea of what can be done with one of the glass outlining or perspective machines. The little group was selected to show the scope and power of the simple instrument, as described in September number of this journal. The outline and redrawing as you see it was done in less than one hour. And I have no hesitation in saying it would be a very skilful artist who could do it direct in this time, and then, as far as positive accuracy is concerned, the drawing by the skilful man with the eye only would not equal it. The writer will give a few hints about sketching from nature in colors. An outline carefully transferred to paper can be colored up on the spot with water colors without much inconvenience. In using a positive outline, such as we get from the glass of the perspective inachine, it is best not to make the outline by using black or even blue tracing paper, but use a neutral gray, or next best, a pale red of the pink order. This statement applies particularly to water colors, as oil colors have so much body as to almost entirely cover any outline. The writer has found in all instruction conveyed by words when not under the immediate supervision of a teacher, that it is better to imagine we have a given task and carry it along through the progressive stages precisely as if the reader and writer were actually engaged in the task. We will suppose in the present case we are to make and color a sketch of some old building or ruin. We go and make our outline drawing. This is taken home and carefully transferred to the paper we intend to color. Paper can now be bought combined into a solid block, and it is flat and nice and will stand repeated washes of color without being much distorted. We take a block of the size of our glass and transfer the outline as directed in former article and proceed to color it. Now, it is well to consider what colors we are to use. Only a very few are absolutely necessary for sketching, and in selecting these we will name such as are the best adapted for the purpose and are fairly permanent. This last property will be considered, and a list of perfectly reliable colors given in the future. For the present we select light red, vermillion, rose madder, gamboge, yellow ochre, indigo, cobalt, blue, Prussian blue, sepia, raw sienna, burnt sienna. These few colors combined properly will give a great range of tints. After a few words on preparing these colors for use we will give a brief consideration of their combinations. A small earthen sauce plate should be provided for each color. These plates should be about 2½ inches in diameter. A tumbler of pure water and about 7 pencil brushes (sable are the best); we will consider the size when we come to use them, as then we will select a brush for a specific use. The best colors for a beginner are those which come in cakes. To use them put two or three drops of water in one of the little sauce plates and select the color you wish, and commence to rub the cake on the plate with the water. It is best to spread the water on the plate before the cake is applied, so as not to wet the cake any farther up the sides than is necessary. Most beginners rub up more color than they will use. This is only waste. After we have ground enough color so the water is like an ink of the color ground, it is ready for use. Water colors are, as a rule, never used thick or creamy in consistence like prepared oil colors, but perfectly fluid. After you have ground enough color from the cake, wipe the cake with a piece of tissue paper to remove the water, for if you do not the cakes will soon crack. The first thing to learn in water color drawing is to wash on a tint. This will be considered in our next.

What the Optician Should Know About Optics.

[By C. A. Bucklin, A. M., M. D., New York.]

ANY SUBSCRIBER of The Circular interested in optics may have an article written on any special subject which he thinks will be of interest to those following the calling of a practical optician. In answer to several requests, I am induced to give a few practical hints on how one should start who has been thoroughly qualified as an optician and wishes to gain a solid reputation and a paying business in the shortest space of time. This is a peculiar and confidential subject to write upon, and I have no doubt that there is a great difference of opinion regarding how one should strive to accomplish these results.

There are but few men who can receive and profit by instruction on this subject. I was not one of them. The individual, as a rule, is completely incompetent to see himself as in a looking glass or as other people see him; they can only learn, like myself, as the result of hard knocks gained in the school of practical experience. During this period of gaining their experience, most beginners will succeed in becoming thoroughly disliked by a large number of influential persons who, to a greater or less extent, control their future success in the particular town in which they reside. The more thoroughly one has been educated in a special branch, and the more confidence he feels of his ability to cope with all difficulties which may arise, the more likely is he to assume a manner which is prejudicial to himself. It is now perfectly clear to me why the moderately stupid man in a special calling is frequently more successful in making money than the brilliant man. A politic man with moderate qualifications will make less mistakes in a general way than the enthusiast, who is so absorbed in the details of his calling that he loses sight of "human nature." There are two ways of obtaining a business. One way of getting a business as an optician, which we will consider, is the one most generally adopted. The individual blows hard, talks extravagantly, claims through the public prints that he can do wonderful things which he can not do, or which the public would not believe he could do if truth were really on his side; he even invades private homes to force before the public his ability. There is no end to the claims he makes.

Some persons can, if they are properly constituted, thoroughly tricky and dishonest by nature, succeed in making money rapidly in this manner. One must be a good habitual liar to meet with flattering success in this way, and must also travel constantly. He must never meet a peculiar difficulty without knowing by the shape of the individual's eye just what it is, and must also tell in a really fluent style how many hundreds of peculiar cases he has seen just like it Those who adopt this method of gaining a business should not stop

at anything, nor place any dependence upon physicians or their previous patrons for assistance. To make this special method successful you must make representations which are so far removed from the truth that the most stupid individual simply requires time to discover that he has been sold. I believe that this temporary burst of confidence which will enable one to obtain large prices from persons who neither know the optician nor know any one who has confidence in him, can only be brought out by extravagant representations.

This method I have termed "The Talk Yourself Method." It will never answer for one to locate and use this method, as financial disaster will certainly come with time. The other method I have termed "The Let Other People Talk Method."

With the first method competency is not necessary for financial success. With the second method there can be no success without the optician is qualified to do his work with more than ordinary correctness and skill. The most unfortunate failures I have seen among optical men were those cases where the individual, ignorant of the consequences, has attempted to get business by using both methods.

If you wish to be dishonest use your dishonesty so that it pays, but do not think that you can live in one place and gain a reputation of being both an honest and a dishonest man. If you follow the honest policy, stick to one or a certain number of towns to which you return at regular intervals, that you may be benefitted by the patrons whose confidence you have gained. If you follow a dishonest policy, do not visit any one place more frequently than necessary; thus you will avoid giving the enemies you make any chance to injure you.

I think any attempt to use both of these methods will prevent your succeeding with either. The *honest method* is the only one to follow, unless you have rare talent in the line of dishonesty. This method of getting business requires a good knowledge of optics and considerable policy.

As I write more particularly for the benefit of those who have studied optics with me, I will try and describe what I think is the best method of gaining a reputation and a business for those who locate.

The first requirement is to locate in a prosperous town, better under twenty thousand than over, as the size of the town in this case will discourage specialists from locating. The size of the town must not be considered alone; the surrounding country, of which the town is a trading center, is also an important consideration.

Having selected a town to locate in, the next question is how to gain and retain the optical trade. First, you must be particular about your general appearance. Never wear untidy linen. Ten dollars spent in linen does more to give one an appearance of respectability than fifty dollars spent in clothing. Never attempt to adjust lenses to the eyes of a refined individual with dirty hands or with finger nails in mourning. Never *appear* to be in a hurry. You can finish more quickly and with more satisfaction to the individual if you appear to have plenty of time to do your work properly. You can possibly get away in two minutes under these circumstances and give satisfaction, whereas if you appeared in a hurry you could not give the same satisfaction in ten minutes.

The public prints should be used with such extreme caution as not to create a prejudice among the too easily prejudiced members of the medical profession. Their help is of great assistance, and it is advisable under all circumstances if you cannot obtain their assistance not to incur their opposition. The only advertisement necessary to place in the papers is as follows:

JOHN BROWN,
GRADUATE OPTICIAN.
204 BROADWAY.
All lenses required for the relief of weak and defective vision are adjusted and ground to order.

The above advertisement in the paper or on a handsomely executed card will do just as much good as a more extensive advertisement, will cost less money and will not offend the medical profession. The medical practitioners should next be approached in the following manner: A letter should be *written* to each physician on a letter head the same as the above advertisement, as follows:

James Brown, M. D.:

DEAR DOCTOR—I have been thoroughly educated as a skilled optician, and will be pleased to do in a thoroughly workmanlike manner any refractive work you may wish done. I am thoroughly familiar with the adjusting and manufacturing of the most complicated cylindrically combined lenses. Have also every possible appliance for the proper execution of optical work. Hoping to hear from you, I remain,

Very respectfully yours,
JAMES SMITH.

This letter must be written and sealed. The doctor will have heard of you and will be backward in speaking against you. Within twelve days call on the doctor in a social way. Be particular to know all about anything which happens to the eye which can be relieved by a glass, and be very particular to allow him to do all the talking about diseases of the eye.

How to manage the public:

Don't talk too much; let them talk. Do your work so that it turns out satisfactory. No further evidence of your ability will be required. If you discover some serious disease of the eye don't be too free to tell the patient of it; perhaps their physician has told them that the eyes are all right and they only require glasses. In a modest way let the doctor know. For example, say: Doctor, from what I have read and heard, I think Mrs. B. probably has (*cataract*), (*iritis*), (*Glaucrima*). I told her to go and see you about it, but I did not tell her what I thought. I did not like to recommend her to see (Dr. Bucklin or) any specialist before speaking to you about it. I believed such advice was necessary, but thought it would be better to have it come from you.

With these few hints before you, there is no trouble in surrounding yourself with friendly influential practitioners of medicine, who have been a quarter of a century gaining the confidence of their patrons, which confidence in your particular line they give you the benefit of.

The present class of optics finishes October 26. The following students compose the class: Jerome R. Graves, Corry, Pa.; W. W. Fisher, Watsontown, Pa.; S. C. Scantlebury, White River Junction, Vt.; A. Walters, Jr., Jersey City; John Marsh, Antwerp, N. Y.

The next class will begin Nov. 15, at two o'clock. Monthly classes will probably form during the winter.

The Metropolitan Museum Robbed.

A FEW WEEKS ago some enterprising thieves succeeded in forcing open one of the cabinets of the Metropolitan Museum and extracting therefrom two exceedingly valuable gold armlets. This was believed to have been impossible, and will necessitate the construction of more substantial cabinets. Shortly after the robbery a small package was delivered by a special messenger at the Metropolitan Museum of Art. When opened by General di Cesnola the package was found to contain two gold armlets, so closely resembling those which were stolen from the Museum that General di Cesnola started in surprise. At first glance it seemed impossible to distinguish them from the armlets that Eteandos, the King of Paphor, sent as an offering to Curium, which were discovered 2,000 years later. The stamp of Eteandos was so exact that Professor Hall, who was one of the first scholars to decipher it after the armlets were unearthed at Curium by General di Cesnola, pronounced them perfect. With the package, however, was a letter from Tiffany & Co. which explained their origin.

General di Cesnola stated in reference to them that in 1877, when he came to New York, Tiffany & Co. were anxious to make some fac-similes of the armlets which he had given to the Museum. The

trustees gave their consent and several were made for museums in Europe. Shortly after the robbery General di Cesnola wrote to Tiffany & Co., asking if they still retained any of these fac-similes, and saying that the Museum would be glad to purchase them. This package, with the letter, was the reply, but instead of selling them the firm presented the armlets to the Museum with their compliments. General di Cesnola sent the following letter in answer:

GENTLEMEN—It gives me great pleasure to acknowledge the receipt of your note of yesterday, together with the two large gold armlets, the exact fac-similes of those stolen from the Museum on the 15th of September, which you so thoughtfully and kindly present to the Museum. Your generous gift will be highly appreciated, not alone by the trustees, but by the public generally and the friends of science everywhere, since the armlets are well known throughout the archæologic and palæographic world.

It will afford me the sincerest satisfaction to present your gift to the trustees at their next meeting, who doubtless will more formally express their gratified acceptance. Meanwhile I beg you will accept my heartiest thanks and best wishes.

The armlets are solid pieces of virgin gold, and so soft from its purity that it can be bent with the fingers. Each armlet weighs a pound, and the stamp of the King of Paphos is on the inner side of each armlet. The gold room in which these and other Cypriot jewels were on exhibition in the Museum has been closed since the robbery. It will not be again opened until the fall exhibition next month. The cases will then be replaced by stronger ones that will make the repetition of such a robbery impossible. The armlets presented by Tiffany & Co. will occupy the place of those which were stolen. No news has yet been received of the stolen armlets, but the Museum authorities still hope to secure them.

Inertia.

THE MEANING of scientific terms, says a contemporary, is often in part lost when they are employed by practical men. Thus the word inertia is, with them, synonymous with equilibriam; a balance of a watch, a wheel or a pair of pallets is in a state of inertia, according to the erroneous language of the workshop, when that balance, etc., is equilibrated on the horizontal axis in all the positions we can cause it to assume. Such an employment of the term is unfortunate.

Inertia is that property by which a body, when at rest, remains at rest, and when in motion remains in motion. It is exemplified in the excessive resistence offered by a body to being suddenly set in motion or brought suddenly to rest when in motion.

A horse, harnessed to a heavy wagon, strains violently and makes great efforts in order to set it in motion, but draws it along with ease when this is once accomplished. On the contrary, when the wagon has attained a considerable velocity, the horse cannot stop suddenly without receiving a violent push forward. These two effects are due to the inertia of the mass of the wagon.

FUNCTION OF INERTIA IN THE ACTION OF ESCAPEMENT.—HEAVY WHEELS.

Every wheel, however light it be, must have some appreciable weight; it is, therefore, subject to the law of inertia. Hence it results that when we wish to set in motion round its axis it cannot commence moving instantaneously; there is a transition period of rest which, although not always perceptible, is none the less real, and the wheel only attains its maximum velocity after a certain arc has been traversed by any point on its circumference.

As the effects of inertia thus increase with the weight of the body, and its velocity, it is important to note the influence on escapements, especially during the lift action; the wheel then travels during a very short space of time with a considerable velocity. The following example of the influence of inertia has actually occurred in practice: In a detent escapement, with an escape wheel full heavy, the motion of the balance was sluggish and the vibration was of but moderate extent. The workman engaged on it cut away part of the interior of the wheel and reduced its arms; in short, materially diminished its weight, and, by this simple change, very appreciably increased the extent of the vibration of the balance.

It is hardly necessary to explain that the heavy wheel, offering an excessive resistance to motion, supplemented the resistance caused by friction and oil; as the wheel was longer in commencing its motion and turned more sluggishly, it did not come in contact with the lever of impulse until the latter had traversed a considerable portion of its angular path. The final result was a noise and but slight impulse. The wheel, after being reduced, commenced its motion sooner, and, almost immediately coming in contact with the lever, accelerated its motion to the required extent.

ERRORS WITH REGARD TO LIGHT WHEELS.

From observations analogous to that above described, it is generally assumed and set down as a mechanical truth, that in every escapement the wheel should be as light as possible. A question which has not received sufficient attention has thus been decided in a very absolute manner, and the solution of a particular problem has been made binding on all the escapements used in horology. Would a wheel entirely wanting in inertia be a valuable acquisition? There seems to be great reason to suppose that it would not. But although such a case could not occur, since the metals employed always have an appreciable weight, it is none the less useful to point out that the velocity of rotation to be communicated to a wheel depends on the manner in which it influences the lever of the balance, and on the amount of energy it is required to give out while actually impelling the balance. The following observation of a clever watchmaker, M. Monvel, will do more to explain the subject than a considerable amount of argument, and will also illustrate the converse of the case above cited: A chronometer escapement worked well although the wheel was somewhat heavy, but when this was rendered lighter it caused the escapement to catch. The excessive lightness of the wheel was evidently the cause of this fault, as it changed position more rapidly than the balance; that is to say, instead of contact with the face of the pallet when it had time to recoil to a suitable position, the wheel commenced moving with considerable rapidity and struck the angular extremity of the lever, producing a butting action.*

Every watchmaker is aware that a slight displacement of the lever of impulse is all that is required in order to avoid stoppage, and that the above case is only quoted as an example of the influence of inertia. Experiment and a consideration of the nature of the metals actually employed show without doubt that in those watches in which the vibrations are rapid, it is necessary to make the escape wheel as light as possible, but care must be taken not to unduly diminish its solidity. The word solidity does not here merely imply that the wheel must resist certain causes of breakage or distortion; but an escapement wheel must be absolutely firm throughout, and this firmness can only be secured by care in the choice of the metal employed and of the form given to the wheel. Thus, an arm of a wheel of rectangular section is less rigid when placed edgeways than when its broader face is parallel to the plane of the wheel. With regard to such horological appliances as are regarded by a pendulum or a heavy annular balance, it remains for experiment to ascertain whether a certain slight amount of resistance due to inertia in the

* The editor urges the following objection to this conclusion: This does not appear a sound argument against a light wheel. Evidently the heavy wheel moved slower on account of its weight, and therefore allowed the balance time to travel far enough to receive the escape wheel tooth on the impulse roller; set the roller back half a degree and this error could not occur, no matter how light the escape wheel.

wheel is not necessary, since the wheel must move with a velocity determined (1) by the greater or less inertia of a train of wheels of a definite weight which abandons its state of rest or recoil; and (2) by the velocity acquired by the lever on which the wheel acts, a lever whose motion is slow in comparison with the velocities met with in watch movements. Inertia is proportional to the masses of bodies when their velocities are equal, and to the squares of their velocities when their masses are equal.

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GEO. H. HOUGHTON.....With Gorham Mfg. Co.
WM. H. JENKS.....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Shelbier.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box 3,444, P. O., New York*, or the office of THE CIRCULAR.

At the regular meeting of the Executive Committee of the Jewelers' League there were present Chairman Howe, Vice-Presidents R. A. Johnson and C. G. Lewis, and Messrs. Jeannot, Jenks, Houghton, Greason and Sexton.

Two (2) changes of beneficiary were granted.

One (1) application for membership was referred for investigation.

One (1) applicant was rejected.

Two (2) were admitted, namely, Henry Kahn, of San Francisco, Cal., recommended by F. Roth and F. A. Phelps; and Henry W. Levy, of N. Y. City, recommended by A. W. Osmun and S. B. Kent.

Amendments to the constitution proposing to give better representation to outside members were submitted and approved.

An Obsidian Mountain.

ONE OF the forthcoming reports of the Geological Survey will contain a paper by Professor Joseph P. Iddings upon an obsidian cliff in Yellowstone Park. This cliff is an elevation half a mile long by from 150 to 200 feet high, the material of which, Professor Iddings says, "is as good a glass as any artificially manufactured." Its colors and structure not only make it highly interesting to the visitor, but furnish to the scientific investigator phenomena of importance. The cliff presents part of a section of surface flow of obsidian, which poured down an ancient slope from the plateau lying east. It is impossible to determine what the original thickness of this flow was. The dense glass which now forms its lower portion is from 75 to 100 feet thick, while the porous and pumiceous upper portion has suffered from ages of erosion and glacial action. A remarkable feature of the cliff is the development of prismatic columns, which form its southern extremity. These are of shining black obsidian, rising from the talus slope, and are from 50 to 60 feet in height, with diameters varying from 2 to 4 feet. The color of the material of this cliff is, for the most part, jet black, but much of it is mottled and streaked with bright brownish-red and various shades of brown, from dark to light yellowish, purplish and olive-green. The brilliant luster of the rock and the strong contrasts of color with the black are very striking. In places the glass, in the process of cooling, has been broken into small angular pieces, which have been again cemented by the later flow, producing many colored and beautiful breccias. In some places the material shows a fine satin luster, while in others a deep golden sheen is noticeable, which, under the lens, revolves itself into thin beams of red and yellow light. Through the black and red glass are scattered dull bluish-gray patches and bands, and round gray and pink masses, the effect of which is to still further vary the appearance and beauty of the rock, and make it the most conspicuous and characteristic variety of volcanic lava known.

*A Complete History of Watch and Clock Making in America.

[By CHAS. S. CROSSMAN.]

Continued from page 319.

Number Seventeen.

LANCASTER WATCH COMPANY, CONTINUED.—THE KEYSTONE WATCH COMPANY.

SO FAR, they had only produced the grade of watches called the Lancaster Watch Co. to the extent of 100 to 150 movements, but they now decided to put a new series of watches on the market. These were known as the finest series of stem wind. The model was a ¾ plate, 3 pillar watch, with single roller instead of two, as previously made. This new model of stem wind referred to was one of Mr. C. S. Mosely's designing, and had a tilting set bar with stem to pull out. In February, 1879, the main part of the work on the old movements was dropped except as called for, one man being kept at work on them. Before the new movements were ready for the market the company found themselves out of funds again, as usual, and a meeting was called in April, to devise means for obtaining additional capital. The company had not expected to be out of funds so soon, but work had been pushed forward with great vigor. The directors endeavored to borrow $20,000 and give an indemnity bond, but it would not work, as all the stockholders would not sign it. May 9, 1879, a new company was formed called the *Lancaster Watch Co.*, who leased the property from the old company for three years, with the privilege of five years. The new company or syndicate was to pay 6 per cent. interest on the capital on a basis of $80,000, the interest on the real estate at a valuation of $50,000, and pay the taxes and insurance. They were to keep the machinery in good repair, and return the same in as good condition as when received; and were to construct, from time to time, such

* Copyright by Chas. S. Crossman, 1885.

new machinery as was required, deducting the same from the interest on the $80,000 capital.

This company was composed of Messrs.

A. Bitner	$11,000 stock	Benj. B. Miller	$4,000 stock
C. A. Bitner	14,000 "	B. Kaufman	2,000 "
J. D. Skyles	4,000 "	Daniel Behr	2,000 "
H. S. Gurra	4,000 "	J. P. McCasky	1,000 "
Henry Gundecker	4,000 "		

John I. Hartmann was elected President, J. D. Skyles, Treasurer, J. P. McCasky, Secretary, and A. Bitner, Manager. The new movement started by the previous company was pushed toward completion, and the first movements were turned out in August, following. They were 19 size, but the company soon decided to change to 18 size and fit them in Howard cases. They were designed to be brought out in four grades, called the Keystone, Fulton, Franklin and Melrose, but some other grades were also added. 125 hands were employed, and watches were turned out at the rate of 10 per day. At that time the company intended to adjust their movements and make only fine grades. They might possibly have succeeded had they not once more, strange to relate, run out of funds. At a meeting held September 15, 1879, a full and free interchange of views took place. The following report as to the number of watches finished and the grade, was made:

Lancaster (nickel)	9	finished.
Melrose "	0	"
Lancaster (gilt)	5	"
" " K. W.	2	"
Fulton "	0	"
Franklin "	0	"
Keystone " K. W.	220	"
Fulton "	43	"
Franklin "	55	"
Total	334	"

Matters were finally mended by taking in new partners with new capital, Mr. B. F. Breneman being admitted to the amount of $4,000, and Louis L. Harlum taking the place of Mr. Gundecker. Later in the fall of 1879, the second series of movements was started, consisting of three grades, West End, New Era and Record, all made in both key and stem wind. The two last grades were to be adjusted. In these movements the yoke was fastened to the plate by screws. Business went along quite smooth for several months, so that by the 1st of October, 1880, 1,250 movements had been completed, and the December pay roll of that year amounted to $6,706.

In January, 1881, the partnership capital was doubled, making each partner's share $8,000 instead of $4,000. At the same time the Lancaster Watch Co. bonded the property for $50,000, and took up the Lancaster (Pa.) Company's mortgage for $25,000.

In June of that year, Mr. C. S. Mosely resigned the position of Superintendent. He was succeeded shortly after by Mr. Russell Lyle, who had previously been foreman of the springing room. During the fall of 1881, the company started another new series of Stem Winds, designed by Mr. James Dangerfield, called the Third Series. These movements had the yoke fastened in the center by a screw in the regular way. They also had intermediate winding and set wheels, and were arranged to set by means of a lever. The Third Series were ready for market in May, 1882. During 1880, the company were making 40 movements per day with a force of 175 employees. In 1881, 60 movements per day were turned out with the same number of employees. In 1882, the production rose to 75 per day. The total production from March, 1881, to March, 1882, was 17,607 movements.

During the year 1882, a new grade was announced, called the Lancaster, Pa. It was a high grade, cap jeweled escapement, having end stones, gold settings and expansion balance. It was made in both nickel and gilt, and had Breguet hair spring. About 200 of these movements were made.

The Delaware was also added at this time. It was made in nickel and gilt, and had a patent dust-proof cover for the escapement. The Wm. Penn was still another grade started that year.

In the spring of 1883, five grades of ladies' 8 size movements were commenced, but only a few were ever finished—not more than 50 to 75.

Thirty grades of movements were made in all, including the ladies' movements, which is a large number of grades for a small product.

April 1, 1883, the Lancaster Watch Co. surrendered its lease to the Lancaster, Pa. Watch Co. The two companies now consolidated forming a new company, the factory being temporarily closed. The new company organized with a capital of $248,000 on this basis. As the old stockholders had been assessed to pay the indebtedness of the company, $18,000 of this new stock was placed in trust to be sold for their benefit. This stock was vacated *pro rata* by the stockholders, but no buyer was found. The new Directors were C. A. Bitner, B. F. Bowman, A. Bitner, J. D. Skietz, John I. Hartmann, S. S. Hartman, and J. P. McCasky. Officers remained the same. The factory opened April 16, 1883, and ran until May 15, 1883, when it closed again, there being some difficulty with some of the foremen regarding pay during the two weeks the factory had been closed. The board conceded to their demands and the factory was again started May 21. Mr. Bitner at the time tendered his resignation, but it was not accepted. He was, however, granted leave of absence and went to California for a few weeks. July 31, 1883, the factory closed once again. Mr. Bitner had meanwhile made an assignment of his private business. Several thousand movements were under way, and a proposition was received from the foremen and others in the factory to invest 38 per cent. of their wages in the stock held in trust, and have the factory go on. The factory was opened again August 15, but the proposition from the foremen was not carried into effect after the first month, as there was some dissatisfaction regarding it. The Board borrowed $25,000 on a bank note, and work was pushed. By January 1, 1884, 8,900 movements had been completed. In Feb., 1884, a committee was appointed at the instance of Mr. A. Bitner to investigate the affairs of the company. The Superintendent now resigned. At this time the indebtedness of the company amounted to about $100,000. Mr. Bitner now made a proposition to the stockholders to take their stock free of charge and assume the indebtedness of the company.

This was agreed to by a number of the largest stockholders, Mr. Bitner giving the proper security. He then bought other stock at 10 cents on the dollar, thus becoming the owner of 5,625 shares out of 8,000 shares. The old officers and directors resigned and a new Board was elected, consisting of Messrs. A. Bitner, B. F. Bitner, Jno. Snyder, Wm. H. Denny, J. H. Koch, Geo. Sullivan, and L. A. Prezinger, with A. Bitner, as Secretary and Treasurer.

This, as will be readily seen, put Mr. Bitner into the virtual ownership of the company, and as his name has been mentioned so often in connection with alternate rise and fall of this corporation a little sketch of him may not be out of place.

ABRAM BITNER,

known in the watch trade as the manager of the Lancaster Watch Company, was born in Lancaster, Pa., June 22, 1836.

He started out at thirteen years of age without pecuniary assistance but with a determined and self-reliant resolution to carve out for himself a fortune. He was first employed by Messrs. Bitner and Brother in the freighting business, between Lancaster and Philadelphia. He subsequently went into the grain business, but in 1865 engaged in the coal trade in Lancaster, and build the first chute in the city. In 1872, selling his coal business, he bought one hundred and thirty-six acres of land on the New Jersey coast and organized the Ocean Beach Association.

The land was plotted and he was the superintendent from 1873 to 1876, being also interested in the New Egypt and Farmingdale

R. R. In 1877, he returned to Lancaster and engaged in the clothing trade until 1879, at which time he took on interest in the Lancaster Watch Company, His subsequent connection with this company is already familiar to us.

The $48,000 of stock, held in trust, was duly transferred to Mr. Bitner. This gentleman at once entered into a contract with Messrs. Oppenheimer, Bros. & Veith, of New York City, who agreed to take all the watches then manufactured or in process of manufacture. The company now assumed the name of the Keystone Watch Company as a trade mark, but in reality existed as the Lancaster Watch Company corporate. They successfully fulfilled their contract with the New York firm, and sold a considerable part of their subsequent production through them. At present the greater part of their goods are sold direct to the consumer by various methods and have fallen somewhat into disfavor in the trade. More space has been given to the history of this company than was first intended, but its career has been such a checkered one that it seemed that in order to give a concise history of it no less space could be alotted to it.

CORRESPONDENCE.

Chicago Notes.

To the Editor of the Jewelers' Circular:

October has been a red letter month for Chicago on account of the visit of President and Mrs. Cleveland on October 5. No one ever dreamed that Chicago could gather such a crowd as thronged the streets to welcome the chief executive and his attractive young wife. Tens of thousands of visitors poured into the city from all parts of the Northwest, and it is estimated that the throngs in the public streets amounted to over 600,000 persons. Then the International Military Encampment, which proved such a miserable "fizzle" in the end, gave promise during the time of the President's visit to be a pronounced success, and was attended by thousands of visitors from far and near. The crowds that poured into the city gave a decided impetus to business that was reflected in the rushing trade that was done by the retail jewelers. Many of the dealers from the surrounding States brought their wives and families to Chicago to see the President and his pretty wife, and, while here, combined business with pleasure by stocking up for the late fall and holiday trade.

Mrs. Zuckerberg, the wife of M. A. Zuckerberg, of this city, died on Oct. 11.

J. C. Avery, formerly of Grand Haven, Mich., has moved to Denver, Col.

S. S. Suckett, formerly of Salem, Ill., has established himself in business at Martinville, Ill.

Smith Bros., the enterprising jewelers of Wilsau, Kas., are opening a new store at Arkansas City.

The Western Silver Plate Company's exhibit at the State Exposition has been very much admired.

H. C. Hannel, a well-known jeweler of Braceville, Ill., has commenced business in Marquette, Mich.

F. E. Morse, manager of the E. N. Welch Manufacturing Co., has been spending a few weeks in the East.

W. A. Buehl, of Rockford, Ill., has been in town laying in a line of goods for his new store in California.

H. B. Dennison, President of the Dennison Manufacturing Co., spent a few days here during the second week of October.

M. F. Warren has quit De Kalb, Ill., on account of ill health, and goes into partnership with Frank Lott at Colorado Springs.

H. L. Hahn & Co. are now giving special attention to the diamond business, and are carrying one of the finest stocks in the city.

The Howard Watch and Clock Company made capital out of the President's visit by scattering their business chromos broadcast among the crowds.

The Anti-Magnetic Shield and Watch Case Company are so rushed with business just now, that they can barely fill orders received months in advance.

The Peoria Watch Factory is reported to have a contract with the Southern Pacific Railroad Company, for $40,000 worth of watches for sale to its employees.

H. C. Headstream, Marshfield, Wis., who was burnt out in the recent great fire that nearly wiped out the town, will open his new store towards the beginning of November.

C. L. Hungerford, formerly with Clapp & Davies as traveling salesman, has been secured by Henry Oppenheimers' Sons, and will take charge of their business in Illinois, Iowa and Nebraska.

An interesting reminder of President Cleveland's visit to the city, was the exhibition by Messrs. Hyman & Co. of an exquisitely carved cameo head of the President in white relief on an onyx ground.

Stein & Ellbogen are still moving steadily on and making excellent headway in their diamond business. This firm makes little public display or parade, but is surely taking its place as one of the soundest and most reliable business concerns in the West.

Otto Young & Co. have issued their new catalogue, which far surpasses all previous attempts in the same direction. Manager Schnering has worked hard for many weeks over its compilation, and is to be congratulated on the satisfactory results of his labor.

The Bohemians of this city are greatly delighted with the receipt of an autograph letter of thanks from Mrs. Cleveland, for the presentation of an elegant brooch and necklace from the Bohemian Turners, who recently returned from a trip to their fatherland.

The Seth Thomas Clock Co. have finished the erection of the great clock in the tower of the Rock Island Railroad Company's new building on Van Buren street. The work was supervised by A. S. Hotchkiss, assisted by W. F. Tompkins, the general agent of the company for Chicago.

The Elgin National Watch Company presented the International Military Encampment with a handsome diamond studded watch of their own manufacture as a prize for the best target shooting, and the executive committee of the encampment in return invited the company's hands as guests to the encampment.

Benj. Allen, Otto Young & Co. and Giles Bro. & Co. report excellent business, and state that the volume of their business is far ahead of that for the corresponding period of last year. Norris, Alister & Co., Lapp & Flershem, Samuel Swartchild & Co. and other well-known houses, all give a similar report and express their entire satisfaction with the business outlook.

All the leading jobbers here feel satisfied with the condition of business, and more than hopeful of the outlook. The increase of the previous months has been fully maintained by the October showing, and business generally may be said to be in a thoroughly healthy condition. Money is easy, collections are good, and the entire retail trade is showing a disposition to stock up earlier in the season than usual.

Moses Bensinger, the well-known billiard table manufacturer of this city, has recovered the family diamonds which were stolen from his office safe some time ago. The thief proved to be a young clerk who had the entire confidence of the firm. He was detected through his voice being recognized while telephoning an offer to restore the diamonds on receipt of $5,000. The cheeky youth, after being found out, wanted to claim the $5,000 which Mr. Bensinger had offered for the recovery of his diamonds.

The friendship of C. S. Lesser, of this city, and Otto Schneider, a traveler for L. Hammond & Co., of New York, came very near being permanently ruptured by an unfortunate little piece of carelessness. Mr. Schneider, who was looking at an elegant diamond ring belonging to Mr. Lesser, happened to slip it on his finger as a mutual friend stepped up, and forgot to return it. Mr. Lesser, soon discovering his loss, thought there was something wrong and put detectives on Mr. Schneider's track. Mr. Schneider showed up himself the next morning with the ring, and, after mutual explanations, the two friends shook hands.

Among the visitors in town during the month have been: C. E. Asct, Odell, Ill.; J. J. Hayes, Austin, Minn.; W. H. Miles, Belle Plaine, Ia.; W. H. Evans, Red Oak, Ia.; V. E. Dake, Waupaca, Wis.; G. B. Brown, Hoopston, Ill.; W. C. Schroeder, La Porte, Ind.; George H. Thoma, Three Rivers, Mich.; W. N. Boynton, Manchester, Ia.; C. H. Coles, Reed City, Mich.; C. C. Pond, Sycamore, Ill.; A. M. Hart, Tiffin, O.; E. W. Trask, Aurora, Ill.; T. W. Martin, Joliet, Ill.; Henry Klopf, Neilsville, Wis.; C. D. Gardner, Manistee, Mich.; E. Lehman, Green Bay, Wis.; S. W. Gray, Fort Dodge, Ia.

W. A. B.

Trade Matters in Providence and Vicinity.

To the Editor of the Jewelers' Circular:

The business prospects for the month past have been fully as good as at any time during the fall season. The amount transacted by the leading houses will, it is thought, far surpass in volume that of 1883, which was considered at that time to have been the best in the history of the country with the manufacturing jewelers and will not soon be forgotten. The interest of the business situation seems to have centered in the money market for some weeks; during this time there has been a great deal of apprehension lest the current of business should be suddenly checked by such a scarcity of money as would create a panic among borrowers. We are happy to state that this apprehension has nearly or quite disappeared and a feeling of confidence restored; this, in a measure, is due to the fact that shrewd business men have been looking over the situation to see where they were getting to, and have come to the conclusion that there is no real ground for alarm. The fact that the $14,000,000 of bonds which the Secretary of the Treasury made a fair offer for were so long in getting in, would seem to point to the fact that the money market was not quite as light as some would suppose it to be. It does not take a great thing to frighten the public, but fortunately a very small one reassures them. The general reports of the country are encouraging; the contraction which the condition of the money market made in the volume of business does not appear to have been very material.

The most striking feature of the financial situation to-day is the effort being made by the Treasury Department to increase the amount of public money on hand by the depositing banks. Secretary Fairchild has increased the amount which can be held by one bank from $500,000 to $1,000,000, and also increased the percentage of funds which banks can hold upon bonds deposited. It is estimated that at least $5,000,000 of the surplus in the Treasury at present can be put promptly into circulation in New York City alone by this method, several of the largest banks proposing to increase their deposits. The Treasury net gold fund has increased by $1,500,000 during the current month, and the gold certificate circulation decreased by $1,000,000. Again, the balance of trade with foreign countries being largely in our favor, together with the vast amounts of gold which are being shipped to the United States by nearly every steamer, cannot help but to make money cheaper to those wishing to borrow it to carry on business with, and as there are some of those poor unfortunates in the jewelry line who are forced to ask accommodation from the banks occasionally, they cannot help but to be benefitted from a low rate of interest being charged them.

Duplicate orders have continued to come in very lively for the past month, and the manufacturer has had all he could possibly attend to, except in some cases where firms do not get out a new line of samples only once in possibly two to five years. Such concerns cannot reasonably expect to take many duplicate orders on patterns that have been shown to the trade so often that they are called "chestnuts with gray whiskers" as soon as shown to the jobber, who immediately asks the drummer to show him something like (mentioning some other firm) make. The result of a trip made in this manner through the South and West causes the remark to be made on the return that business is dull and nothing doing, when really the cause is that the jobber wanted something new, which if he could have had shown to him would most likely have bought liberally of.

I am informed that the pirates of the trade, those disreputable manufacturers who have not the ability to originate anything themselves in the way of designs, but keep in the rear ranks until they see some one start out on a new novelty, when they quietly go into the market and purchase a copy of the same (if they cannot get it given to them) have been unusually active since the fall trade set in, and have copied nearly all the best selling patterns in all lines, but the latest novelty, "Moonstone," has undoubtedly suffered the most, and one could see it advertised in the jewelers' journals of last month by firms as "*our latest novelty*," who had no more to do with getting up or originating moonstone than they had to do with creating the world, but they employ this method to mislead the public and give it to understand that they are the originators and not merely imitators. These concerns live by the brains of others, and whatever success they may achieve in the world is due to their luck in having some one to go ahead and shape their business for them from year to year. It would be just as unreasonable to expect for a member of Dockstadter's Minstrels or a Jersey farmer to start in the jewelry business to-day and make a success of it without pirating their ideas as it would be for those referred to; one can have ocular proof every day to corroborate the fact.

Collections during the month have been very good, notwithstanding that the money market has been a trifle tight, and there is little reason for complaint, as remittances have been good and fully up to the standard time limit, except in a few cases. Trade paper seems to have about disappeared for the present, as accounts are generally settled by check.

The Gorham Manufacturing Co. report business as booming, and are employing more hands and turning out more goods than ever be ore. The Gorham Company has no rival in the manufacture of sterling silverware that can begin to compare with them for the fineness of finish and unique and beautiful designs displayed by them this season, especially in their silver plate department. It is difficult to form any idea of what this immense concern is doing without visiting their works.

Messrs. Godfrey & Adams have removed their works from No. 107 Friendship street to No. 77 Westfield street. The great increase in their business the past few months forced them to seek more commodious quarters. This enterprising firm does not believe in retrograding; their motto is upward and onward.

Messrs. H. Ludwig & Co. have purchased the tools and fixtures of the shop of James Berney, located formerly at No. 178 Eddy street. They have removed them to No. 195 Eddy street, where they will soon begin the manufacture of a line of plate goods.

Messrs. N. Barstow & Co., successors to Barstow & Luther, report business to be in a very healthy condition. Duplicate orders are being received in such amounts as to necessitate their running their works day and night to be able to keep ahead of them.

Mr. Marcus W. Morton, who succeeded Mr. Geo. E. Emery, is the right man in the proper place as Secretary of the Manufacturing Jewelers' Board of Trade, and has everything going to his liking, and we trust will not lose sight of the many abuses of the trade as Secretary, which Mr. Emery tried so much to have abated, and do what

he can wherever the chance presents itself to bring them up before the Board of Directors for final action, as it is very important to the manufacturers that there should be something done in this direction before the commencement of another season's business. Unity of action is what is needed in this case, and without it little can be accomplished; it seems to be too much of a "go-as-you-please race;" 108 firms or representatives are members of the Board of Trade at present. The collection department should not be forgotten by those members who have accounts and claims needing attention.

Messrs. Harris & Luchs assigned on the 12th inst. to Herman Cantor, of 41 Murray street. Although there are no preferences in the deed, a lien appears to have been created by entry of a judgment half an hour before filing the assignment, in favor of Joseph Abell for $1,647.17; the liabilities are about $12,000 and the assets $6,000. Schedules are not yet made up; as soon as they are, they propose to call a meeting of the creditors with view to effecting a settlement. This firm has not enjoyed the entire confidence of the manufacturers for some time.

The series of base ball games between the manufacturing jewelers' and the stone dealers' nines, resulted in a defeat for the former by a score of 14 to 4, in the deciding game, which was played last month at Pawtucket.

The members of the Jewelers' League located here have the past month been assessed for two deaths which have occurred during the months of July and August, viz., Chas. H. Moulton, who joined the League as member No. 927 on Nov. 5, 1880, and Joseph Jessermen, as No. 1,950, May 5, 1882. The members who so generously contributed to the relief of Mrs. Charles F. Glover, will be pleased to learn that the amount of contributions received to date amount in the aggregate to $2,219, every dollar of which has been well placed and appreciated by the recipient, as the following will assure you:

"*To the President and Members of the Jewelers' League:*

DEAR SIRS—I wish to express my gratitude for your kind action in contributing the liberal sum for my immediate and necessary use. The sad and sudden occurrence of the death of my beloved husband has made it impossible for me to acknowledge your kindness sooner. Thanking you for your extreme kindness, I remain,

Very respectfully yours,

MRS. CHAS F. GLOVER."

The Robert Barton failure of some weeks since, seems to be as far from a satisfactory solution of settlement as ever, but we hope very soon to be able to report some decided action in regard thereto.

Providence, R. I., Oct. 15, 1887. FAIRFAX.

Trade in St. Paul and Minneapolis.

To the of the Editor Jewelers' Circular:

Trade in these two cities has felt during the past month the stimulus which comes from a large influx of visitors from the rural districts to attend the usual fall exhibitions. This has not been very pronounced, but has been some help, and although there is considerable complaint of stringency in the money market, the dealers generally are preparing for a large holiday trade and laying in stocks accordingly, because, as a whole, the people here have been prosperous, particularly the class who are liberal buyers of jewelry.

Mr. Frank P. Landers, who a couple of years ago successfully swindled several firms in St. Paul, among them Myers & Finch, and through the efforts of Mr. Myers was afterwards captured and sent to the State Prison, made his escape on Wednesday last and has not yet been re-captured. Landers is one of the shrewdest operators in his line in the country. He made his advent in St. Paul a few years ago, and represented himself as a La Crosse merchant about to be married, and made liberal purchases of goods, including about $1,800 worth of jewelry from Myers & Finch, giving for it bogus checks and then skipping out. He had successfully operated in this way in a number of places in this country and in the East. He is one of the most dangerous men of his class in the country. Mr. Myers spent a good deal of time in endeavoring to capture him and was finally successful, but the same shrewdness which has enabled him to swindle the keenest of merchants everywhere, helped him to escape from the prison as stated.

A letter was received here yesterday from the clerk of the Supreme Court, Washington, informing the local attorneys that the case of Mr. C. C. Bennett, assignee of Van Norman Brothers, against ex-United States Marshal H. R. Denny, would probably be reached for argument April next. This is the famous jewelry store case. The Van Normans did business at 419 Nicollet avenue in 1883. They failed, and on December 31 of that year made an assignment to Mr. C. C. Bennett, and while Bennett was in possession the stock was taken from him by Mr. H. R. Denny, United States Marshal, upon a writ of attachment issued out of the United States Circuit Court in favor of Lapp & Flersher, of Chicago. Action was brought by Bennett against Denny, and the case tried in the district court in November, 1884, and a verdict found for the plaintiff for $5,500. The defendant appealed to the Supreme Court, where a decision was rendered July, 1885, affirming the lower court. The case was then appealed to the United States Supreme Court, where it has ever since been pending and where the end will soon be reached.

A little less than a year ago the firm of Myers & Finch was dissolved, and Mr. Finch moved down-town into the jobbing center of St. Paul, and established himself in the retail jewelry business. Everybody then predicted it was a bad move; that it was preposterous for a jeweler to attempt to do business down among the wholesale houses, but time has proven Mr. Finch's move a good one. He has done two or three times the amount of business he expected, and is busy all the time. The wholesale merchants, who every now and then get an inquiry for something in the jewelry line that cannot be bought in a country town, send over to him for whatever is wanted, while the business men find the store a convenience. It was a unique thing to do, but time hasproven that it was a clever thing.

Myers & Carpenter, who have occupied for a long time a store near the corner of Wabasha and Third streets in St. Paul, are fitting up very handsome quarters at No. 71 East Third street, two blocks further down-town, and are therefore selling off at auction this week their present stock to start in the new place with a new stock of goods. The sale is being conducted by Mr. J. H. French, well-known in the trade, and has thus far been very successful. The new store of the firm is fitted up with antique oak, and the establishment will be the handsomest of its class in St. Paul.

Mr. E. A. Brown has been sick for the past month, but is out again, and will leave for the East for a trip of pleasure and recreation, but will undoubtedly take time enough to make some of the best purchases in his line. He enjoys the finest trade of any one in St. Paul.

Mr. A. C. Becken, who established himself a few months ago in St. Paul as a jobber in watches, chains and charms, is meeting with deserved success, and reports that he is enjoying a very good trade. He finds some difficulty in getting movements fast enough to meet the demands. He left last month for the eastern markets to make his fall purchases.

Messrs. W. S. Gardner and George Stone are about to open a new store on Seventh street, near Wauculta, in St. Paul. Mr. Stone, who was previously engaged in business here, sold out about a year ago, and Mr. Gardner did business on the West Side.

Mr. James Johnson has also opened a store recently on Broadway, St. Paul, and Mr. Weller is fitting up a new store on Seventh street, near Wabasha.

Reed, Daily & Bettman, the pioneer wholesale jewelers in these two cities, who made an assignment a few months ago, have had their

affairs adjusted; all claims have been disposed of and the assignee discharged. The business is to be resumed by the firm of Reed & Daily, who constituted the original firm. This will be welcome news in the Northwest, for the house has been exceedingly popular. The failure resulted from too long a line of credit, and the temporary suspension has enabled the assignee to collect the claims and settle the indebtedness satisfactory to all concerned.

Mr. F. McKercher, Vice-President of the Minneapolis Jewelry Manufacturing Company, has retired from the company, the business of which is still continued by the remaining members of the company. They report that they have enjoyed this fall a very good trade, especially during September, although there is some falling off this month. Indeed, all the jobbers in this city have had an exceptionally good trade, and although they anticipated the usual improvement in October, they have been somewhat disappointed by a falling off.

Eustis Bros. recently manufactured a unique thing in the line of a baton, which was presented to Liberati, of the 71st New York regiment band, which had been playing here during the exposition. The baton was of ivory, with three bands of gold. The end of the baton was studded with diamonds, and one of the bands with diamonds, sapphires and pearls; another with diamonds, pearls and turquoise, and the third with diamonds, garnets and pearls. The center band was further ornamented with a crescent of diamonds, surmounted by a Cupid holding a miniature baton. The design was especially unique and the workmanship the very best, and it was presented to Liberati with the usual amount of *éclat*. He has carried it proudly back to New York, and will exhibit it as a sample of what can be done by Western jewelers.

The firm of Upham Bros., St. Paul, was recently dissolved, the junior Mr. Upham retiring.

Mr. A. J. Warner, of the Warner Jewelry Company, was in California, and returned early in the month. NEMO.

Our Foreign Correspondence.

BIRMINGHAM, Oct. 3, 1887.

To the Editor of the Jewelers' Circular:

The run on mosaic goods which I mentioned in my last, still continues to even a greater extent than when I last wrote.

At present the fashion is for Venetian mosaic, composed of small pieces of various colors, of a substance similar in composition to glass, the ground work being usually either white or blue, but occasionally black and chocolate, and in this is worked a floral design, roses and forget-me-nots intertwining, with very often white Marguerites being the favorite.

Long bar brooches are the shapes most liked, although the old-fashioned horseshoe shape is a great favorite with some, and even quite round brooches are preferred by others.

The few makers who have been enterprising enough to work this trade up report that their only difficulty is the getting of the mosaic quickly enough. The Italians are blessed with a climate which demands very little labor in order to live, so they have not that indomitable push and love of hard work so characteristic of the Anglo-Saxon race, who have always had a climate to fight against. If we could but make this mosaic work in Birmingham, instead of the demand being in excess of the supply it would soon be the other way about.

Although, as I said above, up to the present the fashion is for Venetian mosaic, there is no doubt that a lot of real Florentine will be sold this Christmas. As many of your readers are aware, this has a black polished marble ground inlaid with various floral designs in different colored stones, and is much superior to the Venetian, being better in design, more durable and looking less showy, and is rather more expensive. From present appearances the shapes that will sell best in this are very long and narrow bar or fichu brooches and round ones.

A new invention has just been brought before the notice of the trade which will, no doubt, sell in enormous quantities. This is the "Walton" key to wind any watch. The specimen I have before me is made of pen steel, nickel plated, and certainly performs its work in a marvellous manner. Although but about one inch long and not half that width at widest part, I have tried it on watches of all sizes, from the smallest lady's Geneva up to a full size gentleman's lever, and it has not once failed to wind the watch. In addition to possessing these qualities, it is sold at such a price that it will be retailed in the shops here at one penny, and is made in such a form that it can be carried on a key ring with a bunch of keys without at all being in the way.

The manufacturers who are distinguished by their enterprise report that they are busier now than they have been for 12 months. In a few cases we hear of men being allowed to work as many hours as they will, and in no case do we hear of any short time being made.

The large number of failures early in the year, and the strict manner in which most of those who failed have been dealt with has cleared out of the trade those houses which, as it was known they were shaky, gave a feeling of uncertainty and distrust to the whole trade.

There are still many manufacturers who cry about having no trade, but if some means could be taken to get them out of business it would be a great blessing to the trade, for most of them are men who made a good start 10 to 20 years ago, and because their goods sold then expect that the same class will sell now, and because they do not they hold meetings and write to the papers about the badness of trade, and so persuade the public that the jewelry trade is gone out and that jewelry is no longer worn, whereas it is the public who have been educated into better styles than the ancient patterns these men want to sell. SOLITAIRE.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

SCARCITY OF GOOD WORKMAN.

To the Editor of the Jewelers' Circular:

The scarcity of good, trustworthy workmen is beginning to be seriously felt, especially in the country. Very naturally the best workmen prefer the cities, where wages are unquestionably higher and opportunities for recreation more numerous, so that the country is left largely to depend on workmen of inferior ability. Occasionally one is found who prefers moderate wages in the country with the lower cost of living and the better accommodations he can obtain for his family, to the life in the city, but the journeymen we have to put up with on the average are not up to the standard. We have many applications for employment from "tramp" journeymen, but these are not generally of the kind whose appearance makes a favorable impression. Sometimes, when business is pushing, we are obliged to give one of these peripatetic fellows a chance at the bench, but my experience with such has taught me not to trust them with any work of importance unless I sit down beside them and watch them very closely. They are botches, as a rule, and while demanding full

wages, are totally incompetent to do careful work. All things considered, wages in the country places are better than in the city, for rents are much lower and the cost of living is very much less. If a man has a family that he cares anything about, the country offers him much superior advantages for providing for them over the city. He can rent a small house with a little garden for the price he would have to pay for two or three rooms in a tenement house in the city, thus securing that privacy that is denied in crowded tenements, and enabling his children to be as select as they please in the choice of their associates. To a man who is ambitious for the future of his children this is an important point, and the wonder is that more do not appreciate it. When I was younger I worked in the city for several years, and know the disadvantages a workingman with a family has to endure. When I finally removed to the country the change was delightful for my family, and they could not be hired to return to the city. The children have just as good educational advantages as the best families in the place, the schools are not overcrowded and the children are not exposed to the corrupting influences that attend them in the city. This is of vast importance where the children are girls. There is here no cropping out of that feeling of caste, where one family feels above another so that their children cannot associate together, but the children of the clergyman and judge attend the same school with the blacksmith's daughter, and are glad to have the society of the jeweler's boys. Intelligent workingmen ought to appreciate these advantages, but the fact is, that too many of the workingmen of the day fail to appreciate their responsibilities as the heads of families, and are content to drudge along in the same rut from year to year with no thought of trying to improve their condition, or of giving their children the advantages that every American child is entitled to.

The country offers better opportunities for a good workman setting up in business for himself than the city does. In the city it requires capital to engage in the active competition that rages on all sides, while in a quiet country community the practical ability of the workman can, with ambition and enterprise, be made to serve in lieu of capital. I know of several cases similar to my own, where men working at the bench have become so well known as careful, painstaking mechanics, that they have ultimately set up in business for themselves and done well. I have a small place, sell quite a fair lot of goods annually, but have all the repairing I can attend to at good prices. I usually employ two workmen, and often have four when I can get them. I would guarantee to give employment to three good men twelve months in the year, but it is impossible to get them. Watchmakers are, as a rule, a roving class, and would prefer to roam from place to place to settling down in the same spot year after year. I no sooner get a workman trained to my methods of doing business than he gets restless and wants to move on, so that I am continually breaking in new men. I say breaking in, for half the men know but little about their business, and the master has to teach them as he would an apprentice. I cannot comprehend why the best workmen persist in hanging about the cities when they could be so much better off in the country. But what are we to do for workmen in the future? As I have said, their character as workmen is rapidly deteriorating, and the opportunities for learning the watchmaker's trade are becoming scarcer each year. With trade unions limiting the number of apprentices, and the disinclination of modern boys to be thorough in anything, the race of really competent workmen is rapidly becoming scarce. What is to be done to keep up the supply? H. B. M.

TEMPTATIONS IN THE WAY OF EMPLOYEES.

To the Editor of the Jewelers' Circular:

The numerous reports that have been printed lately of boys employed in jewelry stores and factories robbing their employers, has led me to ask myself to what extent are the employers responsible for the derelictions of their employees. Young men are surrounded by temptations of all kinds outside of their work hours, and feel the necessity of having money to spend liberally. They do not receive princely wages in the factories or stores, and when the tempter points out the way in which they can get more money by appropriating goods with which they are brought in daily contact, they too frequently yield and become thieves. They begin by taking things of small value, and would be shocked to think that their petty pilferings brought them into the category of full-fledged thieves, but repetition blunts their sensibilities and they soon know no limit to their thefts. Do the employers of these young men realize that they have no moral right to lay temptation in the path of persons whose characters are not yet fully formed? Do they take the trouble to give them words of instruction as to their responsibility, or to inform themselves as to the habits and associates of their employees? A few words timely spoken to a young man in the midst of temptations may be his salvation. It is impossible to prevent employees having access to valuables either in the store or in the factory, but such safeguards might be thrown around the property as to make every one feel that any tampering with it is sure to result in discovery. The fear of detection acts as a great preventive of evil in persons who are wavering between right and wrong. It is not necessary that an employer should suspect every one about him of being a thief, but he has no right to place temptation in their way, and so every safeguard he can interpose between them and crime it is his duty to supply. A fashionable lady was remonstrated with because she would never let her maid handle her finery, and always locked up everything when not in use. She excused herself by saying that she felt responsible for her servants, and should be the last person to place temptation in their way. I hope all employers who may read this will ask themselves i they have done their full duty in removing temptation from the path of those for whom they are in a degree responsible.

MANUFACTURER.

STEALING PATENTS.

To the Editor of the Jewelers' Circular:

In your issue for October a correspondent complains that some manufacturer had stolen one of his patents, and reproduced the goods covered by it in cheaper metal, thus driving out of the market the higher priced and patented article. While I am willing to concede that a patent ought to convey certain rights to an inventor, yet I am certain that such a patent ought not to create a monopoly. In some cities, New York, I believe, is one of them, the municipal government is not permitted to advertise that it wants a certain article that is covered by a patent, but must permit an honest competition in supplying the wants of the city. At least, this is the theory of the law, but it is often violated most shamelessly. Patentees are in the habit of charging most unreasonable prices for articles that are covered by patents, the inventor claiming as a royalty frequently more than the cost of the goods. See how the patents on sewing machines kept up the prices of those useful articles, and the same is true of nearly everything that is patented—the royalty is more than the cost of the article itself. Now, I contend that our patent laws should be amended so that when an article is patented, any one may have the privilege of making it on giving bond to pay to the patentee a royalty that is reasonable, such royalty to be fixed by a board of examiners in the Patent Office. Such royalty should never exceed ten per cent. of the selling price of the article, while, as a rule, one per cent. would amply compensate the inventor. Probably your correspondent had fixed an unwarrantable price on his goods, and other manufacturers who would gladly have paid him a reasonable sum for the privilege of using his patent, preferred to take the chances of a lawsuit to paying an extortionate amount. The public ought to have the benefit of all patented articles at the same time that all inventors should be reasonably compensated for their ideas and labor. But when the Patent Office is invoked in the interests of a monopoly, or

when a patent issued by the government is used as a means of extorting money from the people, then it is time for Congress to interfere and so amend the patent laws as to protect the public. T. B. R.

["T. B. R." is somewhat socialistic in his ideas. He by no means meets the case presented by the correspondent referred to, whose complaint was embodied in an editorial in our September issue, not in the October number. We shall expect a reply from him in our next.—ED.]

OUR CHICAGO CORRESPONDENT.

To the Editor of the Jewelers' Circular:

Your Chicago correspondent is a lively, gossippy writer, and seems to give about all the news there is floating about in the trade. I wish, however, he would turn his caustic pen to writing about some of the abuses in the trade that are to be met with here on all sides. New Yorkers consider themselves pretty smart in devising ways and means for beating the devil around the stump, but Chicago dealers will ask no odds from them at that game. They are up to all that New Yorkers know, and have, in addition, some peculiar kinks of their own. A retail dealer in the country now has no more chance than a cat in sheol without claws. These Chicago fellows sell goods to any one who will write to them at jobbers' prices, so that the purchasers come into our stores and laugh at us, and accuse us of trying to rob our customers because we charge a retail profit on our goods. We cannot compete with these Chicago sharpers when they invade our territory and sell to our customers as cheaply as they will sell to us. Your correspondent knows all these tricks and I wish he would show them up. If they don't keep out of my preserves I am going to fail and stick some of them badly. If they ruin my business, I feel justified in doing anything I can to get square. Don't give away my name, for I want more credit yet. L. H. T.

THE OUTSIDE DEALER AGAIN.

To the Editor of The Jewelers' Circular:

I am a jeweler in a small town in Ohio. There was to be an important wedding in our place, and I laid in a large stock of plated ware mostly in anticipation of large sales for this event. A dry goods dealer in our town, who has never kept silver plated ware, came in and saw my goods, got numbers and prices and made up an order for himself and several friends and sent it to a dry goods jobbing house he dealt with in New York, and got the goods at the same discount for private use as I, a dealer, receive, and I have my goods on hand. The action of my townsman was especially contemptible as I have paid him a great deal of money in years past for dry goods for my family, but henceforth I go elsewhere.

What I want to ask you is this: have the jewelers no protection? Can any dry goods jobber in New York get trade discounts on plated ware, and furnish our own customers at the same prices we pay? If so, I am through. O. H. I. O.

PACKAGES BY MAIL.

To the Editor of the Jewelers' Circular:

Would it not be a good idea to insert a notice in your paper informing the trade of the new change in the postal regulations? The same prohibits the sender of open mail packages, commonly known as "fourth-class matter," from stamping or writing anything but his name and address thereon, besides the address of the party for whom the matter is intended. If this regulation is in any way infringed upon, "closed mail rates" are collected from the recipient. Now, as you are aware, the majority of the country trade use rubber stamps to mark their addresses on packages, etc., and these generally bear the word "*Jeweler*" besides their address. If this, or the term of any other business, happens to be on, the regulation is, of course, infringed upon, and in this way we, as well as others of the trade, are daily compelled to pay additional postage on such packages, amounting to the difference between the rate paid by the sender and full letter rates. This regulation seems only to have been enforced since the early part of this month. By giving this matter your consideration you will, no doubt, save the trade a good many small amounts which are needlessly thrown away now in this way. I. G. S.

New York, October 21, 1887.

[Our correspondent will find this subject discussed in another column. The indications are that the Postmaster-General will yield to the pressure being brought to bear on him and modify his order.—ED.]

The Jewelers' Security Alliance.

President, DAVID C. DOOD, JR.
First Vice-President, AUGUSTUS K. SLOAN.....Of Carter, Sloan & Co.
Second Vice-President, HENRY HAVEN.....Of Wheeler, Parsons & Hayes.
Third Vice-President, DAVID UNTERMEYER.....Of Keller & Untermeyer.
Treasurer, W. C. KIMBALL.....Of Strouse & Brother.
Secretary, C. C. CHAMPENOIS.....Of Champenois & Co.

EXECUTIVE COMMITTEE.

J. B. BOWDEN, *Chairman*.....Of J. B. Bowden & Co.
C. G. ALFORO.....Of C. G. Alford & Co.
GEO. W. FABER.....With Howard & Son.
F. KROEBER.....Of F. Kroeber Clock Co.
N. H. WHITE.....Of N. H. White.
CHAS. G. LEWIS.....Of Randel, ore & Billings.

EXAMINING FINANCE COMMITTEE.

GEO. H. HOORNTYL.....Of Hodenpyl & Sons.
CHAS. F. WOOD.....Of Chas. F. Wood.

Counsel, HON. ALGERNON S. SULLIVAN.

For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 3277. 170 Broadway, New York.

At the regular monthly meeting of the Executive Committee held at the Alliance office on the 14th inst., there were present Vice-Presidents Sloan, Hayes and Untermeyer, J. B. Bowden, Chairman, N. H. White and Secretary Champenois.

The following applicants were accepted as members:

P. H. Nefflen, Keyser, West Va.; Otto E. Heineman, Allegheny, Pa.; A. Steinan, Jr., Cincinnati, Ohio; Geo. O. Foye & Son, Athol, Mass.; Taintor & McAlpine, Easthampton, Mass.

Also at a previous meeting there were admitted: L. M. Barnes, North Adams, Mass.; R. Hampton & Co., Brewster, N. Y.; Chas. H. Packard, Maynard, Mass.; Arthur Rifenbergh, Brooklyn, N. Y.; Kneale & Southworth, Corsicana, Texas.

The Wichita Watch Factory.

A WATCH FACTORY is in course of construction at West Wichita, Ark. The Wichita *Eagle* gives this account of it: The location is on a beautiful block of ground, sufficiently elevated to command an excellent view of the city, and within two blocks of the Garfield University, one of the finest educational institutions in the West, and less than one-fourth of a mile from the Catholic academy. Street cars pass the grounds and connect with lines running to all parts of the city, and with the various electric and steam suburban motor lines. The factory buildings built of stone, brick and iron, will be completed by January 1, 1888, and the machine department

placed in immediate operation; the management hope to have the factory equipped and ready to start by June 1, 1888. The capital stock of the company is $500,000, exclusive of grounds and buildings. This stock is in the hands of the staunchest and best business men of Wichita, men whose business careers are so linked with the progress and growth of the city, that the history of one would be incomplete without the other; the directory comprises names that place the institution at once upon a plain of certainty and insure for it an honest, energetic and successful management. J. R. Snively, President of the company, is a thorough business man, whose energy and zeal mark him as a successful man; George H. Blackwelder, the Vice-President, is a business man whose success is equaled only by his enterprise. Hon H. W. Lewis, the Treasurer, whose long and successful business career as President of the Kansas National Bank, has won him the confidence and esteem throughout his extensive circle of acquaintances, is a tower of strength to any enterprise with which he may be connected; Irvin Stratton, the Secretary, is one of our leading attorneys, who was for a number of years prominent among the members of the Fort Wayne bar, and is now recognized as one of the most active and energetic business men; Hon. William Greiffenstein, who cradled our city in her infancy, still watches her marvellous growth with a just pride, and finds his public spirit and enterprise keeping pace with his years. Hon. R. I. Lawrence, President of the West Side National Bank, O. Martinson, Vice-President, John McCormick and Lafayette Simpson complete the list comprising the company's directory.

The Great Waterbury Clock that is to Excel that of Strassburg.

THE WATERBURY Watch Company has almost completed its wonderful clock, as we learn from a Hartford exchange, and its mechanism is said to surpass the famous clock of Strassburg. It will be completed by early autumn, and will then be on exhibition in several of the leading cities of the United States. No one has yet seen it but the builders. The clock is 18 feet high, with a base of 7 feet; the width is 8 feet and it is 6½ feet deep. Nearly all the choice and expensive varieties of wood enter into its construction, also a numberless variety of metals. The cabinet work throughout is a marvel of beauty. Five long years have been consumed in its construction; sometimes four, at others five, men, have been engaged in the work. Time is indicated in the usual manner by hours, minutes and seconds; in addition, half-seconds, eighths, sixteenths and one thirty-second of a second. The day of the year, month and week may also be taken from the dial. The number of wheels, parts, pinions, springs and other parts of the mechanism is legion, all of which contribute to most wonderful and amusing exhibitions of historical events. The several phases of the moon are indicated. The entire system of the planets and solar system are shown in perfect form and in all the varied revolutions. A perfect system of astronomy may be studied from the ingenious machinery. Many hundred figures represent distinguished clergymen, lawyers, physicians, orators, poets, musicians, sculptors, artists and actors; also distinguished men of all nations. These figures are said to be carved in wood from correct likenesses, and are most complete representaves. The signers of the Declaration of Independence assembled as represented in history, the cabinet of Lincoln, when the emancipation proclamation was signed, the surrender of Lee at Appomattox, several scenes at the Centennial at Philadelphia in 1876, and noted scenes and historical events as represented in the Bible have a prominent place. Shakespearian plays are set out with characters true to the representations of the author and the modern setting at the theatres, with dress and costumes to correspond. Figures and fashions of dress, both ancient and modern, down to the latest period, are among the curiosities. A multitude of amusing scenes will fill out the measure of this wonderful clock. It is safe to say that it will surpass any other mechanical structure of the kind ever produced.

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of September 13, 1887.

369,866—Watch Balances, Machine for Turning and Polishing the Rims of. E. A. Marsh, Newton, Mass.

369,871—Watch Case. C. F. Morrill, Boston, Mass.

Issue of September 20, 1887.

370,038—Clock for Timing Watches. J. F. Beyerle, Reading, Pa.

370,219—Clock Striking Mechanism. J. L. Sullivan, Xenia, Indiana.

340,146—Watch. A. Junghans, Assignor to Gebruder Junghans, Schramberg, Wurtemberg, Germany.

Issue of September 27, 1887.

370,411—Breast Pin. H. P. Pruim, Grand Haven, Mich.

Issue of October 4, 1887.

370,932—Clock, Electric Alarm. E. J. Colby, Chicago, Ill.

371,139—Watch. W. Hanson, Assignor to J. H. Skilton, Trustee, Brooklyn, N. Y.

370,929—Watch, Stem Winding and Setting. D. H. Church, Newton, Mass.

371,019—Watches, Device for Setting Ruby Pins in. D. H. Abney, Pilot Grove, Mo.

Issue of October 11, 1887.

371,306—Clock, Astronomical. H. Conant, Pawtucket, R. I.

371,182—Jewel or Toilet Set Box. F. W. Evans, Newburyport, Mass.

371,282—Watch Case. G. C. Smith, Chicago, Ill.

Issue of October 18, 1887.

371,696—Clock, Electric Alarm. S. P. Meads, Oakland, Cal.

371,595—Watch, Pendant Winding and Setting. C. Kistler, Sterling, Ill.

371,539—Watch. Stem Winding and Setting. J. Bachner, Chicago, Ill.

American Watches.

THE following article is taken from *The Shipping and Commercial List* of Oct. 1, 1887:

"The near approach to perfection which has been attained in the manufacture of American watches is something marvellous; and the New York Standard Watch Company (to whose advertisement in another column we direct the attention of our readers) claim that they are about as far advanced in that line as it is possible to be. It is a strong company, with $402,000 paid up capital, officered by well-known business men of signal ability. It is the absolute owner of all the patents under which it works. The watch manufactured

by this company is a marvel of ingenuity and simplicity, and possesses a novelty of mechanism which makes a most beautiful, attractive and perfect timepiece. The most radical departure from the old method of making watches is noticed in the construction of the escapement, where an entirely new principle has been introduced. One of the salient features in this new movement is a grooved shaft or worm which acts directly with the escape wheel, and as it always turns in one direction may be said to be endless in its operation and movement, thereby producing an evenness and uniformity of motion which it is claimed is the most accurate known to science. It is claimed that the "Standard" watch is the most perfect piece of horological mechanism ever made, and equal to any watch on the market. In the construction of these watches nothing but the very finest and best material has been used."

A Device for Heating a Jet of Air.

A TOOL to be used for the heating of shellac, etc., as employed in the setting of jewels, pallet stones, and similar work, is shown in the accompanying illustration, and has been patented by Mr. Frank Heller, of Oakland City, Ind. It is made by forming twists or coils in the discharge end of a blowpipe, and surrounding these twists or coils by a ball or jacket of metal, the nozzle projecting outward through a proper opening. This ball or jacket of metal

HELLER'S HOT AIR BLOWER.

having been previously heated, the air forced through a tortuous course within such body of heated metal affords a hot blast, which may be delivered against the shellac without subjecting the surrounding parts to the action of the flame by which the heat is produced.

The Ruby Pin.

I HAVE so often seen watch repairers, every time they wished to tighten or reset a ruby pin in a lever movement, remove the roller from the staff, heat it in the alcohol lamp until the shellac was softened, and perhaps the roller blued and disfigured, beside losing the entire adjustment and injuring the timekeeping qualities of the watch, by replacing the roller without the aid of a beat block, that I offer a simple little device which may be useful to some of your readers. Take a piece of medium sized pin wire, about two and a half inches long; anneal about one-half or three-quarters of an inch of each end, then bend into the shape of a shepherd's hook, hammering the open end flat, and it is ready for use. Holding the balance with the roller table uppermost, now heat the hook, and place it carefully around the staff body underneath the roller table. You will find it will communicate sufficient heat to the roller to soften the shellac, and no other part of the balance staff or spring will be sufficiently heated to damage them in the least, while the ruby pin may be readily and easily adjusted to its proper position.

Indestructibility of Gold.

GOLD may be said to be everlasting, indestructible. The pure acids have no effect upon it. Air and water are alike prohibited from working its destruction; while to baser metals they are decay, to gold they are innocuous. Bury it through long ages, and when the rude tool of the excavator again brings it to light, while everything around it and originally associated with it has returned to dust from which it sprung; while the delicate form which it adorned has become a powder so impalpable as to be inappreciable; while the strong bone of the mighty warrior crumbles as you gaze upon it; while his trusty sword lies a mass of shale rust, the delicate tracery in gold which adorned it or the finely-wrought tiara which encircled the lofty brow of the fair damsel is there in its pristine beauty, perfect as when it left the workman's hands and became the joy of her fleeting moments. Yes, days, years, centuries have rolled by, mighty empires have risen and fallen, dynasties that dreamed their power was to be everlasting have passed away, armies have marched, conquered, and become nerveless with decrepit with old age; cities teeming with population and commerce have become the dwelling-place of the owl and the bat; the very pyramids themselves, raised in the pride of power and destined to be forever, have crumbled and are crumbling, and yet that thin fil ment of gold has stood unchanged through all these mighty changes; it has stood triumphantly the destroying hand of time; it is to-day what it was three thousand years ago. Surely it is a noble metal worthy of all admiration.—*Sir Henry Vivian.*

American Gold Seekers Abroad.

THE AMERICAN Consul at Carthagena, Colombia, Edmund W. Smith, in a report to the Department of State, says: "Considerable attention has recently been drawn to the vast deposits of gold in Colombia by the publication of an exhaustive treatise on mines and mining in Colombia by Señor Vicente Restrepo, the present minister of foreign relations of this Republic.

This work has been deemed so important in the mining world, and the demand so great for it, that translations have been made in English, French, German and Italian. Through the medium of this book of Dr. Restrepo, nearly a half a million of dollars' worth of American mining machinery has within the past year been introduced into Colombia by American capitalists, for the purpose of working old and developing new mines. Every steamer that arrives brings miners and prospectors from California, Idaho, Washington Territory, and other mining districts of our country *en route* to the gold diggings of Tolima, Antioquia, and the "Choco". Two companies are now being organized in Boston for the purpose of alluvial and hydraulic mining on the Atrato River in the "Choco" district. As a great rush is anticipated this season from the number

of inquiries I receive each mail, I deem it a duty to caution my fellow-countrymen not to be too sanguine. It must be borne in mind that in the mining regions labor is scarce, food high, and absolutely no roads to travel on. Paths have to be cut. Mining in California is but child's play in comparison to mining even in the best sections of Colombia. The language spoken is Spanish, the difficulties in passing the custom-houses, the want of facilities for transportation, are all obstacles that must be encountered at the very beginning."

Consul Herring, in Honduras, reports as follows regarding the mines and mining in that country: "Notwithstanding the insurrection and rumors of war, the exciting hunt for gold and silver has continued with a lively interest, and mines and mining are more talked about than any other branch of industry.

Nearly all the mines organized or reorganized, under the improved system of mining, are only in a preparatory stage, and therefore not much bullion has been produced and no dividends declared. The amount and value of bullion produced are not known. The Government derives no revenue from this source and no record is kept.

It is a notable fact that all the mines of Honduras that have attracted considerable public attention have been or are being taken charge of and controlled by Americans or American capital. The only exception showing investment of foreign capital is a mine belonging to a French company near San Pedro, and which is managed by the only French Consul accredited to this Government.

Nearly all the mining capital of Honduras being held by citizens of the United States, it would be interesting to know the exact amount, but it has not been ascertained. It rises, however, way up in the millions, and has grown rapidly within the last two years, and still continues to grow."

Great Nuggets from Australia.

THE FOLLOWING appeared in the Melbourne *Argus* of October 24: "Ballarat, August 23.—This morning an extraordinary incident in the recent mining history of the colony occurred, when an immense nugget, weighing about fifty-one pounds, of pure gold, was unearthed in the now famous Midas mine at Sulky Gully. This mine is on the property of Sir William Clarke, known as Dowling Forest, and on several occasions lately nuggets varying in size, though small, have been obtained. To-day's discovery, however, eclipses anything of the kind that has been known for many years in Victoria. The news of it created considerable excitement in this city. The first public intimation was obtained in a rather curious manner. A man was observed by a large crowd of shareholders, who congregate at the corner, to be walking down Sturt street, carrying a sack containing what to appearance was like a small pig, but his strange burden was soon found to be the nugget, and he was followed by an excited and questioning crowd across Lydiard street down to the corner to Messrs. Stoddard & Binney's office, where he displayed the contents of his bag. It was immediately placed on exhibition in Messrs. Stoddard & Binney's office. The nugget is flat and has something the contour of a colossal hand held open, with the thumb and fingers close together. Its greatest length is 12½ inches and breadth 8½ inches, and it varies in thickness up to 2½ inches. It is apparently pure gold, and weighs 617 ounces. It was found in the northwest main drive, in the direction of the No. 2 shaft, 120 feet from the surface, and at a spot about 50 feet from where the Lady Brassy nugget was recently found. A cast will be taken of the nugget before it is broken up. It is estimated to contain fifty-one pounds of pure gold, worth about £51 per pound, and the find represents an addition to the company's revenue of about £2,600. The nugget will be exhibited at Messrs. Kilpatrick & Co.'s, jewelers, Collins street, West, Melbourne." Lady Loch has consented to its being named after herself. It is probable that the nugget will be forwarded to England for exhibition. Subjoined is a list of the previous remarkable nuggets discovered in the Victorian gold fields:

	When Found.	Weight.		
		lb.	oz.	dwt.
Black Hill	Oct. 14, 1858	7	6	0
Canadian Gully	Jan. 20, 1853.	93	1	11
Canadian Gully	Jan. 22, 1853.	84	3	15
Canadian Gully	Jan. 31, 1853.	134	11	0
Canadian Gully	Feb., 1853.	30	8	0
Canadian Gully	Feb., 1853.	30	11	2
Eureka	Feb. 7, 1854.	52	1	0
Dalton's Flat Canadian—Lady Hotham	Sept. 8, 1854.	98	1	17
Bakery-hill	March 6, 1855.	47	7	0
Bakery-hill	March, 1855.	40	0	0
Union Jack, Buninyong	Feb. 28, 1857.	23	5	0
Black-hill Dead—Nil Desperandum	Nov. 29, 1857.	25	0	0
Bakery-hill—Welcome	June 9, 1858.	184	9	16
Koh-i-noor Claim	July 27, 1860.	69	6	0
Koh-i-noor Claim—Sir Dominic Daly	Feb., 1862.	26	0	0
Mollagul—Welcome Stranger	Feb. 9, 1869.	190	0	0
Webbville—Buninyong	Aug. 1, 1869.	12	0	0

Artistic Work in Silver and Bronze.

THE EXCELLENCE of much of the work now executed by the leading American silversmiths is such that their productions unquestionably compare favorably with the best samples of workmanship, while in all lines of plated goods our decided superiority over the manufactures of other countries will be readily admitted. Although every device is adopted whereby hand labor may be abbreviated in the production of staple goods, expense is lavishly incurred in the getting out of new designs, and in the making of the most perfect steel dies for stamping, when the goods are thus formed, while in such articles as are cast such care is taken with the mould that they generally come out sharp and clean, and with an almost perfect finish.

LAMP IN SILVER AND BRONZE—ADAPTATION OF ORIENTAL DESIGN.

An ornamental lamp after a somewhat Oriental design, which presents no small difficulties in its execution, is shown in the accom-

panying illustration, and is the work of one of the best known of our manufacturing silversmiths. The dragon which forms the stand is of bronze, its serpentine body being wound around the horn, which forms the reservoir, and its crested head and wings, coming under the portion of the lamp bearing the greatest weight, give a proper sense of solidity, its claws furnishing the feet. The horn is of hammered silver, or of copper plated, oxidizing the silver, making a most effective contrast and affording an article which will be very serviceable while needing but little care. The finish of this piece, and of a great variety of work of similar character, leaves nothing to be desired. In all such work, the American public has the opportunity of obtaining goods of real artistic merit, in a wider variety of design than they can be found anywhere abroad, and at a moderate cost.

Fine Belgian Metal Work.

IN THE accompanying illustration is represented a specimen of beautiful work in bronze gilt, executed in Liege, Belgium. Its rich and elaborate ornamentation and brilliant gilding make it a most conspicuous feature even in such gorgeous *salons* as are to be found in French and Belgian palaces. Unlike our practice in the use of gas, this has been designed to be provided with candles and

A BRONZE-GILT LOUIS XVI. CHANDELIER.

the French mechanical lamps so much in use in Europe. This practice of illuminating *salons* being the almost universal custom in foreign countries, owing to the belief that the yellow light emitted is more becoming to the complexion than the more dazzling glare of gas or the electric light.

Death by Electricity.

A NUMBER of interesting experiments have just been made abroad with such electrical machines as are employed in industries, with the view of determining under what conditions they may become dangerous. These have been conducted by M. d'Arsonval, who has already established the fact that what is truly dangerous where these machines are used is the extra current that occurs at the moment the current is broken, and in order to annul this extra current, he proposes to interpose a series of voltameters containing acidulated water along the conducting wire. The new arrangement now employed is at once more simple and efficient. It consists of a V-shaped tube made of an insulating substance, which, after being filled with mercury, is interposed in the main current. In order to close the latter it is only necessary to turn a tap which is arranged similarly to the tap on a gas-pipe. In this way the machine is unprimed without its being able to give an extra current spark. Another arrangement is also made use of, a glass tube being filled with mercury and dipped into a reservoir containing the same substance. This tube is provided with a ground stopper, this not only permitting the suppression of the extra current, but also interposing any sort of resistance in the current. Although these details appear rather technical, they relate to a most important matter. The use of electrical machines is increasing, and it is of practical use to know that currents are not dangerous until a power of 500 volts is reached. It is also of interest to know that the mechanism of death varies with the nature of the electricity used. Thus, with the extra current or with alternating currents, there is no anatomical lesion, and the patient can usually be brought back to life through the practice of artificial respiration, as employed in cases of drowning.

How to Convert the Thermometer Scales.

FORMERLY, when the different nations of Europe kept more secluded from each other by reason of the want of facilities of rapid locomotion, each one adopted a coinage, weights and measures, etc., best suited to its requirements; their little traffic jogged along all right, and every other nation accommodated itself to the peculiar institutions of its neighbors. Times have changed, however, and international traffic has assumed proportions which even the boldest minds of our forefathers did not foresee, and we are beginning to sadly want all our coinage, measures of time, of bulk, etc., reduced to an international standard, so that one nation living thousands of miles away from another one will readily be able to understand its local institutions in this regard. None of the least perplexing are the various thermometer scales; the educated man, of course, understands how to compute one differing from that used in his native country, but then we have not all had the opportunity of becoming educated men, and for them the following ready means of converting one scale into another may be of interest:

Fahrenheit into Centigrade (Celsius).—Subtract 32° from Fahrenheit's degrees and multiply remainder by 5, then divide by 9. The product will be the temperature in Centigrade, or, as occasionally called, Celsius, degrees.

Fahrenheit to Reaumur.—Subtract 32° from Fahrenheit's degrees, multiply the remainder by 4 and divide by 9. The product will be the temperature in Reaumur's degrees.

Centigrade into Fahrenheit.—Multiply the Centigrade degrees by 9, divide by 5 and add 32 to the product. The sum will be the temperature by Fahrenheit's scale.

Reaumur to Fahrenheit.—Multiply the degrees on Reaumur's scale by 9, divide by 4 and add 32 to the product. The sum will be the temperature by Fahrenheit's scale.

Our readers are well aware that both the Centigrade and Reaumur scales fix their freezing point at 0°; the former has its boiling point

at 100°, the latter at 80°. Fahrenheit, however, has his zero at a temperature produced by the mixture of ice and salt, while the freezing point of water is located at 32°; and this number of 32° has always to be subtracted when converting a temperature into Fahrenheit.

The Burmese Ruby Mines.

OFFICIAL correspondence respecting the ruby mines of Upper Burmah has been issued as a Parliamentary paper. On Feb. 25, 1866, the Viceroy telegraphed to the Secretary of State that the highest sum ever paid by the Burmah ruby mines to King Thebaw's Government was 1,500,000 rupees, stones above a certain size going to the king. It was now proposed to give a provisional lease to Gilanders Arbuthnot, of Calcutta and Rangoon, on condition of an annual payment of two lacs and free examination by the government of the firm's accounts, the lease to be terminable at the end of any year on six months' notice. No objection was offered by the Secretary of State; but on March 27, before any conclusion was arrived at, the Viceroy telegraphed that Captain Patton, representing Streeter, offered three lacs, and again on April 14 that the local house offered three lacs, while Messrs. Streeter's agent subsequently offered four. The Secretary of State telegraphed leaving the matter to the decision of the Viceroy, but asking that the value of the mines and the rights of the government should be carefully ascertained before any pledge was given. The matter thus rested until May last, when, on the 19th, Lord Cross telegraphed, asking whether it was true that a contract on behalf of the government had been signed, and that an application by a representative of a syndicate with Messrs. Rothschild to visit the mines had been refused. Lord Dufferin replied that the terms under which the ruby mines were to be worked were still under consideration, but a memorandum had been signed which did not bind the government, indicating the terms which the government representative would recommend the government to offer, and this had been communicated to Messrs. Streeter. At the same time the Viceroy in council was of opinion that should the ruby mines, regulation and terms of agreement finally decided on prove acceptable to Messrs. Streeter, they were entitled to be granted a lease in consideration of having sent in the highest tender. The Viceroy subsequently forwarded a statement of the proceedings in the matter of the ruby mines since the occupation of Upper Burmah, showing that the agreement on lease with Mr. Streeter had still to be settled by the law officers of the government, and that it was not to commence until November next. They had been careful to protect the rights and interests of the native miners. As to an agent named Unger, who had complained that he had not been allowed to inspect the mines, the Viceroy said he had never made a definite offer, and he never mentioned that Messrs. Rothschild, of London, were connected with the syndicate of which he was agent. The chief commissioner did not consider Unger's proposals sufficiently serious to justify him in postponing his decision in regard to the specific offers of two firms, especially as, when pressed to produce his credentials, Unger had declined to respond to the invitation. Lord Cross telegraphed to the Viceroy on June 6, asking his excellency to make no arrangement with any one without sanction from home. Replying on July 8 to a telegram from Lord Cross, the Viceroy said that Mr. Streeter's son had been granted a license to dig for rubies under the old system, without machinery; but it was quite a distinct matter from the leasing of the crown monopoly right, on which action remained suspended. Lord Cross finally wrote, on Aug. 4, to the Viceroy that he had not sufficient information before him as to the value of the mines or the effect of using machinery on them; and that, before sanctioning any lease or agreement, he proposed sending out experts to scientifically examine the mines. This decision was also communicated to Messrs. Streeter, to Messrs. Ogilvie, Gillander & Co., and to the Exploration Company.—*London Telegraph.*

Ornaments of Jet.

JET IS DUG from the earth much after the manner of digging amber. The two products are often found together in the pits which are sunk in the sands on the south shore of the Baltic, and also on the shore of the North Sea. From this circumstance, and from their having some properties in common, it is likely that the two substances have a common origin.

Jet has been described as a variety of lignite, that is, a product of wood undergoing a change into coal. There is reason for thinking that both this and amber are from resins and gums. These old English lines give a good account of the substance:

> "Jeat-stone almost a gemm the Lybians find,
> But fruitful Britain sends a wondrous kind:
> 'Tis black and shining, smooth and ever light.
> 'Twill draw up straws, if rubbed till hot and bright.
> Oyl makes it cold, but water gives it heat."

English Jet is dug on the coast of Yorkshire, near Whitby and Scarborough. A trade in the article was carried on at Whitby in 1598. We learn from ornaments found in ancient tombs that jet was in use among the early Britons and their conquerors, the Romans. It is altogether likely that in its early use jet was worn, as amber is still worn in the East, as a charm or amulet to protect the wearer from disease or other evil.

The yield of jet in England is worth about one hundred thousand dollars. The price varies with the quality, and ranges from ten to eighteen shillings a pound. The working of this product up into articles of ornament and use gives employment to five hundred men, women and children in Whitby. The process of working jet is described by Mr. Walter White, as follows:

"The pattern of the desired object, a scroll, leaf, flower or whatever else, is scratched with a steel point on a piece of jet sawn to the required dimensions; the workman then with a knife cuts away the waste portions, brings out the rude form, and by using various knives and chisels, according to the delicacy of the design, he in no long time has the article ready for the polisher.

"The work looks very easy, as you watch the men cutting, apparently with less concern than some folks bestow on the whittling of a stick, and making the chips fly in little heaps. The nature of jet favors rapidity of hand. It has somewhat the appearance of compressed pitch, and when under the knife sends off a shower of chips and splinters as hard pitch does.

"Some specimens have been found with fossils so embedded in them as to confirm the opinion of those who hold jet to be a species of petroleum, contrary to the common belief that it is wood partly converted into coal.

"After the knives the grindstones come into play, to work up and smooth all the accessible surfaces; and next, swift-whirling wheels encircled with list, which gives the polish. The deep incisions and hollows, which cannot be touched by the wheel, are polished on narrow slips of list. This is the work of boys; the slips of list are made fast by one end to the bench, and taking hold of the other, and shifting or tightening as the work may require, the boys rub the deep parts of the ornaments backward and forward till the polish is complete.

The finishing touch, which imparts the brilliance, is given by a sprinkling of rouge and a light hand with a rubber."

Strange as it may seem, there is always more port than starboard on a pleasure yacht.

Women who wear diamond bracelets in traveling are usually the ones who eat peas with a knife.

Jack—"Ah, Miss Kate, it's the little things that tell." Miss Kate—"Yes; little brothers and sisters."

Bobby was inspecting the new baby. "I s'pose it's nice enough, what there is of it," he said without enthusiasm; "but I'm sorry it ain't a parrot."

A clergyman who preached in a prison not many Sundays ago, began his discourse with, "My friends, I am glad to see so many of you here this morning."

"Ella," said Clara, as they were seated on the veranda of their country boarding house, "I went fishing with Charley this morning." "Did you? What did you catch?" "Charley."

A reputable Georgia journal says that a clock down there stopped the moment its owner was arrested, charged with murder, and started again without aid the moment he was acquitted.

Proverblets.—Where there's a will, there's a way to break it. He laughs best who laughs at his own joke. Speech is silver, but the coinage is badly debased. It is well to be on with the new love before the old love throws you over.

The Burlington *Free Press* says that lightning knocked over three men who were sitting on boxes in front of a grocery store in Paterson, N. J. One was knocked senseless; the other two exclaimed with one breath: "Leggo! I'm comin' right home."

Mr. Waldo (a guest of Mrs. Wabash's, of Chicago)—"That is a very odd-looking table knife, Mrs. Wabash. Silver, is it not?" Mrs. Wabash—"Yes; it has been in the family a great many years, and I prize it very highly as an heirloom. I only use it to eat pie with."

It has been noticed that a girl who has graduated from Vassar, and had spent $25,000 on her education will, after marriage, hold clothes pins in her mouth and gossip over the back fence while hanging out the washing, just like other women. You can't change a woman's nature.

Minister (dining with the family)—"You never go fishing on Sundays, do you, Bobby?" Bobby—"Oh, no, sir." Minister—"That's right, Bobby. Now, can you tell me why you don't go fishing on Sunday?" Bobby—"Yes, sir. Pa says he doesn't want to be bothered with me."

Sunday noon. St. Paul real estate man walking in deep meditation near the First Methodist Episcopal Church. Friend awaits him. "Hello, Fairchild, been to church?" Real Estate Man—"Of course I have." "Remember where the text was?" "Certainly. Lots 3 and 4, block 7, St. Paul's addition to the Romans."

She—"Do you remember that lovely moonlight ride we had at Newport last summer, Charley, behind that cute little donkey." He (with tender reproach)—"Do I remember it, love? As if I could ever forget it!" She—"You are nice to say so, Charley; and do you know, dear, I never see a donkey without thinking of you."

A Hartford man sent his boy into the country this summer, and among other things gave him a woodchuck trap, and told him to be sure and go to church on Sunday. The following is the first letter received: DEAR PAPA—I've caught a woodchuck. It was a skunk. I did not go to church. Yours affectionately

There was only one match in the crowd of four men, each of whom had a cigar ready to light. "Let me strike it," said one, "I'm an Irishman." He struck the attitude assumed by a contemplative stork, took the match and swiftly keelhauled it. The effort was a failure, the head being broken off and lost. "By Jarge!" he exclaimed "I forgot I was naturalized last month!"

The agent of a Cincinnati jewelry house, who went over to a Kentucky town to inquire into the failure of a customer, asked to see the books. The customer raised his voice and called to a negro at the back end of the store: "Hi! you boy, bring out them books. Get those two lives of Daniel Boone; and if there's a Bible 'round bring that. This chap wants to see our books, and we want him to know our books are all to be sawn."

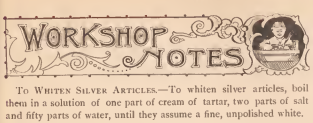
Mrs. Graham is an estimable lady, whose hobby is house decoration. One day last spring Mrs. Graham was careless enough to drink a glass of red ink, believing it to be claret. She was a good deal scared when she discovered her mistake, but no harm came to her. The doctor who was summoned, upon hearing what had happened, dryly remarked to her: "Mrs. Graham, there's such a thing as pushing this rage for decorated interiors too far."

"Is this a fire insurance company?" he inquired, as he hesitatingly entered the office of one of the best known companies in the country. "Yes, sir. Anything we can do for you?" "Well, yes. I'm a traveling man and I've just got a situation. I've been unfortunate in every other job I've had. Always struck dull trade, you know, and got fired. Now, if you will insure me against fire in this case, I'll be perfectly willing to pay whatever is reasonable for a policy." But the company wasn't filling that kind of a long felt want.

He was stroking her hair fondly—she had beautiful hair, which was not overlooked when inscrutable Providence was painting things red—and they were very, very happy. The old folks had gone to bed. "And during the busy hours of the day, George dear," the girl went on, "do thoughts of me ever come to you? Do you think of me occasionally while immersed in the cares and responsibilities of your busy business life?" "Do I think of you occasionally?" he replied, with tender reproach. "Yes, indeed I do, love, every time I see a white horse."

Omaha dame (reading)—"An Albany watchmaker, to whom a watch that had been dropped overboard on a fishing excursion was taken, found that some of the works were so badly rusted that they were useless. 'If,' said he, 'I had dropped your watch in oil as soon as you took it out of the water, or, better yet, had dropped it into alcohol or any kind of strong liquor, it would have cost you nothing but the cleaning.'" Husband (musingly)—"Well, well! Never thought of it." "Never thought of what, dear?" "You know that during the fishing trip I am going to take, I might get excited while pulling in a big fish and upset the boat." "You can swim?" "Yes, but my watch would get wet." "So it would." "Yes, I'll just take a jug of strong liquor along to drop it into."

The pleasant conductor.—"Sit still, madam," said the conductor of a passenger train, as the wheels of the car bounded over the ties; "there is less danger if you keep your seat." "Mercy on us!" exclaimed the excited lady, "we shall all be killed or crippled." "Only crippled, madam," replied the conductor, "but you see we are prepared for that. In case you have a limb broken, we carry a handsaw to cut it off, and if it's too tough for the saw, you will observe that we can finish the job with the ax hanging just beneath it. We also carry a leather bucket to catch the blood. Don't get excited, madam! The brakeman will use the saw on any of your limbs at any time, if you will speak to him, but, if you prefer the ax, why—" The lady had fainted, but she gave the peanut boy a nickel, five minutes later, to catch her breath for her and deliver it right side up with care.



To Whiten Silver Articles.—To whiten silver articles, boil them in a solution of one part of cream of tartar, two parts of salt and fifty parts of water, until they assume a fine, unpolished white.

Paint for Sheet Iron.—Good varnish, one-half gallon; add red lead sufficient to bring to the consistency of common paint; then apply with a brush. This paint is applicable to any kind of iron work which is exposed to the weather, thoroughly protecting the metal from rust.

Pale Gold Lacquer.—Best shellac (picked pieces), eight ounces; sandarac, two ounces; turmeric, eight ounces; annato, two ounces; dragon's blood, one-fourth ounce; alcohol, one gallon. Mix, shake frequently, till all is dissolved, and the color extracted from the coloring matter, and then allowed to settle.

Drilling Bows.—Good bows are necessary complements to good turns, and the watch repairer cannot dispense with less than four, varying in length from 12 to 24 inches, and in strength from that sufficient to make a balance pivot, with horse or human hair, without slipping on the ferrule, when turning with a fine pointed graver; and the others increasing in strength to what is required in turning barrel arbors, stoppings and the larger drilling operations in watch work.

Etching Liquid for Steel.—Mix one ounce of sulphate of copper, one-fourth ounce of alum and one-half teaspoonful of salt, reduced to powder, with one gill of vinegar and twenty drops of nitric acid. This liquid may be used either for eating deeply into the metal or for imparting a beautiful frosted appearance to the surface, according to the time it is allowed to act. Cover the parts you wish to protect from its influence with beeswax, tallow or some similar substance.

To Refine Silver.—After having rolled the silver cut it into pellets, and curl them to prevent them from lying flat; then drop them into a vessel containing 2 ounces of good nitric acid, diluted with one-half ounce clean rain water. When the silver has entirely disappeared, add to the 2½ ounces of solution nearly one quart of clean rain water. Then sink a clean sheet of copper into it; the silver will collect rapidly upon the copper, and you can scrape it off and melt it into a button.

Repairing Cheap Clocks.—There are few things that tax a workman's patience and ability more than the repairing of common clocks. The low prices that are paid for repairs and the exacting demands that are made for their performance render it increasingly difficult. Among the most troublesome that I have found is the French drum clock with short pendulum. The most frequent cause of stopping is this: the back pivot, just above the pendulum, soon wears flat, which increases friction and stops the clock. The cheapest and best remedy is to file up the pivot to a knife edge or V-shape, which will give it a light action.

To Make a Drill.—It is quite a difficult piece of work to make a true running drill in the drilling spindle of the chuck lathe. To do this well do not turn the drill between the lathe center, but fit the steel direct into the spindle and turn the spoon on. It will receive the proper form and size in the lathe, after which it is filed flat in front. Such a drill requires a little more labor, but it is far stronger than the hammered ones, and it is really a piece of downright carelessness if the repairer breaks it. Moreover, a drill made in this manner must unconditionally run true. It is best to make it as short as possible. Every drill should have only two cutting edges—one on each side; this will expedite work not alone in the foot lathe, but also with the drill bow.

Dead White on Silver Articles.—Heat the article cherry red or a dull red and allow it to cool; then place it in a pickle of 5 parts sulphuric acid to 100 parts water, and allow it to remain therein for an hour or two. If the surface is not right, rinse it in cold water, and repeat the heating and pickling operation as before. This removes the copper from the surface of the article, leaving pure silver on the surface. When sufficiently whitened remove from the pickle, rinse well in clean hot water and place in warm boxwood dust.

Bows.—Whalebone can be reduced in strength or rendered more uniform by being filed with a fine rasp, or by scraping its surface with a piece of broken glass. If, instead of fixing a brass end with a hook to the bow, it is desired to form a hook of the whalebone itself, hold the extremity in boiling oil for a short time, when it will soften; then form the hook, maintaining the whalebone in the required position until sufficiently cool to set. A form of bow has been introduced that consists of a brass handle, into which slides a steel wire bent into the requisite form; the strength, of course, depending on the thickness of steel wire used.

Powdered Glass.—Powdered glass is largely taking the place of sand in the manufacture of sandpaper. It is readily pulverized by heating it red hot and throwing it into cold water, the finishing being done in an iron mortar. By the use of sieves of different sizes of mesh the powder can be separated into various grades, from the finest dust to the very coarse, and these grades should be kept separate. A strong paper is tacked down and covered with a strong size or glue, and the coating covered with powdered glass of the desired fineness; when the glue is dry, the surplus glass is shaken or brushed off. Muslin is much better than paper and lasts much longer.

Fastening the Spring on the Collet.—When the spring is firmly fastened on the collet, the first turn cannot be too close to it, but it must not touch it, and must form a true or slightly expanding circle with it. It must then be placed in the turns, or an arbor, and revolved with the bow, and looked at with the glass to see that the spring revolves truly with the collet, and that there is no jumping action in it. If the eye of the spring is much larger than the collet, it will be difficult to make it revolve truly, but in repairing a bad spring many judicious touches with the tweezers may be given while it is on the arbor, and anything like a crank action of the spring and collet must be corrected.

Polishing the Fourth Pinion.—The best pivoters generally polish the fourth pinion like any other arbor, but if nervous or heavy-handed, a special brass center with half of its diameter filed away, and a convenient slit for the pivot to rest nearly all its length in may be used, but it is not to be recommended, as a careless slip will destroy the pivot, which otherwise in the turns would have a certain amount of elasticity. The resting of the little finger on a convenient part of the turns, and letting it move with the polisher, is an item in polishing pivots, the fingers being used to regulate the pressure of the arm and hand; the most troublesome pinion to pivot is the Swiss scape pinion, owing to its having no arbor.

Silver-Aluminum Alloys.—Aluminum and silver make handsome white alloys, which, compared to those from pure aluminum, are much harder, in consequence of which they take a much higher polish, and, at the same time, they are preferable to the silver-copper alloys for the reason that they are unchangeable in air and retain their white color. It has been proposed, therefore, no longer to alloy the world's money with copper, but with aluminum, which makes them far more durable, and even after a long-continued use they retain their white color. Experiments on a vast scale were for this reason instituted in European countries, but for some reason or other it appears that the silver-copper alloys were retained. According to the quantities of aluminum added, the alloys possess varying characteristics. An alloy consisting of 100 parts aluminum and 5 parts silver differs but little from the pure aluminum, yet it is far harder and assumes a higher polish. An alloy consisting of equal parts of aluminum and silver, rivals bronze in hardness.

FOREIGN GOSSIP.

MICROSCOPES.—The power of the microscope has been increased to unknown proportions by modern science. Unassisted human vision can see no objects smaller than the three-hundredth part of an inch in diameter; but the microscopist, with the best instrument, is able to examine monads one hundred-thousandth of an inch in diameter. Beyond this is obscurity. Scientific men think that the ultimate particles of atoms composing all matter can be no smaller than one twenty-millionth part of an inch in diameter, and it appears to be barely probable that they will ever be revealed to the human eye.

UNIQUE WATCH.—We learned recently that an engineer, Mr. Matt. Franklin, of Knoxville, Tenn., possesses a watch made by Victor Doriot, of Bristol. The case is of rosewood root, and with the exception of three wheels and springs, which are of metal, all the parts of the box are made of boxwood. The dial is made from the shoulder blade of a cow, which was run over and killed by a railroad train. The watch is an open face, and said to be a handsome one and of superior workmanship. It is very small and light in weight. The owner told our reporter that he had worn the watch for some time, and found its rate as close as any other he had ever owned.

REFUSED TO BUY.—At the proper time last year, THE JEWELERS' CIRCULAR recorded the wholesale burglary in a jewelry store at Vienna, Austria, by which the proprietor, Mr. Granischstadten, the court jeweler, lost about $100,000. From private sources we learn that a few days after the occurrence, the traveler of a firm of safe-makers, who had not heard of the burglary, called on the proprietor and tried to sell him a safe, recommending it to be proof against fire, water, burglary and every imaginable pest. The unfortunate man mournfully pointed to his three broken and rifled safes, and said that they had been sold to him under a similar warrantee, briefly explaining the occurrence. The traveler apologized for his intrusion and withdrew.

THE STORY OF A RING.—Some time ago, says one of our exchanges a jeweler of the Rue Rambuteau, Paris, was much surprised by a visit from a workingman, who offered to sell him a splendid diamond ring, worth at least 10,000 francs, for the small sum of 400 francs. His suspicion being aroused by the difference between the value of the trinket and the sum asked for it by the would-be vender, he said he would call at the abode of the latter, Aubervilliers, on the morrow and pay the amount. The workman apparently well satisfied went off, and the jeweler immediately communicated the matter to the Commissary of Police, who proceeded to Aubervilliers and found the possessor of the ring at supper, surrounded by his half a dozen children. On being told that the ring was worth 10,000 francs, he evinced much unaffected astonishment, and said he could not understand how his sister could have sunk such a sum in a ring. Upon inquiry, in fact, it turned out that his sister had undoubtedly left him the ring upon her death bed two years previously, and that she had acted as lady's maid to the wife of a nobleman attached to a foreign embassy. This news gave the official a clue which he was not tardy in following up. Having presented himself at the diplomatist's residence, the wife of the latter at once recognized the ring as one that had mysteriously disappeared six years before. The upshot of the affair is that the workman, who had acted throughout in good faith, and had stated that had he known the ring was not honestly and justly his, he would have taken steps to return it, is rewarded by the rearing and education of his six children being taken in hand by the rightful owner of the jewel. Thus the matter ended happily for all parties.

SUPERSTITION.—In 1838, a beautiful locket, forming a small padlock, was found in digging a grave in the churchyard at Devizes, Wiltshire, England. It was composed of two buffonêtes united by a silver band, and having the wards of the lock in the cavity between them and the keyhole in the center of one of the stones. The workmanship appeared to be evidently of the sixteenth century date. It was probably worn not only as an ornament, but as a charm, and, as such, being most valuable, was buried with its possessor. This "find" is well described by Mr. Cunnington in an interesting paper read before the Wilts Archæological and Natural History Society. Such being the potency and value of the toadstone, Lupton, in his "Notable Things," tells how to make quite sure that you have a real stone and not a mere counterfeit. His test is a very quaint one: "Hold," says he, "your stone before a toad so that he may see it well, and if it be a right and true stone, your toad will leap toward it, and make as though he would snatch it from you, for he envieth so much that man should have that stone."

REMINISCENCES.—The well-known inventor of horological appurtenances, Mr. F. Ringold, used to tell the following reminiscence of his life with apparently great pleasure: "I worked in Paris during the latter part of the memorable reign of Napoleon I. In 1813 there was great danger that I might be drafted into the French army, and, in company with several comrades, I left the city to go to Dunkirk and thence to America; at 2 P. M. we embarked at Dunkirk and at 11 P. M. we were taken prisoners, and, after having spent some months at Dover and Portsmouth, several thousand of us, I among them, were exchanged and sent back to Dunkirk. From here five of us started back to Paris. When in the Normandy we begged at the maire of a little village, and he invited us to eat. Beside the dwellers of the room, there were other two and four-footed boarders—dogs, hogs and chickens. The table service was sole of its kind. Instead of plates, excavations had been made in the table-leaf; a knife and fork were fastened with chains to each seat. These decided innovations appeased our hunger largely, but when the mairess broke a number of eggs in her leather apron and commenced beating them for the baking of omelettes, we were no longer hungry, at least for omelettes, and in a body asked her to cook some eggs in the shell. The good wife perhaps never found out why we so strenuously refused to eat her *bonne-bouche*, as she was pleased to call them."

FORMER PUNISHMENT FOR FRAUD.—In 1452, German Lyas, a London goldsmith, offended in many ways, but particularly by selling a tablet of gold which was dishonestly wrought, being two parts of silver. Lyas was contumacious, and would neither appear at the commandment of the wardens nor produce the tablet. He was taken and brought before "the worthy members of the fellowship." The wardens, after deliberation, awarded that he should give to the fraternity a gilt cup of twenty-four ounces weight, and "lowly abase himself upon his knees." This being done, he was pardoned and reinstated. In 1530, John Carswell, having made and sold some sadly adulterated salt cellars, was brought to the Goldsmith's Hall at eight o'clock in the morning, and there set openly in the stocks. There he remained until after dinner time, when he was brought into the parlors before the wardens, the assistants and the livery, and asked how much salts he had made; whereupon he confessed that he had made over a dozen. It was then demanded of him what recompense he could make to those who had bought the said salts. He answered that he had not wherewith to recompense them. Whereupon the wardens, with the advice of all the fellowship, commanded that he should be had to Newgate. This was done, there to remain till his acts were better examined. But death anticipated the further action of the guild, and the offending craftsman breathed his last in the prison.

TRADE GOSSIP.

THE JEWELERS' CIRCULAR for December will be a special holiday number, containing many new and valuable features. An unusually large edition will be printed, as we shall send out many copies of dealers not already on our subscription books.

The following dealers were noticed in town last month:

Dallas, Tex., Mr. J. Taber.
Troy, N. Y., Mr. S. Tappen.
Nevada, Ia., Mr. W. Hansell.
Easton, Pa., Mr. J. E. Bixler.
Kenton, O., Mr. B. Garretson.
Chicago, Ill., Mr. C. K. Giles.
Denver, Col., Mr. J. J. Joslin.
Winston, N. C., Mr. J. Bevan.
Batavia, N. Y., Mr. G. Austin.
Pittsburg, Pa., Mr. J. R. Reed.
Charleston, S. C., Mr. J. Allan.
Pensacola, Fla., Mr. J. M. Day.
Sandford, Fla., Mr. H. B. Lord.
Oswego, N. Y., Mr. C. Wendell.
Richmond, Va., Mr. T. Nowlan.
Elmira, N. Y., Mr. E. H. Ayres.
Goshen, N. Y., Mr. H. C. Payne.
Buffalo, N Y., Mr W. Hengerer.
Memphis, Tenn., Mr. C. L. Byrd.
Fall River, Mass., Mr. D. Gifford.
Columbus, O., Mr. E. McGannon.
Lewiston, Me., Mr. C. H. Osgood.
St. Paul, Minn., Mr. John Bullard
Dover, N. H., Mr. C. E. Hogsden.
Philadelphia, Pa., Mr. J. H. Davis.
Washington, D. C., Mr. R. Leding.
Eau Claire, Wis., Mr. G. W. Smith.
Saugerties, N. Y., Mr. J. T. Jewett.
St. Joseph, Mo., Mr. H. L. George.
Springfield, Mass., Mr. L. S. Stowe.
Albany, N. Y., Mr. W. M. Whitney.
Huntington, W. Va., Mr. G. Hilton.
Ithaca, N. Y., Mr. Fred. W. Brooks.
Boston, Mass., Mr. G. H. Richards.
Bennington, Ver., Mr. F. N. Squire.
St. Louis, Mo., Mr. H. A. Barmeier.
Lynchburg, Va., Mr. T. Silverthorn.
Wheeling, W. Va., Mr. J. W. Grubb.
Sharon, Conn., Mr. G. M. Marckres.
Hudson, N. Y., Mr. J. P. Van Wyck.
Cumberland, Md., Mr. L. C. Roessler.
San Francisco, Cal., Mr. L. Braverman.
Chattanooga, Tenn., Mr. W. F. Fischer.
Rochester, N. Y., Mr. J. D. Harrington.
Helena, Montana, Mr. C. B. Jacquemin.
Grand Rapids, Mich., Mr. J. C. Herkner.
Utica, N. Y., Messrs. L. & M. Wineburgh.
Cincinnati, O., Mr. Clemens Hellebush, Jr.
Pittston, Pa., Mr. W. Berry, Mrs. MacDougall.
Corry, Pa., Mr. G. Graves, Mr. H. M. Horton.
Hamilton, Bermuda, West Indies, Mr. E. T. Child.
Butte City, Montana, Mr. J. H. Leyson, of Leyson & Turck.
Newburyport, Mass., Mr. L. D. Cole, of the Towle Manufacturing Co.
Syracuse, N. Y., Mr. D. McCarthy, Mr. E. B. McClelland, Mr. S. C. Rosenthal.

The following dealers sailed for Europe last month:
Mr. Joseph Fahys, Mr. S. Frankel.

The following dealers arrived from Europe during last month: Mr. A. H. Smith, Mr. M. Fox, Mr. Philip Bissinger, Mr. J. F. Fradley, Mr. J. A. Caldwell, of Philadelphia, Mr. C. H. Scholerman, Mr. Charles Kuhn, Mr. Geo. A. French, of Wm. S. Hedges & Co., Mr. Louis Strasburger, and Mr. H. Sussfeld, of Sussfeld, Lorsch & Co.

Mr. Walter G. King, of the Julius King Optical Co., was in town last month.

The address of the Boston Watch Co. is now No. 6 Clifton street, Roxbury, Mass.

The travelers of Mr. Louis Kauffman are sending in excellent reports of trade.

Jacob Stern, Bangor, Me., failed recently; liabilities about $55,000; assets about $15,000.

Mr. S. C Howard, of Howard & Son, who has been seriously ill, is gradually recovering.

To meet the demands of the trade, the "Bijou" watch is now made in both gold and silver cases.

Mr. M. W. Elmore, of Ottawa, Kansas, sold out his business September 15 to J. H. Fuoss & Co.

Mr. P. M. Christianson, Warren, Minn, was robbed of goods to the value of $600 on October 18.

Mr. Leon Apolant, formerly with Leopold Weil & Co., is now the city representative for R. & L. Friedlander.

The output of gold and silver in Idaho during 1887 will exceed by several million dollars the output of any former year.

Lord & Lowell, of Augusta, Me., have recently improved their store, which is now one of the handsomest in that city.

H. F. Barrows & Co. have an interesting announcement in our advertisements this month to which we desire to call attention.

A correspondent in London writes us that the Spencer Optical Manufacturing Co. had a good exhibit at the exhibition in that city.

Mr. C. C. Koeppen, formerly a clerk with Brown & Grant, East Saginaw, Mich., has started in business for himself in the same city.

Mr. Charles A. Whiting, representative of Wade, Davis & Co., was married last month to Miss Josie A. Heaton, of Plainville, Mass.

Palmer, Bachelder & Co., of Boston, report the loss by robbery of a diamond ring valued at $200. The thief has not been discovered yet.

Mr. T. V. Dickinson, of Buffalo, N. Y., has had his store refitted and beautified recently, and now has one of the finest stores in the State.

J. A. Foster & Co., of 51 Dorrance street, have had a diamond called the "Rajah," on exhibition. It is one of the French crown jewels.

Lapp & Flershem, of Chicago, closed their store on the day of the President's arrival in the city, to enable their clerks to see the procession.

Mr. L. C. Roessler, of Cumberland, Md., called at this office last month. He recently removed his store from 92 to 116 Baltimore street in that city.

Mr. J. H. Woodside, of Portage la Prairie, Manitoba, has sold out his branch store at Carberry to Mr. A. E. Hayward, formerly manager of the business there.

Edward Lilienthal, of New Orleans, made an assignment last month. The liabilities are stated at $31,000; assets, $20,000.

R. A. Breidenbach has removed to 26 John street, where he has a very convenient office on the first floor. He will continue his branch office in Providence.

The Roy Watch Case Co. have just made a few patented designs of special cases for non-magnetic movements, and also for such as have anti-magnetic shields.

The municipal authorities of Canton, O., have made arrangements to extend the water works system to the new factories of the Dueber Watch Case Co. and the Hampden Watch Co.

Mr. C. S. Hungerford, for many years with Clapp & Davies, has become salesman for Henry Oppenheimer's Sons, of Chicago, and will travel through Illinois, Iowa and Nebraska.

Mr. E. L. Cuendet, who started in the musical box business a short time ago, has already received quite an assortment of grades and styles from the maker, Jules Cuendet, of Switzerland.

The firm of Joseph Frankel & Son was dissolved on October 8, and a new firm formed under the name of Joseph Frankel's Sons, composed of Messrs. David J., Simon and John Frankel.

Barker & Co., formerly of Listowell, Ontario, have removed to Toronto, where they have leased a store in the handsome building recently erected by the Young Mens' Christian Association.

Groeschel & Rosman, of 27 John street, have a fine display of 18-k. enameled flower jewelry. Some of the designs are exquisite, and should be seen by all buyers who appreciate fine work.

Applying certain measurements to a scarcely visible film of silver, Herr Wiener arrives at the conclusion that no less than 125,000,000 molecules of silver must be laid in line to measure an inch.

The American Waltham Watch Co. have an interesting announcement upon another page, concerning their movement called the "Appleton, Tracy & Co.," to which we desire to call attention.

The windows of nearly every retail jewelry store glisten with a row of Waterbury watches, which are selling strictly at $2.50 each. They make an attractive appearance, and there is a large demand for them at present.

Ott & Brewer have discontinued their office at 58 Barclay street. The factory at Trenton, N. J., is very convenient to the city, being only a little over an hour away by rail, and the trade is requested to visit them there.

Messrs. R. & L. Friedlander have just completed their new illustrated catalogue. It is handsomely printed, and contains many interesting illustrations of the various lines of goods kept by this enterprising house.

A gold nugget, which is probably the largest ever found in Idaho, weighs 22½ ounces, worth $16 per ounce, was found by George Likes in Quartz Gulch, Atlanta, below the Monarch and Last Chance mines about two months ago.

The store of S. C. Suydam, at Baldwinsville, N. Y., was burglarized on October 14, the thieves securing $200 in money and goods valued at about $2,000. A reward of $500 was offered, but no clue to the thieves has been found.

Carter, Sloan & Co. show an extensive variety of new patterns in all lines of jewelry. Especially neat are some of the platinum and gold pony vest chains which, in this combination of metals, are becoming very popular.

We acknowledge the receipt from Mr. J. S. Niswander, of Gilroy, Cal., a little book showing the "Resources, advantages and prospects of Santa Clara Valley, Central California," which are represented to be bright and promising.

Mr. Wm. F. Nye, of New Bedford, Mass., who produces several well-known brands of fine oils for chronometers, watches and delicate machinery, writes us that business is very brisk at present, and that the demand for these fine oils is increasing.

A disastrous fire at Wesecca, Minn., on October 3, partially destroyed the stock of John Preston, jeweler, etc.

Gilreath & Patton, of Greenville, S. C., have recently been in the city purchasing an entire new stock of watches, jewelry, clocks and silverware, and have used THE CIRCULAR as a directory to the leading houses to the advantage of all concerned.

The Standard Pencil Co., who manufacture gold and silver pencils, pen holders, toothpicks, charms, etc, for the jewelry trade exclusively, have an advertisement on another page to which we beg to call attention. They make a beautiful line of goods.

Foster & Bailey, the manufacturers of the "Mt. Hope" sleeve button, have sent out an odd little advertisement of it in the shape of a miniature silicate slate. A small slate pencil and a sponge are attached to the frame by means of a red silk cord.

In New Lisbon, O., on October 10, occurred a mysterious explosion in the store of Cahill & Kemble. The place was literary gutted, and much damage was done to the stock. No positive cause has yet become known, though many theories are offered in explanation.

The F. J. Kaldenberg Co, of 371 Broadway, have an elegant display of amber jewelry, hair pins, combs, etc. Their stock of canes, also, with mountings of metal, ivory, pearl, etc, is quite large and varied, and jewelers will find here many articles suitable for their stocks.

J. W. Block & Bro. have added a diamond cutting and polishing department to their business, and are now able to sell diamonds of their own "make," as it were. They import diamonds in the rough, and cut them in their factory, where are employed a staff of experienced men.

There is a remarkable body of gold ore in Alaska. It is in a cliff fronting the ocean, and is 250 to 300 feet wide, practically inexhaustible in body. It is a rich quartz. Senator Jones, of Nevada, has a fifth interest in the mine. Tredwell, the man who discovered it, owns another fifth.

The Manhattan Watch Company are popularizing their watch by advertising it extensively in the daily press, and by means of signs and posters in public places. They also had a fine display at the American Institute Fair, where the watches were much admired by crowds of people.

R. Wallace & Sons' Manufacturing Co. have just introduced a few new patterns in solid silver after-dinner coffee spoons, which are quite pretty. In the solid silver department their sales are increasing, and their factory, which is at present being enlarged, will be completed some time this month.

We received a pleasant call from Mr. Albert H. Potter, of Geneva, Switzerland, manufacturer of the celebrated Potter watch. Mr. Potter is on a brief visit to this country, and will spend part of his time at the Trenton Watch Company's factory, who are the possessors of some of his most valuable patents.

Messrs. Lewis Bros., manufacturing jewelers, of 41 Maiden Lane, devote a considerable part of their plant to the production of original designs in sterling silver, of such articles as bon-bon boxes, match boxes, colognes, vinaigrettes, spectacle cases, clasps of all kinds and buttons in great variety. A call is solicited.

Mr. Charles F. Wood imported more rose diamonds and half pearls during the past few months than at any other time since he has been in business. He reports a large demand for incrusted work of all kinds; in initial work especially the demand is continuously growing, and he has a large force of experienced men at work.

The Maiden Lane Directory Co., 95 Liberty street, has just issued its directory of Maiden Lane and vicinity, including Maiden Lane, John, Nassau, Cortlandt and Liberty streets, Liberty Place and Broadway from Liberty to Fulton streets, wherein the jewelry trade is mostly centered. The Directory is a useful publication to have.

Mr. C. M. Howard, superintendent of the Peoria Watch Factory, returned from California, where he arranged with the managers of the Lick Observatory to give the correct time to the principal cities on the Pacific Coast. The Observatory will be connected with time ball stations in San Francisco, Sacramento, Los Angles, and other cities.

Mr. J. B. Bowden, manufacturer of solid gold rings, invites attention to the very large assortment of these he has on hand for the holiday season. He makes a specialty of wedding rings, and keeps every variety, plain, or set with any kind of precious stone known. His goods are of the best quality of gold and the finest style of workmanship.

A process of refining gold and silver has been patented by Messrs. Darley C. Johnson and John P. Ryan, of Brooklyn, N. Y. It consists in placing the alloy of base and precious metals in a cupel, melting the alloy and covering the surface with pulverized asbestos, with various other features, whereby the cost as well as the waste of refining will be decreased.

On the evening of October 3d, Mr. Henry Randel, of Messrs. Randel, Baremore & Billings, was given a surprise party by about a hundred of his friends. The occasion was the celebration of his seventieth birthday. The following day was the birthday of Mrs. Randel, and as midnight struck, the guests wished her many returns of so happy an occasion.

L. D. Rosenthal, formerly of the firm of M. Kwass & Co., of Pochahontas, Va., tried to buy a bill of goods recently in the name of that firm, and kindly offered to take the goods himself to save express charges. After an investigation, however, by the firm of whom he bought the goods, it was found that he was no longer of M. Kwass & Co., and had no authority to order the goods.

Mr. W. B. Warner, of Norwalk, Conn., the agent at that place of the Rogers Silver Plate Company, was seriously injured October 24 while driving to his place of business. His horse became frightened and ran away, the wagon was overturned, throwing Mr. Warner against a stone hitching-post. He sustained several severe fractures and one leg was broken. It is feared he will die.

The Board of Trade has adopted a new plan of forcing payment of bills. The debtor will be notified that he has been drawn upon through the Board of Trade, and that unless he pays the draft the claim will be placed with a local attorney for collection. The printed names of all the members of the Board of Trade will also be sent him, to show who will be notified in case he does not pay.

Some of our English cousins have sent over to these shores quite a "clearing out" of their garrets, of silver plated ware to be sold at auction. It would be a poor compliment to American taste if the rubbish sells for enough to pay the freight. We drove John Bull out of this market on plated ware over twenty-five years ago, and we can now supply all the demands, for even cheap trash, better than he can.

The gift of Emperor William to the Pope on the occasion of the latter's jubilee, will consist of a jeweled mitre valued at $4,000. Empress Augusta will present the Pope with a costly set of robes to be used in celebrating mass. The Queen of Saxony's gift will be a basin for consecrated water, costing $1,000. The Prince Regent of Bavaria will give two stained glass windows, representing Pope Gregory and Pope Leo the Great, for the Scala Regina in the Vatican.

The musical box houses are unusually active at the present time. Never before has there been so great a demand for musical boxes as now. All the principal houses have made special preparations for this season, and with added improvements and better mechanical adjustment, most of them have brought their respective makes of boxes to a state near perfection. A careful perusal of our advertisements will give our readers an idea where these goods may be bought. Musical boxes of the better grades should be in the stock of every jeweler. The public looks to jewelers for this sort of goods, and if they don't keep them, the nearest stationer or dry goods store will.

Henry E. Oppenheimer & Co. are gradually increasing their importance as a diamond-dealing house, and are making quite a reputation at present in having an especially fine stock of rubies, emeralds and sapphires mounted. They are actively preparing to operate a shop of their own, where they will manufacture all their own mountings. They intend to manufacture only 14-k. and 18-k. goods, and will have the best of workmen and designers in their employ.

William L. Gilbert, President of the Wm. L. Gilbert Clock Co., recently gave $400,000 for the erection of an orphan asylum for the town of Winsted, Conn. This asylum will be known as the Gilbert Home, and will be completed in about a year. Lately Mr. Gilbert has decided to give to the town of Winsted a public academy, and is now arranging plans for the structure. Mr. Gilbert is over 80 years of age, but still active and energetic, and, as a philanthropist, has shown himself wise and practical.

The E. Howard Watch and Clock Company have beautified the front of the Knapp Building by placing a handsome clock thereon. It rests upon a gilded griffin, the dials, of which there are two, being about three feet in diameter. They are painted black, with figures and hands in gilt. This clock fills a "long felt want" in that section of Maiden Lane with complete satisfaction, for, aside from its being a beautiful piece of workmanship, the dials are plain and can be distinctly read from a long distance.

A curious clock is diplayed in the window of Haurick & Son, in Cortlandt street. It is made of what appears to be a large tray with plates and various eatables upon it. The tray looks like a large platter of common tin with a circle of twelve oysters upon the half shell. These oysters are numbered from one to twelve, thus forming the numerals of the clock. In the center is a small plate with a few slices of lemon, and across the plate lies a knife and fork. These latter articles are the hands of the clock. It is a French design.

In our trade gossip of last month appeared an item warning the trade of a person giving the name of Louis Kleinbeck, who was going among dealers and giving large orders for goods but never calling for them. It appears that he has had some dealings with a few prominent jewelers on Maiden Lane. The name he gave was Kleinpeck or Klinjeck, not Kleinbeck, as we had it last month. Detectives are now on his track. It is not fully known whether he is a thief or only insane, but it is important to warn the trade that he is a possible kleptomanaic!

Mr. John T. Sandman, of Philadelphia, has begun a suit against a former employee who opened up a new store on the same street with him, displaying a misleading sign with the words, "Late with J. T. Sandman" upon it. These were so painted that the name J. T. Sandman appeared very large, while the words "late with" were so small that they were not observable at a casual glance. The case has been brought into the courts, but is not yet decided. Decisions in similar matters, however, have been rendered before, and it is likely that Mr. Sandman will win his suit.

The Pennsylvania statutes regarding the liability of married women has always been very lax. On the trial of a case before him against a married woman, the judge of one of the courts remarked: "The laws of Pennsylvania license this woman to rob you; she owes you money for value received, which she is able to pay, but you cannot force her to pay a dollar." The secretary of the New York Jewelers' association, thinking some definite information on this subject desirable, wrote to the attorney of the association in Philadelphia inquiring about it. The attorney replied that the law was in very bad shape up to a few months ago, but that the last legislature passed an act called "the married persons' property act," under which married women are authorized to make contracts, and one who goes into business can be held for the amount of her liabilities. He says that there are still some defects in the law, but the stigma of permitting "legal piracy" heretofore resting upon the state has been removed.

It did not take the New Haven Clock Company long to produce its latest designs in clocks. Almost before the last and deciding race between the *Volunteer* and the *Thistle*, this company put upon the market two handsome clocks bearing these names. There will be no competition between these clocks, however, as they are of entirely different patterns. The "Volunteer" is in the form of a frosted silver fatigue cap, after the pattern worn by our volunteer soldiers in the late war. The "Thistle" is a handsome 15 day wall clock, depending from a brass chain, and is richly ornamented and engraved with thistle leaves and flowers.

S. & R. Lederer took into their employ Edwin A. Burgess in July last, and in little over a month's time Burgess left them. Recently, it was discovered that he had stolen upwards of $1,000 worth of goods. The discovery came about on October 7th, when one of the firm happened in Boston, and was informed by a customer that a drummer for a New York house had been trying to sell him a job lot of Lederer's brand of goods. Mr. Lederer's suspicions were then aroused, and he notified Pinkerton's agency, when a detective traced up young Burgess that same evening. Much of the stolen jewelry was recovered, and Burgess afterwards confessed his guilt. He has been sent to jail pending examination.

There is a very popular style of bead necklace in the market, made of what is called "Roman Pearls." They are a beautiful imitation of the real pearl, with a luster rich and durable. Messrs. Day & Clark keep a large assortment in different sizes of these pearls, and in single, double and three strands. Roman pearls, however, do not entirely supersede the popular gold bead necklaces of which this firm carry a complete line. Among other novelties shown by them this season is a line of Roman rings. They are of a very uneven surface, having faces in some places in relief. They are set with precious stones of various colors, some containing a single ruby or diamond and others one of each or a sapphire.

Messrs Blancard & Co., the well-known manufacturers of diamond settings, have just issued a new illustrated catalogue, showing a complete line of samples and giving the prices of all the goods manufactured by them. Among the many new designs attention is particularly attracted to their patent cluster boxes, something entirely new in the line of settings. The catalogue shows a few examples of clusters of two and three, but they are made in rows of 3, 4, 5, 6 and so on; also round oval crescents and different other designs. These settings are stamped from a solid piece of gold, with very little labor, and it is claimed that they are equal to the finest hand filed clusters. For the past twenty years Messrs. Blancard & Co. have had the reputation of being the one of the leading house in their line, and they bid fair to retain their reputation.

Pencil making has long been the chief industry of the Faber family. In 1726 one of the Fabers started the manufacture of pencils in a small way. In 1760 Caspar Faber had a small factory in Stein, a small village near Nuremberg, Germany. Twenty-four years later he was succeeded by his son, Anthony William Faber, from whom is derived the name which has long established the reputation of a pencil bearing it. In 1839 the business still continued prosperous, but received a vigorous push when John Lothar von Faber took the charge. In 1851 Eberhard Faber was sent to America to represent the house in the United States, and he started the first lead pencil factory in America in 1861. The business met with almost constant prosperity, and in 1877 Eberhard Faber added the manufacture of gold pens, holders and pencil cases to his productions, and has developed this department considerably since. He died, however, in 1879, and his son, Eberhard Faber, Jr., has continued the management ever since. The business increased considerably, and in 1866 the large building, 541, 543, 545 and 547 Pearl street, was built expressly to accommodate the growing interests of the firm.

The creditors of J. C. Wilbur were again called together on September 30 to learn the state of affairs. The meeting was held at the Board of Trade rooms, but was not largely attended. Wilbur was expected to be present, but though he had been invited in a polite letter by Mr. Geo. C. White, Jr., he had declined to come, writing instead a reply in a very rambling fashion about his persecutions and his trying to earn his butter and bread honestly, etc. At the meeting the proceedings plainly showed that Wilbur is doing all he can to baffle the trustees in their attempts to further the interests of the creditors. It was asserted by one of the creditors present that Wilbur had recently come to his store for the pupose of buying goods, saying that his wife was worth $38,000 in her own right and that they were good for all they would buy; and the question arose whether Mrs. Wilbur had had any money or property before the assignment. The trustees replied that she had not, to their knowledge. From what the representative of THE CIRCULAR could learn at the meeting, it seems certain that the trustees have sufficient cause and plenty of evidence to proceed against Wilbur criminally, and it is to be hoped, for the benefit of the rest of the creditors and for trade morality, that they will do so speedily.

Mr. T. A. Edison, the eminent electrical inventor, announces that he has at last perfected his phonograph, and that in the course of a few months he will be in a position to place it on the market. The phonograph, it will be remembered, is a little instrument which makes a record of the human voice, and will repeat at any subsequent period whatever may have been said to it, in the same tone of voice, but less pronounced, as it was delivered in. This instrument has heretofore been regarded merely as a wonderful toy, possessing no commercial value whatever. Mr. Edison says it has always been a favorite invention of his, and he has only been prevented from developing it by the pressure of other work upon him. For the past eight months he has been working at it, and now announces that he has so perfected it that it will be better adapted to commercial purposes than the telephone. A merchant desiring to write a letter has but to talk into the phonograph and his words are recorded on a "phonogram," which can be enclosed in an enveloped and sent by mail to the person for whom it is intended. The recipient places the "phonogram" in a similar instrument in which, when set in motion, reproduces exactly the language of the sender. If this be true, the phonograph bids fair to supercede stenography and typewriters, and enable a man to do his own correspondence as easy as talking. There is no limit, in fact, to the possibilities of such a machine.

Several of the prominent houses in the trade have recently been the victims of the most skillful swindle which it has been our duty to record in many years. The persons charged with the offence are M. Levy, A. J. Goldstein and M. Nathan Levy, formerly of Seneca Falls, N. Y., present whereabouts very much unknown. In June, 1886, M. Levy came to town to buy goods for "M. Levy & Co," who, he said, were just starting in business in a small way. By showing a little ready money and deeds of real estate, and a few other items of collateral, he secured a slight credit with several firms. Before these bills matured he wrote his creditors that business had exceeded his highest expectations, and sent a little more cash, and a few more orders. By skillful manipulation of their little money, and an enormous quantity of promises made in seeming good faith, this "firm" was given a considerable credit. The men were seemingly very honest, and the only wonder is, so we learn from several firms which have had dealings with them, that they have not victimized more firms, for larger amounts than they have. After putting the creditors off their guard for awhile by small payments, they stopped remittances altogether, and presently the creditors learned that the firm had failed, and Goldstein had "skipped" to Canada with all the stock. Even at this time the honesty of M. Levy was not doubted. He came to New York with a sorrowful tale of his "wicked partner Goldstein," who was the guilty wretch. All this story was believed, and pursuit of Goldstein only was kept up. The two Levys, who claimed not to know each other, appear to have joined with the creditors in prosecuting the capture of Goldstein, and after M. Nathan Levy had secured credit to a considerable amount from the same creditors, Goldstein was finally captured. He was released on bail, and the three men all cleared out of the country and are probably now in Canada.

Mr. Herman Werner, of Ansonia, Conn., has opened a store at his residence, 43 Water street.

Harris & Luchs, of 599 Broadway, failed last month; liabilities, about $15,000; assets, probably not over $6,000.

S. C. Suydam's store at Baldwinsville, N. Y., was robbed of about $3,000 worth of goods on October 13. There is no clue as yet to the thieves.

Attleboro, North Attleboro and Plainville, Mass., are to be connected by an electric railway. A company has been organized with a capital stock of $17,000.

Martin Van Buren Hersom, who swindled Smith & Knapp's salesman out of a lot of diamonds last month, was sent to jail in default of bail, which was placed at $3,500.

A deposit of gold yielding at the rate of $800 a ton has been discovered in Buckingham Township, Quebec. It is now 15 feet deep and promises to be better as the prospectors descend.

Le Boutillier & Co. report an unprecedented demand for fine porcelain ware of all kinds. Royal Worcester keeps in the lead as the most popular of this class of goods, and many of the buyers from out of town have made large purchases in that line.

The Cheshire Watch Company have sold, in the eighteen months they have had their goods before the public, over 25,000 watches. This is to the jewelry trade exclusively, which has certainly shown appreciation of the merits of the watches produced by this company.

Messrs. B. & W. B. Smith have a number of examples of their new process of making show cases on exhibition at their show rooms, 220 West Twenty-ninth street. The new process enables them to construct cases of all shapes, perfectly strong and quite ornamental and artistic.

J. T. Scott & Co., No. 4 Maiden Lane, have lately added largely to their stock of diamond goods, and exhibit a large variety of brooches, lace pins, ear drops, scarf pins, single stone and fancy rings, etc., of latest patterns and novel designs. They also have a full line of loose stones to which they invite attention.

The Leroy W. Fairchild Co. contrive each season to get up something unique in the way of an advertising circular. This year they have a little eight page leaflet, printed in colors on coarse gray paper and enclosed within a gold leaf cover. It contains an enumeration of the new goods they have prepared for the fall trade.

Many persons suffer from wearing eye-glasses that pinch the nose, pressing upon the muscles leading to the eyes and bringing tears. The Spencer Optical Company offer to such glasses that have enough of the spectacle frame to them to reach to the temple of the wearer, thus taking away all pressure from the nose. They are exceedingly comfortable.

The representatives of Robbins & Appleton report that the demand for Waltham watches is very active, and that they have great difficulty in keeping up the supply their agents call for. In the West especially the demand has been exceedingly active during the past few months, the prosperity of that section inducing everybody to invest in an article of such prime necessity as a first-class timekeeper.

Lorenzo and Cæsar A. Cuppia have purchased the entire business of L. A. Cuppia, deceased, from his widow, and will continue the business under the old name of L. A. Cuppia. Among the novelties they have introduced are a large number of handsome designs in silver bangles and bangles of gold and silver combined. They have made arrangements for the establishment of a factory in Newark, N. J., for the manufacture of artistic articles in silver.

One of the attractive stores in Maiden Lane is that of Mr. E. A. Thrall, whose large show windows contain at all times a very attractive display of fine goods. Mr. Thrall reports trade as being very active with him, the demand for watches being especially brisk. He carries an unusually large stock of these, and tintes and regulates each one he handles. Mr. Thrall has a special love for opals, and has a large and choice stock of them on hand at all times. This stone has regained its former popularity and is being set in all manner of forms, simply or associated with diamonds and other precious stones.

Dealers often have to remove the tags from jewelry for the purpose of cleaning the articles. Especially is this so with chains, which sometimes have to be washed. In removing the tags they are liable to get mixed up or lost, and a good deal of annoyance is thus caused. Mr. J. P. Delaney, of No. 2 Astor House, has devised a metal tag, which is affixed to articles with a fine wire. This can be washed with the chain or other article and the danger of losing is obviated. It is called Delaney's Indestructible Tag.

The agreement for the amalgamation of the Standard and Central Diamond Mining Companies was finally ratified by the action of the directors of both companies July 7. When the news was definitely announced there was great rejoicing at the mines, and salutes were fired and other exhibitions of joy indulged in by those interested. It is believed that this action will result in the more economical working of the mines, and also exercise a healthy influence on the diamond market

P. H. Leonard, of 18 and 20 Murray street, has a most complete stock of everything in china, glassware, etc. Three floors in the double building are literally filled with the choicest patterns of dinner sets, water sets, wine sets and all other sets, vases, lamps and parts of lamps. There seems to be a greater demand now than ever before for this class of goods, and Mr. Leonard, with his several branch agencies in foreign cities, is enabled to import them to good advantage. In ceramics he shows a large line of novel patterns.

The robbery of Max Rosenberg's store in Philadelphia in the latter part of September, involving a loss of about $7,000 worth of goods, was effected most mysteriously, and the police were left without a clue to the perpetrators. It was over a week before the slightest clue was discovered, when the police arrested Michael and Laura Shetzline, Michael Higgins and Aloise Hagman, all notorious characters in the criminal records of Philadelphia. Of the goods stolen, a few gold-headed canes only have been recovered, and the four prisoners were committed to jail.

The Spencer Optical Company, No. 15 Maiden Lane, are showing a full line of anelimcus opera glasses made of aluminum. They are very beautiful goods, and do not weigh more than one-half what opera glasses made of other material do. Among numerous other articles carried by the company and especially desirable for the fall trade, are lorgnettes in every variety. Many of them are unique in design and are made a specialty by the company. Lorgnettes are now the fashion, and no lady can expect to be regarded as "in society" unless duly equipped at all places of amusement with a tasteful lorgnette.

Mr. J. R. Parsons, a retail jeweler of La Porte, Ind., announces that he has opened a school for watchmakers, and is prepared to give young men a practical education in the art at moderate cost. A local paper says of the school: "The room is large, light, airy and cheerful, and is fitted up with an abundance of work tables filled with the finest machinery known to the jewelers' trade. Some of the many lathes are models of ingenuity and cost hundreds of dollars, but they are necessary for the thorough instruction of the pupils in all the arts of the business. The most skilled workmen are employed and it is under the eyes of such competent teachers that the pupils perform their duties, and are taught readily to perform every act in the art of watch making, engraving, etc. The frame work of the watches are purchased from the factories in their rough state, and the pupils are taught to finish, guild and jewel them in first-class style. A number of specimens of this work under various stages of completion were shown us, and it is surprising to know how rapidly the pupils learn to do the work with the ample facilities the school furnishes. Fifteen lathes are kept busy the most of the time while we were in the school, and sixteen pupils were busily at work; among them we noticed one or two ladies."

The American Manufacturing and Supply Co. have a handsome exhibit of their self-winding clocks at the fair of the American Institute. The exhibit occupies an alcove in one corner of the building, and consists of every variety of patterns in which these clocks are now made. There is also a movement enclosed in a glass case, which shows the escapement together with the self-winding principle, and it attracts much attention. A polite attendant explains to the curious throngs the advantages of these self-winding clocks, which need never be wound and run for a year and longer, at a mere cost of twenty-five cents to renew the electric battery. The exhibit is altogether creditable to the company.

Wood & Hughes, 16 John street, present at all times a most attractive display of goods in sterling silver of their own manufacture, and their trade mark is as well known as that of any house in this line. They are sending out two beautiful spoon patterns this fall—the "Undine," an oxidized pattern of striking and novel design, and the "Victoria," a plainer handle, finished either polished or satin. The fancy pieces in both patterns are etched, engraved or satin, with or without gilding, are of decided merit both in design and finish. In hollow ware they have many new designs in tea sets, bowls, pitchers, etc., and they carry a large line of small ware. Messrs. Haskell & Muegge are their representatives in San Francisco.

Cross & Beguelin, sole agents in this country of J. Alfred Jurgensen, of Copenhagen, the world-renowned maker of complicated watches, have now on exhibition a very beautiful and elaborate example of his workmanship which took three years to build. It is a complicated movement, encased in a five ounce 18-k. hunting case, and is valued at $1,000. The movement is of highly polished nickel, full jeweled, and as a timekeeper is as accurate as it is possible to make a watch. It strikes of its own accord the hours, quarters and minutes, or the striking attachment can be left silent at the will of the owner. By means of another attachment, the hour, quarter and minutes are struck upon bells of different tone, so that one may ascertain the time in the dark with accuracy. Costly complicated watches are now being much used for presentation purposes, combining, as they do, elegance and utility. Cross & Beguelin have a full line of fine watches, with and without the complicated attachments, and the trade are cordially invited to examine them.

Alfred A. Janicke, a young man recently in the employ of G. Armeny, committed suicide early last month. He entered Mr. Armeny's employ on the 1st of August, and before long, as alleged, Mr. Armeny discovered him to be dishonest, having taken goods to the amount of $500. Before Mr. Armeny had him arrested, however, Janicke secured employment for short periods with several other firms, who have also reported nothing good of him. Mr. Armeny, when he became positive of Janicke's having robbed him, secured a warrant for his arrest, and, when the detective was taking him up the stairs in police headquarters to appear before the inspector, Janicke drew a pistol out of his pocket and shot himself through the right temple. His death was instantaneous. It was supposed that he did the act in consequence of his alleged crime, but his family report that the whole cause of the suicide was domestic troubles. This latter explanation seems to be corroborated by the fact that several letters he had in his pocket, written before his arrest, were worded as if he intended committing suicide at that time.

Another remarkable painting has come from the studio of that famous artist, K. Makofski, at the order of Mr. Charles W. Schumann. It is called "The Choosing of the Bride," and is on exhibition at the up-town store of Messrs. C. W. Schumann & Sons. The scene is founded upon a Russian legend of the young czar, Alexis Michailowitsch. According to an ancient custom, when he arrived at the age of eighteen his ministers sent emissaries throughout his empire to court the fairest daughters of the nobility, that he might choose one of them for his wife. The young czar, so the story goes, protested against that manner of selection, and when the young ladies were brought to court he contrived, in the guise of a musician, to see them before they were formally presented to him. While playing his violin one of the young ladies, Eufemia, of the Province Kjazan, sees his face, and is immediately captivated with the fair young musician, as she thinks him. So much, indeed, has her heart become interested in him, that she expresses the wish to her parents that she be excepted from meeting the czar. But they refuse, and the scene of the picture shows her at the reception of the czar, when he shall choose his bride. He is arrayed in kingly apparel, his eyes just having caught those of Eufemia, who is blushing as he looks toward her. The picture is carefully drawn, magnificently colored, and is altogether a perfect mate to the other noted picture of this artist, "The Russian Wedding Feast."

Hecht Bros., 485 Broadway, carry an extensive and desirable assortment of fans, and for novelty of design they are unsurpassed. Hecht Bros. import this class of goods from every city in Europe where they are made. From the very cheapest kind of fan which sells at wholesale only by the gross, to the most expensive kind mounted in gold, this firm show a large variety with hundreds of patterns of each quality. One line of the most expensive fans, which retail from $50 to $100 a piece, is shown, with beautiful paintings upon real lace, done by celebrated artists who have attached their signatures. One of these, especially, is a black lace fan, the painting being a beautiful conception—a young damsel in graceful attitude. Upon another page will be found a few illustrations of fans to which we desire to call attention. The "Tuxedo" is a new and very popular shape of fan, and is made in many styles and grades. A remarkably pleasing one is made of dark mother-of-pearl, with ethereal down which flutters in a very ethereal way. The "Trianon" is also illustrated in Hecht Bros.' advertisement, and is a very rich pattern. These goods are all suitable for retail dealers, and a good line of fans should form a part of every jeweler's stock. Hecht Bros. also carry quite a line of fancy goods, consisting of Hungarian crown porcelain, terra cotta, bronze, leather ware, vinaigrettes, fine dolls, etc. A visit to the store will amply repay one for the time it may take.

THIRTY-THREE YEARS IN BUSINESS.

On Saturday, October 1, Mr. J. H. Hart, an old established and well-known jeweler of Brooklyn, celebrated the thirty-third anniversary of his starting in business. He sent out handsome cards of invitation to his friends and customers, inviting them to be present, and the store was visited during the afternoon and evening by very many people. For this occasion he made an extra effort to embellish his store and arrange his stock, and made such a display in his windows as amazed the eyes of old Brooklynites who saw it. Around the frames of the windows were garlands of freshly-cut roses, and these trailed around the base of the window and formed a rich and beautiful setting to the jewels and precious stones in the center. Diamonds, rubies, sapphires and other precious stones were arranged in careless profusion among rich jewelry upon a handsome dark cloth, forming a most delightful contrast with the pink and yellow roses, and the green of their leaves sprinkled between. The sight was very attractive, and all day long and far into the night the streaming crowds of Fulton street stopped before this window to admire the beautiful and tasteful display. Another window contained fine watches and fine pieces of jewelry arranged in an artistic manner. There is something very attractive about a watch marked "$1,000." One of these was thus marked, and though it looked but a trifle different from an ordinary gold watch, people stood looking at it longingly. Inside the store the show cases were arranged in attractive style. When one went inside he saw diamond necklaces, bracelets, brooches, rings and such articles in profusion. Jewelry and silverware in other cases set off the store in one part, while clocks, bronzes and larger wares of different kinds and stationery, made their parts of the store look attractive. This idea of having an anniversary is a good one, and can be imitated to advantage by all jewelers. Celebrations of any kind always benefit the jewelry trade.

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THE JEWELERS' CIRCULAR
AND
HOROLOGICAL REVIEW.

OFFICIAL REPRESENTATIVE OF THE JEWELERS' LEAGUE, THE NEW YORK JEWELERS' BOARD OF TRADE, AND THE JEWELERS' SECURITY ALLIANCE.

It is also the Recognized Exponent of Trade Interests.

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GOSSIP OF THE MONTH.

☞ A full Index to Advertisers and Table of Contents will be found on Page III of this issue.

RESIDENTS at Kimberly, South Africa, prepared an elaborate address to Queen Victoria on the occasion of the recent celebration of her jubilee. They are now having made an elegant and costly case in which to forward it. The case is made of Cape gold and will be ornamented with diamonds. Seven mining companies have contributed 230 diamonds, weighing 94½ karats, for the purpose of decorating the casket, the purpose being to set a profusion of gems in an artistic style rather than to present a single large stone. The casket and address will bear testimony to the enterprise and loyalty of the colony at the Cape, although representatives of all nations are among the contributors to the fund.

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ANOTHER very attractive outside line can be selected among the dealers in pottery. There is an endless variety of beautiful vases, bisque figures, porcelains, etc., which will not only sell themselves, but will, by adorning and beautifying the store, help to sell other goods. Perfumery, too, is an article always in demand, and there is no reason why the druggists of the country should monopolize the sale of them. These are now put up in fine cut glass bottles, laid carefully in fancy plush cases, and make a very attractive feature in any stock. There are many other fancy articles that would greatly aid in livening up a holiday stock of jewelry, and there is no good reason why retail dealers should not avail themselves of them to attract custom, especially as so many outsiders are using jewelry for a similar purpose.

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ANOTHER new invention is the electric typewriter, a device which is to connect typewriters by wire, so that instead of two persons talking over the telephone, the messages can be sent by typewriting machines, and thus a perfect record made of the conversation. One of the objections to the telephone has been that it made no record of messages transmitted over it, and that there was consequent liability to mistakes, especially in giving important orders for buying or selling. It is claimed that by the new arrangement, typewriters in different cities may be electrically connected and messages thus recorded. This is an important invention if it will do all that is claimed for it, and must eventually supersede the present style of telephone and telegraph messages. This is an age of improvement and there is no fixing the limit of human ingenuity.

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SPEAKING of the crown jewels, they were, as is well known, mostly purchased by dealers, either on orders or to break up and reset. While preparing them for sale the French Government had some elegant photographs of them taken and put up in album form for distribution among a favored few who desired to preserve these souvenirs of the jewels. Alfred H. Smith & Co., the well-known importers of this city, are the fortunate possessors of one of these albums. One member of the firm was present at the sale, and bid 87,000 francs for one of the gems, but was outbid by some one who was determined to have that particular jewel regardless of cost. The photographs referred to are executed in the highest style of the art, and are, in themselves, rare treasures. Messrs. Smith cordially invite their friends and patrons to call and examine them.

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THERE has been quite a run on moonstones for the past few years, and they have been offered in a great variety of forms. They are found on the shores of India and are highly prized by natives, who have a superstition that they are lucky stones. Nearly every one who can obtain a moonstone in that country carries it about his person for luck. They also attribute health-giving qualities to it, and believe that one who wears one on his person is insured against certain diseases. No health officer in any civilized country that we know of has yet prescribed moonstones as preventives of cholera, small pox or yellow fever, but if any one chooses to attribute special virtues to this or any other stone, the jewelers are ready and willing to supply them in any form desired. The demand for moonstones in this section of the world is quite as active as ever, and every dealer carries some of them in stock.

ON ANOTHER page will be found three designs for clock cases. In these days, when persons of wealth and artistic tastes are constructing residences beautiful and original in design, and are seeking for interior decorations in keeping with the building, sketches of this nature become interesting and valuable. The design for a hall clock case by Mr. R. Y. Barrows, is unique and elegant. Mr. Barrows was formerly connected with the firm of Mitchell, Vance & Co., but is now with the Whiting Manufacturing Co. He has won an enviable reputation as an artistic designer. Mr. J. B. Elton, a well-known artist of Boston, submits a beautiful design for a carved clock case which will attract attention. The design for a hall clock case, with place for bric-à-brac, is by Mr. E. W. Poley, a noted designer of London. These gentlemen are deserving of credit for their very acceptable work in this direction.

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WE ALLUDED briefly last month to the fact that a consignment of English plated ware had been sent to this country to be sold at auction. We are informed that these goods are the left over stock of some manufacturers, consisting largely of shop worn articles that have been burnished up for this market, apparently on the supposition that anything is good enough for the American market. We are afraid that our English cousins will find themselves badly left on this little venture. In the first place their goods are not, at their best, of the kind that is likely to sell readily in this country. Our people are peculiar in their tastes, preferring the light, airy and artistic styles of goods to the heavy and somewhat ponderous patterns the English have cultivated. In short, American manufacturers are far in advance of the English in the production of attractive plated ware, and if they hope to sell the refuse of their store rooms over here they are reckoning without their host, for our dealers can beat them both on style and price.

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CHRISTMAS is coming, and the announcement rejoices the heart of all Christendom. Saint and sinner, Jew and Gentile, all classes and all conditions of men, with or without religion, welcome this great festival. Robbed of its religious features, and it still appeals to the best there is in human nature and makes "all the world akin," for to men of all creeds and conditions there come at this Christmas time the good tidings of peace on earth and good will to man. Christmas is the season when friend remembers friend, and takes advantage of the opportunity to present him with some little token of his friendship and esteem, and this universal practice of giving presents makes busy times for dealers of all kinds, while the patronage they receive in consequence of it puts them in a proper frame of mind to give thanks for the many blessings vouchsafed them. Well, we are all the happier and the better for the glorious Christmas festivities, and we wish our friends the compliments of the season and many happy returns of it.

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THE Bridgeport safe blower, Feyth, who is in jail for the Fairchild robbery, gives jewelers quite a valuable hint when he says they should place their safes on blocks in such manner that the doors will swing against a wall. The proximity of the wall interferes with the handling of the tools required by burglars in forcing safes, and before they can work to advantage the safe must be moved, which causes delay and adds to the chances of their detection. If the safe can be placed in a corner, the difficulty of breaking in is greatly increased. Such valuable suggestions as these, coming from such well-informed and disinterested a source ought to be heeded. Feyth does not feel at all friendly towards the Jewelers' Security Alliance, and says but for the pertinacity with which they followed up the slight clue he accidentally left behind after the Fairchild robbery he would never have been captured, and that robbery would have remained a mystery. But the Alliance set detectives at work promptly, and these in the course of a few days struck his trail, and never let up till they had him safe in custody. It pays for dealers to be members of this organization.

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THE consolidation of mining interests at the Cape continues, the latest absorption reported being the French Diamond Mining Company by De Beer's Company. Subsequently the De Beers Company transferred the French company to the Central, on a valuation basis of £7,000,000, the De Beers receiving, as part of the consideration, one-fifth of the capital stock of the Central. The De Beers and the Central now exercise a virtual control of the Cape diamond mining industry. By these amalgamations it is expected that a better condition of the diamond trade will be secured, the production being regulated by those in control, prices strengthened and maintained. This, it is claimed, will be to the advantage of all holders of diamonds, who will not be liable to suffer loss through any unexpected break in the market, due to over-production or forced sales. More gold mining territory is being developed continually, and there are no indications as yet of any decadence in the mining industry at the Cape.

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WITH THIS issue of THE CIRCULAR we present as a supplement an excellent steel plate portrait of Mr. A. Carter, Jr., senior member of the firm of Carter, Sloan & Co. Mr. Carter is one of the pioneers of the jewelry trade now living, and thousands of dealers who have been among the customers of the houses with which his name has been identified, will be glad to see his features reproduced in such an elegant and satisfactory manner. This portrait is made from a photographic negative taken by the famous photographer, Kurtz, and is reproduced on a steel-faced copper plate. The reproduction is executed by a process which preserves every characteristic of the photographic negative, and as that is taken from life, the picture we present is necessarily a life picture of the subject. Elsewhere we give a short biographical sketch of Mr. Carter, being restrained from passing any eulogy upon his career or his character by his well known reluctance to appear in print. Indeed, it required our utmost powers of persuasion to induce him to permit us to use his photograph for this purpose. We desire here to direct attention to the superior excellence of this portrait, both as a likeness and a work of art.

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THERE were two legal holidays last month in this section of the country—election day and Thanksgiving. Both were very generally observed, most places of business being closed for the whole of both days. This did not appear to interfere materially with the amount of business done during the month, and it would be difficult to find a dealer in this vicinity who does not express himself as satisfied with the amount of his sales. Everybody was busy and orders were liberal. Buyers from neighboring cities and the country were in the city in large numbers; all were in a hurry to get through their business and get back home, representing that they were driven to death almost and could not afford to be absent. They anticipate an exceptionally large holiday trade, and were making preparations accordingly. When the transactions for the year are closed, it will be found that 1887 has dealt kindly with the jewelry trade, and that the members thereof have sold more goods, if they have not made more money, than they did in 1886. We hope this activity will continue throughout the coming year, thus prolonging the season of prosperity as deserved compensation for the years of dullness and almost positive stagnation the trade has known in past years.

WE DESIRE to call especial attention to the page of designs we present with this number of THE CIRCULAR. These designs were made especially for us by an artist who makes a regular business of designing for manufacturing jewelers. We print these in plain black and white, with neither coloring nor bronzing, thus making them working designs for manufacturers to use if they so desire. Our aim is to present something practical that can be used in the factory; if any manufacturer or designer obtains from this page any suggestion that he can utilize he is welcome to it. We can guarantee that they are original, and, in the main, are novelties. In this same connection we would invite attention to the initial letters used in connection with many of the articles in this number. These are from designs by the same artist, and each letter is a study in itself, full of suggestions to manufacturers and workmen. We have had a full series of initials designed in this manner, and they will appear from time to time in our columns as called for by the articles printed. These are not stock initials, to be found in any type foundry, and as suitable for a leather dealers' journal as a jewelers', but are all symbolic of the jewelers' art, designed and made especially for THE CIRCULAR, with a view to conveying hints to practical men in the trade. We believe that money spent in this way gives better satisfaction to our friends than would any number of chromos or fancy illustrations that mean nothing and have no practical significance.

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QUITE frequently we receive from the other side of the water publications showing patterns and designs for jewelry, such as are supposed to be novel and likely to attract attention in this country. This is very like sending coals to Newcastle, as the English proverb has it, for our own designers are far ahead of those of the old country. The American taste in jewelry is for light, airy, artistic designs, combining the useful with the ornamental, while the English run to the heavy and substantial, or what our designers would term cumbersome and stiff. Every manufacturer of any importance in this country has a corps of designers employed permanently, at high rates of compensation, to do nothing but work out new ideas for the manufacture of jewelry, and as they are artists in the full sense of the word, they are unsurpassed in the production of beautiful and desirable designs. As a mere matter of curiosity, some of the manufacturers subscribe for every foreign publication that prints designs for jewelry, but one of them recently informed us that he had never yet found one that he could utilize in any way, and was going to discontinue the papers as they were of no use to him. As our designers have improved upon their original teachers, so have our workmen, and there is no country in the world that can excel us in the production of jewelry, or gold and silver work of any description. We are not much in the habit of bragging, and should not make these statements had not their truth been demonstrated by various competitive exhibitions.

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THE life of a commercial traveler is not an enviable one at best, as he is separated from family and friends most of his time, and has to endure the fatigues of travel night and day, and all the discomforts and inconveniences of hotel life; but when sickness overtakes the traveler on the road, his case is indeed one to be pitied. A veteran traveler who recently underwent this experience says: "The traveler who is taken ill on the road or at a hotel cannot expect any attention from unselfish motives. He will find that he is obliged to give heavy tips to the porters, waiters, chambermaids and bell-boys for whatever he wants done. The sick man in the hotel is considered an easy and legitimate prey. Everybody can pluck him, and every body does pluck him, even to the physician, who oftentimes divides his fees with the men in the office. Not long ago I was taken sick at a hotel in Boston, and asked to have a physician sent up to my room. He called and made up a prescription. I asked his price for the visit and offered to pay him, but he said to me that it was all right, as he had no charge to make. It struck me that I had discovered a humanitarian in the proprietor of the hotel, who thus furnished free medical assistance for his sick guests. When I came to pay my bill, however, I found myself charged with the doctor's fees at three dollars per visit. I protested somewhat against this and repeated the doctor's words, whereupon the cashier showed me the physician's account for the hotel, itemized at the rate of two dollars a visit for hotel employees and three dollars for guests."

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WE HAVE frequently suggested to those dealers who complain that outsiders are encroaching upon their preserves by carrying stocks of jewelry, that they should carry the war into Africa by diversifying their own stocks, adding thereto various lines of goods that would not be incongruous alongside an exhibit of fine jewelry. A liberal line of stationery at this particular season of the year, when the holiday festivities are in full vigor, and choice stationery in demand in consequence, will be found not only attractive but profitable. The manufacturers of stationery are constantly producing novelties, and as the fashions in these goods are constantly changing, the dealer who keeps up with the times in these goods is sure to secure a lively trade. Tiffany & Co. took up this branch some years ago, adding to it a steel plate engraving department, and society ladies now think they are out of the fashion unless they have their visiting cards and stationery made by Tiffany. They do an extensive business in this same department in engraving bills of fare for fine dinners, many of these being decorated with choice hand-painted landscapes, pictures of birds and other artistic conceits as well as engraved. The stationery department of Tiffany & Co. is now one of the most important in their immense establishment, and while all dealers cannot be Tiffanys, they can hold the same relation to him in this respect that they do as jewelers. They can carry such goods as there is a demand for, and this is all that this great cosmopolitan house does.

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THE government is extremely solicitous about the valuation of all goods imported, and, as we noted last month, often takes merchants away from their business and requires them to appraise importations that are suspected of undervaluation. Diamond experts are often called upon in this manner, and while the service they render brings money to the Treasury, the government never thinks of compensating the experts for their knowledge and loss of time. When, however, this valuation boot is on the other leg, and the customs officers have appraised goods too high, collecting the duty on the excessive valuation, the government is exceedingly dilatory in refunding the amount of tax thus illegally extorted. A case in point was decided in the United States Circuit Court in this city recently. An importer of French muslins sued the government in 1857 to recover $18,000 that had been unlawfully collected from him by the Collector of the Port. After a trial lasting eleven days, judgment was rendered against the government for the full amount claimed with interest, making $54,000 in all. This was a test case, and the amount involved in the entire series of cases is over a quarter of a million of dollars. Thus, after thirty years of litigation and delay, the government is forced to refund money to which it never had any lawful claim, while the victim of undue taxation has had to lie out of his money all these years. The average merchant is quite as honest and law-abiding as the general run of government officials, and if an invoice of goods is occasionally undervalued, it is through ignorance or misinterpretation of the law. When the principal customs officers can make such mistakes as the Collector of the Port did in the instance referred to, it is not surprising that others made errors occasionally. The difference lies in the fact that the individual must

pay for his mistake on the spot or see his goods confiscated, while the government can fight off a settlement for thirty years or more.

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IT IS not always safe to put your trust in heirlooms. A gentleman recently went to a jeweler whom he knew very well, and producing some old-fashioned jewelry, wanted to know what it would cost to reset the diamonds in modern settings. The dealer looked at them and asked his friend if he really thought it would pay to have them reset. The customer was surprised at the question, and replied by asking what the stones were worth. The jeweler answered that they were worth little or nothing, as they were nothing but paste. The gentleman seemed very much astonished and mortified, and finally said that the old jewelry had been left to his wife by the will of a venerable aunt who had recently died. The aunt had probably died in the full belief that she was the possessor of some valuable diamonds, when, in fact, some rascally young scapegrace had removed the genuine stones from their settings and substituted paste imitations for them. This is not an unusual discovery among treasured heirlooms. The same gentleman next took a collar button from his shirt and asked the value of the stone it contained, evidently desirous of ascertaining whether he could pin his faith to modern jewelry. He was informed that his diamond in the button was a very good specimen of bort, and if properly crushed would do good service as grinding material, but as a diamond it was a failure. Probably, however, the purchaser of it had got all he paid for his precious stone. If gentlemen want to wear diamonds they must expect to pay a good price for them, but if they insist on having them for less than their market value, they are very likely to be deceived in the quality.

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A STORY has been floating through the newspapers of this country to the effect that the crown jewels recently sold by order of the French Government were not all genuine. According to this report some of the Parisian jewelers "put up a job" with the government officials, by means of which they were enabled to bring to the sale some of their diamonds and have them sold as genuine crown jewels. Also, that some of the genuine stones were removed from their settings and paste jewels substituted. It is reported that one dealer discovered the fraud, and, bringing back the paste diamond, succeeded in frightening the officials into paying him back the 31,000 francs he had paid for the genuine gem. Nothing more absurd than this cock-and-bull story could have been concocted in the fertile brain of a daily paper reporter, where this originated. There were present at that sale a small army of diamond experts, no one of whom could or would have been deceived by any spurious gems. They were there to buy precious stones, and expected to pay something more than the market price for them on account of the associations, and for this reason they were bound to exercise extraordinary precaution regarding their purchases. They were not swapping jack knives, unsight unseen, but giving good square cash for historical gems, and they could not have been imposed upon in the manner stated, even if the officers in charge of the gems had the courage and opportunity to perpetrate such a fraud. Many of those gems were purchased by American importers and are now in this country, and if any one supposes that they have been deceived in this matter they do not know what keen business men they are. It is true that if any Parisian dealer could have bribed the French officials to sell some of his goods as crown jewels he would have made a good thing out of it, for those jewels sold for about twenty per cent. more than their market value, as was expected, but the dealers who bought most of them knew their business, and had in their mind's eye certain customers who would be only too eager to pay them an advance on their investment. As a matter of fact, some of the gems changed hands several times within thirty days after the sale, and each seller made a profit. The story we have referred to is a pure invention of some sensational newspaper reporter.

THE new development of the phonograph by Mr. Edison, to which we referred last month, has attracted more than ordinary attention, for every practical person can understand that if one-half that he promises regarding it is fulfilled, there will follow a decided revolution in the methods of doing business. When a business man can carry on his correspondence by simply talking into a little machine sitting on his desk, that will record all he says, and can then take the record sheet and mail it to his correspondent, who has but to place the sheet in another phonograph to hear all the first one said, in his exact tone of voice, the work of corresponding will be robbed of half its terror and all the labor now attending it. What a blessing this will be, also, to those who are a little weak as to their orthography, and are always in doubt about the spelling of their written words. With the phonograph they have but to talk and not bother themselves about such a little matter as spelling, for the phonograph records sound waves and has no concern regarding orthography. Stenographers and typewriters will find their occupation gone, and editors will have their labors materially lightened. According to the promises made, publishers of books will find their sales lessened, for one person will have only to read a book aloud to the phonograph to enable any number of his friends to have the same enjoyment by simply grinding out the recorded speech in a similar machine. Professional readers may thus build up a new industry, by providing private readings for an unlimited number of customers. But how the correspondence of lovers will be simplified! No more unsuccessful struggles with the English language to fill out a full page to an absent sweetheart, but one can sit down to the phonograph and talk more in two minutes than he could write in an hour, and he will not be ashamed to say all those sweet nothings that mean so much but do not look well on paper. It occurs to us, also, that the phonograph might be made to do duty as a commercial traveler, grinding out a voluble stream of language that might be sent from one customer to another with the positive certainty that the stories always agree with each other. But we will not attempt to anticipate the revolution in business affairs that may follow the introduction of the phonograph, but simply say that we are personally assured that the published accounts of its possibilities still fail to do justice to the invention, and that the public will soon have an opportunity to put the machine to a practical test.

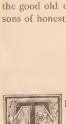
Criminal Education of Boys.

IF THE average business man were told that he was training the young men in his employ in criminal courses, and that they were likely to turn out to be thieves and embezzlers in consequence, he would probably become extremely indignant and possibly aggressive. When we read the daily record of crime and see that a large proportion of those accused are persons who have robbed their employers, the conviction is inevitable that there must have been something wrong in their training or their treatment by their employers to induce them to rob them. Take, for instance, the average office boy or the young apprentice; when a boy seeks a place, he reads the want columns of the papers and applies to those who advertise. It is usually required of him that he shall live at home with his parents, that he shall furnish recommendations for honesty, and that he shall work for a very small salary. The parents of the boy, however, never require the employer to give recommendations for his honesty, and in this they often neglect the best interests of the boy. How

many dishonest tricks of trade is the boy taught during his apprenticeship, and to what extent do such tricks corrupt his morals and lead him to robbery or other criminal acts? One of the first things he learns is that misrepresentation as to quality is laudable enterprise, and that the more he can adulterate the commodities he has to sell the more money he makes for his employer. When, in the jewelry trade, for instance, he is taught that fourteen karat goods are made out of ten karat gold, his instruction in dishonesty is begun, and it need not be surprising if he soon loses the faculty of distinguishing between right and wrong, and eventually thinks that he has an equal right to share with his employer the proceeds of such misrepresentation and fraud. In other lines of business, adulteration and depreciation of quality are even more generally the rule, and that person is regarded as particularly "sharp" and especially "smart" who can carry the art of adulteration to the most extreme limit without detection or destroying his trade entirely. When oleomargarine is sold for the best creamery butter, when cotton seed oil constitutes the bulk of our imported olive oil, when factories exist in our midst for grinding up cocoanut shells to make pepper, mustard and other spices of, and when boys are taught all these and many more tricks of trade, it is not surprising that their morals are corrupted, and that they learn to improve upon the methods of their employers, and instead of stealing by the indirect methods of adulteration and misrepresentation, they go to the fountain head and abstract the cash itself from the money drawer or the safe, or convert the goods they have helped to adulterate to their own uses. A commercial education is conceded to be a good thing for a young man, but when a parent sends a son to gain such education, ought he not to exact a guarantee that a criminal education will not be included in the commercial course? The only excuse that can be made for a person learning dishonest practices is his youth, and the insufficient apology that "they all do it"—this is a poor salve, however, for a seared conscience, and will not go far as an asset when the final accounting comes. Of course, no man will admit even to himself that his business practices and methods are dishonest, amounting, in many instances, to downright robbery of the public, but who ever stops to think of the effect such practices, even though they are common to his line of business, has upon the persons they employ, and who are necessarily associated with them in the perpetration of their devious devices. That participation in these tricks of trade has done much to lead young men astray and taught them to resort to criminal practices there can be no doubt, but where the remedy is to come from it is impossible to see. There is no less commercial honor in the community than there ever has been, but with the increase of population and the extension of business enterprises, the opportunity for reprehensible practices has been enlarged. Then, too, we always hear more of the disagreeable part of life than we do of that which is pleasant, and where one honest and upright merchant receives public credit for his honorable career, the crimes of a dozen dishonest ones are flaunted before our eyes in the most sensational manner. This is an age of sensationalism, fast living and fast doing, but it is much to be doubted if anything is gained by deviations from the good old conservative ways, especially those that inculcate lessons of honesty and perfect integrity even in trifles.

The Cylinder Escapement.

[By PAUL N. HASLUCK.]



THIS FORM of escapement is also known as the horizontal, so called from the fact of the escape wheel lying horizontally, in distinction from the verge or vertical escapement. This escapement was invented by Tampion and perfected by Graham, early in the last century; it is now almost exclusively employed in watches made on the continent, the English turning their attention more toward patent levers. Movements of the flattest kind have cylinder escapements. The axis of the balance is a hollow cylinder, cut away to allow the passage of the scape wheel teeth. Though excellent for ordinary pocket watches, the cylinder escapement cannot be said to equal the lever and some others, where greater accuracy is required. The drop of the escapement is the cause of much trouble to watch repairers, but the following means will enable them to ascertain how far the drops are equal and correct:

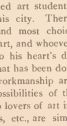
The movement being slightly wound up, with a fine wire or strip of paper turn the balance till a tooth falls; now, try how much shake the escape wheel has, and allow the tooth to escape; then try again and go all round the wheel, to see how all the teeth and spaces agree in size. To correct any inequality is certainly a job for an expert hand, and directions will not avail much unless to an expert. When the tooth contained within the cylinder has no freedom and rubs at the point and heel, there is no internal drop; when the tooth has escaped and the cylinder shell rubs on the point of one tooth and the heel of the next, then there is no outside drop. The internal drop is increased by reducing the length of the teeth, the external by increasing the space between the teeth. When the drop is very slight, the watch is very liable to stop through the excessive friction; in the case of unequal drop the rate of a watch cannot be maintained, and occasional stoppages will occur.

This fault is found by dotting the balance with spots of rouge and carefully noting the vibrations, which, if unequal, indicate unequal drops. Though this is the usual cause, the same effect may be the result of some teeth lifting more than others.

A noisy drop is caused by badly polished surfaces, and in such a case the heel of the cylinder should be carefully noticed. If the pivot holes of the escape wheel are too large an immense amount of trouble will be caused, and, in fact, all the end shakes and side shakes of the cylinder require most careful adjustment. An excess of oil will also cause an infinity of errors to arise and should be most carefully guarded against. The points of the escape wheel teeth may catch in a slight burr, which is sometimes left at the lips of the cylinder, and, of course, would stop the watch. This is remedied by polishing the cylinder and rounding off the points of the scape wheel teeth.

The balance spring should be pinned up to have the escapement in perfect beat. This is done by pinning the stud on the spring so that it is exactly over a dot marked in the balance for the purpose of showing the position. Sometimes the lower corner of the heel of the scape wheel tooth touches the inside cylinder and stops the watch. But all these defects may be seen, or rather felt, by careful trial. If there is any doubt of parts touching where they should not, a spot of rouge put on will at once mark where it touches.

Metropolitan Museum Art Schools.



WE HAVE frequently directed attention to the educational facilities afforded art students by the Metropolitan Museum of this city. There are gathered some of the rarest and most choice examples of ancient and modern art, and whoever chooses, is at liberty to go there and study them to his heart's desire. To gold and silversmiths these examples of what has been done by their predecessors in matters of design and workmanship are calculated to give a higher appreciation of the possibilities of their art, and to stimulate their ambition to excel. To lovers of art in all its aspects, the collections of statuary, paintings, etc., are simply invaluable. The trustees of the Museum have recently established in connection therewith a series of art classes, to enable students to obtain still further advantages from the Museum collections. It is intended by means of competent instructors in each of these classes, to give thorough instruction in color, design, modeling, free-hand drawing

mechanical drawing, chased or hammered metals, carved work, and to combine with such instruction, creative art taste and practical industrial skill. They have set aside large, well lighted and perfectly ventilated rooms in the new building for the use of these classes, and professors who are celebrated in their specialties will have charge of the school. Regarding the class in "Chasing and Repoussé Work in Metal," in charge of M. Julien Ramar, of Paris, it is said: "This class very practically unites the fields of artist and artisan, affording full scope for the development of high artistic feeling, and giving opportunity for the production in metal of designs either original or adapted, the pupil being instructed to produce them in forms at once permanent, beautiful and of commercial value, and especially to recognize artistic fitness and adaptation." A forge is provided for the use of pupils, and instructions given four days in the week, the charge for the school year being $15 for each pupil. This class seems to be one of special interest to the jewelry trade, but those in drawing are no less important.

We have often urged the necessity of having an art school established in connection with the jewelry trade, but those gentlemen who have heretofore expressed a desire to encourage such a school have not seen their way to giving practical effect to their ideas and desires. Does not this new departure on the part of the Metropolitan Museum trustees offer the opportunity for putting into practical operation the long entertained wish for a school of instruction in those arts essential to the successful prosecution of the jewelry industry? It is, as we are assured, the desire of the trustees to afford every facility in their power to further the instruction of artisans in their chosen callings, and to give young men opportunities to prepare themselves to become skilled workmen—in fact, to establish industrial schools for imparting instruction in those callings that combine artist talent with mechanical skill. The trustees would, no doubt, be willing to introduce other classes in their curriculum on the suggestion of any body of manufacturers, upon the assurance that such would be desirable. Unquestionably, they would follow the suggestions the jewelers might make as to the character of instruction desired to fit young men to prosecute the jewelers' calling, and would form classes for designing in gold and silver, for working the precious metals, and for doing such other work as is required. The trustees are anxious to give young men an opportunity to improve their condition by utilizing any artistic talent they may have, and would be quite as willing to include the suggestions of jewelers in their plans as any others. We respectfullly suggest that it would be a good thing for the New York Jewelers' Association to appoint a committee to consult with the trustees of the Museum and see if something more definitely in the interests of manufacturing jewelers cannot be introduced in the art schools than is now included in their programme. We make this suggestion to the Jewelers' Association, for the reason that we have heard several of its members at various times declare that a school of instruction was a growing necessity, and the establishment of the art schools by the Museum trustees seems to offer the desired opportunity for supplying "a long felt want." A committee from the jewelers would probably have no difficulty in arranging for precisely such a course of instruction as they might suggest, and no more appropriate time than the present could be selected for carrying out the arrangement.

The Pendulum Crutch.

THE CLOCK repairer will occasionally come in contact with a clock with a crutch filed so wide by some botch that there is room for two pendulum wires to work freely in it, and the result is that he must either make a new crutch or solder a piece on each side in order to make it fit properly again. It is well known by practical men that many make a mistake in this particular; an unduly wide crutch is detrimental, while one that is too narrow will soon stop the clock entirely; it should be just wide enough for the pendulum to move freely in it, when this is at the outside arc of oscillation. Although there is not much difference between it when in this position and when at zero, still there is a little difference, even when the sides of the crutch are very thin; but when the sides are a little thicker, it makes a difference in proportion to their thickness; therefore, when it is a thickly made crutch we are obliged to make a little more room for the pendulum, in order for it to act freely at the outside arc of oscillation.

The reason of this is the crutch is working in a circle around the pivots of the tail piece and pallets, while the pendulum is working from a suspension spring, which is ever subject to deviation from a circular path, while the tail piece must necessarily keep the same distance from its central action. Now, from this we see that an escapement which requires a wide arc of oscillation, requires also a wider crutch in order to give the pendulum its proper play. The performance of an escapement of this kind, when it runs to an extreme, is to be regarded as doubtful; for if a crutch must be cut so wide in order to be at the outside of the arc, see what a quantity of space there is when the pendulum is at zero. At every tick the pendulum must cross this space in the crutch, and instead of the clock saying "tick, tick," it says "clink, clink." Take the Dutch clock for an example. Let the crutch be wide, and the noise caused by the pendulum striking the side of the crutch will be as great as the tick proper; hence, "clink, clink, clink," is the monotonous tones we hear.

Suppose a clock is running in this form for a long time without any oil, the result is both wire and crutch are considerably worn, and there is no measuring the extra friction in consequence. The only proper way to correct such a job is to fit a new pendulum wire and crutch, noticing that they act correctly with each other when replaced. Always avoid letting the pendulum wire ride on the back of the crutch; let each hang perpendicularly at the required place, so that the wire touches nothing but the sides of the crutch and all is well.

A Few Practical Hints to Advertisers.

THIS season of the year, as the holidays are approaching, business men in all lines are besieged with solicitors of advertising, who represent all sorts of schemes for tempting patronage, from the legitimate and valuable medium of an old and established journal, to the catch-penny devices that suggest cheap calendars, patent medicine circulars or gutter snipe literature. It is often difficult for the person importuned to say no, for he appreciates the value and importance of advertising, while the glib-tongued eloquence of the solicitor leaves him in doubt as to whether or not he would be throwing away a splendid opportunity if he refuses. Publishers are, as a rule, among the most enterprising of our business men, and it is safe to say that they have occupied almost every possible field with some permanent publication, so that those advertising schemes that do not pertain to some established publication may safely be set down as catch-penny affairs, gotten up solely for the advertising patronage that can be secured for them. It is common to promise for these immense circulations, but as a rule such promises are simply the unredeemed pledges of the solici-

tor who is working for his commissions. Being advertising schemes simply, it is a loss of profit to the publisher to circulate a large number of copies, and having no regular subscribers to supply, he is content to save printing and postage and only send out enough to enable him to show his advertising patrons that he has actually printed their advertisements. A safe rule to go by is to refuse to patronize any but established publications.

As to established publications, nearly every industry has its special journals, whose proprietors have made it their business to cover the field as thoroughly as possible, and as they have special facilities for doing so, no one else can hope to approach them in this respect. Take the jewelry trade for example, it would be astonishing if, after cultivating the field for eighteen years, the proprietors of THE CIRCULAR had not secured a circulation for their journal that covered the entire trade, and therefore made it an invaluable medium for advertisers. It would be absurd to suppose that a person who had never catered to this great constituency, could come in with some clap trap scheme and give advertisers a wider circulation for their advertisements than THE CIRCULAR can and does twelve times a year. But there are degrees of excellence even in established journals, and one at all familiar with them can tell at a glance whether they are successful or not. The success of a journal depends entirely upon its reading matter, and if this is judiciously prepared, its circulation is bound to be extensive. An intending advertiser should familiarize himself with the general make-up of several numbers of the journal he is solicited to patronize, and if he finds it enterprising in its chosen field, furnishing such matter as is of value to the particular class it aims to serve, then it necessarily has a circulation that is a guarantee of the *quid pro quo* to its advertising patrons. But if it is weak editorially, bearing evidence of being edited with a pair of scissors and a bottle of mucilage, deficient in news regarding its own specialty, made up like a crazy quilt of odds and ends, it can be taken for granted that its circulation is limited to its advertising patrons and its stockholders. If its advertising columns are patronized by the leading business men, that is proof that they know its value; but if its advertisers are the "cheap johns" of trade, and the advertising agencies, consisting of quack medicine announcements and tricks to catch the unwary, that is proof that the journal is not a desirable advertising medium, and that any money spent upon it is so much wasted.

Intending advertisers should be governed by their own feelings regarding methods of advertising to a great extent. Every day men and boys may be seen distributing circulars in the street advising passers that the cheapest dinner in the city can be had at a place named—did any respectable business man ever go to such a place to buy a dinner in consequence of such advertising? It may catch tramps and vagrants, but sensible men will conclude that the restaurant must be as offensive as this style of advertising is. Who has not been disgusted with the processions of "sandwich men," dressed in outlandish costumes and bearing advertising placards, as they promenade the streets? Who has not been offended by the conspicuous signs displayed on the elevated railroad platforms, at the ferry landings, and other conspicuous places about the city? We venture the assertion that more persons are disgusted by having business placards stuck under their eyes at every turn, and resolve never to patronize the advertiser, than are induced to buy their goods. Advertising is a matter of judgment, and money can be very easily wasted in this manner. In these days of multitudinous papers, every man selects his journal to read because of some special feature of its reading columns that pleases his fancy. It is the reading matter that determines the character of the journal, and, consequently its influence, circulation and consequent value as an advertising medium. We warn the trade against all clap-trap advertising schemes, devised by adventurous solicitors, who have everything to make and nothing to lose by their undertaking, and who have no further interest in their patrons than what they can make out of them.

*A Complete History of Watch and Clock Making in America.

[By CHAS. S. CROSSMAN.]

Continued from page 373.

Number Eighteen.

THE ROCKFORD WATCH COMPANY, OF ROCKFORD, ILL.—THE AUBURNDALE WATCH COMPANY, OF AUBURNDALE, MASS.

THE CITY of Rockford, Illinois, from which this company derives its name, is situated ninety-three miles from Chicago, on both sides of the Rock River, which furnishes abundant water power for many large manufacturing interests located there. It is reached from Chicago by three railroads, the Chicago and Iowa, the Chicago, Milwaukee and St. Paul, and the Chicago and Northwestern. Its inhabitants number some twenty thousand. The watch company located here can, to quite an extent, be said to owe its birth to the collapse of the Cornell Company, or, rather, to its decline and removal to the distant city of San Francisco.

So far as we are able to learn, the first step taken was by Mr. C. W. Parker, who has been foreman of the plate room since the company started. He was with the Cornell Company, but went to Rockford, where his parents lived, to spend Thanksgiving in 1873. It had been his former home and he thought it a good place for a watch factory and talked the matter up. Returning to Grand Crossing he persuaded a number of those connected with the Cornell Company to go to Rockford, and, as a result, several meetings were held and addresses made by those who were interested, Mr. P. H. Wheeler, formerly of Cornell, taking quite an active part. A committee of five citizens was appointed, consisting of Messrs. Holland, Sovereign, Troxell, Rhoades and Price. Three of this committee visited Elgin and Springfield to find out, if possible, if a capital of one hundred thousand dollars would be sufficient to start the enterprise. It was decided in the negative and one hundred and fifty thousand dollars were raised, all subscribed in three weeks. On this basis the company organized in March, 1874, the incorporators being Israel Sovereign, George Troxell, and H. P. Holland, the present Secretary. The Board of Directors comprised Levi Rhoades, President, Henry W. Price, Vice-President, Orlando Clark, Samuel P. Crawford, Alexander D. Forbes, Israel Sovereign, Thomas Butterworth, George D. Clarke and F. F. Berthoud; Treasurer, George Troxell.

Rooms on the water power were at once secured, machinery and tools purchased, and shop tools commenced with which to build watch machinery. The shop was opened in April, 1874, the force of workingmen being mostly from the Cornell Company. Ten came at first, the names of whom were George D. Clarke, P. H. Wheeler, J.

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W. Hurd, C. W. Parker, John De Camp, George A. Hines, John A. Johnson, B. F. Stone, William Dicks and A. H. Cleaves.

Mr. George D. Clarke was appointed Superintendent at a salary of $5,000 per year, and P. H. Wheeler was made Assistant Superintendent. We will leave them building the machinery while we glance at the other affairs of the company.

They received propositions from various parties having available real estate, but settled on a location on the east bluff of the Rock River, which they purchased for $8,500. It is but two blocks from the main business street. The money subscribed was paid in and premises erected, and in November, 1875, (?) the company occupied it. The building is 132 feet by 32 feet, three stories and basement, with engine room and other necessary additions. To this was added in the winter of 1882 and 1883, the north wing, 70 by 32 feet. The machinery was well advanced at the time they occupied the building, so that they were soon able to commence making parts of watches, and placed movements on the market May 1, 1876.

At this time the company were able to turn out ten watches per day with a force of forty operatives, although the company was organized with a view of producing double that number. The movements were made in five grades at start, all 18 size, full plate, gilt, both key and stem wind, and all having expansion balances. It was the company's aim to produce a really good watch, which their subsequent history proves they have done. The first full plate movements turned out were quite like the United States movements in construction in many particulars, but this was owing in part to the fact that Mr. Clarke, the first Superintendent, had previously been with the United States Watch Company, and in making the models had used some of their tracings. The movement was, however, subsequently remodeled by Mr. Joseph W. Hurd, who became Superintendent at the expiration of two years, Mr. Clarke retiring. Mr. Hurd was assisted by Mr. B. F. Stone in the model making. It may be said that Mr. Hurd's efforts in this, as well as in many other directions, have contributed largely to the success of the company since he undertook the superintendence. He modeled the stem wind, which in substance is the same the company use now, although it is somewhat modified in form. Many grades of both key and stem wind movements have been added to the list since, and some have been dropped. The company make at present 20 grades in 18 size, both gilt and nickel, and 6 grades of ladies' size stem winds. Nickel has been used by them since 1880. In January, 1877, the company commenced to make a 3/4 plate, fifteen jeweled movement to fit the regular 18 size case. This they still continue. They case some of the lower grades and sell them as complete watches only. The distinctive feature of the company's manner of disposing of their production from the start has been to sell directly to the retail trade without the goods passing through the jobbers' hands. They also sell to only one customer in a town, which gives that dealer the exclusive control of their watches in that place. The company, however, have an office in New York at No. 9 Maiden Lane, with Mr. S. B. Mann, as agent.

A prominent method of the company's advertising has been in the railroad line, and the trade mark which they adopted was a train of cars across the dial of a watch. Their watches have always had an extensive sale among railroad men.

As to the general construction of this watch, it does not vary essentially from other full plate American watches. The company use a patent center pinion invented by B. F. Stone, the model maker. It consists of one leaf being left longer than the others at its outer edge, and hooking into a corresponding cavity in the steel hub of the center wheel. The back side of this cavity is, of course, at quite an angle, so that the pinion becomes detached when any recoil occurs. The patent regulator which the company use is an invention of Mr. Hurd's while he was with the Cornell Company. The spring is shaped like a bow and presses on each side of the regulator, fastened in the center to the bridge. The regulator is propelled by a micrometer screw, and at the end of which is a minute ball and socket joint. Each escapement is matched for the movement for which it is intended to be used. The pallets are of the form known as circular. The angles on the stones are ground after being cemented into the pallets.

Before drawing the history of this company to a close, we desire to make brief mention of the names of the early foremen in the various departments of this company. C. W. Parker was first foreman of plate room and still retains the position; John A. Johnson, first foreman of machine shop; U. C. Osborne in the polishing, who still remains there; George A. Hines, jeweling, remained two years; P. H. Wheeler, train room, remained also two years; J. W. Hurd, screw and balance until 1876, when he was called to the superintendence, which he still retains; James E. Tobin took the springing department, which he still retains. The dials are made by contract outside, so they do not have this department. The finishing room is under the general care of the Superintendent. B. F. Stone was the model maker, and John De Camp was in charge of the pinion making and Wm. Dicks of the blacksmithing.

Of the production of the company, it can be said they had a capacity of one hundred and fifty watches per day, with a force of two hundred and fifty operatives, which they at one time had, but they are running with a somewhat less number at present.

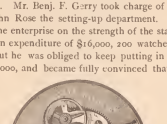
Of the financial success of the company, it can be said to here illustrate the truth of the familiar adage, that "nothing succeeds like success." The capital has been increased to $282,000, which has been done from its dividends. Their path, however, has not been without thorns, for during the business depression which followed the panic of 1873, the company not having yet got their watches on the market, found themselves obliged to bond an indebtedness of $40,000, but subsequent events proved their wisdom in so doing. They were fortunate at the time of starting in securing the services of Mr. Hosmer P. Holland as Secretary and General Business Manager, which position he still retains. He has by his careful business management, assisted by the Messrs. Rhoades and Price, brought the affairs of the company to a high financial standing, and placed the company on record as one of the successes in the horological industry of America.

THE AUBURNDALE WATCH COMPANY.

The history of this company as a firm and corporation covers a period of about eight years, viz., from 1876 to 1884. It existed first as a firm until November, 1879, the company not being formed until that time.

The name of the person who figures most conspicuously in this history is Mr. W. B. Fowle, a wealthy gentleman residing in Auburndale. In 1876 the "Hopkins' rotary watch" was brought to his notice by Messrs. W. A. Wales and J. R. Hopkins, the inventor. This was the watch which Mr. Hopkins (previously of the Washington Watch Co.) had invented. He perfected the models for Messrs. Locke and Merritt, now of the Waterbury Watch Company. Messrs. Wales and Hopkins induced Mr. Fowle to take hold of the enterprise, and the latter at once took the necessary steps looking to its manufacture. He erected a building 40 by 20 and 32 by 18 respectively, two stories in height. They were located in the town of Weston, across the Charles River from his residence. These were completed in the summer of 1876, and a quantity of machinery was purchased from the assignee of the United States Watch Co. It was not adapted for this work, and to be rebuilt would cost more in the end than new machinery, not to mention the loss of time; but they concluded to use it for a while, and the first watches were completed and put on the market in 1877; they were known as the Auburndale rotary watch. They did not prove a success and were subsequently nearly all taken back by the company as they would not run satisfactorily. They were regular 18 size, stem winding and stem set. They sold to the trade at $10 each, cased in nickel open face cases. The peculiar feature of their construction is the manner in which the power is transmitted from the mainspring to the train, as will be seen by the cut. This is done

by means of an internal toothed rim which meshes into what is usually the third pinion. The train is all located on top of the barrel, which revolves once an hour, carrying the minute hand on its arbor. The cut which is given was made from a "rotary" which is now the property of Mr. Thos. Hall, 21 Broomfield street, Boston, who very kindly loaned it to the writer for this purpose. As originally modeled by Mr. Hopkins, a chronometer escapement was used, but soon after the manufacture was commenced, an anchor escapement was substituted. The general management of the business was under Messrs. Fowle and Wales' direction, but Mr. Warren E. Ray superintended the building of the factory and planting of the machinery. He was then succeeded by Mr. Wm. Guest, from Pittsburg, Pa. He remained but two months, and was in turn succeeded by Mr. J. H. Gerry as Superintendent. Of the foremen, the following may be mentioned: Thomas Steele, now of the Boston Clock Co., started the train room, plate and screw department. Mr. Wm. Simmons and Mr. Frank Robbins came from Waltham to take charge of the jeweling but was soon succeeded by Frederic Eaves. Mr. Benj. F. Gerry took charge of the escapement making and John Rose the setting-up department. Mr. Fowle had been led into the enterprise on the strength of the statement made to him that with an expenditure of $16,000, 200 watches per day could be produced, but he was obliged to keep putting in money until he had sunk $140,000, and became fully convinced that the "rotary"



AUBURNDALE ROTARY WATCH MOVEMENT.

watch was a failure, and concluded to stop making it. About 1,000 of them had been made, but very few of them were ever sold; or if sold they were returned. The watch was faulty in principle, and the tools to make it not of the best, and under these conditions it made but little difference how good a staff of mechanics they employed. Previous to giving up the manufacture of the rotary, however, a chronograph was commenced. It was known in the trade by the name of the Auburndale Timer. It was the invention of Mr. W. A. Wales. The were made to record ¼, ⅕ and ⅒ seconds. The first were made with the stops on the side of the case, but it was afterwards changed to both stop and fly back by the stem. They were the same size as the rotary and cased in the same style of cases, which were made for them by the Thiery Watch Case Co., of Boston. After the timer had been gotten well under way and was likely to be a success, as it afterwards was, Mr. Gerry severed his connection with the company, and Mr. Chauncey Hartwell became his successor. About this time it was decided to make also a cheap 18 size, ¾ plate, gilt movement, to fit regular 18 size American hunting cases. The models were at once made by Mr. Hartwell and the movements gotten out. They were made in two grades, and named "Lincoln" and "Bently" respectively, after the two sons of Mr. Fowle. The former was a key winding and the latter a stem winding movement. It may be said Mr. Fowle was averse to making so many changes in the product of the company, but he was overruled by his associates, all hoping, of course, to strike something upon which to retrieve the former losses. This was the state of affairs in November, 1879, when the Auburndale Watch Company was incorporated with a capital of $500,000 (on paper). Up to this time about $250,000 had been put into the business by Mr. Fowle (although the greater part of it had already been sunk) who was now elected President of the company. Mr. Geo. H. Bourne, a son-in-law of Mr. Fowle, was elected Secretary and Treasurer. The manufacture of the movement was found unprofitable and was given up the next year, after a few hundred had been produced. The manufacture of metalic thermometers was now taken up in addition to making the timers. The thermometers were to record with a dial and hand. They were made from a small pocket size to 18 inches in diameter, all in nickel cases. They also made miniature thermometers for medicinal and scientific purposes. The company was now under the superintendence of Mr. Justine Hines, who had come to succeed Mr. E. H. Perry, who had in turn succeeded Mr. Hartwell. Mr. Hines was succeeded after about two years by Mr. O. S. Strout, who remained to the *finale*. The manufacture of the timers was given up in 1881, as the company had a large stock on hand and were constantly increasing it, and the demand was limited. During the racing season the sales would sometimes reach as high as 400 per month, but at other seasons of the year the sales would drop to almost nothing. The company now turned their attention to the manufacture of thermometers exclusively, and for the first time in the history of the business it was run at a profit for a short time. The company had, however, become too deeply involved to be able to get along successfully without the further aid of Mr. Fowle. This he was unable to render, as owing to the losses in this and other directions he had been obliged to assign his individual estate. The company made a voluntary assignment in the fall of 1883, and in February, 1884, the machinery was sold, bringing altogether between five and six thousand dollars. The factories have since been unoccupied. Taken all together, the rotary watch and other ventures which followed it proved a rather costly experiment for Mr. Fowle. If neither sadder nor wiser, and probably both in a measure, he certainly became poorer financially through his connection with this famous industry which, while it has made fortunes for a few, has been the cause of the downfall of many others.

(*To be Continued.*)

Terms of Credit in Different Countries.

THE following data regarding the terms of credit allowed in various countries are derived from reports of United States consuls published by the Government: It appears that in Germany the credit system is very widespread, and that the time allowed purchasers to settle their accounts is generally much longer than in France and England. Nearly every commercial and manufacturing branch of business has its own particular terms of credit, and there is no uniformity in this respect.

In England a payment of the price of the goods delivered is required at the end of three months, dating from the day of shipment. In France a four-months' acceptance is required to be sent in settlement of the invoice. In Italy but little credit business is done, and none without good security being given. In Spain four-fifths of the transactions are done on a cash basis, while in Portugal great liberality is shown, and quite a long credit is usually allowed. In Austria it is scarcely possible to do business without allowing a very long credit, which is nearly always one of six months. In Turkey even objects of prime necessity are sold on credit, and in this country, as well as in Russia, the time allowed is, in most cases, twelve months. In Canada settlements are made at the end of thirty days, with a discount of five per cent. Sometimes a credit of from three to six months is allowed, but in this case there is no discount granted upon payment of the account.

In Mexico the large commercial houses willingly give credit of from six to eight months, and in the retail trade long terms are given customers in which to settle their accounts. In Costa Rica a credit

of from six to twelve months is given in case of merchandise imported from Europe, in order that the goods may be easily and quickly disposed of. But since this system of credit has often led to losses, it is now being given up. In Cuba the time fixed for payment is generally from four to five months after delivery of the goods.

The Consul General of the United States at Rio states that one of the greatest drawbacks to commercial intercourse with Brazil resides in the necessity of allowing too long a credit. At Rio Janeiro, as at Buenos Ayres, the minimum credit is six months, and often more. In the Bermudas accounts are settled but once a year. The 30th of June is the day usually fixed for the payments. In Asia Minor a credit of but two or three weeks is, in most cases, all that is allowed. In China it is not customary to give credit. Money is obtained from lenders, who exact an interest of from 8 to 12 per cent. Business is nearly always conducted upon a cash basis. In Australia a credit of six months is generally allowed.

Dissatisfied Workingmen.

ISSATISFIED workingmen, who, for one cause or another, have recently abandoned their opportunities for employment, have suffered most signal defeat in several important instances. The most extensive strikethat occurred was that of the job printers in this city. The printers are here well organized, and their Union is one of the strongest labor organizations in the country, but the employers are equally well organized. Recently the printers demanded an advance of wages and also that every office should be declared a Union office and none but members of the Union permitted to work in them. The employers readily conceded the advance in wages, but refused to discharge their non-union men or to make their offices union offices in the future, claiming that this was an interference with their individual rights that they would not submit to. The printers struck in one or two offices, and in the others they were locked out, so that there were several thousand idle printers in the city. The employers advertised for non-union printers from other cities and in the course of a week had a fair supply and were enabled to keep their offices running. The strike and lockout lasted about three weeks, when the printers found that they were defeated and began looking for work wherever they could find it. But their action had resulted in bringing to the city over 3,000 printers from other localities, and the employers refused to discharge such of these as were competent, so that the strikers found great difficulty in obtaining work when the strike was declared "off." During the strike, the printers on the newspapers and elsewhere who did not participate in the strike were assessed 25 per cent. of their earnings to support in idleness those who were not employed. They became tired of this and a disruption of the Union was threatened, and was probably only averted by the abandonment of the strike. This strike has done much to encourage employers to resist the unreasonable demands of their employees, by demonstrating that manufacturers can organize as successfully as the workmen.

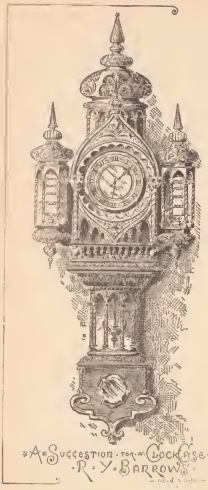
Another strike and lockout occurred among the brass workers, who demanded that nine hours should constitute a day's work and be paid for as a full day. When this demand was first made it affected one shop only, but the other employers at once took action and locked out their men before they had an opportunity to strike. This threw hundreds of men out of employment, who, after several weeks of idleness, were glad to return to work on the employers' terms.

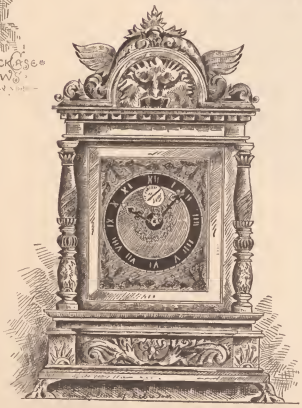
Notwithstanding the failure of these strikes, the printers of Chicago determined to enforce the nine hour rule, and so went on strike. But the employers sent elsewhere for printers and the New York employers sent them many who had been induced to come here during the strike, so that the Chicago employers soon had all the men they required, and the strike in that city was a failure.

In Philadelphia, 3,000 shoemakers went on strike to enforce an advance in wages after the joint committee of arbitration, consisting of employers and employed, had denounced it as unjust and in direct violation of existing agreements. But the men in one shop refused to be governed by the arbitration committee and went on strike, whereupon the employers withdrew from the committee and locked out their men. In consequence of this the men lost at least $50,000 a week in wages and had the satisfaction of seeing much of the work controlled by that city go elsewhere, so that when they get ready to go to work there will be much less for them to do and many will be unable to find employment.

About the most outrageous case of abuse of power the workmen claim to exercise was reported from Pittsburg. The proprietor of one of the large glass blowing establishments came to his factory one morning and found all his men idle, and was met by the demand of one of the men that unless he advanced him one dollar all hands would quit work. As the man had been paid the day before, there seemed to be no good reason why the employer should, under compulsion, lend the man the dollar demanded, but it was explained that the man owed the money to his union, and unless it was paid at once, the others would be prohibited from working with a member who was in arrears for his dues. The dollar had to be advanced under the circumstances, but a little later when some other outrageous demand was made on one of the employers, a lockout was ordered, and the factories all closed down until such time as the men should make a satisfactory arrangement with their employers to return to work.

Two or three years ago we stated that the unjust demands of workingmen, who relied upon the power of their trade organizations to enforce them, would compel the employers to organize for self protection, and, when an unjust strike was made in one shop or factory, for all employers in the same line to lockout their men until they came to reason. The silversmiths were, we believe, the first employers to adopt this course, and the signal defeat of their unreasonable workmen in consequence, showed to other employers that the old motto, "in union there is strength" was quite as applicable to employers as it was to the employed and the defeat of the strikers above referred to is the result of organization among employers. It does not appear, however, that workingmen profit much by experience, but are quite as willing after one defeat to take the chances of another at the bidding of some walking delegate, who has nothing to lose by the disturbance he creates, but on the contrary, thrives by stirring up dissatisfaction among workingmen, whose industry he scorns. Labor unions are good things in their way, and have done much to improve the condition of the workmen of the country, but when a few hot-headed, scheming men are allowed to control them against the judgment of the better class, they are readily made mediums of oppression, in the attempt to enforce which the workingmen are the greatest sufferers. The men employed in one shop or factory should have too much self respect to permit outsiders to come in and dictate to them the terms on which they may continue to earn their living; every shop should regulate its own affairs and the employers will be found at all times ready to meet their own employees and discuss and remedy any real grievances they may have, but they will not yield to the dictation of outsiders.





ORIGINAL DESIGNS FOR CLOCK CASES.

Prize Essay on the Balance Spring.

[BY MORITZ IMMISCH.]

Continued from page 361.

BOTH PENDULUM and balance perform their respective vibrations in the same time, whether the arcs are large or small; in both cases, therefore, the velocities increase with the angle of inflection, and the resisting forces are proportionate to the impelling forces. This may be thus expressed: Let line *A B*, fig. 1, represent the momentum, and line *B C* the force of gravity; divide these lines into equal parts, and draw rectangular lines till the corresponding ones meet; if we now connect these points of juncture we obtain the straight line *A C*.

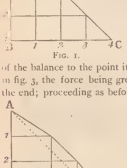


FIG. 1.

In the case of a balance the momentum is also uniform, *A B*, fig. 2, but the resistance *B C* is uneven throughout, being weakest at the beginning and strongest at the end of the vibration; by connecting the points as in fig. 1, we get the curve *A C;* but as the force has been increasing with the resistance, the return of the balance to the point it started from must now be expressed as in fig. 3, the force being greatest in the beginning and smallest at the end; proceeding as before we get the curve *A C*, and, as the distances from the straight line in both curves exactly correspond in all points, it is evident that after the completion of this part of the vibration the balance will arrive at the point it started from with the same velocity as if both the forces had been uniform throughout.

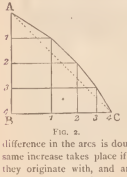


FIG. 2.

In making experiments with pendulums we find that without some auxiliary contrivance the long arcs are performed somewhat slower than the short. This difference in the arcs is double when the weight is double, and the same increase takes place if the velocity is double. It follows that they originate with, and are determined by, the weight and the velocity, or, what is the same thing, by the momentum of the pendulum.

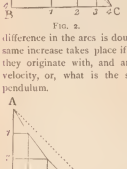


FIG. 3.

The vibrating of a pendulum may be imagined as a struggle between the momentum and the force of gravity; at the end of each vibration when the gravity succeeds in overcoming the momentum, there is a point of rest. If, in the same moment this point is reached, the gravity should cease to act, the pendulum would remain in this position; as it is, there will be a certain amount of force required to overcome the inertia pertaining to all bodies in a state of rest. This force, so lost to motion, is tantamount to a loss of time, as we have seen above in the case of the escape wheel and a rotating balance. It naturally follows that this state of rest will be prolonged by an increase and shortened by a diminution of weight. It also stands to reason that in the case of equal weights a greater velocity will put the force of gravity, which remains the same, to a disadvantage; the struggle will be prolonged, which also causes a retardation. The scientific explanation of this is to be looked for in the fact that the point of percussion in a swinging body does not coincide with the point of gravity.

In assisting the force of gravity by applying a suspension spring, these irregularities can be contended with; as its force is as its tension, it will be greater in long than in short arcs; and if it is of proper length and thickness, and its force in proper proportion to the weight of the pendulum, it will cause the long and short vibrations to complete themselves in the same time; but, although by means of a suspension spring, isochronism can be obtained, it is far from being the sole agent in this respect, because if the weight is diminished, the long vibrations will gain on the short ones and *vice versa;* and again, if the weight be the same and the length diminished, the long arcs will be slower than the short; so that when the strength of spring and the number of vibrations are given, a certain weight will cause the vibrations to be equal; if strength of spring and weight are given, a certain length will be required for that purpose. In making experiments with pendulums, the influence of the resisting air must be taken into account. This resistance, as stated above, increases in the ratio of the squares of the velocity, and inasmuch as it assists the force of gravity to overcome the momentum, it has a tendency of quickening the long vibrations.

Experiments will show that with a very light pendulum presenting a very large friction surface to the air, the long vibrations are performed even quicker than the short; so that isochronism may be arrived at by a proper proportion between the weight and the friction surface of the pendulum; however, no watchmaker would think of resorting to this means, as such a pendulum would require a much greater force to be moved through the required arc. I simply mention this as a circumstance bearing on the subject which must not be lost sight of in making experiments. Care must also be taken that the oscillation should continue in the same plane; if they are in the slightest degree elliptic, the point of rest is not perfect and the result unsatisfactory.

The knowledge and proper appreciation of these influences in connection with the vibration of a pendulum, will materially assist us in comprehending the elements of isochronism in balance and spring. Here we must substitute the extremities of the balance spring for the suspension spring of a pendulum, and the relative force of the balance spring for the force of gravity. This relative force increases and decreases inversely with the weight and the squares of the diameter of the balance; any change, therefore, in the dimensions of the balance involves a change of this relative force, which stands here in the place of the force of gravity acting on the pendulum, and which is uniform. If there existed several forces of gravity of different intensities which could be brought to act on a pendulum, the latter would require a different isochronal adjustment for each of these. In the case of a more powerful force, causing quicker vibrations, the momentum would be at a disadvantage, the suspension spring would have to be weakened, or the weight increased. In a watch calculated for quick vibrations the balance is at a similar disadvantage, and experience proves that when the vibrations are very quick, watchmakers have sometimes the greatest difficulty in making the large vibrations slow enough to counteract the effect of the escapement friction, which invariably tends to retard the short vibrations more than the long. The reverse difficulty is experienced when the vibrations are excessively slow.

If the question should arise why friction retards small vibrations more than large, it will find its solution in the fact demonstrated by eminent horologists and mechanicians, that the effect of friction, detrimental to the free motion of a moving body, are inversely proportionate to the square of the time employed to overcome it.

There is no doubt that the disposition of weight and diameter of a balance has a certain influence on isochronism. The diameter meant here is not the apparent diameter of its extreme circumference, but determined by the distance of the center of gyration from the center of the balance. This center of gyration corresponds to the center of gravity of a pendulum, and its position varies with the form of the balance. If, for instance, the cross bar is very heavy, the center of gyration is nearer to the center of the balance than when it is light. In a compensation balance, its position would much depend upon the thickness of the rim and the size and weight of the screws. We find that isochronism is differently affected when the relative force

of the spring is diminished by increasing the weight, to what it is when this is affected to the same extent by the increase of the diameter. But as it is impossible to know the exact position of the center of gyration in each balance, and, owing to the consequent difficulty of knowing beforehand whether the addition of a screw, for instance, affects the distance of this center and the weight alike, or one more than the other, any attempt to procure isochronism by this means must remain guess work more or less.

The resistance of the air has upon the balance a similar effect as upon a pendulum. This is much more apparent in a light and large balance than in a small and heavy one, and it is particularly owing to this cause that by the replacing of brass screws by others made of gold or platinum the long vibrations generally become slower.

By adding to or diminishing the weight of a balance by means of screws of different shape, and using material of different specific gravity, we can obtain isochronism at a good many rates of going, the degrees of velocity themselves being powerful factors in this respect. The drawing out of screws, for instance, produces an unequal effect at different rates of going. Experiments of this kind can easily be made with any good watch or chronometer.

For the sake of illustration I shall note down the result of an experiment made with a lever watch having a Breguet spring, which was perfectly adjusted at 18,000 vibrations per hour. I shall call the long vibrations *V* and the short *v*.

A pair of small screws added	$V-18$ $v-18$
Another pair added	$V-1'\ 7''$ $v-1'\ 5''$
Another pair substituted for a pair taken out	$V-1'\ 0''$ $v-1'\ 0''$
Two very small screws taken out, and all the others considerably drawn out	$V-1'\ 16''$ $v-1'\ 14''$

The time of observation was one hour in each case, the watch remaining in a horizontal position. By using screws of different shapes and materials these experiments can be modified indefinitely, sometimes with most astonishing results. The inference to be drawn from these results is that the active elements—viz., diameter, weight, velocity and resistance of the air—are partially opposed to each other, and if they are affected alike, or so that the balance of power between them is not disturbed, isochronism is not altered; if unequally affected the result is a difference in long and short vibrations one way or the other. By making a great number of experiments with one and the same balance, the isochronal value of each of these elements can be ascertained, but any rule based upon these experiments would only be applicable to this identical balance; other dimensions, even the application of another spring, would necessitate another set of tedious experiments.

These facts will be sufficient to disprove the idea entertained by some watchmakers, that a spring adjusted in long and short arcs to a certain balance would retain this quality when attached to another of different dimensions, unless, indeed, it was the merest chance; and taking it for granted that isochronal adjustments depend upon the form of the spring, they will go far to explain why these forms differ when balances of different dimensions are used.

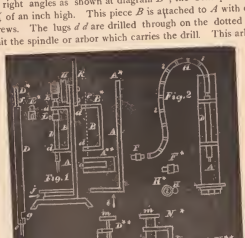
(*To be continued.*)

Among the diamonds owned by the Princess of Wales is a set of beautiful stones for fixing in the center of flowers used to trim evening dresses. The dress is made and the flowers attached, either looping up the drapery or adorning the corsage. At the last moment a trusted attendant puts the gem centers into the flowers and firmly secures them there. The effect is most visible when the Princess is dancing, as they scintillate with every movement of the wearer.

Lathes and Lathe Work.

BY THE MODEL WATCHMAKER.

DRILLING with an American lathe is its weak point, especially where a number of small holes are to be drilled, as for inserting a saw, as in cutting out monograms. Beside this, there are many other places where an upright drill would come in very convenient for a watchmaker if he only had it. With the arrangement about to be described, an upright drill can be easily made at a mere trifling expense of time and money. It can be adapted to any American lathe. About the first piece to be made is one of heavy sheet brass (No. 10) about 1 inch wide and 4¼ long; this is bent at about 1 inch from one end to right angles, as shown at *a*, diagram *A*, which shows an edge view of this piece. Diagram *A*** is an end view of *A* seen in the direction of the arrow *b*. The slot at *a* is to go underneath the head of the screw which holds the tool rest. At *B*, diagram *A**, is shown another piece of the same kind of brass as of which *A* was made, only in this case the piece is only 3 inches long, and each end bent at right angles as shown at diagram *B**, the bent parts being each ¾ of an inch high. This piece *B* is attached to *A* with one or two screws. The lugs *d d* are drilled through on the dotted line *c* to admit the spindle or arbor which carries the drill. This arbor *D*



is made from a piece of Stub's wire, a trifle over ½ of an inch in diameter and 2¼ long. One end is drilled to receive a drill, as shown at *e*, diagram *D**, and the other end is turned down to a long pivot as shown at *f*. This pivot should be a little over $\frac{1}{16}$ of an inch in diameter, and the hole at *e* should be about $\frac{1}{32}$. This hole should taper and have a notch filed as shown at *g* to hold the drill from turning, and also to get out the stump in case a drill breaks. On the pivot *f* goes a brass piece *E*, shown at diagram *E**, by screwing the hole *h* on to the upper end of the pivot *f*. The shoulder at *i*, diagram *E*, is where the spiral spring, to be hereafter described, is attached. Attached to *A* is a piece of heavy brass wire shown at *H*, fig. 2. This wire should be about $\frac{3}{16}$ of an inch in diameter and about 6 inches long, and bent as shown. Attached to this wire are 8 loops *l l* as shown. The idea is, a long spiral spring extends from the lathe arbor at *F* to the brass piece *E*, which screws on the pivot *f*. Now, by the guidance of the loops *l l*, the arbor *D* is steadily revolved. The end of the spiral spring which goes through the loops *l l*, terminates at *F* in a short brass chuck which screws into the lathe arbor where the brass chucks go. The little short brass chuck which screws into the lathe spindle is shown separate at diagram *F**. The wire from which the long spiral spring is made should be about No. 20 hard

brass wire and wound on a wire $\frac{1}{8}$ of an inch in diameter, which will make the spiral about ¼ in diameter. At diagram *H** is shown one of the loops (*l*, fig. 2,) separate. In this diagram the solid, large brass wire is shown in transverse section at *H* and the loop at *l*. The loops *l* should be large enough so the spiral runs freely. In winding such a spiral it is best to wind it so that the drill in cutting will have a tendency to wind the coils closer; although on the reverse motion the spring would be found quite strong enough. The only trouble in using such flexible shafting is to arrange the loops *l* so there can get no kinks or double in the spiral. The spiral spring can be soldered with soft solder to *F* and *E*. If in placing this drilling machine on the lathe bed *M*, as shown in fig. 2, it is attached so as to draw a very little on the spiral, then, of course, it will have a tendency to lift the drill arbor *D* upward; in order to control this tendency, a loose collar *L* is placed on *D* as shown in fig. 1. At diagram *D*** is shown the manner in which the drill is pressed downward; it consists of an L-shaped piece of brass, which has a hole drilled in it, which will just slip on the pivot *f*. In fig. 1 this piece (*N*) is not shown, for the reason the part carrying the large wire *H* and loops *l* are shown. At diagram *N** the L-shaped piece is shown as it would appear in fig. 1. Attached to the back of *A* is a cock *R* which extends forward and carries a slot in which *N* works. On top of *N* is a button *m*. It will be seen that if *N* is pressed downward the spiral working in the guides *l l* will yield, and the drill be carried down and do its work, and then the elasticity of the spiral draw *D* up again until the collar *L* strikes *d*, fig. 1. About ¾ of an inch is play enough up and down. The end of the large wire *H* should be hard soldered to a brass plate *n*, diagram *H***, so as to securely attach *H* to *A*. It needs a flat surface at right angles to the axis of the lathe on which to place the job to be drilled; this can be obtained by taking a plate of No. 14 brass, 1½ inches square, and soft soldering two narrow strips of the same brass on the lower side as shown at fig 3, where *I* represents brass plate 1½ inches square and *k k* the brass strips just mentioned above. The lower pieces *A A* are the lower part of *A* shown in diagram *A***, and the notch at *a* is to receive the screw head of the tool rest holder of your American lathe. For securing small drills in such an arbor as *D* they can be fastened by cutting to match the notch *g*, or they can be set by lathe cement. Soft solder makes a good fastening, tmeing up the same as if you were using cement; the great objection to this is the solder sets so very quick. But if a drill is only fitted with a notch to hold on *g*, the person who does much drilling will soon learn to bend a drill to a center. A drill somewhat similarly constructed, in which the drill is carried by jointed arms like an extension gas burner, is very convenient for many purposes. In making an arbor like *D* it should in all cases be hardened.

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 *F* Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of October 25, 1887.

302,002—Chuck for Watch Movement Plates.

302,074—Clock. E. Kuhn, Brooklyn, N. Y.

372,003—Timepieces, Escapement for. C. V. Woerd, Waltham, Mass.

372,001—Lathe for Turning Pivots of Watch Balances. C. V. Woerd, Waltham, Mass.

372,261—Watch. D. Gruen, Columbus, Ohio.

372,018—Watch Case Spring. N. J. Felix, Brooklyn, N. Y.

372,113—Watches, Forming Bearings for. F. P. Bonnean, New York, N. Y.

372,158—Watches, Forming the Bearings for. H. Lefort, Newark, N. J.

372,269—Watches, Jewel Support for the Balance Shafts of. H. Knickman, East New York, N. Y.

Issue of November 1, 1887.

372,575—Clock, Calendar. J. A. Shimp, Ridgeville, Ill.

372,642—Clock Dial. A. Staubitz, Baltimore, Md.

372,540—Watch Case. W. K. Kennedy, Pleasant Mount, Pa.

372,588—Watch Case. C. F. Morrill, Boston, Mass.

Issue of November 8, 1887.

372,780—Clock. J. Zelly, Cincinnati, Ohio.

372,849—Clocks, Chiming Apparatus for. J. Harrington, Coventry England.

372,754—Watch. A. O. Jennings, Southport, Conn.

372,011—Watch Case. E. C. Chappate, Philadelphia, Pa.

372,868—Watch Pendant. W. S. Richardson, Newark, N. J.

Issue of November 15, 1887.

373,249—Clock. A. A. Russel, Boyne City, Mich.

373,138—Clock Synchronizing Apparatus. C. J. Hamer, Philadelphia, Pa.

373,364—Watch Case. E. Heffernan, Toronto, Ontario, Canada.

Post Office Embarrassments.

WE HAVE heretofore spoken of the stringent regulations recently enforced by the Post Office department. The new regulations refer particularly to second, third and fourth-class matter. Second-class matter is such as is circulated by publishers especially, and does not interest business men in general. Third-class mail matter, among other things, embraces books, newspapers, circulars, etc. Recently the Post Office department at Washington placed such a strict construction on the law applicable to second and third-class mail matter, that even circulars bearing only a simple endorsement of the name, business and address of the senders, have been surcharged with letter-postage and held for payment thereof. Of course, this has greatly inconvenienced a large number of people, and particularly those who had no desire to make an improper use of the mails. In fact, a vast quantity of stationery in the shape of envelopes and wrappers, has been rendered entirely useless because of the exceedingly fine and strict interpretation put upon the rules by the department, in its endeavor to put a stop to an abuse of the privileges of second and third-class mail rates. For instance, an envelope bearing upon the corner the notice: "Return to New York Jewelers' Association, Henry Olmsted, Secretary, 142 Broadway," would subject the package to letter-postage, simply for the reason that the word "Secretary" advertises the business of Mr. Olmsted. A package mailed as fourth-class matter, addressed by means of a tag on which was stamped the words "Dennison's Patent," was surcharged with letter-postage because of the name "Dennison" on the tag. This is cyphering the matter of postage down to a microscopic point. It has been generally supposed that the postal service was for the benefit mainly of business men, but the interpretation of the law recently promulgated seems especially designed to embarrass, annoy and subject them to unusual expense. The following rules are officially

given for the guidance of business men as to what may be written or printed on the outside of third-class matter:

(1.) The name or address (*but not the business or occupation*) of the sender (the address being understood to include the name), with the word "from" above and preceding the same; also those of the addressee.

(2.) Simple marks intended to designate a word or passage of the text to which it is desired to call attention.

(3.) A simple dedication or inscription that does not partake of the nature of a personal correspondence.

(4.) The words "personal" or "to be called for," and return requests.

(5.) (In circulars) dates, addresses, signatures and corrections of mere typographical errors. The date here meant is the date of the circular, not the date on which something is therein acknowledged to be received.

(6.) The word "patent" or "patented" followed by the date of the patent, when the article sent is enclosed in a patented envelope or wrapper, or has a patented tag attached thereto.

It is not permissible to *write* or *print* upon matter of the third-class:

(1.) The name, nature or quantity of the article enclosed—as "Books," "Magazines," "Music," "Engravings," etc.; or shipping directions, as by "By Mail," etc., etc.

(2.) The name of a patented envelope, wrapper or tag, or of its patentee; or

(3.) Any writing or printing whatever, other than as heretofore named as permitted.

The following relates to fourth-class matter or merchandise packages:

There may be *written* or *printed* upon the face or surface of a package of fourth-class matter:

(1.) A return request.

(2.) The name and address of the sender (but not his occupation or business), preceded by the word "from," also those of the addressee.

(3.) The number and names of the articles enclosed.

(4.) There may be *written* or *printed*, upon the articles enclosed, or upon a tag or label attached thereto, one mark, number, name or letter, for purposes of identification.

(5.) There may be printed upon a patented envelope or wrapper enclosing, or upon a patented tag attached to, any article of the fourth-class, the word "patent" or "patented," followed by the date of the patent; but neither the name of such patented envelope wrapper or tag, or of its patentee, may be *written* or *printed* thereon.

(6.) There may be enclosed with any articles of merchandise *printed* matter giving descriptions, directions for use, or other information respecting the articles as part of the original packages or labels done up for sale.

A School of Practical Optics.

LAST JANUARY Dr. C. A. Bucklin of this city, a well-known and successful oculist, announced in THE CIRCULAR that he proposed to form classes for instruction in practical optics. In his practice he had learned how desirable it is that persons who are charged with the duty of selling spectacles and eye-glasses should understand the diseases of the eye before undertaking to apply a remedy for their defects; he had also been called upon to treat many cases where the eyes had received permanent injury from the use of improper lenses. He was encouraged by manufacturers and dealers in these goods to undertake to instruct persons who have to sell them as to the best means of treating with persons who have to use lenses, and so he announced his willingness to give instruction The matter was purely experimental, but the number of responses he received to his announcement showed that there is a large number of persons who desire such instruction. He had several classes during the winter and spring, and as a result of his first season's work, fifty-two persons were duly instructed as to the methods of determining the various diseases of the eye, and as to the requisites to give relief to patients whose defective vision is to be relieved by the use of lenses. The classes were suspended during the hot weather, but resumed last month. The persons who take the course of instruction are mostly employed in jewelry establishments, where the fitting of glasses is a part of their regular business. Some of them came long distances for the sole purpose of attending the course, and all united in a testimonial to the effect that they had been more than repaid for their time and expenditure by the instruction they had received. At the close of each course the students are presented with a handsome certificate, wherein Dr. Bucklin certifies that the student has attended the course, and is fully fitted as a practical optician. Several students have written to the Doctor that their certificates had been the means of their obtaining employment at better compensation than they had been receiving previously, while others say that they find the instruction they had received invaluable in their business. This is the first attempt ever made, we believe, to impart technical instruction regarding optics to those persons who occupy a purely commercial relation to the oculist, and we are pleased to record its entire success. Dr. Bucklin enjoys the confidence of the leading manufacturers of lenses in this vicinity, and when cases come before them which they see ought to be treated by an oculist, they are sent to him. None more highly value the importance of this school than the more prominent dealers in lenses, and they would be glad to know that every salesman in the country had taken the course, for it would enable them to handle their goods with more intelligence. We take some credit to ourselves for having introduced Dr. Bucklin to the trade, and inducing him to become a regular contributor to our columns.

Watch Gossip in Newark.

OME VERSATILE reporter of a Newark paper recently interviewed the dealers of that city on the subject of watches and clocks. The result of his gleanings in the trade is thus summed up: Wind your watch at a regular hour every day if you want it to do its very best. When you get up is a good time if you are a person of regular habits. A great many people prefer to wind their watches at noon, and if they are within hearing of a fire alarm striker or the big bell in the tower, they get a signal to wind their watches and a chance to regulate them at the same instant.

Since the introduction of electric lights thousands of good watches have been disturbed, and, in some cases, almost ruined by being brought into the magnetic field of strong dynamo-electric machines. Even at distance of three or four feet some of these machines are powerful enough to permanently magnetize the balance wheel and other delicate steel parts of a watch to the disturbance of its record as a timekeeper. To learn whether a watch is magnetized to an injurious extent, it is only necessary to float a fine non-magnetic needle in a saucer of water and hold the watch in various positions within a quarter of an inch of the needle. If the needle remains quiet it is an assurance that the watch is not magnetized, but the contrary is shown if the needle is deflected a particle. Several devices have been introduced to prevent watches becoming magnetized.

Photo-electric engraving is furnishing attractive artistic effects in both gold and silver cases, but the new process of photo-enameling and reproducing portraits on watch cases is calculated to throw all other processes of ornamentation into the shade.

The smallest American watch has a dial exactly the size of a half-dollar.

dust-proof cases which are not hinged but screw together.

There are twelve watch companies in this country and all have their hands full of work, while the casemakers have great difficulty in keeping up with them.

A key winding watch, if its movement is of a standard American make, can be turned into a stem winder for $10 or $15.

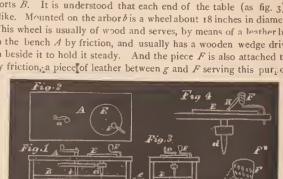
A reliable watchmaker says that a man ought to be contented if his watch did not vary more than five or ten seconds a month, and that this was about as close as the ordinary watches could be regulated. He says that it makes him smile when people tell him that their watches do not vary half a minute in a year.

A dozen little electric gongs regulate the clocks and watches of this city. One is placed on the wall in the Western Union Telegraph Office, and the others are in the stores of the principal jewelers and watchmakers. From five o'clock in the evening until eight o'clock next day these bells click intermittently. By these clicks and pauses those who are acquainted with the system can regulate their watches to a second. The bells in Newark are run automatically by the grand high panjandrum of all clocks in the Western Union Telegraph Office in New York, which in turn is controlled by the Supreme Dictator of Chronometry in the National Observatory at Washington. James Hamblet, the veteran time sharp of New York, who is employed by the telegraph company, was not satisfied with the time bell service, but devised a constant time service which rings the little bells all over the country. Howard & Co., of Boston, made a clock according to his plans, and this clock regulates the rising and setting of the sun, and of the countless thousand watches in this longitude. Constant watching keeps the variation of this clock down to the hundredth of a second. The system in use on the time bells is easy to learn. The bell rings twenty-eight times a minute, or every two seconds. The tick of the bell which would mark the fifty-eighth second in the minute is left out, and when the bell again rings the second hand of your watch should be exactly on the sixty mark. A pause of twenty seconds is made in the ringing just before the beginning of each five minutes, and at each quarter of an hour the time is rapidly struck, the first stroke of the bell marking the exact second of time. At a quarter to one o'clock, for instance, the bell will strike twelve and follow it with three strokes, showing three-quarters after twelve. The bells in this city are on the gold and stock wire which operates the tickers for stock quotations during business hours. At five o'clock in the evening the tickers are switched off and the time service begins, and the bells continue to ring until eight o'clock next day. It makes the best time system that could possibly be devised, for the second-hand ship cronometers generally used by jewelers throughout the land are far from reliable, and if a man sets his watch by one of them he is liable to find himself in the middle of next week almost before he realizes that he has gained a minute.

Advice to Watchmakers' Apprentices.

BY A MAN WHO HAS SPENT TWENTY YEARS AT THE BENCH.

THE GRINDING and polishing machinery which I have been describing is especially adapted for those who do not propose to be professional lapidaries, but for those who would like to do a little in that way for themselves in a small way. I will now describe a professional's kit, a hundred per cent. simpler to look at, but ten times as difficult to use. The first instrument is simply a jewelers' polishing lathe. One of the cheapest is as good as any; a high speed being all that is essential. On the arbor of such a lathe is mounted a flat disc of soft sheet iron about 5 inches in diameter. Any chuck which will hold the disc flat is all that is needed. The iron should be quite thin, about No. 32 or 33. To the edge of this is applied diamond dust and olive oil. If, now, a piece of agate or amethyst is held to the edge of this and the disc copiously supplied with a mixture of lard oil and turpentine, it cuts an agate or any other hard stone with great rapidity. A stone 1½ inches across will be sawn in 3 minutes. A carnelian as large as a hen's egg can be split into slices ⅛ of an inch thick in 15 or 20 minutes. Of course, as the stone is held in the hand the slices are not perfectly flat, but it will soon come dead flat on the lead wheel with emery and water. The professional lapidist's bench is of wood, 2 feet wide and about 4½ feet long, and shaped as shown in a front view at fig. 1. It is provided with 4 legs, one at each corner. The propelling power is a simple upright iron arbor *b*, terminating in a crank *a*. The lead wheel *E* is about 12 inches in diameter and 1 inch thick. This lead wheel is mounted also on a vertical arbor, and is shown enlarged and separate at fig. 4. The lower pivot or bearing of *d* is usually of hardened steel and conical, running in a boxwood block. The support of the lower end of both arbors *b* and *d* rest on a piece of joist *B*, about 3 inches square, extending lengthwise underneath the table. At fig. 3 is shown an end view of the bench *A* seen in the direction of the arrow *e*, fig. 1. At *D*, fig. 3, is shown a cross bar which supports *B*. It is understood that each end of the table (as fig. 3) is alike. Mounted on the arbor *b* is a wheel about 18 inches in diameter. This wheel is usually of wood and serves, by means of a leather belt, in the bench *A* by friction, and usually has a wooden wedge driven in beside it to hold it steady. And the piece *F* is also attached to *g* by friction, a piece of leather between *g* and *F* serving this purpose.



to drive a pulley 3 inches in diameter on the spindle *d*. The upper bearing of both spindles are in the table *A*. It is evident at a glance that by grasping the crank *a* with the left hand and turning it, a rapid motion will be given to the lead wheel *E*. The upper surface of this lead wheel is copiously supplied with emery and water. The stones to be ground are first split into slabs with the iron disc and diamond dust, as described above, then cemented to the end of a stick with a cement made of common rosin and brick dust. Sometimes a little tar or black pitch is added. The stick to which the bit of stone is cemented is shaped as shown at fig. 5, which is one-half the actual size. The flattening, except that comes from the saw (iron disc), is done by holding it on the lead wheel by the hand. The edges of the stone *f*, fig. 5, is now held to the lead wheel and ground round or oval as is desired, depending on the skill of the workman entirely. Now comes the difficult part, *i. e.*, grinding the facets. At fig. 1 is shown at *F* a piece of wood shaped very much like a large tool handle; it is about 5 inches high and 2¾ in diameter. The shape of this piece is well shown in diagram *F**. This handle-shaped piece *F* is full of, or, rather, covered with, small indentations as shown at *i*, diagram *F**. The use of these indentations are to catch and hold the upper end of the stick *H* to which the stone *f* is cemented. This handle-shaped piece *F* goes on a crank made of about ⅝ iron, as shown at *g h*, diagram *F**. This crank is only fast The idea is that one of the pits *i* in *F* can be selected to give the handle *H* the desired inclination. If, for instance, the stick *H* is set so as to give the inclination indicated by the dotted line *k*, it will

form or grind one set of facets; and if set according to the dotted line *f* it will give another set of facets. It will be noticed that the pits or indentations in *F* are arranged somewhat as a spiral, so that by revolving *F* on *g* any possible angle can be given to the handle *H*. In using, the workman will first take, say, a piece of amethyst, and, after splitting, cement it to *H*, then grind it oval as shown at diagram *f**. If it was now removed from the handle *H* it would appear as shown at diagrams *f* f***, the lower figure being an edge view, as if seen in the direction of the arrow *l*. The handle tip *m* is now inserted in one of the pits *i* in *F*, so as to give about the angle shown at the dotted line *j*, diagram *F**, and the stone at *f*, fig. 5, applied to the lead wheel *E;* the stone is in about the correct position to bevel the edge. The lead disc *E* is supplied with emery and water, and a rapid motion given to it by turning the crank *a* with the left hand, the right hand at the same time keeping the stone *f* pressed on the lead lap and revolving the handle *H*. The stone *f* will now soon be ground so as to appear if seen edgewise, as shown at diagram *f****. Next comes forming the facets. With the dials shown in former articles, these can be formed with mathematical precision, but with the present system the formation of the facets depends on the skill of the workman. The method is to set the tip *m* in the proper pit *i*, letting the stone rest steadily on the lead disc *E* until a flat surface is formed large enough to produce a facet. But how large this flat surface is to be is purely a matter of judgment and experience. A careful study of some nicely ground stones will, after reading the above description, give a good idea of how to proceed. But all facets are ground on the doubling system, *i. e.*, 8, 16 and 32 facets, leaving a table or flat at the top. The polishing is done with tripoli and water, on a lead or tin lap, with precisely the same arrangement. But the same lead lap cannot be used for both. The American tripoli is not good; it must be in the lump as imported and about the color of yellow ochre. Most lapidists use separate benches for grinding and polishing; at any rate the lead laps must be changed. It seems very simple to hold a stone on a lead lap until a small flat surface is ground or polished; and so it is, but to grind 32 all at the proper angle and also of the correct size, is something requiring a great deal of practice. For a beginner to use this last method, it would be the better plan to commence and grind a stone first 4 square, then 8 square, then double the facets. In polishing, the proper pit *i* is as near as the judgment dictates selected, and the stone applied to the lead lap *E*, using tripoli and water, and a facet touched for a second or two to the lap, then examined, and if the polishing process does not commence flat, another pit *i* is taken, or perhaps *F* is raised a little by turning on *g*. The crank shape of *g h* is such that the piece *F* can be thrown more or less over the lead lap. The spacing, as regards 4 square or 8 sided, depends entirely on the hand holding the stick *H*.

Fashions in Jewelry

A Lady's Rambles Among the Jewelers

From now on to January 1 the retail jewelers and silversmiths will reap their harvest, and a golden one it promises to be. Not only is Christmas near at hand, but almost every day in the week wedding bells are merrily ringing in announcement of the brilliant nuptials of happy people in the world of wealth and fashion. Mrs. Grundy affirms, and no one is supposed to know better than she, that the present season promises to be more prolific in fashionable weddings than any before in many years.

The marriages of the past few weeks have been marked by a blaze of jewelry. American brides, encouraged by the new departure on the other side, of bringing out the family jewels, heretofore produced only on state occasions, at weddings, are following their English cousins' example in a manner as startling as it is brilliant.

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In the novelties brought out by our manufacturers for the holiday trade, is apparent the tendency to the employment of combination of metals in the decoration of both gold and silver jewelry; the continued use of fine enamels in all directions; the association of beautifully colored stones, whether precious or not, the increased popularity of the English brooch; the acceptance of the silver-deposit process in the decoration of various classes of articles and the association of oxidized silver and gold in personal ornaments.

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The very newest things in decorative hair pins are oxidized silver ones, on the tops of which appear sometimes knobs of gold, sometimes alternate knots and cords of gold and silver, and sometimes the silver top is inlaid with little gold designs representing bugs, flowers or other objects.

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This association of oxidized silver and gold is also introduced in new bracelets, the bracelet proper being of silver inlaid with gold, and mounted with a gold or silver coin as best suits the fancy of the buyer. These bracelets, by the by, afford a pleasing manner in which to preserve antique coins or valued pocket pieces.

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Some exceedingly pretty new things are out in both gold and silver filigree. Conspicuous among the former are ear rings and brooch consisting of flat circles of gold filigree, set here and there with small but fine brilliants.

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Recent importations of Genoa filigree afford some entirely new patterns in silver jewelry. The conventional gondola, mandolin and tambourine now divide favor with modern designs popular in gold jewelry. The flower pins in silver filigree are very beautiful in effect, especially those that show centers of gold.

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Some of the prettiest hair pins seen are those of silver filigree representing Marguerites and daisies, and showing gold centers.

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A finish in gold jewelry that promises to have a big run, is known as the flake finish. This finish consists of little flakes of bright gold that overlie a dull surface or *vice versa*, the effect being decidedly decorative.

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The opalized finish is now being employed in combination with other styles of decoration, as, for instance, sleeve buttons showing an opalized center with carved corners.

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In gold jewelry that simulates flowers and foliage, autumnal tints are produced by the association of various metals, such as different colored golds, silver, platinum, brass and copper.

An exceedingly unique ornament seen recently, represented a beetle with diamond body and wings of platinum, inlaid with gold.

Entirely new are link sleeve buttons, veritable copies of old Chinese objects in oxidized silver, decorated with copper and gold. The links represent different objects, as a Chinese idol and a representative of the insect world, or an old coin for one button and a chopstick for another.

Link sleeve buttons, medium to small in size, are the sort affected by the younger men in New York City. These may be of gold or silver and are often unique in design, as a snake for one link and a bee for another.

The disposition of New Yorkers toward the link buttons by no means affects the popularity of single buttons in square, round and oblong forms, which, outside of the locality mentioned, are very popular. An attractive design in single buttons is that of gold wires extending in four different directions, and forming a square on which rests a little lady-bug of gold, when a gem is not set in the center.

In flower pins a novelty is that of a single flower of gold or silver, resting on a long and large leaf enameled to represent the natural color of the foliage.

A decided novelty in silver jewelry is a cluster of flowers with their leaves, forming quite a large spray, and designed as garniture for the coiffure or corsage, as may be desired.

Flower pins in white enamel with gem centers are exceedingly popular, as, indeed, are enameled flower pins generally.

Counted among novelties are ear rings consisting of white enameled balls covered with gold grain work, in the interstices of which are set small colored gems. These balls are also effectively used as pendants to Queen chains.

Watches for ladies' wear are out in exceedingly elaborate cases in the decoration of which figures conspicuously colored enamels and small gems.

Three studs are the correct number for men's wear. With evening dress jeweled studs are worn, the gems being, however, small and mounted in slender setting. In these studs, pearls, small diamonds and rubies are employed, pearls having, perhaps, the preference. Plain gold studs represent a correct style for evening dress and are much worn.

Scarf pins for men are necessarily limited to business and what are known as afternoon suits, the fashion of the full dress suit calling for the studs. Scarf pins for day weddings, afternoon receptions and other dressy occasions that do not permit of an evening suit, may be a solitary gem, as an opal, a cat's eye or a star sapphire, which last, by the by, is very fashionable, or it may be a cluster. To wear with business or morning suits is such a marvelous array of gold and silver scarf pins, that no attempt will be made at their description.

No one pretends to explain the present mania among men for wearing silver rings, many of which are set with fine gems. It is "English, don't you know," is the only explanation The Circular's representative has ever been able to obtain in solution of the problem.

Men are again wearing rings on the little as well as the third finger of the left hand. Generally speaking, these are heavy bands of gold, with one or three gems set flush. Seal rings are also worn; also the silver ones described.

The watch chain again appears with evening dress among men. A fashionable chain is a short heavy linked one, though other styles are admissible.

There is no question but that the fancy for broader bracelets is increasing. This fancy does not appear to disturb the popularity of the fine gold and silver wire bangles which women delight to wear in numbers all the way from one to twenty.

Numbered with quite new styles in bracelets are the bands of colored enamels upon a white enameled ground, a style of decoration, by the by, to be seen also on the newer watch cases and brooches.

Just what New York brides are wearing in the way of jewelry may interest some of our readers. Following are descriptions in brief, of the ornaments that appeared at weddings occurring one day last week: A bride married in St. George's Church, and wearing a Worth gown embroidered with silver threads and pearls, wore a necklace of pearls with a diamond clasp and diamond sun pendant. On her corsage was a beautiful *fleur-de-lis* of diamonds, the gift of the groom. In her hair glittered a diamond rose, and on one shoulder reposed a beetle composed of rubies, emeralds and diamonds. This bride carried a prayer book, the cover of which was of silver, enameled in white. A bride married at home on the same day wore a necklace of pearls, and had the old point lace arranged about her low-cut corsage, held in place by a large diamond sun. She wore a diamond crescent in her hair and small diamond pins were used in the arrangement of her bridal veil. The above are not isolated cases, but fair representations of what is chronicled every day in our leading journals under the head of weddings in society.

The V-shaped and other partially *décolleté* corsages, now fashionable for wedding gowns, have increased the demand for gem necklaces, and the result is an unusually fine assortment of these ornaments in the show cases of leading jewelers. A favorite necklace with brides is one of pearls, with a pendant of diamonds surrounded by pearls or a diamond sun pendant.

The new brooch and pendant known as diamond sun, and consisting of a sun-shaped ornament of diamonds in which the stones are graduated from very large ones in the center to tiny ones at what are supposed to be the ends of the sun's rays, are now contesting favor with the old time crescent and star of diamonds. These diamond suns, as a rule, are made so as to be worn either as brooch or pendant; sometimes they are used as a brooch in the corsage, an ornament in the hair or a pendant on the necklace.

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The wedding ring, as a rule, is a band, plain and inconspicuous, of pure gold. The engagement ring is no longer confined to a solitaire diamond, but may be any colored stone preferred by the bride-elect, associated with diamonds somewhat smaller in size.

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It is quite the fashion now for the lady to present her *fiancé* with a betrothal ring. The ring just now in favor for this purpose is a gold one with a single stone set flush.

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While wedding gifts are by no means confined to jewelry or silver, these continue to figure conspicuously at all the modern weddings. Gifts specially fitting as an offering from bridesmaids to bride, are one or more pearl or diamond-set hair pins with which to arrange the bridal veil, a tiny vinaigrette of gold set with gems to thrust inside the glove, a pair of garters with gold or silver clasps, a set of silver-mounted toilet articles, or, in a word, any one of the many artistic luxuries that lie in the jewelers' cases.

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The bracelet has become a favorite gift from groom to bride. As has already been intimated, gifts no longer come alone from groom to bride, but presents are exchanged. Scarf pins, a set of studs, sleeve buttons, etc., all figure in the gifts of brides to grooms.

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Not only are bridesmaids expected to make a present to the bride, but the bride in turn gives a souvenir to each maiden; this may be a ring, a fan, a bonnet pin—in a word, any personal trinket.

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Since the fashion in both evening and bridal dresses now calls for gem decorations on the corsage and amid the draperies, some exceedingly elaborate and costly dress garnitures have been made. One seen recently represented a garland of leaves, and white roses enameled in natural colors and glittering with diamonds. This could be employed in one piece as a corsage garniture that crossed from the left shoulder to fall over and down the front; or, taken apart, it could be used in sprays, one on the hair and one on the corsage.

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An imported novelty for evening wear, copied from some historical jewel, consists of a large circle of diamonds and other stones, to be worn on one shoulder or at the side of the corsage, to apparently hold in place lace or other trimming knotted through it.

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Much of the jewelry that awaits the holiday buyer is made for that numerous and important class of patrons known as the popular trade. Conspicuous in this is the Mexican moonstone jewelry, made in imitation not only of the Hungarian moonstone in its natural hue, but showing all the desirable colors represented in fancy stones. This Mexican moonstone jewelry costs only about one-fourth that of the Hungarian moonstone, which it so closely represents. Much of this comes in flower patterns, and is set both in sterling silver and in gold.

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Brooches and pendants having carved moonstone centers are set with Rhine stones and pearls. These represent, perhaps, the most effective ornaments, at low cost, there are in the market.

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Numbered with utility articles is what, among jewelers, has gained the name of a "fifteen puzzle." This is a one-piece button, very graceful in shape and strong in construction. To the casual observer it is a one-piece collar button, only this and nothing more. In point of fact, it is a button formed of a hollow, continuous, closed gold shell. *Query.*—"How was it made?" *Answer.*—"Fifteen puzzle." It is claimed for this button that it possesses all the good qualities of other one-piece buttons with none of their faults. Time alone must decide the justice of the claim. In the meanwhile it may be explained that this newcomer is as well adapted for a gem-set button as for a plain one.

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Notwithstanding the near approach of Christmastide, there is now, as at all seasons, a demand for mourning goods. Mourning jewelry follows closely in shapes and designs that worn with colors and black onyx, and black enamel with pearls and diamonds are popular for this line of ornaments. The English crape stone, although comparatively a newcomer, has gained recognition as a standard article in mourning jewelry. New designs recently seen show exceedingly pleasing patterns in English brooches which are all the time gaining in favor. New shapes in ear rings, lace pins, cuff and dress buttons are also shown.

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Of the making of goods specially adapted for Christmas and other gifts there appears to be no end. Nor will any effort be made to give an adequate description of the beautiful things, useful and otherwise, that are now adorning the shop windows and show cases; only a very few of the striking novelties can be mentioned. The assurance is here given, however, that no matter whether the condition of one's purse is slender or plethoric, it is simply impossible for any man, woman or child to take a ramble among the jewelers without finding exactly what they want at a cost within their means; by which is intended that the assortment is an extended one with a wide range as regards prices.

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In the ornamentation of decorative articles in silver, *repoussé*, oxidizing and etching are conspicuous. Oxidized effects, which last year at this season gave way more or less to white finish, are prominent. Gold decoration inlaid on silver is of frequent occurrence, especially if the silver object is oxidized. In illustration are bon-bon boxes, on the covers of which appear a gold model of the *Thistle*, *Volunteer* or other objects of interest.

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Favorite designs on silver are the poppy and hawthorne patterns, both of which in *repoussé*, whether decorating the tops of jewel cases and bon-bon boxes, the handles of brushes or the backs of hand glasses, are very rich and decorative in effect. Never have *repoussé*

and chased work been seen in greater perfection in this country than at the present time, and, indeed, the same may be said with regard to etching.

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Bon-bon boxes are out in a great variety of shapes, some being round, some oblong, others square and some in the form of old Nuremberg chests. Many of these boxes are finished in *repousse* work, others have sides decorated with a hunting scene or yachting race, etched, while on the cover appears a four-leafed clover pressed under a crystal top. Some of these boxes are beautifully enameled, while others are inlaid with gold.

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The different styles of decoration described on bon-bon boxes appear on many other articles, such as powder boxes, shaving boxes, snuff boxes and the like.

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The silver deposit process, which has become so popular for the decoration of parasol, umbrella and cane handles, is being employed with very artistic results on fine pottery, glass and ivory. Articles for the toilet are out in various choice faience with a silver covering, which shows here and there through the silver trimming, the color of the ware.

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Silver deposit on ivory, which was introduced very sparingly at the last holidays, is a feature this season, and appears in shoe horns, paper knives and other articles into which ivory can be made.

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Entirely new this season is etching on stained ivory. Exceedingly artistic effects are gained in ivory articles, decorated with silver trimmings, etched in a design that is continued from the silver on to the ivory.

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Vinaigrettes, odd pieces for the table, such as peppers, salts and the like, come now in glass and faience, entirely covered by the silver deposit, thus affording in their glass and faience linings suitable receptacles for salt and the like, so liable to corrode an all-silver bottle or cruet.

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The disposition to a union of fine potteries and silver in table ware is by no means restricted to small pieces, but appears in salad bowls of cameo glass, marmalade jars of crown Derby and punch bowls of rock crystal.

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Cigarette cases, with match boxes to correspond, are out as sets, being placed in handsome satin-lined cases, the same as are manicure and other sets. Floral designs in *repousse* and chasing appear on some of these; others have a background in rich colored enameled, overlaid with gold grain work, while others again are beautifully etched in some attractive pattern.

More popular, if possible, than ever, are the leather goods with their silver trimmings; notably such articles as pocket books, card cases, portfolios and blotters. Pierced or open work is popular in these silver trimmings; so are designs that are in part carved and in part etched. Colored enameling also appears.

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Hunting scenes appear to be favorites, especially in the etched decorations; just as articles pertaining to sports are favorite models for small articles like glove and shoe buttoners and the handles of paper knives. A set of silver buttoners is made this season simulating in every detail the whips used in the hunt. It is thought these toy affairs will prove exceedingly popular among ladies who affect the chase and other out-door sports.

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In vinaigrettes and colognes the variety is indeed bewildering. Numbered with latest designs are tiny silver ones shaped to fit the hollow of the hand, and to be carried inside the glove without any annoyance to the wearer. Tiny crystal tubes closed at one end and finished at the other with a gold top in which is set three or four colored gems, afford another variety, as do the little silver ones representing flat, round-bodied flasks, and decorated with the hawthorne pattern in *repousse* work.

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It is safe to say that there was never before as large a collection in this city as is now to be seen in pin cushions, large and small, hanging and standing and for pocket wear. The standing ones designed for boudoir and toilet, are of bright-colored plush or silk, set in silver standards of decorative pattern. These silver receptacles represent in some cases curiously woven baskets, in others they are quaint little tubs, and yet again they become a silver frame work in rustic or floral designs.

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Little flat pocket cushions, designed more especially for men's use and readily carried in the waistcoat pocket, simulate not infrequently a single flower. The very newest floral pattern is that of the poppy. These little flat cushions are usually circular in form, though not always. Sometimes the silver cover is made in imitation of a cat's head or a child's face, when the cushion part follows the irregular outlines of the cover.

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Silver handles remain a popular sort for both umbrellas and canes, and appear on the new fancy silk sun umbrellas for ladies. These last-named umbrellas, it may be well to mention, show silk covers in small plaids and polka dots.

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Silver purses, just now so fashionable, are made of a network of fine silver wire, through which can be seen the coin carried therein. The conventional style is finished at the top with the usual silver clasp; others have a circular opening over which closes a silver top. This top or cover is frequently a coin with a richly carved or chased border of silver. Sometimes it presents a smooth surface on which may be engraved or etched the owner's initials. Purses similarly made are composed of gold wire instead of silver. Elsie Bee.

PROVIDENCE NOTES.

The business for the past month has been on the wane with the manufacturer, and already a great difference can be noted in the number of orders received daily, and the amounts of the same. The season has reached that point when the jobber places an order one day and expects the goods the next at the longest. His orders are given in a very conservative manner, plainly showing that he does not intend to overload himself with surplus stock to carry over to another season, but to sail as near the wind as possible and carry all the demands his trade calls for, without losing a sale by so doing. This conservative style of doing business has marked the season's trade throughout as a rule, and the healthy state of affairs to-day with the manufacturers is in a great measure due to the careful manner in which the jobber has placed his orders, who evidently thought it better judgment to place an order twice a week and have no surplus stock at the end of the season, rather than to place one or two large orders at the beginning and have half of the same remaining at the end to eat into the profits on that which he had placed; the result of which has been that the jobber has been more prompt in the settlement of his accounts with the manufacturer, for he has not been paying for dead stock piled high on his shelves on which he could not realize, but for goods which have been really placed on the market, and used by the consumer. The few failures during the fall season's trade would seem to substantiate the healthy state of affairs existing between the manufacturer and the jobber, and a change of base may possibly come later on in the season, say about January 1st—but we trust not.

This is the season of the year when the manufacturer looks for a lull in his business affairs, to give him time to look about and speculate on what he shall get out for the spring trade, which generally commences about the second week in January, and then besides he has no end of detail to attend to, to get his stock into shape for the annual taking account of about January 1st, so as to ascertain what amount shall be placed to the debit or credit of that all important account called profit and loss, all hoping that the balance may be in favor of the former, and possibly dreading that it may be the latter; the wish of THE CIRCULAR is that the balance (and a heavy one, too) may be on the profit side of the ledger.

The most marked feature of the business situation to-day, and certainly one of the most encouraging, is the absence of any speculative excitement of any kind, and we trust that it may so continue as long as Mr. Gould favors us with his absence; as to the movements in the stock market, the outside public, generally called "the lambs," take a very languid interest in them, and the regular operators have the market very much to themselves and their entire disgust, for they so like to see those tender, little lambs in the market losing their money on margins and stocks. That to have them to entirely ignore them nearly drives the old operators to desperation, to figure out where they are to come in for money enough out of the season's speculation on puts, calls and straddles, to pay for their opera-boxes during the winter, besides the regular list of presents to lady friends at the holidays, and also innumerable expensive and lavish bouquets every time one attends the opera.

Undisturbed, as we have indicated, by speculative excitements, the regular business of the country flows along in its usual channels, full in volume and excellent in character, though in most lines competition is too sharp and margins too close to admit of any surprisingly large profits. Conservative influences are in the ascendency, as before remarked, and the prevailing tone is firm, healthy and active. While the bank clearings for October show a decline on the whole as compared with the corresponding month of last year, indicate a heavier traffic at the interior points.

The November Treasury statement shows an increase of over six million (6,000,000) dollars in the Government deposits in National banks under the new policy of the department (as outlined by THE CIRCULAR in the last number), and the effect upon the market of this increase of available funds is quite perceptible.

Collections during the past month with many have been very good, and the money market with the jobber seems to have been easier than at any time for the past year. Yet others report collections very poor, but generally they can be called good. Firms selling to parties having little or no capital on which to transact business, cannot expect to collect accounts when due, and these parties naturally report hard times when, had they sold to first-class houses, they would have received checks or settlements of accounts when due.

Trade paper has again put in an appearance, but not to such an extent as to be anything alarming to the manufacturer who expects to see more or less at all times, but the fall season so far has been unexceptionally free from it; those asking the favor of the manufacturer of accepting of it have made the same to date from one to four months, with interest allowed at the legal rate, which is very considerate.

The Jewelers' Board of Trade held its regular quarterly meeting on Monday last, at the rooms of the Association, at No. 9 Wilcox Building; the attendance was large and enthusiastic. The Treasurer's report by Mr. H. S. Dorchester was listened to with much interest, and showed a neat balance after all liquidations had been met. The report of Secretary Morton showed that he had not been idle since assuming the responsibility of Secretary of the Board. The number of members at present is one hundred and eight, and applications for membership are on the increase, as firms and individuals are becoming awakened to their best interests in joining such an able organization.

The Committee on Abuses of the Trade made a report in that direction, but THE CIRCULAR would like to see more progress made, as the Board issued on the 25th of April last a circular, calling on the members to attend an adjourned quarterly meeting, to devise means or a plan relative to correcting the same, which seems to be a rather slow affair, judging from the long waits between reports as noted in the June number of THE CIRCULAR. At the meeting, the failure of Messrs. Harris and Luchs was announced, as reported last month; they owe members of the Board about five thousand dollars, and have offered to compromise for twenty-five per cent. of their indebtedness. Messrs. Dutemple and Vose were appointed a committee to look after the interests of members.

If there is one thing more than another that the manufacturers would be pleased to see it would be a National bankrupt law, to protect themselves in their just rights, and it is to be hoped that during the coming session of Congress some move will be made in this direction by some far-sighted member who is ever on the alert for the interests of his constituents, and who could not bestow a greater boon on the business interests of the country than to be connected with such a bill.

During the past five years many failures have occurred throughout the United States where there has no account been rendered of any assets at all, one such being a quite prominent firm of New York at the time of its failure, another of Philadelphia, and the same in cities of the West that could be mentioned. Concerns these days, as a general rule, offer as little to creditors as a compromise as possible and be accepted by them. A member of a certain concern argued something after this style with one of his heavier creditors: "Now, if I pay over 20 per cent. on my indebtedness to you, I shall not have money left enough to commence business with again." That is just where it comes in; where a firm fails to make money by so doing, they will not pay as much per cent. on the dollar as their assets show if they can possibly do otherwise, and this is sufficient reason for the passage of a National bankrupt act.

In regard to the Robert Barton failure, it is currently reported that he is now offering to his creditors 25 per cent. of his indebtedness, divided as follows: Eight in cash, eight in three months, and nine in six months. Several of the creditors have accepted this offer as being in their estimation the best that they would realize. Mr. Barton has disposed of his estate corner of Broad and Beacon streets.

The Gorham Mfg. Company is forced to run its works day and night to be able to keep up with their orders on hand, and are employing something like nine hundred persons in the manufacture of their high standard sterling silver and plate goods; their sales on the latter to hotels throughout the South and West are unprecedented in the history of this live and active concern.

The firm of Messrs. L. Ballon & Co. has dissolved. Mr. Ballon succeeds the old firm, and hereafter will conduct the business in his own name.

Mr. R. Epstein, who represents in this country the well-known house of Messrs. Veit & Co., of Goblonz, Bohemia, was in the city the past week. Mr. Epstein is a genial, whole-souled person, and immensely popular with the trade in general, and well liked by all connected with the jewelry business.

Mr. C. Sidney Smith reports business as having been better the past season than at any previous time. Mr. Smith is one of the most popular men in the business, and his gold chains are world-famous, always being found just as represented, his name being a sufficient guarantee of their sterling quality.

Messrs. Godfrey & Adams are meeting with great success on their new "Clamp" Collar Button, which finds a ready sale.

Mr. Stephen C. Howard, we are glad to announce, is on the road to speedy recovery from his late indisposition, and hopes to soon be about again and attending to business.

FAIRFAX.

Providence, R. I., Nov. 15th, 1887.

AROUND BOSTON

There can be but little said in favor of the trade in this city during the past few weeks. Both the wholesale and retail dealers have experienced a considerable set back—a set back, however, which has been confined almost exclusively to the volume of business transacted, rather than one that has seriously affected the current jobbing prices. Indeed, while the existing dullness is, perhaps, a trifle more pronounced than it has been in former years, yet there is nothing in it either to be feared or wondered at. We of New England are chronically troubled with a before-Thanksgiving business apathy which, while it is temporarily discouraging, is at the same time a source of genuine good to the general market. It is at just this time that public sentiment is crystalizing in regard to the fashions that shall predominate in the approaching holiday season, which is looked forward to this year by our metropolitan houses with a unanimous and eager hopefulness. When THE CIRCULAR shall have again made its welcome appearance the Boston trade will undoubtedly have again recovered and begun its boom with an unusual but healthful activity.

I was talking on that very point, only a day or two since, with a member of the house of Shreve, Crump & Low, a firm who make it their special business to keep at the front of the Eastern trade. He expressed his unqualified belief in a very heavy Christmas business. "We are prepared for it, any way," said he. "In fact none of the Boston houses had anything to complain of up to a few weeks ago. We are making use of this interim to stock up on those particular lines of goods toward which the fashion is unmistakably tending. The financial world is quiet, the importing trade is brisk, and I can see no d turbing element ahead to interfere with a normal business activit

Speaking of Shreve, Crump & Low's, Mr. Crump arrived hom but a short time ago from an extensive summer tour of the leadi European markets, where he purchased a valuable collection novelties in trinkets and chinas. Every member of the firm is n at home, ready for business, and the Washington street wareroo were never filled with a finer or more varied line of goods than is present exhibited there.

The same thing may be truly said of all the larger houses, an even their smaller brethren are making a pretentious effort to tem the holiday purchaser. One may spend a most delightful hour ami the costly elegancies that crowd the establishments of Bigelow Kenard, Stowell, Rand & Crane, and N. G. Wood. Rand & Cran are a comparatively new firm, but during the short time since the opened their rooms on Park street they have gathered about them an excellent patronage. Prosaic business could have invaded thi once exclusive, common-fronting thoroughfare in no form mor beautiful than the gems of art with which the apartments of the new concern are stored.

It is as yet too early for the suburban jewelers—those, that is t say, living at a considerable distance from the metropolis, to make their annual debut as factors in the wholesale business, and until this "country trade" does begin to come in, the large dealers will not be happy. The fact of the matter seems to be that, while the city stores are already pretty thoroughly stocked, the "way-backs" are still waiting to see which way the cat of fashion will jump before tying up their capital. This action, or rather lack of action, on their part is in no way surprising in view of the fact that the recently asserted independence of the Prince of Wales in the matter of wearing jewelry *ad libitum* has apparently gained a foot-hold here as well as in London and Paris. So far as present indications go there promises to be no genuine "craze," and the public demand is so scattering that the outlying, limited houses are sadly puzzled to know what to supply.

George H. Richards, Jr. & Co., report favorable prospects ahead for the wholesale trade. They have just gotten up an elegantly steel engraved business card design in the form of a white celluloid three-leaved tablet, upon the back of which is a calendar for 1888. The device is unique, and will take well among the retail customers.

Most of the wholesale concerns here who have drummers have got them out on the road. These are doing a little business, while the others are content to lie by in waiting to catch the first ripple of the anticipated trade squall. There is but little local importing going on, although that branch of the business has been uncommonly brisk all Summer, so brisk in fact that the market is now carrying about all the stock it can swing. Money in this town is pretty close, but not by any means as close as in New York, and this fact will unquestionably have a noticeable influence later on.

A word or two about the prevailing styles. These, as I have already said, are both numerous and elaborate. Of course the Boston market patterns pretty closely, in the main, after those of New York, London and Paris; and yet, as in almost everything else, we have our peculiar localisms that defy restraint. Generally speaking, therefore, I find that the silverware trade is very conspicuously leading that in jewelry for gift purposes. Such things as pin cushions, pin trays, inkstands, hair brushes and combs, and hand-mirrors mounted with Rhine stones, are largely irdemand for ladies presents. Bigelow & Kenard are making a specialty of feather and lace fans for early Christmas use, ranging from $10 to $75, silver manicure sets, photograph frames, mounted with Rhine stones, and delicately shaded enameled jewelry. Rubies and diamonds are the favorite stones, and some very handsome bangled flexible bracelets are shown mounted with these, together with finely cut sapphirs

In spite of the fact that money is pretty close, the collection has

been fairly good. With comparatively few exceptions the standard time limit has controlled remittances, and checks have very largely taken the place of trade paper.

The inauguration of a regular Boston letter in THE JEWELLERS' CIRCULAR has been welcomed with hearty cordiality. The paper is everywhere recognized as the official mouthpiece of the trade, and a genuine interest has been manifested in the creation of a new department in it devoted exclusively to the Boston market.

Imported china clocks are making their appearance in a majority of the Back-Bay houses. The residents of this section of the city have manifested a growing fancy for them as hall ornaments, and all the larger jewelry houses are well supplied with the more expensive styles, ranging in prices from $450 to $800. The cases are of elaborate workmanship, the works being arranged with the Westminster chimes on the quarter hours, and an eight-bell attachment, sounding on a cathedral gong. The combined effect is so charming that it is not surprising that these magnificent time-keepers should be such favorites in our domestic palaces.

The annual Mechanics' Fair is in the full hey-day of a successful season. The daily attendance is large, and the exhibits—those particularly of the jewelry trade—are remarkably fine. Almost all the houses of any note are represented, and vie with each other in the elegant elaborateness of their displays. LORION.

BOSTON, Nov. 21.

Cincinnati.

GOSSIP ABOUT LOCAL DEALERS AND TRAVELING MEN.

Trade has been very dull for the past month, and there is little that is new to report. The tearing up of the streets for the purpose of laying with granite and asphalt, the great drought, and high prices of all articles of food, coupled with the low water, in the Ohio, have all tended to make the usually live fall season an extremely dull one.

The United States Marble Clock company report large sales on their patent marble clock cases, which is equal in price to that of the iron.

Mr. C. Hellebush has imported a great many bronze figures, and finds the sale in that line has increased over that of last year.

There are only four importers in the city in the jewelry line, viz: Duhme & Co., C. Hellebush, Fox Brothers, and C. Oskamp.

The antics of the old firm of Underwood, Beach, Davis and Mount, during the latter part of the sixties when they "made Rome howl" have never been repeated. It is much to their own credit yet a severe loss to others. Neither have we heard of any more experiences such as occurred in the Louisville hotel.

Mr. R. A. Kittle and William Lake from the Waltham Watch Co. were in the city this week.

Mr. Julius Voss, retailer jeweler, died last month.

Among the members of the trade who have visited Cincinnati recently were W. T. Gaugh, of Carter, Sloan & Co., George Rice, of the Wilcox Silver Plate Co., J. Beard, for the Derby Silver Co., Thos. H. B. Davis, for the Middletown Plate Co., S. B. Parmalee, of Simpson, Hall, Miller & Co. The latter will make one more trip, then retire from the business with an ample competency, and all hands wish him a long and happy rest.

Cincinnati people once more want to see the smiling countenance of their ancient friend C. E. Hastings, of the firm of Carter, Sloan & Co. His namesake of Cincinnati, Courtland Callahan, now nine years of age, promises to equal if not surpass his sire in all that is useful as well as ornamental.

The effeminate form of our genial friend Mr. W. P. Melcher, of the firm of Enos Richardson & Co., was seen gliding by the stores of West Fourth street recently.

Mr. Hopkins, more familiarly "Hop," of the Meriden Silver Plate Co., was lately introduced to a reverend gentleman in a prominent Fourth street jewelry store who eyed him from head to foot, and exclaimed "that on first sight he thought he was either John L. Sullivan or some western bunco steerer."

Mr. Thomas S. Benton representing the Brooklyn Watch Case Co., known as the "Midget," is registered at the Burnet House.

I learn with satisfaction that Mr. F. E. Knight has been appointed manager of the Meriden Silver Plate Co.

Duhme & Co. are preparing a silver prize cup for a canoe club. It is 14 inches high and rests upon a base of rocks. The body is of oxidized silver and so finished as to represent water. While above this is a scene representing a boat race, the boating house or goal in the distance. Around this scene are grouped various aquatic plants, while entwined about the rim of the cup is a rope which is attached to the canoe paddles which form the handles. Surrounding the picture are three smaller scenes of canoes with sails, a canoe or hunters' camp, and a solitary Indian paddling his own canoe. On the body is a scroll for the inscription, and beneath the stanza "*Palmam qui meruit ferat.*" There are to be three handles, and between each is a scroll, each having a Latin motto, together with the flag of the club. The design was made by Mr. C. F. Goetthcim.

There is considerable demand for cane goods in the way of combination brushes and combs. E. M.

Cincinnati, Nov. 22.

The South is on a regular boom. For a long time the capitalists of the East have been pouring their money into the West and Northwest, and only a small per cent. has found its way to this section. The order of things has now changed, and the vast wealth that is concealed in our Southern soil and mountains is attracting much attention and capital. This is as it should be. Our resources have been unnoticed long enough, and it is both timely and advantageous for capitalists to invest now. The South has a glorious future, and the next few years will witness unprecedented and marvelous success and wealth. There are many causes and agents at work in the South that, in a great measure, are essential to a nation's prosperity. The steady habits of the workingmen, the good feeling that exists between the employer and employee, the absence of anarchial spirit, and many other causes, are great factors both in our civilization and advancement.

Trade Matters in New Orleans.

New Orleans is essentially a winter city, or rather has been so considered in the past. Volumes have been said and more written of an intense heat and dullness that settles like a prostrating cloud over the town with first glowing days of early summer. So wide spread has this misapprehension of facts become that many unfamiliar with the city have deemed the place scarcely habitable during the long warm months inseparable from the lower Gulf coast. This is purely prejudice, based on impressions utterly erroneous, as everything lately has tended to prove.

Never before has business been more encouraging than throughout the past summer and autumn, and in no circle has trade thriven bet-

ter than among the many jewelers of this city. They, one and all, pronounce it the best season uniformly that they have known in years. The rise and fall of fortune among the jewelers of a place, may be reckoned as a highly reliable barometer of the fluctuating public financial temperature. They cater to a luxury of life, the indulgence of which is one of the first expenses curtailed in times of monetary depression and the very first to receive patronage when abundance reigns. This fact acknowledged, New Orleans stands well as regards the general prosperity of her people. A number of large, elegant and liberally stocked jewelry establishments are handsomely supported, besides many small shops too numerous to mention. Each and every one of them reliable houses, report the trade to be flourishing finely. They pronounce the late summer one of unprecedented briskness with few dull or unprofitable days. Business kept up straight along, lending new vigor along the whole line of merchants.

The season here may be said to have fairly opened for the winter. With November's crisp, cool weather every train brought in hosts of travelers, even those who linger longest are now at home, filling the streets with sight-seers and shoppers, who seem one and all pleased to be back once more. Canal street, where most of the important retail stores are located, presents a gay picture of life movement revivifying every branch of industry.

One of the largest and most imposing establishments devoted to the jewelry business is owned by M. Scooler & Co., 103 Canal street. Their spacious building was entirely renovated and redecorated a year or so ago, and will now compare favorably in point of elegance and beauty with palatial stores of the North and West. Mr. Scooler is a large importer, making annual tours of continental Europe, from whence he brings the finest specimens of the lapidaries' skill. He is an extensive dealer in every style of jewelry from the veriest novelties to the costliest stones in the market, selling gems worth thousands of dollars. His stock this season is unusually heavy, including some superb silverware, and much artistic bronze. The upper floors of the house are fitted up for a dozen or more expert craftsmen, who are constantly employed in the manufacture of gold and silver ornaments and the setting of jewels. Mr. Scooler counts this a prosperous year in his line of business.

For many years the old and wealthy house of A. B. Griswold & Co., 119 Canal street, has occupied an enviable position among the merchants of New Orleans. They have always on hand superior goods of every description, and, besides the very first line of city custom, are able to count on a wide circle of country patrons. They deal in every variety of stock compatible with the jewelers' trade and carry a full assortment of silverware and some handsome bronzes. No firm is ranked above them in point of liberality and fair dealing.

Mr. A. M. Hill, 115 Canal street, is also a large and important dealer, carrying a full and handsome stock and doing at all times a remunerative business. E. A. Tyler & Son, 3 Camp street, and P. Henry Buckley, 8 Camp street, are both of them highly esteemed as gentlemen and popular merchants. Frantz & Opitz, 53 Royal street, handle an immense amount of jewelry and are counted in with the biggest firms in the trade.

Those long acquainted with this business tell of marked changes that have taken place since the war. At one time so extensive were the importations from France that Parisian styles governed the fashionable taste here almost exclusively. There is altogether a different order of things to-day, the time having modified and grown much more cosmopolitan. At this present time, New Orleans is influenced by the same fashions that are recognized in all parts of the country. Some ten years ago, rich, plain and heavy designs were in favor, when single stones were simply and rather deeply set. Now the more elaborate the workmanship the more popular the ornament. All the latest bijouterie can be found in the cases of the principal stores, quite beautiful enough to satisfy the most fastidious.

By long experience the merchants have discovered the futility of bringing anything save first-class goods to New Orleans. The demand is for the best jewelry only; cheap or second-hand rate articles proving disatrous to those who have experimented by investing in shoddy wares. As a rule, customers will wait patiently and save small amounts so as to be able in the end to buy a valuable and elegant piece of jewelry.

The holiday stock, which will soon shine and glitter in the big windows, is far more rich and costly than has been shown here for a number of years. Many large and fashionable weddings with the prospect of liberal sales at Christmas time have induced the merchants to make unusual preparations. It would seem that their hopes were fairly based, for already many choice and lovely articles have been secured as bridal and anniversary gifts. Jeweled pins continue to be the most popular of all the articles manufactured. Some of them bees, butterflies and antique patterns fashioned of gold and wrought with most artistic skill, are richly enameled and incrusted with precious stones.

Country trade is much sought after by the city merchants as New Orleans has no village or town lying near her suburbs. Numbers of planters and their families make frequent visits here during the winter season, coming in to attend the ever popular French Opera and patronize the theatres. These are possibly the most profitable customers a jeweler could desire. They are, as a rule, cultivated and highly fastidious as to the quality of their purchases, quite lavish too in spending money. In days gone by a merchant was reasonably sure of fortune if he could reckon a score or more of wealthy planters among his patrons and many a pretty sum has been realized by gathering in the shekels they so readily spent.

With flattering prospects of great agricultural prosperity, the city people feel reassured and encouraged to increase their business in every direction; new enterprises are constantly springing up and in the near future there seems every reason to anticipate a season full of good fortune and big with renewed life and industry.

Trade Matters In and About Atlanta.

The jewelry trade in this part of the country has been steadily growing, and it is especially noticeable here in Atlanta. Our merchants report the most satisfactory and heaviest sales for years. Large orders have been received from the Southwest, and our wholesale jewelers have their hands full. Atlanta is an inviting field for the jewelry business, as it is the center of a vast territory, and contiguous to a rich and prosperous section of the country. Wholesale houses would especially do a fine business.

Mr. A. I. Delkin, one of the leading wholesale dealers here, says that his trade has been very satisfactory. He has recently moved into new quarters, and has one of the prettiest as well as best arranged stores in the South. He works a large force of hands, and is now turning out and selling large quantities of goods.

Mr. J. P. Stevens, of the firm of Stevens & Bro., has returned from an extensive tour through the different countries of Europe. While traveling, he purchased an immense supply of the very finest goods, many of which have arrived. He is now engaged almost wholly in the importing trade, and handles goods of a guaranteed quality.

A new house has been opened on Whitehall street with Mr. J. S. Doyle at its head. Mr. Doyle is one of the most experienced men in Atlanta in this line, having been connected with the firm of Freeman & Crankshaw for a number of years. He has built up a fine trade, notwithstanding the fact that he has been in the business but a short time.

Freeman & Crankshaw, one of the largest retail houses in the South, have been doing an immense business this fall. Their exhibit at the Piedmont Exposition was one of the finest ever made in this country and attracted universal admiration. Both these gentlemen are young, and have a great future before them.

Mr. Fred. J. Stilson has refitted his store and is now carrying a larger stock than ever before. He is one of the oldest and most reliable jewelers of this city

A. F. Pickert, at 5 Whitehall street, has done a wonderful amount of business in the last few months, and says that prospects were never more flattering. His stock is full and up to the highest standing.

Mr. William Bolman reports business as being satisfactory and states that he, as well as all the other jewelers of this city, did a big business during the late Piedmont Exposition.

Mr. L. Snider, at 10 Marietta street, has opened up an extensive stock of jewelry, watches and diamonds, and is doing a fine business. He has ample capital, and will push the business for all it is worth.

Col. Abe Fry has just returned after making a tour of the New England States, and reports everything satisfactory. He is what we call here a railroad jeweler, as he sells a large amount of his goods to that class of men.

Mr. H. Stern, of Union Springs, Ala., has moved to Atlanta, and will open up a jewelry store.

Mr. Louis Weitzel, with Mr. A. F. Pickert, is busy getting out his patent for show windows. It will be quite a novelty.

Mr. E. W. Blue, the instalment jeweler, has moved into larger quarters on Peachtree street.

Mr. Max Doering, of Anniston, Ala., recently paid us a visit, and reports business very satisfactory. TEA JAY.

Atlanta, Ga., Nov. 10th.

ON THE ROAD

There are but a few of the New York jewelry houses represented east of Boston, and still there are a number of good business towns and each do their share of business. I do not think that more than one third of the jewelry houses that are represented in Boston once a month ever go east of that city. There is good trade in Salem, Lawrence, Lowell, Newburyport, and on the route to Portland. After you finish your business in Boston you can catch the 7 P. M. train for Portland, arriving there at 11 P. M., by the Boston and Maine railroad. The rates on this road differ and it amuses me to note it. A through ticket is sold for $2.50 allowing no stops, and 60 cents extra for a seat in an elegant Pullman car.

How well one can tell the kind of a trade the travelers have had in Boston. If it has been a good trade they invariably occupy a seat in the parlor car, and if it has been dull with them they try hard to sleep away the time in an ordinary coach. It is such a treat to the tired traveler to ride in a Pullman palace car as they are so much superior to the old pest boxes running between Boston and New York.

I am greatly surprised at the improvement in the city of Portland in the last ten years. There have been many fine new buildings erected, and many improvements in the jewelry stores and stocks. The Carter Bros. have a pretty store on a corner quite well uptown, and do a nice business. The success of their business I believe is due to the strict attention they pay to it, and to the fact that they conduct a legitimate jewelry business, Any commercial man can find them there ready for business at 8 A. M.

The old established house of J. A. Merrill & Co. still hold their lead among the trade in fine goods, and both Mr. Merrill and Mr. Keith are as popular as ever.

Young Mr. Sueter, of Sueter & Son, is up to the times with his stock and store.

I have heard it reported that Mr. Lampson desires to sell out his business and remove to San Francisco.

Mr. Wentworth, an enterprising young merchant there, has a handsome store and is doing a fine business, both in jewelry and silverware.

It is interesting to an old traveler to see the new ones start out on the road and their manner of approaching the customer. I saw one to-day who looks to be fully 16 years old, not the least sign of hair on his face, but a tall white standing collar on a colored shirt. And I wondered if his firm sang the same song to him before his departure that it is reported that Digby Bell's mother sang to him, "Oh, come back with hair on." He may be a success on the road but his employers must have a poor opinion of their customers, to send out a man so limited as one so young as he must be.

Ten years ago the travelers complained bitterly about the hotel accommodations at Portland. When they started from Boston they usually purchased a quart bottle of whiskey to put under their pillow on retiring, and with an occasional drink of that, and by piling their clothes and all the furniture in the room on top of the bed, they were able to pass the night in a Portland hotel without freezing.

The Preble House is quite popular now with the travelers who visit Portland. I think I have the secret. There is a clerk there named Perkins, who has a smile that can discount a highly illuminated Jack lantern, and that smile with proffered hand to every guest on arrival goes far to take the place of an invitation to drink in a prohibition state. The boys say his popularity lies in his refusal to charge any extra when a traveler is accompanied by his wife and to him is largely due the credit of so many travelers being married.

Half way from Portland to Boston lies the city of Exeter where the train stops 10 minutes for refreshments. I approached the little prohibition bar across the rear corner of the dining room, and asked the nice young man if he had sweet cider. He replies, "No it is not sweet, but it is pleasant." His future is assured.

I had a call the other day for a Roman gold cross with H. I. S. on it, and wondered if it was so long ago since this was made that the trade had forgotten whether it was H. I. S. or I. H. S.

Mr. A. Stowell, of A. Stowell & Co., Winter street, Boston, has been dangerously ill for ten days past, but is now considered out of danger. HARD SOLDER.

FOREIGN MATTERS

BIRMINGHAM, Nov. 5, 1887.

As far as the manufacturer is concerned, the Christmas trade is almost over, as here the majority of wholesale houses discontinue to give out orders after the end of October.

While some manufacturers have had a big run of trade, others have remained slack all through the year; every year the competition in trade becomes keener, and whereas fifty years ago the fashions scarcely changed, at the present time a fashion is in and gone again in three months; as a consequence those who are enterprising are never slack, and in a season like this cannot cope with the great quantity of orders always coming in, whilst the conservative ones who think their daughters should wear some kind of jewelry as their grandmothers did, are always crying out about the badness of trade, and that the country is ruined.

Buckles for ladies' wear are just coming into fashion. The usual method of wearing these will be a belt of same stuff as the dress

with the buckle fastened to it so as to come in the front of the dress, and the belt to fasten at the side with hook and eye. In addition to being fastened to the belt they will also be used as ornaments on the dress where it is looped up. In silver the old-fashioned oval and oblong shapes are the favorites—chased and engraved in the old-fashioned styles. In gilt a favorite one is the plain oblong shape, but there is a large variety of fancy shapes made, the crescent predominating, and many of those are richly chased, set with pastes and all well finished as fortunately the run of cheap, badly made buckles has not begun yet.

Our assay office here have formed an old act by which they can consider buckles as "silver plate," and compel all to be marked and duty paid upon them. While it is a good thing they should be marked, as it would be if every one was compelled to have all jewelry assayed and Hall marked, it is very injurious to the trade to have to pay duty, as it increases the cost of the goods so much that many ladies who would buy and wear a good silver buckle duty free, cannot afford to pay the extra which the duty entails, and so buys a gilt or silver plated one.

The run on mosaic jewelry which I mentioned last month still continues. I happened a few days since to see a paper showing the quantity sent out by one manufacturer here. It was over six thousand brooches. This was, of course, the largest turn out of any maker in the trade, but on making enquiries I found all these had been sent out since July 1, or an average of over 1,500 per week.

The mosaic principally sold up to the present is a cheap class of Roman work, but it seems likely that there will now be a run on Florentine mosaic, that with the black marble bed and various colored stones let in as flowers and leaves, etc.

When calling on a manufacturer a few days since, I saw one of the first Empress chains made here. This is at present quite new, and although I know some of the wholesale houses are buying a few, it has not yet got into wear.

I notice you are at present engaged in discussing the Saturday half-holiday question. It is customary here in all workshops and offices to pay the wages on Friday night and close at 1 or 2 o'clock on Saturday. This is not so with retail shops, excepting the large ones in the centre of the town, which close at 4 on Saturdays, and even here the shops which sell food of any kind do not close. In most cases, the half-holiday is enjoyed, but not abused. In the summer cheap excursions by rail run everywhere, and you can even go as far as Portsmouth, 200 miles away, have all day Sunday there and reach home in time for business Monday morning.

In winter the usual game is foot ball; between 2 and 3 o'clock the youths and young men may be seen making their way to the various grounds either to test their skill against another local club or to look on at the game; no matter how wet or cold it may be, still the game is played.

SOLITAIRE.

Mr. Edward Bissinger in Syria.

THE MANY friends of Mr. Edward Bissinger, formerly in the wholesale jewelry business in our city, and now United States Consul at Beirut, Syria, will be glad to read the following, an extract from a letter dated from the Consulate, September 24th:

"I still keep up my accustomed routine of life: hard work from 5 A. M. till late at night with slight intermissions for the creature comforts of this life. Of course, there are times when this rule is broken to make or receive private and official calls, and I can assure you these form no mean part of a consul's duties; etiquette is very rigid here, and no one is more conscientious in its observance than your old neighbor.

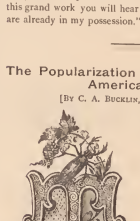
The post of consul here is daily becoming one of greater importance, and its duties are multiplying and becoming more and more onerous and intricate.

The commerce between this province (I mean my consular jurisdiction, extending north to Asia Minor, Anatolia, south to the Sea of Galilee, and west to the Persian frontier, including Bagdad on the Euphrates, bounded on the west by the Mediterranean Sea) has assumed extraordinary proportion in the past two years. I have taken much pains to awaken and excite to greater activity, the dormant commercial relations between the two countries, and have received many acknowledgements for having largely contributed to the successful resumption of reciprocal enterprises.

Our schools here in Syria, over 300 in number, with sixty missionaries and about 800 scholars, including five colleges, hospitals, etc., which have been much assailed the past four years, and the free exercise of whose meritorious work has been greatly interfered with by the Turkish authorities, and in some instances even stopped, has monopolized much of my time and attention, and has been a source of no little anxiety and solicitude on my part, but thanks to my indefatigable labors, the assistance of our Legation at Constantinople and the support of the home Government, we have gained a complete victory, and the benevolent work of diffusing knowledge by education, which has already done so much for the present generation of Syria, is to proceed uninterruptedly in future. Of my share in this grand work you will hear by and by; hundreds of testimonials are already in my possession."

The Popularization of Optics for the Use of American Opticians.

[By C. A. Bucklin, A. M., M. D., New York.]



HIS WORK was taken up by The Jewelers' Circular about five years ago. The effort to call the attention of optical dealers to the importance of thoroughly and practically understanding how to adjust lenses properly to the eyes has become a prominent feature in this great trade journal. I cannot help but review the success which has followed the attempt to popularize optics with great pride. When we review the great field of visual difficulties and observe the immense amount of suffering and functional nervous disorders which are now being relieved daily by the proper adjustment of lenses to defective eyes, we must acknowledge that no branch of science or medicine is founded more firmly on an anatomical basis and physical laws than our knowledge of the nature and correction of visual difficulties.

No branch of science has given such practical and beautiful results or celebrated such triumphs as have been celebrated in this one field of science, optics as applied to the correction of visual and muscular imperfections of the eyes.

Thirty years ago the acknowledged leaders of the sciences, medicine, surgery and philosophy knew practically nothing regarding this entire subject.

It was not known that myopia was generally due to a lengthening or stretching of the eye ball. It was not known that hyperopia existed, much less the faulty structure of the eye which causes the defect, and from astigmatism only here and there an exceptional case of peculiar brown was described. The subject was not generally understood. Cylindrical lenses had not been introduced. Five

years ago I found the opticians of American, as a class, in the same childish ignorance of the wonderful things which were daily passing under their observation without recognition, as we found the scientists of the world thirty years ago equally ignorant on this subject.

The first attempt I ever made to promulgate optics for American opticians was the writing of a small book entitled "The Detection and Correction of Visual Imperfections." This little book had quite an extensive circulation, and was to very many American opticians the standing point of their present knowledge of optics. Soon after the publication of the above mentioned book Mr. Hopkinson, proprietor of THE JEWELERS' CIRCULAR, engaged me to write a series of articles for his journal on optics. This series of articles certainly created more interest than was expected. They were the starting point upon which the majority of the opticians now in American commenced to build their knowledge of optics.

These articles were continued for four years when the interest in the subject became so great, and the applications for practical instructions in optics became so numerous that a school was formed for the purpose of teaching practical optics to those desiring to become skilled opticians. This school will have been in progress one year on January the 20th. The number of students who will have availed themselves of its advantages will probably be sixty-five for the first year. I think that the formation and successful career of a school devoted to the special training of those desiring to become skilled opticians is one of the most important events in the optical interests of America. The school is of vital importance to the interests of the wholesale optician, the manufactures, the optical dealer and the public, while in the end, the public are paying the entire expense of conducting a school of this description, they are also receiving more personal benefit from having skilled opticians among them than any of the other classes interested. There are several causes which have contributed to the success of this school of optics.

The warm endorsement of THE JEWELERS' CIRCULAR, as well as all manufacturing and jobbing optical houses, gave the school its start. The complete satisfaction of every student who attended the school has been another powerful reference in its favor.

The desire to protect a once profitable optical trade which many were losing through their incompetence to do the work properly has driven some into the school.

Many have joined from an ambitious desire to thoroughly understand the work they are doing.

A few have joined the class because they have been convinced that the students who had located in neighboring towns were meeting with both scientific and financial success.

It is now a certain fact that the only way to gain, protect or retain an optical trade is to become a skilled optician. It is further true, that one can learn more about practical optics in two weeks by the systematic object teaching employed in this school than they can possibly be learned in two years of the closest application and study of text books.

This system of object teaching has been the result of twelve years of careful thought combined with several years of experience under the leading teacher of *Austria, Germany and America*.

By this method one is able to teach a student sufficiently well in two weeks to make him a skilled optician, able to earn a good living in any town above ten thousand in which he chooses to live.

As editor of the optical department of THE JEWELERS' CIRCULAR for the past five years, I have learned just what the requirements of a practical optician are.

This course of instruction in optics as applied to the correction of errors of refraction and accommodation as well as muscular defects will fully meet the requirements of those desiring to become skilled opticians. *The method of teaching* is to lecture on a given subject in the plainest language without using any technical terms which have not been previously explained. The student is repeatedly examined on this subject and not allowed to leave it till he can recognize this particular visual defect in a patient who is presented to him for examination.

In the smallest towns a practical knowledge of optics becomes very profitable in connection with a general jewelry business. The fact of being the more skilled optician in town gives great prominence to one's place of business, and, in addition, enables him to control the optical trade of the place and vicinity.

The use of the ophthalmoscope is sufficiently well taught to enable the student to readily examine the eye for obscurities of vision, as incipient cataract, etc. This is very useful, as it saves hours of useless trials to fit lenses where the poor vision is due to some obscurity which makes it impossible to improve the vision by lenses. Patients are better satisfied if they cannot find satisfactory lenses if they are told *why* they cannot find them.

The classes in this technical school are limited to seven members thus making it impossible to teach each individual just what he must know. Students are urged to meet daily for the purpose of forming a quiz class, practicing with the ophthalmoscope and analyzing cylindrically compounded lenses. The fee for this course of instruction is fifty dollars, ten of which is required at the time of the application.

The following is a list of the towns in the United States in which our School of Optics is at present represented and also the names of the representatives:

Applegate, Geo. H., Trenton, N. J.; Appleton, Henry W., New York; Aurnhammer, H., Newark, N. J.; Ayres, E. H., Elmira, N. Y.; Baily, Otis, Calais, Me.; Bowan, T. H., Bridgeton, N. J.; Chase, Fred. T., Belfast, Me.; Ellis, John H., not located; Fisher, W. W., Watsontown, Pa.; Freeman, Teressa, Blosburg, Pa.; Gomph, Chas. P., Utica, N. Y.; Gorton, C. H., Gloversville, N. Y.; Guthman, Elias, Youngstown, O.; Graves, J. R., Corry, Pa.; Guyott, Malone, N. Y.; Harmon, S. A. I., Philadelphia, Pa.; Haseltine, Wm., Kokomo, Ind.; Hayes, A. Y., Dover, N. H.; Hopkins, W. I., Havanna, N. Y.; Hopkins, E. H., Penn Yan, N. Y.; Johnquest, R. N., Ansonia, Ct.; Kimball, Chas. C., Watertown, N. Y.; Lee, James C., Governeur, N. Y.; Little, S. S., Cumberland, Md.; Marsh, John, Antwerp, N. Y.; Meyer, Robt., not located; Lowenstein, M. G., Hobert, N. Y.; Ludwig, G. H., Chambersburg, Pa.; Morck, August, Jr., Warren, Pa.; Morrow, T. J., Holyoke, Mass.; Pagam, Rudolph, Wellsborough, Pa.; Prentiss, Chas., New York; Preston, S., New York; Robinson, E. F., Elsworth, Me.; Rogers, G. H., Lowell, Mass.; Safford, Charles, Kingston, N. Y.; Sammis, H. C., Northport, L. I.; Sanborn, F. B., Salem, Mass.; Scantlebury, S. C., White River Junction, Vt.; Sedgwig, W. P., Bath, N. Y.; Skinner, Isaac W., Waltham, Mass.; Smith, Ewing, Nashville, Tenn.; St. John, C. P., Prattsburg, N. Y.; Taylor, Robert, Cedar Rapids, Iowa; Thompson, L. W., Cherry Valley, N. Y.; Vanderbilt, A. R., Amsterdam, N. Y.; Voorhees, A. C., New Brunswick, N. J.; Walter, Adolph, Jr., Jersey City, N. J.; Weiderfeld, Washington, D. C.; Wentworth, A. M., Portland, Me.; Whitman, P. W., Beautort, S. C.; Windell & Son, Oswego, N. Y.; Zoellner, Chas., Portsmouth, O.

The above mentioned students who have located and are actively at work are earning on an average fifty dollars weekly.

I do not know of any other art or science which one can learn sufficiently well in two weeks to enable him to earn fifty dollars weekly.

I find that this school has created a further necessity with so many students at work, mostly in the rural districts, a large number of persons are being continually encountered who are blind or who have some serious disease of the eye which glasses will not benefit. I am preparing to meet the requirements of this class of cases by gradually turning my private home into a private hospital, where persons can receive all the comforts of a private home and be subjected to none of the annoyances and dangers of a public institution, where contagious eye diseases very frequently defeat the best directed efforts of the most skilled surgeons. A large proportion of those living in rural districts who are supposed to be incurably blind, are

suffering from simple cataract as the following case illustrates:

Mrs. B appealed to George H. Applegate, of Trenton, N. J., a graduate of our school of optics, who is meeting with financial success. Mrs B desired glasses. In her right eye there was deep in the pupil a round milky spot. The pupil responded promptly to light. She could tell the light of a candle at twenty feet or more in a dark room. She could promptly locate the candle when held above, below, to the right or to the left. With her back to the light of the window with this eye she could not count fingers at a greater distance than three feet. Upon looking into the other eye with the ophthalmoscope Mr. Applegate found incipient cataract in quite an advanced stage. He advised the lady to have the lens from the bad eye removed in order that she might have the right eye ready for use before the left eye failed entirely. He brought the patient to my house Tuesday, October 31. I removed the cataractous lens the same afternoon without the slightest accident. After the operation there never was the slightest inflammation or pain. In three weeks from the above date she was able to return to her home with good practical vision. For the purpose of working in union with my students I am preparing to receive any and all patients of the above description in my private home and give them my personal care and attention.

I look upon the future prospect of this school of optics as being most flattering.

The next class in optics will commence January 10, and those desiring a place in this class should apply early, as the January class will always have more applicants than any other class during the year.

COMMUNICATIONS.

[The Circular is not responsible for the opinions or statements of contributors, but is willing to accord space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

NOT A SCARCITY OF WATCHMAKERS, BUT A DEFICIENCY OF WAGES.

To the Editor of the Jewelers' Circular:

I was reading in the November issue of The Circular the article about the "Scarcity of Good Workmen." In fact, I have read several similar articles, and they remind me very much of the Quaker who said fifty cents a day was enough for any laboring man. Some of the things he says are only too true, but I would like to ask if the trouble does not lie with the employer as well as with the employee. The majority of the jewelers who employ watchmakers do not, after getting a good man, know how to treat him. I once worked for a man who employed me for a watchmaker, and in four weeks' time came and told me that I must work on clocks, two weeks at a time, for the reason that his clockmaker wanted to learn watch making, and he was really obliged to do as he said, for the simple reason that he held a great deal of his trade. Again, the jeweler does not want to pay a first-class workman good wages, and the cry is constantly coming up, "What is to be done to keep up the supply?" I answer, take apprentices and do not keep them down, but push and encourage them, and if they become good workmen give them good wages. Another great evil is that if a young man apply for a situation he is condemned before trial on account of age, but if a middle-aged man with a family applies he is offered more money and doubly respected before trial. Is that just? I will say this much, that there are plenty of good watchmakers, honest and steady, capable of taking charge of watch work, that want situations but they can't get them, and they think that there are very few places where they want good workmen. I will guarantee if any man wants a good workman he can get one, providing he pays him fair wages. Jewelers will advertise for a first-class watchmaker and engraver and only want to pay $15 per week, and that very man will earn on an average $30 per week. I was once told by a leading jeweler in a large city, that a man that received $18 per week ought to earn for his employer on an average $38 per week. Is that just? H. P. G.

A VENERABLE WATCH.

To the Editor of the Jewelers' Circular:

An old watch marked "James McCabe, Royal Exchange, Cornhill, London, No. 97," can be traced back through *four generations.* Can you or some of the numerous readers of The Circular throw any light as to the date said James McCabe was in business?

Truly yours,
Watertown, N. Y., October 22, 1887. Wm. W. Scott.

THE NUISANCE OF PEDDLERS.

To the Editor of The Jewelers' Circular:

Have you been interviewed on the subject of peddlers? This State is completely in the hands of those traveling peddlers with clocks, silverware and watches. We have five now in Waverly. They sell all classes of these goods, often selling $1.50 articles for $4, and $4 goods for $1.50. They tell the people that we pay such heavy taxes that they can undersell us.

I have been thinking that a combination of jewelers in the State might petition the State authorities to pass an act similar to one in operation in Pennsylvania, and give us fellows who pay the taxes a little better show. If there is not such a move already on foot, would it not be wise in you to start one for the winter term.

Any improvement in this matter will be welcome among us jewelers, and I have no doubt that other merchants would join us. I would like to know the views of some of our fraternity, and you may be able to give me the same.

I have been a subscriber to The Circular many years and could hardly do business without it. Please send your advance slips this month. Respectfully yours, D. D. Knapp.
Waverly, N. Y., November 21, 1887.

THE INTEGRITY OF THE TRADE.

To the Editor of the Jewelers' Circular:

Will you please say through The Jewelers' Circular to my friends in the importing, manufacturing and jobbing trade, that I have sold my stock of merchandise, and rented room and fixtures to Messrs. Tuttle & Sheehan. My relations to the jewelry trade of New York and New England have been of a highly agreeable and pleasant character. I wish to pay tribute, in this connection, to the integrity of the houses with whom I have had the pleasure of doing business for the past 30 years. Respectfully yours,
Lafayette, Indiana, November 15, 1887. G. H. Hull.

MR. CROSSMAN CORRECTED.

To the Editor of the Jewelers' Circular:

In your account of the Lancaster Watch Co. in the November number of The Jewelers' Circular, there are misstatements which we feel assured were not intentionally admitted to your columns. The article states that "at present the greater part of their goods are sold direct to the consumer, and have fallen somewhat into disfavor in the trade." As a matter of fact, not one movement made by The Keystone Standard Watch Co. has ever been sold direct to the consumer, but, on the contrary, they are sold by wholesale and retail

watchmakers in every State and Territory in the Union, excepting only Indian Territory and Alaska. That they were never in better repute in the trade than now is amply evidenced by the letters lately received, and by the fact that the prices of patent dust-proof movements have been sharply advanced twice within the last two years.

The article also states (referring to a time evidently about 1882, although no date is given) that "the company now assumed the name of The Keystone Watch Co. as a trade mark, but really existed as the Lancaster Watch Co. corporate," and as no mention is given of any further change, the inference of the average reader would be that that was the present status of the company. A reference to any mercantile agency book will show you that the company at present owning the factory is The Keystone Standard Watch Company, of Lancaster (incorporated under Pennsylvania laws), with a paid in capital of $500,000, and comprising among its stockholders, directors and officers, many of the ablest and most successful business men of Lancaster and Philadelphia. Regretting the necessity of trespassing on your time and relying on your courtesy for a correction, we remain, Yours respectfully, ATKINSON BROS.

Philadelphia, Pa., November 19, 1887.

KIND WORDS FROM OUR FRIENDS.

To the Editor of the Jewelers' Circular:

In these days of many trade journals that are crowded upon us for recognition, I thing it your due that I should express the great satisfaction I derive each month from a perusal of THE CIRCULAR. It improves with each issue, and your November number seems to me to be as near perfection as can be expected of any journal. It abounds with solid, substantial reading matter that cannot fail to benefit every member of the trade who reads it, especially the young men who are beginners at the trade. Almost every branch of the business is treated of by a writer who shows his familiarity with it by his practical suggestions, while the news columns show us what is going on in the trade in every section. I have taken THE CIRCULAR since it was first established, having been a subscriber to the old HOROLOGICAL REVIEW with which it amalgamated, and I have watched its growth with great interest. In its early days I occasionally contributed to its columns, but a busy life has prevented any recent contributions. I see a constant gain in strength in the paper and an increase in value each year. Wishing you many years of success and prosperity, I sign myself, AN OLD CONTRIBUTOR.

[We thank our old friend for his friendly letter and good wishes, and beg he will favor us with a new series of papers on the same subject he used to handle so intelligently and with so much satisfaction. We can assure him that there are hundreds of the old subscribers to THE CIRCULAR who would welcome anything from his pen, and also that his name as an expert and a writer is far from being unknown to the younger members of the trade. If you will only inform us what arguments will prevail with you to induce you to contribute again to THE CIRCULAR, we will endeavor to bring them to bear.—ED.]

Mr. D. D. Knapp, Waverley, N. Y., in renewing his subscription, says: "I could not get along without THE CIRCULAR. It takes first place on my reading table. The monograms are a great help to us engravers."

Mr. H. J. Woodside, Portage La Prairie, Manitoba, says: "I cannot go back on THE CIRCULAR, although cutting off some others."

Mr. C. H. Barker, of Toronto, says: "I have been a subscriber for the past eleven years, and could hardly do without THE CIRCULAR now."

Mr. J. S. Niswander, of Gilroy, Cal., writes: "THE CIRCULAR not only retains its position as the leading journal of our trade, but is better than ever before. I could not get along without it."

"It is highly appreciated by me," says Mr. Jos. E. Wells, Jr., of Macon, Ga., whose name has been on our subscription list a long time.

Mr. J. E. Whiting, of Andover, Mass., says: "I believe it to be the best paper published that is devoted entirely to the jewelry trade. The addition of the designs of monograms makes the paper invaluable."

THE JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW for September is a superb publication. Its many pages are well written, and its typographical appearance suits admirably the beautiful calling it represents.—*The Furnishing Goods Trade Review.*

Mr. W. E. Walton, of Richmond, Mich., writes: "I now have nine volumes of THE CIRCULAR bound in calf. I can't see how any jeweler can get along without THE CIRCULAR.

Mr. J. T. Williams, of Philadelphia, says: "Your magazine is getting to be a volume each issue."

Mr. C. F. Hurd, of Medina, N. Y., writes: "I have taken THE CIRCULAR for fourteen years, and can't 'keep house' without it."

Obituary.

JOHN E. TOTTEN.

John E. Totten, of the firm of J. E. Totten & Co., of North Attleboro, died on November 3, at the residence of Mr. Joseph M. Bates. His death was very sudden, without any previous illness, and occurred while he was making a social call at Mr. Bates' house. Mr. Totten had only been in the jewelry business a few years, before which time he was one of the leading physicians in Attleboro.

F. G. WHITNEY.

F. G. Whitney, of North Attleboro, Mass., died at his home on November 16, of Bright's disease. From his early manhood he had been in the jewelry business, and for many years the firm of F. G. Whitney & Co., has been an important one in plated jewelry line. He was born in Attleboro about 1817 In business he was shrewd occasions he was presented with testimonials of their regard for him. His sons, George E. and Edward Whitney, will continue the business in the old name.

C. E. SMITH.

The death of Mr. C. E. Smith, of North Attleboro, Mass., early last month, aroused considerable sympathy among eastern manufacturers especially, and also among his many friends in the town of his residence. His death was caused by severe internal injuries, sustained while driving an unmanageable horse about two weeks before his death. In attempting to check the reckless plunging of the animal, Mr. Smith was thrown from his carriage, and, after some days of considerable suffering, he was obliged to take to his bed. He was born at Jamaica Plains, in Massachusetts, on January 2, 1828, and, when a lad of about twenty, started on his long career in the jewelry business, learning the trade with Henry Robinson, a jeweler, of Old Town. In 1877 the present firm of C. E. Smith & Co. was formed, out of the old firm of S. S. Ginnido & Co., of which Mr. Smith had been the agent. Mr. Smith was widely known in business, social and Masonic circles. In all local affairs in the Attleboros he was prominent more as a worker than as a figure head, and his charities were numerous. His funeral was largely attended, and, to make

the event more memorable, the shops in Attleboro were closed on that day and all business stopped.

MRS. GEORGE C. WHITE, JR.

The many friends of Mr. George C. White, Jr., manager of the business of Rogers & Brother, will extend to him their heartfelt sympathy in the great bereavement that has recently fallen upon him in the loss of his wife, Cordelia. Mrs. White died November 19, of pneumonia, at the residence of the family in Brooklyn. Mrs. White was a member of the Episcopal Church, and a prominent worker in all church matters, and also in all works of charity and benevolence among the poor in her neighborhood. She was a woman of rare intelligence, liberality and Christian charity. Her funeral, which took place on the 22d of November at the church of which she had so long been a member, at the corner of Harrison and Clinton streets, Brooklyn, was largely attended, among those present being several representatives of business houses in the trade. A daughter and a son survive her.

President, HENRY HAYES..... .....Of Wheeler, Parsons & Hayes.
First Vice-President, ROBERT A. JOHNSON.....Of Celluloid Show Case Co.
Second Vice-President, JAMES P. SNOW ....Of G. & S. Owen & Co.
Third Vice-President, JOSIAH B. BOWDEN ... .Of J. B. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS .....Of Randel, Baremore & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON.....Of Sexton Bros. & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
I. N. GREASON.....Of J. N. Greason & Co.
GEO. H. HOUGHTON .....With Gorham Mfg. Co.
WM. H. JENKS.....With Tiffany & Co.
A. A. JEANNOT.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League, and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, will herein be answered. Address *Jewelers' League, Box* 3,444, *P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee of the Jewelers' League, there were present President Hayes, Vice-Presidents Lewis, Johnson and Bowden, Chairman C. R. Howe, and Messrs. Greason, Jeannot, Jenks, Houghton and Sexton.

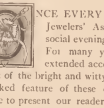
Five requests for change of beneficiaries were granted.

Two applications were referred for investigation, and the following six were accepted:

A. A. Adams, of Boston, Mass., recommended by Preston Pond; A. L. Apffel, of New Orleans, La., recommended by Geo. Mallet and Wm. Frantz; John R. Frier, of Syracuse, N. Y., recommended by J. W. Pierce; Chas. J. Giering, of Middletown, N. Y., recommended by L. F. Giering; Henry Schlarb, Jr., of Baltimore, Md., recommended by J. H. Gale; Peter J. Walter, of Springfield, Mass., recommended by Chas. S. Saxton.

PRECIOUS stones are not a staple of this country, but an article in *Harper's* Christmas number on this subject furnishes much interesting information in regard to such gems as have been found. It is written by George F. Kunz, the leading American authority on this subject. Diamonds of poor quality have been picked up in America, outside of jewelers' shops, but Mr. Kunz makes it clear that the recent alleged discoveries of these precious things in Kentucky, amount to nothing. But sapphires, however, and spinals—who will find the lost bed of them in Orange county?—crystals of topaz, beryls, garnets (the finest in the world), tourmalines, amethysts and turquoises, are obtained in several localities and in considerable profusion. The most striking feature of the article is the lithographed page of these gems. Doubtless it is the best magazine lithograph of its kind ever produced. The usual number of impressions for color on such work does not exceed half a dozen, but surely twenty must have been needed to get the fine effect of the gems on this sheet. There are 22 colored figures on the plate, and 12 figures in the text. The central figure is the largest North Carolina emerald found, also the first pearl, the Morrisey diamond, etc. The following is a list of the gems illustrated, some of which are in the possession of Tiffany & Co.: Diamond, Manchester, Va.; sapphire, Helena, Montana; sapphire, Franklin, N. C.; topaz, Crystal Peak, Col.; emerald, Stony Point, N. C.; aquamarine, Stoneham, Me.; beryl (golden colored), Litchfield, Conn.; garnets (cut and natural), Gallup, N. M.; peridot, Gallup, N. M.; tourmaline, Mt. Mica, Paris, Me.; tourmaline (green with red center), Paris, Me.; lithia emerald (hiddenite), Stony Point N. C.; amethyst, Stow, Me.; cairngorm stone, Pike's Peak, Col.; turquoise, Nevada; arrow points of obsidian, cornelian and agatized wood, Oregon; pearl, Patterson, N. J.

The New York Jewelers' Association.



ONCE EVERY year the members of the New York Jewelers' Association meet at Delmonico's for a social evening and an elegant and elaborate banquet. For many years THE CIRCULAR has given an extended account of the meeting, and a stenographic report of the bright and witty after-dinner speeches that always form a marked feature of these occasions. This year, however, we are unable to present our readers with such report, for the reason that the dinner takes place simultaneously with the delivery of this issue to them. Occurring as it does on the first day of the month, we could not give the report without delaying THE CIRCULAR at least three days, and this we could not, in the interest of our patrons afford to do at this season of the year. Indeed, we have made special efforts to anticipate our usual day of publication in order to present to our readers the holiday announcements of our advertisers at the earliest possible moment, and thus enable buyers to select the novelties they desire for their holiday trade. While we should have been pleased to have presented the full report of the banquet as usual, we think it of far more importance that THE CIRCULAR should preserve its reputation for early and prompt delivery.

These annual gatherings of the members of the jewelry trade and their invited guests are memorable occasions, and fraught with a vast amount of good to all who participate in them. In the hurry-scurry of business competition, men are apt to forget that each has a dual existence and that there is a social life as well as a business life for each. In the daily routine of business, men present to their neighbors many sharp angles that are not visible in their domestic or social life, and erroneous opinions are frequently formed of those who are only met in a business way. It is good, therefore, for them to come together occasionally and cultivate the pleasanter sides of their natures. Man being by nature a feeding as well as a social animal, there is no place where he shows to such good advantage as at the festive board, and hence the Association displayed its wisdom when it decided to bring its members together once a year, and give them an opportunity to display their genial characteristics in contrast to their every day business peculiarities. Elsewhere we give a

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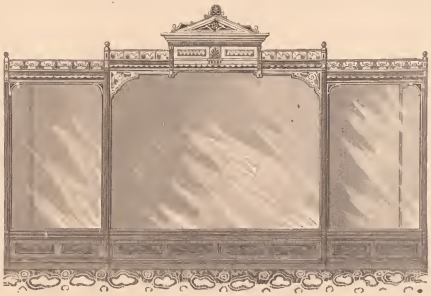

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report of the preliminary arrangements for the banquet for this year so far as they had been decided upon at the hour when it was necessary for us to go to press, and from these it will be seen that the occasion was not likely to fall behind any similar gatherings of previous years. Delmonico could be depended upon to make the Jewelers' dinner this year, as he has heretofore, the bright, particular feature of the social season of New York. The list of invited guests shows a brilliant array of distinguished citizens, while the list of speakers selected to respond to the regular toasts gives assurance that the flow of eloquence and wit will be in keeping with the occasion. It would be better for trade in every way and for the individuals engaged in it if such festive gatherings could be of more frequent occurrence.

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C. G. ALFORD.....Of C. G. Alford & Co.
GEO. W. FARES.....With Howard & Son.
F. KROEBER.....Of F. Kroeber Cloth Co.
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Counsel, HON. ALGERNON S. SULLIVAN.

For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 3073. 170 Broadway, New York.

The regular monthly meeting of the Executive Committee was held at the Alliance office on the 11th inst. There were present President Dodd, Vice-Presidents Sloan and Untermeyer, J. B. Bowden, Chairman, Messrs. Alford and White, and C. C. Champenois, Secretary.

The following firms were admitted to membership: C. W. Hurl, New Bedford, Mass.; H. & A. Gebraetz, Newark, N. J.; John Lerch, 3013 Third avenue, New York City; Le Roy Decker, Marysville, Ohio; Goddard & Moses, Richmond, Va.; E. H. Hopkins, Penn Yan, N. Y.; J. H. & R. E. Hofman, Bucyrus, Ohio; Geo. H Griffen, Wareham, Mass.; Bay State Watch Case Co., Boston, Mass.; F. S. Thompson, Gloucester, Mass.; W. V. Blair, Meriden, Conn.; Smith & Knapp, 182 Broadway, New York City; W. A. Schroeter, 198 Grand street, New York City; Miller Bros., Cambridgeport, Mass.; F. F. Heitz, 791 Sixth avenue, New York City; H. Oppenheimer & Co., Kansas City, Mo.; S. Silverthau & Sons, New Haven, Conn.; C. C. Adams & Co., Brooklyn, N. Y.; J. T. Stafford, Canton, Pa.; P. H. Lachicotte & Co., Columbia, S. C.; H. T. Bramer, Attica, N. Y.

Also on October 19, John H. Reid, of Bridgeport, Conn.

Chicopee, Mass., has a town clock. The machine was set going for all time recently with much ado. The hour of seven opened the festivities. As the bell stroked off that number, the dial was illuminated, a cannon was fired, a band struck up a mournful tune, and a multitude of citizens stood around the town hall gazing steadfastly up to the top of that imposing steeple and listened solemnly to the strokes of the hugh tongue upon the alarm. Just then a train drove in from Chicopee Falls and fifty or more pieces of music and a hundred men in regalia were poured out into the throng. It was an extemporaneous celebration. Nobody had known in the morning whether it was to be held or not. But when the evening came the streets were full of people and the enthusiasm was spontaneous.

Preparation of Gold Salts.

PERCHLORIDE of gold, says G. Gore, is formed by dissolving metallic gold in a warm mixture of one measure of nitric acid, and from two to three measures of hydrochloric acid; the mixture is called aqua regia. The gold dissolves slowly with evolution of gas; when it is all dissolved, evaporate the solution by gentle heat, with stirring, until it is reduced to a small bulk, and solidifies on cooling; the residue should be entirely soluble in water. If it contains a white substance, which will not dissolve, it is chloride of silver, derived from traces of silver in the metal; if there is a small amount of brown or yellow residue, some of the salt has been over-heated; such residue should be re-dissolved in a little aqua regia, and evaporated to dryness again. One ounce of gold, if it is in small pellets, or thin sheet, will require about four ounces of aqua regia to dissolve it. Chloride of gold is a yellow salt, and dissolves in one and a half its weight of water. If it is properly made it contains one atomic weight (=196.6 parts) of gold and three atomic weights (=106.5 parts) of chloride, and its composition is represented by the formula Au Cl$_3$. One troy ounce of gold will make 1 oz. 164/5 grains of the chloride.

Oxide of gold is obtained by digesting a solution of the chloride with an excess of calcined magnesia, washing the precipitate first with dilute nitric acid, and then with water only; if caustic potash or soda be used instead of magnesia the oxide is liable to contain some of the alkali.

The terbromide of gold may be formed by digesting oxide of gold in hydrobromic acid, and evaporating the solution by gentle heat, with stirring, until it solidifies on cooling.

The oxide of gold forms an addition of aqueous ammonia or of solutions of carbonate sulphate, or chloride of ammonia, a dark olive-brown substance, called fulminate of gold, aurate of ammonia, or ammoniuret of gold. The same substance is also formed on adding ammonia, or a solution of a salt of ammonia, to a solution of terchloride of gold. It is *an extremely dangerous substance when dry, and detonates with the least friction or percussion.* To form ammoniuret of gold, which is sometimes used in electro-gilding baths, convert ten parts by weight into the solid chloride. Dissolve that salt in water, and add to the solution fifty parts by weight of the strongest ammonia, and stir the mixture, an abundant precipitate of the ammoniuret, otherwise called fulminate of gold, is produced in the form of a yellowish-brown powder. When it has subsided pour off the supernatant liquid, and fill up again with water, and repeat this several times, until the precipitate no longer smells of ammonia. The water contains a little gold, and is reserved for recovery of that metal. As the yellow-brown precipitate, *when in a dry state, is highly explosive*, it should never be allowed to get dry, and ought not to be prepared until the time of forming a gilding solution with it. Particles also should not be allowed to dry upon the edges of the vessel nor upon filters through which the wash-liquids have been passed. To remove the solid salt from articles, we may dissolve it in a solution of cyanide of potassium. Freshly precipitated wet oxide of gold dissolves in a solution of caustic potash, to form aurate of potassium; the solution is yellow, and may be employed for electro-gilding.

Sulphide of gold is obtained by passing a current of sulphuretted hydrogen gas through a solution of gold, as long as a precipitate occurs; it is a blackish-brown powder.

Cyanide of gold is formed by cautiously adding a solution of cy-

anide of potassium in six parts of water to a neutral solution (that is, not containing any free acid) of terchloride of gold, as long as a yellow precipitate is thrown down ; if more cyanide of potassium is added the precipitate becomes dirty yellow, and is more quickly deposited ; a still larger quantity renders it orange-yellow, and re-dissolves it. It is a crystalline powder, permanent in the air ; by ignition it is resolved into gold and cyanoque gas ; it is not decomposed by sulphur, hydrochloric, or nitric acid, or by aqua regia, unless freshly precipitated, and then only slowly. It is not decomposed by sulphuretted hydrogen ; hydrosulphate of ammonia dissolves it slowly but completely, forming a colorless solution, from which, by the addition of acid, sulphide of gold is precipitated. It dissolves in aqueous solution of ammonia, hyposulphite of soda, or alkaline cyanide, but not in water, alcohol, or ether.

Gold precipitated from a solution of chloride of gold by protosulphate of iron, dissolves in a boiling solution of cyanide of potassium; a hot solution of cyanide of potassium will also dissolve ordinary metallic gold, if air be present. Both oxide of gold and aurate of ammonia dissolve completely in a solution of cyanide of potassium, and form double cyanide of gold and potassium. Cyanide of gold requires twenty-three parts of cyanide of potassium dissolved in water to dissolve it. For every one part of gold to be dissolved by the battery process, six parts of cyanide of potassium, dissolved in two to four times the quantity of water at 100° F., is required ; two electrodes of gold being connected with a suitable battery, and immersed in it, until the required quantity of gold is dissolved. "The crytallized cyanide of gold and potassium dissolves in seven parts of cold and in one-half part of hot water," says Himly, while Glassford and Napier say, "in four parts of cold and 0-8 parts of hot water." It dissolves very sparingly in alcohol. Its aqueous solution gilds copper and silver by simple immersion, especially if hot, and the copper and silver dissolve in it.

Electro-deposited gold is not necessarily pure, because other metals are often thrown down with it, in order to obtain the particular shade of color desired ; for instance, white and green gold contain silver, red gold contains copper, and pink gold contains both copper and silver.

With anarchy throttled and the law vindicated, Chicago is now able to breathe more freely than she has done in many months. The threatenings of vengeance from blatant demagogues scared a few of the more timid, but the excellent police precautions taken cowed the would-be avengers of the anarchists into servile obedience, and Chicago, on which the eyes of the entire civilized world rested, passed through one of the most dangerous crises that has ever threatened the security of a rising city, with credit to herself and the country of which she is so proud an ornament. The effect of this on business in general is already quite marked in all lines, from real estate to creature comforts and luxuries. Yes, Chicago is quite a safe place for business men and capitalists to make investments, and there need be no further fear of the city rulers tolerating anarchy, or any other system detrimental to the very foundations of the community to raise its head again.

Mr. E. E. McIntosh succeeds Mr. M. Ryburg at Gibson, Ill.

Mr. G. S. Hollenbach has moved from Chebause, Ill., to Atwood.

Mr. George W. Bullen, of Genoa, Neb., will soon settle at Elgin, Ill.

Mr. Benno Jacobson, of this city, has sold out his stock at auction.

Mr. H. F. Lowman has succeeded Mr. H. C. McDonald at Lanark, Ill.

Mr. Benjamin H. Bacon, of Prophetstown, Ill., has moved to Redding, Cal.

Mr. W. H. McClure, late of Cambridge, Ill., is opening a new store at Galva, Ill.

Mr. E. S. Whitehead succeeds the former firm of Whitehead & Kenrick in this city.

Mr. J. W. Strangham, of Elizabethstown, Ill., has moved his place of business to Golconda.

Kind, Abt & Co., of this city, have moved their place of business to the corner of Madison and Franklin streets.

Manager J. M. Parshall, of Giles, Bro. & Co., spent a well-earned two weeks' vacation traveling through the South.

The exhibit of silverware of the Towle Manufacturing Co. is one of the finest holiday displays to be seen in the city.

Mr. Frank Obermeyer, formerly in the employ of Mr. Ed. Reincke of Chicago, has commenced business for himself in Milwaukee, Wis.

Secretary Prall, of the Elgin National Watch Co., spent his two weeks' vacation superintending the finishing up of his elegant new suburban home at Ridgeland.

The friends of Mr. Henry Bolle, of the Elgin National Watch Co., presented him with a gold-headed cane on the occasion of his departure from the factory, where he was extremely popular.

Henry Oppenheimer's Sons were to issue at the end of the month their first catalogue to the trade. The book is complete, though small, and will be sent under sealed mail to genuine jewelers and watchmakers alone.

Mr. R. W. Patton, Secretary of the Blauer Watch Case Co., spent the second week of November among his customers in the East. The cases at present being turned out by this company are of unusually elegant designs.

Benj. Allen & Co. have been making quite a feature of their diamond department during the month, and the display of diamonds in settings in their elegant show rooms has been one of the finest spectacles to be seen in the city.

Two young ladies, named Miss M. Keeler and Miss Ada G. Lee, have started business as jobbers in jewelry at 95 Washington street. They are both well experienced in the business, and will receive the general encouragement of the trade.

W. J. Watson, who, in conjunction with J. E. Gledhill, who absconded, defrauded the Ansonia Clock Co. out of large sums of money, was found guilty in Judge Baker's court on November 18, but escaped with a fine of $750 and costs.

Mr. M. F. Warren, formerly the leading jeweler in De Kalb, Ill., is about to remove with his family to Leadville, Col., where he will go into business with Joseph Fast, his brother-in-law. His object in going out West is to seek the improvement of his health.

Mr. B. Jacobson, a jeweler doing business in a small way at 98 Fullerton avenue, confessed judgment in the Superior Court for $1,050 in favor of F. Hoffman, his father-in-law, and there is not much probability that his other creditors will receive anything.

An important happening in the local trade for the last week or two has been the sale by auction of the stock of Baird & Dillon, 143 Wabash avenue, who failed some time ago. The stock is valued at $130,000, and is being greedily bought up for the holiday trade.

The Gorham Mfg. Co., with the characteristic success which has attended all its new departures, is just now having a great run on its

line of leather goods, which, in the form of card cases, prayer books, etc., are among the most attractive holiday novelties in the trade.

C. H. Knights & Co., the enterprising young firm at the corner of State and Madison streets, have been devoting themselves specially to the display of Waltham and Howard watches during the last two months, and they have greatly increased their trade in this direction.

The St. Louis *Globe* did well-merited honor recently to Mr. C. P. Lindley, formerly of Chicago, manager of the Western branch of the Hartford Silver Plate Co., by publishing a lengthy illustrated article about him. Mr. Lindley is credited with being the oldest traveler in the United States.

Receiver Edward Forman, of N. Matson & Co., asked permission of the District United States Court to pay a dividend of 25 per cent. to preferred creditors. This now makes 75 per cent. received by them, and the balance, with interest, will, it is expected, be paid early in December.

Manager W. A. Moore, of the Dueber Watch Case Mfg Co., Newport, Ky., who was in town early in the month, reports business at the factory to be "booming." He said that during the first week in November they had turned out 1,200 cases daily, and so beaten their own previous records.

H. F. Hahn & Co., who do their business quietly on Franklin street, quite isolated from the rest of the trade, seem to thrive amazingly in their solitude. Mr. Hahn reports excellent business for November, and anticipates that the holiday trade will go on increasing for some weeks yet.

It is satisfactory to note that some of the thieves who continually prey upon the jeweler do get caught once in a time. The store of Mr. Williams, South Halsted, was robbed some time ago, and on November 15th James Egan, known as the "Kid" was sent to the bridewell for being concerned in the robbery.

Mr. Benj. Allen, Otto Young & Co., Lapp & Flershem, Giles, Bro. & Co., Stein & Ellbogen, C. H. Knights & Co., and all the other leading firms are amply satisfied with the state of business, and expect that the average for the year will come out far above high water mark. The holiday trade is unusually brisk, and an air of general contentment reigns.

The jobbing jewelers are feeling very "good," as they term it, over the encouraging condition and prospects of the trade. The dealers have made large purchases in view of the almost certain unparalleled holiday trade, money is easy and collections are far above the average. No grumblers are to be found idling around their stores and cursing the hard times. They are, on the contrary, all so busy that they have not even time to talk to their friends.

Among the arrivals in the city during the month have been Messrs. J. W. Eddy, Kewanse, Ill.; Theo. Rust, Dixcan, Ill.; A. J. Schiefling, Peoria, Ill.; George M. Rigden, Streator, Ill.; W. R. Arnold, Watertown, Dak.; T. Thrace, New Harmony, Ind.; George Logeman, Milwaukee, Wis.; A. B. Lee, Bangor, Me.; F. G. Rankin, Manson, Ia.; J. H. Lang, Clinton, Ia.; R. Cahill, New Lisbon, O.; George C. Riddings, Morris, Ill.; A. W. Hanover, Sharon, Ill.; C. S. Durfee, Davenport, Ia.; W. J. Watkins, Lawson, Mo.; D. G. Gallett, Aberdeen, Dak.; John A. Dallas, Pierceton, Ind.; B. W. Wolf, Crawfordsville, Ind.

W. A. B.

One of the greatest sapphires of the world is the property of the Pol, technic Society of Berlin, Prussia. It weighs a little more than six ounces. The jury of the Polytechnic Society, on the grounds stated in full at their discussion, would have settled its value at the frightful sum of 64,000,000 marks, or $16,000,000. It need hardly be said that such a treasure is not likely to find a purchaser at such a price.—*Chicago News.*

Pivoting a Balance Staff.

PINIONS vary, so do working methods. We all may have our peculiar notions how a job should be done, and it is not well for anyone to prescribe the way in which, and in no other, it should be done. Let us take as an illustration the putting of a pivot into a staff. Some say it should first be driven out of the balance; I never do it, however, and I flatter myself that I do a job not inferior to that of many. I am convinced that both the staff and the balance are liable to sustain more injury by being driven out and put back than by carefully drawing the temper. If the watch is of so fine a quality that the temper might not be drawn, then for the same reason a pivot should not be put into it, but a new staff. In such a case I always turn the rivet off, so that the staff comes out easily, without straining the balance.

My way of putting in a staff or pinion is this, and many years of experience have taught me to be the best. Take a slice of potato, a quarter of an inch or so thick, and another much thinner, place your wheel or balance fairly in the middle of the hole between the two slices, the thin slice on the side in which the pivot is to be put. If it is the lower pivot, blow a jet of gas parallel with the balance. This ought not to alter the temper of the balance. If it is a top pivot, stick a piece of potato on the other pivot and blow a sharp jet of gas through the hole. The slices of potato must be pressed firmly together, and fastened by sticking a few pins obliquely through them. Now cement a brass or ivory collet on with beeswax, place it in the turns, with the broken end running on the stump or shoulder. See that the balance runs true and flat; you will probably find it all right, if not, make it so before proceeding further.

I might say here that I do all this kind of work with the bow and turns, and consider it the only correct way. I have been fooled a few times in doing this kind of a job with a lathe and chuck, and found that when I supposed the job was finished, I have discovered that the end gripped in the chuck, instead of running to its center, had been describing a small circle. Being satisfied that the balance runs true, turn or reduce with a file to the shoulder, whether it be long or short—having previously noticed or gauged the length of it, down to the part on which the spring collet fits. Find your center as near as you can; it is desirable to get the center, but not absolutely necessary, with the top pivot. Chamfer it out with a piece of hard steel with three-sided point. Put it into the turns, and proceed to drill it with a large drill, and see to it that the old pivot in this and all subsequent operations, turns on a brass center, clean and well oiled, or you may find to your discomfort by the time your job is finished, that it is worn so short as to render the staff useless. I have for several years made my drills of piano wire. It is very soft when annealed, and very strong with a hard temper, and in just the proper temper for pivots, as you buy it. Try it once, and you will never use anything else.

Harden your small drills by giving a red heat, and a vigorous shake in the air; large ones by sticking them in a potato, soap or wax. When hard, clean them by holding them loosely with finger and thumb, resting on a cork in the vise, and rub with pumice stone as you would any piece of steel work for a watch. If you use the wire I have recommended, just a tinge of straw color will cut well. Having drilled the hole deep enough, fit your pivot in by filing first, and then grinding it in with a little oilstone dust; when fitted well, cut the piece off as long as required, to give room for turning, take

a little off the end that goes in the staff, with a slip of stone, put your balance and staff in the rivetting stake, and drive your pivot with a few light taps of the hammer, moving your job round a bit between each tap. Point the new pivot, and put it into your turns; your balance will now show any deviation from the center. Alter the point till the balance runs perfectly true, then proceed to turn a new shoulder and pivot. All this will apply to a wheel and pinion.

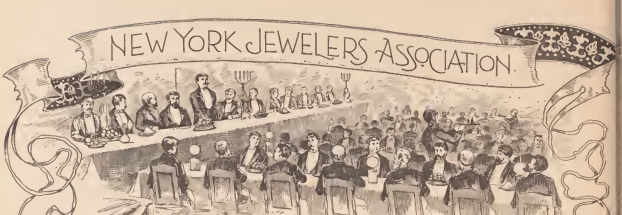
Something About Rings.

ANY VOLUMES have been written about finger rings, and antiquarians have raked over the ashes of a dead and gone past in their endeavors to ascertain when and where they were first used as articles of personal adornment. The great museums of the world are replete with examples of the rings worn in various stages of the world's history by the different peoples of the earth, and Christian and savage appear to be about equally well represented among these specimens. Primeval man seems to have spent a considerable portion of his spare time in cutting out of stone fancy ornaments for the fingers of the primeval woman, precisely as the savages of different countries do to-day for their "best girls." Later, when the metals were discovered and put to various uses, among the articles first constructed were rings for the fingers, the arms, the nose, the ears and even the ankles. Specimens of these, in iron, copper, brass, silver and gold are among the treasures of the museums of the world. As skilled workmen in metals came upon the scene, they combined the precious stones with the precious metals, and centuries ago manufactured rings for the fingers in as many varied forms and with quite as much skill as do the workmen of to-day who devote their energies and talents to this business exclusively. Indeed, modern fashion runs after the antique, and the styles and patterns of finger rings that were in use centuries ago are now being reproduced by our manufacturers and worn by the belles of modern ball rooms or by their male escorts.

But we do not propose to give here an essay upon finger rings, but having had out attention called to the fact that Dame Fashion has decreed that finger rings may again be worn, and worn in profusion if the taste of the wearer is so inclined, we recently interviewed Mr. J. B. Bowden, whose specialty is the manufacture of rings, as to the present condition of that particular branch of industry. He very courteously displayed several large safes full of rings, of every variety of style and pattern, and gave us a volume of information on the subject. We condense this information for the benefit of our readers. It is true, he informed us, that fashion has ordained that finger rings shall be worn by her votaries, and that there has been an unusual demand for them recently. For ladies' wear, the favorite rings now are composed of various stones set in clusters of two, three, four and even more. In such clusters diamonds usually appear, but not necessarily occupying the place of honor. On the contrary, a handsome pearl, ruby, emerald or opal is made the conspicuous feature of the ring, being set off by subordinate diamonds. Pearls are great favorites, and opals have regained all their old time popularity. The old superstition that opals were unlucky has given place to the equally absurd one that they are especially lucky. At least, the demand for them is steadily on the increase and embraces stones of all sizes and shapes. Garnets are also very popular, set in clusters, sometimes having other stones intermingled with them. About the latest caprice of fashion is the decree that calls for little-finger rings, the ladies having taken to wearing their finger decorations on the smallest of their digits. Bangles, intended to call attention to a pretty hand and wrist, have been superseded to a considerable extent by the little-finger rings, which serve the same purpose. Usually the little-finger ring calls for three stones, but the wearer may suit her own taste in the selection of these, choosing all of one kind or a variety. Single stones, if they are large and brilliant, are always popular and appropriate for any occasion and are much worn. The manufacturers are conjuring their brains constantly to devise new and attractive combinations of stones to catch the fancy of their fair customers, and to construct settings that shall be appropriate to the stones employed. In this way the stock to select from presents an endless variety of styles, each one seemingly more beautiful than the others.

Rings for gentlemen have also undergone changes in response to the demands of fashion. The most popular forms are the antique, fashioned after the styles in vogue among the ancient Romans. These consist of a plain, solid gold ring, having a stone upon its upper surface, with the head of some goddess or ancient warrior in intaglio. These are very beautiful, and being made convex, after the modern style, partake of the nature of what are known as glove rings, which can be worn without destroying the wearer's glove. Cameos are also popular and some of them are exquisite, different stones being used in their manufacture. Single stones, diamonds, rubies, carbuncles and the like, are also in demand, as are also the diamond-incrusted initial rings. Gentlemen's rings are a little smaller than formerly, but most of them are of the glove pattern, it being taken for granted that all gentlemen wear gloves, and do not desire to have them torn by the square corners that formerly characterized their finger rings. There is a growing demand for the old style of stones, amethysts, etc., but set in the modern style. Band rings for ladies and children are likewise coming into favor again, and these are engraved, chased or otherwise ornamented, according to the taste of the individual. For wedding rings, the popular demand is now, as it ever has been and probably will be to the end of time, for a solid gold ring. This is imperative in the "best society." An engagement ring may be almost anything to suit the tastes of the parties in interest, but the wedding ring must be of solid gold, of medium weight, somewhat narrower and thicker than those formerly used. These are less cumbersome and in better taste. But there are some persons who will not be dictated to in this matter, and an occasional solid gold ring with a diamond embedded in its upper surface is permitted to be used for love-plighting purposes, but this is regarded more as an eccentricity than a compliance with the forms of society.

The retail trade has been liberally supplied with finger rings of all kinds, as well as with all other forms of jewelry, and the public will have abundant opportunity to display its good taste in selecting its holiday presents. The array of fine and desirable goods that can be spread out by almost any dealer in the country would prove an irresistible temptation to any one with a few loose dollars in his or her pocket. There is scarcely anything in the line of holiday goods that is more acceptable to the average man, woman or child than an appropriate and tasteful piece of jewelry, nor is there anything in the line of presents that is worn so conspicuously as a reminder of the giver or that is treasured longer. Therefore, when looking for holiday gifts for your friends, remember that everybody loves and treasures jewelry, and that the dealers have choice examples to show you at this particular time.



THE annual banquet at Delmonico's of the New York Jewelers' association is always one of the most notable events of this character that occur in this city during the festive season. Delmonico has unrestricted orders to make it the most elaborate dinner possible, while the officers of the association see to it that a numerous and distinguished attendance is at hand to do justice not only to the banquet but to the sentiments of the prominent speakers who always do honor to the occasion. The most noted after-dinner speakers hold themselves in readiness to attend the jewelers' dinner, and some of the wittiest speeches ever delivered on such occasions have found utterance under the auspices of the jewelers. Statesmen, diplomatists, clergymen, eminent soldiers, lawyers, doctors, politicians and judges and modest citizens have vied with each other and with members of the jewelry trade in rendering ever memorable by their eloquence and their wit these annual gatherings.

This year the jewelers' dinner occurs on the evening of December 1, some days later than usual. As THE CIRCULAR for December is then printed and mailed for distribution, it is, of course, impossible for us to give our usual stenographic report of the proceedings. Heretofore THE CIRCULAR has contained the only full report given of the proceedings, with short hand reports of all the speeches, thus enabling members of the trade who were not present to enjoy the good things that were said, if they could not partake of the viands offered, but this year the date at which the banquet is given will deprive our readers of this treat, as we cannot in justice to our advertisers delay publication in order to secure the report. However, as the arrangements for the dinner are nearly all completed as we go to press, we are enabled to print the details as to the invited guests, the speakers, etc., and accompany these with a sketch of the history of the association, its objects, and other matters of interest.

The New York Jewelers' association was organized September 14, 1874, previous to which time the necessity for such an organization was conceded, and various efforts had been made to secure it. In 1873, a meeting of jewelers was held at the Astor House for the express purpose of forming a protective association of this kind; there was a large attendance, and the importance of the movement was fully recognized. A committee was appointed to draft a constitution and by-law1, to be reported to a meeting to be held a week later. The committee set bravely to work, and had their report fully made out at the appointed time. The meeting was held, the proposed constitution and by-laws discussed, and it was thought that the organization would be perfected at that time by all present affixing their signatures to the constitution. But, as it is too frequently the case on such occasions, the discussion was prolonged at the expense of definite action, and some one moving an adjournment for one week, the meeting dissolved. A week later the interest had died out, and there was not a corporal's guard at the meeting. So the plan fell through for the time. But there were some who were not to be deterred from the good work, and so they renewed their efforts to secure an organization during the next year, and the present Jewelers' Association is the outcome of their labors.

Having preserved the constitution and bylaws that had been previously adopted, the following named firms agreed to organize under it, and they constituted the original members of the association, viz: The Gorham Manufacturing Company; Mulford, Hale & Cottle; Baldwin, Sexton & Peterson; Carter, Howkins & Dodd; Taylor, Olmsted & Taylor; Ve. J. Magnin, Guedin & Co.; Robbins & Appleton; Chatellier & Spence, and the Meriden Brittania Company. The initiation fee was fixed at $250 and the annual dues at $250. The small number of members at first, and the necessity for having a competent secretary to devote his whole time to his office, necessitated these high charges to meet the expense. Mr. Moses G. Baldwin was chosen for the first president, Jaques Guedin vice-president, Henry Olmsted treasurer, and Francis E. Morse, now of Chicago, secretary. The succeeding officers have been as follows: 1875—Seth W. Hale, president; Philip Bissinger, vice-president, and Frank D. Taylor, treasurer. 1876—Jaques Guedin, president; E. C. Hine, vice-president, and Frank D. Taylor, treasurer. 1877—Daniel F. Appleton, president; Alfred H. Smith, vice-president, and Jaques Guedin, treasurer. 1878—Daniel F. Appleton, president; Thomas Slater, vice-president, and Jaques Guedin, treasurer. 1879—Daniel F. Appleton, president; Thomas Slater, vice-president, and Thomas G. Brown, treasurer. 1880—Ethel C. Hine, president; Wm. R. Alling, vice-president, and Thomas G. Brown, treasurer. 1881—Ethel C. Hine, president; Wm. R. Alling, vice-president, and Thomas G. Brown, treasurer. 1882—Thomas G. Brown, president; Wm. R. Alling, vice-president, and Augustus K. Sloan, treasurer. 1883—Thomas G. Brown, president; Wm. R. Alling, vice-president, and A. K. Sloan, treasurer. 1884—Wm. R. Alling, president; G. C. White, Jr., vice-president, and A. K. Sloan, treasurer. 1885—Wm. R. Alling, president; G. C. White, Jr., vice-president, and A. K. Sloan, treasurer. 1886—G. C. White, Jr., president; Alfred H. Smith, vice-president, and A. K. Sloan, treasurer. 1887—Alfred H. Smith, president; Fred. L. Douglass, vice-president, and A. K. Sloan, treasurer. During its entire existence the association has had but four secretaries, viz: Francis E. Morse, from 1874 to 1875; Joseph Fornachon, from 1875 to 1876; John W. Clearman,

from 1877 to 1878; Henry Olmstead, from April, 1878, to the present time, he having been repeatedly reappointed by the executive committee.

The above list of officers indicates that the association increased its membership very numerously after it was fairly started, and had given actual demonstration of the fact that it was not conducted in the interests of any clique, but for the good of the trade in general. After the membership had grown in numbers, the initiation fee was reduced to $125 and the annual dues to the same amount, the whole costing $250 instead of $500, as originally established. When this reduction was made, the association refunded to the original members fifty per cent. of what they had paid, so as to place them on an equality as to cost with the new members. The headquarters of the association were first in the Waltham building in Bond street, but being driven thence by the fire of 1877, rooms were secured at the corner of Broadway and Bond street. Later, when they removed to Broadway and Fourth street, and finally, in May, 1885, permanent accomodations were found at No. 142 Broadway, in the Mutual Life building. Here Mr. Olmsted is to be found daily attending to the growing business of the association, and keeping its records.

The objects of the association are the collection, preservation and dissemination among its members of information respecting the purchasers of goods in the various lines represented in the membership, notifying its members of failures, embarrassments or business improprieties. To facilitate this work, daily bulletins are sent out to the members by the secretary, embodying such information as he has been able to secure which is of interest to the trade. A collection department is also in successful operation, where members find it very convenient and profitable to place claims that have exhausted their patience and tact. The reciprocal feature of the organization, securing to its members the benefit of the latest status of the trade, based on the most recent transactions, which are given privately through inquiry sheets put before them with the daily bulletin, gives a value superior to other commercial agencies not conducted on the mutual system. It is not an uncommon observation of a member that the information received through the channels of the association on a single name, has saved him the cost of one or two years' subscription.

The value of such an organization in encouraging and fostering social as well as business relations between its members, and in healing and preventing petty jealousies, is manifested by the freedom with which members give, under their private designation, information which in olden times it was difficult if not impossible to obtain from a rival house.

In the sketch at the head of this article, our artist has sought to convey the idea that a banqueting party is having a good time. He could not, of course, give a correct representation of an event that had not occurred at the time he made the sketch, otherwise we should have had a photographic reproduction of the banquet of the association, with portraits of all the participants. However, he will be a dull person who does not gather from the illustration that the parties in interest having passed the dining stage and reached the cigars, are listening to the remarks of some "silver-tongued orator." That is precisely what the members of the association and their guests have on every occasion of this kind, and the preparations made for the 1887 banquet are a guarantee that there will be no lack of interest or of social enjoyment.

As we close up the last forms of THE CIRCULAR for this issue, the committee is busy perfecting the minor details of their banquet arrangements. These are of a most comprehensive nature and it can be said that the number who will participate in the entertainment, including members of the association, association guests and guests of members, will exceed one hundred and fifty. Among those who have accepted the invitation of the association are the following named gentlemen: His Honor, Mayor Hewitt; Hon. Noah Davis; Hon. Wm. Walter Phelps; Hon. Chauncey M. Depew; General Wm. T. Sherman; Hon. Robert B. Roosevelt; Hon. Algernon S. Sullivan; Rev. E. Walpole Warren, D.D.; DeLancy Nicoll, Esq.; Seth W. Hale, Esq., and J. C. Kinney, Esq., of Hartford. These gentlemen will occupy the platform and most of them, with others, will respond to the various sentiments proposed.

An elegant menu is being prepared especially for this banquet, which will combine artistic elegance with full information regarding the substantials provided. The cordiality with which the invitations are accepted gives abundant promise that the Jewelers' Dinner of 1887 will eclipse all previous efforts of the association in this line.

Mr. A. Carter, Jr.

WE PRESENT as a supplement to THE CIRCULAR this month an artistic and life-like portrait of Mr. A. Carter, Jr., senior member of the firm of Carter, Sloan & Co. This portrait of one of the well-known and highly esteemed veterans in the trade, is a fitting accompaniment to the holiday issue of THE CIRCULAR, and it gives us great pleasure to present to our readers so acceptable a Christmas greeting as we know this will be to them. Mr. Carter is one of the successful men of the trade, and owes his success to his indomitable courage, persistent industry, and business enterprise. He was born at Newark, N. J., January 17th, 1817, and is, consequently, very near to his seventieth birthday at the present time. Mr. Carter's parents were not blessed with a superfluity of this world's goods, and it was necessary that he should, at an early age, enter upon the task of earving his own way in the world. At the age of fifteen he entered the employ of Taylor & Baldwin, manufacturing jewelers, at Newark, and devoted the next seven years of his life to acquiring a thorough, practical knowledge of the trade. He was an apt pupil, and soon became a valuable and trusted workman, and also a favorite with his employers. Being ambitious to push himself forward, he devoted much time in these early days to study, and contrived to secure a fair business education. After completing his apprentice labors, he entered the employ of Mr. D. Colton, Jr., at Newark

Early in the year 1841, he formed a copartnership with James A. Pennington and Michael Doremus, two of his fellow workmen, and engaged in the manufacture of jewelry. They rented the premises formerly occupied by Bliss & Dwight, No. 369 Broad street, Newark, the building being the identical one in which Mr. Carter had first attended school. The firm had no salesrooms, as is now the custom, but all their business was transacted at the factory. Mr. Carter did the traveling for the firm, and this consisted at that time of occasional trips to New York, Boston and Philadelphia. The railroad to the latter city was a comparatively new affair, and it used to take five hours to make the trip. It was then considered very fast traveling when a man could leave Newark at night, go to Boston, transact business in that city the next day and return home the next night, thus being absent from home only one day. Mr. Carter was a successful traveler, and the name of his firm soon became well known in the cities visited by him. This firm lasted, however, a little less than two years, Mr. Pennington retiring on account of his health and removing to the South. On his withdrawal the firm became Carter & Doremus, and so continued for two or three years. Mr. Doremus finally had an excellent offer to go with another jewelry house, and felt it to be his duty to accept it, and so the partnership was dissolved and Mr. Carter left to run the business alone. He soon found that he could not well do the traveling and look after the factory, and he became very much discouraged for a time. So much so, indeed, that he came to New York and applied to a well-known manufacturer for a position as a salesman, but as there was no opportunity open for him, he returned to Newark, determined to

go on with his old business single handed and to do the best he could. He persevered in spite of many discouragements, working day and night to push the business and keep things moving. Sometimes he was almost disheartened, but he had made up his mind that he would succeed, and he was determined to do it or die trying. He ultimately associated with him Mr. Anthony C. Beam, and, as the business was then well established, prosperity began to smile upon him. During the succeeding years to the present time, the name of Mr. A. Carter, Jr., has been prominently identified with the manufacturing jewelry industry. There have been changes in his partnerships, and several other prominent jewelers associated with him at various times, but name of A. Carter, Jr. has always represented a tower of strength in the business. The firm of which he is the senior partner is made up to-day of young men who have grown up in the employ of the firm, and have been advanced from time to time. While they are the active members, they look to Mr. Carter for counsel and advice, and he visits the office in New York or the factory in Newark almost every day.

During his long business career, Mr. Carter may be said to have met with uniform success; of course, his business has fluctuated according to the times, and in sympathy with all other industrial and commercial enterprises, but he has never met with any reverses to impair his credit at any time, and failure is a calamity that has never visited him. During the great financial panics of 1857 and 1873, his firm suffered heavily, as did others, but it pulled through safely, paying dollar for dollar. So in 1861, at the breaking out of the war, the firm lost large sums by the repudiation of their indebtedness by many of their Southern customers, but they stood the loss without wincing and came out all right.

Mr. Carter has four sons, the eldest of whom is a partner in the firm of Carter, Sloan & Co., and is daily engaged at the factory in Newark, superintending the manufacture of their goods. Another son is in the senior class at Yale College, and one of the editors of the College literary paper. Another son is in the senior class at Princeton, while a third is now preparing for college.

Mr. Carter himself, notwithstanding his gray hairs, is as lively and active as the youngest member of the firm, and if occasion demanded it he could turn in and do as much business as any one of them. He owns a beautiful place in the suburbs of Orange, New Jersey, where he has surrounded himself and family with all the comforts of life they desire. Here he passes all his leisure time in the enjoyment of a well-earned and richly deserved competence, highly esteemed by his neighbors, and bearing the reputation of being a public spirited, enterprising and benevolent citizen. Entirely a self-made man, Mr. A. Carter, Jr., has always been an honor to the industry with which he is identified, and a splendid illustration of Yankee pluck, perseverance and industry.

California Diamonds.

SOME of the finest and most wonderful specimens of crystal or "California diamonds" were recently discovered in the McSorley & Co. gravel mine in Tunnel Ridge, about a mile and a half from town. Small specimens of crystal have been found in various parts of the county, the largest seldom exceeding two pounds in weight. But never before has crystal of such huge dimensions and exceeding clearness as the one discovered in the above named mine been known to exist. The mine in which the crystal was found is worked by means of a tunnel in gray gravel, and the specimens were discovered on the east rim of the lead, intermixed with gravel on granite bed rock 1,000 feet from the entrance of the tunnel, and about 110 feet perpendicular depth from the surface. They are of such hardness that the hardest file cannot make the least impression, and will readily cut glass like diamond. All the specimens are hexagonal cubes, terminating into pyramidal points, the sides being as smooth and regular as the finest cut glass, and of such clearness that objects can be plainly discerned through pieces a foot in thickness. They are of immense size, the largest having thirteen points starting from a single base three feet in length, two and a half feet in thickness, and weighing 500 pounds; the next in size is two feet long, eighteen inches in thickness and weighs about 160 pounds; the others, about two dozen in number, range from one foot to a foot and a half in thickness, and weigh from fifty to seventy-five pounds. One of the latter was on exhibition at the Amador and Calaveras Agricultural Fair at Ione.

It is quite apparent that this was not their original place of formation, but were tossed or brought thither by the action of the water, as the edges and corners of a number of them are chipped and ground to a considerable extent. About twenty-six whole specimens have already been found, besides a large number of broken ones, and there is no telling the number that will be uncovered as the work of sinking progresses.

Production of Gold and Silver in the United States in 1886.

THE annual report of the Director of the Mint, James P. Kimball, recently issued, shows the production of gold and silver in the United States last year to have been as follows:

APPROXIMATE DISTRIBUTION IN ROUND NUMBERS, BY STATES AND TERRITORIES, OF THE ESTIMATED TOTAL PRODUCTION OF PRECIOUS METALS IN THE UNITED STATES FOR 1886.

State or Territory.	Gold.	Silver.	Total.
Alaska	$146,000	$2,000	$148,000
Arizona	1,110,000	3,400,000	4,510,000
California	14,725,000	1,400,000	16,125,000
Colorado	4,450,000	16,000,000	20,450,000
Dakota	2,700,000	425,000	3,125,000
Georgia	152,500	1,000	153,500
Idaho	1,800,000	3,600,000	5,400,000
Montana	4,425,000	12,400,000	16,825,000
Nevada	3,090,000	5,000,000	8,090,000
New Mexico	400,000	2,300,000	2,700,000
North Carolina	125,000	3,000	128,000
Oregon	900,000	5,000	905,000
South Carolina	37,500	500	38,000
Utah	216,000	6,500,000	6,716,000
Washington	147,000	80,000	227,000
Texas		200,000	200,000
Alabama, Tennessee, Virginia, Vermont, Michigan and Wyoming	5,000	5,000	10,000
Total	$34,869,000	$51,321,500	$86,190,500

The output of gold and silver in Montana this year is expected to be close to $35,000,000, almost all of which will be extracted from gold quartz and argentiferous leads. There is not a miner in the territory who believes that more than one lead has been found out of every 100 that are in the hills waiting for the prospector's pick to uncover them. Extensive regions lying within the territory have not been prospected at all. Other great areas are known to contain large bodies of ore, but prospectors are not sufficiently numerous to permit those regions to be prospected. Well educated men who are familiar with the mineral belts of the territory, have repeatedly asserted that there is more gold and silver in Montana than there is now in circulation in the world, and that her mines will, inside of the next seventy-five years, yield $5,000,000,000, which sum equals the money in circulation to-day. This outside the yield of copper.—*Rochester Herald.*

——From $2,000,000 to $4,000,000 worth of gold is used annually in the shape of foil for gilding, lettering, edging of books, signs and ornamental painting and dentistry, gilding taking the greater share.

——The London *Economist* estimates that there is $2,000,000,000 of coin in the present circulation of the world or available for circulation. Of this magnificent total $3,200,000,000 is in gold, and $1,800,000,000 is silver.

——It is said that one's turn to be killed on the English railways does not come till 7,367,730 journeys have been made. That is to say, that that proportion of journeys has been made during the past year to each person who has been killed; 725,584,300 journeys were made last year and only 95 passengers were killed.—*The Trader.*

——The old clock which is the sole piece of furniture that was in the public rooms of the White House in Lincoln's time has been restored to its place on Colonel Lamont's mantel piece. This clock, which formerly stood where it does now, was removed to President Arthur's bedroom five years ago on account of his taking a particular fancy to it.—*Philadelphia Press.*

——It is not generally known that the finest diamond in America is owned right here in Cincinnati. It belongs to Mr. Alvin Patton. This stone is of the purest crystal white, weighs over twelve karats, and is absolutely perfect in cut and color, being the round cutting now so much in vogue. It is valued by experts at twelve thousand ($12,000) dollars.—*Cincinnati Commercial.*

——The Relief Association still prospers. There was a net gain of twenty-six this week, and the collection amounted to $366.75. Every man and woman in the employ of the company should be a member of the association, then if sickness comes there is a sum each week which can be rightfully claimed, and there need be no taking up of subscriptions. It would seem to be wise to allow no subscription papers circulated unless the person for whom they are intended belongs to the Relief Association, on the principle that if they will not look out a little for themselves, it is not the part of wisdom to help them out of a tight place.—*Waltham Free Press.*

——A. W. Franks has presented to the British Museum a most remarkable coin, lately received from India. It is a decadrachm of the Bactrian series, the first ever met with, and bears on the obverse a horseman charging with his lance an elephant, on whose back are two warriors, and on the reverse a king or Zeus standing, holding a thunderbolt and a spear; in the field is a monogram composed of the letters AB. The obverse records some victory of the Greeks over the barbarians, and the reverse may be a representation of Alexander the Great. The coin evidently comes from the district of the Oxus, and was struck about the middle of the second century B. C.

——New Zealand has never enjoyed the fame of the Australian continent for its gold produce, but nevertheless since 1857 the gold fields of New Zealand have produced in round numbers £45,000,000. The gold exported reached its highest point in 1866, when 735,376 ounces, valued at £2,844,517, were exported. The present production is valued at nearly £1,000,000. A total area of 21,000 square miles of gold and silver bearing lands is already known and proved, both metals having been found over that area at numerous localities. A bulky handbook has been written on the subject by Mr. W. J. M. Larnarch, in which information is given, not only as to the precious metals, but other minerals found in the island.

——The day has passed when an umbrella is a mere article of a certain general form, and made with a limited requirement of skill. In fact, the time has arrived when it must perform its natural design of usefulness, and also be found in harmony with taste and fashion. The manufacturers now engaged in the business have to exercise a great amount of talent in various ways to produce the original and excellent goods that are constantly shown, and which have actually made the umbrella an article of use far beyond anything which was ever thought of in former days. The present season is a successful one, and it arises in a great degree from this fact of the advancement in the manufacture of the goods.—*Fabrics, Fancy Goods and Notions.*

——"This is one of the cutest things in the watch line that has yet appeared," said Jeweler Charles S. Crossman, holding up one of the new Swiss watches designed for the use of the blind. "The old raised figure watches were clumsy, and the blind people were constantly bending or breaking the watch hands by touching them. In this watch a small peg is set in the corner of each figure. When the hour hand is approaching a certain hour the peg for that hour drops when the quarter before it is passed. The person feels the peg is down, and then counts back to twelve. He can thus tell the time within a few minutes, and by practice he can become so expert as to tell the time almost exactly. They have been in use about six months and there is a steady and growing demand for them."—*N. Y. Sun.*

——The white topaz found near Pike's Peak is almost equal in value to the diamond. Not many people know this, but I found a topaz on the banks of the Platte River this summer, and sent it to a lapidary in New York to have it cut. It weighed 828 karats, and the lapidary sent back word that he would give me $500 for it. I refused the offer, and investigation disclosed the fact that if I had sold the stone it would have found its way into some of the large jewelry stores of the metropolis, where, cut into innumerable small stones, it would have been offered for sale as genuine diamonds. Clear white topaz is worth $9 a karat. A three or four karat, well-cut stone, will cost you $30 or $40. The white topaz has the brilliancy and hardness of the diamond, and differs from it only in being somewhat transparent. Its angle of refraction differs only slightly from that of the diamond. It is rare, too.—G. F. Hobert, in the *St. Louis Globe-Democrat.*

——A watch having but one wheel is still in existence in France, though manufactured in Paris more than a hundred years ago. This watch was presented to the National Institute in 1870, being then in a deplorable state, but under the skilful treatment of an expert, harmony between the various parts was successfully re-established, so that it is even now in going order. The great wheel, which gives the watch its name, occupies the bottom of the case and center of the plate; it has sixty teeth, its axis carries two pinions, one of which receives the motive force from a barrel, and the other carries the minute work. The function of this great wheel is quadruple. First it acts on a lift, then on a lever operating on another destined to lower the axis of the watch, and lastly on a third lever, the latter serving to return power to the great wheel at the moment when the action relents by the rise of the axis.

——One of those slick gentlemen who make periodical visits through the country selling jewelry and giving purchasers back double what they paid for them, made a visit to Plattsburg Saturday. After the usual sales, in which he gave them back two or three times what they paid for jewelry, he commenced selling watch chains at $10 each and throwing in a watch and some money, which he put in the case, leaving it open so all could see it was there. He announced when putting the money in that he was putting in $1 bills, but without looking he picked up a $20 bill and appeared to put it in through mistake. A number of old and staid citizens were so certain that the $20 bill instead of the $1 went in every time that they were in great haste to get out their $10 before he discovered the error he had made. They always got, however, just what they bought, the chain, watch and bill—$1. The game was a good one, and the seller would not take money from boys or young men. Strange to state, he found plenty of old men, who should have known better, gullible enough to swallow the bait whole. He went from here to Lathrop, and found plenty of suckers there also.—*Plattsburg Democrat.*

Never without a vice—the carpenter.

The book that makes the greatest stir in society is the well-filled pocket-book.

The wife who carries on her husband's pawnshop after his decease is truly a "loan widder."

Canada's debt is nearly three hundred millions. Canada ought to abscond to the United States.

It is strange that the potters do not go into the base-ball business. They can make such good pitchers.

A dog is property when it has been stolen; but it is not property when the tax assessor comes round.

You can't always judge by appearances. The man who wears a diamond pin may be really wealthy.

The prevailing style of architecture is growing so in popularity that druggists are now selling Queen Anne pills.

A stray hair should not remain on the coat of a bald-headed man. For the hair there is always room at the top.

"Mike, did you ever catch frogs?" "Yes, sorr." "What did you bait with?" "Bate 'em with a shtick, sorr."

The single eye-glass is worn by the dude. The theory is that he can see more with one eye than he can comprehend.

It is sad to see family relics sold at auction, but the most painful thing under the hammer is generally your thumb nail.

Jay Gould says the money he has made has enslaved him, but he is making no noticeable effort to secure his emancipation.

We never saw a walking match, but we have seen a man whose hair was so red that he would be taken for a walking candle.

A new novel is called "The Kernel and the Husk." It was probably written between drinks while the Colonel's throat was husky.

Orpheus was a musician whose music had power to draw rocks, etc, toward him. The modern street musician has the same power.

Some rich men have before now given one or two valuable pictures to public galleries, but it was left for Judge Hilton to give "1807."

Pat stole a watch, Mike a cow, and both were arrested. "What time is it?" says Mike. "Faith," answered Pat, "just milking time."

Polite burglar—"Madame you are too young to wear such unfashionable jewelry; you must really permit me to recommend a new set."

Citizen (to Policeman)—"Do you think it will rain to-night?" Policeman—"Oi don't know, soor; Oi've only been on the force one wake."

You can't make a man a gentleman by calling him one. But sometimes you can please him and carry your point, and that is more to your purpose.

The man who borrows $5 from you and neglects to return it is often thought to have a poor memory, when, in fact, the man is poor and not the memory.

Wife—I found a ring on the street to-day. It is engraved F. to M. I wonder what that means? Husband (who is a speculator)—Fair to medium, I suppose.

Old Lady (at the Jersey City news stand of the Pennsylvania road)—"Have you the *Century*, boy?" Boy (very busy)—"Yes'm; chewin' tobacco or magazine?"

A rural correspondent asks: "How can I remove vermin from my hens?" Make them use combs; the roosters do. Your hens don't seem to have been brought up right.

Young Planty—"I *did* order them with high collars, Biles, but these are weally too beastly high, y'knaw." Biles—"My dear sir, you've got the shirt on upside down."

Before you call attention to the fact that a pig has no use for his tail, please remember that you have two buttons on the lower back of your coat that don't button anything.

"I sincerely trust that you will favor me with a remittance," wrote the creditor. The reply came back: "If you 'sincerely trust' what in thunder are you in such a hurry about?"

"I say, Jimmy, what effect do you s'pose the death of the senior partner will have on the business?" Second Clerk—"Well, I think we'll have a holiday on the day of the funeral."

Dentist (kindly)—"Now, does that hurt." Patient—"I don't mind your working on the tooth so much, but if you will just ease your sleeve button out of my right eye I'll be obliged."

Violent rainstorm—crowded street car—handsome lady and gentleman on platform. Gentleman (to those inside)—"Can you squeeze a lady in there?' Chorus of male voices—"Yes, certainly." Lady goes in—gets squeezed.

"I've been in every city of any importance in the United States, gentlemen, and I know what I'm talking about." Chicago Drummer—"What do you think of Chicago?" Talkative Passenger—"I've never been in Chicago."

"Prisoner, did you kill this boy?" "I did, your honor; I cut his throat. He shot me in the ear with a rubber sling, and—" "The prisoner is discharged, and the sheriff will give him back his knife and tell the janitor to sharpen it for him."

Fashionable Young Lady—"Justine, look at the weather forecast for to-day." Maid—Yes, Miss Ambella. They say we are to have strong easterly winds." F. Y. L.—"Then get out my shortest walking dress, my best stockings and my diamond buckled garters."

Socialist—"Among other things I am opposed to, is the immigration of the Chinese." Anti-Socialist—"As you admit you won't work, in what manner do they conflict you." "Confound them, they rob me of a living." "How?" "By doing the washing my wife used to get."

"John," said his wife, "don't you spend more than you ought for lunches down-town? I can't understand how it is that the money slips away as it does." "No, m' dear, I eat (hic) free lunch nearly ev'ry day." "Well, I wish you would give up free lunches, John, They cost you more than we can afford."

If you drop your collar button, there is one sure method of finding it. After you have hauled the bureau across the room to look under it, then replace the furniture and put on a pair of heavy shoes; start to walk across the room, and before you have taken three steps you will step on the collar button and smash it all to pieces.

A young woman stepped into a jewelry store and asked to look at mourning jewelry. Various articles were shown her which she examined critically, but gave no sign of buying. Finally the salesman asked, "Do you intend purchasing for yourself?" "Well, not just yet," she replied, "but my husband is very sick, and mourning jewelry is *so* becoming to me. It is just too lovely for anything."

A Bank Cashier Who had Stolen $50,000 from the Bank and skipped out to Cincinnati, Went to a Lawyer and said: "How can I Fix Matters so as to be safe from the Law?" "I will Arrange to have the Bank settle for Half the Amount," was the Prompt reply. When this had been done the Thief Expressed his Great Pleasure and Satisfaction, and inquired: "And now, what shall I Pay you for your Services?" "The Other Half, sir!" was the Calm reply. *Moral*—It is a Wonder the Lawyer left so much for the Bank.

POISING TOOL.—By adapting to one end of the ordinary depthing tool two new centers of steel wire, about a half-inch of the inner end of each of which is filed away somewhat beyond the diametrical line, a very good poising tool can be made. Harden and polish these ends, and, when properly fastened in the tool by the set screws, they will present a very nice sharp angle on which to poise the balances; the adjustment for the length of staff, of course, is made by the screw which opens the tool.

IMITATION GROUND GLASS.—Put a piece of putty in muslin, twist the fabric tight and tie it into the shape of a pad; well clean the glass first, and then treat it with the putty all over. The putty will exude sufficiently through the muslin to render the stain opaque. Let it dry hard and varnish. If a pattern is required, cut it out in paper as a stencil, place it so as not to slip and proceed as above, removing the stencil when finished. If there should be any objection to the existence of the clear spaces, cover it with slightly opaque varnish. In this way very neat and cheap designs may be painted on glass doors.

DIAMOND BROACHES.—Make your broaches of brass, the size and shape you desire; then, having oiled them slightly, roll their points into fine diamond dust until it is entirely covered. Hold them on the face of your anvil, and tap with a light hammer till the grains are imbedded. Great caution will be necessary in this operation. Do not tap heavy enough to flatten the broach. Very light blows are all that will be required; the grains will be driven in much sooner than one would imagine. Some roll the broach between two small pieces of steel to imbed the diamond dust. It is a very good way, but rather more wasteful of the dust. Broaches made in this way are made for dressing out jewels.

THE PENDULUM SUSPENSION.—The suspension of the pendulum, the pendulum spring and the action of the crutch or back fork, are all of the most vital importance. The spring should be perfectly straight and should fit into the slit of the cock without shake, and the slit should be perfectly straight and at right angles to the front of the dial or frames of the clock. The back fork should fit easily and without shake, and the acting part stand at right angles to the frames. The pendulum bob should swing exactly in a plane with the frames and the dial, and after a clock has been put in its case, before putting on the hands, it is well to get up high enough and look down to see that all these parts work as described.

DRILLING GLASS.—For drilling holes in glass, a common steel drill, well made and well tempered, is the best tool. The steel should be forged at a low temperature so as to be sure not to burn it, and then tempered as hard as possible in a bath of salt water that has been well boiled. Such a drill will go through glass very rapidly, if well moistened with turpentine in which some camphor has been dissolved. Diluted sulphuric acid is equally good, if not better. It is stated that at Berlin, glass cuttings for pump barrels, etc., are drilled, planed and bored like iron ones, and in the same lathes and machines, by the aid of sulphuric acid. A little practice with these different plans will enable the operator to cut and work glass as easily as brass or iron.

TO TAKE OUT AN ENGLISH LEVER MAINSPRING.—A good way to remove an English lever mainspring is to take out the head of the barrel, clasp the arbor square in the sliding tongs, and turn it to wind up the spring a little, and take the pressure off the outside coil, so that the hook can be pushed out of the hole with the pegwood; then pull the spring out of the barrel in the usual way. Other kinds of springs that are liable to stick at the hook should be first loosened there before pulling the spring out. Of course, the fingers must rest over the open end of the barrel while doing this to prevent the spring twisting up edgewise and jumping up in a snarl. Such an accident not only bends the spring, but is liable to strain and break it, beside the trouble of getting it unsnarled. Springs that are free at the bottom can have two or three of the central coils gently lifted up and rested over the others, raising up more with the tweezers till the whole jumps out. Some do this with all sorts of springs, but it is safer to first loosen the outer end when there is any danger of sticking at the hook.

TO FIX A PALLET STONE IN POSITION.—To fix a pallet stone or an end stone by means of shellac, it is usual to place small pieces of the latter round the stone when in position and apply heat. But very often the lac spreads unevenly or swells up; and in addition to being unsightly, it is apt to displace the stone. The inconvenience can be avoided as follows: The pallets are held in long sliding tongs; taking a piece of shellac, heat it and roll it into a cylinder between the fingers; again heat the extremity and draw it out into a fine thread. This thread will break off, leaving a point at the end of the lac. Now, heat the tongs at a little distance from the pallets, testing the degree of heat by touching the tongs with the shellac. When it melts easily, touch the two sides of the notch with it; a very thin layer can thus be spread over them, and the pallet stone can then be placed in position and held until cold enough. The tongs will not lose the heat suddenly, so that the stone can easily be raised or lowered as required. The projecting particles of cement can be removed by a brass wire filed to an angle and forming a scraper.

THE COLLET IN A CLOCK.—The collet in front of the hands is a little thing, but it is seldom that we see one right; one that will hold the hands firm and allow them to be moved in small portions of space with ease and certainty. Before making a collet, first straighten the minute spring end, put it on its place on the center pinion and put the minute wheel on its place on top of it, and then the minute hand on its place. You will now see the space there is from the surface of the hand to the pin hole in the center pinion. Make the collet so high that it will just come over the hole, and then cut a slit in the collet just as deep as the hole is wide; make the slit to correspond with the hole in every way, and in such a manner that when the pin is put in it will fit without shake. A collet made in this manner will last as long as the clock, and when the minute hand is set up the hands will always be firm, and, at the same time, more easily, and not affect the motion of the clock when they are set backward or forward. The square on the pipe of the minute wheel sometimes projects through the minute hand, and the collet presses on it in place of the hand. When this is the case it should be filed down, because the minute hand can never be held firm unless the collet be very much hollowed at the back, which it is not desirable to do.

TO TEMPER STEEL VERY HARD.—As the hardness of steel depends on the quickness with which it is cooled, there are better materials than water, which gives an unequal temper besides, the steam bubbles developed interrupting contact; water is also a bad conductor of heat, and if the bubbling and the heat did not put it in motion, it would be unfit for hardening. Water with plenty of ice in it gives a hard temper; small tools may be stuck into a piece of ice, as jewelers insert them in a piece of sealing wax. Oil is also used by them as being better than water, as it does not evaporate so quickly. The Damascus steel blades are tempered in a strong current of cold air, passing through a narrow slit; this gives a much more uniform and equal temperature than water. But the most effective liquid is the only liquid metal mercury. This being a good conductor of heat, in fact, the very best liquid conductor and the only cold one, appears to be the best one for hardening steel cutting tools. The best steel, when forged into shape and hardened in mercury, will cut almost anything. We have seen articles made from ordinary steel, which have been hardened and tempered to a deep straw color, turned with comparative ease with cutting tools made from good tool-steel hardened in mercury. Beware of inhaling the vapor while hardening.

"Find" of Pre-Historical Goldsmithing.—A precious find has lately been made in the vicinity of a city in Schleswig. While sinking a shaft, two small chased gold vessels, in the shape of saucers, with chased ornaments in high relief, were found. The saucer-shaped vessels are of the same size, and lay placed face to face in the earth. Several nail holes in each vessel admit of the presumption that each had a handle. Antiquarians presume that they were used in divine sacrifices.

Forgery.—A very curious article among the contents of the British Mint Museum, London, is the Jellalabad medal of 1842, which has been cut out of a piece of solid silver by a private soldier. The possessor of the original medal lost his treasure, and fearing punishment if he declared his loss, obtained a piece of silver and cut out a replica of the medal. The work is exceedingly well done, and doubtless escaped detection a long time. On the forgery being found out it was returned to the Mint, and was retained in the Museum as a curiosity.

Goldsmiths in China.—In China, jewelers and gold workers are permitted to keep only one journeyman. Some time ago, Emperor Kwang-Su ordered a jeweler of Su-Tzen, which city is celebrated for for its artistic jewelers, to make a gold crown for him, and in order to expedite the work, permitted him to engage several journeymen. This permission excited the envy of the other 123 jewelers of the place, and they therefore precipitated themselves upon him and killed him by biting. The murderers were tried, and the one who inflicted the first bite was condemned to death while the others were severely punished.

Steel Formerly and Now.—The designation "steel" has changed its meaning altogether in the last thirty years; by steel at that period was understood iron with a percentage of one-half to one and one-half of carbon, and which, when dipped in a red hot condition into water, would assume a certain degree of hardness. Steel was at that time almost exclusively employed in the manufacture of tools and knives, while at present the most different kinds of steel, both soft and hard, are used in the building of steamships, manufacture of rails, platings for ironclads, cannons, boilers and an infinity of uses. This great revolution in the employment of steel was made possible by the invention of Bessemer. The average price of steel is to-day very low, and considering its superior qualities, as compared to iron, steel is almost as cheap as iron.

Freak of Nature.—No explanation ever has been, or ever will be, forthcoming of the extraordinary freak of nature in the formation of the famous pearl known as the Southern Cross. Originally discovered at Roeburn, in Western Australia, it consists of nine pearls adhering together in the form of a Latin cross, seven in the shaft and two in the arms, one on each side of the shaft, nearly opposite the second pearl from the top. The pearls are slightly compressed, like peas in a pod, and no trace of any artificial junction can be observed. It has been suggested that a fragment of seaweed may have gotten into the shell and formed the frame of the construction. The pearls are of fine quality, though slightly misshapen at places, and the value of the gem is very high. Its character is unique, and so filled the owner—an Irishman named Kelley—with superstitious awe, that for a long time he was induced to hide it away and keep his possession a secret.

A Music Box in Her Bustle.—Said a Custom House inspector the other day to an El Paso del Norte reporter: "Very few people think it wrong to smuggle, and if they can manage to slip a few trinkets over the line unobserved they have no hesitancy in so doing. A short time ago there was a little excursion party in El Paso del Norte, Mexico, and I kept a sharp lookout, but one of the ladies I would have passed almost with my eyes shut, she was such a pretty girl, and had such an innocent, babyish face. I had just asked her if she had any dutiable articles, and she had just said, 'O, no, sir,' when I heard a peculiar muffled and whirring sound, and then something tinkling out an old tune. It seemed to come from under her skirts, and then I remembered hearing of a clock striking once in a woman's bustle and I tumbled to the situation. You see, that innocent little thing had bought a tiny music box in a case covered with filigree work, and somebody had suggested that she hide it under her clothes. I can't exactly say how she attached it to her, but I know that she accidentally touched some spring or something and set the thing going. It kept right on playing that tune until she got out and then began to reel off another. I thought the woman would faint, and I heard her remark to another that she would think of packing around her a clockwork infernal machine as to try that dodge again.

Trifling with a Lady's Affections.—An ardent swain bought a handsome gold chain a few days prior to St. Valentine's Day for the lady of his affection, and, being in a hurry, he paid for the chain at once and directed it to be enclosed in a box. The box was provided, and in some way or other the chain was supposed to have been placed inside, for the box was sealed and the purchaser left the shop with it. A few minutes later the jeweler found that the chain, instead of being in a box, had slipped on to the floor. The young man could not be found, and, as he made no application for the chain, an advertisement was inserted in the newspaper informing him of the mistake. Still no application was made for the chain, and the matter was not elucidated until recently, when, in consequence of something unusual in the lady's correspondence, her sweetheart went to her father's house in the country to ask for an explanation. The lady declared that he knew all about it, and she refused to be made the subject of what she considered an insult. For some time the young man vainly asserted his innocence, and ultimately the lady produced the box and explained that it reached her on St. Valentine's morning, safely but empty. From mystification the young man veered round to a sense that a practical joke had been played upon him by the jeweler, and his rage against that individual was almost boundless. He lost no time in seeking an interview with him, and was only mollified into a state of reason on being assured by ocular proof that every endeavor had been made to apprise him of the mistake.

The Scepter of Charlemagne.—The entire world of antiquarians of Europe stand trembling, as it does not know at what moment some audacious hand will brush off the cobwebs from the most cherished specimens of antiquity and label them "frauds." The following revelation is the reason: As is well known, the reputed scepter of Charlemagne has hitherto been guarded most religiously in the Galerie d'Apollon. The widely celebrated jeweler, Mr. Germain Bapst, some time ago delivered a lecture in Paris on the "History of French Goldsmithing," and ruthlessly destroyed the illusion hovering over said scepter. According to Mr. Bapst, this scepter is nothing else than a very handsome baton of a music director. The story of the designation of "Scepter of Charlemagne" is very remarkable. At his coronation, Napoleon I. expressed the desire of holding the scepter of that old Emperor of the West in his hand. The red velvet surrounding the scepter was taken off to be changed, but how great was the consternation of the goldsmith at reading upon the bared metal the words, "This baton is my property, X———, singer in Notre Dame—1280." He at once informed Ducroc, the grand marshal of the imperial household. "The emperor must be informed of this," remarked the goldsmith. "Not by any means," Ducroc replied. "Draw fresh velvet around it as fast as you can, and never betray by a syllable what you have seen. It is absolutely necessary that the emperor should die in the opinion that he has held the scepter of Charlemagne in his hand." And in this manner the pious fraud has been preserved up to the present day. The many swords and crowns reputed to have belonged to Charlemagne are not more authentic than this scepter.

TRADE GOSSIP.

The following jewelers were noticed in town during last month: Ogdensburg, N. Y., Mr. J. E. Bell, of Bell Bros., Mr. J. A. Seely, of Seely & Son; Galion, O., Mr. C. W. Bechtol of Kesselmeier & Bechtol; Sunbury, Pa., Mr. J. H. Heim; Waverly, N. Y., Mr. D. D. Knapp; Bath, N. Y., Mr. W. P. Sedgwick; Birmingham, Conn., Mr. T. S. Allis; Pittston, Pa., Mr. W. L. McDougall; St. Albans, Ver., Mr. C. H. Place; Ticonderoga, N. Y., Mr. E. A. Prescott; Elmira, N. Y., Mr. L. La France; Cleveland, O., Mr. J. Mecker, Mr. F. Strouse; Wyalusing, Pa., Mr. H. J. Hallock; Danbury, Conn., Mr. C. M. La Rue; Amsterdam, N. Y., Mr. William Mitchell; Middletown, Conn., Mr. J. E. Bullard; Toronto, Ontario, Mr. J. E. Ellis; Troy, N. Y., Mr. S. C. Tappen; Louisville, Ky., Mr. W. C. Kendrick; Oswego, N. Y., Mr. G. A. Durussel, Mr. W. L. Hoskins; Cortland, N. Y., Mr. A. M. Jewett; Deposit, N. Y., Mr. C. E. Vail; Fort Plain, N. Y., Mr. A. Dunn; Hagerstown, Md., Mr. M. Kohler; Mount Vernon, O., Mr. F. F. Ward; Schenectady, N. Y., Mr. W. Sanders, Mr. S. Myers; Aurora, Ill., Mr. E. W. Trask; Pittsburg, Pa., Mr. R. Siedle, Mr. S. F. Roberts, Mr. J. Smith, Mr. W. Wattles, Mr. G. W. Biggs; Springfield, Mass., Mr. F. E. Ladd; Easton, Pa., Mr. L. E. Bixler; New Berne, N. C., Mr. S. K. Eaton, Mr. C. S. Bell; Tyrone, Pa., M. F. L. Beckel; Middletown, N. Y., Mr. B. F. Gordon; Syracuse, N. Y., Mr. G. E. Comstock, Mr. A. Lewis; Holyoke, Mass., Mr. J. Meachum; Cincinnati, O., Mr. C. L. Rodig; Bangor, Me., Mr. J. Tibbetts; Lebanon, Pa., Mr. H. L. Kohler; Detroit, Mich., Mr. F. Rolshoven; Wilmington, Del., Mr. J. E. Ruffedog; Troy, Pa., Mr. J. H. Grant; East Stroudsburg, Pa., Mr. D. W. Davis; Matteawan, N. Y., Mr. A. Townsend; Plattsburg, N. Y., Mr. J. R. Cottrill; Columbus, O., Mr. D. Gruen; Hartford, Conn., Mr. C. H. Case, Mr. H. Crondall; Thomasville, Ga., Mr. J. A. Jerger; Lowell, Mass., Mr. E. Lamson; Knoxville, Tenn., Mr. E. J. Sandford; Corning, N. Y., Mr. D. F. Fero; Terre Haute, Ind., Mr. S. Swope; San Francisco, Cal., Mr. H. Kahn; Binghampton, N. Y., Mr. C. E. Taylor; Buffalo, N. Y., Mr. E. A. Eisele, Mr. G. J. Weil; Jacksonville, Fla., Mr. J. Gumbinger, Mr. D. Greenleaf; Richmond, Va., Mr. W. Meyer; York, Pa., Mr. K. Polack; Albion, N. Y., Mr. B. L. Mix, Mr. R. Williams, Mr. A. Ballin, Mr. C. A. Peters, Mr. J. McDonough; Sabroon Lake, N. Y., Mr. D. C. Bailey; Wilkesbarre, Pa., Mr. J. C. Wells, Mr. H. G. Shupp; Baltimore, Md., Mr. H. Tesche, Mr. L. Wiss, Mr. J. S. Macdonald, Mr. L. Seliger; Tampa, Fla., Mr. W. T. Leonard; Erie, Pa., Mr. H. Jarecki; Akron, O., Mr. D. Hilliard; Saugerties, N. Y., Mr. J. T. Jewett; Fall River, Mass., Mr. C. E. Gifford, Mr. J. L. Hicks; Philadelphia, Pa., Mr. I. Bedichimer, Mr. G. W. Banks, Mr. C. P. Herold; Reading, Pa., Mr. J. F. Bayerle; Delhi, N. Y., Mr. H. Stilson; Uniadilla, N. Y., Mr. T. Dihall; Corry, Pa., Mr. J. R. Graves; Rochester, N. Y., Mr. J. D. Harrington, Mr. D. Fahy, Mr. H. Bausch, Mr. H. C. Cohn, Mr. D. Rosenberg; Utica, N. Y., Mr. C. C. Sharon, Mr. W. L. Taylor; Boston, Mass., Mr. P. Quimby, Mr. C. F. Morrill, Mr. W. E. Spear, Mr. F. B. Bemis, Mr. G. A. Wood, Mr. J. W. Hazen; Milwaukee, Wis., Mr. A. K. Camp; Chicago, Ill., Mr. J. B. Mayo, Mr. A. J. Zabriskie, Mr. C. F. Weber; Hudson, N. Y., Mr. J. P. Van Wyck; Washington, D. C., Mr. H. Hoffa; Lancaster, Pa., Mr. E. F. Bowman, Mr. A. Rhoades, Mr. Ernest Zahn; Lynchburg, Va., Mr. H. T. Silverthorn.

—Mr. H. Wundoehl buys and sells gold, silver, platinum and alloy metals.

—Smith & Greene, of Providence, make a clean line of rolled plate chains.

—Mr. F. Jeandhcur, Jr., is a reliable and experienced gold and silver plater.

—Howard & Möhle supply manufacturers with gold and silver of any fineness.

—Sigler Bros., of Cleveland, O., have a good line of stock for the holiday season.

—The "Bijou" chatelaine watch is quite popular. It can be obtained of jobbers.

—Sussfeld, Lorsch & Co. have a large variety of opera and field glasses for this season.

—Mr. D. L. Van Moppes gives notice to the trade of the change of his address in Paris.

—C. Rossweg & Son make a nice line of rich jewelry, with and without precious stones.

—W. L. Glorieux & Co., of Newark, N. J., are kept busy assaying and refining for the trade.

—J. B. & S. M. Knowles are showing a superb line of pretty designs in solid silverware.

—L. Le Long & Bro., of Newark, make a specialty of refining and assaying jewelers' sweepings.

—The Cross Pen Co., of Boston, report continued success with their "Peerless" fountain pen.

—Louis A. Scherr & Co., of Philadelphia, carry a full line of jewelry, watches, tools, materials, etc.

—The "Lady Racine" chatelaine watch is now made in several sizes, and in nickel, silver and gold.

—C. Cottier & Son are fully prepared to meet the wants of the trade for precious or imitation stones.

—Mr. Chas. F. Irons, of Providence, has a full line in stock at all times of his gold emblem pins and charms.

—The Bay State Watch Case Co. are rushed with orders at present, and the popularity of their goods is growing.

—Mr. Eberhard Faber, maker of the famous A. W. Faber brand of pens, pencils, etc., reports a good business.

—G. W. Pratt & Co. are supplying the trade with every description of watches and jewelry, movements and cases.

—J. Briggs & Sons, of Providence, supply the trade with wire, plate, solder, etc., for manufacturing purposes.

—G. & S. Owen & Co. show some beautiful things in 14 karat jewelry, made especially for this season's trade.

—Mr. J. H. French, the auctioneer, owes his success to the fact that he is a practical jeweler of long experience.

—Moore & Horton keep in stock a good line of fine imitation diamond goods, of which they make a specialty.

—Mr. O. Schwencke, worker in ornamental hair jewelry, keeps a line of mountings for this class of goods in stock.

—Ovington Bros., of Brooklyn, are offering to jewelers special inducements to purchase from their various stock.

—Mr. Henry May reports a very fair fall trade in watches and jewelry, and his travelers' reports are very encouraging.

—Sexton Bros. & Washburn show an attractive line of Roman pearl necklaces, besides their general line of jewelry.

—The Southington Cutlery Co. has a full assortment of their wares on exhibition and for sale at 18 Maiden Lane.

—Henry E. Oppenheimer & Co. are meeting with an amount of patronage that is surely flattering to so young a house.

—Mr. Paul Jeanne shows a beautiful array of pretty mountings for diamonds. They are in all manner of designs and articles.

—Wood & Hughes are doing a good holiday business. They have some beautiful designs in silverware for the present season.

—Max Freund & Co., besides their general jobbing, are doing a large business in ornamental cases of their own manufacture.

—Stein & Ellbogen, of Chicago, are very busy with diamond orders. Their stock of diamonds is unusually large this fall.

—The Meriden Britannia Co. illustrate in this issue one of the handsomest of their beautiful line of triplicate folding mirrors.

—The Chalmer-Spence Co. are meeting the large demand for their asbestos soldering block, the merits of which are widely known.

—Wm. H. Robinson & Co. call especial attention to their line of seamless filled gold chains, made by a process entirely their own.

—Mr. George McLean, Collingwood, Ontario, made an assignment November 9th. The liabilities are said to be over $10,000.

—Henderson & Winter have a large line of rings set with their famous "golden beryl" and with opals, and all the precious stones.

—The Cheshire Watch Company is meeting with continued success with "The Cheshire," which can now be procured of all jobbers.

—The Cox & Sedgwick Mfg. Co. are up to the times with a beautiful line of novelties in pearl, onyx, turquoise, etc., for the fall trade.

—W. H. Sheafer & Co., of Philadelphia, report a good demand for their new patterns in bracelets. Their scarf pins, also, are very pretty.

—Mr. P. Hartmann, the well-known American manufacturer of gold and silver filigree, has a fine line of artistic novelties for the holidays.

—The Chas. N. Swift Mfg. Co., makers of fancy cigar boxes, are supplying many stores in the jewelry trade with a sufficient stock for the holidays.

—Mr. Charles Magnus is receiving a good share of the patronage of his many friends. His stock of diamonds and other precious stones is well selected.

—L. Sauter & Co. make rings of every description, besides a line diamond jewelry. Their facilities for doing ornamental hair work are well known.

—Mr. H. H. Heinrich is renting out his fine chronometers by the month. He is an experienced chronometer maker, and has achieved distinction in his line.

—The Manhattan Watch Company's watch is now very popular, and is made in several styles. Samples will be sent to the trade on application.

—The Ajax Metal Co., of Philadelphia, supply the trade with Clamer's Ajax Brazing Solder, the merits of which are told upon another page.

—Day & Clark show some especially neat and pretty patterns in jewelry for the Christmas trade. Their hand-chased bracelets are having a good sale.

—Oliver Bros. are in the market with a varied assortment of bugs, flies, flowers, crescents, horseshoes and other popular and pleasing designs in jewelry.

—Taylor & Brother have their show rooms well arranged with fine fancy goods. Their stock of diamonds and fine pearls is worthy of especial mention.

—Albert Lorsch & Co. write themselves as the sole manufacturers of Lorsch's patent graduated ornamented diamond watch cases, of which they carry a large stock.

—Wm. Smith & Co. are prepared for this season with a complete line of gold, silver and rolled plate chains. They show a large variety of good patterns.

—Gen. J. Dean Hawley, of Syracuse, has taken into partnership his son, W. D. Hawley and Frank H. Wells, and the new style is J. Dean Hawley, Son & Co.

—Stern & Stern are doing a good holiday business. Their line of ornamented watch cases is unusually complete this season, and their diamond stock large.

—Mr. N. J. Felix, repairer of everything almost in the way of broken watch cases, lockets, etc., also manufactures a good line of gold and silver watch cases.

—Bowman & Musser, of Lancaster, Pa., call attention to their full line of chatelaines in gold, silver and nickel. The goods are being appreciated by the trade.

—The New Haven Clock Company are busy day and night supplying customers with their Christmas orders. They have an extensive line of holiday specialties.

—Mr. F. P. Kurtz, maker of rolling mills, lathes, dies, etc., for the trade, has issued a catalogue which is interesting to those needing tools. It can be had on application.

—The United States Watch Co., of Waltham, Mass., is making a new calibre for their watch, to fit the regular standard cases. They are also making 6-size and 8-size movements.

—Crouch & Fitzgerald, makers of trunks to their royal highnesses, the commercial travelers, are also on hand with some handsome presents in leather, etc., for the holiday trade.

—Mr. F. H. Leonard, of 18 and 20 Murray street, shows a very complete line of foreign glass, porcelain and china ware. Many novelties are also shown in all classes of these goods.

—Albert Berger & Co., have just received from their house in Paris a very large importation of marble clocks, bronzes, etc., and as the designs and styles are the very latest in the European capitals, it is well worthy the attention of the trade.

—Mr. Horace D. Sherrill, of Sinnock & Sherrill, was elected on November 10th Director in the Jewelers' Board of Trade, in the place of Mr. Joseph Rabys, resigned. The election was unanimous, and has since been accepted by Mr. Sherrill.

—Springfels & Weil, of Buffalo, N. Y., manufacturers of jewelers' trays, etc., were robbed on Nov. 11th, of a quantity of plush and satin goods, used in their business. The thieves took no manufactured articles, but the value of the cloth stolen amounts to about $800.

—The Julius King Optical Company shows this season one of the most extensive lines of gold spectacles, eye-glasses, opera-glasses, etc., to be found in the city. They guarantee them to be of the best quality, and invite dealers to send for a selection package with list of prices.

—Mr. Olof Johanson has introduced a novel little contrivance, which embraces a winder for a Waterbury watch, a key ring, a cigar cutter and a nail cleaner, all in one piece. These are sold to the trade at $1.25 per dozen. Mr. Johanson carries a full line of Waterbury watches and also of watch material in general.

—Mr. H. Z. Rhoads, of Lancaster, Pa., who has been in the jewelry business for twenty-five years, is about to retire. His store is quite an important one, and Mr. Rhoads has long enjoyed the patronage of many Lancaster people. His success was well deserved, and he retires with the best wishes of his many friends in the trade.

—Woglom & Miller direct their exclusive attention to the manufacture of fine jewelry in black onyx. The position they have attained in this field is an enviable one, yet fully deserved.

—The Baldwin & Gleason Co. (limited), are doing a large amount of celluloid printing by their patented process, and selling their handsome celluloid show cards to jewelers and fancy goods dealers.

—Alfred H. Smith & Co., the well-known diamond importers, have an unusually large and choice stock of diamonds and other precious stones in stock, to which they invite the attention of the trade. Particular attention is directed to the richness of the mountings of the precious stones they offer and to the many novelties to be found in their stock.

—M. Fox & Co. recently received a special invoice of precious stones for the holiday trade, including rubies, emeralds, sapphires and fancy pearls, besides a large assortment, in sizes and qualities, of diamonds. Of the colored gems, there are many especially fine ones of different sizes. One lot of sapphires contains some particularly fine stones, ranging in size from three to seven karats. The cut of these goods is also excellent.

—J. B. Bowden & Co. have a large and choice line of fine gold rings to select from, and rings of every variety and pattern may be found in their stock. While they make a specialty of fine gold rings, they also carry a full stock of rings with stones of all kinds and in the latest styles of settings. They make nothing but rings, and are constantly introducing novelties in this line.

—Mr. L. A. Cuppia invites attention to a large line of novelties he has on hand in the way of Geneva silver filigree goods, which are very novel in design and exquisite in workmanship. He also has something new consisting of bracelets, hairpins, etc., made of oxidized silver and gold in combination. He carries in addition a full line of jewelry of all kinds, which will well repay careful examination.

—The American Watch Tool Co., makers of the famous Whitcomb lathe and a general line of watch tools, are running their usual compliment of workmen, and report a very good business. They have recently compiled and published a Table of Equivalents, a useful and valuable acquisition to a machine shop, watch factory or watchmaker's bench. This table may be had on application to the Watch Tool Co.

—Rogers & Bro., 16 Cortlandt street, manufacturers of silver-plated ware, display a great amount of originality and inventive talent in the production of goods in their line, and their stock abounds in new and novel designs in plated ware, and an endless variety of goods of this class. They carry the largest stock to be found in the lower part of the city, and their new location is very convenient to buyers.

—The failure of S. Brunswick & Co., of 17 Maiden lane, was announced on the 10th of November, and was a general surprise to many. Their statement to the Secretary of the Board Trade puts the unsecured liabilities for merchandise at $80,000, of which $40,000 is owing to European firms, and $30,000 in the United States. The liabilities for money borrowed in this country are put at between $20,000 and $30,000.

—The "Success" initial ring, manufactured by J. T. Scott & Co., has fully warranted its title, for it has proved to be a pronounced success and a great favorite with the trade. The initials being interchangeable, renders it unnecessary for a dealer to carry a large stock of rings, but can fit any desired initial to any ring at a moment's notice. Their split second watch known as "The Leader" is a handsome open face watch that is very desirable.

—The stock of fine grade watches shown by J. Eugene Robert & Co. this season, surpasses even the high standard this house has set for itself in the past. Their complicated watches are marvels of mechanical skill, and are well worth inspection. The Agassiz ladies' watches are cased in an infinite variety of styles, from the plainest to the most ornate. They carry a large assortment of movements fitting American cases, including 6-size in various grades.

—The Lee portable fire escape is a patented article, which at last meets a want that traveling men and others have long felt for. Many a traveler, through the demand of his wife perhaps, uses up a large portion of his trunk with a large and unwieldy coil of rope, wound up in such a way that even if a fire did occur it would take many important minutes to unwind. But now comes the patented fire escape which allows one to lower himself from a sixth story window with ease and safety. They are made in different styles for factories, hotels, &c., and also for traveling men. The latter only weigh 14 ounces, without the rope, and are convenient and simple of manipulation. Attention is called to the advertisement upon another page.

—Payne, Steck & Co. are doing a fine fall trade.

—Randel, Baremore & Billings are very busy at present.

—Kuhn, Doerflinger & Co. are having a successful season.

—Leimbach Bros. have a good stock of selected diamonds.

—The Waterbury Clock Co. are doing a large fall business.

—J. W. Richardson & Co. carry a full line of emblem goods.

—Pforzheimer, Keller & Co. are doing an excellent fall trade.

—Jos. Fahys & Co. make an announcement upon another page.

—Booz & Co., of Philadelphia, are having an excellent fall trade.

—M. B. Bryant & Co. have a good line of novel patterns in rings.

—The Safe Fountain Pen Co. have an announcement upon another page.

—Aikin, Lambert & Co. show a large variety of novelties in all lines.

—Wm. S. Hedges & Co. are constantly receiving invoices of choice gems.

—The Kossuth-Marx Jewelry Co. (limited), shows a fine holiday stock.

—Mr. Chas. Jacques shows some pretty novelties imported for this season.

—A. Bernhard & Co. have a fine assortment of diamond and other jewelry.

—Lewis Bros. show some quaint designs in oxidized silver jewelry.

—Ferd. Fuchs & Bro. show a handsome line of cane heads in silver and gold.

—Mr. T. G. Hawkes, of Corning, N. Y., manufactures rich cut glassware.

—The Providence Jewelers' Board of Trade now includes 108 members.

—Mr. John A. Riley illustrates in this issue some pretty patterns of hair pins.

—Mr. Leon P. Jeanne is having much success with his platinum lined settings.

—The Middletown Plate Co. have some excellent patterns in their line this season.

—Mr. Joseph F. Chatellier shows some nique designs in jewelry for the holidays.

—Marx & Weis report a steady demand for their popular "Half-shell" watch case.

—Groeschel & Rosman show some pretty enamel flowers mounted in unique designs.

—The Phœnix Glass Co. make a rich display at their salesrooms, at 729 Broadway.

—The Illinois Watch Company's line of ladies' watches is its special stronghold.

—Mr. Chas. S. Platt, of 4 Liberty Place, refines and assays jewelers' sweepings, etc.

—The American Mfg. and Supply Co. are supplying the trade with self-winding clocks.

—The United States Mutual Accident Association is increasing in poplarity and stability.

—Mr. T. B. Bynner, of 177 Broadway, is headquarters for many desirable lines of jewelry.

—The N. Y. Standard Watch Co. are meeting the increasing demand for their watches.

—Mr. Alex. Milne, of Newark, makes a large variety of crowns for stem-winding watches.

—G. B. Barrett & Co., of Pittsburg, are well stocked with choice goods for the holiday trade.

—E. Ira Richards & Co. have an extensive variety of new patterns in plated and silver jewelry.

Mr. Henry T. Spear, of Boston, died very suddenly of apoplexy, November 24, aged 73 years, 6 months and 25 days The funeral service was held Sunday, 27th of November.

—The "Invisible Setting," for precious or imitation stones, is meeting with a fair demand.

—The Brooklyn Watch Case Co. illustrate in this issue several pretty designs of their cases.

—B. & W. B. Smith illustrate in this issue a handsome interior which they recently fitted up.

—Mr. Chas. Wm. Schumann is having a good sale of his celebrated "A. Lange," Dresden, watch.

—The Elgin Watch Co. have a notice in their advertisement which should interest every retailer.

—Ketcham & McDougall are the manufacturers of one of the best known lines of thimbles.

—Odenheimer & Zimmern show a handsome line of interchangeable initial rings, lockets, etc.

—Cady & Olmstead, of Kansas City, Mo., had a fine display at the fair held in that city recently.

—The Pairpoint Mfg. Co. have an advertisement in this issue to which we would call attention.

—Mr. A. N. Clark, of Plainville, Conn., still sells his popular little watch keys in great quantities.

—Birch's patented self-adjusting keys for watches are made in many useful and neat patterns.

Mr. S F. Merritt's patented eye-glass holder, made in several styles, is said to give perfect satisfaction.

—Ferd. Bing & Co. carry in stock an imposing array of artistic novelties suitable for holiday sale.

—H. Gautschi & Sons, of Philadelphia, have a good stock of musical boxes of excellent quality.

—Goddard & Moses, of Richmond, Va., held their opening day recently, which was a great success.

—The old firm of John Dittmeier & Co., Rochester, N. Y., has been succeeded by Judson & Robie.

—The Hartford Silver Plate Co. are showing a greater assortment of their plated ware than ever before.

—Kendrick & Davis, of Lebanon, N. H., supply the trade with their patented dust-proof watch keys.

—H. M. Smith & Co. make a good quality of gold pen, and carry a line of watches and jewelry in stock.

—The Geneva Optical Co. have an instructive advertisement upon another page interesting to all opticians.

—The Duebel Watch Case Co. has withdrawn from the American Watch Case Manufacturers' Association.

—Blancard & Co., manufacturers of diamond settings, hollow balls, etc., are doing an excellent business.

—The *Jewelers' Weekly* has issued its "souvenir birthday number," a handsome and useful little volume.

—A. Luthy & Co., have some especially neat and pretty designs in mountings for brooches, scarf pins, etc.

—J. Ullrich & Co. are having a good trade in stylographic and fountain pens of the "Independent" brand.

—Mr. A. R. Brattin, of Kansas City, Mo., is one of the enterprising wholesale jewelers of that proud young city.

—The Hampden Watch Co. are running to their full capacity to meet the growing demand for their watches.

—Fisher & Sons, of 1 Maiden Lane, are having continued success with their "Acme" clock movement support.

—Bühler & Nanz are still having a run on their half pearls, of which they recently made large importations.

—A. G. Schwab & Bro., of Cincinnati, have paid particular attention this fall to novelties in gold and plated jewelry.

—Thomas G. Brown & Sons have an important notice in our advertising pages to which we direct attention.

—Mackinney, Smith & Co. show some beautiful patterns of white-stone jewelry, set with their "Diamanta" stone.

—The Towle Manufacturing Company, of Newburyport, Mass., have a beautiful inset this month of four pages, upon which they illustrate in a very handsome style, goods of their manufacture.

—Roseman & Levy call attention to their purchase of the entire lot of "Champion" cases made by the Dueber Company.

—Mr. Chas. Leo Abry advertises the Vacheron & Constantin watch, which is now quite popular and is selling well.

—Krementz & Co. are still bringing out new designs for the holidays. Their one-piece collar button is widely known.

—Smith, Lesquereux & Co., of Springfield, Mass., make a line of eye-glasses, spectacles and thimbles of all descriptions.

—Heeren Bros. & Co., of Pittsburg, are numbered among the prosperous and enterprising jewelry firms of the country.

—Jos. P. Wathier & Co., of Chicago, have an interesting advertisement in this issue to which we desire to call attention.

—Falkenau, Oppenheimer & Co. are very active at present, and their line of mounted and unmounted goods is extensive.

—Louis Strasburger & Co. are especially prepared to supply their customers with the latest importations in precious stones.

—Hinrichs & Co. show a beautiful assortment of imported fancy goods, glass, porcelain, brass and metal wares of all kinds.

—The Bradley & Hubbard Mfg. Co. are rushed at present with buyers of holiday goods. Orders are also pouring in fast.

—Mr. H. L. Zahm, of Lancaster, Pa., one of the oldest jewelers in that city and a brother of Mr. Edward J. Zahm, died on November 17th.

—The Seth Thomas watches are being sold almost as extensively as the clocks. This company are also doing a large business in tower clocks.

—Mr. Wm. Archibald is an experienced setter of stones of all kinds. He also makes a specialty of procuring stones for the trade.

—Kirby, Mowry & Co., of Providence, make a fine line of solid gold jewelry including a handsome assorment of imitation diamond goods.

—L. & M. Kahn & Co. have some desirable goods in watches, diamonds, etc., which they receive from their branch house in Europe.

—Keller & Untermeyer make a celebrated line of watch cases of the decorative style of ornamentation, which is very popular at present.

—B. J. Cooke's Sons, of Philadelphia, are well established wholesale dealers in clocks and bronzes of foreign and domestic manufacture.

—Mr. Austin M. Edwards, of Buffalo, N. Y., failed Nov. 18th. His liabilities were placed at a little over $20,000, assets, about $18,000.

—Morris Jacobs, of Cleveland, O., made an assignment November 17. His liabilities were placed at $30,000, and assets at about $15,000.

—Cross & Beguelin, who carry a large line of watches, jewelry, tools, etc., are also large dealers in diamonds, of which they have a good stock.

—Mr. Louis Kaufman, of 14 John street, has an extensive general stock of jewelry and watches, and many special things for the Christmas season.

—Mr. Chas. E. Juillerat, the musical box importer, of 21 John street, has an advertisement upon another page to which we desire to call attention.

—The F. Kroeber Clock Company has a large line of novelties for the holiday trade. Thus far the demand for the new patterns has been quite brisk.

—The R. Wallace Sons Mfg. Co. are rushed to their fullest capacity in plated ware. Their solid silver goods are also meeting with a fair demand.

—Welch & Miller have a fine array of beautiful cases for all sorts of jewelry. They are made in plush, velvet, leather, etc., and a large stock is kept on hand.

—We desire to call attention to our advertisement upon another page, of books we have for sale for jewelers, watchmakers, engravers, etc. These are all text books of the most practical importance to beginners and advanced workers, and any desiring them can procure them on receipt of the price.

—The American Watch Tool Co., of Waltham, Mass., advertise that they "shall sell in 1887, 650 Whitcomb lathes." This lathe is well-known and popular.

—Mr John Foley, manufacturer of gold pens, etc., shows many novelties this season. His fountain and gold pens are well known to the trade and have no superiors.

—The Gorham Mfg. Co. use their page this month to make an extra announcement to the trade. Attention is called to this page, opposite the "Gossip of the Month."

—Joseph G. A. Kidd, the colored porter recently convicted of stealing from his employers, Wheeler, Parsons & Hayes, was sent to Sing Sing Prison for a term of five years.

—Simons Bro. & Co., of Philadelphia, make a specialty of mountings for canes and umbrellas. Their other stock comprises jewelry of all kinds, thimbles, watches and diamonds.

—One of the men at the Elgin Watch Co.'s factory recently inherited $7, and the local paper hints that he may either open up an opposition watch factory or buy out the Elgin.

—Giles, Bro. & Co., of Chicago, Ill., have received several important endorsements of the merits of their anti-magnetic shields, which are now meeting with marked favor among the trade.

—Mr. Henry Zimmern, Maiden Lane, has patented an improved watch key which is well worthy the attention of the trade. An illustration and description of it will be found in another column.

—The Waltham Watch Tool Co. are making plans for a new factory, which, when completed, will give them sufficient facilities to meet the growing demand for the popular Hopkins and Waltham lathes and Gem chucks.

—Stern & Stern have sent out to their patrons a beautiful litho graphic card fit for framing. The subject is a handsome woman seated before her jewel case, holding in her hand one of Stern & Stern's beautiful decorated watches. The card is artistic, rich and neat.

—Mathey Brother & Mathez have the most exquisite line of small Ladies' Watches, some of most unique designs. This firm have always the newest styles that come out and dealers should call and see their stock. Their fine complicated watches to which we have before called attention are marvels of science and mechanism combined.

—E. A. Thrall invites an inspection of his extensive assortment of American watches. The popular movements are comprised in his stock, put up in every variety of cases. The cases include every novelty in the way of patterns, from the plain case to the highly engraved ones, with every possible variety of symbol in full display. He also carries a full of jewelry, including a choice stock of opals, for which there is at present so active a demand.

—Carter, Sloan & Co. are among the most extensive manufacturers of jewelry in the country, and always carry a most extensive and varied stock of goods. Few firms are more enterprising or introduce more novelties to the trade. At their large factory at Newark they keep several designers constantly employed designing new styles and patterns of goods. Almost everything in the way of personal adornment can be found in their stock, and many novelties are offered for the holiday season.

—Railroad corporations are now demanding, among other requirements, that the watches carried by their employees shall be either not susceptible to or protected from magnetic influences. Watches containing Paillard's patent non-magnetic balance and hair springs fulfil this requirement and, we are informed, are accepted by the inspectors. These springs have been tested under all conditions, and certificates have been given by the experts who made the tests that they perform all that is claimed for them.

—The Jewelers' Security Alliance is receiving flattering consideration from the trade. Recently the membership roll has made large strides in advance, which is due to the fact that the purposes and results of the work of this organization are becoming better understood. The good work of the Alliance in several recent burglaries is beginning to show some effect, and jewelers are joining because they are prudent and wise. Reports of robberies are coming in from all parts of the country daily, but they are all of stores whose proprietors are not members of the Alliance. The Alliance is to be congratulated on its growing success, and we b speak for it the earnest cooperation of our readers. The larger its membership the stronger its power to subdue crime, and the small cost attaching to membership brings it within the reach of every jeweler.

—The Dennison Mfg. Co. have some elegant pieces in plush cases for jewels, games, etc., for the holiday trade.

—Hecht Bros. have a complete line of fans of all description in stock besides a line of fancy and holiday goods.

—Wm. A. Smith & Co., of Providence, are very successful and popular refiners and assayers of gold and silver.

—R. & L. Friedlander carry in stock a full line of jewelry, besides their stock of tools, materials, optical goods, etc.

—Peterson & Royce show for the holidays some very excellent things in precious stones, and have a good stock.

—Simpson, Hall, Miller & Co. have an excellent variety in patterns and finishes upon their plated ware for this season.

—E. J. Weeks & Co., of Elgin, Ill., were closed by Chicago creditors. The liabilities are stated at less than $5,000.

—Jacot & Son are reaping the reward of their judicious advertising. Their musical boxes are positively in demand.

—Oppenheimer Bros. & Veith are doing an unusually large business in diamonds, loose and mounted, in their own designs.

—McCall & Newman, of Philadelphia, are still filling a large demand for their old "Original Gold Crown" filled rings, which are made in two qualities, stamped as indicated in their advertisement this month.

—The firm of Bliss Bros., Attleboro, Mass., composed of Charles E. and Everett B. Bliss, is the successor to Bliss Bros. & Everett, which was dissolved on November 1. The New York office has been discontinued.

—The Chas. D. Pratt Co., are making special inducements to close out their remaining stock before the end of the season. They still have some remarkably fine pieces of marble, bronze, terra cotta, etc., and in onyx clocks they have done a large business.

—King & Eisele, Manufacturing Jewelers, Buffalo, N. Y., say they are so busy they cannot issue "Snap No. 3," before the holidays, but will run their Snap No. 2, up to New Years. Those who desire to purchase will find their advertisement in this issue.

—The *Decorator and Furnisher* has been purchased by Pratt & Sandford, who will improve its character and give a new impetus to the enterprise. This is a journal of legitimate tendencies, is profusely illustrated, and each number contains a variety of articles on decorative art that makes it exceedingly valuable.

—Henry Dreyfus & Co., are already in their new office at 25 Maiden Lane, which they have had fitted up in style, with an eye to convenience. Desks are provided for customers and every arrangement is for their comfort and the easy transaction of business. This firm is now receiving frequent importations of fine precious stones.

—The Aurora Watch Company has a new set of officers, as follows: President, Mr. H. Huffman; Vice-President, Mr. H. H. Evans; Treasurer, Mr. A. Somarindyck; Secretary, Mr. E. W. Frank. Mr. G. F. Johnson is the superintendent, and Mr. J. H. Webber the manager. This company contemplates putting on another story on their machine shop.

—Mr. John W. Webb, of Dallas, was recently robbed of about $7,000 of stock by two sharpers, who came in his store in the guise of intending purchasers. They were dressed like farmers, and one engaged Mr. Webb's attention in one part of the store while the other filled his pockets from the front show case. No clue has yet been discovered of the robbers.

—The importation of silver ore from Mexico at El Paso in October was 5,276 tons, valued at $265,808. This gives an average of 176 tons a day, and an average value of $50 a ton. The average is higher by thirty tons a day than in any preceding month, but the ore is of a lower grade than usual. The importations of silver bullion for October were $190,457; silver coin, $729,169; gold bullion, $9,656; gold coin, $100,522.

—The proceeds of the sale of the crown jewels were equal to $1,440,000. The unsold jewels will be distributed between the Museum of Natural History, the School of Mines and the Louvre. At the School of Mines will be placed the most scientifically interesting of the precious stones, to the value of $9,000. The Louvre will have the regent, the state sword, the reliquary brooch, one of the Mazarin diamonds, the watch of the Bey of Algiers, a great ruby, a drago in pearls and enamel, and the insignia of the order of the Little Elephant of Denmark. The value of the jewels to be allotted to the Louvre is $1,550,000.

—Subscribers to THE CIRCULAR can now purchase of us for $1.25 an elegant cloth and gilt binder for the monograms, of which we publish two sheets at a time. At the end of the series, therefore, our subscribers will have a book for a few dollars, which was originally published for fifteen dollars.

—The Trenton Watch Company has evidently come to stay. They report their sale "very satisfactory," and that their watch has been received by the trade as "a marvel." Their production is increasing with their trade, and the evidence goes to show that a "low-priced watch, keeping good time," is in demand. They are turning out two hundred per day, with hinged back and bezel, a great improvement over their first production. They have no New York office, and sell directly from the factory.

—Mr. Webb C. Ball, of the Ball Jewelry Store, Cleveland, O., recently took two watches made by the General Non-Magnetic Watch Co. into the factory of the Brush Electric Light Co., in that city, and subjected them to the test of placing them upon the large dynamo, which is said to be the largest and most powerful in the world. One of the watches was even taken out of the case, but after the test they were both found undisturbed in the motion of the balance wheel. This was probably as severe a test as could be made.

—S. F. Myers & Co., 48 and 50 Maiden Lane, report a particularly heavy Fall trade, and take particular pride in the smoothness that their increasing trade has been moving this Fall, their facilities having been so greatly enlarged to meet such a demand. They show a great many new novelties in their several departments, calling particular attention to their watch, clock and optical goods lines. They are just issuing a supplement to their regular catalogue, which they will be pleased to forward to such as are entitled to it.

—The E. N. Welch Manufacturing Company is fully at home in its newly fitted up salesrooms No. 6 Warren street, near Broadway. Buyers of holiday goods will find here a great variety of novelties, including clocks, bronzes, and other fancy goods. This company maintains its reputation for the manufacture of fine goods and for the excellent character of their workmanship. They carry a full and beautiful line of French clocks in every variety of case, from which choice Christmas presents may be secured. Dealers are invited to call and examine.

—Fowler Bros. has done so much to popularize crape jewelry and have been so successful in its manufacture that customers frequently will buy nothing else but ask for Fowler's make. They have certainly succeeded in making beautiful and desirable mourning goods, and in introducing many novelties. Their lines this season exceed and excel anything they have previously offered the trade, and will well repay examination. They especially invite attention to their Mexican moonstone goods, which are like Hungarian opals, and have all shades of color.

—THE CIRCULAR this month presents to its readers for careful perusal the advertisements of 227 firms. At this season of the year many of them are offering special inducements to buyers in an unusually large number of novelties made especially for the Christmas trade, or special discounts to close out their holiday stock. Careful manufacturers and jobbers usually endeavor to lighten their stock just before the first of each year, so that their annual stock-taking shall show the best results and the least possible amount of unsalable or undesirable goods.

—L. Straus & Sons, 42, 44, 46 and 48 Warren street, Importers of Bric a-brac, Porcelaines and Bronzes, is perhaps the only house in these lines that continues to receive shipments of new goods until the 15th December, thus enabling those who have visited their spacious establishment in the early part of the season, to find fresh and attractive article even as late as this. For several years past this house has imported a very large number of styles with a view to especially meeting the wants of the jewelry trade. Their stock abounds in attractive novelties which they control exclusively and which cannot be found elsewhere.

—Mr Samuel A Baldwin, the popular salesman for W. E. White & Co is also a member of the Jewelers' and Tradesmens' Company. The members of this company have been working hard recently to increase the membership of their organization, and, through the direct efforts of Mr Baldwin, one hundred and eighteen new members were secured. At the recent meeting of the board Mr. Baldwin was presented with a cake in recognition of his services. The Jewelers' and Tradesmens' Company is meeting with splendid success and is growing rapidly. New members are still received without paying the initiation fee which will shortly be required, after a certain number have been received

—F P. Locklin & Bro. make a line of cane and umbrella heads, which should be seen by all who carry such things in stock.

—Smith & Knapp, general jewelry and watch jobbers, also import diamonds largely, and manufacture watch cases and jewelry.

—The assignment of George Lamontagne, of Quebec, was announced early last month, with liabilities stated at $5,000.

—The Geneva Non-Magnetic Watch Co. are showing great enterprise and ingenicity in bringing their goods before the public.

—Mr. W. F. Nye, of New Bedford, Mass., claims many superiorities in the quality of his oils for watches, clocks and chronometers.

—Some of the jewelers in Omaha, Neb., and neighboring places, contemplate forming a mutual benefit and protective association.

—Mr. F. W. Gesswein has a very complete stock of machinery, tools, etc., included in which are many practical patented articles.

—Schleicher, Schumm & Co., of Philadelphia and Chicago, advertise that they have already sold 20,000 of their "Otto" gas engines.

—David F. Conover & Co., of Philadelphia, carry in stock a full line of all goods manufactured by the American Waltham Watch Co.

—D. C. Percival & Co., of Boston, are especially prepared to please their patrons this season with a line of goods adapted to their needs.

—The *Watch Dial*, for November, comes out with a large supplement in the shape of a handsome lithographic picture. The paper itself, now in its second month, is filled with highly interesting matter

—M. J. Paillard & Co. are again attracting crowds to their windows by their unique display of fancy mechanical figures. Besides their noted line of musical boxes, they sell these mechanical pieces which are attractive for window display.

—S. Cottle Co. have just introduced a new collar button, solid gold, struck up from a single piece. It is absolutely solid and in one piece, and its construction beats the fifteen puzzle. Veteran manufacturers have examined it and given up in despair the attempt to conceive how it is made. It is very handsome plain, but is adapted to the setting of stones if desired. This firm has a great variety of fine diamond goods, among which are many novelties.

—The factory of Ott & Brewer, Trenton, N. J., continues in full operation, and has struck the key-note in art in the quality and variety of their egg shell Bellack china. Their productions in china, decorated in artistic form, are especially adapted to the cultivated buyer and are profitable to the jewelers handling the same. Their show rooms at their factory present a marvelous display of artistic vases and novelties most desirable for the holiday trade. Their goods are handled by the best houses in the trade, which is a sufficient guarantee of their merit.

—Simons Bro. & Co., of Philadelphia, have on exhibition a piece of jewelry of rare workmanship and beauty. The design is that of the Pansy, the size of a natural flower; the leaves set with the finest opals no larger than pin heads. So remarkable is the workmanship that it has the appearance of being one large opal cut into the shape of the flower. The edges of each leaf have a row of small diamonds set in them, giving the appearance of dew still clinging to the flower. No setting of any kind can be seen from the face of it. The effect, brilliancy and beautiful combination of color in the jewel surpasses anything of the kind heretofore seen.

—The office of THE CIRCULAR during the past month was visited by many subscribers, some of whom came to testify their appreciation of THE CIRCULAR, others to renew their subscriptions. During the past month many jewelers were in the city buying in goods for the holidays. All whom we have seen gave very encouraging reports of the prospects for the holiday trade and we also learned that many of them are varying their lines somewhat by laying in fine stationery, porcelain ware, art pottery, bric-a-brac, etc. This is excellent policy, for a jewelry store should be fitted up in artistic style and anything that will improve its appearance should be secured. Such goods are not only attractive and salable but they serve to direct attention to the jewelry stock. Jewelers generally will find it an advantage to keep stationery, not only such articles as fancy paper cutters, envelope openers, card cases, inkstands, etc., but also a line of fine paper and envelopes. These should be his own specialties, stamped under the flap of the envelopes with his name. This has been done by many of the fashionable jewelers in the country and there is no question that aside from the profit in dealing in them, the prestige gained in furnishing the elite of the city with stationery seemingly of the jeweler's own make has been considerable.

—Few things are more annoying to a business man than to find, in the midst of the work of attending to his correspondence, that his favorite pen has got out of order or that his supply of ink has run out, and that he must stop to remedy these defects. What every business man should have upon his desk is a trustworthy fountain pen that carries its own ink and is always ready to do its work on demand. Such a pen can be picked up and laid aside again according as the writer is interrupted, and is ready to resume work without delay. The Waterman "Ideal" fountain pen will do this to perfection These pens are made in a great variety of sizes and to suit the peculiarities of every writer. A favorite size is a large and long holder, that contains ink enough to write a sermon with, while those for the pocket are equally trustworthy, only they do not hold as great a quantity of ink.

—The Waterbury Watch Company having been so often reported by the daily press as being engaged on a new style of watch, we have learned that there is no foundation for such reports. On the contrary they are devoting all their energies to the Waterbury as at present constructed. They sell it to legitimate dealers only, and are having a constantly increasing success with their new system, which they intend putting to a thorough test. They have received many very large orders from clothing, tobacco and grocery houses, but have refused to fill them. The Waterbury watch, so the manufacturers desire to have people understand, is in the market for the purpose of educating boys to carry watches. It is the boy's first watch, and, after he has carried it long enough, he may be trusted with a watch of a higher class. It is not claimed to be a high grade watch; but as an educator of a watch-carrying public, it is unquestionably a good thing. Its success now is unprecedented, and the company is very busy.

—Miller Bros., 37 Union Square (recently No. 7 Maiden Lane), are among the old, well established and successful firms in the jewelry business whose name has become familiar to our readers since the first issue of this publication. Their unique, artistic and original designs have long commanded the admiration of connoisseurs, the superb product of their skill, not only in its originality and workmanship, but in its quality, bears the stamp of true excellence. This enterprising and progressive firm personally visit the great diamond and precious stone markets of the Old World and import direct the rarest and purest gems that can be found As manufacturers of first-class jewelry they have a wide reputation; many of their designs are not obtainable elsewhere, as they are protected by letters patent. The admirable location of their office, with its elegant fittings, is not surpassed by anything in the trade, and presents the appearance of order, system and perfect business methods, where either customer or friend will find a true welcome and enjoy the satisfaction of polite and prompt attention.

—The Spencer Optical Company offer many novelties in the optical goods line, and are continually introducing new features in their numerous productions. Among the latest novelties are their very beautiful lorgnettes, mounted in tortoise shell and celluloid frames. These are much worn by ladies at places of amusements, and are also found very useful in shopping excursions. Another line of very handsome goods is made up of their aluminium opera glasses. These cases look like silver, but will not tarnish, are handsomely embossed in different patterns and have won deserved popularity. Their exceeding lightness is a feature that strongly recommends them. This company has lately introduced a new style of gold eye glass, which fits lightly on the nose, has a cork cushion, and causes no friction whatever. It does away with the compression of the muscles about the nose which so often proves irritating to the eyes. Their gold spectacles are similarly protected, doing away with all friction about the nose and affording the utmost comfort to the wearer. These are made in accordance with patents recently secured by the company. A full line of optical goods, many articles being suitable for holiday presents, will be found at the salesrooms of the company, No. 15 Maiden Lane. The Spencer company made an extensive and beautiful exhibit of a full line of their goods at the American Exposition in London. The competition was very great, embracing all the principal optical goods manufacturers of Europe and America. The first prize for spectacles and eye glasses was awarded to the Spencer Optical Company.

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THE JEWELERS' CIRCULAR
AND
HOROLOGICAL REVIEW.

OFFICIAL REPRESENTATIVE OF THE JEWELERS' LEAGUE, THE NEW YORK JEWELERS' BOARD OF TRADE, AND THE JEWELERS' SECURITY ALLIANCE.

It is also the Recognized Exponent of Trade Interests.

A MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF WATCHMAKERS JEWELERS, SILVERSMITHS, ELECTRO-PLATE MANUFACTURERS, AND THOSE ENGAGED IN THE KINDRED BRANCHES OF ART INDUSTRY.

SUBSCRIPTION.—To all parts of the United States and Canada, **$2.00 per Annum,** Postage Paid. To all Foreign Countries, **$3.00 per Annum,** Prepaid.

☞ *All communications should be addressed to*

SETH W. HALE, PRES'T,
THE JEWELERS' CIRCULAR PUBLISHING CO.,
189 BROADWAY, NEW YORK.

☞ *Advertising rates made known on application.*

GOSSIP OF THE MONTH.

☞ A full Index to Advertisements and Table of Contents will be found on Page 3 of this issue.

WE DESIRE to direct attention to the numerous contributions of our regular correspondents that appear in this issue of THE CIRCULAR. Nearly every manufacturing and jobbing center of trade is heard from, and our letters present a budget of news and gossip that can be found nowhere else. The writers are live, active men, each of whom "has a nose for news," and knows what sort of news is acceptable to readers of trade journals.

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WE ARE constantly in receipt of letters testifying to the practical value of the series of initials and monograms that we are printing from month to month. New subscribers invariably ask to have the monograms furnished them from the beginning, and we have supplied the trade with many thousands of them. We have had made a handsome binder for preserving these monogram sheets in a volume by themselves, for ready reference. The binder is made of heavy binder's board, covered with muslin and lettered in gold. When the monogram sheets are placed within it they form a handsome book, and are held together quite as substantially as are the leaves of a bound book. A binder will be sent to any address, postpaid, on receipt of $1.25.

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AN investigator of accurate mind has calculated that there are now about 80,000 traveling salesmen on the road in this country, and that their expense account alone will average $2,500 a year each, says the *Nashville American.* He says: "This means an outlay of $130,000,000 a year, and if you count an average salary of $1,000 a year, it will swell the total to $210,000,000 a year. This immense sum is scattered all over the United States. It keeps up the hotels, and is one of the most important items of railway passenger receipts. The character of the traveling man has changed within a decade past. You will find few boys and fewer drunkards upon the road. The competition is so great and the expenses so heavy, that firms have to send out their best men, and salaries of $3,000 and $5,000 a year are by no means uncommon.

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THE Postmaster-General has virtually rescinded the order issued by him prohibiting the printing of the business address of the sender on circular envelopes, merchandise packages, etc. The prohibition was a burdensome one to business men, and their protests at Washington had the effect of securing such modification of the order that senders of this class of postal matter are permitted to print their names and addresses on the outside covers, and the postmaster was instructed to remit the extra postage that had been charged in many cases, which was in the nature of a fine for compliance with what had previously been the law. As the Postmaster-General who made all the trouble has been promoted to the cabinet of the President, and a more practical man taken his place, it is to be hoped that no more such contradictory rulings will be made to embarrass the business community.

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REPORTS from Arizona, apparently well corroborated, indicate that an extensive gold discovery has been made in that Territory. The gold bearing rock is said to be exceedingly rich, and there are many thousands of tons of it in sight. At Prescott a committee of citizens was appointed to investigate the reports and the mine, and they confirm all that had been said about the richness of the find. The gold-bearing vein that has been discovered, while of great extent has only been opened at one point, and rock taken from a depth of twelve feet is said to have yielded at the rate of $100,000 a ton, while only three feet from the surface a pocket was discovered from which about $4,000 worth of pure gold was taken out. These stories sound very much like the "booming" efforts of speculators,

but the evidence that gold has been found there in paying quantities seems irrefutable. The mining fever has already assumed goodly proportions in that vicinity, and mining companies are being organized with the customary alacrity. If the excitement serves to draw some of the surplus population away from the large cities it will not be in vain, whether any gold is found or not.

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THE December report of the Secretary of the Treasury regarding imports and exports, shows a marked increase in importations of jewelry and precious stones during the month of October over the corresponding month of 1886. According to the report there were imported last October $107,568 worth of "jewelry and manufactures of gold and silver," against $67,564 in October, 1886. Of "precious stones and imitations not set," there were brought to this country last October $1,083,952 worth as against $1,018,655 in October, 1886 The total value of the importations of these goods for the ten months of this year to October 31, was: "jewelry and manufactures of gold and silver," $796,024; "precious stones and imitations not set," $0,874,288. In the corresponding period of last year the figures were: "jewelry and manufactures of gold and silver," $762,650; "precious stones and imitations not set," $8,213,189. This shows an increase in the importation of jewelry and gold and silver products of $33,374 and $1,661,099 of precious stones over the ten months' importations of last year. Over $1,000,000 a month this country pays to Europe for precious stones. It would be a good scheme for some one to discover a home-made diamond mine.

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WHILE it is true that business has been extremely active of late and sales unusually large, it is also true that collections have been remarkably slow. There seems to be a disposition on the part of every one to postpone payments until after the first of the year. Evidently there is a desire to balance the books at the close of the year, and then apportion among creditors whatever balance there may be on hand in a manner to make it go the farthest. By paying a little here and a little there, a man may possibly keep his credit good, and still leave certain of his creditors out in the cold altogether. But dealers should remember that it costs money to do business. Manufacturers cannot keep their factories running without a plentiful supply of the sinews of war, and jobbers cannot always exist on credit. Dealers should make remittances as promptly as possible, for it is only by keeping money in active circulation that those who have a right to it can get the benefit of it. Money is valuable only for what it will buy, and to grease the wheels of commerce. For storing away or keeping to look at, it is no more valuable than similar pieces of other metal. Pay your debts promptly, and by so doing put it in the power of others to do the same.

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REPORTS from the trade in general are to the effect that the holiday business was very active, there being a very large demand for Christmas goods, and buyers purchasing with a free hand. We asked one dealer, who was complaining of having to work nights to keep up with his orders, what special lines of goods seemed to be most in demand. He replied that while there was a lively call for all kinds of fine goods, he thought the greatest demand was for watches and diamonds. Everybody, he said, appeared to want diamonds, either singly or in combination with other stones, and he had never known so many disposed of at Christmas time before. Others report equally favorably, and say that their greatest difficulty during the past few weeks has been to get the goods they ordered. Manufacturers were far behind in filling orders, and were obliged to put on extra men and to work nights. Still, dealers are not happy, as they maintain that their profits have been so eaten into by excessive competition that there is little money to be made in the business. It is to be observed, however, that very few are getting out of it, but, on the contrary, many are enlarging their facilities for producing goods or for handling the productions of others. Possibly they stick to the business on the principle that "it is better to bear the ills we suffer than fly to those we know not of." As the same complaint of excessive competition and small profits is common to all classes of business, the jewelers have no special grievance in this respect. If a few could monopolize the business, probably they could regulate competition as well as prices, and make a good thing for themselves, but how about the other fellows, who would be driven out of a business in which they now succeed in making at least a living? But it seems, from all accounts, that notwithstanding the alleged fact that profits have almost disappeared from business, the general public had more money to spend for Christmas than usual. There is something a little illogical here, but we have not time to cipher it out.

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PAWNBROKERS, when subjected to proper regulation, are of great service to the poor, and consequently to the community In European countries generally they are under close police surveillance, and in many places the government itself has established pawn shops for the benefit of the poor. M. Maxime du Camp, in his interesting work on the Mont-de-Pietá of Paris, states that an umbrella had been pawned with the establishment forty-seven years ago, and that the renewal fee had been paid regularly every year. The director of the state pawnbroking establishment at Brussels seems to have many similar experiences. For more than twenty years he has had in his keeping the diamonds and other jewelry of a once famous prima donna, who has somehow fallen into poverty. Every year the interest is punctually paid, but the trinkets have not once been taken out of pawn. More than once large sums have been lent by the Brussels Mont-de-Pieté upon the regalia of impecunious German princes. The establishment possesses a choice assortment of barrel-organs. Despite the deposit of crown diamonds and singers' jewels, the average of the sums advanced seems to be very small; for last year no more than £213,000 were lent upon over 300,000 pledges.

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NOTICE is made of the fact that the proprietors of one of the great grocery houses of this city recently distributed ten valuable prizes to the ten of their salesmen who had sold during the year the greatest number of cigars of a brand of which the firm makes a specialty. The first prize was a horse and wagon with harness and all accoutrements, and the second was a grand piano. As to the other prizes, the gentlemen showed their good sense by making them all of jewelry. Among them were a solitaire diamond ring, a diamond horse shoe scarf pin, solid gold hunting case watch, diamond star and creseent scarf pin, diamond cluster ring, diamond shirt stud, diamond, ruby and sapphire scarf pin, and a tiger-eye ring. The presents were entirely unexpected by the recipients, who had no idea that they had been engaged in a competitive race on sales during the year. The practice of rewarding fidelity and devotion on the part of employes is one to be commended. and if more generally followed we should hear less of labor disaffections. As this firm of grocers patronized the jewelry trade so generously in their selections of prizes, and as some members of the trade may desire to reciprocate by purchasing their cigars of them, we will say the firm was Thurber, Whyland & Co.

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THE annual banquet of the New York Jewelers' Association, given at Delmonico's, on the evening of December 1st, was a great success, as we predicted it would be. A more brilliant array of speakers seldom graces any festive gathering, and it was the unanimous verdict that never before had the Association been favored

with such eloquent, witty and sensible speeches. We had a full shorthand report of them made, which we printed in the form of a supplement and distributed among the members of the Association and the invited guests who listened to them, and desired to preserve the printed words as a memento of the occasion. We do not reproduce them in this issue, as a month old report would be very much in the nature of stale news. The Association never did a wiser thing than when it inaugurated its annual banquets, thus bringing together in a purely social manner, nearly two hundred members of the trade, who, during the remainder of the year, are competitors in business. The fraternization that takes place on these occasions atones for many a sharp contest and much business friction, stimulating in the highest degree the self respect of all. May the Association live to give many more banquets, and may we always be there to enjoy them.

*** *** ***

A COMPANY has been chartered in this City for the insurance of bad debts, and it is by no means improbable that such insurance may be made a regular business in all lines of trade. The company already chartered embraces men as incorporators who are especially identified with the dry goods trade, and its operations will be confined within that trade. According to report it is not the purpose of the company to insure debts promiscuously, but to become responsible for the indebtedness of certain persons and firms, within specified amounts. It will aim to keep informed as to the standing, operations, business and prospects of certain large buyers in the New York market, to report such information as is obtained to those interested, and to guarantee payment of their purchases to a certain extent. This is a good company for the jewelry trade to keep an eye upon, and if it proves successful to organize a similar company on their own lines. The condition of the jewelry trade would be materially improved if its outstanding debts could be all either paid or secured by insurance. But that is something too good to even be hoped for, although the subject is one that might well command the careful consideration of the best financiers in the trade, with a view to the introduction of some plan whereby the annual losses by bad debts might be reduced to a minimum.

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VARIOUS correspondents contribute to our department of communications this month, expressing their views upon a variety of subjects. We are always glad to hear from our readers, and they can be assured of finding ample space accorded them for the presentation of their ideas upon any question of interest to the trade. The vexed question of jobbers selling to outsiders receives its full share of attention from our contributors. It is one that never can be settled satisfactorily to both parties to the controversy, for while retail dealers demand that the jobbers shall protect them from the competition coming from outsiders handling jewelry, the dealers have nothing to offer the jobbers in return for such protection. If they could give assurances that they would buy as many goods as the outsiders do, and that they would pay for them with equal promptness, they would then be in a position to demand that the jobbers should sell to the legitimate retail trade only. But so long as the outsiders can find a market for jewelry, and offer to buy liberally and pay cash, the jobbers will sell to them, or if they do not the manufacturers will. Whoever has the money to pay for goods will always be able to obtain all he wants, either of jewelry or anything else; this always has been the case, and no amount of protest from the retail dealers can change the facts. The way to meet this competition from the outside is to enlarge the scope of the business of the retail dealers; if they expect to succeed as merchants they must keep up with the requirements of the times, and supply the public with those things for which there is a demand. A reporter of the Philadelphia *Times* recently interviewed a prominent dealer in that city, and among other things the dealer said: "This looks as much like an art goods bazaar as a jewelry store, doesn't it? And that is what all large jewelry houses are becoming. The trade in art objects has grown to be enormous, and they seem to be suitable adjuncts to jewelry. This season, however, we have gone a little further than pottery and bronzes, and introduced a few articles of fine furniture. There is a great desire at present, among people who have plenty of money, for elegant cabinets, particularly of the Louis XIV., the Louis XV., and the Marie Antoinette styles. We have some valued at $1,000 each." Ever since this question of jobbers selling to outsiders has formed a standard grievance with a certain class of retail dealers, we have advised them to do just what this Philadelphia dealer has done, diversify their stocks, and, by making their stores attractive, command the attention and the patronage of the public. People will buy what they want where they can obtain it to the best advantage and with the least trouble, and they are very easily influenced by appearances. The great success that has attended the introduction of the so-called bazaar business shows conclusively that the public appreciates the efforts made to please them, and retail dealers in jewelry may profitably follow the example of the one above quoted.

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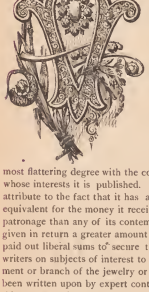
WE PRINT in other columns of this issue two communications from gentlemen who desire to know if there are any schools in this country where they can send their boys to learn the watchmaking trade. We are compelled to reply that there is no such school this side of the ocean. In the old country there are several, where the science of horology is taught thoroughly and practically, as well as theoretically, but here no such educational institution has been established. In the absence of a horological school, the only place where a boy can learn watchmaking is in the shop of some local dealer, who does a large amount of watch repairing, and employs skilled workmen to do it. Under such instruction, however, he would never see a watch made, but the work of repairing would familiarize him with the various parts, so that, if he possessed native talent, he might make a watch, and thus become possessed of a time piece of his own construction, but having no market value. It is singular that with all the great and prosperous watch factories in this country there is no place where one can learn the trade of watch making. A watch factory would naturally be supposed to furnish the facilities for teaching the art of watch making, as a printing office furnishes the facilities for boys to learn the printers' trade, but such is not the case. Watches are now made by machinery, and what the manufacturers require is men, women, girls and boys to attend to the many and varied machines that are employed in the business. Hundreds of them are used in every factory, and when a person becomes an expert in the manipulation of any particular machine he is kept at work with it year in and year out, seldom changing his work or knowing anything about the other machines that are employed upon other parts. The manufacturers find it more profitable to keep their employees engaged where they can produce the best results than to change them about, and, as the work men are usually paid for the amount of work completed, they find it more profitable to stick to a job they are familiar with than to be shifting from one to another. Self-interest actuates both employer and employed in this matter, so that it is not surprising that among the thousands of persons employed in watch factories in this country there are comparatively few watchmakers, the great majority being simply machine tenders. But watchmakers are required in all sections of the country to do skilfully the repairing that is necessary, and there is a scarcity of these now. Where the watchmakers of the future are to come from no one can tell, for there seems to be absolutely no place in the country where an ambitious boy can learn the trade, in all its scientific and practical details. It would be a good thing for the trade and for young men who desire to become skilled

watchmakers, if the watch companies would combine their forces and establish a horological school at some convenient point, equip it with all the necessary instruments, machinery and tools, and place a competent instructor in charge of it. Such a school would become self-supporting in a short time, and hundreds of ambitious, but unemployed, boys would be converted into competent and self-supporting workmen. The European schools of horology have been eminently successful, and are regarded as institutions of national importance.

Close of Volume Eighteen.



VOLUME eighteen of THE CIRCULAR is brought to a close with the present issue. As the numerals indicate, THE CIRCULAR has been a representative journal of the jewelry and horological industries for eighteen years. There are many of its readers who have seen it grow from a little eight-page paper to its present proportions, which are alike the envy and the inspiration of all its competitors. To rival the dimensions of THE CIRCULAR and to equal it in its elegant typographical appearance is the ambition of the publishers of all trade journals. During these eighteen years THE CIRCULAR has been favored in a most flattering degree with the confidence and patronage of those in whose interests it is published. That this has been the case we attribute to the fact that it has at all times sought to give a fair equivalent for the money it received. If it has enjoyed a greater patronage than any of its contemporaries in the same line, it has given in return a greater amount of valuable reading matter, and has paid out liberal sums to secure the services of the best technical writers on subjects of interest to the trade. There is not a department or branch of the jewelry or horological industries that has not been written upon by expert contributors, from time to time. By this means we have made THE CIRCULAR a medium of instruction within the trade that has been invaluable. This educational feature of our work has served to bring to our subscription list the names of a majority of the retail dealers of the country, who find in these articles the practical information of which they are in daily need. Our letters testify that THE CIRCULAR finds numerous readers in every store and workshop where it is taken, passing from the hands of the proprietor to the journeymen and the apprentices, each one receiving benefit from it. Many workmen at the bench are among our regular subscribers, and give frequent expression to the satisfaction they derive from its perusal. It is by this means, securing an extended circulation for our magazine and making it an educational medium, that we have sought to repay our patrons for their confidence in us. That we have made no mistake in resolving to continue this policy is shown by the fact that, while there has sprung up an active competition in our line in the past few years, the advertising patronage of THE CIRCULAR was never greater than now, while our subscription list has shown a rapid growth within this time. We have used our best endeavors to cover the field we seek to cultivate, have spared no expense to accomplish that end, and we are able to place the advertising cards of our patrons before a larger number of readers once a month than ever before. With the growth of THE CIRCULAR we have endeavored to keep abreast of the times in artistic and typographical improvements, and have sought new and attractive features continually. Each month has shown some improvement over the issue of the preceding month, and we do not propose that there shall be any backward step in the future.

We have alluded to competition in our line, which has been active, as it is in all other branches of business. It is said that "competition is the life of trade," and that is true within certain limitations. We do not object to competition—we never sought a monopoly of any sort, and recognize that there is abundant room for competitors in the field we occupy, within limitations. If jewelry journals become so numerous as to annoy and embarrass those who are expected to patronize them, then there are too many. It is difficult for advertisers to discriminate between trade journals, and if they attempt to divide their patronage so as to satisfy all of them, then they weaken the power for good of the deserving ones without building up others strong enough to take their places. A good trade journal is a credit and an honor to the industry it seeks to serve; a multiplicity of weak and uninfluential journals, which are insufficiently patronized to warrant them in putting forth energy and enterprise, is discreditable to the industry they represent. When trade papers become too numerous the time will have come when those who support them will be compelled to discriminate between them, to maintain a sufficient number in a healthy and creditable condition, or see a number of starvlings skirmishing in a field they cannot cultivate with credit to themselves or advantage to their patrons. THE CIRCULAR has not, as yet, suffered from the competition referred to. On the contrary, we are inclined to think that we needed a little stimulating to make us put forth more energy, under a full head of steam. We have the highest respect for a live, enterprising competitor, who is capable of putting us to our mettle—most persons do their best work under pressure—but we shall regret the day, if it ever comes, when the field is full of weak, puny papers, or strewn with the wrecks of those that came to "fill a long felt want."

In closing the eighteenth volume of THE CIRCULAR we desire to express our high appreciation of the confidence that has been placed in us during all these years, and for the kind and substantial recognition our services have received, at the same time we claim to have given full value received for every dollar that has been paid to us, and to have represented the jewelry interests in a manner that, at least, has brought no discredit upon them. Our course in the future must be judged by the past. All that we have been in the past we propose to be in the future, with such additions as time, enterprise and new conditions may require.

Immigrants and Citizenship.

WE RECENTLY noted the fact that efforts were being made in the west to revive substantially the old American or "Know-Nothing" party, and that the movement was developing much strength. Within the past few weeks, circulars have been distributed in this city having in view the formation of clubs on the same basis of citizenship. The response has been hearty, and hundreds of persons have signified their willingness to identify themselves with such a movement for both political and business purposes. At the jewelers' dinner in this city a month ago, Judge Noah Davis touched upon this subject, and it is a notable fact that the same idea has been brought forward at numerous other social gatherings of late. As is well known, many of the most important political and social questions have had their origin in private gatherings, where leaders of public opinion feel at liberty to give free expression to their thoughts. The idea put forth by Judge Davis, which is supposed to be the key note of the new movement, is that while America extends a cordial invitation to the poor and the oppressed of other countries to make their homes here, it will hereafter be required of them that they shall become American citizens by naturalization at the earliest possible moment, and that they shall honestly and in good faith give

their allegiance to the country and obey its laws. It is a notorious fact that the anarchists, socialists and labor agitators who have been giving so much trouble of late, and who constitute a dangerous element in our midst, are not citizens either by birth or naturalization, and that they despise and defy the government and the law under which they live. The tolerance that has always been shown in this country to foreigners is proof that no prejudice exists here against them; they have been welcomed most heartily, every privilege enjoyed by native born citizens has been accorded to them, and they have been permitted to acquire wealth and position on equal terms. It is not too much to ask that in return for the privileges given them and the protection afforded by our laws, they should become in fact citizens of the country that gives them shelter and opportunities they never enjoyed before. This is, as we understand, the purport of the new movement. In addition efforts will eventually be made to impose such restrictions upon immigration that the countries of Europe will not in the future be able to send to us the scum of their populations, their degraded convicts and political offenders.

It has been too much the habit of our foreign population to refuse citizenship, and to seek to perpetuate here, by means of social organizations, the habits and customs of their native lands. They have formed themselves into cliques and even into political clubs, and so assume to exercise great power at elections, going so far in many instances as to demand that their nationality should be recognized in the distribution of the offices. Germans, in some localities, have demanded the election of a candidate on the sole ground that he was a German; the Norwegians, in localities where they are numerous, have made similar claims, while the Irish have always been found at the front when patronage was in question. No man in this country has a right to demand consideration because he is a native of another country; either he is an American citizen by naturalization and entitled to such consideration as he has legitimately earned, or he is not a citizen and so entitled to no consideration. What the sentiment of the country now demands is that those who enjoy the privileges of citizenship shall become citizens in the truest sense of the word, and abandon all cliquism by nationalities and all claims to consideration because of their foreign birth.

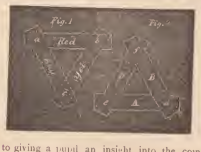
There are thousands of foreigners employed in the jewelry and kindred industries; in coming to this country their opportunities for enjoying the comforts of life have been greatly enlarged; they receive better wages than they ever did before, and the laws protect them in their persons and property; they have advantages for educating their children at the public expense that no other country offers. In return for these and other privileges it is not too much to ask that they shall throw off, in every particular, their allegiance to the land of their birth, and take upon themselves the full obligations of American citizenship. This, as we understand, is the purport of the new movement; no discrimination against naturalized citizens is intended, but simply that all foreign residents shall become in law as well as in fact American citizens, adapting themselves to the customs of the country and obeying its laws; in short, giving an honest equivalent for the privileges they enjoy. It is reported that a bill will be introduced in Congress at an early day providing for the return to the land of their birth of all those anarchist and socialistic agitators who have been convicted of crimes in their own country. It is doubtful if such a law can be passed, but something may be done to prevent any other persons of like character coming here in the future. On the recent trial of Most, the most cowardly of all the anarchists, he admitted having been in prison several times in other countries for inciting mobs to use dynamite to "remove" their alleged oppressors, and to defy the laws of the country. He has been teaching the same doctrines here, and has written books to instruct his followers how to make bombs and how to use them. He is not a citizen of the country, although he is likely to spend some time among us if prison bars can hold him. It is the teachings of such irresponsible men that have cast reproach upon all foreigners among us, and the sooner they give practical demonstration that they do not accept or believe in such destructive doctrines the sooner they will enjoy to the fullest the respect and confidence of all persons. While questions of this nature are kept prominently before the people, no journal can afford to ignore them, or to neglect to advise its readers regarding them. THE CIRCULAR raises no voice upon political issues, but the citizenship of foreign born residents is a social problem in which many of our readers are interested, and hence we cannot ignore it.

Free Hand and Mechanical Drawing.

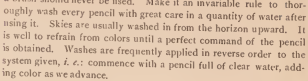
BY EXPERT.

ROCURE a solid sketch block of Whatman's drawing paper, 4½x6 inches. Such a block contains 32 leaves and will cost 40 cents. As I said in last communication, we will commence by laying a wash. The color we will commence with is sepia, a gray brown of great strength, which washes well. Rub a little up in one of the sauce plates as directed in November number. Take a No. 1 camel's hair pencil, according to Weber & Co.'s catalogue, 1125 Chestnut street, Phila., and wet it thoroughly in water. You should have color and water mixed, not too dark, but so that when applied to paper and left to dry it will have a tint about as dark as black walnut wood before it is oiled or varnished. You will need about the quantity of color and water equal to a teaspoonful. Take the pencil brush you just wet, work it well into the color. In applying the color commence at the upper left hand corner of your paper block, and, using a full brush of color, proceed to lay on the tint, letting the pencil stand on an angle of about 45 degrees to the paper. Some artists use a flat brush for washes, others use a round brush for almost every purpose. The great secret of laying on washes is to do it quickly. After you have succeeded in producing a flat, even tint over the entire surface, so that it does not look streaked and show brush marks, you can draw a diagonal line from one corner to the other, and wash in one-half smoothly and evenly to the line. Then change to a lighter tint of the same color, but the joining should be even and show a straight line. After you can do this learn to wash in a graduated tint, as one often has to do with a sky, commencing with full blue at the top, letting fade out, and then wash on another color. This part will be taken up again when we get the proper skill. To wash a graduated tint the color is taken from the dish in which the tint is mixed and the upper parts gone over for a space half an inch wide, then the pencil brush is dipped in a tumbler of pure water and the color in the pencil reduced a little, and so on until the bottom of the paper is reached, and the brush hardly colors the paper at all. The graduating is all a matter of skill, acquired by practice. What one should start out to do is to produce a perfect graduated tint, free from cloudy markings, except you intend to make clouds, from top to bottom. In this there is nothing like persistent practice. Don't hurry but stick to it, and if you can lay anything like a decent graduated tint when you have used up your 32 sheets you can congratulate yourself as having done very well. Most teachers start out with some outline to wash the color in, to produce pictorial results, but the writer's experience is certainly against this course. Learn to do the mechanical part of the wash well and

quickly, and the pictorial effects will soon come if you have a taste that way. After you have spoiled 3 or 4 blocks of 32 leaves, with washes you can commence to combine colors, and wash these into set forms. A good commencement is to lay out a triangle, as shown in Fig. 1. The triangle is formed of 3 stripes of transparent color, lain so they overlap each other at the angles, as at *a b c*. These colors are red, blue and yellow, but the diamond-shaped laps at the letters *a b c* will be green, purple and orange. The colors for the stripes are: for the red, Rose Maddu; for the blue, rather pale tint of Prussian blue; for the yellow, Gamboge. The blue would be nearer a pure blue if ultra marine was used, but this color washes abominably bad; and cobalt blue is too light. Mix enough of these colors so as to have more than do the stripes. These stripes should be about un inch wide and about 4½ inches long, crossing about in the proportion shown. The colors should be washed on to each of the stripes, leaving the diamonds at *a b c* untouched. Now take equal parts of the yellow and blue and mix them, and wash in the diamond *c*, which is green. Then mix equal parts of the red and yellow, and paint in *b*, which is orange. Mix the red and blue, also, in equal parts and paint in the diamond *a*, and we have purple. The red, blue and yellow are called primitive colors, and the mixtures shown in the diamonds are called secondary colors. Now lay out a second triangle, which is exactly like the first, and paint the stripes *A B C* with the secondary colors, that is, paint the stripe *A* orange, leaving the diamonds at *d e f* untouched, the stripe *c* green, the stripe *b* purple. Now take of the orange and the green equal parts, mix and paint in the diamond *e* and we have citrine brown. Mix green and purple and paint in the diamond *f*, and we have olive. Mix orange and purple and paint in *d*, and we have russet. These last named tints are called tertiary colors, that is, a combination of three colors. This system of combining colors will



do wonders to giving a pupil an insight into the combination of colors. A very little more practice in washing in tints and colors and I am done on this part of the subject. Frequently we see in an evening sunset a sky of full celestial blue directly overhead, then comes a yellow flush which fades into a rosy tint near the horizon. Here we have not only to let the color fade out but must change it to absolutely another color. It requires consummate skill to flow on such washes and keep the tints pure and unsullied. One of the great things in all moods of painting is to preserve clean, pure tints. We have many artists who draw exceptionally well, who balance their compositions admirably, yet their pictures betray a carelessness in preserving the purity of their mixtures. The sky, in particular, will have a greenish look, which has a hue of the verdure below. Not but skies, under certain conditions, have a decided apple green hue; this is often seen in our climate after sunset on a fine evening in late autumn or early spring. But when such effects are attempted it must only be done with the absolutely pure colors, mixed with the greatest care. To consider this subject a little further and consider even the most subdued hues in pale tints, now so much studied in ladies' dress goods, the combining primitives must be of almost absolute prismatic spectrum purity. So in sky washes a foul brush must in no instance be used. I mean by a foul brush one which has been used for dark compound colors, as for instance a pencil one has been painting backgrounds with, and there is a quantity—small to be sure—dried in at the brush where it goes into the quill. Such a brush should never be used. Make it an invariable rule to thoroughly wash every pencil with great care in a quantity of water after using it. Skies are usually washed in from the horizon upward. It is well to refrain from colors until a perfect command of the pencil is obtained. Washes are frequently applied in reverse order to the system given, *i. e.*: commence with a pencil full of clear water, adding color as we advance.



*A Complete History of Watch and Clock Making in America.

[By Chas. S. Crossman.]

Continued from page 301.

Number Nineteen.

THE WATERBURY WATCH CO.

THE ORGANIZATION of this company was quite at variance with the methods usually pursued by persons desiring to form a corporation for the manufacture of watches. Usually the company is formed, the factory building erected and then the watch manufacturing commences; but in this instance a few watches were made first to prove the practibility of the venture, and, after being so proven, the company was formed. But before giving the history of the company, the reader is invited to take a brief glance at the history of the watch itself.

In 1876 Mr. Edward Locke, of Boston, and Mr. Geo. Merritt, of Brooklyn, who are both now prominently connected with the Waterbury Watch Company, were on the lookout for a cheap watch, and finally, in conjunction with the Benedict & Burnham Manufacturing Company, of Waterbury, Conn., they succeeded in bringing before the public the now famous Waterbury watch The details are as follows: In the fall of 1875, Edward Locke, then a solicitor of patents in Boston, went to Washington on business. While there, Mr. Wm. D. Coates, also a solicitor of patents, called his attention to a rotary watch, the invention of Mr. F. Hopkins, who was then identified with the prospective Washington Watch Company.

It proved to be a rather crude affair, and Mr. Locke at that time declined to take hold of it, but being encouraged by Mr. Coates, Mr. Hopkins set about perfecting it. He then went to Waterbury with it, where he again met Mr. Locke, and they exhibited it to the Benedict & Burnham Manufacturing Company but it did not meet with their approval. Mr. Hopkins then went to Boston where he met Mr. Merritt, who advanced him money to defray his expenses while he should endeavor to improve it still more. After some changes had been made he thought that the watch was as near perfection as could be, but Mr. Merritt did not consider it practical. In fact, it was not

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such a watch as he wanted, and he gave up the idea of trying to make it. Shortly after, however, Mr. Hopkins sold it to Mr. Fowle, of Auburndale, Mass., through Mr. Wm. Wales, of New York, for ten thousand dollars. It is described somewhat in detail in the history of the Auburndale Watch Company.

So much for the Hopkins watch, at least so far as the members of the present Waterbury Company were connected with it.

Meanwhile Mr. Locke had not given up the idea of bringing out a cheap watch. He was positive that there was a field for a cheap watch, as at that time no Swiss watch in either nickel or silver cases were on the market that sold for less than seven dollars at retail, while toy watches, running for a few seconds, sold at thirty-five cents each. He argued there must be a happy medium somewhere in the neighborhood of three to four dollars, but where was the man to be found that could invent a watch that could be made and sold for that sum. While walking along a street in Worcester, Mass., in the spring of 1877, Mr. Locke saw a tiny steam engine in the window of a watch repairer's shop. He went in and entered into conversation with the proprietor, Mr. D. A. A. Buck. There he learned that this engine, weighing fifteen grains, had been exhibited at the Centennial Exhibition by the side of the mammoth Corliss engine, and had been made by Mr. Buck with his watchmaker's tools. This engine, with its boiler, governor and pumps all complete, stands on a space one-eighth of an inch square, or less than the area of a gold dollar. It is five-eighths of an inch high, is composed of one hundred and forty-eight distinct parts, held together by fifty-two screws. Three drops of water fill the boiler to its proper capacity. But to return to the watch:

Mr. Locke at once concluded he had found the man who could invent the watch he wanted, and he broached the subject to Mr. Buck, who at once went to work to construct a model according to the specifications given him. Mr. Locke communicated with Mr. Merritt, inviting him to take hold of the enterprise with him. Mr. Buck was, of course, called upon to make something quite different from the Hopkins watch, which had been patented in 1876. When the model was completed it was sent to Messrs. Locke and Merritt for inspection, Mr. Buck receiving one hundred dollars for it. It was a rotary and had a chronometer escapement, the same as the Hopkins watch, and proved to be about as crude an affair as that was. It had a long mainspring, the same as the company use in the present watch.

Mr. Merritt still retains it in his possession, and it is certainly a curiosity. Matters began to look very dubious, and the vision of three-dollar watches seemed to be fading slowly away.

But it seems Mr. Buck had too much of the "Yankee" spirit in him to give up. Shortly after this he was taken sick, but before he had fully recovered his health he had solved the problem. Mrs. Buck wrote to Messrs. Locke and Merritt that she thought Mr. Buck had invented what they wanted while convalescing from his sickness, and as soon as able would make the model.

The result was a model substantially like the Waterbury watch of to-day. It was completed in the fall of 1877 and sent to be approved by them. The great feature of it was the duplex escapement made in the peculiar form in which it is used in the Waterbury watch, and which largely reduces the expense of manufacture. The writer takes the liberty of using Mr. Buck's words to him with reference to it. He said: "It will be a long day and a dark night before any one gets up an escapement that can be made as cheaply as this one." In January, 1878, Messrs. Locke, Merritt and Buck, all of whom had now become equally interested in the project, went to Waterbury to see the Benedict & Burnham Manufacturing Co., with a view to having the company manufacture the watch. It was shown to Mr. Benedict, who carefully examined it and tested it in every way, and so thoroughly did it stand the test, that this shrewd man of business immediately saw a great opening for the watch, and concluded to take steps at once toward manufacturing it. They decided to commence operations in some unused rooms in the upper part of the building which the company occupied as their main office. They thought that with an expenditure of eight thousand dollars, all the watches for which they could find a market could be made. They fully expected to get the first watches on the market by June, 1878, but they were not ready until December of that year. They sold, however, as fast as they were ready.

Just here a brief description of the watch may prove of interest to those unfamiliar with its construction:

It is a rotary watch, the movement turning around in the case once an hour and carrying the minute hand with it. The escapement is of the duplex style. The teeth on the brass escape wheel are alternately long and short; and the short ones are bent down to give the impulse.

The balance is a plain, brass punching. The watch has of course the usual form of train. The main spring is about nine feet in length, and lays on a plate on the bed of the watch, which serves a double purpose, viz.: a barrel and a ratchet, the click being fastened to the edge of the case. The whole number of parts fifty-eight, and all interchangeable.

Mr. W. N. Weedon, who had long been superintendent of Benedict & Burnham's City Manufacturing Co., where small, brass articles were made, was the first mechanical superintendent of the Waterbury watch shop. He had the assistance of Mr. Buck as model maker and master watchmaker. Mr. Locke was general business manager from the commencement, and still retains that position. They worked at a great disadvantage on the start, having to educate their employees, and in not having a full line of first-class machinery suitable for the purpose. Their original intention was to produce two hundred watches per day, and they really did produce one hundred and fifty per day, which were all turned out under the name of Messrs. Benedict & Burnham. But they soon found their facilities to be wholly inadequate to supply the demand for the watches, and to meet the demand a company was incorporated in March, 1880, called the Waterbury Watch Company, with a nominal capital of $400,000. The officers were: Mr. Chas. Benedict, president and treasurer; Mr. Chas. Dickinson, secretary; Mr. D. A. A. Buck, inventor, and W. F. Weedon, mechanical superintendent. The principal stockholders were: Chas. Benedict, Gordon W. Buckham, Chas. Dickinson, Geo. Merritt, Edw. Locke, and D. A. A. Buck.

The company contracted with Mr. Ambrose Webster, of the American Watch-tool Company, to superintend the erection of a factory with a capacity for one thousand watches per day, and when completed, to equip it with machinery. Mr. Webster contracted to be general superintendent for five years; but the company released him from this at the time of completion of the factory, and Mr. Locke assumed control. The building was designed by Mr. H. W. Hartwell, of Boston, the architect of the Waltham and Elgin factories. It is located near what was known as Old Pine Hill. The building projected into the side of the hill so that the top of the hill and roof were nearly on a level. The hill has since been removed, and the grounds carefully laid out, and are indeed very ornamental.

In April, 1880, soon after the ground had been broken for the new building, a fire occurred in the City Manufacturing Co.'s building, occupied by the Watch Company. Water deluged the offices of the company, and the safes were destroyed together with quite a number of finished watches. The loss was covered by insurance. Although the watch being manufactured was a cheap one, comparatively, it was determined that the factory, building and machinery should be of the best, and Mr. Webster received word to that effect. The result was a large expenditure; but the company now had a beautiful, well lighted factory, not surpassed for convenience by any, and equipped with a good line of machinery. The building is of brick, and consists of three parts; the main part is sixty-five by fifty feet, and four stories high, with a back extension one hundred and fifty feet by thirty feet, three stories high, and another wing of one story. Manufacturing was commenced in the new building May, 1881. Six hun-

dred watches per day were turned out at first; but nine hundred to one thousand are now made.

About six hundred operatives are employed, many of them being girls. The heads of the various departments are as follows: Edward Locke, general manager; D. A. A. Buck was inventor and master watchmaker until the spring of 1884, when he retired to become superintendent of the Cheshire Watch Co. W. N. Weedon, mechanical superintendent until January, 1882, when he was succeeded by Geo. Hart, of Newark, who now fills the position. The following named gentlemen have charge of the respective departments: John J. McDonald, train-room; S. T. Byam, material department; E. H. Everett, gilding; P. Meerlander, mainsprings; W. W. Hastings, case department.

The dials are printed from a steel plate, and coated with a solution of celluloid. They are then glued to the brass dial plate. This process is covered by Hart's patent of September, 1883.

The first cases were made from brass, nickel-plated; at present, nickel only is used. The company stamps them on the back, when ordered in sufficient quantities, with any mark desired.

Since the organization of the company, three series of movements have been made, viz.: A B and C. The first series all have open dials, exposing the movement, while series B and C have closed dials. There are also some minor changes in the latter two series.

In 1882 the company attempted the manufacture of a movement with a pin anchor escapement. It was designed by Mr. Hermann Reinicke, of New York, who entered the company's employ in 1881 as model-maker. It was eighteen size, three-quarter plate, key-wind, and designed to fit eighteen size cases. Ten thousand of them were commenced, but few of them completed.

The company's main office is at 92 and 94 Liberty street, New York City, where they are represented by Mr. George Merritt, the company's general selling agent.

While this article is written purely from the historical standpoint, the writer would, in closing, speak a word in commendation of the indomitable perseverance and good management on the part of those who have had this great enterprise in charge.

They certainly introduced a new factor into the trade in low-priced watches.

(To be continued.)

The Meeting of Congress.

CONGRESS assembled on the 6th of December and is booked for a long and, probably, exciting session. As this is the year of the presidential election, it is probable that Congress will devote much more time to political legislation than to work of a practical nature in the interests of the business of the country. We are threatened with a renewal of the agitation of the tariff question, and innumerable propositions for changing the duties on importations of all kinds. Experience has shown that whenever a definite proposition is before Congress contemplating a radical change in the tariff, business of all kinds is disastrously affected, importations fall off, and dullness pervades all branches of trade. No one can tell, while such discussion is going on, what Congress may do, or what the effect of its action may have upon prices. Importers are afraid to buy liberally lest Congress should so change the duties as to leave them with a stock of goods on hand purchased at prices that would be ruinous if the duties on that kind of goods should be materially lowered or removed entirely. While there is much talk about tariff reform, propositions to that end do not seem to have taken definite shape as yet, and it is greatly to be hoped that the agitation may be entirely escaped for this year. The bill for a National Bankruptcy law will be brought forward again, and if our legislators will heed the voice of the business men of the country they will lose no time in passing the bill that has been before them for the past four years. What is known as the Lowell bill has been approved by nearly every business exchange and board of trade, and has been endorsed by the best legal luminaries in the land, yet it has failed to meet the approval of Congress for the reason that it has been loaded down with foreign amendments, introduced for the purpose of killing it, by members representing constituents composed almost exclusively of debtors. These naturally prefer to be under the jurisdiction of state laws that give a resident debtor the advantage over non-resident creditors. During the past year there have been some notable illustrations of the fact that alien creditors have little chance to obtain justice through state courts against a resident debtor. For the protection of the creditor class, and as a safeguard to protect the credit system under which the great bulk of business is done, a national law is required that shall compel a uniformity of practice in bankruptcy proceedings, so that the law that prevails in one state will be identical with that which obtains in another. Such a law needs to impose such restrictions upon bankruptcy proceedings as to reduce swindling by insolvency processes to a minimum. Business men are willing to take the ordinary chances that arise in legitimate trading, but they cannot compete with the swindling tendencies of many debtors when protected by local laws. A national bankruptcy law, by placing the credit system on a more substantial footing, would have a tendency to improve business considerably. But Congress will be so taken up with political issues during the present session, and with making possible presidents, that it is doubtful if much attention is given to the business requirements of the times. If Congress could be restricted to semi-centennial sessions it would be far better for the business interests of the country.

Prize Essay on the Balance Spring.

[BY MORITZ IMMISCH.]

Continued from page 405.

UT if the elements constituting the momentum cannot with advantage be used to produce isochronism, there are certain rules based upon them which determine the diameter and weight of the balance when in connection with trains calculated for different numbers of vibrations in a given time in order to procure vibrations of a suitable extent.

We have already seen above that the relative force of the spring is inversely as the square of the diameter; a balance, therefore, of half the diameter of another would require four times the weight of the large one for the same number of vibrations. Here we have four times the weight projected half the distance of that of the large one, and in the case of the latter we have one-quarter the weight projected only double the distance of the small one; and as in both cases the relative force of the spring remains the same, it follows that the smaller balance has double the capacity of accumulating and retaining any force transmitted to it, and will consequently cross further. If therefore, a certain arc of vibration is to be obtained with a given mainspring power, quicker vibrations will require a smaller and heavier balance, and a larger and lighter one will be necessary for slower speed. It is a rule, established by practice and experience, that for marine chronometers, the arcs should be one turn and a quarter; it has been demonstrated that with this arc magnetism has no influence on the rate of going, retardation

and acceleration counterbalancing each other in each vibration exactly.

With that kind of dead-beat escapement where the friction remains active throughout, as in duplex and horizontal watches, the gyration is of course much less, and here it is imperative that attention should be paid to a proper proportion of weight and diameter of the balance. In the case of a horizontal watch, no amount of change in the balance spring will make long and short vibrations equal, if these proportions are incorrect. The friction on the sides of the cylinder is a given factor, and must be turned to a proper account; the gyrations being small in themselves, the arc of escape bears a large proportion to the whole extent of the vibration. During this arc of escape there is no side pressure against the cylinder, and a stronger impulse will consequently propel the balance forward with a greater velocity. This increase during the arc of escape in a properly constructed watch will be compensated for by the increased friction on the cylinder. If a balance is too small and too heavy, it is clear that its greater momentum will overcome this friction raised, and so neutralize the equalizing effect it would otherwise have had. It follows, if a horizontal watch gains with increased motive force, the balance is too small and too heavy. By making it lighter and putting a weaker spring, a change is certainly effectual in the right direction; but a change in the motive force will bear too great a proportion to the absolute power of percussion in a slight balanced spring, any diminution will cause the vibrations to fall off considerable; any outward influences, such as thickening of the oil, and imparted motion, will also influence the going of the watch to an undue extent. There is in a light and large balance not that alertness which we find in small and heavy ones, and the wear on the edges of the cylinder is certainly greater; but it has the important advantage of greater steadiness. In a watch having an escape wheel of fifteen teeth, making 18,000 vibrations in an hour, the extreme edge of the balance should just reach up to the tooth of the wheel, and the weight be so proportioned that, being clean and fully wound up, it should make a little less than two-thirds of a turn. With slower vibrations the size must be increased proportionately.

In a duplex watch the friction is much less; but as it continues throughout, a change of the momentum of the balance would also considerably affect the long and the short vibrations. This escapement affords a facility of altering the proportions of the impulse velocity to the friction in the remainder of the vibration. If the angle formed by the pallets and the notch in the roller is lessened, the drop is increased, and the impulse power so lessened causes not only the vibrations themselves to fall off, but also the smaller ones to be slower than the large.

The following rule will be a guide in conducting experiments: All alterations which increase the arc of vibration without changing the amount of friction will make the long vibrations slower than the short. If the impulse power remains the same, and the friction is increased, the long vibrations will be quicker than the short, inasmuch as to a smaller arc of vibration the same increase of friction bears a greater proportion than to a larger.

If in a duplex watch the balance holes are too large and the balance is brought into such a position as to bring it into a closer proximity with the escape wheel, the long vibrations are sure to be quicker than the small, for two reasons: first, on account of increased friction on the roller; and, second, in consequence of the greater drop in the escapement. The difference caused by the greater or less drop will be the same whether the momentum of the balance is great or small, while that caused by the change in friction on the roller will be considerably influenced by the momentum of the balance. We also find that if the balance holes are large, a considerable difference arises in the rate of going in the four vertical positions. The pressure of the wheel against the roller is never directed to the center of the pallet, but acts obliquely, and if, according to what position the balance is in, it becomes more or less so, it will cause a variation of friction in the pivots in the different positions; thought is less in amount than that on the roller, it is extremely inconvenient, as its variable effect can never be entirely compensated for. It is therefore of great importance in a duplex watch that the holes should fit exactly. When the escapement is set out of beat, the point where the vibrations are quickest does not correspond with the center of the arc of escape, and therefore such a change will have an influence on isochronism; but of course this cannot or ought not to be done, as it would make the escapement imperfect.

In a duplex watch the friction on the roller is sufficient to exercise a proper control over the momentum of the balance, and consequently the latter becomes liberated and quite more free in its action when the motive power relaxes. The balance is, on the other hand, sufficiently independent of the friction to allow the properties of the balance spring to be brought into play. Those circumstances combine to make the general performance of duplex watches very satisfactory. In lever watches and chronometers the motion of the balance is, except during the arc of escape, unfettered by any escapement friction, and the properties of spring and balance have their full sway.

We have already seen that a change in the momentum cannot be resorted to with advantage to procure isochronism; and as by means of a spring it can be obtained with the utmost precision, this mode is invariably employed.

An opinion exists among a great number of watchmakers that isochronism is arrived at when the angle of inflection corresponds exactly with the force of the spring, but by what we have already seen this cannot be correct. If, apart from the momentum of the balance (which certainly plays an important part in this respect), any change of drop or friction influences isochronism, the unavoidable and given friction and drop must therefore be factors and agents of more or less importance when the isochronous state is obtained.

Before I describe and explain the nature of the manipulations necessary to obtain isochronism, a few general observations will not be out of place:

If a piece of spring, say part of a mainspring, is fixed at one end with its concave side upward, a weight will draw it lower down than when the convex side is upward; therefore, when a balance spring is inflected toward that side where the coils recede from the center, it would oppose less resistance to the balance than on that side where they advance toward it, and the halves of the vibrations would be unequal in length if this was not counterbalanced by the circumstance that the strain of the cohesive power of the corpuscles consposing it is greater here than when it is inflected the other way; supposing a spring to have three turns; when inflected, one whole turn to make the coils expand, the turns will only be two; when inflected, the other way one whole turn, the turns will be faced, and therefore, as 3:2 is a larger proportion than 4:3, the spring had in the former case to expand more than it had to contract in the latter.

If the above experiment with the piece of spring is continued (the convex side being upward), it will be seen that in the beginning the spring bends closest to the center, but farther on (supposing the bending force always to act in a rectangular direction to the tangent of the extremity of the free end) the form will soon become of an oval shape, and if the spring should break now, it would not be at the point of fixtures, but at the point farthest from it. Had the spring broken at the beginning of the experiment, it would have been much nearer to the fixing point. This experiment, rude as it is, proves that the point of the greater strain moves away from the fixing point when the spring contracts and approaches toward it when it expands. This is exactly what takes place in every spring. In the case of a flat spring, that strain is modified by the relative position of the ends. The following experiment, which can easily be tried by anyone, will prove this beyond a doubt.

(*To be Continued.*)

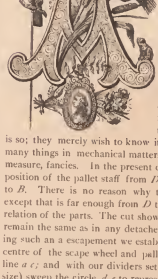
The Tariff Question a Party Issue.

THE PRESIDENT'S message to Congress fairly precipitated the tariff question into the political arena, and gave to it so much prominence that there is little doubt that it will be made the most important issue of the coming presidential campaign. Discussing the matter of the accumulation of surplus in the treasury, the President argues that it is unjust to continue in force a system of taxation for the support of the government that yields an amount of revenue in excess of the requirements of the government, whereby a large sum has been accumulated in the treasury and withdrawn from circulation and business employment. To remedy this, he suggests a modification of the tariff. His message is generally construed as being a declaration that the democratic party is in favor of free trade, and many of the leaders of that party are reported as being willing to abide by this declaration. The republicans have shown the greatest alacrity in accepting the gage thus thrown down, and announce that they are willing to make the presidential fight on this issue. Hon. James G. Blaine, probable candidate for the presidency, has cabled from Europe a message nearly as long as that of the president, wherein he declares the republican party to be in favor of protection to American industries, and willing to perpetuate the tariff in their behalf. The press of the country has found little else to talk about, and it seems evident that both political parties were anxious to have a new issue put forth for the presidential campaign, on which the parties could divide. All the old political questions have become hackneyed, and it is a relief to have the tariff, regarding which both parties have been non-committal in the past, brought to the front in such manner as to compel everybody to pronounce distinctly on one side or the other.

At present it appears as though the subject of the tariff would command a great share of public attention until after the election, and that parties and presidential candidates will trust their fate to the final settlement of it. How far the leaders in politics, who have already express their views on the subject, can influence their constituents remains to be seen. Heretofore neither political party has been a unit on either side of the question. Both the republican and democratic parties have both free traders and protectionists among their memberships, and if the line is to be tightly drawn in the coming campaign, there is likely to ensue a most decided change in party affiliations. As the republican party will stand for protection to American industries protectionist democrats will flock to its standard, while free trade republicans will be found in the ranks of the democratic free trade party. We apprehend that when the tariff question is made the line of separation between the two great political parties, individuals will be governed in their affiliations by their business interests. Manufacturers and producers generally are understood to be in favor of protection, while the non-producers are believed to be in favor of free trade. In the jewelry trade the importers who are taxed heavily on the goods they bring to this market, would, no doubt, be glad to be relieved of this tax, and so would favor free trade. But the manufacturers, who look to the tariff impositions to protect them from competition with the products of European cheap labor, would, no doubt, be equally earnest protectionists. The workmen who are in receipt of better wages here than is paid for similar work anywhere abroad, would naturally apprehend a reduction in wages if European products, made by cheap labor, were admitted to competition here on equal terms with the products of their skill and energy, and hence they would be likely to train with the party of protection. As it is in the jewelry trade so it is in all others, and the tariff issue, if made a party question, is likely to revolutionize the membership of both political organizations. If the contest has to be made, it is perhaps better to fight it out this year than to have it hanging over us for years to come, threatening business prosperity every time it is agitated. Coming, as it promises to do, simultaneously with the presidential campaign, it will do less harm than would be the result of a prolonged agitation at some other time—tariff discussion and presidential campaigns are hard pills for the business community to swallow at any time, and they can be taken together with no greater derangement to the commercial system than would result from swallowing either separately. But the issue seems to be upon us, and the only thing to do is to accept it with the best grace possible, and each one strive to let it interfere with the business of himself or his neighbors as little as possible.

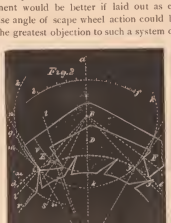
Problems in the Detached Lever Escapement.

BY DEFENT.



IS PROMISED in last article, I propose to consider the problem of removing the pallet staff further away from the scape wheel than has been usual to consider the correct location. True, there are several reasons why the position assigned to it has crept into general use, still an escapement departing so far from the conventional as the one shown in the cut would give sound, healthy action. And it is well to know why it is not as good and what the points of disparagement are. Very few people take the trouble to inquire why a thing is so; they merely wish to know it is so, or think it is so; although many things in mechanical matters accepted as facts are, in a great measure, fancies. In the present case we will assume to change the position of the pallet staff from *D*, the place usually assigned to it, to *B*. There is no reason why this particular location is chosen except that is far enough from *D* to produce a marked change in the relation of the parts. The cut shows no fork or roller action, as these remain the same as in any detached lever with no action. In drawing such an a escapement we establish the points *A B*, and draw the centre of the scape wheel and pallet action through these points the line *a c*; and with our dividers set at 2½ inches (the cut is half this size) sweep the circle *d e* to represent the outer circle of the scape wheel teeth. We next, with our dividers still set at 2½, sweep a circle in some convenient vacant space. A portion of a circle as shown at *k f*, Fig. 2, we mark two points *b f*, which exactly corresponds to the space in our dividers. This is of course an arc of 60°; this arc we divide into 10 spaces, and with our dividers set at one space, we lay off on each side of the line *a c* on the circle *d e* 5 spaces and establish the points *i j* on the circle *e d*, and from the center *A* draw the lines *A n* and *A x*, through the points *i* and *j*. Three points represent 2½ teeth of a fifteen tooth scape wheel and embrace 60° of the circumference of the scape wheel. And from the center *B*, representing one pallet staff we sweep the circle *k k*, to establish equi-distant locking faces. From the center of the pallet staff *B* through the points *f* we draw the line *B L*. We next draw a line at right angles to this last line; also through the point *i*, as shown at *i m*. Now if the tooth shown at *i* rested on a pallet whose surface corresponded to the line *i m*, it would rest dead. To create a lock we assume *i* as a center, and lay off the line *i x* at 12° from *i m*. Now for drawing the entrance pallet. All workmen know that for every escape a tooth passes through 12° of arc, 10° of which are utilized and 2° allowed for drop. At this point the present form of pallet departs so much from the usual as to be very noticeable. At 12° from the line *A g*, and through the third space of the five lain off from *a A*, we draw the line *A l*. Ten degrees taken from the short arc *b f* are laid off from the point *f*, we establish the duration of the tooth action. And the point *o* designates exactly where tooth leaves the pallet. If we set

one divided at the pallet center B and sweep the short curve p, we can define where the inner angle of entrance pallet E will be at any part of the action of 10°. But in the present instance we only wish to know where the exit angle stands when where the tooth leaves the pallet E; and again, where it stands when the tooth at i is at rest on the locking face of E. To define where the inner angle of the pallet E stands when a tooth is resting on it, we draw the line $B\,r$ through the point o. Ten degrees from this line we draw the line $B\,s$. To establish this line we sweep the curve u from the centre B, and lay off 10° taken from the curve $b\,f$, fig. 2. Now where the line $B\,s$ crosses the curve p, is where the inner angle of the entrance pallet will be when the tooth at i rests on the locking face of E. Draw a line from the intersection of the lines $B\,s$ and the curved line p to i, allowing for lock, and we have the impulse face of the pallet E defined. The method of defining the exit pallet F must be obvious from the inspection of the cut. It is not probable any of my ideas will ever result in such an escapement, but it is well to draw and make a mental analysis of the advantages or disadvantages of such a change as would result by removing the pallet staff from D to B. The cut shows a set of pallets with equi-distant locking faces; but in actual practice such an escapement would be better if laid out as circular pallets. Then the impulse angle of scape wheel action could be increased to fully 12½°. The greatest objection to such a system of pallets is the spoke of the action of the escapement at the time of unlocking, early in these papers; but used the thought only to account for the fitting of impulse faces from the change in direction of forces of the train at the time of unlocking. In my next communication it is proposed to consider this feature of the detached lever a little more fully. The subject of the relation of scapement to balance is one which is attracting the attention of many of our English watchmakers just at the present time, especially as it relates to isochronal adjustment. That the relation of train and escapement to balance and hair-spring are not important factors in isochronal adjustments but few who have had any experience will contend. No one except a novice would hold that a balance-spring perfectly isochronal with a chronometer escapement would be so in a lever using precisely the same balance; it would not even give a close time rate. I mean by this to illustrate: Suppose we had a balance, and mounted on the staff wire double rollers, one adopted for a chronometer escapement, the other for a detached lever, and we had two movements for which the balance was equally well adapted; and the balance bridge was interchangeable, in fact the conditions were as near alike as could be, except in one movement there was a chronometer escapement and in the other a lever. No experienced adjuster, as stated before, would contend that the balance and spring would even give the same time results, to say nothing of the isochronal adjustments.



length of the impulse face is increased, and consequently the friction. But it is well to study such changes, as it gives one the knowledge to take all the advantages of such escapements as are more or less disproportionate. A similar change can be made in a club tooth escapement, but it is not necessary to draw it, as it is no way difficult to mentally consider what effect it would have to divide the impulse action between the pallets. Few men who have given the detached lever escapement profound study, will, I imagine, be prepared to say that anything more than an approximation to a perfect escapement of this kind has as yet been produced. There has been a great variety of forms proposed and executed, but thus far we have had only two which have kept public favor, and these are the pointed or ratchet toothed scape wheel, and the club tooth. Of these the club tooth has been given us in a variety of forms; but the ratchet tooth admits of only slight changes, and as far as the tooth goes can only be changed in regard to the angle at which the tooth is cut relative the radius of the scape wheel. This angle is accepted as one of 24° in almost every instance, and it would seem that this angle was about the proper one from every point of view. But to the practical man what seems of most importance is in the form of the impulse plane. This has been attempted on several occasions by different makers, but seems to have been abandoned before the benefits were realized, which must ultimately attend the solution of this problem. The writer

PROVIDENCE NOTES

The year which closed with the last number of THE CIRCULAR was the best, in point of sales, that the majority of the manufacturers ever experienced. The business started in promptly soon after the first of the year, and was remarkably good all through the month of January, some firms reporting that the amount of sales were from twenty to thirty per cent. heavier than for the same month during 1886, but the month of February saw a reverse of the good prospects noted the month before, caused by the great labor strikes, which were then raging so fiercely, and did so much to unsettle the affairs of the country and to stagnate business in nearly all lines, especially the jewelry branch, which during the month of March recuperated to some extent, and seemed to have a new lease of life until April, with its "Lent" destined the business to droop again until it was over, and for forty long days it seemed as though it was done for the season, until the smiling month of May came along and helped out the spring's business considerably. But the months of July, August, September, October and November have added their business to make that of the year the heaviest on record. The profits on the same may have been less for the amount of business transacted than during some former years, due to the great increase in competition, and numbers of firms engaged over that of a few years ago, but the firm that closed its books for the year without finding a neat credit balance from the amount of business transacted, will find it to be hard uphill work before another such year for business comes their way again. The history of the jewelry business repeats itself about every four years, and as the business of the year 1884 was indifferent and very poor, so now does THE CIRCULAR predict a quiet, steady and moderate volume of business for the year 1888, much less in the aggregate than during 1887. Of late years the presidential nominations, which are generally made during the month of June or July, seem to entirely stagnate business for the time being, and a long time afterwards, before the public at large can realize that the affairs of the nation are all right and must necessarily proceed. It is almost a foregone conclusion, at the present time, that Mr. Cleveland will

be renominated by the Democratic party as their candidate for the Presidency, if he will only allow his name to be used at the Democratic Convention, and being the present incumbent should have a reasonable show for re-election, in which case the administration not being changed from the then past four years the business of the country should proceed with a genuine boom, such as characterized that of the seasons of 1883–87, for two or three years. On the other hand should the administration he changed at the end of Mr. Cleveland's term of office, it would take at least two years for the affairs of the government to get to running smoothly again, and in their old groove. In the meantime the stagnation of business could not help but be very great and to the detriment of the best interests of all concerned.

Collections during the year have been very good, taken as a whole. Some months, of course, have been poor, but generally accounts have been settled when due, and quite promptly, and trade paper has been scarce, to the entire satisfaction of the manufacturer, who cares little to house his book accounts in his safe in the way of such securities, which one finds occasionally to be quite difficult to negotiate. The absence of such paper on the market speaks well for the healthy state of the business transacted, and it is to be hoped that the financial condition of trade the coming year may be as sound, apparently, as that of the one just ended.

Little has been done during the past year to correct the many and growing abuses of the trade, which THE CIRCULAR has noted from month to month, during the season just closed. But it is hoped that the Manufacturing Jewelers' Board of Trade, at their next meeting, may see the advisability of taking some measure to abate them, as far as members of the Board are concerned. The number of failures reported to it, during the year, have not been as large as might have been expected, considering the amount of business transacted during the last half of the year. Among the number may be noted the following: Fry & Schieber, Harris & Luchs, of New York; Clapp & Davies, Chandler & Shader, and the Rosenkranz & Weber Jewelry Company, of Chicago; besides numbers of smaller concerns which amounted to little in the aggregate, located all over the United States.

The Board of Trade received a notice of the assignment of Mr. Morris Jacobs, of Cleveland, on the 17th ult. The assignee is given as Louis A. Grossman, and his bond placed at $15,000. The assets are supposed to amount to about $10,000, or possibly a trifle more, and the liabilities about $30,000. The interests of friends were well looked after by Mr. Jacobs by giving them sundry chattel mortgages on his stock, anywhere from five to fifteen hundred dollars, they were given some time since but the dates of filing were very recent, some of them being given to the following named parties: J. Ettinger, $1,000; R. Cohen, $550; W. Mendelson, $1,102; J. Mendelson, $900; Marx & Zenistein, $800; G. Simon, $1,000; G. Graves, $1,250; J. Siegel, $1,500; J. Metzenbaum, $950, making about $9,000. His creditors are now very well pleased with the looks of the assignment, and will likely order a thorough examination before signing off their claims.

The firm of A. W. Challerton & Co., of 44 Arnold st., has been dissolved. The business will be continued, as heretofore, at the same place by Mr. H. D. Horton, who has associated with him as partner Mr. J. C. Wostenholme.

The old established firm of E. E. & A. W. Kipling, stone importers of New York, Providence and Paris, France, has been dissolved by mutual consent of both partners. The business will be conducted as before by Mr. Arthur W. Kipling, who assumes all liabilities. Success to him is the wish of THE CIRCULAR. Mr. E. E. Kipling the retiring partner will spend a year or so in rusticating.

Mr. J. Meister, of the late firm of Chapman & Meister, has associated himself with Schultz & Co., of 38 Friendship street, as foreman of their button department.

The firm of Tillinghast, Mason & Co. of No. 111 Summer st., has lost one of its members by the withdrawal of Mr. E. S. Case.

The dissolution of the firm of Doran & Lynch of 35 Beverly street, is announced. The business will be continued the same as formerly by Mr. James G. Lynch at the old number.

Fred I. Marcy & Co. of Pine street, are offering a new and handsome imitation diamond collar button to the trade in different sizes, which should meet with good sales, together with their popular Acme lever, which will make their line specially attractive for the spring trade.

Kirby, Mowry & Co. have a fine factory and are making a handsome line of goods for the spring season.

S. Albro & Co. report having had a good business the past season and are now running a full complement of hands on their popular rolled plate and filled chains, in anticipation of a good trade in the spring.

Clarke & Turner have a deservedly popular line of goods in their line of specialties.

Hearn & Braitsch have been obliged to enlarge their present factory owing to the increased demand for their cane heads, umbrella handles, etc.

J. W. Grant & Co. say that their business for the past year has been very good and is constantly increasing.

G. & S. Owen report that business with them has been more than satisfactory the past season.

Howard & Son report having had a very successful and prosperous season and their novelties have given satisfaction evidently, as is shown by the fact that the amount of sales have been far in excess of any previous year, and have 175 hands employed at present on their latest novelties.

W. H. Robinson & Co. are employing 110 hands, and yet are hardly able to keep up with the demand for their goods. They have five salesmen on the road, and sell direct to the retail trade.

Foster & Bailey have a factory well stocked with operatives, and have also had a good year's business.

Osby & Barton with their popular line of rings have done remarkably well.

Mr. Richard A. Kipling, the stone importer, returned per the crack steamer of the French line "La Bretagne" on Sunday last, having cleared from Havre seven days and odd hours before, and beat the fast steamer "Etruria" of the Cunard line which left Queenstown the Sunday before, twelve (12) hours to her wharf at New York by being compelled to wait for the tide at Sandy Hook. This trip completed Mr. Kipling's eighth by this steamer of the line between New York and Havre.

Monsieur John J. Hoff, foreign buyer for Mr. R. A. Kipling, is in town for a few days, having arrived from Paris per steamer "La Champagne" on the 20th ultimo, and will return about January 20th next. Mr. Hoff has made many pleasant acquaintances among the jewelers, being an affable and very pleasant gentleman.

At the thirteenth (13th) annual dinner of the New York Jewelers' Association, held at Delmonico's on Thursday evening, Dec. 1st, Mr. C. Anthony Fowler, of the firm of Fowler Bros., of Providence, Mr. J. P. Snow, of the firm of G. & S. Owen, and Mr. Wm. H. Thurbur, of Tilden, Thurbur & Co., were guests of the association, and the only representatives of the manufacturers of Providence. The dinner was one of the grandest ever given by the society, and was attended by some of the most prominent men in the country, including Mr. Alfred H. Smith, president of the association; Gen. W. T. Sherman, Noah Davis, Wm. Walter Phelps, Mayor Hewitt and others, and was a gathering of bright lights long to be remembered by those whose good luck it was to participate on the grand occasion.

Richmond & Co. have succeeded in non-suiting N. Strauss & Co., of Chicago, in their suit for $25,000 for damages for false imprisonment in connection with their failure of some two years since. Mr. Richmond was in attendance at the Chicago courts for about a week before the decision was reached.

Mr. E. B. Eaton, salesman for Mr. W. G. Hopkins, is still confined

at the Palmer House, Chicago, suffering from typhoid-pneumonia. His condition is considered to be somewhat improved by his attending physician, who thinks that he may recover eventually, but it will take a long time to do so.

Charles Downs & Co. report business to be very good with them yet, and already have a good number of orders on hand to commence the spring season with. FAIRFAX.

Providence, R. I., Dec. 15th, 1887.

THE ATTLEBOROS.

To the average person the name Attleboro is synonymous with that of jewelry. Here in this valley is a population roughly estimated of more than 16,000 inhabitants, and at least 10,000 of them obtain a livelihood from the manufacture of jewelry. It was jewelry that built up the town, and it is jewelry that keeps it up. Most of those who first went into the business here—I mean the pioneers—are now dead; but their places are supplied by younger men, and it is a curious fact that nearly every firm in the town is composed of men under the age of 45 years. They are progressive, pay good wages, do lots of work, live well, and generally enjoy life. They have their fast horses and nice residences, many of which are furnished elegantly, and a few of them have invested their money in property at home. In fact, they are a nice kind of people, and to them is due almost entirely the present prosperity of the town.

The past year has been a good one to every manufacturing jeweler in town. Many of them have run their shops thirteen hours a day for weeks at a time, while all have had employment for all the men they could use to advantage; but now, of course, with the approach of the holidays, the manufacturing trade has fallen off and most of the shops are merely making up a new stock with new styles.

It is queer how the business is regarded by different men. You ask one man how business is, and he says, "Good, orders away ahead;" and another man doing the same kind of work, will answer the question, saying. "The trade is dull, running short time, and the prospects are for a general shut down." What's the matter with this last kind of man? Is it poor salesmen or the inability to get up taking styles? Of course the greater amount of the goods manufactured here is cheap; in fact, cheap is no name for some of it. Jewelry is generally regarded as a luxury; but when it is shipped away in great packing cases, such as is used to pack cotton cloth, and is worth what it will bring per pound, it will hardly come under the head of a luxury.

It would no doubt surprise some of the uninitiated to step into such establishments as W. H. Wilmarth & Co., or Horton, Angell & Co., and see the unfinished goods stored about the premises in barrels They would be likely to ask where it all goes to, and I think that those who know the most about it would find it quite difficult to answer such a question.

Mr. Bullock, of the former of the above firms, told me some weeks ago, that on one of his trips to Kentucky, he saw some of the watch chains made in his shop, at so much per yard, worn by men who had every appearance of being able to wear the best. Such chains would hardly be worn by a bootblack in this part of the country.

I think the firm of Bates & Bacon must be making money in the manufacture of watch cases. They employ a great many hands and are busy about all the time.

The jewelers in this vicinity thoroughly believe in the adage, "All work and no play makes Jack a dull boy," and every winter finds some of them enjoying the beautiful climate on the Pacific slope. Mr. Fred. A. Newell, of the firm of Watson & Newell, starts the first of January for a four months' trip through the South and West.

G. A. Dean & Co. are running their usual number of hands, and have had a satisfactory business, the amount of which for the year exceeds that of 1886. They had more orders in December than usual.

Mr. C. R. Harris reports business better the past two months than the corresponding months of last year; but the year will foot up about the same as '86.

The "Bohemian Garnet" goods made by Blake & Claflin have had a big run. Their styles are certainly very attractive, and deservedly popular, while their sales foot up for the year to an amount that make them look quite happy.

F. S. Draper & Co. have had a good export trade, which, with their domestic orders, has given them a business for the year fully up to their expectations.

J. M. Fisher & Co., makers of seals, charms and novelties, report their trade better than last year, with favorable prospects for the future.

Cummings & Wexel report a satisfactory business.

Watson, & Newell employ over 100 hands on sleeve and collar buttons, which are so easily sold that one traveler only is required. This alone speaks volumes for the popularity of their productions.

Hayward & Sweet, successors to C. E. Hayward & Co., and formerly Hayward & Briggs, are also very busy. They make a varied line of goods, in popular styles, and sustain the well-earned reputation of their predecessors.

Short, Nerney & Co. have some radical changes in progress in their productions, which will appear in due time. They report a satisfactory business.

Tappan, Berry & Co. are quite pleased with their first year's business. Their specialities are lace pins, buttons and bracelets.

ATTLEBORO FALLS.

The manufacturing jewelers of this place speak encouragingly of their business, with reports generally of a good year's trade. The fact that R. F. Simmons & Co. employ about 200 hands on rolled gold plate chains gives some idea of the volume of business they are doing, while W. G. Clark & Co., with their popular sleeve-buttons bracelets, etc., though employing a less number of operatives, are doing a good business.

W. D. Fisher & Co. have a "Bee Hive" of a factory making swivels, spring rings, etc., exclusively for manufacturers and jobbers, and employ about 40 operatives.

Mason, Draper & Co. report a good, healthy business, and Sturdy & Sons seem "happy" over their chain trade.

B. S. Freeman & Co.'s factory is closed until January.

NORTH ATTLEBORO

is no exception so far as favorable business reports are concerned. S. E. Fisher & Co. are making, in addition to their desirable specialities, a line of very handsome enamel flower pins, on silver and plate metals, which find ready sale.

Healy Bros. report their sales this year ahead of '86. They are at work on some new designs in chains, which they expect to have ready for the spring trade.

It is no wonder that F. M. Whiting & Co. are busy, and deservedly so, for their novelties in solid silver are so numerous and handsome that no dealer could fail to find something which they could readily turn into money.

The officers of the late firm of C. E. Smith & Co. are not yet settled, but probably will be soon, and the business continued by other parties.

The appearance of the factory of J. G. Cheever & Co., with its multitude of operatives, speaks well for the popularity of the J. G. C. & Co. brand of chains, while Young & Bennett, making a similar line of goods, were pleased to say that their tradings realized their highest

expectations. A change in this firm will probably occur January 1st. Mr. Bennett expects to withdraw.

The office and factory of Mr. O. M. Draper, also chain manufacturer, clearly defined the fact that they were doing their share of the trade.

H. D. Merritt & Co. expect to increase the sales of their popular styles of chains by putting another traveler on the road. They have had a good trade but want more the coming season.

E. I. Franklin & Co. will add to their varied stock the coming season the "Krementz," one-piece, collar button, in gold plate. They are well pleased with their business, and the activity in their factory verifies the statement.

H. F. Barrows & Co. are busy on new goods for the coming season. They report a satisfactory year's business.

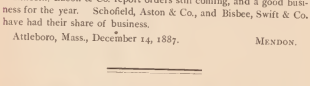
PLAINVILLE.

The Plainville Stock Company are very busy, with orders still coming in. Their factory is well filled and everything shows promising activity.

Wade, Davis & Co. are also doing well; their business for the year has been good and fully up to their expectations.

Lincoln, Bacon & Co. report orders still coming, and a good business for the year. Schofield, Aston & Co., and Bisbee, Swift & Co. have had their share of business.

Attleboro, Mass., December 14, 1887. MENDON.



What I predicted a month ago in regard to the trade in this city has been fulfilled. The season of dullness has been tided over, and the holiday boom has begun in earnest. It would be hard to find a jollier or more thoroughly satisfied body of men than are our Boston jewelers to-day, and a half-hour's walk down Washington street shows crowded stores, and windows ablaze with the choicest specimens of Christmas ingenuity. And, by the way, it is a remarkable fact, that despite the recent lack of briskness in the trade, when you press any of our large retailers for the exact figures they almost invariably admit that November's showing on their books compares favorably with a year ago. The wholesalers, especially, have had nothing to complain of for three weeks past at least. The country merchant has come to town in all the glory of his numerosity and plethoric purse, with the inevitable result of lessening the idle stock of the metropolis.

A. Paul & Co., who do an exclusively wholesale business, report a most gratifying state of affairs. Indeed, I was much surprised when one of the firm told me yesterday that there had been no let-up with them for three months.

"Our trade in ladies' watches," said he, "has been something phenominal, while in other lines we have been pushed very close. Of course I know that our retail brethern have not been quite so uniformly fortunate, but their turn will last considerably after ours has gone by. There is no reason why business should not be active this year, in my opinion. All the workmen in this country are at work, money is favorable, and the public are eager for novelties."

M. T. Quimby & Co. say they were never busier, and the appearance of their wholesale rooms warrants this statement.

The manufacturing fraternity are reaping their share of the general prosperity, and in spite of the lateness of the season are well supplied with advance orders. Treasurer Bates of the Ripley-Howland Manufacturing Company, said to me a few days since: "The call for precious stones this year has been giving us all we could do. Nor is this whim for stones by any means confined to diamonds, although the latter are prime favorites at Boston weddings and among our Back Bay residents. The tendency seems to be growing to regard as most desirable the quaintest and most delicate colors rather than rarety in the gems themselves. We have sold a very large number of rubies, which appear to be having a strong run among our New England customers."

"What is your opinion of the outlook, Mr. Bates, especially in regard to the effect of the threatened changes in the tariff, as embodied in the President's message?"

"I believe that we are going to have a steadily active business next year. Of course, immediately after the holidays, there will be the usual falling off, but that will allow us to comfortably take account of stock. As for the tariff, I am of the opinion that while any changes may unsettle things generally for awhile, the ultimate tendency will be toward improvement."

This hopeful view of things is of special significance as coming from the representative of one of the largest and oldest manufacturing wholesalers in this section of the country.

Mr. Taplin, of Taplin & Co., manufacturers, also speaks well of the fall trade and the outlook.

The spacious rooms of Bigelow & Kennard are thronged from morning till night, as also are those of Shreve, Crump & Low, just above them on Washington street.

The Winter street store of Mr. Alonzo S. Adams is making a brilliant display in these busy times.

George H. Richards, James M. Longstreet and Harwood Bros., all wholesalers, are unanimously of the opinion that the jewelry trade was never in a healthier condition.

I am glad to note the general prosperity of Messrs. Floyd, Pratt & Rounds, 408 Washington street. They are an old established and conscientious firm, and deserve every bit of the good fortune which has fallen to them.

D. C. Percival & Co., and Mr. D. A. Emery, who are near neighbors on Washington street, are both having the good success that the excellence of their stocks warrants.

Ex-detective M. V. Hcrson, who was convicted, after a long trial of stealing $1,500 worth of diamonds, from Smith & Knapp's traveling salesman, was recently sentenced in the Superior Criminal Court by Judge Bacon, to five years in the State prison, which is the full limit of the law. It is unnccessory to here rehearse the particulars of this sensation case, the progress of which has been closely watched throughout by the trade and public at large.

Competition in the jewelry business, hereabouts, at least, has come to be as close as in the clothing trade; and drummers are out for some of our Boston houses offering inducements which none but the most judicious buyers can refuse to accept.

"Ten dollars down, and one dollar a week," says one of these inviting gentlemen, "will give you a fine watch which I will guarantee for a year."

"But," says the customer, "I don't know that I can keep up the payments."

"That's all right," replies the man on commission, "I'll make that square."

Generally speaking, he does; but sometimes he is not able to do so, and as a result of this reprehensible practice of falsely stimulating the retail trade, the police court of late has been filled with people charged with unlawfully disposing of property thus purchased, by getting loans from their father's brother without having the right to do so on the collateral they offer. The latest important instance of the kind occurred some three weeks ago, when a number of the jewelers and diamond merchants of this city were seriously victimized, through their own over-confidence, by a trio of Polish Hebrew brothers—Joshua, Joseph and John Bittan, by name. It seems that on November 12, Joshua met an agent of the H. A. Prentice Co., of 409 Washington street, who confidingly sold him a pair

of diamond ear-rings on the instalment plan, value $125, the buyer paying $10 on account. On the same day, the latter made another purchase from an agent of the Oil & Crayon Portrait Company, of 36 Bromfield street, and carted off a gold Waltham watch worth $90, paying a small instalment. But lo! before the contract had been handed in to the firm, by the agent, Joshua, who was a man of good address and well dressed, visited their business premises three days later, and in the meekest manner possible, bought another pair of diamond ear-drops, valued at $250. Joseph, the second brother, on that same November 12th, met another agent of the H. A. Prentice Co., and bought an $85 gold watch, adding another to it on the 14th, worth $130, together with a diamond stud, valued at $85. Next day he called at the store and invested $7 in a plated vest chain. And now comes John, the third brother, who, not to be outdone, showed his family appreciation of jewelry by calling upon Mr. McDonald Roy, from whom he obtained $250 worth of diamonds and watches. The fraud was discovered by one of the Prentice Co.'s clerks, who was surprised to see the name Bittan appear so frequently on the books of the concern. Robert Gilman, lawyer, of 28 School street, was instructed to investigate, and although the gems were long ago undoubtedly on their way to the "fair land of Poland," their custodians will be met at Queenstown with an official charge of conspiracy to defraud. Walter F. Gregg, of 36 Bromfield street, loses some $450 by reason of having trusted this happy family within the three days referred to, and it is thought through the trade that they have, by their systematic methods, got away with upwards of $2,500 worth of goods. More recent inquiry shows that there are others at work in this direction, and the trade have instructed their lawyers to watch for developments.

The jewelers of Waltham and Wayland will breathe easier now that Frank O'Brien, of Worcester, and Edward Hanlon, of Maynard, have been placed under arrest. On the 6th inst. they were tracked by the police to a barn in Sudbury, belonging to Mike Early, and there, buried in the hay-mow, was found a peck measure full of jewelry, consisting of watches and trinkets of all sorts. Many recent local burglaries are now explained.

The annual report of Treasurer Hyatt, concerning the state of the national finances, has had a wholesome effect upon trade here in general, and the jewelers have come in for their share of the improvement due to this cause. By that report it appears that of the government's receipts for the year, 15 per cent. is from Boston.

Never were Madame La Mode and the artists more thoroughly in accord as to what is beautiful and proper to wear than at the present moment in the matter of jewelry and gold and silver ornaments. The two are most frequently sadly at variance, for the artists declare that the fashions are monstrous and hideous, while the retort is always ready that the so-called artistic ideas are impossible. But at the present time, and on the one point mentioned, at least, there can be no disagreement—for Madame La Mode has been graciously pleased to set her seal upon that which the most correct taste cannot fail to pronounce beautiful, and has stamped for acknowledged currency in her realm of fashion only the most artistic designs. The result is a window display for the holidays of unusual variety and brilliancy, and a trip through the trade soon exhausts one's stock of adjectives and produces a state of speechless admiration.

The tendency to odd and special patterns—to individuality, as it were, in personal adornment—is even more pronounced than it was last season. I find, for instance, that silver ornaments are more popular and beautiful than ever, the pins, chains, bracelets, sleeve-buttons and odd articles, half useful and half ornamental, being made from this metal in literally endless variety. All this of course necessitates the carrying of large stocks, as well as the exercise of a great deal of patience on the part of the clerks.

Boston, December 15, 1887. LORION.

P. S.—One of the latest innovations in jewelry stocks is the carrying of a special line of A. T. Cross stylographic pens. These appear very attractive in the show cases of our leading houses. They are profitable, withal, and those who are handling them report the greatest satisfaction. Ezra Marble, Jr., Manager for the Cross Co. in Boston, assures me that his success with the New England jewelers bids fair to rival that with the stationers.

The Chicago jobbing jewelers have just closed a year that for business activity and prosperous results has been far beyond the expectation of even the most sanguine. In starting out on the new-born year they can well afford to congratulate one another on 1887, and look for still greater things. With the exception, perhaps, of one month in the summer, when business seemed comparatively slow, there has not been a single week of the past year that has not averaged better than the corresponding week of the previous year. Money has been easy and collections have been prompt. General prosperity has been the characteristic of every staple line of business, and its effects have been markedly felt in the jewelry business, which is, of all lines, the most sensitive to depression or activity. Never in years has the local trade been so busy supplying the demand of the country retail trade. All the leading jobbing houses have been so pushed that they have been compelled to keep their employees at work every evening and all day on Sundays. One leading house visited by your correspondent on a Saturday evening, had no less than 600 orders waiting to be filled. If money comes in in proportion to the goods that have been sent out, the holiday trade of 1887 will be phenomenal for volume and profits.

All jobbers who have done a little figuring are free to state that the business of the year has been very considerably ahead of that of 1886, and it is entirely within safe bounds to place the increase at not less than 25 per cent. The watch trade has had a special boom, and has formed no small factor in helping up the jobbers' averages for the year. The trade in general has not made any unusual efforts to push business, and the increase will therefore represent still larger profits than usual. Business seems to have fairly flowed on the jobbing trade almost without solicitation. The city retail trade has felt the "boom," and never in recollection have the stores been so densely crowded with purchasers for the few weeks before Christmas and New Year's.

Mr. Geo. T. Conley, formerly of Chenoa, Ill., has settled at San Diego, Cal.

Mr. Geo. N. Conklin, of Marquette, Mich., passed through Chicago on December 8, on his bridal tour.

Mr. S. J. Hewitt, of Wortling, Minn., has sold out to Mr. C. W. Smith, a druggist, and gone to California.

Mr. J. A. Todd, of the Towle Manufacturing Co., spent the third week of December at the factories in Newburyport, Mass.

Mr. E. B. Elliott, of Libertyville, who was in Chicago last month to consult the local doctors, is now getting over his recent serious sickness.

Mr. W. B. Duncan, of Eminence, Ky., suffered a loss of $4,000 by the fire on December 2, which burned up ten business houses in the town. He was insured for $2,500. He will make a start again shortly.

Rowe Bros., the well-known State street retail jewelers, were victimized early in the month by a pair of elaborately dressed ladies, who succeeded in making an exchange of rings. The loss was, fortunately, trifling.

The Elgin Watch Company reports an active business this season, and predict a good demand for some time to come. Their factory is kept working to its full capacity to fill orders which accumulate rapidly.

The Hartford Silver Plate Company and Holmes & Edwards issued their new and attractive catalogues early in December. Both concerns are doing an excellent business under the able management of Mr. T. H. Purple.

Swartchild & Co. are still keeping to the front in the tools and material line. Mr. Swartchild is always on the outlook for some useful novelty. He reports business for the year as being entirely up to his expectations.

The Gorham Manufacturing Company has made a magnificent display of goods here during the holiday season, and, as a consequence, have been kept excessively busy. The western branch has become an important factor in the aggregate business of the company.

The Excelsior Sign Co., Mr. L. S. Grout, manager, is always on the alert working out new designs to catch the eye of the trade. Mr. Grout has now got his "Father Time" in excellent shape, and it is one of the most artistic emblematic designs that has ever swung in front of a jewelry store.

Juergens & Andersen, the well-known manufacturing jewelers, of 125 State street, have recently bought the property at 31 Washington street, formerly occupied by the New Haven Clock Company, for $60,000. They propose to fit the building up in a way suitable for their extensive manufacturing business.

Mr. E. E. Watrous, a traveler for the Chicago branch of A. H. Smith & Co., of New York, was assaulted and robbed of his watch and $600 in cash at Omaha, Neb., on November 21. He had just arrived from Kansas City, where had collected $600, and believes he was followed from that point by the robbers.

Mr. C. H. Knights will go to California with his family early this month, and remain away until the blizzards have all blown past Mr. Knights has had an excellent year's business, having done as much in such months as November and December as he did in the whole year of 1878, when he started in business.

The talk around the street is that Mr. H. H. Butts, the genial and popular representative in Chicago of Joseph Fahys & Co., will shortly settle in New York as a partner in the well-known New York firm of Wheeler, Parsons & Hayes. It is also openly remarked that Mr. O. G. Fessenden, of the Jewelers' Mercantile Agency, will take a position as credit man with the same important firm.

The American Waltham Watch Company has been having an extremely large trade this fall, and the orders from their western department, it is confidently stated, will exceed those of any previous years. Indeed, their western trade is growing so rapidly that it is a question whether or not it will not be good policy for them to remove their factories to this city before long.

Stein & Ellbogen are steadily increasing their reputation in the trade. This house makes very little display and parade, but founded on a sound financial basis, it is coming to the front as one of the most solid and reliable jobbing houses in the entire West. Stein & Ellbogen have done great things in their diamond department during the year, and will come out more than 25 per cent. ahead.

Giles, Bro. & Co. have had more than their share of the general prosperity. Their jobbing department has made an excellent showing, and their handsome retail show rooms have been one of the most attractive and largely patronized resorts in the city for holiday purchasers. Mr. C. K. Giles reports that the holiday trade has run mostly to the smaller articles of jewelry and plated goods, but the volume of business done has been remarkable, and he feels amply satisfied with the returns.

The Jewelers' Association of Chicago have decided to hold their annual banquet at Kingsley's on Thursday, January 5. They are feeling in excellent humor for a little relaxation at the present time, and the occasion will doubtless prove one of more than average brilliancy and interest. The banquet committee is composed of Mr. Otto Young, Mr. C. W. Wallis, Mr. J. V. Ridgway, Mr. L. W. Flershem, Mr. M. N. Burchard and Mr. Grove Sackett.

Benj. Allen & Co., the recognized head and front of the jobbing business of Chicago, is thoroughly satisfied with the condition and prospects of the trade. Business has more than exceeded his expectations, and he closes the year at least 25 per cent. ahead of the showing of 1886. Otto Young & Co., Lapp & Flershem, Mr. C. H. Knights, Norris, Alister & Co., have all a similar tale to tell. They have been so busy for the last month that they have had to turn every 24 hours into two working days.

One of the local trade papers dies with the close of the year, and another will rise from its ashes with the opening of 1887. The *Watchmaker and Metalworker*, which has been run for many years by Mr. H. A. Pierce, and has of late months been the official organ of the United States Jewelers' Guild, has been purchased by Mr. George H. Crawford, late of the Jewelers' Mercantile Agency, and will be conducted as a trade monthly under the name of *The Chicago Jeweler*. The Guild has no financial interest in the new paper, nor will it be in any sense that organization's representative journal. Mr. Pierce will now concentrate his efforts on his society paper, the *Elite News*.

Among those in town during the month were Mr. A. J. Doughty, Marinette, Wis.; Mr. L. S. Beckley, Nunda, Ill.; Mr. Davis New, Bourbon, Ind.; Mr. J. F. Daily, Neredah, Wis.; Mr. John Lasher, Elkhart, Ind.; Mr. A. J. Leach, Kasson, Minn.; Mr. D. J. Sullivan, Rockford, Ill.; Mr. M. B. Roberts, Swan Creek, Ill.; Mr. A. K. Camp, Milwaukee, Wis.; Mr. N. Christopherson, Menominee, Mich.; Mr. C. S. Vail, Seneca, Ill.; Mr. J. C. Peers, Rockford, Ill.; Mr. J. T. Heersch, Vincennes, Ind.; Mr. S. D. Pond, Sycamore, Ind.; Mr. Covell, Cleveland, O.; Mr. J. K. Barlow, Savannah, Tenn.; Mr. Hayden, Omaha, Neb.; Mr. H. H. Bishee, Ludington, Mich.; Mr. E. E. Bates, Edgerton, Wis.; Mr. W. M. Denman, West Unity, O.; Mr. G. M. Rigdon, Streator, Ill.; Mr. George Hanna, Rusl ville, Ill.; Mr. M. A. Kinney, Joliet, Ill.; Mr. F. L. Taylor, Aurora, Ill.; Mr. A. K. Lord, Hurley, Wis.; Mr. George Strickland, Merrill, Wis.; Mr. Frank Sell, Elkhart, Ind. W. A. B.

Cincinnati.

GOSSIP ABOUT LOCAL DEALERS AND TRAVELING MEN.

The Cincinnati jewelers, both wholesale and retail, are now reaping their annual holiday harvest. The stores are all crowded, and the universal cry is, we are head over ears in business. In fact, the jewelers were too busy to talk to anybody but customers.

There have been two events of importance, however, since my last letter that possess something more than a mere local interest. The first is, the purchase by the American Jewelry Company of a magnificent diamond necklace that was purchased at the sale of the crown jewels of France. When the sale of these jewels was first announced, many large American buyers of gems and jewels sent agents to Paris to be present at the sale and secure any bargains, if possible. Among the experts was a New York diamond dealer of note. Among the purchases was a magnificent diamond necklace; but before he paid the bill he found that he had overbought himself, and he had the necklace put up for the bidders of the next day. L. Strasburger purchased it for 50,000 francs, or $10,000. Mr. Strasburger was recently in the city, and Mr. Steinau received the necklace. It is made up of thirty-eight stones, weighing in all seventy-eight carats, some of them being valued at over $200 per carat. It is not prol-

able that a purchaser will be found in Cincinnati, though a few years since John R. McLean, owner of the *Cincinnati Enquirer*, purchased for his wife a diamond necklace of great price, said at the time to be the finest in America.

The Dueber Watch Company are having no end of trouble. The National Association of Jobbers in American Watches, which includes all the wholesale dealers in the United States, has dropped the Dueber Watch Case Company from their Association because they ignore the rules by supplying the Rockford Watch Company with cases. The latter does business outside of the wholesale jobbers, while the Elgin, Waltham and Springfield (Ill.) Companies transact business solely with the wholesale men. Hereafter the Dueber cases may be purchased direct from the manufactory, while heretofore all sales were made through the wholesale jobbers. The jobbers, it is claimed, who dare handle the Dueber case now, will not be supplied by either the Elgin, Waltham or Springfield movement. It is intimated that the trouble is mainly due to the purchase by the Dueber Company of the Springfield (Mass.) movement.

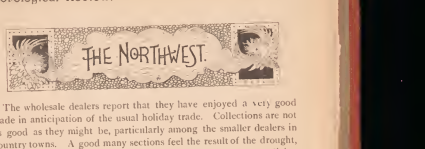
Mr. Dueber is bitter about the matter, and said: "The means used by these 'honorable' gentlemen to gain their points, remind one of the days of the Inquisition. The deeds of an anarchist are honorable in comparison. In vain did the jobbers protest against this disturbance of trade at this season of the year, but to no purpose, and the honorable gentlemen who control some of them thought by taking action at this time, we would be thrown out of our December business, and they would be able to dispose of some of their predetermined cases to better advantage. We have been well aware of the deep-laid schemes and the underhanded business these gentlemen have been engaged in during the last two years, which they vainly hoped would work to our injury, and was in retaliation for our manly fight for the interest of the retail jewelers, and because of our refusal to go into a scheme for the raising of gold case prices to the retailer."

Mr. Dueber discharged some hands who were suspected of being in collusion with the first who left. The Fahy Company of Sag Harbor, N. Y., have established a branch in this city. A representative of this company was seen, as Mr. Dueber alleged they were the main instigators of the boycott against him. He said: "There has been no boycott placed on Mr. Dueber. He has simply been expelled from the National Association of Watch Case Manufacturers for selling to jobbers outside of the Association. It is one of the rules of our Association not to sell to jobbers who are not members of the National organization; and Mr. Dueber, in violating the rule, laid himself liable to expulsion, and once last summer he violated this rule. I do not know who the parties were he sold to, nor who preferred the charges against him, but it was not our company. The Association has commissioners whose duty it is to look after violations of such rules, and I presume they detected it. The expulsion is not final. The local branch of the Association meet in January, and it is quite likely the Dueber Company will be restored to membership."

Mr. Dueber claims that he has not made any effort to get back into the Association through the squeezing chance that is left. He claims that he went into the combination in good faith, believing its principles to be honest; but was soon convinced to the contrary. "Its main object," he says, "is to destroy the smaller industries, particularly in the manufacture of movements." Mr. Dueber declares he is going to fight it out on General Grant's principle, and that before he gets through he will show up some of the crookedness that exists in the manufacture of watch cases, which he will do through the medium of a United States Mint assay.

Duhme & Co., the wholesale jewelers, were swindled lately by a beardless boy about twenty years of age, by the bogus check racket. His name is Horace M. De Bar, and he purchased a $100 watch of Duhme & Co., and ordered it sent to his residence, where he had a short time before rented a room. When the watch was presented, a certified check on the Franklin bank was given. It was a forgery. The young man had been operating in a similar manner in Chicago.

E. M.



The wholesale dealers report that they have enjoyed a very good trade in anticipation of the usual holiday trade. Collections are not as good as they might be, particularly among the smaller dealers in country towns. A good many sections feel the result of the drought, to which is attributed the small crops, and the farmers are realizing very little upon whatever they did raise, but there is not a great deal of complaint. One or two of the concerns here claim that they have done from 25 per cent. to 50 per cent. more than they did at this time last year. The leading retail merchants here have put in a large stock of fine goods in anticipation of a lively holiday trade. This has been a season of prosperity in both St. Paul and Minneapolis, and particularly with the millers, who are again making money.

The leading retail establishments are radiant with the usual display of holiday goods. Larger and more extensive stocks have been put in than ever before; and although at this writing it is nearly two weeks before Christmas, the stores are crowded with eager and interested customers. It has been almost impossible for your correspondent to get a word from any of the principal retailers in these two cities, who report that the indications are that before the holiday season is closed their trade will be much larger even than it has been in previous years. The stocks include a great deal in the art line and bric-à-brac, for which there is a rage at present, particularly in Minneapolis. A passion has been developed for the decoration of beautiful homes. The architects have encouraged the most unique designs, and one of the furniture houses, long established here, has led in the matter of decoration, and established a taste fully equal to any that prevails in any of the Eastern cities. Indeed, it is not an infrequent occurrence for this particular house to ship goods to Eastern cities. There are as many beautiful homes in this city, according to the population, as you will find anywhere. All this rage for handsome furnishings and drapings has made a market for a great many things in the bric-à-brac line, and the dealers have not been slow to seize upon the opportunity to meet the current demands. Beautiful clocks and bronzes, vases, and everything in that line, have been added and are now a very conspicuous feature in every jewelry establishment. This recent and important addition to the line of goods carried by the local merchants has resulted in some of them adding rooms especially designed and arranged for the display of articles of this kind.

There is an amusing rivalry between H. F. Legg & Co. and Eustis Bros., in this city, who have beautiful stores on opposite corners. The display of goods in their show windows has consisted principally of diamonds and precious stones, and a great deal of ingenuity is displayed in their arrangement. Recently Mr. Legg hung in his window a kettle over simulated coals on a tripod of gold headed canes, the whole decorated with diamonds. Just across the street the Eustis Bros. made a boat of down with a figure in the center, and the whole more or less dotted with jewels. Just at present Eustis Bros. have seized upon the toboggan rage here and have made a toboggan slide in their window. Three or four miniature toboggans bearing dolls are shown, and the whole made the basis of their liberal display of diamonds and costly jewelry. The show window is surrounded by people constantly, and the contest has become so interesting that shoppers never fail to stop to see what new turn it has taken, what new design has been evolved. The stores are both exceedingly handsome and modern in all their appointments.

Myers & Carpenter, of St. Paul, have recently moved to their new store at 71 East 3d street, and they now have by all odds the handsomest store in St. Paul. It is fitted with antique oak and handsomely decorated. In the rear of the main salesroom is an art room, which is finished in cherry and is also exceedingly handsome. Although

the store is by far the handsomest in St. Paul, it still stops short of the elegance in appointment which has been achieved by several of the dealers in Minneapolis. It has always been some matter of surprise in the trade why Mr. E. A. Brown, who enjoys perhaps the best trade of any dealer in Minnesota, still contents himself in the little store in which he started in business in St. Paul, 15 or 20 years ago, Mr. Brown, himself, is still away in search of health, and will probably be absent during the winter. His brothers, who have long been associated with him, have charge of the business.

While Mr. Myers has moved into new quarters, his old partner, Mr. Finch, is doing a rushing business in his little store, down in the midst of the jobbing center of the city. I was in there yesterday, and the store was crowded with customers. When he moved down there, as I said in a previous letter, he hoped to secure the trade of the business men, and in this he has succeeded; but, strange as it may seem, now that the holiday trade is on hand, he has his fair proportion of customers from among the ladies. He, too, will have to move into new quarters soon in all probability.

Mr. Willis E. Carpenter, junior member of the firm of Myers & Carpenter, of St. Paul, died on Saturday, November 26th, of rheumatism of the heart, with which he had been troubled for the past two years; so that during the past year he has been almost unable to attend to business. Mr. Carpenter came to St. Paul from Boston about six years ago, and afterwards became associated with the firm of Myers & Finch, and later purchased Mr. Finch's interest in the business. He was an especially popular and capable gentleman, and leaves a widow but no children. The remains were taken to Lebanon, N. H., for interment, and Mrs. Carpenter has gone East to reside permanently. The business is still carried on under the name of Myers & Carpenter. Mr. Myers may continue it alone, but his preferences are for a congenial partner, if such can be found, and some change in the firm, it is not unlikely, will be made very soon.

Mr. J. R. Elliott has been making changes and improvements in his store. He has now added a little art room in the rear, reached by three or four steps, and a handsome stairway, the opening decorated with fretwork and appropriate draperies. It is a decided improvement in the appearance of his store.

There is a good deal of social gayety this winter, and the prevailing fashion in dress has led to an active demand in diamond necklaces. Several sales of costly gems of this character have already been made, and dealers anticipate further sales for holiday presents.

A new jobbing house has been established in St. Paul by Mr. I. V. Miller, who will begin business in a small way.

At Cloquet, in this State, the failure of Mr. James E. Page, who was associated with Mr. C. F. Richart in the jewelry business, under the firm name of Page & Richart, has been followed by Mr. Richart assuming control of the jewelry bussiness, with all its liabilities. Mr. Page, who was engaged in other business, has turned it over to a trustee.

Minneapolis, Minn., Dec. 10, 1887.

Trade Matters in New Orleans.

Such a busy place as New Orleans is just now. Every one at home, every one out from morning till night, mixing in the wholesome stir and bustle animating the streets on the near approach of the holidays. Christmas is the great festival in the southern catalogue of days, and no matter who mopes and saves the livelong twelve months, when the twenty-fifth of December comes round there is a general loosening of purse strings and jollification to precede the greatest birthday of the year. All up and down the main thoroughfares merchants are showing signals of the big trade at hand. No such preparations have been seen for a score of seasons past, but this year with fine crops, prosperous harvests and fair prospects for the future, extensive and rich stocks were laid in, and the move was a wise one as this sequel is proving. New Orleans could never be accused of apathy or dullness from her gay manner at present; one-half the population has for sale what the other half seems only too ready to buy. Butchers and bakers and candlestickmakers, not to mention those in the higher walks, are all booming along in great form.

As has been said, this is the time when luxuries come to the fore, and heading the flourishing ranks just now is a substantial corps of jewelers. Griswald's is thronged all day long. No finer business is being handled to day in New Orleans than passes under the watchful management of this most reliable firm. Their windows show a brave and glittering display of goodly merchandize. Besides a handsome capital invested in jewelry and precious stones of every description, they are offering a superb assortment of holiday gifts at reasonable terms. Country custom is pouring in on them, making everything wear a rose-colored hue for this deserving house.

Mr. Scooler, too, is doing well. He furnished many of the magnificent gifts exchanged at the numerous fashionable weddings this winter. This establishment makes quite a specialty of manufacturing unique and costly ornaments of gold, silver and mixed metals.

Mr. A. M. Hill is a rarely prosperous merchant. He is showing this winter a splendid stock of novelties, enameled flowers and jeweled pins of elaborate workmanship. His windows are never without a crowd, thronging the big plate glass squares that reveal a host of charming things. No one is more popular in commercial circles, for in spite of his thriving business, Mr. Hill finds time to indulge in much manly exercise. He is one of the great bicyclers of New Orleans, a champion rider who has been the prize knight on more than one occasion. Franz & Opitz are importing heavily this year. They do a trenendous wholesale business, and are looked upon as staunch and stable in every way.

Chartres and Royal streets are two favorite boulevards for the jewelers. French taste is still dominant in this part of town, and it is here most of the creole population give their custom. As a rule, a rather light and fanciful style prevails. The stones are as pure and fine as those bartered in other localities, but the gems are differently set. There are more chains, bracelets, lockets and ornaments for the throat and neck than strict fashion dictates just now, but the gentlemen whose establishments are below Canal street are noted for prompt and devoted attention to patrons, and the most reasonable prices for their high grade of goods. Koch & Dreyfus, Mr. Theodule Picon and Mr. Lucian Aimout are all located on Chartres, and Mr. Eugene Burier, Mr. Andrian Brunet, Mr. Arthur Ginreulovich and Mr. Gustave Hyver are among Royal street's jewelers. Poydras, one of this city's great thoroughfares and business centers, has a number of prosperous merchants in the trade, among them being Mr. John Wandel, Mr. Samuel Cohen, Mr. Anthony Erler and Mr. Joseph Furst.

As in many another enterprise requiring thrift and lots of go-aheadativeness, a woman stands in the front ranks. Theresa Hausmann is a little lady who has weathered many storms of adversity and come bravely and triumphantly out of them all. She has a good, steady run of custom, and besides selling imported goods, has a factory where she keeps half a dozen men constantly employed. Much patronage goes to this nicely managed jewelry house on account of the great regard every one has for its nice and upright proprietress.

The lottery drawn here once a month has an influence on the jewelry trade as on many another line of business. Merchants tell of the harvest they reap whenever prizes are paid holders of lucky numbers. The first place they go after gathering in the shekels is to buy ornaments for wives sweethearts, daughters and selves. Men

and women all indulge alike, and whenever the morning papers announce big prizes won in New Orleans, the jewelers are sure of a good share of the profits.

Trade Matters In and About Atlanta.

Since I last wrote you, Atlanta has undergone a great change from a commercial standpoint. In 1885, by the voice of the people, the city was carried for prohibition, and consequently all wholesale and retail dealers in the liquor traffic were forced by law to give up their business. Recently the order of things has been reversed and the city will henceforward have all the liberty she wants, and, I am afraid, a little to spare, such as it will be. Prohibition was an untold blessing to the people of this city, and especially to the laboring class. Atlanta has been booming for the past few years, and will continue to do so whether whiskey is sold here or not. For the last two years there have occurred many things here that are worthy of note, and, in fact, ought to be closely considered both by buyer and seller. The people generally have bought more goods at better prices and paid for them than ever before. This fact is significant; it shows the country to be in a good condition, ready to buy first-class goods. For a long time after the civil war, and in remote portions of the South at this day, a very inferior quality of goods was sold to the people at almost fabulous prices, but, generally speaking, such is not the case now. The merchants in Macon, Savannah and Montgomery report most favorably in regard to their sales, and state that their trade this fall and winter has been unparalleled. Talking the other day with one of the leading jewelers of Columbia, S. C., he stated that his trade, and he thought the trade of his brother jewelers, had increased over one hundred per cent. of this time last year. This is but the exponent of the expression everywhere uttered in regard to the trade.

Our merchants in this city did a much larger trade than last year during the holidays. The importations of Messrs. J. P. Stevens & Bro. have sold rapidly and the rush is not yet over. This is one of the most trustworthy firms in the South.

Mr. A. K. Hawkes, who has a large house here and one in Houston, Texas, is regarded as one of the best opticians in this country. He uses his own patents and they are popular with the people.

The holiday trade of Mr. Fred. J. Stilson was something enormous. The fact that he keeps nothing but the best is a great inducement to first-class buyers.

The new house of Mr. L. Snider, which we mentioned in our last, is doing a fine business. Mr. Snider has made business friends rapidly, and we predict will eventually have one of the finest jewelry houses in Atlanta.

Mr. F. C. Wade, a young man, is making his mark in the designing and manufacturing of badges and medals. Some of the neatest work we have ever seen came from his factory. He makes this line a specialty.

The large corner building, formerly occupied by the large jewelry establishment of D. N. Freeman & Co., has been fitted up and is now used by the Capital City Bank.

That live and enterprising man, Mr. A. L. Delkin, has recently re-modeled his wholesale department, and it is a "beauty for you to see." He is a young man but has an old head on him.

Mr. C. B. Douglass, of Troy, Ala., has greatly increased his stock, and is pushing his business with much energy. A live man, as he is, will succeed anywhere.

Mr. Harry Mercer, one of Birmingham's best jewelers, did an immense business during the holidays. His salesrooms are the prettiest in the City.

Mr. Ernest Karthaus, of Huntsville, Ala., is one of the largest jewelers in that city, and his reputation as a first-class merchant extends far beyond his State.

Many changes will take place in the beginning of the new year, and I will make mention of them in the next issue of your valuable review.

F. J. K.

The Jewelers' Security Alliance.

President, David C. Dodd, Jr.
First Vice-President, Augustus K. Sloan.....Of Carter, Sloan & Co.
Second Vice-President, Henry Hayes.....Of Wheeler, Parsons & Hayes.
Third Vice-President, David Untermeyer.....Of Keller & Untermeyer.
Treasurer, W. C. Kimball.....Of Strange & Brother.
Secretary, C. C. Chamberlin.....Of Champenois & Co

EXECUTIVE COMMITTEE.

J. B. Bowden, *Chairman*.....Of J. B. Bowden & Co.
C. G. Alford.....Of C. G. Alford & Co.
Geo. W. Fabre.....With Howard & Son.
F. Kroeber.....Of F. Kroeber Clock Co.
N. H. White.....Of N. H. White.
Chas. G. Lewis.....Of Randel, Baremore & Billings.

EXAMINING FINANCE COMMITTEE.

Geo. H. Hoddepyl.....Of Hodeppyl & Sons.
Chas. F. Wood.....Of Chas. F. Wood.

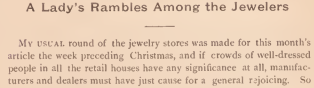
Counsel, Hon. Algernon S. Sullivan.

For further information, Application Blanks for Membership, By-Laws, etc., Address P. O. Box 3977. 170 Broadway, New York.

At the meeting of the Jewelers' Security Alliance December 7, the following applicants were admitted to membership:

James S. Walsh, Yonkers, N. Y.; Gustav Hoffman, Lebanon, Ill.; T. C. Siede, Canton, Miss.; Wells & Gunde, New Haven, Conn.; H. G. Chatfield & Co., Waterbury, Conn.; Albert B. Parker, Norristowe, Pa.

Harvey B. Locke, Market Square, Amesbury, Mass., Harry H. Weylman, 213 Market street, Kittanning, Pa., and Frank Herschede, 179 Vine street, Cincinnati, Ohio, were admitted to membership in the Jewelers' Security Alliance December 9.



A Lady's Rambles Among the Jewelers

My usual round of the jewelry stores was made for this month's article the week preceding Christmas, and if crowds of well-dressed people in all the retail houses have any significance at all, manufacturers and dealers must have just cause for a general rejoicing. So great was the rush and so many the packages the last days, purchasers gladly carried their own bundles home, feeling fortunate in having been able to make the purchases. During the entire month of December, "open evenings" was a necessity at such houses as the Gorham's and Tiffany's, and it is only fair to state that never was the exhibit by either of these firms more prolific in beautiful and unique novelties than was this season's. Works of art, gold and silver plate and precious gems in profusion, without counting the thousand and one fancy articles of luxury, made the holiday show a perfect one, and gave to everybody with plethoric purses rare opportunities for selections in articles of permanent value. That great

class, the popular trade, was equally well provided for in standard goods in new designs and in fancy articles of moderate cost.

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More ambitious attempts than ever were made this season in the dressing of the store windows, and the improvised work was often excellent, especially when decorative articles were exhibited. The opinion is very generally expressed that the tempting window shows are a successful invitation to the passer-by to walk inside, and that having once found the way inside, it becomes an easy matter to make a purchaser out of a would-be sightseer.

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The articles that found a ready sale at the holiday season were, many of them, things that have come to stay during the year 1888, and will figure conspicuously in the spring trade. Among novelties submitted to holiday buyers that will prove popular throughout the year, and which find a place now in all first-class jewelry and silver retail houses in New York City, are objects that combine artistic elegance with purposes of household or personal utility. Numbered with these, and growing every year more popular, are furnishings for the toilet and for writing desks. The former were too fully described last month to require a repetition now.

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The inkstand, which may popularly be termed a "leader" on the desk or table, is a common subject for artistic treatment, and the result is a marvelous number of fanciful devices in this direction. Many of these receptacles for the dark but useful fluid are veritable surprises, as, for instance, the silver figure of a monk at prayers, whose figure parts longitudinally at the waist to disclose a hidden black pool. Bronzed obelisks with silver hieroglyphics; decorative pottery bowls encased in richly floriated silver standards, and log cabins of bronze and steel, with roofs that open with a spring, are a few among the many devices that serve as inkstands. This season have reappeared the ebony stands decorated with garlands and branches of silver, gilt brass or gold bronze.

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In this connection it may be well to call attention to the largely increased use of decorative pen and pencil holders, as well as the ornamental paper knives, envelope openers, paper weights, calendars and postage stamp boxes, that imparts a sense of luxurious comfort to milady's escritoire.

***

Art metal lamps are legitimate objects in every jeweler's stock, whether these be composed of bright copper, brass work, silver or choice porcelain bowls in metal standards, and they are, if possible, more fashionable than ever before. Their principal effectiveness is due to the classic designs, the bright metal work and the soft, rich colors of their shades.

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Not one whit less popular than decorative lamps are candlesticks and candelabra, which not only copy English designs that have been in existence for generations, but are out in modern patterns equally meritorious and affording quite original conceptions.

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Ceramic ware is now a prominent feature in combination with silver. Much of this possesses great elegance of form and wonderful treatment of color surfaces, that add to the effectiveness of the artistic silver standard or framework which receives it. The newest and perhaps most pleasing mode of combination is that known as the silver deposit, which partly hides and partly discloses the choice vase, bowl, jug or cup it holds in its clasp.

***

Dejeuner and dessert services are of frequent occurrence, lavishly enriched with fanciful designs, and representing crown Derby, Minton and Doulton bowls. There are also veritable treasures in way of such choice Japanese porcelains as kaga, mandarin and kiota tea sets, rose jars and the like, mounted on silver standards of appropriate designs.

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In table and fancy glass of cut crystal, etched and engraved, appear many articles of popular service, articles that enhance the attractiveness of a jeweler or silversmith's stock. Then there is a long list in the direction of toilet bottles, jugs and boxes, not to mention such small pieces as cologne and glove vinaigrettes. There is a demand for small bevelled mirrors in a framework of silver, as well as for the regular hand glass with a silver back. But why continue the list? Every wide-awake dealer must have learned by this time the importance of keeping in stock a full line of choice bric-à-brac. The readers of The Circular, at all events, understand the importance of a diversity of goods and an attractive exhibition of the same.

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The association of silver and gold in one object mentioned last month, and appearing not only in articles of jewelry, but also on umbrella and cane handles, seemed to please the fancy of holiday shoppers, and will doubtless appear in hair pins, bracelets, brooches and the like for the spring trade. This association is especially effective when the silver portion of the ornament is oxidized.

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The combination of stained ivory and silver, on which etching appears, proved during the season just past a favorite one in such articles as button hooks, shoe lifts, umbrella handles, brush handles and similar objects.

***

The decorative articles in silver which proved most acceptable, it would be difficult to specify; in a general way it may be said that everything that could by claim to originality of design and good workmanship was in demand. The ornamentation of these articles is as varied as the articles are numerous. The gold decoration, inlaid on silver and flush with the surface, represents one of the more pleasing new styles, while *repoussé*, oxidizing and etching represent the popular styles.

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Numbered with acceptable designs on silver are the poppy and hawthorne patterns in *repoussé*. Floral designs appear to have lost none of their prestige, but occur in all classes of decoration. Rich colored enamels play an important part in jewelry, and never have our own manufacturers shown better specimens of their work than is now in the show cases. The gold grain work has proven very satisfactory, and is especially attractive when overlaid on an enameled background.

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Enamel is much used on the cases of the new watches for ladies' wear. Watches, by the by, of irregular shape, such as a shell or an

octagon, are of frequent occurrence. A unique watch case seen was enameled in black and set with six fine diamonds, one in the center and the others placed at equal distances apart around it.

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Some very elegant watch chatelaines have appeared along with other resuscitated fashions; indeed, these chatelaines follow naturally in the wake of decorative watches, for how else would the costly affairs be seen? One style is a chatelaine and watch to match in decoration, in illustration of which may be mentioned a diamond chatelaine representing a *fleur-de-lis*, the same design appearing on the watch case traced in diamonds.

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While chatelaines have re-appeared, both in costly affairs and in silver, to wear with decorative silver watches, the Queen continues to lead, being the standard sort for ladies' wear. For men's use, the fancy vest and Dickens' chain compete for favor; both are fashionable, and it is a mere matter of taste which is worn.

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From all that can be learned, the demand appears to necessitate the carrying in stock of both the single and linked sleeve buttons. In any event, both kinds are out in a bewildering array of designs. An exceedingly pleasing single button seen is one composed of gold and platinum; these metals representing two strands or ribbons tied so as to form a square knot, and consequently a square button. The same idea is carried out in round knots and flat knots, and the result, as has been told, is very effective. In links, a unique pattern is of Japanese origin, and gives one button in form of a Japanese idol and the other a scorpion. In this class of buttons the buttons are of silver, with applied gold and copper designs. Buttons in form of a rough nugget of gold, with or without a gem sunk in the center, afford another style.

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The sales at Christmas time, as well as the reports from travelers on the road to a leading manufacturing firm, disclose a largely increasing demand for gold thimbles with ornamented borders. Thimbles of gold, costing $8 and upwards, it appears, have met with great success, selling almost as freely as did silver thimbles a few years ago.

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Ear rings, which have been the slowest of all personal adornments to return to widespread favor, have, of late, shown a decided activity in the out-of-town trade, as well as in the sales made in this city. Quite new for the holiday trade, and likely to prove acceptable throughout the year just begun, are gem-set ear knobs. In some of these the gems are set in a cluster, with a colored stone in the center and the brilliants around that. In others two stones may appear, a colored one and a diamond; again, the gems take on the form of a tiny star or cross.

***

Ball and hoop ear rings are meeting with a fair demand; the former, when enameled and overlaid with gold grain work, are very effective, and the latter take well when of filigree, made sparkling with tiny brilliants.

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There appears a slightly increased use of ear rings and ear knobs in fanciful patterns, such as a little gold canoe with platinum or silver oars, or *vice versa*. In knobs, small gold pins with pearl heads, thrust through a small fly or other design, have appeared.

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Brooches, ever since their revival have, here in the city, increased in favor, but, strangely enough, they do not appear to have affected in the least either the flower pins, the fly pins or the old, old lace pins. These all are worn and all are represented in the newer goods. Some manufacturers go so far as to claim that the lace pin sells better on the road than any other. A well-known manufacturer of white stone and imitation pearl jewelry of the first class kind, says the lace pin, in his line of business, leads. The patterns here seen, by the way, were very graceful and dainty in outline, and this fact, in connection with excellent workmanship, doubtless accounts, in part at least, for the continued popularity of an old favorite.

***

Numbered with new lace pins are bars of oxidized silver on which are mounted antique, marine or sporting subjects in bright silver. Diamond and gold arrow heads ornament some of the gold lace pins. An attractive lace pin is formed of several small pearl *fleur-de-lis* in a row.

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The Parma violet jewelry, including pin and ear rings in gold or silver, remains in favor, the finish being enamel of hue, in perfect imitation of the natural color of the flower. Very pretty flower brooches are formed of three violets resting on two diamond-covered leaves.

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There is a strong tendency, not only in the ladies' attire, but in their personal ornaments, to the antique. Notable instances of this are the girdles and chatelaines, the rings set with engraved seals, watches copying in form and style of decoration Louis XIV. and Louis XV. timepieces, and brooches simulating a double heart in diamonds and rubies, and claimed to have originated with Mary, Queen of Scots.

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The extended employment of small and imitation pearls is noticeable in the gold jewelry made to sell at popular prices. These pearls are much associated with turquoises of small size, and the effect is refined and attractive. The popularity of imitation pearls is not even imagined by the uninitiated, the truth being that these pass in nine cases out of ten for the genuine article when properly made and mounted. Imitation pearl beads and necklaces are especially good selling articles.

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While hematite is not an imitation, it resembles greatly in appearance pearls of black and dark gray hue, and has, therefore, gained a permanent place in jewelry for elderly ladies and ladies in mourning. It figured this season in new settings, along with other jewelry of the more sombre kind.

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The turquoise, which is now so largely employed in inexpensive jewelry for grown people, is emphatically the stone for children's ornaments, and is of frequent occurrence in the jewelry made for juveniles. Its peculiar shade of blue is not only fitting for children, but makes it, as well, a valuable combination with the diamond, the pure white of that gem offering a beautiful contrast with it. While there are

many inexpensive turquoises, this does not imply that there are not also some rare and costly specimens of this favorite Oriental stone. It is only a short time since the daily exchanges were lauding the $5,000 trinket purchased by Mrs. Langtry, and containing what is claimed to be the largest and finest turquoise in America. Large turquoises are extremely rare, and when of perfect color and quality, command high prices. A serious objection to the turquoise with many, is the fact that it is liable to fade. When of fine quality, however, if properly cared for and kept from all contact with acids, musk or other perfume, they will remain in possession of their desirable color for many years. The Persian turquoises are, as a rule, most perfect, and therefore most valuable.

***

Manufacturers who thought when studs came in that scarf pins would go out, have been pleasantly disappointed. As has been explained in The Circular, these two styles of jewelry cannot affect each other, so long as the fashion in men's attire calls for the wearing of studs with one sort of dress and the wearing of scarf pins with another. Evening dress, with the low cut waistcoat and simple necktie, necessitates the wearing of studs. Business and other day suits, with scarf covering the white expanse of shirt front, require scarf pins. The result is, every man wants both kinds of jewelry.

***

While plain gold studs are much worn, gem-set ones are affected by many. The little round clusters afford a pleasing style, but newer than these are the studs set with four small gems so as to form a square, and appearing at a short distance like a glittering diamond block.

***

Gem bracelets, as half-hoops of pearls, diamonds and sapphires are termed, are a favorite style for evening wear. Bracelets meeting with active sales during the month past, were broad bands of colored enamels in Renaissance styles upon a white ground bordered with a narrow edge of gold. Another pleasing style is the curb chain bracelet, studded with jewels.

***

Small ornaments in antique silver and linked together with chain attachments, have appeared along with other new things in way of bracelets. The new bracelets of oxidized silver bands, joined together with little gold balls and having for a top or central ornament a genuine antique gold or silver coin, are attracting much attention from seekers after unique ornaments.

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With an endless variety of bracelets from which to select, ladies continue to purchase by the half-dozen the silver wire bangles that have so long been worn.

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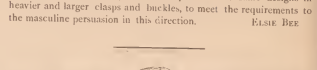
Since it has become popular with many New York men to wear long stockings, stockings that come up well over the knees, garters for men's wear have appeared. At first these were extremely simple affairs, being often the spiral wire ones that cost 15 cents per pair in dry goods stores. But this season have appeared quite elegant affairs in broad silk elastic, finished with silver buckles. This will delight the heart of those manufacturers who make a specialty of ladies' garters. They will only have to reproduce the same designs in heavier and larger clasps and buckles, to meet the requirements to the masculine persuasion in this direction.

Elsie Bee



Birmingham, Dec. 5, 1887.

The fashion for mosaic jewelry still continues, and makers report that, considering the lateness of the season, the sales are very large. As the trade becomes educated in the styles that suit the mosaic best, so the patterns improve both in fitness of the design of the moment to the mosaic, and also in the quality of design. Most of the better quality mosaic brooches now made have quite an eastern style about them, being such shapes as crescent, crescent and circle, scimitar, and many other well-known Oriental shapes, or an oblong shape mount, with some Oriental style of filigree work on.

Those makers who cater for a continental jewelry trade, report that sales are gradually increasing, and it seems probable that in the next few years the amount of jewelry sold there will be very considerable. A sign of the growth of this trade is, that travelers who go through the continent and have been accustomed to only carry heavy goods, are this time looking about for samples of jewelry likely to sell on the continent; also several enterprising houses principally engaged in diamond mounting have opened houses in Spain and taken English workmen there.

I see from various reports in The Circular that you are troubled with dishonest traders in the States. Below is extracts from an examination of a bankrupt manufacturing jeweler, Mr. H. C. Stokes. The other names mentioned, Bishton & Fletcher, are wholesale jewelers who have recently arranged with their creditors, Beach & Minte, a firm of merchants of over 50 years who have recently failed, Mr. Henry Payton, head of the firm of C. Payton & Sons, one of the largest firms of manufacturing jewelers in the trade.

The bankrupt said: He could not say where his bill book was, but he would not swear he had not seen it since the filing of his petition. He believed the trustee took possession of it. In 1884 he had accommodation bills running to the extent of about £3,000. In March, 1885, Mr. Beach, of the firm of Beach & Minte, was short of money, and he (the bankrupt) told him that he thought he could relieve him, and he did, to the extent of £500 or £600. He had accommodation bills, and Mr. Beach allowed him to draw on them in excess of the money he had from him (the bankrupt), and he used the proceeds of the bills until they had accumulated to £5,531.

He did not, however, have the use of the whole of that money; the actual money he received or benefitted from had been about £3,500. The other bills had been as collateral security for people and for which he had not received anything.

The Official Receiver—But you have prejudiced Beach & Minte to the extent of £5,000. It is no advantage to them what you have got by the bills?

The Bankrupt—No.

In reply to further questions, the bankrupt said: He commenced to deposit stock in December last. Mr. Henry Payton was a creditor, but his name, for some reason which he could not explain, did not appear on his statement of affairs. Mr. Payton discounted two bills for £467. They were the acceptances to his draft on Beach & Minte. Mr. Payton held as security the bills of Bishton & Fletcher. It was a bill which Bishton & Fletcher obliged him with for a purpose. He got a fresh bill from Bishton & Fletcher because Mr.

Pay on required it. In December he gave Bishton & Fletcher a bill of Beach & Minte's for £232, and received at the same time three bills, two for £70 each and one for £73.

THE OFFICIAL RECEIVER—Do you say you accepted these bills for Bishton & Fletcher's accommodation and they accepted bills for yours?

THE BANKRUPT—Generally it would be so.

THE OFFICIAL RECEIVER—Were there any trade transactions between you?

THE BANKRUPT—No.

THE OFFICIAL RECEIVER—Did a circumstance like this occur: that one or other of you prepared acceptances, you got them discounted and then divided the proceeds?

THE BANKRUPT—In one or two bills which I drew they would, perhaps, have half the proceeds.

THE OFFICIAL RECEIVER—Was it, then, a mutual arrangement with you and Bishton & Fletcher to raise money in this way?

THE BANKRUPT—It was as I have explained to you. The ledger is here.

THE OFFICIAL RECEIVER—The result is, you owe them a considerable sum?

THE BANKRUPT—The balance on all bills is about £352.

THE OFFICIAL RECEIVER—Who first made the overtures, you or Bishton & Fletcher, to raise the money?

THE BANKRUPT—I had discounted some bills for White & Hawkins, drawn on Bishton & Fletcher for Hawkins; that was the starting point.

THE OFFICIAL RECEIVER—Did you ask Bishton & Fletcher to oblige you with their name?

THE BANKRUPT—No.

Mr. Hackney, on behalf of Bishton & Fletcher, said the bankrupt's statement was false.

THE BANKRUPT—I can show the receipts.

This accommodation bill business is decidedly on the increase and something must be done to stop it. SOLITAIRE.

LONDON, Dec. 15th, 1887.

There cannot now be a doubt that an improvement is taking place in our trades; whether this is the natural reaction from the great depression through which the jewelry and kindred trades have passed or is merely the effect of orders for Christmas requisites is not quite clear. I am, however, inclined to think that while the Christmas orders may partly account for the extra work at some factories, there is an indication of permanent improvement. The jewelry trade is the first to feel the effects of any depression, and the last to reap the benefits of any improvement. When profits begin to fall off, people dispense with luxuries, and when trade revives they pull up arrears before indulging in luxuries or ornaments again. Our trades has suffered because every other industry has been more or less under a cloud. Now that other trades are looking up we may expect to share in the general prosperity in due time. But the jewelry trade has suffered most from internal causes. The large number of failures, both of manufacturers and retailers, has had a most injurious effect upon the whole industry. The energies of manufacturers have been impaired by the constant fear of fresh failures amongst their customers. The failure of a retailer is not only injurious to his creditors, but to the entire trade. The depressing influence which forced sales by auction must always have on regular trade cannot be estimated.

Factors who would otherwise order from the makers, regularly attend these sales, buy goods at greatly reduced prices and sell them to retailers for less than the manufacturers of them could. The retailers—storekeepers—having bought "bargains" give the public the benefit of their purchases, and by selling goods to the consumer at about the cost of production, render it almost impossible for the fair retail price of those goods to be obtained again.

It may be said that these forced sales are only temporary—so are the measles—but they are both very troublesome.

The watch-making industry is much disturbed by the "New Merchandise Marks Act." Your readers may be aware that English makers have been in the habit of using some parts of watches made abroad, but the whole being made up by them and the movements put in cases bearing the English Hall-mark, the watches have been sold as English.

The new act makes the selling of foreign movements in English Hall-marked cases, or the selling of foreign watches as English, an offense punishable by fine or imprisonment, unless at the time of sale a statement of these facts is given in writing to the customer, *without his requesting it.*

There must be many watches of such kind in the retail stocks and great care will have to be taken to conform to the law when selling them. The variety of marks required to describe

An English watch in an English case,
A foreign watch in an English case,
An English watch in a foreign case,
Or a watch wholly foreign

will, it is thought, render it necessary for present stocks to be sold subject to certificate only. The act makes it penal to sell any article with a description "what is calculated to mislead customers as to the place or country where the goods are made or produced."

Everyone knows the act is simply intended to prevent dishonest trading, but it is capable of being applied mischievously. No one ever supposes that Banbury cakes, Paris blue, Worcester sauce, or Windsor soap, are made only in the place after which they are named; yet if these every-day commodities are sold without a certificate the vender is liable to fine or imprisonment. Of course this is an exaggerated view of our case, but it is possible one and I think shows that the recent legislation has been a mistake. The public should be protected from fraud, but this could best be done by mistrusting them in the real meaning and value of the Hall-marks.

retail jewelers have another grievance just now to the front. There are very nearly 10,000 of them in the United Kingdom, and they trade by virtue of a license from the excise. They complain that drapers, stationers and others are selling jewelry—gold and silver—without a license. An agitation is being made to remove this disability, and if it succeeds, the trade will receive a healthy impetus. Your readers are not so surfeited with "jubilee" proceedings as we have been and I may therefore mention two circumstances that may be interesting.

Messrs. Thwaites Bros. have painted a very handsome Sun-dial for erection in the Isle-of-Wight as a jubilee memorial. It is oval in form, six feet by four, with the superior diameter vertical. It has a cream colored dial, with gold lines, shaded with chocolate, and has large antique numerals. Sun-dials are so rarely constructed now, that this one is likely to become historical quite apart from the occasion of it.

When inspecting the queen's jubilee presents, which have been exhibited for some time past at St. James' palace, I was much interested in the splendid piece of plate, presented to Her Majesty by thirty-four children and grandchildren, on the occasion of her jubilee. It consists of a table center ornament in gold, silver and enamel, in imitation of the style of the German gold and silversmiths of the seventeenth century. The middle of the ornament is a covered vase, with the "egg pattern" on the lid and round the body. On these egg shaped excrescences the coats-of-arms of the donors are engraved very artistically. One on each side of the vase, there are two medallions in massive gold containing portraits of Her Maiesty as she was in 1837 and as she is in 1887. The vase, standing free, has on the right and left supporters of the royal coat-of-arms, the lion "rampant-guardant" of solid gold, and the unicorn, "gorged," of

solid silver, basis resting on a highly ornamental pedestal, representing rocks covered with plants. The pedestal itself is of solid silver, with the rose, the thistle and the shamrock engraved thereon, the royal arms of Great Britain being on the front in enamel, the initials of the Queen on the back, also in enamel. On the pedestal rim is the following inscription: "To our beloved mother and grandmother on her anniversary, 1837-1887, from her children and grandchildren."

This work of art was designed and superintended in execution by H. R. H. the crown princess of Germany—the eldest daughter of the queen. The engraving is the work of Von Otto, a German artist; the whole was produced by a firm of silversmiths at Berlin. The vase from base to crown is 40 centimeters.

The hair is still dressed on the top of the head, and the use on the head of tall bows, feathers, combs and other high decorations becomes more general every week. Combs are sold so twisted on their stems as, when put in the hair, to stand perfectly upright above the coils. A handsome ornament just sent over from Paris is a silver comb, the front turned up from the teeth with a short row of points, each of which is tipped with a diamond, a series of slender silver stems rises up behind, and above this, aigrette fashion, a diamond finishing off the tip of each, and a tiny white ostrich feather is fitted into a clip at the back of the comb, so that it forms a snowy upright background for the silver and diamond aigrette. I have lately seen in the shops some tiny flat combs not more than three inches long, exactly like those which our grandmothers called "side combs;" the tops of them are studded with jewels of an inexpensive but effective kind, as small rubies, tiny pearls and torquoises. These jeweled combs are used to draw up the short hairs at the back of the head and fix them into the coils on the top, the jeweled portion of the comb gleaming prettily as it is laid close to the head at the back of the crown.

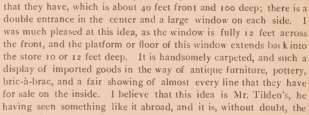
I do not remember any recent Christmas season that has produced so few novelties in our particular industries, as the present one. This, perhaps, could be to a great extent accounted for, but it is no part of my present letter to attempt to account for it. I may perhaps revert to this in a further communication. Silver jewelry, and especially the cheaper kinds, are in great demand this season. It is supplied in a nice variety of patterns, and of course the price places it within the reach of the majority. It is said that there is likely to be a spirited revival of the demand for jet goods. In that case there will most certainly be less demand for silver, but a greater sale of gold ornaments. There cannot be any doubt that our manufacturers of brooches have been affected by the temporary mania for wearing Jubilee coins mounted as brooches. The extent to which these gold and silver coins are being used as brooches, pins and earrings, is such as materially to interfere with the sale of the legitimate articles. In this connection I may mention a very ingenious Maltese Cross wire mount, made in gold and silver. It is very simple in construction, and coins can be easily fixed by it without in the least injuring them, so that when the novelty of wearing a two pound piece has worn off, or when circumstances may induce the wearer to desire forty shillings in exchange for it, the coin will be negotiable and the mount can then be used for pebbles, etc.

It is the registered design of Mr. Fred. Venour, of Spencer street, Birmingham. In the window of Mr. J. W. Benson, Ludgate Hill—a window by the way which is always an interesting study, pass it when you may—one of the most attractive exhibits is a "violet" lace brooch with diamond center. This is a natural sized Neapolitan violet, enameled in natural colors, in pure gold. There is not anything particularly new in a floral design for a brooch; but this Neapolitan violet is certainly the best flower design I have seen utilized in that way. If there is not novelty in the idea, Mr. Benson has introduced a considerable amount of originality in its treatment. This pretty brooch looks what it is, and is what it looks, good.

I was interested the other evening in what at first seemed the rather strange position of a lady's left hand while making an entry on her ball programme. I found, however, that what appeared to me as awkward, was in fact the perfection of convenience. She wore a neatly contrived pencil bracelet, and was using it. This is a useful novelty. It consists of the usual snap bracelet (capable of various decorations) with a telescopic pencil fixed to the head. The pencil can be easily withdrawn for use, and having a light, gold chain attached, it can be conveniently used by the right hand, while the bracelet remains fixed to the left. The pencil cannot be mislaid, and there is the pleasure of providing yourself with a good pencil, in lieu of the faulty wire-like appendages to ordinary programmes.

As a rule, cheap productions are more or less adaptions of those of a higher class. (I am speaking of ornaments) but there are instances in which a common appliance is inartistic for more select purposes. One of these is the recent adaption of what we in England call the safety pin. This always useful article is now included in the list of ornamental ones. The "jewel and safety pin" is one of the novelties of the present season. It consists of the ordinary style of safety pin, in gold, and faced with neat floral and other ornamental designs—enameled and otherwise—and with jewel settings. Some, also, are faced with ornamental initial letters, studded with stone and pearls. These pins are made suitable for light lace work, for fixing flowers to evening dress, or for more substantial use with wraps or shawls, or, in fact, for most of the purposes for which ordinary gems are used.

VIGILANT.



PROVIDENCE.

Having occasion to visit Providence the other day, I called on Tilden & Thurber, and was greatly surprised at the beautiful store that they have, which is about 40 feet front and 100 deep; there is a double entrance in the center and a large window on each side. I was much pleased at this idea, as the window is fully 12 feet across the front, and the platform or floor of this window extends back into the store 10 or 12 feet deep. It is handsomely carpeted, and such a display of imported goods in the way of antique furniture, pottery, bric-à-brac, and a fair showing of almost every line that they have for sale on the inside. I believe that this idea is Mr. Tilden's, he having seen something like it abroad, and it is, without doubt, the leading window of the jewelry trade to-day. Mr. Tilden goes abroad every year in search of novelties, and his art rooms on the second floor speak high in praise of his excellent tastes in the selection of fine statuary, paintings (both oil and water), bronzes, English, French and German pottery, India rugs, carved antique furniture and an immense collection of fancy and cut glassware. As you enter this store, to the right is the diamond and jewelry cases; then comes the silver. Circular cases in the center display their silver and leather novelties, and a beautiful line of imported fans. At the left, as you enter, is the watch department, presided over by one of the ablest men in the business, Mr. Luther, who, for a number of years, had a large store of his own there. To the rear of the watch department and standing out boldly towards the center of the store, is the stairs leading to the art rooms on the second floor. As you ascend these stairs about six steps to a landing, from which you have a full view of the lower store, then turn and a few steps more land you in the first of the six art rooms, leading one into the other. Here you will find everything that a person could wish for in the way of decorations for a home, each room having its collection of certain goods, being

the productions of the different foreign manufactures. Providence may well feel proud of this store, as it has no equal east of New York. Mr. Tilden has full charge, and with the assistance of Mr. Thurber, they are fast building up a trade and position that few men of their years can equal. Mr. Hinship has charge of the jewelry department. There was a young man in their employ until recently, John H. Spencer, who was in the silver department for the past four years and who they caught stealing. His sentence was passed Friday last and was eighteen months, hard labor. It is quite sad, his case, as he was but 27 years old and has a wife. I believe he acknowledged the theft of about $800.

Mr. Stephen Payne is doing quite a nice little business in a quiet way.

Mr. C. H. Whittier, another rising jeweler of Providence, opened a small diamond office on the second floor of a new building on Westminster street about a year ago, and is assisted by his son, Ira, and daughter. His business is devoted mostly to the mounting of diamonds and fancy stones, and has increased rapidly since he began. His son, Ira, was married to one of Providence's fair daughters the early part of last month, and there will be business in that office from now on.

ALBANY.

The retail dealers in Providence have decreased very much, like the city of Albany in our State. Where ten years ago there were six good retail jewelry houses, to-day there are but four. The old house of Wendell & Roberts went out of existence a few years ago, and Mr. Henry Rowlands, another one of the leaders in Albany, has moved his business to Brooklyn. As their successor, a new house, formed about four years ago by Marsh & Hoffman, both having been in business with Mr. Rowlands, and they are to-day the leading jewelers of Albany and do the best business. They have a handsome store on Pearl street, and it is well stocked with both foreign and American novelties. Mr. Marsh was in business a number of years ago for himself, but sold out to Mr. Henry Rowlands who, at that time was an engraver. Mr. Hoffman has full charge of the watch department, and having learned his trade abroad, is recognized as an authority in that branch of the business. Mr. H. was abroad last year arranging for the direct importation of foreign goods.

The house of Mr. Jas. Mix, I believe, is the oldest established house in Albany, and does a very satisfactory business.

Mr. P. D. F. Gorney, another one of Albany's jewelers, has had a hard time of it for the last two years, as sickness has prevented his attending to business for the greater part of the time.

Williams & Son are still doing business at their old stand on Broadway.

TROY.

Troy is leading Albany to-day as far as the jewelry business goes. Mr. J. W. Cusack has a beautiful store in the *Times* building, imports direct every year, and is doing the leading business. Next to him comes F. W. Sims & Co. They also have a fine store, and by hard work and close attention to business are fast increasing their trade. This firm, I believe, advertises as the successors of Mr. Thos. Goldsmith. Next to them is the newly established house of Rappaport & Bouteceau. Mr. Rappaport was for a long time with A. Rumrill & Co. and Jacques & Marcus, of New York. Mr. Bouteceau was watchmaker for Mr. Thos. Goldsmith at one time. They are doing a safe little business and making money. They advertise as occupying Mr. Thos. Goldsmith's old stand. Mr. Samuel C. Tappan is another one of the leaders, not only in the jewelry business, but politically; he has considerable weight. He has a large store and well stocked with desirable goods. Then there is Mr. Timpane, Marks & Salmson and a number of smaller ones, one of whom advertises as being formerly with Mr. Thos. Goldsmith. From the amount of Goldsmith that is put before the public, a non-resident is led to believe that there is a struggle between his friends and a man by the name of Rogers to see which was the original. HARD SOLDER.

What the Optician Should Know About Optics.

[By C. A. BUCKLIN, A. M., M. D., NEW YORK.]

AN APOLOGY is due John F. Dodge, of Milbury, Mass., for having omitted his name on two occasions from the list of graduates of the school of optics, published in this journal. It is an accident which we cannot explain; how a compositor should omit the same name twice, although it was contained in the printed list which was his copy, is a conundrum.

The next class in optics commences January 7, the date having been altered from the 10th, to accommodate seven applicants from the New England States who applied in a body. Applications with the required fee having been received from those students previous to the above applications, the class will, of necessity, number ten.

The second class in January will commence January 24, at 2 o'clock. This class has but a single vacancy.

The next class will commence February 8, at 2 o'clock, for which, as yet, there are no applications.

From the above statements it will be observed that the interest of American opticians on the subject of optics as applied to the correction of errors of refraction and accommodation, is steadily on the increase. I must admit that I am agreeably disappointed at the intense and general interest which all practical opticians appear to take in the progress and prosperity of this new departure, viz., a practical school to teach thoroughly all laws of optics upon which the intelligent optician bases his experiments.

Dr. Bucklin regrets to announce to his readers that he is confined to his bed, from which he dictates this necessarily brief article. It is, however, believed that he will be able to keep his appointments with his various classes.

There are several letters of inquiry which require answers this month.

COLUMBIA, S. C. .

In February, 1887, left eye was injured by a blow. Before, sight was fairly good. Right eye bad from birth. The vision in right eye is $\frac{6}{9}$; vision in left eye is $\frac{4}{9}$. Concave 40 brings vision up to $\frac{6}{9}$ in left eye. The finest print on the Spencer Optical Co.'s test card can be read without any lenses. As stated before, in February, 1887, left eye was injured by a blow, sight was obscured for several months, but is now better. Eye on examination appears to be natural. Patient complains that everything looks smaller. Right eye can read LXX line only at a distance of three feet. Complains that the letters **G. L. N.** look broken and distorted, as if they were made of numerous, irregularly-shaped pieces. When ordinary print is brought to within four inches of eye (right eye), the letters are so much magnified as to be too large for the field of vision. Patient does not remember that this eye ever was good. Did not notice defect in it until the left eye was injured. This is the most contradictory case of vision we have ever seen. P. H. L. & Co.

Answer—As the writer of above remarks, this is the most contradictory case of vision he has ever seen. There is no unusual difficulty in comprehending why this individual sees these remarkable phenomena. As the result of the injury to the left eye, the rods and cones of the retina were drawn apart from each other in such a manner, that the regularity of their former position was disturbed, and the rods and cones upon which small retinal images previously fell were so displaced, that they assumed the former position of rods and cones upon which large retinal images were previously received. When a large retinal image falls on cones upon which small retinal images formerly fell, the impression is conveyed to the brain that objects have become smaller.*

The injury to the left eye caused a sympathetic choroditis of the right eye. This inflammation extended to the retina of the right eye.

* See Bucklin, Detection and Correction of Visual Imperfections, chapter on Displacement of Retinal Element.

The scar resulting from the inflammation forced the retinal elements closer together. Thus retinal elements upon which very large retinal images had formerly fallen became so displaced, that retinal images from very small objects fell upon them in their new position. When a retinal image falls upon these retinal elements, be the retinal image ever so small, the impression is such to the brain that the object observed is of large size.†

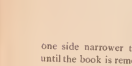
For a description of sympathetic diseases of the eye, see Bucklin on Sympathetic Diseases of the Eye, New York *Medical Record*, 1876, also previous number of this journal.

I believe that this description will make it perfectly plain to every thoughtful mind how the peculiar phenomena is brought about, which the above described sufferer without any knowledge of the subject so accurately described.

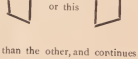
Dear Doctor—If not too much trouble, please assist me in solving the following problem in optics: Young man, aged about 32.

R. V. $\frac{20}{20}$ with —18 cyl. ax. 105 V=$\frac{20}{20}$
L. V. $\frac{20}{20}$ " —40 cyl. ax. 15 V=$\frac{20}{20}$

The above gives perfect vision, and can read No. 20 Snellin at 25 feet or No 15 at 20 feet with ease. Can also read the finest type in Snellin's test book at 10 to 15 inches with ease. All the lines on astigmatic diagram equally black and perfect with either or both eyes. *But*, holding a book or square card at from 12 to 20 inches from the eye, a square or oblong card or book appears to him of this shape



or this



one side narrower than the other, and continues to look that way until the book is removed about 4 feet from the eye, when it resumes its regular square or oblong shape—the same with either eye or both. Any distance beyond 4 feet everything appears square and straight.

I have tried almost every combination of + and — cylinders, and nothing gives as good vision as the above, with the exception as stated, and am puzzled to know just what the trouble is or what to give him. He is a cutter in a tailor shop, and any glass that will distort the image of a square object, of course, will not answer at all, and I have not given him any glasses as yet. If you can solve the problem or give me any hints that will enable me to solve it, will be greatly obliged. Very truly yours, W. P. S.

In the use of cylindrical lenses, where the axes are not required in a position which is exactly horizontal or vertical, an error of 5° in the axis of either lens will cause square objects to look out of square, or parallel, horizontal or vertical lines to apparently lose their parallelism. Again, in using cylindrical lenses of different powers the axes of which are as above described, the apparent loss of parallelism of parallel lines is still more likely to appear. I have lectured about it, written about it and preached about it, but still I find that there are many persons who run aground on it. In the above described case it will be seen that the cylinder used in right eye is minus 18 axis, 105°. The left eye, the cylinder used is minus 40 axis, 15°. It will be observed that this formula presents the most favorable conditions and positions possible for this apparent loss of parallelisms in parallel lines. The axis of each lens must be carefully tested separately, by covering one eye with a card. Having carefully tested them separately, they must be tested relatively by trying both eyes together. If adjusting the axes does not remove the defect, the stronger cylinder must probably be made weaker. The fact that reducing the strength of one cylindrical lens reduces the acuteness of vision in one eye is no reason for hesitating to make the reduction, providing this apparent lack of parallelism cannot be eliminated in any other way. Lenses which produce this disagreeable phenomena will never be satisfactory to the individual who attempts to wear them.

† See note No. 1.

LINDSAY, ONT., November 24, 1887.

DEAR SIR—Will you pardon me for troubling you once more, this time in reference to a case on which I would like some information. Allow me to express my appreciation of your lucid articles in THE JEWELERS' CIRCULAR. I have read, studied and endeavored to apply them in practice with much satisfaction.

A. B., 27 years old, male, occupation, miller.
R. Eye, Left E., each normal. } both together normal. } D. V.
All lenses make vision worse, *particularly eye.*
R. E. + $\frac{1}{16}$ } reads find print readily } Distance, 13
L. E. $\frac{1}{4}$ or normal } with either eye. } inches.
Never sees double. *Can* converge quite close. No squint. No appreciable astigmatism.

On reading ½ hour eyes ache, particularly R. E. Can read longer with either eye alone than with both together before eye aches.

Lenses + R. E. L. E. plain not at all satisfactory.
$\frac{1}{16}$ $\frac{1}{16}$

No other combination satisfactory.

Have no prisms, only Bucklin's opthal instrument to test with.

Can you tell without an opthalmoscopic test or trial with prisms, or both, what is wrong?

Am I right in supposing that the trouble is want of harmony between the muscles of convergence and those of accommodation, more especially of R. E.? I remain,

Yours respectfully, JER. BRITTON.

The conclusion that the asthenopia is muscular in its character is pretty conclusively proven by the fact that it disappears when the individual closes either eye. Whether this disturbed relation between accommodation and fixation is to be restored by convex lenses alone, prisms, convex lenses combined with prisms, or a simple tenatomy, could only be determined by careful experimentation with lenses or prisms.

December 14, 1887.

Dear Doctor—I have a patient, a boy of five years; one eye is slightly turned in. It began two years ago this coming February. Will it be of any use to put a pair of glasses on him, all ground finish except center; or by so doing, will he more certainly loose one eye than with the ordinary convex lenses? And do think the muscles are so originally shortened that he will need to have an operation performed? Please inform me at your earliest convenience, and greatly oblige,

Yours truly, A. B.

The above letter convinces me that although I have most thoroughly described the nature of convergent strabismus, it is not clearly understood by the above correspondent. The first point I wish to criticise in this correspondent's letter is that it required two men, skilled in deciphering bad penmanship, one hour to completely decipher what the individual wished to say. That he should ask questions regarding a case of convergent strabismus without carefully determining the degree of hyperopia (if necessary, by being atropine over night in the straight eye), and reporting the effect produced by the lenses, which neutralized the hyperopia. Under these lenses, if the muscles were not permanently shortened, the eyes would appear straight immediately. Ground glasses, the centers of which are left distinct, is the best appliance in the world you can use to teach a child having non-faculation hyperopia to look cross-eyed.

Our correspondent is, however, excusable for suggesting such a form of ground lenses, as Landolt, of Paris, in his late work upon the eye, among the many blunders which he makes, suggests a similar contrivance for the treatment of cross-eyed children.

As above mentioned, I wish it distinctly understood that this form of lenses is one of the most successful means of teaching children who

have a disposition to become cross-eyed how to become cross-eyed. Landolt, however, modestly remarks, that the career of convergent strabismus in hyperotic children is in many cases beyond his comprehension. Without fear of criticism, I brand this remark as being the most stupid of all remarks I ever heard uttered by one enjoying the reputation of being a skilled opthalmologist.

The child mentioned in this letter should have the straight eye placed thoroughly under the influence of atrophine, and the strongest convex lenses, through which he can see with greatest distinctness at a distance, should be prescribed in such frames that the eye cannot look over or under the glass. If the hyperopia is below $\frac{1}{4}$, the eye should be operated on, or if above $\frac{1}{4}$, and the glasses fail to make it appear straight, it should then be operated on.

Obituary.

ALGERNON S. SULLIVAN.

Among the deaths of prominent persons last month occurred that of Algernon S. Sullivan, esq., a lawyer of prominence in this city. He was well known to the jewelry trade, having been employed as counsel in many cases in which members of the trade were interested, and having also been a guest of the New York Jewelers' Association at their annual banquets on several occasions. He was at one time assistant district attorney, and later public administrator, both of which positions he filled with credit to himself and profit to the city, resigning them successively, however, to devote his time to his large private business. He was senior member of the law firm of Sullivan & Cromwell, one of the junior members being his son. Mr. Sullivan was a genial, pleasant gentleman, an able orator, and always an entertaining after dinner speaker. He was about sixty years of age, and few members of the bar in this city commanded the respect of the legal fraternity in a higher degree than he did. His funeral took place from the First Presbyterian Church, corner of Fifth avenue and Eleventh street, and was largely attended. At 10 o'clock the body was carried into the church, preceded by the pallbearers, Mayor Abram S. Hewitt, Judge John R. Brady, Judge Edward Patterson, Surrogate Daniel G. Rollins, James C. Carter, Joseph H. Choate, William Moir, John H. Flagler, Andrew J. Dickinson and John A. Hardenberg. The center aisle was reserved for the different societies of which Mr. Sullivan was a member, and the bar. Among them were twenty-five members of the Ohio society, twenty-five members of the Southern society, twenty-five members of the Numismatic and Archæological society, twenty-five members of the Mercantile Exchange, twenty-five from the College of Music and members of the Produce Exchange, the Presbyterian hospital and the bar. The services, which were simple and brief, were conducted by the Rev. Richard D. Harlan, pastor of the church, assisted by the Rev. S. M. Paxton, D. D., of Princeton.

At a special meeting of the executive committee of the Jewelers' Security Alliance, held at its office in the city of New York, December 7th, 1887, to take action upon the decease of its late counsel, the Hon. Algernon S. Sullivan, the following preamble and resolutions were unanimously adopted:

Whereas, in the providence of God, Algernon S. Sullivan, late counsel of this Alliance, having been suddenly removed by death, and,

Whereas, his faithful services as legal counsellor of the Alliance, and his devoted interest to its affairs from the date of its organization to the present time should have befitting acknowledgement; now therefore be it

Resolved, that by the decease of its late counsel, the Hon. Algernon S. Sullivan, the Jewelers' Security Alliance has lost a most able, earnest and faithful administrator of its affairs, who was endeared to the associate officers by many ties of friendship growing out of long acquaintance and a just appreciation of his sterling integrity and noble qualities.

Resolved, that this Board attend the funeral services in a body, and that a copy of the proceedings of this meeting be prepared by the secretary and forwarded to the family of the deceased.

HENRY THOMAS SPEAR.

Henry T. Spear, one of the oldest Boston jewelers, died at his residence, 138 Chandler street, on Thursday morning, November 24th, of apoplexy. Mr. Spear was born in Quincy, Mass., April 29, 1814, and began business in the jewelry trade in Canton. He moved to Boston in the fall of 1837, and went into partnership with William P. McKay as the firm of W. P. McKay & Co., on Milk street. Later, the firm moved to Washington street and took another partner, the firm name being McKay, Spear & Brown. Mr. Spear retired from that firm in 1856, and went into the jobbing business on his own account at 89 Washington street. About 1861 he took his son, Daniel B. Spear, into partnership with him, and under the name of H. T. Spear & Son, the firm has continued to the present time. Four children, two sons and two daughters, survive him. His wife died two years ago.

At a meeting of the Boston members of the National Association of Jobbers in American Watches, &c., held November 26th, 1887, Mr. D. C. Percival, executive presiding, and Mr. G. H. Richards, Jr., as secretary, to take action in regard to the death of their late associate, Henry Thomas Spear, it was unanimously adopted:

Whereas, It has pleased Almighty God to remove from our midst our late associate and friend, and

Whereas, It is our desire to offer an expression of our feelings, therefore be it

Resolved, That it is a just tribute to the memory of the departed to say that in regretting his removal from our midst we mourn for one who was in every way worthy of our respect and regard.

Resolved, That we sincerely condole with the family of the deceased on the dispensation with which it has pleased Divine Providence to afflict them.

Resolved, That this heartfelt testimonial of our sympathy and sorrow be forwarded to the family of our departed friend.

W. E. CARPENTER.

W. E. Carpenter, of the firm of Myers & Carpenter, St. Paul, Minn., died very suddenly, November 29th, of rheumatism of the heart. The occurrence was a sad one, and unexpected, as Mr. Carpenter was in the prime of early manhood. A few years ago he was a clerk with the firm of Myers & Finch; and he went into partnership with Mr. Myers upon its dissolution. Messrs. Myers & Carpenter, a few days before Mr. Carpenter's death, held a very brilliant and successful opening in their new store, at which both members of the firm received many congratulations from their friends.

LEVI MILLER.

Mr. Levi Miller, of the firm of Woglom & Miller, died at his residence at Montclair, N. J., on December 19, in the sixty-fourth year of his age. Mr. Miller was born at Somerstown, Westchester County, N. Y., and at the age of ten years began work at a mill at Wappinger Falls. Subsequently he came to New York and found employment in the jewelry store of Robert Kait, in Broadway, near the City Hall. He learned the trade with Moses Chamberlain and became an expert workman. In 1852 he entered into partnership with Richard Oliver, and the firm did a good business until 1857. When this partnership terminated, Mr. Miller became foreman of the factory of L. J. Mulford, and continued in the same position when the firm was changed to Ford & Mulford. In 1873 the firm of Woglom & Miller came into existence, and Mr. Miller was identified with it up to the time of his death. Mr. Miller was an expert in gold work, and his advice was frequently sought by manufacturers. He was a veteran

of the 7th Regiment, National Guard, and accompanied that organization on its famous march to the relief of Washington in 1861. He was also an enthusiast in music, having led the choir in Dr. Booth's Church in this city, and subsequently that of the First Presbyterian Church of Montclair. He was also an active member and librarian of the New York Vocal Society. He was an intelligent and courteous gentleman, quiet yet sociable, and was respected and loved by all who knew him. His death was the direct result of Bright's Disease, which followed an apoplectic attack shortly after losing two sisters to whom he was greatly attached. He leaves a widow and one son, the latter having reached man's estate. The funeral took place on Thursday, the 22d, and was attended by many members of the trade.

President, HENRY HAVES .....Of Wheeler, Perkins & Hayes.
First Vice-President, ROBERT A. JOHNSON.....Of Celluloid Show Case Co.
Second Vice-President, JAMES P. SNOW .....Of G. & S. Owen & Co.
Third Vice-President, JOSEPH B. HOWDEN .....Of J. B. Bowden & Co.
Fourth Vice-President, CHARLES G. LEWIS .....Of Randel, Bitrepiore & Billings.
Secretary and Treasurer, WILLIAM L. SEXTON.....Of Sexton Bros. & Washburn.

EXECUTIVE COMMITTEE.

GEORGE R. HOWE, *Chairman*.....Of Carter, Sloan & Co.
WM. BARDEL.....Of Heller & Bardel.
J. R. GREASON.....Of J. R. Greason & Co.
GEO. H. HOUGHTON.....
WM. H. JENKS.....With Gorham Mfg. Co.
A. A. JEANNOT.....With Tiffany & Co.
.....Of Jeannot & Sheibler.

THE JEWELERS' CIRCULAR is the *exclusive* official paper of the Jewelers' League and has been selected for the publication of all matters of interest pertaining thereto. Letters or inquiries pertinent to its business or purposes, and which might interest the trade or inquirers, willherein be answered. Address *Jewelers' League, Box* 3,444. *P. O., New York*, or the office of THE CIRCULAR.

At the regular monthly meeting of the Executive Committee held Friday, December 2, 1887, there were present President Hayes, Vice-Presidents Lewis, Bowden, Johnson and Snow, and Messrs. Howe, Houghton, Greason, Jeannot and Sexton.

There were six changes of beneficiaries granted.

One application for membership was rejected, and the following were accepted:

Joseph Davis, San Francisco, Cal., recommended by Leon Nordman; George Marigold, Jr., Brooklyn, N. Y., recommended by A. L. Strasburger and C. Adler; John W. Tinsley, of Huli, Ia., recommended by J. H. Baumann and W. H. Beck.

[THE CIRCULAR is not responsible for the opinions or statements of contributors, but is willing to record space to all who desire to write on subjects of interest to the jewelry trade. All communications must be accompanied by a responsible name as a guarantee of good faith. No attention will be paid to anonymous letters. Correspondence solicited.]

RETAIL DEALERS AND OUTSIDERS.

To the Editor of the Jewelers' Circular:

An article on page 351 of the November CIRCULAR attracted my attention by the unjust charge that is made against the manufacturers and jobbers in their business transaction with the retail trade. The article begins "Retailing is getting played out," and blames the manufacturers and jobbers for selling the combination stores who monopolize, as he claims, all kinds of retail business to such an extent that the legitimate retail dealer can scarcely make a living. I would like to ask right here, how many men, or what percentage are there, of the men doing business to-day, representing themselves as legitimate retail jewelers, who are doing a legitimate jewelry business—that is, selling watches, jewelry, diamonds, silver and plated ware and clocks? The retailing of the above articles constitutes a legitimate jewelry business, in my opinion, but the jeweler who is also selling bric-à-brac, pottery, china and glassware is not doing a legitimate jewelry business, nor should he be recognized as a retail jeweler. Let me ask this party who desires protection from the combination stores, what protection has he to offer to the manufacturer or jobber in return for this protection? My long experience has taught me this, that the more you protect the retail trade, the greater looser you are in the end. You send your stock to a city where there are two or three stores; the customer whom you sell the greatest amount of goods to requests the control of your goods for that town, for by having the control he would have no competition, and would be able to sell many more of your goods. This sounds well, but not one case in fifty proves the representations made to be true. The dealer will not pledge himself to the manufacturer, to purchase so many thousands of dollars' worth of goods of him in exchange for this protection, but, on the other hand, he buys a fair bill to start with, but the next day a competitor comes along with a stock similar to the stock he controls, but not so well made or finished, and probably the quality not quite so good, but the price 3 per cent. cheaper. This retailer does not stop to consider the difference in the finish, or the quality, only sees the 3 per cent. saving in cost, and purchases of the second man, who sells the whole town, dry goods dealers as well as peddlers, and then this retailer cries because the combination stores compete with him. In the last ten years it has been a struggle with the retail trade to buy cheaper goods; with the dry goods houses or combination houses they have improved the quality of their stock till to-day some of these combination houses carry as fine goods as the jewelers.

Another unfairness by the retailer to the manufacturer is the purchase of jewelry on 4 or 6 months' time, taking all the ready money they can gather in to buy crockery, bric-à-brac and glassware, which goods they are in most cases compelled to pay cash for, and the manufacturer and jobber is obliged to wait their convenience for the money that rightfully belongs to them, but was paid to the crockery trade. How many manufactures or jobbers are there doing business to-day but what are compelled to guarantee the goods sold to a retailer, agreeing to exchange them for other goods if he does not sell them? In speaking of protection to the retail trade, it makes me laugh; you go to one of the largest retail jewelry houses in the east to-day, as a representative of a large manufacturer or jobber, and you are instructed to go into a door on a side street, to the basement door, where you are supposed to stand and pound on the door till some employee, who may be passing through the cellar, happens to hear you, and if he feels like it, he admits you, you pass to the opposite side of the basement and under the stairs there is a gas jet, a dirty, roughly constructed shelf, which has to play the part of a table, two old trunks to sit on, and gaze at a placard that reads, "Jewelry representatives are respectfully requested to enter and remain in the basement." The buyer of this store wishes it understood that he looks at no goods only before 10 A. M. and after 4 P. M. You go there and open your stock. He begins to look at the goods when a boy from the store calls down, "there is a customer here to see you." The buyer drops everything, and runs up stairs to take in a brooch from some customer to have a pin tongue put in, a job that amounts to probably 30 cents. It takes him from fifteen minutes to half an hour to do it, and from three to five travelers are sitting there losing the most valuable time of the day, to wait this buyer's convenience. With these combination stores they have a suitable room with tables arranged, to show 3 or 4 stocks at the same time and the buyer

devotes certain hours for the purchase of goods and will not leave till the time is up, for anyone, as he claims that his time belongs to the manufacturers and jobbers during the appointed hours, and he buys $10 00 to the legitimate jeweler's $5.00 and pays cash for it in 10 days. Let me here compliment Tiffany & Co. and Bailey, Banks & Biddle for the suitable provisions they have made for the representatives of the manufacturers and jobbers to show their wares and the gentlemanly manner that they receive and entertain them.

Let me ask here how many jewelers are there that advertise jewelry in their local papers, or try and sell jewelry for a present, should a customer come in and ask for something suitable for a lady or gentleman. Nine out of ten jewelers would show silver or a piece of crockery in preference. The result of this has been to force the manufacturers and jobbers to look outside of the legitimate trade for their business, and the time is not far distant when the majority, if not all, the combination houses in this country will have separate jewelry departments and carry stocks as large, if not larger, than the majority of jewelry stores doing business to-day.

Another case came under my observation the other day, in a city in Connecticut within two hours ride of New York. A jeweler there had a brooch in his case marked to sell at retail for more than double what it cost. I asked him if he expected to sell that brooch at that price, and why he put such an immense profit on his jewelry and he said: "The great expense in doing business compels it." I asked him to explain. He said: "Well, the breakage in bric-a-brac and pottery that import direct is so great, that I cannot mark the profit on it that it should bring. If I did it would be so much higher than my competitors here ask that it would never sell, so what I loose on fancy goods I have to make good on jewelry." I figured this out, and found that any person could have taken a trip to New York, bought the same pin at any Broadway store, paying a profit of 33 per cent. on it, had a 75 cent dinner, and returned home, for the same amount of money this retailer charged for this pin. That jeweler will find out some day that jewelry don't sell, or that retailing is played out.

Let these retailers advertise their jewelry in their local papers, the same as the combination stores do, make handsome displays of it in both their windows and show cases, and put the same activity and eloquence in their business that they do in stocks, real estate, or the crockery business, and the retail jewelry business will be a success.

I. M. T.

AN APPRECIATIVE AND DISCRIMINATING READER.

To the Editor of the Jewelers' Circular:

Your holiday number has just put in an appearance and I observe it through a watchmaker's eyes. Of course he does not care or has no particular interest in the advertisements you have in it. In fact he may soon know that he would never have the pleasure of looking at a beautiful journal like this if it had no advertisements in it. I have looked it through as well as many other trade journals but must say for the real valued interest to the watchmaker, you have really the best and by far the most extensive journal of any I have seen. Of course if I could have said nothing in its favor you would never have received this, but after looking it through I felt just as though I ought to at least say as much as thank you.

Piqua, Ohio. Yours, CHAS. J. OLIN.

THE WAGES AND EARNINGS OF WATCHMAKERS.

To the Editor of the Jewelers' Circular:

In reply to your correspondent, H. P. G., I say yes, that is just. I say that every journeyman workman ought to earn twice as much for his employer as his employer pays him in wages. This is no more than fair, and I could never have the cheek to ask of my employer any more than one-half of the amount that I knew from actual experience that I was able to book up for him, at fair prices of course. In fact I would never engage in the retail jewelry business if some responsible person would agree to furnish me with watch work engraving and repairing, all I could do and give me just one-half of what I could book up for him, he of course to pay all expenses of carrying on the business, buying material, &c. In this I agree to furnish my own tools. Again, I think Mr. H. P. G. is wrong in his assertion that there are plenty of good, competent watchmakers to fill all the places needing them. I was in Chicago this last fall and I was asked by several if I knew of any good watchmakers who wanted employment. Of course I was aware of what that adjective *good* meant and had to say no. I was informed that as many as a half dozen applicants for such workmen was on their books and not one man to fill them. I began to look my acquaintances over thinking at first it would be an easy matter to find my man, but when it come to the point that I must produce a man that could fully fill the place as a good salesman, a good watchmaker, a good engraver, and a good repairer on jobs, I had to give the job up, and my word for it these men are scarce. If they are to be had wages are to be had certain.

Ohio, Dec. 5. C. J. O.

IS THERE ROOM FOR THIS "COMBINE?"

To the Editor of the Jewelers' Circular:

I observe the letter from D. D. Knapp in the December number of THE CIRCULAR calling upon the retail jewelers to root out peddlers. I should also like a "combine" of *wholesale* jewelers to refuse to deal upon any terms with dealers who have placed their property "behind a fence" and thereby defrauded their creditors out of every penny of their just due. Should be pleased to have Mr. Knapp's views on this subject. HONESTY.

A VENERABLE SUBSCRIBER.

To the Editor of the Jewelers' Circular:

I much regret that I must decline renewing my subscription to the JEWELERS' CIRCULAR AND HOROLOGICAL REVIEW, but when my reasons for this course are known to you I think you must admit they are good. I am very old (over 70), and my eyesight has failed so much that I am obliged to turn off all fire work. As a consequence, my business is gradually falling off, and as I have thus far been unable to amass enough to live on without work, and it has also become necessary to restrict the amount of reading, on account of my failing sight, I have to give up, not only your excellent journal, but a large amount of reading matter of equal interest. Moreover, my health is very bad and steadily declining. I have neither "chick nor child," apprentice nor jour., and under such circumstances, what shall I do with a trade journal?

Although you have so generously sent your journal free to me during the past year, I am sorry you did it, and only permitted you to do so because I hoped for some improvement in my health and circumstances.

I renew my offer to pay you for my last year's subscription in back numbers of your journal, and will send any you wish from vol. 7, No. 1, to vol. 9, No. 12, or from No 1, '84, up to date. I have sold vols. 10, 11, 12, 13 and 14.

I hope you will credit me with acting fairly with you, and in parting, accept my sincere wish for your prosperity in this life, and an abundant entrance into that which is Christ Jesus, our righteousness.

Yours respectfully, E. E.

[We omit the name of the writer of the above, but print his letter entire. There is a quiet pathos and Christian resignation expressed in it that is extremely touching, coming into the midst of the bustle

and whirl of active business. Our old friend may be assured that THE CIRCULAR will continue to come to him, and we sincerely hope he may enjoy its perusal for many years to come.—ED.]

DELIVERY BY AN EXPRESS COMPANY.

To the Editor of the Jewelers' Circular:

I am doing a small manufacturing business on the sixth floor of a building in the vicinity of Maiden Lane. Recently an express package of considerable bulk came addressed to me, and the agent of the express company refused to bring it above the street floor to make the delivery. I refused to accept it or receipt for it unless it was delivered at my regular place of business, and the agent (the driver of the wagon) took it away. Was I right in my position?

J. B. M.

[You were entirely correct in refusing the package. An express company accepting a package for delivery, is bound to deliver it at the usual place of business of the person to whom it is addressed. If that person is on the top floor of a building, and has no other and more accessible place of business, the package must be carried to the top floor to constitute a lawful delivery. If the place of business should be on the first floor, it is not a delivery to place the package on the sidewalk; it must be placed within the doors of the consignee's place of business. The courts have maintained the law to be as we state. In the case of Haslam *vs.* Adams Express Company, it was shown that the delivery of the package was made on the sidewalk and a boy sent to the place of business of the consignee on the fourth floor to notify him that his package was on the sidewalk. The consignee refused to receive it unless delivered at his customary place of business on the fourth floor. The court held that no delivery had been made by the express company. It was contended that this was the usage of the company, and that "custom makes the law," but the court held that the practice of the company, established for its own convenience, could not become a usage binding upon others; that such a delivery was not lawful unless acceded to by the consignee. Where a person lives or does business above the first floor of a building, the express companies are bound in law to deliver his packages to him there. We have observed that the express companies show no reluctance to go up stairs to obtain packages for delivery, whereby they secure business, but we have heard frequent complaints of their objecting to deliver packages on the top floors of buildings. Many consignees are very easy going in this matter, and instead of insisting on their rights, yield them, and thus make it harder for others to obtain theirs.—ED.]

MORE ABOUT STEALING PATENTS.

To the Editor of the Jewelers' Circular:

In the course of a business communication recently addressed to you, I referred to the fact that a patent obtained by me had been infringed upon by one of my competitors, who had reproduced in cheap metal an article that I had designed should only be made as fine goods, and that I had thereby been robbed of my rights. You did me the honor to embody the substance of my complaint in an editorial, and very justly condemned this practice of stealing patents that has become altogether too common. In your November number a correspondent who signs himself "T. B. R.," comes to the defense of the patent pirates and attempts to defend them in their robberies. I should quite as soon expect a respectable man to defend pickpockets or burglars, or to go into sackcloth and ashes over the recent righteous hanging of the anarchists in Chicago. I have always supposed that brain labor was as valuable as manual labor, and that the products of my brain were as much my individual property as the products of my hands. This country owes its magnificent development largely to the fruitfulness of its inventors, and the protection the courts have accorded to their inventions. Was Morse entitled to no reward for inventing the electric telegraph? Are Edison and Bell patent monopolists because they discovered the electric light and telephone? Are the fruits of their brain labor and of their years of devotion to the study of electricity, to say nothing of their cash expenditures during the incubating period, to be appropriated with impunity by patent pirates and unscrupulous speculators? Our laws are intended to be uniform in their operation, and inventors to be equally protected, regardless of the importance of their inventions. The man who invents a new article of jewelry is as much entitled to the protection of the law and the pecuniary rewards attaching to his invention as Morse, Edison or Bell. It is only the valuable patents that are pirated: when a man has made a success of a device that he has patented, then some person who is lacking in brains appropriates the idea and trusts to luck to make it pay without being prosecuted by the man he has robbed. It is precisely on this principle that the pickpocket and the burglar do their work. I cannot believe that any one can seriously defend this practice of stealing patented ideas any more than they would defend or excuse any other form of robbery. It may be that our patent laws are too liberal, and that the inventor has too long a lease of the exclusive use of his invention, but that is a question to be raised in Congress, and cannot be settled by setting the existing laws at defiance. I hold quite a number of patents, and am interested in others of which I am not the exclusive owner, but I do not think that I would object to see the patent laws so amended that whoever choose might manufacture a patented article on payment of a reasonable royalty to the owner of the patent, such royalty to be fixed by some disinterested authority. But to repeal the patent laws entirely, would be to take away the incentive to invention and place a serious obstruction in the way of progress. The personalities and intended sarcasms of "T. B. R." are beneath notice, but the subject of patent piracy is one of great importance, and should be freely discussed dispassionately with that decree of courtesy one gentleman will always show to another in debate.

H. Y. M.

RECENT PATENTS.

The following list of patents relating to the jewelry interests, granted by the U. S. Patent Office during the past month, is specially reported to THE JEWELERS' CIRCULAR by FRANKLIN H. HOUGH, Solicitor of American and Foreign Patents, 925 F Street, N. W., rear U. S. Patent Office, Washington, D. C. Copies of patents furnished for 25 cents each.

Issue of November 22, 1887.

373,723—Watch Case. E. C. Chappate, Philadelphia, Pa.
373,441—Clock. W. D. Chase, Hackensack, N. J.
373,727—Clock, Pendulum. H. O. Denis, Chicago, Ill.
373,771—Clock Striking Mechanism—H. V. B. Ethridge and H. E. Waite, Mass.

Issue of November 29, 1887.

374,061—Clock Winding Mechanism. A. E. Hall, Peoria, Ill.

Issue of December 6, 1887.

374,516—Clock Case. A. Bannatyne, Waterbury, Conn.
374,535—Watch Case Spring. A. Humbert, Philadelphia, Pa.
374,359—Watches and Clocks, Mainspring Brace and Fastener for. C. T. Higginbotham, Assignor to Seth Thomas Clock Co., Thomaston, Conn.

Issue of December 13, 1887.

374,823—Jeweler's Tag. E. S. Burbank, Omaha, Neb.
374,760—Watch, Stem Winding. S. C. Smith, New York, N. Y.
374,605—Timepiece Dial. Edward A. Lewis, St. Louis, Mo.
374,626—Button or Stud. George W. Prentice, Providence, R. I.

Issue of December 20, 1887.

375,065—Self-Attaching Button. Herbert Gray, Detroit, Mich., Assignor of one-half to Fredk. Rohnert, same place.
375,137—Button. Oren C. Devereux, Providence, R. I.

TRADE GOSSIP.

The following members of the trade were noticed in town during last month: Albany, N. Y., R. Williams; Baldwinsville, N. Y., G. N. Luckey; Birmingham, Ala., A. Schwob; Boston, Mass., C. F. Morrill, G. H. Richards, Jr.; Buffalo, N. Y., T. Dickinson, J. M. & J. G. Weil; Catskill, N. Y., J. Hallenbeck; Chicago, Ill., J. H. French; Cincinnati, O., A. Plaut; Corning, N. Y., D. C. McKee; Culpeper, Va., H. C. Burrows; Denver, Colo., W. D. Smith; Elmira, N. Y., E. H. Ayres; Geneva, N. Y., W. L. Young; Greenport, N. Y., W. Brown; Hillsdale, N. Y., H. D. Harvey; Huntingdon, N. Y., G. T. Barr; Ithaca, N. Y., F. W. Brooks; Knoxville, Tenn., E. T. Sanford; Lancaster, Pa., E. Bowman; Little Falls, N. Y., J. H. Vosburgh, I. Snell; Long Meadow, Mass., W. W. Coomes; Lowell, Mass., E. Lamson; Lynchburg, Va., F. H. Johnson; Milwaukee, Wis., A. Fischer; Montrose, Pa., E. H. True; Nazareth, Pa., J. F. Giering; Newburyport, Mass., E. F. Coffin; New Haven, Conn., G. H. Ford; New London, Conn., W. H. Saxton; Norfolk, Va., F. Greenwood; Reading, Pa., T. A. Wilson; San Antonio, Tex., J. M. Bell; Seneca Falls, N. Y., C. H. Williams; Springfield, Mass., L. S. Stowe; Syracuse, N. Y., E. B. McClelland; Tampa, Fla., W. F. Leonard; Troy, N. Y., S. Tappan; Utica N. Y., J. C. Huber, H. Winchurgh; Walden, N. Y., Sumner Bull; Washington, D. C., E. Harris; Watertown, N. Y., S. L. George, W. W. Scott; Wheeling, W. Va., J. G. Dillon; Wilmington, Del., C. A. and C. F. Rudolph; Worcester, Mass., E. G. Tucker.

—The Jewelers' League holds its annual meeting on Tuesday, the 17th of the present month.

—The store of Mr. E. A. Hicks, of Selkirk, Ontario, is in possession of the bailiff. Mr. Hicks' liabilities are placed at $3,500; assets, $2,000.

—The firm of Clarence, Corbett & Co., Providence, was dissolved recently, and the business is now being conducted by Mr. E. O. Clarence.

—A fire originating from an unknown cause, in Duncan's jewelry store, at Eminence, Ky., on Dec. 2d, destroyed a third of the business portion of that town.

—Mr. J. S. Niswander, of Gilroy, Cal., recently sent out a very neat holiday announcement, the typographical appearance of which was a credit to its designer.

—"A recently invented clock," says a daily paper, has an alarm attachment, so that when the burglar comes to "burgle," the clock starts up with "Johnny, Get Your Gun."

—Mr. C. E. Bills, of Rome, N. Y., made an assignment on the 1st of Dec., to Mr. Daniel Tulloh, for the benefit of his creditors. His liabilities are placed at $8,986.42 ; assets, $5,927.47.

—The number of buyers visiting Providence direct instead of dealing with the New York offices of Pr.vidence firms seems to be growing larger. They have a good hotel in Providence, too.

—Mr. Charles H. Freeman, of North Attleboro, died on December 15, after a short illness. The deceased was a member of the Jewelers' League. He was well known in the Attleboros, and his death is regretted by many.

—E. J. Franklin & Co., of North Attleboro, have secured from Krementz & Co. the sole right to manufacture the well-known Krementz one-piece collar button in rolled plate. They have placed seven sizes on the market.

—Austin & Prescott, of Batavia, N. Y., were recently advertised in a very effective manner. They purchased a safe which was heavier than any wagon in town could bear, so the safe was drawn upon its own wheels through the town, while all the neighborhood looked on in astonishment and delight.

—Mr. Geo. H. England, of Holyoke, Mass., has moved from the Marble Block to Taber's old stand at 183 High street, a place established in 1848. Mr. W. A. England, of Worcester, has opened a new store in Leominster, Mass.

—Satisfaction is expressed by the trade in Boston over the determination of the E. Howard Watch & Clock Co., to deal exclusively with the wholesale trade after Jan. 1st. They will then be in their new quarters in the Washington Building.

—The Geneva Non-Magnetic Watch Co. is sending out a circular to the trade, which, besides naming the "cardinal virtues" of a non-magnetic watch in nine simple paragraphs, also gives a copy of Mr. Thomas A. Edison's letter of recommendation.

—A western paper says that Mr. Jacob Dreha arrived in Sioux Falls, Dakota, recently, direct from Germany, with a complete and costly outfit of diamond worker's tools for manufacturing Arizona chalcedony into jewelry, at Col. J. H. Drake's polishing works in that city.

—Our correspondent in Boston sends us a letter this month which is extremely interesting, not only to those especially interested in Boston, but also to the trade generally. There are full reports of the state of trade in that city, and of matters political, social and even criminal.

—The Mermod & Jaccard Jewelry Co., celebrated its twenty-fourth Christmas season in their present quarters at North Fourth and Locust streets, St. Louis, Mo., by a special display and reception to their customers. They expect to be in their new building before very long.

—Mr. N. D. Moulds, who has long been known to the trade through his eight or nine years' connection with the New Haven Clock Company, has taken the position of traveler with the Fairpoint Manufacturing Company, of New Bedford, Mass., from January 1. He will cover the southern territory.

Considerable excitement was caused one day last month by the arrival of a number of fire engines in the neighborhood of Maiden Lane. There was a slight fire among a lot of rubbish on one of the upper floors of 176 Broadway, a building occupied mostly by jewelers. None of the jewelers' offices were damaged, and the fire was soon put out.

—E. Aug. Neresheimer & Co. recently received a package of diamonds from Europe by mail, which is contrary to the law. The package was seized, but the firm gained possession of it after paying the duties, by showing that the mistake was the error of the shipper, and by clearly proving that there was no intention to defraud the government.

—The hydrophone or magic stone lately found in Colorado has the curious property of changing from thick whiteness to perfect transparency under water; hence, it is proposed to use it in rings, lockets and other sentimental souvenirs, to mask a flower, lock of hair or photograph, which can be made visible at the owner's pleasure, though hidden securely from prying eyes.

—An unsuccessful attempt to rob the safe of S. & T. Child, of Philadelphia, was discovered recently. The thieves had removed some bricks and mortar from the wall behind the safe, and marks were visible upon the safe itself as though made with chisels. The thieves were probably frightened off by the approach of a policeman, and not having another opportunity before daybreak, they gave up the attempt.

—Tilden, Thurber & Co., of Providence, R. I., have had a thieving clerk in their employ, named John H. Spencer, Jr. As long ago as a year and a half, Mr. Tilden suspected that Spencer was pilfering, and employed a detective to investigate into the matter. Evidence was secured, and his arrest was made, the warrant being for stealing $500 in money, and $150 in goods. Spencer pleaded guilty, and was bound over in the sum of $1,000. He was unable to secure bail.

—S. F. Myers & Co., of 48 and 50 Maiden Lane, recently received a large invoice of gold and silver chatelaine watches and are overjoyed at the fact, as the demand for them has been exceedingly heavy this season, and the invoice in question contains many new and novel designs. Their supplement to their regular catalogue has just been distributed, showing many elegant and new designs in watches and novelties in alligator teeth jewelry, and other articles of their own manufacture.

—Montreal now has a new enterprise—a company to manufacture watch cases. The company was formed recently, composed of some well known Canadian wholesale jewelers, with a capital stock of $30,000. The company is already in successful operation, and contemplates enlarging its premises at an early date. It is claimed that watch cases can be made cheaper in Canada than in the United States. If this is so, it must be that our escaped boodlers and cashiers are furnishing the metal.

—A peculiar disaster, of which Mr. J. Forbes, of St. Thomas, Ontario, was the victim, occurred on the 5th of December. Mr. Forbes had been melting some old silver in a crucible, and afterwards placed the crucible in some water to allow the silver to cool. By an accident he allowed the water to flow over the top of the crucible, where it mingled with the liquid metal. Instantly there was a terrific explosion, which wrecked the room in which it occurred and also dangerously wounded Mr. Forbes, who was burned about the face and hands.

—Mr. William Baird, of Brooklyn, was robbed recently of a quantity of stock, valued at over $1,000. The robbery occurred in broad daylight, while the proprietor was absent to get his dinner. This was his habit daily, and his neighbor usually kept a look-out on the premises. Shortly after Mr. Baird left it seems that the burglars must have effected an entrance and exit through a rear door of the store, hurriedly abstracting watches and other articles from the window and show cases, and then making good their escape. No clue has thus far been obtained of the perpetrators.

—A daring theft of diamonds occured recently in the store of Mr. H. Lewis, in San Francisco. A young man called and asked to be shown some diamonds. Mr. Lewis showed him several trays of diamond goods, and the young man appeared to be pleased with one of the articles, and said he would call again in a few days. Then, while Mr. Lewis was replacing one of the trays, the thief took a handful of jewelry out of another tray, and made a bold dash out of the door. Mr. Lewis pursued him, but the thief escaped, as he was a fleet runner. He dropped a couple of pieces valued at $600.00, as he ran, but these were all that were recovered.

—In Baltimore, Md., recently occurred a robbery, which, though the value of the articles stolen was very small, was yet a most daring and desperate one. Two thieves stopped before the store of Mr. John Herzog, on Lexington street, in the day time, while the street was crowded with people, and deliberately forced open the showcase standing in front of the store. From this they abstracted a few articles of silver plated ware, and when a clerk rushed out from the store and seized one of the thieves, the other struck him in the face rendering him unconscious. The thieves then escaped with their booty.

—From Madison, Wis., comes the report, dated December 7, that State Treasurer Harshaw, Assistant State Treasurer W. D. Harshaw and Nicholas Konrad, Jr., have incorporated the Goyaz Mining Company with a capital of $3,000,000. The company is located at Madison, and will have offices for the transaction of business in New York and Brazil. The company has for its object the mining of all kinds of minerals found in the province of Goyas, Brazil. The list includes diamonds, sapphires, emeralds, rubies, topazes, gold and silver, copper, lead and iron ores. It is thought the Harshaws, who are wealthy people of that State, have the backing of not only their own wealth, but that of several of the most affluent men of the State in the new enterprise.

—Mr. Achille Olivieri, of Venice, Italy, a manufacturer of Venetian glassware and mosaic jewelry, recently sent to Mrs. Cleveland a jeweled casket, made expressly for her. The gift was returned on Dec. 12th, by Col. Lamont, with a note, in which he said: "Mrs. Cleveland has requested me to acknowledge the receipt of your note of the 8th inst., and to say that she thoroughly appreciates the courtesy of your desire that she should possess the mosaic jewel case which you have sent her. It is, however, of too much value for her to think of retaining it. She prefers not to be the recipient of gifts from other than personal friends, and, without intending to be at all ungracious, has instructed me to return the casket. The President and Mrs. Cleveland desire me to thank you for the invitations to view your picture, now on exhibition here, but they do not anticipate that it will be convenient for them to do so."

—Ninety-six and one-eighth per cent. of all the jewelers who have visited New York to buy during last fall, stopped at hotels located above Canal street. We have for our authority for this statement, a gentleman in the trade, who was so interested to know where the visiting jewelers stopped that he spent considerable time, money and labor making the statistics which average the above result. Jewelry buyers, when they come to town, seemingly do not desire to be near the ground where the business is to be done. They seek the up-town portions of the city, and some even go to Brooklyn. They like to be where they can see the sights of the great metropolis and indulge in some of its pleasures. Then, again, three and seven-eighths jewelers in every hundred that visit the city stop at hotels below Canal street, also says our authority. And all of these who are worth counting stop at the Astor House. Now, the records of this latter hotel show that by a large majority the jewelers who stop there are the manufacturers from near-by cities. From Providence, Attleboro, Boston, Hartford, New Haven, Philadelphia, Newark and such cities are represented very largely in hotels below Canal street. Above this street, then, all but possibly a slight fraction of one jeweler locate themselves when they come to the city to buy. It would be interesting to know how large this fraction is, and still more interesting to see it, to know what part of the jeweler it is that stays down-town while the rest of him goes up-town.

—The F. Kroeber Clock Company announces that after January 1st, it will be in its new premises at 360 Broadway. The announcement is significant as the company moves out of Cortlandt street, which was known in recent years as the "clock street," and leaves only one other clock company in that street. Years ago, all the more important clock companies were located there, and one by one they left to find more room in other parts of the city. The reason of the F. Kroeber Company for its removal, is, first, to get more room. For the past three years its premises were only leased by the year, with the expectation each year of finding suitable quarters elsewhere. Then the question of where to go required much careful study, and it was only after a diligent investigation that the new place on Broadway was decided on and secured. This store is neither up nor down-town. It is almost as far from Union Square, which some jewelers fondly imagine is the coming center of the jewely trade, as it is from Maiden Lane, the undoubted present center. No other clock firm is near it, and on the first glance it is an out of the way place. But the Company explain their being in such a locality in this way. It is on Broadway, which they think is *the* thoroughfare, and upon which street no other important companies are. It is also in the heart of the notion and fancy goods district, which jewelers from out of town patronize to a great extent. Other reasons pertain to the convenience of the new premises. The store is very large and roomy, the dimensions being 33x120. At the rear of the store is also a large L shaped building which runs to Franklin street. In this latter place all the packing, boxing and shipping will be done, thus leaving the Broadway entrance entirely free from obstacles. In the main salesroom, shelves on both sides will contain all the latest designs in clocks, and two rows of tables will range along the center. This will still leave a very wide aisle the entire length of the store, and all the fittings and furnishings will be arranged for the greatest convenience in displaying goods in the best manner.

—Nourse & Wilson, of Ithaca, N. Y., have dissolved, and are succeeded by Mr. F. G. Wilson.

—The estate of Mr. G. McLean, Collingwood, Canada, it is said, will pay all the creditors in full.

—The New York office of the Dueber Watch Case Co. will be removed during the present month to 178 Broadway.

—We have received one of the very beautiful calendars sent out by J. G. Cheever & Co., of Attleboro, for which we return thanks.

—The employees of the Waltham Watch Company now number 2,525 persons at the factory. This is the largest number ever on the pay-rolls.

—Henry E. Oppenheimer & Co. will shortly removeto 47 Maiden Lane, opposite their old place, and will have a well equipped factory of their own.

—Mr. Charles L. Kettelty, formerly the Boston and Providence representative of Foster & Bailey, will hereafter take charge of the New York office.

—Mr. F. G. Hall, of Heuvelton, N. Y., has sent out a unique circular to his customers, which folds up into three-cornered shape with a red border.

—We acknowledge the receipt from Lowe & Anderson, Toronto, Ontario, of a beautiful calendar. It was, unfortunately, damaged very badly in mail transit.

—H. D. Merritt & Co. have secured for their New York representative, Mr. A. H. Oakley, late with H. Muhr's Sons, to take charge on January 1. The office is at 10 Maiden Lane.

—Mr. C. Blancard, of Blancard & Co., was granted patents on December 13 on two styles of settings, manufactured by that firm. One is on a cluster setting and the other a new diamond setting.

—The Waterbury Watch Co. have issued another little primer-like book, suitable for the retail dealer to present to his customer. It is entitled, "Round the World with the Sun, Timed by a Waterbury."

—Hirst & Co., a firm in Pittsburgh., Pa, failed on December 20. Executions were issued against them amounting to $10,329, and the sheriff was put in possession. The stock is said to be worth nearly $15,000

—King & Eisele, of Buffalo, say they are busy taking inventory and getting ready for their snap No. 3. In order that their customers may have a benefit this month, they have re-opened their snap No. 1 for 30 days.

—A negro boy entered the store of Mr. B. A. Bell, Chattanooga, Tenn., on December 17, and attempted to steal a diamond ring but was discovered in the act, and when he ran away was chased and caught. He was committed to jail.

—Out of four designs submitted to 8th Regiment for long-service medals, the one by Mr. John F. Luther was accepted, being preferred above some submitted by more celebrated makers. It is in the shape of a Maltese cross and is very handsome.

—In Minneapolis, Minn., on December 16, occurred a daring robbery. The show window of Mr. C. C. Bergh was smashed in and a quantity of jewelry taken. The loss is put at about $1,000. The thief escaped and no clue has since been obtained.

—The Erie R. R. Co. has established an equitable plan of inspection for the watches of its employees. They will engage a watchmaker to examine and regulate all the watches free of cost, and the watchmaker will be required to give a written report on the condition of each watch.

—Elias F. Matteson, of Cleveland, was arrested recently, charged with violating the second-hand dealers' law. He had bought some second-hand jewelry from individuals without making a record of the fact, as the law requires. The property was stolen, and the police had Mr. Matteson arrested as a receiver of stolen goods. He was found guilty and has had to pay a fine of $250.

—A retail firm dealing somewhat in leather goods, made a display in their windows during the holidays, composed of a lot of stuffed alligators of all sizes and placed in many positions. The effect, though quite startling, drew crowds to the window on account of its extreme novelty.

—Mr. P. Hartmann sent some of his patent inkstands to the American Exhibition in London, where they were highly appreciated, and he was awarded a diploma which was the highest of its class. The inkstand referred to is air and dust-proof, and is made in a style suitable for jewelers' stocks.

—An important notice to the trade, signed by Mr. R. E. Robbins and Mr. T. M. Avery, as trustees for the American Waltham and the Elgin National Watch Companies, relative to the alleged infringements on their patents in certain parts of watches, is printed in our advertising pages and should be read by every one in the trade.

—Koepke, Bachelder & Kohart, a new firm, composed of three active and enterprising young men, have fitted up a factory and office at 37 John street, which they have fully equipped with tools and material for manufacturing jewelry. They will make a specialty of medals, badges, etc., in which line they have had considerable experience.

—Wade, Davis & Co. have just placed upon the market some flower applique moonstone jewelry, which is quite a novelty. The effect of the moonstone work is beautiful, and the patterns are graceful and pleasing. Upon another page will be found the advertisement of this firm, which gives an idea of what they are making for the coming season.

—Mr. Morris Jacobs, of Cleveland, O., who failed recently, is likely to have his affairs investigated. It is said that many interesting things can be developed on an investigation which may surprise many of the creditors. Late in November a representative of the Brooklyn Watch Case Co., who are creditors, tried to replevin goods to the value of $1,000, which were sold to Jacobs in October, but he found only $125 worth left.

—The window of the store of Mr. Louis Mintz, on First avenue, this city, was smashed in one night last month with bricks, while the proprietor was preparing to put away his stock for the night. When Mr. Mintz ran to the door to find out the cause of the trouble, he found two thieves helping themselves to the jewelry out of the broken window. They made good their escape with several hundred dollars' worth of goods.

—Mr. John L. Sullivan, the cultured Bostonian, now on a visit to his friend, the Prince of Wales, of England, will be presented with a handsome gold watch by His Royal Highness, in token of his affectionate regard. Mr. Sullivan far outshines all the other famous men of "culture" who have come from Boston. Very few of them have received such marked favor from the Prince of Wales. It is said that Mr. Sullivan is a slugger.

—Lincoln, Nebraska, now contemplates starting a watch factory. The idea originates with Mr. G. C. Thomas, late with the Waltham Watch Company. What with one already started in Wichita, Kansas, and plenty of ambitious, growing cities still further West, it is very probable that the country will soon have a belt of land extending from the Atlantic to the Pacific, occupied by American watch factories. Let them come. The demand for American watches is far greater than the supply.

—We are in receipt of a letter from Taber Bros., of Dallas, Texas, who wish us to warn the trade against a workman recently in their employ. He is of German descent and speaks German. He has red hair, and sometimes wears a very light mustache, is about five feet seven inches high, and his face is usually marked with pimples. Taber Bros. say that he stole goods from them and pawned them. He worked for them about a year, and at first was very faithful, a good workman and filled a position of trust. They believe he is now working in Kansas City.

—The firm of R. S. Matteson & Co., of Providence, has dissolved. The business will be continued by Mr. James W. Cameron and Mr. Fred. Cooper, under the style of Cameron & Cooper.

—A company was formed on Nov. 28th, in Chicago, to be known as the Chicago Watch Co. The capital stock is $130,000. The incorporators are Mr. A. B. Bell, Mr J. S. Chalmers, and Mr. William Chalmers.

—An innovation in Paris is the Pneumatic Clock Company, which takes charge of a number of clocks, regulating them by air power. When the pipes get out of order, which happens about twice a week, a large part of Paris is tineless.

—Mr. Augustus G. Davis, for many years the manager of the New York office of Foster & Bailey, leaves his position on the 1st of January, to take the position of general agent in New York City of the Massachusetts Benefit Ass'n, of Boston.

—A despatch from Battle Creek, Mich., late in November, reported that Mr. William L. Hollister, for twenty years a successful jeweler, has become insane. He was divorced a few years ago from his first wife, and married again shortly afterwards. It is said his insanity is due to domestic troubles and increasing business cares.

—The death of Mr. Charles H. Hannah, a popular traveling salesman of the Dennison Mfg. Co., was announced on Dec. 1st. He was a man of about 25, and had made many friends during his three years career as traveler for the Dennison Mfg. Co. The funeral was held from his late residence, in Brooklyn, and was largely attended.

—During last season a firm of scarf makers placed upon the market a "jeweled scarf." It consisted of an ordinary scarf of silk or satin, with imitations of diamonds, rubies, emeralds, pearls, opals, etc., inserted in the fabric in clusters at the point where a scarf pin is usually inserted. Fortunately for the cheap jewelry trade, however, this arrangement is so absolutely devoid of good taste that even the flashiest of prize-fighters would not wear it. Precious stones set in silk scarfs won't do.

—Mr. T. Everett LaFrance, a small jeweler in Elmira, N. Y., recently left his home to escape the sheriff. His creditors have claims against him amounting to upwards of $3,000, and his stock inventories at about $1,000. Mr. LaFrance started in business some six months ago on a small capital, said to be only $500. He was until recently regarded as upright and honest, and was given considerable credit. Recently, however, he had acted suspiciously, and some of his creditors feared he would run away. It is believed he took some of his stock with him.

—A young and well-dressed swindler recently tried to operate on a Montreal jeweler. Going into the store late in the day he asked to be shown some diamond rings. He placed several of them upon his finger, and asked the jeweler to step over to the window with him that he might examine them by daylight. While the jeweler walked around his counter, the fellow rushed out of the store with the rings on his fingers. He was pursued, however, and captured, and gave the name of Baynes, from Atlanta, Ga. He made an unsuccessful attempt to hang himself in his cell.

—The suit of Mr. N. Strauss, of Chicago, *versus* Richmond & Co., of Providence, for false imprisonment, laying the damages at $25,000, has been thrown out of court. About two years ago, it will be remembered, N. Strauss & Co., of Chicago, failed, owing many Eastern houses. Mr. N. Strauss, the head of the firm, was in Providence at the time, and, a feeling being entertained by some of the creditors that the failure was fraudulent, he was arrested at the suit of Richmond & Co., and confined in the county jail. It will be remembered that his settlement with Richmond & Co., after ten days in jail, and his consequent release from confinement on Sunday, and departure from the State before Monday, when other creditors could have proceeded against him, was considered a very shrewdly planned stroke. On his return to Chicago, Mr. Strauss began the suit against Richmond & Co. and the result was telegraphed to Providence early in December.

—The Marvin Safe Company publishes a story with a moral for their advertisement in this issue. The story is about the "Old man from Dyre, who was always in dread of a fire," etc. The moral, of course, is plain—you must all sleep in a Marvin safe if you would be absolutely fire-proof.

—The Jewelers' & Tradesmens' Company, which only recently passed its first birthday, has met with an unheard of popularity in insurance circles. Within the first year, ending Dec. 18th, 1887, the certificates of insurance aggregated $1,000,000, and not an assessment had been made. The charter membership is almost complete, and, as charter members do not have to pay any fee for initiation, there is a pecuniary advantage in joining before the full compliment of this membership is reached.

—It is seldom that people have to complain of the cheap prices they have to pay for goods made on special order, but last month a firm on the Lane ordered a fine Maltese-cross charm to be made which was to have cost $11.50, including a diamond in the center. What was their surprise when they received the charm to find a carat-and-a-half diamond in the center, though the bill amounted only to $11.50. When they sent a clerk to find out how diamonds could be sold so cheaply, it was discovered that there had been a slight error. Instead of a carat-and-a-half stone it should have been a one-sixty-fourth one.

—The Non-Magnetic Watch Co., of America, has been organized at Yonkers, N. Y., with a capital of $500.000, and has purchased the American business of the Geneva Non-Magnetic Watch Co. (limited), and the right to use Paillard's Patent Non-Magnetic Compenssation Balance and Hair Spring. The officers are Mr. David Ward, Pres.; Mr. Louis Franke, Vice-Pres.; Mr. Charles W. Ward, General Manager; Mr. H. W. Struss, Treas.; Mr. A. C. Smith, Sec'y and Business Manager. It is the intention of this company to place on the market a line of medium and low-priced non-magnetic watches, containing Paillard's patents as soon as practicable, and to continue the high standard of excellence of the watches now made by the Geneva Non-Magnetic Watch Co., and also their complicated and ladies' watches. They will occupy the present offices of the Geneva Co.

—The daily papers made much ado, early in December, over the discovery of gold in Wales. Two lodes, one 25 feet thick, and the other 66 feet thick, have been found, and forty-two other lodes are distinctly indicated. They are all upon the property of Mr. William P. Morgan, who has had experience in gold mining, and he was so confident that there was gold upon his property that he employed a hundred men five months ago to dig for it. The result is far be ond his expectation, and the lowest estimate of the average yield of the mine is placed at two ounces of gold to the ton of rock. Twenty-five hundred tons have already been stacked for treatment which, from tests already made, is estimated to contain six ounces to the ton. The discovery of gold in Wales has been the cause of a gold fever throughout that section of Great Britain, and people there are now all discovering indications of gold veins on their own property.

—The Geneva Non-Magnetic Watch Company is advertising its watches in a very effective manner, by exhibitions in the windows of prominent jewelers in the large cities. The most noticeable and attractive exhibition is the one in the window of Mr. Theo. B. Starr, of this city, which presents a most novel and interesting sight. In the center of the window is mounted a small dynamo machine which revolves with lightning speed. A wire runs from it around a non-magnetic movement, which is observed to be ticking away, notwithstanding the intense magnetic force of the machine on which it stands. Another movement is placed inside of four magnets, mounted upon a velvet pad, and also shows the escapement. The window is then handsomely arranged with a lot of watches in cases of beautiful designs, and a neat sign calls attention to their being non-magnetic. On the subject of these watches, we would refer to the letter from Mr. Thomas A. Edison, to the Geneva Company, which they publish among our advertisements this month.

—Mr. D. De Sola Mendes returned from Europe last month.

—Ignomar Goldsmith & Co. remove January 1 to 20 Maiden Lane.

—Mr. O. Eisenmann, of Eisenmann Bros., has returned from Europe.

—Hancock, Becker & Co., of Providence, have sent us a handsome calendar for 1888, for which we return thanks.

—H. Muhr's Sons, of Philadelphia, have sent out their eighth annual greeting in the form of a beautiful lithographed calendar for 1888.

—E. E. & A. W. Kipling have dissolved partnership, Mr. E. E. Kipling retiring. The business will be continued by Mr. A. W. Kipling.

—The Spencer Optical Mfg. Co. are sending out an instructive catalogue to their patrons, which every one in the trade can have by applying

—Mr. H. S. Oppenheimer, of Oppenheimer Bros. & Veith, sailed for Europe last month. He will make his headquarters, as usual, at 2 Tulp-Straat, Amsterdam.

—A new automatic pinion cutter has been set up in one of the departments in the Waltham watch factory. It is an invention of Mechanical Superintendent Marsh's, and is automatic.

—Mr. E. A. Thrall did a rushing holiday business, especially in watches. Mr. Thrall reports that he experienced a lively demand for high grade jewelry, especially that set with precious stones. His store is usually a scene of activity.

—The Board of Directors of the New York Jewelers' Association have elected Mr. Geo. C. White, Jr., and Mr. J. B. Bowden, directors, to fill the vacancies caused by the resignation of Mr. John A. Riley and Mr. Joseph F. Chatellier. Mr. White has declined the honor thus conferred, but it is understood that Mr. Bowden will serve.

—Robbins & Appleton make a special announcement, referring to the new watches made by the American Waltham Watch Company, which are non-magnetic. They are made with a non-magnetic balance, hair spring and escapement, and otherwise contain all the characteristics of Waltham watches.

—The jury in the case of Bodin, the diamond smuggler, in the United States Court, returned a verdict of guilty. This is the first conviction for defrauding the customs in some years. The extreme penalty is two years' imprisonment and $5,000 fine. Sentence had not been pronounced as we go to press.

—The Gorham Mfg. Co. have a new announcement in this issue to which we call attention. We would also commend the workmanship of the beautiful design with which their page is surrounded. The design is the work of one of the company's own artists, and includes within its border a few figures of the "old masters" pattern.

—The Middletown Plate Co. illustrate in their advertisement this month two new patterns of plated ware. One is a jewel case, the ornament being a little boy on a toboggan in the act of starting down the slide. The other is the "Nautilus" fruit bowl, a shell-shaped dish, mounted upon rustic branches for pedals and having a fairy figure for an ornament at the top. The illustrations are rather crude for showing the finish of these pieces, and the goods themselves should be seen.

—For some time past the Aurora Watch Co. has been manufacturing and selling a stem wind and set movement which is claimed to be an infringement upon the patents of Mr. D. H. Church, re-issued Aug. 4th, 1885, and Mr. C. K. Colby, issued Oct. 23d, 1883, both of which patents are owned by Mr. R. E. Robbins, and Mr. F. M. Avery, Trustees for the American, Waltham and Elgin National Watch Companies. Upon the 21st inst., Mr. Robbins and Mr. Avery, through their attorneys, Prindle & Russell, of Washington, D. C., commenced suit for infringement against the Aurora Watch Co., in the U. S. Court, Chicago, in which suit damages in the sum of fifty thousand dollars are claimed.

—In Schumann's up-town store recently one window was attractively arranged with about sixty "A. Lange, Dresden," movements, all of the same style and grade, each one wound up and ticking away in lively fashion. It was a novel sight, and many passers-by stopped and expressed delight as well as astonishment.

—Rogers & Brother say that the Christmas season just passed has with them been far ahead of last year in the amount of business done. No estimate of the percentage of increase could be made, but the result was far beyond what they had expected. Their large stock was early exhausted in many of the more salable articles, and many large orders could not be filled from being received too late. They report that the outlook for the new year, in their line, is very favorable.

—All the up-town jewelry stores which do a retail trade were crowded during the few days before Christmas, and trade seemed to be booming. One proprietor, however, said that business was not as good then as it had been a month or two weeks before. "At this time," said he, "our customers are those who only buy trifles—articles of low price, while two weeks ago we were selling our more expensive goods. People who intend to give expensive presents," he continued, "buy them long before Christmas and lay them aside. Consequently when you see a store crowded just before Christmas it may be that a small business is being done, while a short time before a few customers in the store would indicate a large business."

—Falkenau, Oppenheimer & Co. report that their holiday business during the season just passed far exceeded that of last year. They carried a larger stock than ever before, and in mounted goods showed a large assortment of patterns. They found the demand for fine, expensive pieces greater than that for cheaper goods; a case the very opposite to last year, when the demand was for small articles cheaply mounted. During the present month one of the firm will sail for Europe to make purchases for the coming spring. They believe that the outlook for the new year warrants the purchase of fine goods, and these in large quantities. They are satisfied that the country is prosperous, and that the trade will have a successful year.

—Mr. George A. Paillard, of M. J. Paillard & Co., who had a narrow escape from drowning last summer at Elberon, N. J., an account of which appeared in THE CIRCULAR at the time, is now in Montreux, on Lake Geneva, Switzerland, endeavoring to restore his shattered health. It seems he never fully recovered from the shock which the accident caused, and was not able thereafter to go to the store on Broadway. His physician advised him that the only way to regain his health was to try a change of climate, and recommended Algeria or the Island of Madeira. But Mr. Paillard decided to go to Montreux, which is near his native place, and where the climate is also suitable. Here, also, he is quite near the Paillard factory, which he hopes to visit frequently during the coming summer, to superintend the manufacture of several improvements in musical boxes comtem plated by the firm.

—We desire to call especial attention to our page of working designs in this issue. Among them are three designs of articles which have never been attempted before. Number 1 is of an ornament for a lady's collar. Two small buttons of Roman or satin finish, set with diamonds or other stones, are connected by a chain, from which is suspended a chased ball. Number 6 is a new and original design for a sleeve button which can be made up very handsomely. The idea might be worked into a great variety of pleasing patterns. Number 9 is a new design for an ear ornament, and is somewhat Egyptian in style. The artist has somewhat exaggerated the ear, but he had less regard for that important member than for its ornamentation. The ornament can be set with a large diamond or other attractive center stone, and the other stones should be pearls, turquoises or garnets. All the other designs are merely new patterns of jewelry, of which the use and purpose is easily recognizable.

—R. L. Moorhead & Co., of Providence, are showing a line of fine Rhine stone jewelry in gold front, rolled plate and silver, in which they use a special brand of brilliants. They have a New York office at 202 Broadway.

—Payne, Steck & Co., of 179 Broadway, failed on December 28, the judgments entered against them amounting to $30,165. The firm started business in 1884. It is believed they will speedily effect a settlement with their creditors.

—An announcement is printed in our advertisements this month by Mr. R. A. Kipling, of Paris, Oberstein and Providence, notifying the trade that his American branch will be put in charge of his brother, Mr. E. E. Kipling, late of the firm of E. E. & A. W. Kipling.

—Howard & Son have issued a circular to the trade that they have abolished the trade discount heretofore allowed their customers. Hereafter they will sell at net prices, allowing only the usual discounts of six per cent. ten days, and five per cent. thirty days. They maintain that the discount system in vogue gives rise to many abuses and misunderstandings that they propose to avoid in future. Their net prices will be found in many instances lower than they were under the old plan.

—In London, England, the press and people have lately devoted much attention to the question of what should be done with the ever growing class of unemployed persons. It was decided by the authorities that the first step in the interest of the unemployed was to take a census of that class of the population, after which their needs could better be looked into. Such a work, however, would have made considerable expense, and while the committee in charge were wondering how to get the funds, the Waterbury Watch Company came forward with a proposition to shoulder the entire burden. The proposition was so very unselfish and public-spirited that the committee accepted it immediately, and the company established sixty branch offices in the sixty different "centers" of London, and about 420 of the unemployed were selected as clerks. At each of these sixty offices a register will be kept, and it is expected that all the unemployed will come there to register. Much interest is manifested by the London press and in political and social circles in the success of the scheme, and the Waterbury Company is receiving praises from all quarters.

—A recent decision of the United States Supreme Court affecting the title to lands which were obtained by fraud and sold to third parties, bears an important relation to the many similar transactions in the jewelry trade known as giving goods on memorandum. There has been some discussion upon this question in certain quarters, and we learn of several firms who have announced that they have discontinued the practice of giving goods on memorandum. The courts hold that if a person gain any property, even if his manner of getting it be unlawful or fraudulent, and he dispose of said property to a third person, who buys it in good faith, the title of the property is vested in such third person. This, of course, places the memorandum plan of business in an extremely dangerous position, and it seems like running a very great risk to do business that way. In jewelry transactions, indeed, the law seems like a hardship, but it must be admitted that the common sense view shows its soundness; for the third person is supposed to buy in good faith. Therefore, he must be protected; for the law also holds that if the third party is privy to any fraud in the original obtaining of the property, he is also a party to such fraud, and can be prosecuted as such.

—A new style of swindling is reported in the daily papers, which shows that Dame Fashion requires a change of styles in criminal methods as well as in designs for jewelry. The swindler obtains the card of a reliable retail firm, Mr. A. Goldberg, of State street, Boston, for instance, and with a rubber stamp prints across its face, "Removed to 641 Tremont street." Then he visits a firm of jobbers in New York City, and orders a large bill of goods to be sent to his new address. He names H. B. Claflin & Co., for his references. Of course, when the jobbers inquire of Mr. Claflin, they receive a very favorable report of the credit of the firm in question. This would be the end of investigations with most firms, who would then ship the goods. But not so with Smith & Knapp, who had this scheme tried on them recently. They also wrote to Pinkerton's agency in Boston, who quickly replied that the Mr. A. Goldberg in question had not removed, and that the address, 641 Tremont street, was a boarding house, where they further learned that a young man had hired a room a few days before. The detectives warned the express companies not to deliver any packages to that address, and then made a search for the swindler. They captured him on Dec. 12th. He gave his name as John Finkelstein, and his age at 24 years.

—Carter, Sloan & Co. report that their holiday trade far exceeded that of last year, and reached a proportion far exceeding their expectations. They will commence with their annual stock taking about the middle of the present month, and meanwhile their factory in Newark will be closed for a week or so. They promise for the coming year a greater variety of new things than they ever made before, and, as usual, they will make their goods with the best of workmanship and of the latest designs.

—An important improvement in the manufacture of show cases which was recently invented, is of great interest to jewelers especially, who should always have their cases fitted up in the most pleasing style, and with show cases of the finest workmanship. E. & W. B. Smith, who are known extensively among jewelers in all parts of the country, are the makers of the improved style in question. It consists of a new process of joining glass together, by which cases of every shape and size can be formed, with a frame only three-sixteenths of an inch in diameter. One of these cases in particular, which we saw, was a counter case 8 feet long, 30 inches wide and 36 high. The top light and the front light, of heavy, polished glass, were joined by a thin strip of rosewood. The doors at the back of the case were perpendicular sliding ones and dust-proof. Standing at a distance from the case it seems to be entirely of glass, and the strip of rosewood is scarcely noticeable. Lest it might be thought that this style of joining, which looks rather delicate, is too frail for use, the manufacturers say that it is even stronger than the old style. They also demonstrate the strength of the new cases in this way. There is no doubt about the beauty of these cases, and Messrs. Smith invite all interested to inspect them. Many are already in use in stores recently fitted up by this firm.

—Hamrick & Son, of Philadelphia, were recently the victims of a clever swindle. A finely-dressed, middle-aged man, looking and talking like a gentleman, called upon a well-known soap manufacturer of Philadelphia, representing himself to be one of a large grocery firm of Pittsburgh. The soap man treated him cordially, and all the more so after receiving a very large order for soap. He then took the supposed Pittsburgh man around the city to show him the sights. The Pittsburgher casually remarked that he wanted to buy some diamonds, and asked to be recommended to a good place. The soap man was well acquainted with the Hamricks, and he took him there, giving him an introduction and highly recommending him. Here the swindler picked out a few pieces worth about $800, asking to have them put aside for him for a few days. About an hour later he came again to Hamrick's alone. He said he wished to take the diamonds to his hotel to examine. He was given the goods without question, as Mr. Hamrick was well satisfied with the soap merchant's recommendation. After the stranger had gone, the soap manufacturer came into the store in breathless haste, saying that he had just discovered that his friend was a fraud. When he learned that the man had just bought there and got the diamonds he was dismayed. The thief has not been found, and the Hamricks want the soap manufacturer to pay for their loss.

—The complaint is again repeated which is heard over and over again at each Christmas season, of orders not filled because they came too late. In some branches of the trade there are articles which the prudent jeweler should order of the manufacturer as early as September or thereabouts, to insure his receiving them in time to sell during the holidays. Clocks, of course, are always ordered early, and yet it often occurs that the short-sighted jeweler allows his stock of good patterns to run low at the time when he most needs them. Silverware, and more particularly silver plated ware, are things which must be ordered long before the Christmas season sets in. The manufacturers of these goods are always producing new designs, and of each design a limited stock is made. After a few orders are filled and the stock is exhausted, the factory is taxed to produce more to fill the new orders, and to make a little stock besides of the best selling patterns. It stands to reason that every factory has a limit to its capacity, and beyond that capacity it cannot go to fill orders. Consequently every year the retailer is disappointed at not having his orders filled in proper time, or not filled at all, and he blames the manufacturer. The manufacturer, of course, is not to blame in the least, and, indeed, the neglect or carelessness of the retailer keeps the business of the manufacturer down to a proportion which it might far exceed if the orders but came in time. And the retailer would be benefitted correspondingly, for if his customer cannot be suited with his silver plated ware, nine times out of ten he will spend his money at the furniture store next door.

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