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THE KEYSTONE.

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WORKSHOP CHEMISTRY.

By the Professor.

HEMISTRY can be defined as the science which treats of the nature and properties of matter, and the energies controlling it. We have no certain knowledge of the origin of the word "chemistry," but we first find the word used by those who practiced the science or rather art of alchemy. And it is very probable the prefix "al" was obtained from the Arabic definite article, "al," as in alcoran, the Koran, or Mohammedan Bible. In like manner al-chemist, the chemist, came into use. The great impetus to the art of alchemy was the belief that metals were all mere forms and corruptions of one common base or metal, and this base was gold. The early church fathers were connected with and practiced the art, as is evidenced by the Emperor Dioclesian publishing an edict some time about the year A. D. 300, compelling the burning and destruction of all Egyptian books on this subject in his dominions.

We cannot well escape the conviction however, that the art of applied chemistry (though probably under some other name,) was in use among metal workers for many hundred years before it was known as alchemy, and was then transmitted from father to son, or master to pupil orally. This belief is sustained by our modern experiences; for to-day, with all our advance and knowledge, the production of kindly working alloys of gold and silver are not among the simplest problems of the science. That the ancients possessed this art to an eminent degree, we have undisputable evidence in the shape of relics in the precious metals. The successful working of metals also necessitates the use of various fluxes which would undoubtedly beget and produce the art of glass-making-an art also long practiced prior to the Christian era, and long before any record we have of alchemy. The occult science of alchemy began to diffuse itself in western Europe about the time of the return of the crusaders from the holy land, and might readily be attributed in a certain degree to a Sanscrit or Arabic origin. It is not the writer's intention to pursue the derivation of the word and history of the science beyond a mere cursory glance. His main object being to give first, a broad and general idea of the principles and methods involved, then confine himself exclusively to such portions of the science as can be applied to jewelers and kindred arts. The definition I gave of the word chemistry admits of an easy and comprehensive division, which is an important object in a work of this kind. The term "matter" comprehends, as far as we know, some sixty odd, so-called elementary bodies; and almost every year adds one or two to this number.

These substances are called simple or elementary bodies, because at the present time we are unable to divide or separate them. The known forms of energy are light, heat, electricity, magnetism and molicular attraction, which last term could probably be better expressed by substituting attraction of aggregation, which would include attraction of gravitation and cohesion.

The ancient classification of elements were four: air, earth, fire and water. Now it is well known neither of these existences are elementary. Indeed, many among our most eminent chemical thinkers are inclined to favor the idea of only one primeordeal form of matter, and this existing in a state where the atoms are repellant; and the first form of energy the most active repulsion of atom from atom. Be this as it may, we know and can demonstrate that most, if not all, forms of energy are convertible, that is, can be changed from one form to another ; as, for instance, heat can be converted into the energy of light or electricity.

Formerly, chemistry divided its consideration of subjects into two grand divisions, viz.: Confinable and unconfinable bodies; the first of these comprehended the gases and all the elementary substances which could be weighed or measured. The unconfinable bodies were heat, light, electricity, and magnetism. These last named elements were supposed to be positive existences; as for instance, light was a "body,' yet so subtle that a velocity of a couple of hundred thousand miles in a second was perfectly consistent with its nature. At the present time, the idea that light or heat are tangible substances is no longer tenable, and experiment has not only demonstrated that these energies are conveyed in waves, but science has devised means to measure these waves both in extent and duration.

I was lead to speak of these advanced views of science more to warn my readers against text-books of chemistry published some years ago, than because these facts were essential for them to know in the earlier lessons for acquiring a practical knowledge of chemistry, such as is necessary to know for pursuing a certain branch of industry. Another reason for eschewing chemical books of any but recent publication, is an almost total change in chemical terms and names. While speaking of applied chemistry, or to put it as above stated, such chemistry as it is necessary for one to know to pursue any particular branch of the arts, I would beg to say in addition, that the chemistry of to-day is too extended for any one mind to grasp in all its details; and for this reason, after a foundation is established, by acquiring a general knowledge of the science on its broader basis, those who pursue it even as a special study, devoting their whole time and attention to it, usually select some particular branch and apply their researches exclusively to investigations in that one particular department; as for instance, the chemistry pertaining to the art of dyeing, photography, or extraction of metals from their ores, and a dozen and one divisions which would be ample to absorb the energies of any one man, no matter how intellectual he might be.

It is not necessary to have an expensive or extensive labratory to acquire a good knowledge of the general principles of chemistry. And still, it is important to have a practical knowledge. Your mere book chemist seldom knows more than to burn himself and ruin his clothes if he should attempt to perform many of the experiments he has read. For this reason I would advise all who read these articles and intend to profit by them, to provide such simple apparatus as is described, and perform the experiments as directed. There are about ten or a dozen elements which are so generally diffused in nature that we will consider these and a portion of their compounds first.

The first element we will consider is oxygen. This substance was discovered by Dr. Priestley, August 1, 1774. In a separate state, it can be described as a gas with all the mechanical properties of common air ; is colorless, invisible and elastic ; supports combustion, and sustains animal life by respiration for a brief period, but speedily produces death from causes involving physiological considerations unnecessary to mention in these articles. There are many methods for procuring oxygen in a separate state, but the method which invites our special attention is by the decomposition of water by electrical energy. In this method we have one of the most elegant demonstrations of the co-relation of forces or energies. The due consideration of all the forces involved in the process of decomposing water by electrical agency will be taken up as we progress. The appliances for decomposing water by a galvanic battery will be given, together with other simple apparatus for a few experiments, in the next number of this journal. There are many interesting experiments illustrating chemical action of oxygen which need scarcely any apparatus, as

the black and red oxide. The former of these consists of 78.5 parts of iron, and 21.5 of oxygen; the latter of 69 parts iron and 31 of oxygen. In our early experiments we will content ourselves by effecting the isolation or separation of known elements from compounds, as in the present case, oxygen from water. I was led to speak of the combination of oxygen with iron as an example of its characteristics, and it is always well to know these and the nature of the combinations. After we have made a brief examination of the principal and more generally diffused elementary substances, we will consider their relation to each other, and how chemists have classified them. To facilitate chemical operations, abbreviations called "symbols" and "equivalents" have been adopted. Below will be found a nearly complete list of elementary bodies with their symbols and equivalents. But in all our early experiments only (as I said above), about a dozen of these substances will be considered.

min be ce	morue.	icu.					
Body.	Symb.	Equi	v. B	ody.	Sy	mb.	Equi
Aluminium	Al	13.7		lroge		н	Ι.
Antimony	Sb	64.6	Iodi	ne	-	Ĩ	126.5
Arsenic	As	37.7		ium			98.5
Barium	• Ba	68.6				Fe	28.
Bismuth	Bi	71.5	Lan	tanii	m	Lu	
Boron	в	II.	Lead				103.7
Bromine	Br	78.4	Lith			Î,	7+
admium	Cd	55.8			im	Mo	12.7
Calcium	Ca	20.5		gane	se	Mn	26.
Carbon	C	6.1	Mer	curv		Hø	200
Cerium	Ce	46.	Molyh	oden	um	Mo	47.0
Chlorine Chromium	C1	35.5	Nick	el		Ni	29.5
hromium	Cr	26.2	Niob	ium		Nr	-9.3
obalt	Co	29.5	Nitro	ogen		N	14.2
Columbium	Ta	184.8	Norit	1111		No	
Copper	Cu	31.7	Osmi	ium		Os	99.7
Didymium	D	48.	Oxyg			õ	8,
Frbium	臣	-	Palla	diun	1	Pd	53.3
luorine	F	18.7	Pelor	oium		Pe	-05.5
Hucinum	G	6.9	Phos	phor	us	P	15.0
Gold	An	196.6	Plati	num		Pt	15.9 98.8
	Body		Symb.	Equ	iv.		-
P	otassiur		K		.2		
	hodium		R		1.2		
	utheniu		Ru	52			
	elenium		Se	40			
	licon		Si	22			
	lver		Ag	108			
	odium		Na	23			
	rontiun	n	Sr	43			
	ulphur		S	16			
T	elluriun	1	Te	64			
	erbium		Tb		-		
T	horium		Th	60			
T	in		Sn		.9		
T	itanium		Ti	24			
T	ungsten		Ŵ	92			
U	ranium		U	60			

68.5

32. 32.3 34

Zn Zr

Vanadium Yttrium

Zinc Zirconium

To the above list a few elements have been added, but in some cases their symbol has not been agreed upon, or their equivalents ascertained. Indeed, as far any real interest is concerned, they are like more than half of the above list. only chemical curiosities. I think there are now 65 alleged elements, or six more than are given in this list. What is necessary in our investigations is to understand the combination and action of such substances as we are called upon to deal with in the workshop, so that if it is required to produce a certain result, we would know pretty nearly what materials were needed, as we would in a mechanical pursuit, what tools to use. For instance, if we desired to produce a compound to blacken or oxidize silver, we would have but little difficulty to hit the necessary materials to effect this end.

for instance, the combination of oxygen with iron can be illustrated by heating iron in the open air. The colors which come in succession on the polished surface of this metal indicate the combination of the oxygen of the atmosphere with the surface. The truth of this assumption is proved by heating iron in connection with pure oxygen, when the same result is obtained, and established by negative proof by heating iron surrounded by other gases, when no such result is obtained. By exposing iron to the action of water, we obtain another combination of oxygen and iron. Oxygen combines with iron in certain definite proportions, forming

THE JOBBERS EXPLAIN.

VERY retail jeweler should read carefully the speech of David Keller before the Watchmakers' and Jewelers' Association at Columbus, Ohio. It explains in a lucid, common sense manner the efforts of the Jobbers' Association to bring order out of chaos, and establish a stability of prices so much to be desired. He spoke as follows .

MR. PRESIDENT AND GENTLEMEN :-I feel that I have been treating your courtesy somewhat rudely, in choosing my own time to avail myself of the opportunity that you have granted me.

Gentlemen, I feel that I am in a delicate position. I have been delegated to come and state to you in my limited capacity, and to speak to an assemblage of the profession here in the English language, myself being foreign born, and to represent others who are beyond me in talent, schooling and opportunities of education. Still, as this is not the time for apologies, I will endeavor to do the best I can to explain the position, as I have been told to explain it.

In olden times the social system was made up of fueds and factions-that was in the time of barbarism, the time when men were selfish, and looking out for selfish interests. In the days in which we live we find a better and purer condition of things; instead of fueds we have associations; we have combinations for mutual good and benefit; we can come together in council and can help each other ; we can improve each other's condition, and we can improve the trade that we have chosen for our livelihood. Such is our position in the nineteenth century, and I think the people who live in the nineteenth century may congratulate themselves that the social relations have come to such a To-day the jewelry pleasant pass. business is conducted on a fraternal system, and more especially the watch interests. The manufacturer is associating himself in societies, not for the purpose, as it is claimed, of getting a greater profit on his goods; not, as it is claimed, to become a conspirator against the people who have to buy his goods; not, as it is claimed, in order that he may sell a poor article for a good one; no, it is the contrary. He is combining with others in order that he may govern production, and thus guard against overproduction and the threatened avalanche of misfortune, which may come upon him when least expected. He is combining to improve the quality of his goods, to compare notes with his competitors, and exchange knowledge of the improvements in manufacturing devices.

He furthermore combines in order to be able to regulate prices, so that he may derive an honest profit from his goods, and thereby be enabled to pay honest wages to his workmen, and create and perpetuate a happy feeling among the craft. This is the position of the manufacturer. He has also come to the conclusion that a large manufacturer's interests can better be served by distributing his goods through commission merchants, as by this means he is enabled to distribute his goods quickly, and advertise them in the remotest corner of this great country; and that com mission merchant we are pleased to call the jobber. Now, my friends, the question that has been agitating the minds of the retailers is, whether there is any use for such a thing as a jobber. I claim that there is, and always will be, not because of any selfish motive, because I am a jobber; not because I am afraid I could not make a living in any other channel; not because I am a commission merchant, and have been for many years, and by honest dealings, by myself as well as by all other recognized jobbers in this community, have been able to retain the good will of the trade, and the respect of all those with whom the said jobbers do business. The manufacturer has recognized, and by experi-ence found it a necessity that he should and must employ a middleman to dis- you criticise-you claim it is a destruc-

tribute his goods, and, consequently, has chosen the jobber; he gives him a commission of fifteen per cent. on movements; ten per cent. on silver cases; and fifteen per cent. on filled cases. Now the cat is out of the bag; that is what we get.

a man among you cannot Many deny that he owes his very existence and the development of his business to that very jobber. Many a man among you today knows very well that if he had had to apply in the days he needed credit to the manufacturer for the same, that manufacturer would have told him that he was too small to bother with ; but the jobber came along; he was a good fellow, he became personally acquainted with you and recognized your qualifications for business and your chances of success; extended the credit to you, and thereby gave you a start. Now, the jobber has done this all over the United States, from east to west, from north to south ; there is not a place in this country, there is not, I claim, one store in a hundred that he has not similarly aided. If I am wrong in my statement I wish to be corrected. In this lies the utility of the jobber.

I furthermore claim that in business there is no such thing as sentiment; sentiment and business do not go together. Every one of us will calculate where and how he can make the most money, and where he can get the best goods for the least money. The jobbing houses—the large jobbing houses of this country-always recognized and will recognize that the legitimate channel for the sale of watches is the jeweler. A man who is a watchmaker can handle these goods intelligently; his profession gives him the knowledge how to do so. The watch ought not to be, and cannot be sold like any other commodity ; it is a fine piece of mechanism, and is somewhat of a luxury. It is a machine that ought to be explained to the man who buys it, in a scientific manner, and not according to the letter of the price list. When you sell a watch, instead of insisting upon your reputation as an honest dealer who has been in the trade in his community for ten, fifteen or twenty years, and who, by your past actions are entitled to the confidence of the public, whose word must be taken as law and whose guarantee must not be impeached, and if you wish this watch at such a price, here it is; you in many instances bring the price list into requisition; you thereby put yourself on a level with those who have never learned the trade, and with the aid of a price list you give them an opportunity of knowing as much about a watch as you do, who have labored all your lifetime to learn it. Now, this is the great fault in your mode of conducting your business. You have in this way been too communicative to the public; you have taught it too much; you have simplified the matter entirely too much, and thereby somewhat frustrated your chances of selling your goods at a reasonable profit.

The jobber recognized the fact that the watchmaker could sell watches in greater quantity and better grades than any other trade, and he has always kept them in that channel for the reasons stated. In return he asks you, gentlemen, for a life support. The Jobbers Association has made it possible for this to be done; it has not been gotten up st inte rests o the wate it has been claimed in some quarters. Among other things which the Jobbers' Association has taken upon itself to correct, is forbidding the issuing of price lists under a profit of 25 per cent., and any dealer persisting in sending out such price lists, under the prices named, will not get goods from any member of the Jobbers' Association. The jobber has corrected many evils that have hitherto been an annoyance to your trade, and which he was only able to correct while an association of jobbers existed. This he has endeavored to do in the interests of the legitimate retail jeweler.

tive measure. In February of last year we made a rule that with every movement the jobber should sell a case. There was an uprising against it-we were stigmatized as autocrats and tyrants, because we asked that to which we were justly entitled-to the sale of cases. Now, the manufacturer makes us take his whole production ; we have our safes filled with movements which do not sell very readily, but we have to take them as they come; we always have a surplus of such movements as are not as popular as others. You ask us to keep these movements in stock until it is your pleasure to order them ; then you order a six dollar movement of us, and you would like to order an eighteen dollar case from some man whom you have no interest in, that can and will not do anything for you, because you imagine that you can buy fifty cents cheaper. Now, I am not talking about or alluding to Mr. Dueber. I have nothing to say for or against Mr. Dueber. Mr. Dueber has never hurt me, and as a man I respect him ; his social relations in the community wherein he dwells are of the most flattering; that he is public spirited and takes cognizance of the woe and weal that befalls his neighbor, I have personal proof of; as a manufacturer he is second to none. But his mode of conducting his business can at times be criticised. A man may call his goods the best. That is business. But he must also somewhat respect the standing of his competitors and rivals in business; and, while he claims his goods are superior, he must not criticise the quality of others', but let the public be the judge whose goods are the best for the money for which they are sold. This disposition on Mr. Dueber's part to make a personal onslaught has caused a disruption in our Association, and he has come to the conclusion that he can do without the commission man and sell his goods direct. Now if Mr. Dueber will look back to the time when he sold his goods to the retailers, he will find that at that time he was a very small manufacturer. When he had a little repairing shop over Duhme's store, he little thought that it was ever possible for him to become the manufacturer of watch cases he is to-day. But his success only commenced when he sold his goods through the jobber; then his goods were advertised in a manner only possible through the agency of the middle man-the jobber. Now he claims he has no more use for the jobber, and I will say to-day that I think he does not say exactly what he means; and I furthermore claim that his former position was more satisfactory and renumerative than it is now ; because, having fifteen salesmen and a thousand is quite a different thing in the mode of selling goods. I further want to say that Mr. Dueber's position is not a good one for the trade. It has destroyed confidence and created an uncertainty; no one seems to be willing to make any calculations for the future-every one is afraid that prices are not as low as they will be, and the uncertain stability frustrates any stability in the same.

The Jobbers' Association and its aims are not a matter of experiment. It has been demonstrated that they are of great benefit to the trade in retaining firm prices.

Before the Jobbers' Association there was always the special retailer. Now special retailer is a thing of the In his time he was a prominent past. dealer in some town or other. He comes from way-back, and came into existence at the time when the American watch manufacturer had to fight the Swiss tooth and nail; when in order to introduce American goods into American markets, they had to give special inducements to some men who were willing to take hold of them, and lend them a prestige which the individual dealer who consented to keep them in his stock enjoyed in his community. This is a matter of twenty-five or thirty years ago, and through this means the American watch was introduced, and those people who enjoyed being special retailers introduced them, while others would not consent to give them any room in their stock because they had some Swiss pet to take care of. But as every- | carry out this rule, it will increase the

thing has its time, and recognizing the unfair position, the Jobbing Association was formed, and they had demonstrated that the special retailer is no longer a necessity.

You do not wish to buy watches, but movements and cases separately. What is the result? It is that matters are too much simplified, through the country's being flooded with price lists, thereby educating the public, letting them know how much a case costs, and how much a movement can be bought for. In selling a watch you explain too much about its qualities, you give your customer too much of your own knowledge in trying to teach him the details that you have spent your lifetime to learn. That is wrong. The public ought to know as little as possible, then you would be able to sell a watch on its merits and your own reputation; but if you put yourself on a level with the dry goods clerk, he may be more graceful in explaining the merits of the watch to your customer according to the price list than you are.

A member.—Where does the dry goods clerk get the watches?

Mr. Keller.—Where he pays for them. A member.—If the jobber would not sell to him he could not sell as cheap.

Mr. Keller .-- I have not the honor of knowing your name, but let me tell you, that when a dry goods house don't succeed in getting these goods from one concern they go to another and do succeed. We cannot control that. At present it is beyond our control, or any other living persons. If the dry goods man wants watches he will buy them at one price or another.

But to go back to my subject, you must- (At this point Mr. Keller was interrupted by questions from different members, which he answered, until the President interferred and requested that Mr. Keller be allowed to continue his remarks without interruption), you must remember that there are 220 members in the Jobbers' Association. Now, these members represent 220 different business systems; to equalize these systems is a very hard matter. You may take your own Association, which is much less complicated, and still you will find that there is not one man that will do his business like another. The Jobbers' Association is endeavoring to harmonize these systems, but this will take a long time. All interests would be better served if the manufacturing interests, upon which our whole association really depends, was entirely in harmony; and before that harmony is established many a grave thing may occur that may be to the disadvantage of the jobber as well as the retailer.

When the Jobbers' Association was incorporated its first principle was to deal fairly with each other; promises were made in good faith to hold to the prices stipulated, and we signed the Constitution and By-Laws.

Now, if you and I start upon a venture and promise each other to offer a certain kind of goods for a certain price, would it not be the height of dishonor for either of us to make an attempt to undersell the other. Now, I claim that it is the very essence of dishonor to do such a thing, directly or indirectly. It is competing in such a manner that your competitor cannot offset unless he is as cunning in his way of working as you are. At the start, our membership was 260, but it has dwindled down to 220. Some of them have left because their business was not even large enough to enable them to pay the dues ; but most of them have been expelled for underhand dealing in cutting prices. Now do not think that any one is expelled upon a frivolous charge. Every case that presents itself has a fair hearing, and if any doubt exists in the minds of the committee, the benefit of such doubt goes for the benefit of the one who is accused. Now, gentlemen, it is also to your interest to uphold the principles of the Jobbers' Association, and give them your unstinted support. Again, referring to the "Case" rule. We are entitled to that business, and we are entitled to it for the reasons that I have given. If you are disposed to

Now, gentlemen, let me ask you, what have you done for the jobber? At any little rule that is made in the interests of the jobbers, you raise in arms;

strength of your guild all over the United States.

In conclusion, I will furthermore say, that, for the short time the Jobbers' Association has been in existence, it has made it possible for ninety-five per cent. of all American watches to be distributed and sold through the country by the retail jeweler. You can form your own opinion of how much benefit you have derived from it, and we propose to do more; much more could easily be done if greater harmony existed among all the interests with which we are connected. Do not flatter yourself that any one manufacturer or any one jobber will sacrifice himself for your benefit. It is natural for every man to conduct his own affairs to his own best advantage, and whatever he does individually is a mere matter of business. This is human nature ; and I am candid enough to tell you so. But in a firm organization, based upon laws and regulations, and whose members are under entire control of its law, you can readily see that by a combined effort greater things can be done than if the association were divided into factions without any government. Such an organization makes it possible to assume a formidable front, which any one with only a moderate intellect can readily appreciate.

I have endeavored this evening to explain to you the position of the Jobbers' Association, in my own poor way and language. Whether I have done the matter justice I will leave you to judge. If I have alluded to anything here that was none of my business, I will tell you now that I could not help it. I had to do it (laughter.) If anything I have said has interested you I shall be glad of it; if I have given you any information I shall be gratified; if I have tired you tell me so, and I will try and do better next time.

Mr. Chairman, I thank you for the courtesy you have extended me. Gentlemen, I am sorry if I have bored you. (Applause.)

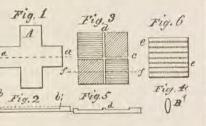
A SENSATIONAL TRIAL.

A sensational trial has been heard at the Vienna Criminal Court recently, says the London Daily News. The facts of the case are not devoid of interest to psychologists. In December last, a commercial traveler named Alfred Frankenstein, induced Julie Kunerth, a housemaid, to steal some diamonds from her mistress, replacing them by imitation stones. In January, Frankenstein declared to his accomplice that the theft would probably be discovered during the Carnival, and that therfore it would be advisable to abstract all the jewelry and to feign a robbery, for which purpose he would discharge a revolver into the upper part of her arm. The girl consented, but when the appointed day came, Frankenstein, after having taken all the valuables upon which he could lay his hands, shot straight into the woman's breast, and left her for dead in the room. She was found shortly afterwards lying in a pool of blood, and was considerered the victim of a daring robbery. A series of accidents, however, soon revealed the true state of affairs, though the women after her recovery tried hard to exculpate the man who had acted so treacherously towards her. Frankenstein has been sentenced to seven years penal servitude. The jury found him not guilty on the major count of attempted murder. The unfortunate girl herself has been condemned to two and a half years' hard labor as an accomplice. It will be remembered that Frankenstein shot her in order to make it appear that she had been wounded in resisting burglars. She consented to be shot in the arm, but he fired at her breast.

ENAMELING.

A series of articles on this art by Cellini, Jr.

WOULD beg to preface this essay by saying that it is my intention to pursue about the same course as I did in preparing the articles on Engraving, published in this journal, and afterwards printed in pamphlet form, to be given to every subscriber of the KEYSTONE. As in that instance, I commenced with the art in its elementtary form, and carried it step by step to a practical realization of the process in an advanced state; so with enameling. I propose to commence at fundamental principles and conduct the pupil through all the details to a sufficient skill to produce a creditable effort in this beautiful art. It is best, for anyone who proposes to practically apply these instructions, to commence with very simple efforts on some metal less expensive than gold or silver. Copper does very well in many respects, as it cuts quite agreeably, and stands the necessary heat for fusing the enamel. The art of enameling can be well divided into four main processes : 1. Cutting or engraving the metal to receive the enamel. 2. Mixing and preparing the enamel. 3 Filling in and firing or fusing the enamel. 4. The finishing by grinding and polishing the surface of the enamel Engraving or cutting for enameling can be briefly described as making recesses in metalic surfaces for the reception of the enamel. This cutting is very little allied to ordinary metal engraving, except the branch known as carving, and principally applied to ring shanks. I will take a simple example, and use it as a commencement. Suppose we wish to enamel a red cross, shaped as shown



at A, Fig. 1. As said above, copper is a good metal to experiment on. So we procure a copper card plate, such as engravers use for visiting cards. These plates can be had of F. Weber, 1125 Chestnut Street, Phila., at fifteen cents each; size 2 1/2 x 3 1/2. Cut into about four pieces. Lay out the cross as shown in Fig. 1. Then proceed to sink the entire face of the cross to an even depth. The sides of the recess, or sink to receive the enamel, should be as near perpendicular as possible. At Fig. 2 is shown a vertical section of the plate on which we are engraving the cross at the line a, a, Fig I. The recess should be about one-fiftieth of an inch deep throughout, and the sides not more out of perpendicular than indicated at the dotted lines b, b. The object of this is, that when the face of the enamel is ground off and polished, (as all fine enameling is treated) the margin will not appear irregular and imperfect. The best tool for outlining for enamel cutting is an oval graver, shown in cross section at B, Fig. 4. For bottoming out, flat bottom gravers of different widths are used, rocking them as they are pushed forward, as in wriggling. A point to be considered when cutting for broad surfaces is whether the enamel to be applied is to be transparent or

is to be used, the surface of the metal at the bottom of the sink will show through. In such cases, it is common to produce some figure in coarse lines, like engine turning at the bottom of the sink. But if opaque enamel is used, no care need be observed, except to sink the recess deep enough, so the enamel will not cut through in polishing. In the present communication I shall only speak of cutting and preparing the sink, leaving the preparation of the enamel for subsequent articles. At Fig. 3 is shown a more difficult specimen for cutting. In this it is supposed we are to apply two colors of enamel, say red and blue; or they could as well be four colors. These colors are divided by bright bars as shown at c, d. In cutting the sinks for these panels, the care lies in leaving the bars c, d straight and even from end to end, and the sides nearly perpendicular. A vertical section of Fig. 3, on the line f, is shown at Fig. 5. Let the pupil cut the examples given in Figs. 1 and 3 until he can produce work which corresponds with the instructions given, which I will briefly repeat : sink the recesses about one-fiftieth of an inch ; let the depth be equal throughout; let the sides of the recesses be nearly perpendicular. To aid in making the sinks of equal depth throughout, a good plan is to pursue the course illustrated in Fig. 6. Here one of the panels is shown enlarged. After the outline is made, take a flat bottom graver, cutting about one-thirty-second of an inch wide, and sink the broad lines. We can judge better when these lines are each about one-fiftieth of an inch deep, than we could if we undertook to sink the whole panel at

opaque. Because if transparent enamel

A THIEF IN A PRIEST'S DRESS.

once.

A Washington jeweler loses \$700 worth of precious stones.

S. Desio, the jeweler at the corner of Ninth and E streets, was robbed of \$700 worth of diamonds recently, by a man who represented himself as being a Catholic priest. Additional interest is imparted to the robbery by the fact that the game was successfully played quite recently in New York city.

The man was dressed as a priest and had such an air of piety about him that that when he entered Desio's establishment and introduced himself as Father McCarty, of St. Aloysious's Church, Mr. Desio received him with all the reverence he could command. "Father O'Donnel, of St. Aloysius's Church," said the visitor, "desires to purchase some diamonds for Cardinal Gibbons, and he wants you to send some of your best stones to St. Aloysious's parsonage that he may make some selections."

The supposed priest departed, and Mr. Desio lost no time in selecting some diamonds, which he sent by his son to the priest's residence. On arriving at the parsonage the young man was met by "Father McCarty," who at once took possession of the diamonds, in order to show them to Father O'Donnel. Young Desio, who did not for an instant suspect anything wrong, allowed him to leave the room, and waited patiently for his return. After some time had elasped and the Father did not return, he became alarmed, and began to make inquiries. Then he found that no one knew anything either about the diamonds or the priest who had taken Marie, Mich.

them, except that the latter had been seen to leave the house several moments

before. Father McGuirk was notified of the occurrence, and word was at once sent to police headquarters, but although every effort was made to intercept the thief no trace of him could be found. Father McGuirk and the other priests at St. Aloysius's Church are very indignant over the matter, as they were as much deceived by the man as Mr. Desio. He lately arrived in the city and going to Father McGuirk introduced himself as Father McCarty, of Montreal. He said he would be in the city for a day or two, and requested permission to stay at the parsonage instead of going to a hotel. Father McGuirk received him with the utmost kindness, and welcomed him to his abode and made him as comfortable as possible. He was a good talker and seemed a devout church man, spending a great deal of his time in the church praying with the priests, so that all suspicion regarding the authenticity of his priestly character was at once dispelled by his conduct. He told the priests of the parsonage that he expected a visit from his brother during the day, and requested permission to receive him in the parlor. Accordingly when young Desio arrived he was supposed to be Father McCarty's brother, and was allowed to remain in the parlor unquestioned until long after the supposed Father McCarty had left the building. The detectives are doing their utmost to discover where the man has gone, but as yet they have not been successful. The officers believe that the thief is a clever crook, who assumed the guise of a priest merely to accomplish the robbery. He is about thirty-five years of age, is five feet ten inches tall, and weighs about 170 pounds. He has a smooth, cleanly shaven face, and conducts himself in conformity with the character he has assumed.

In addition to the above, Mr. Desio writes us on May 28th: "We have discovered to-day that another thief is connected with the robbery. He is a man about 28 years of age. Five feet seven inches high. Weight about 130 pounds. Light complexion, small light moustache, good, even teeth, and pleasant face."

MORE THEFTS.

We are in receipt of a letter from Messrs. Otto Supe & Co., Sault Ste. Marie, Mich., announcing the theft of the following articles :

One gold Hunting, Box Joint, Stem Wind, 14 K. case, No. 13060; raised horse-shoe on back, set with diamonds; monogram "R. B." on front; name, R. Baunatyne (with presentation) engraved on inside cap; contains Nickle Elgin Movement, 11 J., No. 1584243; K. Hunting Enoi key wind case, containing E. Howard movement, case or movement number is 34202. The engine turning is worn smooth on the edge of case, also solid gold curb chain with charm having Masonic emblems on one side and "D. Bagley 1886'' engraved on the other. Also another solid gold 16 K, round link chain and small charm attached, marked "F. L. T." on one side, and "R. B., I. O. O. F., Cheboygan," on the other. \$50 reward will be paid for the recovery of either watch and chain, and \$100 for both watches and chains.

Any information concerning these articles will be thankfully received by Otto Supe & Co., jewelers, Sault Ste, Marie, Mich.

CLOCKS.

O put a new pinion in a clock from the pinion wire, as it comes from the material men, is something requiring a good

bit of time and practice. The greatest departure from ordinary lathe work consists in getting rid of the superfluous metal in the pinion leaves. To do this get a piece of hard wood board, half an inch thick, one inch wide, and two and a half inches long. Through this at one end bore a hole just large enough to admit the pinion wire. Such a piece is shown at A, Figs. 1 and 2, and the pinion wire at B. After the hole for the pinion wire is bored, there should be a slit made with a saw, as shown at a, Fig. 1. The pinion wire should be cut off the right length, and the ends filed to cones, as shown at b, b, Fig. 3. These cones should be pointed so the wire runs perfectly true in a double centre lathe. If we were doing the job on an American lathe the best way would be to use hollow cone centres for both the spindle and the tail stock. To test if the piece of wire is round and true, hold a graver on the tool rest and see if each of the leaves touch the graver alike, and keep filing the cones at b until the piece of pinion wire runs true ; then with a file locate the length of the pinion as shown at the dotted lines c, c, Fig. 3. To remove the superfluous leaves by turning takes a good bit of time; and now comes into use the block A. We insert the piece of pinion wire B in the hole, and clamp the block A in our bench vice, as shown in Figs. 1 and 2, leaving one end of our pinion wire protruding as shown. The idea is to let the part of the pinion wire to the right of the dotted line c' extend out from the block. The split a, in the

A

block A, permits the vice to close A on to the leaves of the pinion wire, and hold without marring. We now take a coarse, safe edge file, as shown at the dotted outline D, and file away the leaves until we come to the solid part of the wire, which we leave as an arbor. In filing up the long end of the arbor from b to the dotted line c, it is best to file only a part at a time, as for instance, first round up from b to the line d, then from d to c. If the length from b to cshould be too great, make three divisions of it. By filing away the leaves as directed before attempting to turn the arbor of the pinion, much labor in turning will be saved. We should next smooth up the leaves of the pinion with such files as seem best adapted to preserve the form of the leaves. This advise may seem a little loose, but a specific form of file for all such jobs could not be made, to be properly adapted to every kind of pinion leaf. But the kind of file recommended for rounding up wheel teeth answers very well. A piece of fine emery paper, supported by a bit of a stick whittled to the right shape, will rapidly smooth the leaves. The pinion should now be game."-Chambers' Journal.

hardened, covering the leaves with a paste of castile soap, or some of the anti-oxidizers, to protect them from scaling. Heat red-hot, and plunge endwise into water. The pinion should be tempered by heating in oil until the oil burns freely. The pinion and arbor should be tested for truth, to see if the hardening sprung the arbor. If it did only a little, file the cone at the end of the arbor at b' to correct what it is out, and test the leaves with a graver, as directed for first turning. In case the arbor is much sprung it can be "set" back by placing the pinion in the wood clamp, as shown in Fig. 4, and applying an alcohol lamp to the arbor, as near the point at which the bend is located as possible; then spring the arbor by pressing with a stick as shown at F. The heat need only be sufficient to blue the arbor; not enough to soften it more than the spring temper already in the pinion. The turning is to be done after the tempering, as, if done before, the arbor in the process of hardening and tempering would spring out of true. The best method is to turn the arbor true from end to end, and face off the pinion and turn the step where the wheel goes. except the wheel is to be set on a collet or hub. In this case the collet should be set and turned before the pivots are turned on. For turning the pivots, it is better to turn these by back resting the arbor than to use the cone centres. The method of turning with a back rest was fully described in the February and March numbers: The polish of the pinion leaves can soon be brought up by using first oil-stone dust and oil, following with diamontine and alcohol.

THE BIGGEST STORY YET.

We have observed several wonderful stories of late, respecting the skill of the Chinese executioners, who, it is said, can strike off the heads of their victims so skillfully that the poor fellows themselves never discover their loss until a moment or two after they are dead. We recall to mind, however, the story of a German executioner who far surpassed the Chinese in professional dexterity. Upon one occasion it happened that a criminal who was condemned to death had a singular itching to play at nine pins, and he implored permission to play once more at his favorite game before he died. Then he said, he would submit to his fate without a murmur.

The judge thinking there could be no harm in humoring him, granted his last prayer, and upon arriving at the place of execution he found everything prepared for the game, the pins being set up and the bowls all ready. He commenced his favorite sport with enthusiasm. After awhile the sheriff, observing that he showed no inclination to desist, made a sign to the executioner to strike the fatal blow while he stooped for a bowl. The executioner did so, but with such exquisite dexterity that the culprit did not notice or feel it. He thought, indeed, that a cold breath of air was blowing on his neck, and drawing himself back with a shrug, his head drooped forward into his hands. He naturally supposed that it was a bowl which he had grasped, and seizing it firmly, rolled it at the pins. All of them fell, and the head was heard to exclaim, as it rebounded from the further wall: "Hurrah! I've won the

GOLD WORKING.

Extracts From the Work of George E. Gee, on Gold Working, with Notes by the Editor of this Journal.

> HE parts to be united are made quite clean, free from grease or oxide; and a solution of

borax being prepared by rubbing a piece upon a slate, to which a few drops of water have been added, the ornaments or settings are dipped into this solution, and at once transferred to their proper place upon the article in process of manufacture; and while others are being prepared in the same manner, these will have become dry. This operation tends to prevent moving during the process of charging, and also acts as a preventitive to rising in soldering. We may add that a little sandiver rubbed in the borax solution will prove an unfailing precaution against the latter. A quantity of very small pellets, or pallions, of solder are then cut, which, being picked up one by one on the point of a camel-hair pencil, moistened in the borax solution, are put in their proper places, and the flame directed by the blowpipe from the gas-jet, soon unites the joints as firm as a rock.

It will now be necessary (in order to proceed step by step) to give some information respecting solders, which will enable the workman neatly to execute his work, for a great deal depends upon the solder, as well as on the skill of the artisan, in producing clean and invisible joints. Some jewelers know but little of the degree of heat necessary to melt the various metals and their alloys. As a table supplying this information will no doubt be welcome, the following is given of the standard metals :

DANIELL'S TABLE.

Fine gold will melt at 2,016 deg. Fahr. Pure copper a 1,994 a Fine silver a 1,973 a Pure spelter a 773 a

The next table, prepared from Daniell, will correspond with the alloys we have previously given, and thus supply a want long felt by goldsmiths ; not only for the treatment in the crucible, but more particularly in the subsequent manipulation. Whilst in the processes of annealing this table will also prove of some practical advantage, by showing that it is essentially necessary to vary the heat in some of the qualities to prevent scorching while they are upon the fire :

OTT TARTE

	JUG I	aput.	
23-carat gold	will mel	t at 2,012 de	g. Fahr.
22	11	2,009	- 11
20	11	2,002	**
19		1,995	14
15	- 15	1,992	10,
13	44	1,990	- 16
12		1,987	
10		1,982	
	44	1,979	11
98 7	£ 4	1,973	- 0
7.1	11	1,960	1.1
Composition		1,587	<u>41</u>

answer admirably for every purpose with the alloys we have recommended. When using 7-carat or common gold, a very easy one is required. This has been considered, and every reliance can be placed on the solders here given, and their suitability approved, by their point of fusion to the qualities under manipulation :

SILVER SOLDERS.

Description.	Fine Silver.	Copper.	Spelter.
Hard solder	16 parts	3½ parts	½ part
Medium solder	15 "	4 "	I
Easy solder	14 "	43/2 11	11/2 "
Common hard	121/2 "	6	136
Common easy	11/2 "	61/2 "	2 "

FUSING POINT.

o. 1. Hard solder,	1,866 deg. Fahr.
o. 2. Medium solder,	1,843 "
o. 3. Easy solder,	1,818 "
o. 4. Common,	1,826 "
o. 5. Common easy,	1,802 "

NNNNN

The fusibility of these solders will be a little higher than those given, because of the volatility of the zinc in melting, which increases the point of fusion when being used, for which allowance should be made. Any of them may either be used in pallion or filed into dust, as may be preferred. The former is more extensively employed by jewelers; and the latter by gold chain-makers, for which purpose it is more suitable, as it enables those who use it to get through more work in a given time. The pallion may be also used in the manufacture of chains-in fact, it is commonly preferred by curb-makers ; and in the manufacture of Brazilian or snake chains its employment is compulsory. The object of zinc in silver solders is to increase their fusibility. It also, by its evaporation in the process, increases the strength of the joint by toughening the solder; but the use of too much is an obstacle in the way of the workman, and ultimately proves far from satisfactory to the purchasers of that class of jewelry: firstly, by the addition of too large a proportion of spelter to silver solders, they become brittle and partly unworkable, especially when the parts united with it have to bear a strain, as they break easily, and consequently have to be re-soldered. This may happen several times over. When this is the case it operates injuriously to the interest of the workman. Secondly, the above description in time eats away. and articles that have been soldered with it become disunited. We have seen chains, after having been some time in wear, sent to be repaired, without a particle of solder upon the joints. This was caused by the solder having contained too much spelter in the first instance; and even where this is not the case, the soldering places are liable to go black whilst lying in manufacturers' or merchants' stocks, if allowed to get damp or exposed to the acid vapors of their places of business. This kind, therefore, proves very unsatisfactory, and no possible advantage can be gained

This table clearly demonstrates the fact that it is unwise to place metals upon the annealing-pan without careful attention being paid to them, when their points of fusion are widely at variance with each other. If a piece of 18-carat wire and one of 7-carat, of exactly the same description, were placed upon the pan in the muffle, without due regard to the above facts, and left until the 18-carat had acquired a good red heat, upon the withdrawal of the pan it would be found that the 7-carat had been overheated, and the nature perished, so as to render it further unworkable.

The list of silver solders as expressed below will in practice be found to style are wearing the next best thing.

by any one from its use.

SHAM JEWELRY is no longer tabooed in fashionable society. " Roman " pearls, as they are called, are worn much more than real ones, especially by debutantes. Rhine-stones are no longer the special adornment of servant girls, but ornaments made of them are worn at Newport and other fashionable places by society women without any pretence that they are other than what they are. The great idea is to have something pretty, and where the real article cannot be had or cannot be worn conveniently, people of acknowledged

THE BOW LATHE.

N the December number I described and illustrated a loose pulley to go on one of the centres of a lathe, but was drawn away from showing how this loose pulley could be used for other purposes than for turning a centre pinion, by the desire to show how easily this lathe could be turned into a live spindle lathe. If the millenium of watchmakers, in the shape of a yearly convention of practical watch repairers, could ever be convened, so that a real, absolute chance for comparison and inspection of tools and new appliances could be made, it would do more to improve and stimulate the trade than any one thing which could be done. We all of us get into a rut, and fancy our way is the only true one; whereas our way may be among the very worst extant. No one can deny but an interchange of ideas, and posting ourselves up, is of great importance. I can assure my readers that any person who never saw a common bow lathe fitted with a live spindle but would acknowledge himself astonished at the power and scope of this inexpensive little tool. I will now go back to the lathe, as described in the December issue of this journal, and tell how to turn in a cylinder, using the loose pulley on the centre as shown. We should have the centre on which the loose pulley runs made delicately, and proportionate to the work. The opposite centre shown at C, Fig. 1, should also be turned to not more than 25-1000 of an inch, or equal to No. 6 sewing needle, and the hollow cone in the end to re-

DO

ceive the end of the cylinder very carefully fitted. As I remarked early in these papers, no one can expect to do fine work with clumsy tools, and the bow lathe has run down so cheap as to be very poor and clumsy. The shape and size of both centres are pretty well shown in the cut, only they are a little too coarse. To turn the cylinder in the centres make a disc D of sheet brass, about the same size as the pulley B. In this make a hole a little larger than the cylinder. Cement the cylinder into this hole with shellac or lathe cement. The loose pulley D has a pin a, projecting as shown. This pin goes through a hole in the disc D, and gives the necessary motion to turn the cylinder c. This disc can be used until the cylinder is complete, as all that is needed is to reverse the e.ds. The shellac used to is abnormally strong, and an attendant cement the disc D to the cylinder serves a double purpose; first, it fastens the cylinder into the disc; second, it strengthens and stiffens the cylinder for the process of turning. After the parts are all fitted as shown, and the cylinder cemented into the disc, the turning should commence with the lower pivot. When turning a cylinder the truth of the cylinder, as relates to the lower plug, should be looked to, filing the point f, Fig. 3, until the barrel of the cylinder at c runs perfectly. The lower pivot should be turned to near the size, and the length of the lower pivot established by marking with a sharp graver the length, say to the dotted line g. A good plicated character.

deal of judgment is required to determine the size to which the pivot should be turned before the ends are reversed, and the top end at f' c' turned. It is safe, with careful turning, to run down the lower pivot to about 10-000. For the benefit of those who do not have michrometer callipers, I would say this is about as large as the fourth wheel pivot to an 18 size American watch. When I showed how to run a loose pulley on one of the centres of a bow lathe, I showed a counter-shaft, and placed the lathe in a bench vice. The best method is to put the lathe on a stand, as shown in January (1888,) KEY-STONE, even if you omit the live spindle. The disc D permits the measurements for heights to be made with the greatest possible ease and accuracy.

MRS. CLEVELAND'S JEWELRY.

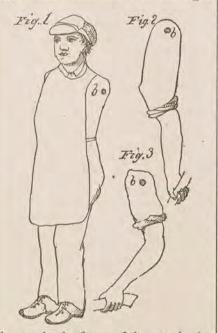
It would appear as though each and all of fashion's devotees had wearied of winter's thraldom and were anxious to replace it with as gay a crown as possible. Jewels have rarely been worn in such profusion, and gems that have been hidden away for years are again brought out into the sunlight. Jewelers attribute this bit of good luck to the fair mistress of the White House, who confesses to a decided penchant for jewels. Mrs. Cleveland's taste inclines in the direction of diamonds, and she not alone values them as ornaments, but values the limpid stones for their inherent beauty, and takes pride in a collection of unset diamonds. She has had made a small cabinet provided with tiny nests, in which, wrapped separately in bits of cotton, each gem properly classified, are her cherished gems. It is stated on authority that Mrs. Cleveland's collection of diamonds, mounted and unmounted, estimate a value of more than \$50,000. The sets are mostly her husband's gifts, but the separate stones are of her own selection, and she is a connoisseur on the subject.-Table Talk.

WHEN the French crown jewels were sold by auction last season, it is well known that the finest and most historical of the gems, including the famous "Regent" diamond, were reserved, and these may now be seen in the Louvre in the gallery after the well-known statute of Apollo, which is such a prominent object in it. Before these priceless gems were exposed, however, a committee of skilled officials and experts was appointed in order to decide on some plan for rendering their loss by theft virtually impossible. And this is what the committee decided upon : The jewels are exhibited in a showcase, the glass plates of which are exceptionally thick and the iron framework of which has been appointed to specially keep watch over the precious exhibit all day long. Should he have the slightest cause to suspect any visitor or visitors, he has only to touch a button easily within his reach, whereupon the glass case promptly disappears from view and sinks into a specially constructed shaft, over the top of which the same automatic machinery causes thick covers, formed of thick metal plates, to close with a sharp snap. The ingenuity displayed in carrying out this plan is remarkable, and the fact that the clockwork apparatus has cost close upon £800 will convey some idea of its com-

JACK-KNIVES.

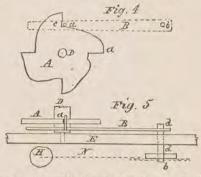
HE wheel for working the arms of the man splitting wood is shaped as shown at A, Fig. I. The teeth a are of differ-

ent shapes, to add a variety to the motions of raising the axe. The blow, or fall of the axe, is produced when the pin c in the lever drops off the tooth a. The lever shown in dotted outline at Bis jointed at b, and also connected with the man by the arbor d at b, Fig. 5. In making, you can cut out the man and paste it on some card-board before you cut to the outline. The two arms shown at Figs. 2 and 3 are united to the same joint as the lever B shown in Fig. 4. The arm shown in Fig. 2 goes back of the man, and the arm at Fig. 3 goes in front. When it comes to coloring the man, this can be done to suit the taste -say, blue pants, red shirt, russet or leather colored apron and cap. It will be noticed by referring to May KEY-STONE that the figure of the man splitting wood stands immediately in front of the pile of timber supposed to support the end of the wheel axle; and if the joint b, in Fig. 1, of the present issue, was placed in the crack between the two upper logs, shown in the upper engraving in May KEYSTONE, all other parts would come about in the right



place, only the figure of the man in the present cut at Fig. 1 is about four times the size, so that we can use it as a model to cut out by for actual use. In placing the man in a box of the proportions given in April number, he should be about an inch from the pile of timber, and supported by a small block glued to the bottom of the box. At Fig. 5 is shown a plan of the parts for working the arms of the man. This cut is half the actual size. The lever B is attached to a small wooden arbor d. This arbor can be made of a bit of peg-wood, about one and a half inches long, and is also attached to the arms of the man at b. All that is needed to fasten a wood arbor of this kind to the paste-board arms of the man is to glue on two or three extra thicknesses of the paste-board, to thicken the place where the wood arbor d goes through. We have so far only made little trinkets and toys of wood. Let us now try a little with metal, and get an old clock movement, running with a spring. An eight day clock is best, as it furnishes us power for a longer time. Such old movements can always be picked up around a jeweler's shop, and made at a trifling expense the source of a great deal of amusement, and furnish a very desirable practice, in Elizabeth.

a mechanical way. Toys worked with geared wheels admit of a great number of combinations and movements, which could never be obtained by a single driving shaft. A great variety of automatic figures for a jeweler's window can be constructed to be moved by an old eight day clock movement. We will



want, in addition to the few tools for working wood we set out with, a small bench vice and a cheap hand drill. A bench vice, very handy and useful, can now be bought for sixty to seventy-five cents, and a hand drill for seventy-five cents to one dollar. To these add a hack saw and a little anvil, and we have quite an efficient set of little tools.

JEWELS THROWN INTO A STOVE.

Mrs. Emma Brown, a wealthy resident of Claremont Park, Boston, had heard so much about the operations of burglars in that vicinity that she feared they would make a call at her house. She had several thousand dollars worth of diamonds, and every night before retiring she tied her jewels up in a handkerchief and threw them into a waste paper basket, thinking that burglars would never look there for them.

Recently one night on retiring she wrapped a pair of large diamond earrings, a diamond bracelet, a ring containing five small diamonds, a pearl ring, a breastpin set with a diamond, and a turquoise ring in a handkerchief and threw them into the basket. Yesterday morning, before Mrs. Brown got up, Lucy Lewis, her colored servant, cleared out her room.

She emptied the waste basket and its precious contents in the stove, and then went about her household duties. When Mrs. Brown learned what had become of her jewelry she nearly fainted away. The two women rushed for the stove, and the grate was turned over and the red-hot coals tipped out to cool, and then Mrs. Brown picked out her jewelry. The gold parts were badly melted, and the pearl and turquoise were entirely destroyed.

The diamonds were not damaged. Mrs. Brown made an inventory of the property recovered, and found that the breastpin, the pair of large diamond earrings, and another piece of jewelry were missing. It flashed upon her that perhaps Lucy had taken the missing pieces and had then thrown the rest into the stove to ward off suspicion. Mrs. Brown sent for Pinkerton's detectives. They investigated, and became satisfied that the servant was honest.

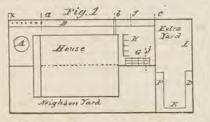
Of 18,029 patents granted in Great Britain last year, 126 were for inventions in connection with clocks, watches and other time-keepers.

Lord Londesborough has in his possession a curious watch, formed after the semblance of a duck. It is of silver, and was made in the time of Queen

LIMITED GARDENING.

By an Experienced Gardener.

T frequently happens that we have a small front yard where we would like to display a few choice flowers, and make a frequent change. This is easily done if we have room in the rear for growing them. Such a condition is no way rare. A case of this kind occurred in my own experience. I had a long bed, about two feet wide, running down the entire length of my lot, 125 feet, and a round bed in front, five feet across. In the rear I had the full width of my own lot and part of another. I commenced the order of showing my plants by putting out in November a lot of choice Pansy plants, for early spring bloom, in the round bed shown at A, Fig. 1, and also in the side bed B. In selecting my Pansy plants, I chose the darkest for the



round bed, and in the side bed the plants commenced with the lightest colors and extended back, growing darker and darker, to about the line a, Fig. 1. I let these stay until spring was well established, and then removed my Pansy plants to the bed marked D, in the rear yard, where they were shaded by a wall L. This was done before people was tired of admiring them. I spaded the beds A and B deeply, adding manure. I replaced the Pansys by a bed of Chinese Pinks from the preceding year, grown at E. These were taken up carefully, so as to retain the earth about the roots. In transplanting, if care is taken not to break the earth away, but leave a good rigid clod about the roots, plants can be transplanted so as not to check the flowering in any preceptible degree. After the pinks began to fall off-as they will in July—I changed from x to a, to Phlox Drummondi, commencing at the strut with white, and ran to dark crimson at a. In the centre of the bed A, after taking up the Pansys, I placed a potted castor oil plant (one of the giant kind), and then changed the plants around the edge to suit my fancy through the summer.

From a to b, I had choice double Petunias, Dwarf Convolvulus, Dwarf Nasturtium, Lark Spur, Scarlet Sage. At b was an arch of climbing Honey

Fig.3 Fig.2 d'

speak of my tomatoes, which we planted at G. The heavy line back of G was a high (six foot) fence. I made my rack to support the tomatoes by getting some edgings from a planing mill. These were edges of boards, averaging about two inches wide, and such lengths as I could get. My rack I made about four feet high. I commenced by fastening to the fence six bits of board, two inches wide and five inches long, placing long way up and down. It is best to screw the parts together; dipping the screws in melted tallow to prevent rust; then it is easy to take the frame down and put it out of the weather in winter. By doing this a frame will last for ten years. About one and three quarter inch screws should be used. The screws should be rather slim (No. 10.) Fig. 2 shows an enlarged vertical section of the fence G' on the line k, Fig. 1. The piece h leaves from the fence about at the angle shown, and are four feet long, and the foot placed eighteen inches from the fence. The piece g is three feet long, with one end screwed to e, and the outer end to the edge of h. The supports h are three feet apart, and the slats i, i are nine inches apart, counting down from the top slat. The length of the tomato rack was fifteen feet, with six props h. The entire cost of rack was eighty cents, exclusive of labor. There were five hills of tomatoes, with three plants in each hill. There was no account kept of the bulk of tomatoes gathered; but all that five persons could use, with a bushel canned, were taken off. The first ripe tomato was cut on the 24th of June. The plants were started in February, in such a forcing frame as I described in February KEYSTONE. In the plan shown in Fig. 1, H was a cucumber trellis, as described in April number.

A LOT of old watches will collect in the odds and ends drawer of the watchmaker, especially the city watchmakers. Many of the old, especially verge, movements are fine gilt, and the plates, if a number of them are on hand, are worth being stripped of the gold. To do this, remove all steel parts and cover the plates with a paste of two parts sulphur to one of salammoniac in vinegar, anneal in charcoal fire and plunge into water acidulated with sulphuric acid, and leave therein for several hours, and before removing, brush with a fine and soft scratch brush, when the gold will become loosened in the shape of fine scales; the water is then filtered, and the gold, which will remain on the filter, is washed, dried, and fused with finely powdered borax and saltpetre.

A FEW BUSINESS RULES.

d TRAMP CLOCKMAKER.

RIEND KEYSTONE.-I thought after my experience in the laundry business to shakethe dust of the "mill city" off my big feet at about the coming of the daises and go sumwhere and do sumthin'. But you know the sayin' about good resolutions. The fact is I did'nt know where to go, or what ter do. I red in one of your Philadelphia papers about one of these reporters goin' round and intervewin' different rich fellows, to see how they gettheir "boodle." Now I want to get situated right to see them kind of fellers here; so I thought I would interview them as had kept poor, and see if I could not get on to the racket, what had kept 'em so; because you see the next best thing to knowin' the right road is to know most all the rong ones, and stay off 'em. And beside, I thought to find out how sum other feller got rich; and tryin' to git rich in the same way was a good deal like a feller diggin' in the same hole as another man got a bonanzer out of. It would be no more than natural to suppose he took out about all there was in that cavity. I thought to myself, I'll talk to some of them fellers as is poor, and see what they have to say. So I went out into one of our public grounds, and saw a feller settin' by himself. I gently meandered up to him; quietly seated myself in naberly distance, and commenced conversashun by talkin' around about the weather and the like. We soon got on a familiar footin', as we might say, when I ventured to remark : "Say, George-I call all fellers,

George, as I don't know their name how is it a smart, pushin' feller like you ain't better fixed?"

He kinder looked around at me with a comical expresshun, and says :

"I like that. See here, old feller, I ain't either a pushin' feller, or a smart feller. I'm just 'cute.' I live along by findin' bigger fools than myself. 'Taint hard work either. Countin' the fools is a good deal like takin' the census-you git most all the names; 'cos if a man an't a fool one way, he's a fool in another. I set around and study how I can make other fools pay for my livin', and if you hadn't a come at me jest as you did, I'd have got a dime or a nickle out of you in some shape or another. But it is just 'chinnin' is all you want. You think in that way you'll find out sumethin'. I don't know what you want'er find out ; but I give you a pinter, if you are lookin' for a deep criminal I ain't the feller, and if you are lookin' for a feller that is willin' to settle down to hard work and accumulate a fortune for others to spend, agin I an't the feller.

for all he was worth. I went in under the pretens of havin' a button sowed on. Says I:

"My friend, I noticed you work perty study from early in the mornin' til late at night. You ought to be pretty well heeled by this time, as you are quite an old man?"

"No," said he, "I have next to nothin', and have to work hard to support myself and some grand-children left to my care."

"You must have had some bad luck to have kept you back," I remarked. "No," he replied," nothing more than most folk have."

I was bound to find out what he could lay it to that he had not laid up sumthin'. I asked him if he never "drinked." He stated he had never swallowed a pint of whiskey or any intoxicatin' drink in his whole life.

"Well, what in the name of glory have you got for an excuse for your bein" as poor as you claim to be?"

He gave me a look over the top of his spectacles which would have made the fortin' of a stage grave-digger, and said; "Honesty, young man, I have always been honest."

"Well, now, this reply kinder took the under-pinin 'out from under me. I thought probably a tailor might live without ever eatin' sour krout; but to live without "cabbage"—well it was hard to believe.

I interviewed lots of parties during the investigation of "the causes for bein' poor," and I found only one feller who admitted that drinkin' to much was the reason. But I found lots of fellers who I believe, if I had asked their wifes, they would have said that the money which should have bought the baby shoes was turned into liquid, which run down the husband's throat. Some fellers said they married wifes who spent all they earned for "jim-cracks."

I stated above the object of my huntin' up statistics about "the cause for bein' poor'' was to fix up my own racket, so that I could soon get on to the road to fortune. I tell you, Mr. Editor of the KEYSTONE, I somehow feel as if I made a mistake in the title of this little essay, and instead of sain "The causes for bein' poor '' I should have wrote about the "Excuses for not bein' rich," for I found so many of the fellers I interviewed who would prattle away for hours if I would have stade and listened to 'em, offerin' excuses and statin' how, but for that little "if," they would have been rollin' in wealth. Now the little investigating has satisfied me that to be miserably poor denotes a bent pivot, or a screw out somewhere. About gettin' rich, I did not get the chance to say anything to the fellers as had made a million or two, and morely, I kinder fancy if I had they might not have told me the square-nosed truth about it. I've heard 'em talk sometimes at political meetin', and I never listened to one of 'em yet who did not argue that there was no such thing as luck-all they had got was just the reward of their industry and perseverance. Now I don't believe in luck, like some fellers who think they can throw four heads, when rafflin' with seven pennies, right along; but I know that the feller who throws the most heds gits the turkey, and he may not shake the hat any harder than the feller who gets most tails. I will give you more of what I think about luck next time I write.



Suckle. Then from b to f, a bed of ne monthly roses, kept well back by pinching more than half the buds. The method of raising fine roses will be discussed subsequently. The dark dots in the front bed, from x to a, were also monthly roses three feet apart. From c to d were planted Zinna in the order sta of color; first as near white as we can get, then yellow, then orange, then light red, then crimson, and lastly, perhaps, ten Holly-hocks. I would like to

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light red, then crimson, and lastly, perhaps, ten Holly-hocks. I would like to say more about the flowers but I must

I an't got no family; don't want any. I soon sed to myself, this is not the sort of "feller," as he called himself, to look to for an example, 'cause the road he's traveling is a short one and leads to the—devil—well, I guess this is about as good a name for the termination as any.

Curiosity, and a determination to find out how it was we have so many poor folks and so few rich ones, kept me at the job for several days, and some funny excuses I heard from one and another for their not bein' rich. One was an old tailor I had often seen settin' by his winder, soin' away for dear life. I noticed him early and late always "pullin' out," as he termed soin',

ROCHESTER, N. Y., May 30, 1888.

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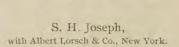


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Gentlemen:

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We hope these children of your later years --- the "Keystone"

and "Star"---will have the same relative vitality and fibre as that first offspring, and carry the fame of American skill and taste "to the uttermost ends of the earth".

Yours truly,

Bocoman Mutken

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[NGRAVING tools, a bargain, \$10. John Taylor, Augusta, Maine.

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I want to sell cheap for cash, the good will and fixtures of a good paying jewelry store in a nice, fine R. R. city of 4,000 inhabitants in Nebraska. To the right man will leave all the goods he wants on commission, or will sell them partly on time. My reason for doing this is that I have three stores, and this one is a little out of the way. Plenty of work and fine stock and fine location. Address, P. O. Box 142, Hasting, Neb. Parties not meaning business, will please not reply.

OR exchange for bicycle. One No. 1 Whitcomb lathe with chucks. Address, C. C. Watson, Newman, Ill.

FOR sale in a booming western town. A fine, but small stock of watches, clocks and jewelry. Also safe, fixtures, etc., etc. Will sell cheap, if taken before September 1st. For particulars address, "Claud," care this office.

A BARGAIN.—One jewclers safe, good size; com-A paratively new. Also one lathe and attach-ments. Good rolling mill. Those meaning business address, Mrs. Laura Lee, Warrenton, Ga.

EWELRY and book store in Huntington, Ind., a town of 9,000 inhabitants. Stock about \$5,000. A splendid opening to one wishing to engage in business. Also one jeweler's safe, 28 x 36 inside measurement. Weight 5,000 pounds. Inquire of C. H. Filson, Huntingdon, Ind., or Brown, Eager & Hull, Toledo, Ohio.

OR exchange for real estate, jewelry store, Ad. J. C. Garten, Hinton, W. Va.

EWELERS rolling mill geared, and extra roll for J rings, 2x1½, not injured in any way. Cost \$45 Sell for \$30. Ad., "Watchmaker," 2 Congress St. Bradford, McKean Co., Pa.

A NEW flat rolling mill, tools six inches long, 3 inches diameter, cost \$350, will sell for \$300. J. L. Clark, refiner, 823 Filbert St., Philadelphia, Pa.

(1,600 will buy a good paying jewelry business in a large manufacturing town, 6,000 inhabitants

2,000 cash, will buy the jewelry stock and fixtures in a live mining town in south-western Colorado. No competition; get \$2.50 for cleaning, mainsprings, etc., other work in proportion. This jewelry busi-ness has cleared the present owner \$16,000 net, in past eight years. Stock clean and salable. Full particulars and inquiries promptly answered by addressing, George O. Gilbert, Rico, Colorado.

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OTORE for sale \$1,500, worth \$2,500, in Chihuahua, O Mexico. The best climate in Mexico. Every-thing complete for good watchmaker. Good mater-ial, show cases and store. Work assured \$10 a day. The only watchmaker in the place. Address, J. F. Beaumont, Chihuahua, Mexico.

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160 acres of fine farming land in Kansas to trade for regulator, engraving machine, watches and jewelry. Address, "Kansas," care this office.

OLD and silver plating of every description for the trade. Orders by mail promptly attended to. Buffalo Plating Co., 39 Cinton St.

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Breakage of Mainsprings.

Electrical disturbances affect watch springs and cause them to break. Send one dollar to J. Hard-ing, Effingham, Ill., and get one bottle of anti-elec-trical fluid and avoid this difficulty. Directions with each bottle, Money refunded if not satisfactory.

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A VISIT will do more to convince you of my ability and willingness to serve you well and faithfully than all the letters and circulars I can send you. I can show you what I have tanght, and how well, and show you work that has been done under my instructions. A good room, plenty of light, good benches, fresh air, good water, good instruction, well and faithfully given by a practical, experienced all around fine watchmaker. Conce and I will do you good. Respectfully, W. F. A. Woodcock, Watchmakers' School, Winona, Minn.

WATCHMAKER and engraver. A reliable man who can come well recommended as to char-acter and ability to take charge of watch work and do plain engraving. A permanent situation Good wages; good store, tools and work. Must be A 1, Address, "J.," care D. C. Percival & Co., 392 Wash-ington Street, Boston, Mass.

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A GOOD second-hand American lathe. None but in first-class condition. Address, Box 312, Glenwood Springs, Colorado.

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A SINGLE man, a good watchmaker, to take full control of store and bench work. Work aver-ages \$75 per month. Must have \$200, and take an interest. I will divide the profits, or will sell out for \$665. I have outside business, and cannot give the store my full attention. Town rapidly improv-ing. Rent low, Ad., "Box 197," Shawano, Wis.

T^O buy a new or second-handed New Haven pro-gramme school indicator. Send description and price to J. T. Little, 240 Cherry Street, Nash-ville, Tenn.

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000D watch and clockmaker—German, wants situation, 17 years experience. Best refs. Ad., Lewis, Union Block, Denver, Col. *

BY young man 19 years old as watchmaker; A reference. Ad., "Chick," care this office.

Y a competent watchmaker and engraver. Best rets. Good wages required. Ad., "Guilder," care this office.

MPLOYMENT, traveling or local salesman, 8 years exp. in retail jewelry business and at the bench. Best of refs. given. Address, "KEVSTONE," care this office.

DY a first-class watchmaker, a good permanent position. Can take charge of any watch repair-ing department. None but first-class houses need apply. Best of refs. given and required. Address, "M. C.," care this office.

BY young man 3½ years experience repairing watches, clocks, jewelry; also clerk. Good ref.

SITUATIONS WANTED.

9

TO finish watchmaking trade, by young man of 19. Best of reference given. Charles Gaunt, Miami, Mo.

Y a graduate optician and engraver, in a good size town. Have had 13 years experience in jeweling business. Have a complete test case. Address, "K. B.," Albion, Mich. *

YOUNG man desires position as traveling salesman with jewelry house. Has trade in Ohio, W. Vir-ginia and Kentucky. Highest references. Ad., M. Seckel, 45 Whitehall St., N. Y.

AS watch, clock and jewelry repairer. Have had charge of a store in a city of 12,000 inhabitants. Have a good set of tools and can give best of refs. Am good salesman. Have worked 12 years at the trade and am 29 years of age. State salary. Ad.. H. E. Lough, Reddick, Florida.

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O repair watches, clocks and jewelry. Am 28 years of age. Long experience ; have tools; sober; use no tobacco; have wife and one child, Lock Box 65, Muncy, Pa.

AS general engraver. Been under one of the best engravers in Ohio for 4 months. Will send specimen engravings. Address, George Harris, Cor. Dibert and Race Sts., Springfield, Ohio.

Alex. Wiederhold,

No. 43 Nassau Street, New York,

Repairing Jeweler,

Makes a specialty of repairing all kinds of jewelry for the trade. Also matches up lost pieces such as Sleeve Buttons, Ear Rings etc. Gold Vest Chains filled and equal to new. Jobbing sent us by mail or express will be repaired and returned promptly.

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J. J. DONNELLY,

73 Nassau Street, Room 6, New York

Gold and Silver Electro Plater, Fire Gil-Gold and Shiver internet attended and colorer. All kinds of work neally and promptly executed. Orders by mail or express will receive prompt at-tention.

Trade Work.

We make a Specialty of doing work for the trade. Satisfaction guaranteed.

E. & J. SCHWEIKERT, No. 19 W. 4th Street, Cincinnati, Ohio.

Buy a Superior Quality.

The Favorite Silverware Powder used exten-sively among the fine Jewelry and kindred trades. Send 15 cents for sample box and prices. Manu-factured by Send 19 factured by S. R. Kamp & Co., 1015 South 51st Street, Phila., Pa. Jewelry Jobbing, Engraving and Plating done for the trade.

Allen's Engraving Paint.

ALLEN'S

ENGRAVING PAINT

rs. Wet the pain

J. ALL PRICE, 25c. ALLEN.

20

or finger; it then sketch or

B	ox 272, Claremont, N. H.	CEND your jewelry jobs and gold and silver plating	Box 624, Decorah, Iowa. *	Ondway, Yon"
	UILDING lots in Hastings, Nebraska, to trade for watches and jewelry. E. Moore.	O to Buffalo Plating Co., 39 Clinton St.	20 YEARS experience at watch repairing. Single man; fine, new portable bench; new Mosely lathe; full set tools; best refs; moderate wages;	The only thing of the kind in the market. Used by all professional Engravers. You can draw
V	ATCHMAKER'S bench, 40 x 40 x 20 inches. 8 drawers. Good as new; Chicago pattern. teked and delivered on cars for \$10.50 cash. Ad.,	 apart, and in ouly a few minutes time in a manner to last for years, \$1 Sample and instructions, \$1. J. L. Avery, Newnan, Ga. 	at liberty now. Address, "Watchmaker," box 633, Potsdam, N. Y.	any design on the paint without going through to the metal and scratching it, by putting a thin coat on the metal. When engraving is done, blow your
T	T. Little, 240 N. Cherry St., Nashville, Tenn,	A JEWELER with a small capital in search of a good location will do well by addressing P. R.	POSITION by a first-class watchmaker. Have complete Whitcomb lathe. Can do any kind of	breath on paint, and wipe off. For monogram de- signing it cannot be excelled. Just the thing for the amateur engraver. Sent postpaid on receipt of
	HE only jewelry business in a Minnesota county seat town of 1,500 inhabitants. Paid over \$2,000 ove all store expenses last year; no opposition	Sillstrop, Hays City, Kansas.	watch work, wheel cutting, jeweling, adjusting, etc. Salary not less than \$25 a week. Best of Chicago refs. Address, "American Watchmaker,"	postal note for 25 cents. Manufactured by James Allen,
TO	thin twenty miles. \$1,000 cash will buy it. Good ason for selling. Only those with the cash need plv. Address, "Minnesota," care this office.		care this office. * M/ITH some good widow woman under 40 years of	29 N. Broadway, Youkers, New York.
F	ARE CHANCE — Jewelry store and fixtures for sale in town of 6,000 inhabitants. Good loca- n; old established business \$3,500 stock and fix-	with the jewelry trade. The <i>Jeweler's Journal</i> says: "Mr. Wettstein's book should be read by every jeweler, clerk and apprentice in the land." Each of the above mailed separate for 25 cents.	W age. One who is the owner of a good jewelry store, etc. Would like to correspond if satisfactory. No other need reply. Address, "X. S.," care this office.	OSCOOD FOLDING CANVAS BOAT Invented and Manufactured by N. A. 08600D, Battle Oreek, Mich.
ti	res. Rent low; easy terms. Reason for selling on account of a government appointment. For rticulars ad., Burt & Hurlbut Co., Detroit, Mich.	H. Wettstein, Harvard, Ill. FOR \$1.00; 15 printed receipts. Temper pivot	BY first-class watchmaker, Swizer, age, 21 years. Best of refs. given regarding workmanship and	BEST, SAFEST
- 1	HE only jewelry store in a live town of 1,000. Good country around. All one man can do. A	F drills; anti-oxidizer; remove soft solder; bluing from steel; stones from seal rings; quicksilver from rings, etc.; blue steel without heat; color	character. Would prefer West. Address, "A. M.," care Mrs. Mowry, College, Mansfield, Ohio.	and Lightest. Impossible to tip it over by Rocking.
n C a	lendid chance for an energetic man. I have ade a nice sum. Health poor-desire to go to al. Will sell at once. Those who mean business ply. Splendid lot, building and stock for \$1,800. stablished 15 years. G. H. Mantz, Keota, Iowa.	vory, steel, glass, etc.; clean a clock without taking	A POSITION in a jewelry store by a young man of 4 years experience in repairing watches, clocks and jewelry. A good salesman and understand city trade. A 1 ref. furnished. Address, "F. J. L.," 3 Meridian St. East Boston, Mass.	Makes up four different weights, the same pas four boats combined in one. Ours and paddle are; olned, and pack in boat with- out extre charge. This cut shows the twelve-foot boat and packing chest. Send for Illustrated Catalogue.

The Keystone

A monthly journal for the Jewelry Trade, published at Nineteenth and Brown Streets, Philadelphia. Price, 50 cents a year in advance.

CORRESPONDENCE and other copy for publication should reach the KEYSTONE before the FIRST of each month.

ADVERTISING rates for column, double column quarter page, half page, and full page advertisements furnished on application at this office.

• CIRCULATION is 15,000 larger than that of any other journal of its class, reaching every jeweler in the United States and Canada.

THE KEVSTONE has a bona fide circulation of 22,000 copies. Address all communications to "THE KEVSTONE,"

"THE KEYSTONE," "Interest and Brown streets, Philadelphia, Pa J. T. WILLIAMS, Editor.

S. H. STEELE, Publisher.

PHILADELPHIA, JUNE, 1888.

MORE than a million people in the United States are now idle. In New York city alone 67,000 men and 50,000 women are out of work.

WINDOW dressing is something requring study and practice; and the best time for such practice is during the dull season, when you are not driven to death by other duties and cares. Dull times can be stimulated by making your windows attractive, and you actually get paid for studying your own interest. Fix up your own window; then go about town and make a mental comparison with others. One great point is to get people to stop and look. The next point is to keep the attention until they see something they want.

It is astonishing how business centres move westward. Towns which only a few years ago hardly boasted of two or three workmen, now rejoice in firstclass jobbing houses like Woodstock, Barger & Hoefer, Water Works Building, Kansas City, Mo., who carry a full line of American movements and cases, and a large stock of fine jewelry.

YEARS in which Presidential campaigns occur are ones usually noted for dragging, unsatisfactory business results. The present year has this undesirable feature; and in addition, a few weeks ago we had the price-cutting nuisance opened upon us, and the startling disclosure announced that the jobber was a nuisance, and only a catalogue fiend in disguise; and the parties proclaimed the finding of a fountain of the milk of human kindness which was going to wash away and heal all the ills of the retail jewelry trade. A "merry war" was declared, and the situation was like many other battles-very much clouded in smoke. But as the obscurity commences to clear away, we can begin to see who are the real friends of the retail jeweler, and who are the wolves trotting around in lamb-skin. The KEYSTONE assured its readers early in the struggle who were really the parties anxious and willing to aid the retail jeweler. Now even the most obstinate must begin to discover the truth; especially, with the facts which have recently come to their notice. At the present time it is concluded, by those best situated to judge of the market, that the percentage of American movements and cases sold to the legitimate retail trade has largely increased. A more satisfactory result for the length of time the Association has been struggling could not have been hoped for, much less expected. At no

parties would have us believe. True, there was a little hesitancy, but not to any marked degree. Their is little doubt but that even in the face of the depressing influence of a Presidential campaign, the fall trade will be eminently satisfactory.

WE continue to receive favorable reports from the school for watchmakers of W. F. A. Woodcock, Winona, Minn. When we get to having watchmakers inspected and licensed, Mr. W's. school will be one of the institutions in the land.

WE have just received the following encouraging letter from Mr. L. W. Chichester, the veteran watchmaker of Great Bend, Pa. : "Enclosed find one dollar for which give me credit on your valuable paper, for I can't get along without it. I think it is the best journal in the interest of watchmakers that is published. I have never received a number but I have had the value of my yearly subscription. I fail to see how a watchmaker can get along without it. Long may it wave. I have sat at the bench for forty years, and I find something new in every number."

Scribner's Magazine for July will contain the second article on Railways, entitled "Feats of Railway Engineering." Also papers by Robert Louis Stevenson and Prof. C. A. Young, and a story by T. R. Sullivan, the dramatizer of "Dr. Jekyll and Mr. Hyde," along with other interesting features.

OUR readers will be pleased to hear of the extension of the business of the firm known as the Philadelphia Optical Co. The new title of the Company is The Philadelphia Optical and Watch Company, and now embraces in addition to their former trade, the concerns of T. B. Hagstoz & Co., importers and jobbers, and Diesinger & Williams, watch case manufacturers.

THE Howe Bros., jewelers, of Hutchinson, Kansas, send us a specimen of very superior salt produced in that city. It is claimed as above 99 per cent. pure Sodium Chloride.

Our readers will notice on page 13 the Keystone Watch Case Company offer a series of prizes for original designs for watch cases. The object is, as stated in the advertisement, more to stimulate originality than to obtain a great number of designs. They have now dozens of skillful designers; but they have all, so to speak, fallen into ruts. We all know what a kaleideoscope is-a tube arranged with three long pieces of looking glass, so set as to form conventional figures from bits of colored glass Now it is a known fact that millions of patterns can be shown and no two alike. Still the patterns are only variations of the same set of bits of glass. We change the pieces of glass, and again a series are formed; but soon the sense of similarity is impressed upon us. Let us see if some of the KEYSTONE readers cannot devise something new for our kaleideoscope.

animal origin. This is not said in disparagement of foreign oils, except as the interests of the trade demand. If there is one particular thing the watchmaker has got to take on credit, i. e., on its reputation, it is watch oil, as no speedy experiments are going to decide the matter; no machine test for five minutes, or fifty minutes, or five thousand minutes will decide the question. Time is what settles the matter. It is not so long since the Howards, of the Howard Watch Co., learned something by a costly experiment. Mr. Wm. F. Nye, of New Bedford, Mass., makes the finest oil produced; after him Kelly. Mr. Nye is an advertiser in the KEYSTONE, but if he was not, it would make no difference; we would say it just the same.

IT seems rather a pretty and seasonable thought of comparing June roses and Boss cases, as does the Keystone Co's. ad. on last page of cover. We suppose few of our readers know how much cultivation has done for the rose in the last decade. It used to be enough for the gardener if a flower appeared near perfect when growing on the parent stem. Now it is different. Other qualities are sought for; as, for instance, durability. This seems a querr word to use in connection with a rose, but it is just as important in a limited sense with a rose as with a watch case. A gardener would hardly be satisfied with his roses if they did not bear up well, and hold their form and fragrance in bouquet and vase for a week. "How is this," says a novice in gardening, "my roses fall all apart in one day?" It is a long story to tell how it is done; but selection of the most enduring kinds, generous soil, abundance of sunshine, and skilful management will produce roses which will stay, as cut flowers, comparatively fresh for a week. The advantages of Boss cases are that they are equally pretty, evince as much care in construction, and stay for twenty vears.

As an advertising medium to the jewelry trade the KEYSTONE is unequalled, as per example : Theo. Burkhardt writes : "Discontinue my 'ad.' I have had forty letters, and still they are coming. Am pleased with your paper as an advertising medium." M. A. Hadley says: "Take out my 'ad." Have had plenty of correspondence in regard to it. Can recommend your columns to the trade." We could continue this kind of correspondence for the entire page. In conversation with a friend (he is a traveling man) recently, he remarked : "I find the KEYSTONE wherever I go-in the private office of the jobber, in stores of the large dealers, and in the shop of the industrious, hard-working watchmaker. All read

Special Notice.

In this day of crookedness and evasion it must be a sovereign satisfaction for dealers to know that the goods they are selling are precisely what they recommend them to be, and in case of failure the manufacturers are prompt and cheerful in making up any defect or deficiency. We do not often have letters of complaint about Keystone goods, and especially Boss cases, but when we do this is precisely the way they are treated: Mr. George N. Carter, of S. Pittsburg, Tenn., writes us under date of June 6th, as follows : "The case you sent is all By request of Mr. right. Lathrop I extend to you his sincere thanks. He is highly pleased with the case, and will never wear or recommend any other case but the Boss. I am also thankful for your kindness, for you have bourne me out in holding up the Boss cases. I found his case by accident. That is, I was showing a Boss case to a customer, and he said most emphatically that he did not want it, as a friend of his (referring to Mr. Lathrop) had one, and it was not giving satisfaction. I sent for Mr. Lathrop and asked him to let me send his case to you. He reluctantly agreed, but said he knew you would not send a new one. I assured him you would, which he now knows. On receipt of the case to-day, I sold a Boss to the customer who said he would not have one; but has been awaiting your action in this matter before buying at all. Enclosed please find receipt for case properly filled out as per request."

There is no mistake in the fact that filled gold cases are taking the place of solid ones in all the lower grades. The point for retail dealers to study and post themselves on is, how cheap can a filled gold case be made to wear twenty, fifteen, or Gentlemen, we ten years. know after thirty years of experience, and give you the cases in the order named, under the trade marks of James Boss, Keystone Filled and Star Filled, and we place the price as near the cost as they can be produced. KEYSTONE WATCH CASE COMPANY.

increased. A more satisfactory result for the length of time the Association has been struggling could not have been hoped for, much less expected. At no time has trade been as bad as some

and appreciate it."

Our subscribers also acknowledge its worth. One says: "Enclosed please find fifty cents. Commence with the May number, as the article on 'Gold Working' is worth the subscription price alone." Another says: "The KEVSTONE is like wine, the older it gets the better it is." We only select two of each kind, *i. e.*, advertisers and subscribers. It is not only advertisers in a small way who write in this manner, but we hold a letter from one of our leading jobbing houses regarding their advertisement, which says: "One insertion literally overwhelmed us with

TRADE TOPICS.

ONE of our subscribers, formerly a well-known watchmaker, and now an invalid, desires copies of January, February, March and July of 1887. Who will be kind enough to furnish us with these numbers for him?

ATTENTION is solicited to the ad. of Henry C. Haskell, 18 John Street, N. Y. He is second to none in his line of goods.

IT would be well to read the notice of J. W. Henry & Co., on page 18, in regard to infringements of their cuff holders.

MR. ISAAC MARKINS, in his work entitled "The Hebrews in America," estimates the amount of Hebrew capital in the jewelry and diamond business in the country at \$25,000,000.

MR. GEORGE V. SHAW, of Dubuque, Iowa, sends us his subscription for another year and says: "I am very much impressed with it. You may set me down for a life subscriber, though the price should double as fast as the journal does in size. Yes, sir, I cannot be without it; so keep it coming."

MESSRS. J. T. SCOTT & Co., are booming their open-faced split second watch, claiming it to be the cheapest watch of the kind on the market. It will pay the reader to carefully look over this firm's adv. on page three of cover.

READ the commendatory letter of George N. Carter in regard to guarantee on Jas. Boss cases. A word to the wise. See page 10.

MESSRS. L. LELONG & BROTHER, gold and silver refiners and sweep smelters, cor. Halsey and Marshall Sts., Newark, N. J., are very reliable men in their line of business.

THE Messrs. Pfaelzer Brothers & Co., at 819 and 821 Market Street, Philadelphia, Pa., carry a magnificent stock of goods. Our readers will find them gentlemanly and accommodating.

THE Manhattan Watch Company has made its 100,000th movement. Their sweep-second and stop watches are rapidly becoming popular.

MR. H. H. HEINRICH, No. 14 John Street N. Y., has very justly acquired the reputation of being one of the best chronometer springers and adjusters in the country. His large stock of new and second-hand chronometers afford watchmakers a fine opportunity to obtain a finely rated instrument at a low figure.

EVERY day some new and useful tool is brought out by our enterprising American workmen. Conspicuous among such tools are the balance trueing tweezers of Mr. Phil. Seewald, Hudson, Mich. All those in need of such a tool would do well to write to him for samples and particulars.

THE Jas. Boss Filled Gold Cases never deteriorate.

HARDLY a watchmaker but has trouble with magnetized watches, and the bother and expense of sending away makes a workman dread to see a job of this kind. Mr. Walter Jaccard, of 1723 Waverly Place, St. Louis, Mo., advertises on page 16 a very efficient demagnetizer.

THE motto of Messrs. S. Kind & Co., doing business at 441 and 443 Market Street, Philadelphia, Pa., is "no misrepresentation." They carry full lines of American movements and cases.

MR. J. L. CLARK, practical assayer at 823 Filbert Street, Philadelphia, is a reliable party to send old gold or silver to ascertain value.

WATCHMAKERS and jewelers generally have a hankering for fishing in leisure time. To those who indulge in this sort of thing we fancy the bait advertised by Mr. A. Wakeman, Cape Vincent, N. Y., would be a taking affair.

THE advertisement in another column of M. Zineman & Bro., manufacturing Opticians, 130 South 9th Street, Philadelphia, is worthy of attention. This firm manufactures and sells the celebrated "Diamanta' spectacles and eyeglasses, which are probably more widely known than any other, It will pay dealers who have not heretofore handled optical goods, and those who have, to take advantage of the firm's offer to send a small sample line for \$5.

J. F. SKELTON, formerly of Etna, California, is now located at Selma, same State. He has been succeeded at Etna by N. K. Holland.

CHARLES S. HIRST, of 631 Chestnut Street, Philadelphia, Pa., has assumed the business of Hirst, Moore & White. He carries a choice line of goods, and manufactures fine jewelry and diamond mounting.

A POINTER—You can sell a Jas. Boss Filled Gold Case to a man who cannot afford to buy a solid gold one, and have him just as well pleased.

MR. GEO. J. RICHARDS has succeeded Richards & Rutishauser, in the watch repairing business, at 149 and 151 State

PROBABLY no one thing in the line of jewelry has been so universally copied as the shape of the Krementz one-piece collar button. Almost every button now offered has the well-known bell-shape post and back, and dealers often unwittingly deceive themselves when buying buttons, supposing from the general appearance that they are getting the Krementz button.

IN reading over the Keystone Watch Case Co's ad. of Keystone Filled Gold Watch Cases on page 19, one cannot avoid being struck by the point this Company makes in regard to their guarantee. When this Company say they warrant a case for fifteen years, they mean that length of time.

THE Sensation Collar Button, manufactured by Howard & Son, Providence, R. I., has so long held a high place in public esteem that to speak of it is a good deal like taking coals to New Castle. "They are beauties," say everybody.

THE Aurora Watch Company are making a choice line of movements. They are good reliable movements, too. Some features of these movements are very commendable.

THE Giles' Anti-Magnetic Shield will protect a fine movement from getting magnetized.

WATCHMAKERS throughout the country have just reason to be grateful to A. N. Clark, case spring and watch key manufacturer, located at Plainville, Conn. His five hole case springs are more universally used than any case spring manufactured.

THE Acme sleeve button, manufactured by Fred. I. Marcy & Co., is very popular, and the demand for it is still on the increase. Jobbers should examine this firm's new line of goods before placing their orders.

THE Niagara Falls Chromo Paper Boxes, made by the Wiesbauer Manufacturing Company, Buffalo, N. Y., are very popular, and the demand for them is increasing. Jewelers would do well to order some of these attractive boxes.

THE Trenton Watch Co. are pushing their watches to the front with a great deal of activity. For a cheap watch they are receiving very much praise; dealers asserting they are rapid sellers, giving good satisfaction.

Ave MR. C. W. HINE the well-known jeweler, of Kinsley, Kansas, renews his subscription, and sends us an advertiseded ment to be placed in the KEYSTONE and adds: "I have found the KEYSTONE and the be an excellent advertising medium heretofore, and am constrained to try again."

James Boss Filled Gold Cases.

We are not above a sense of gratitude for the unusual number of compliments we have been receiving lately relative to these peerless cases. Gentlemen, there is one necessary feeling attendant on the thorough enjoyment of compliments-the consciousness of being worthy of them. This sense of deserving the confidence and respect of our fellowmen, by persistently keeping our goods up to the highest standard for the past thirty years, affords us full capacity for absorbing the encomiums our friends have recently been lavishing upon us. We intended to have published several commendatory letters, but could hardly make a selection; and, beside, we had so much it was necessary to say to our patrons in the regular way of advertising. By advertising we do not mean puffing and blowing, and attracting attention by the sheer force of noise and obtrusiveness, but by quietly evoking your notice to actual merit and superiority of our goods. It is not only necessary to make the goods, but it is obligatory on the part of the manufacturer, if he intends to market them, to call the attention of purchasers to the merits he has been at so much expense and pains to improve and perfect. In the manufacture of Filled Gold Cases we have every appliance and facility which skill and experience

WE are requested by the Keystone Watch Case Company to call the readers attention to a reproduced type writer letter on page 8, from the enterprising firm of Bowman & Musser. Lancaster, Pa.

A FINE set of balances and weights are as essential in a jewelry store as any of the accessories. Persons desirous of purchasing cannot do better than to send for a catalogue of this goods to Charles Kohlbusch, 35 Nassau Street, New York.

W Street, Chicago, Ill.

MR. JOHN P. SOMMER, watchmaker, formerly of Gettysburg, Pa., has removed to Baltimore, Md., and is now located at 2831 O'Donnell Street.

THE firm of Roberts & Ramsey, Boulder, Colorado, was dissolved on the 25th of May last, and on the 28th of same month the partnership of Roberts & Pettengill was formed.

MR. L. STERN, of Stern Bros. & Co., New York, has just returned from Europe with a large stock of diamonds and other goods. FOR a cheap Filled Gold Case, the Star Filled leads the host.

•THE well-known firm of R. F. Simmons & Co., are having great success with their 14 K. 1/4 gold chain, which for wear and looks is as good as a solid gold article.

MESSRS. STERN & STERN are now well settled in their new place of business at 13 Maiden Lane, with a splendid line of diamonds and American watches. They report business as very satisfactory.

dictates as necessary for their production, and we know, and say it boldly, that our goods of this kind stand unequalled in the world's market to day.

> KEYSTONE WATCH CASE COMPANY.

L. M. LADD & Co., of Morrison, Ill., have been providing themselves with elegant new quarters on Main Street of that place.

WE are in receipt of a letter from our friend, Mr. E. W. Blue, the well-known jeweler of Atlanta, Ga., in which he says: "I think your plan for 'stopping the thieves' a good one, and I am glad you have adopted it. I think if brother jewelers would adopt the scrap-book plan of keeping a record of all goods lost, they would find they would gain patronage and popularity without expending extra efforts. By this means I have been instrumental in recovering several articles of jewelry that have been lost sight of for years. The KEYSTONE is "King of them all." You haven't got the price quite high enough yet, but I suppose you will attend to that in another year.'

WM. F. COTTRILL, the well-known jeweler, formerly of Keeseville, N. Y., has removed his business to Plattsburgh, same State.

C. L. MELLOTT writes to say that he has bought out the business of A. F. Kiser, at Woodsfield, Ohio.

An authority announces that monogram bangles are gradually drifting out of fashion, the bangle itself, though, isn't being discarded, only instead of a monogram the giver's photograph is now "the thing."

THE most expensive diamond necklace in this country is said to be that owned by Mrs. Hicks-Lord, which cost \$250,000.

A NEW conceit in rings, according to a prominent jeweler, is the revival of the ancient thumb ring. It is made of a plain, broad dull gold band, and is worn on the left thumb. The idea is of Eastern origin.

THE wedding of the Emperor of China with the daughter of the Duke of Chao will not take place until next year, but the presents are being prepared and collected already. Among them are a tea service in gold, twenty horses with harness and saddles set with precious stones, 100 rolls of the choicest silks, 200 ounces of gold, and 10,000 taels of silver. The jewelry has not been ordered yet, and the French manufacturers are trying hard to get the order.

An elephant in the funeral procession to a recent Hindoo cremation wore a silver collar worth $\pm 5,000$.

C. F. KLEINE, a jeweler in San Antonio, Texas, has a very great curiosity in the shape of a small round clock, such as are sold generally for about \$2, containing a hornet's nest. A young man brought it to him, saying that his mother had had it fixed only a few weeks before and it wouldn't work. When Mr. Kleine came to open the clock, what was his astonishment to find a beautifully constructed wasp's nest, or mud-throwers, as they are called thereabouts. So pleased was he with the novel sight that he gave the young man a new clock for the old one and had the curiosity photographed. The industrious little animals entered through the hole in the top of the clock, where the hammer of the alarm works, and proceeded to make themselves at home.

The NIAGARAFALLS Chromo Paper Boxes.

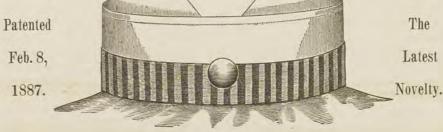
The most attractive paper box and best advertising medium for Jewelers.

The boxes are all done up in cotton, enclosed and wrapped in fine white paper held by a rubber band. In this way, they are kept clean and ready for use.

Price, including printing, per gross, of six series, \$4.00.

Wiesbauer Mfg. Co., Buffalo, N. Y.

The "Sensible" Scarf Holder and Collar Button.



A Collar Button and Scarf Holder combined.

Prevents the Scarf from Sliding up on the Collar Ask for the Sensible Collar Button.

Try It.

We are in receipt of a filled gold case for repairs which contains a guarantee from the maker to wear for twenty years. The engraving in many places has cut completely through the gold, and the precious metal is in no place thick enough to wear for ten years. We assert this with a great deal of confidence, based on an experience of thirty years in the manufacture of filled gold cases. We cannot help thinking, from the reckless manner in which some manufacturers insert guarantees for almost any length of time in their cases, that they cannot consider the importance the guarantee implies, but place these certificates of guarantee in a case because it seems to be one of the necessary requisites for selling it. The Keystone Watch Case Company, however, hold the guarantee card they place in the backs of all their cases, as much binding on them as if it was a legal document signed, sealed and witnessed, and placed on record with any Court on earth. We stand ready and prepared to make this same guarantee good in all and every instance. Consequently all retailers can handle these goods with perfect confidence, knowing that, if by accident or inadvertence, a case does not fully come up to the high standard of this Company, they will willingly and cheerfully replace the case with a new one, even if it had stood a wear of four-fifths of time stated in the guarantee. It surely stands the retail dealer in hand to look well to this matter, for he well knows he is responsible, if reckless manufacturers are not, and that he must render satisfaction to his customer or stand tainted in his reputation as a dishonest or, at the least, incompetent dealer.

Also the Acme Lever Sleeve Button

Manufactured and sold to the Wholesale Trade only by

Fred. I. Marcy & Co., Manufacturing Jewelers, Providence, R. I., U. S. A. KEYSTONE WATCH CASE COMPANY.



13

The Keystone Watch Case Company desires original designs for engraving on Watch Cases, and will award the following prizes for the best designs. The competition to close on the 15th of September, 1888.

> For the best design, a James Boss Filled Gold Case and an eleven jeweled American Movement. For the second best design, a Star Filled Gold Case and a seven jeweled American Movement, or a Lancaster Engraving Block. There will be ten third-class prizes awarded of a set of choice engraving tools as illustrated above.

The competitors for any of the above prizes need not confine their fancy to producing designs similar to those already in use, as it is more the object of offering these prizes to stimulate originality than to secure a great number of efforts.

GREAT are the wonders of the telephone. A physician reports to *Gaillard's Medical Journal* that he was saved a two mile ride through a driving storm the other night by having the patient, a child, brought to the instrument and held there until it coughed. He diagnosed false croup, prescribed two grains of turpeth mineral, and turned in for an undisturbed sleep during the remainder of the night. He found the patient in the morning doing nicely—under the care of another doctor.

An extraordinary story comes from Riverside. James McFadden captured a big owl in the San Bernardino mountains and gave it to jeweler Larue, who staked him out in the shop. From time to time watches were missed, and the thing went on until one day Mr. Larue, while working on an alarm clock, had occasion to step out for a few minutes. When he returned, the clock was nowhere to be seen, but a muffled ticking came from the interior of the bird. The owl was quickly opened, and in his crop were found thirteen gold and silver watches, six of them in good preservation, while the other seven were found in various stages of digestion. We think Mr. Larue was hasty. He should have waited until the time came for the alarm clock to perform its function and then ascertain whether the bird had digested the noise. However, we recommend the story to the circulation affidavit men of our contemporaries to practice on.-Oakland (Cal.) Tribune.

WE clip the following from the Kirkwood (Mo.) *Leader*, of May 19th : "On Wednesday last we were shown a clock made by Frederick Lautermilch, the Kirkwood jeweler, on which he has been working twenty-eight months.

"He planned the works alone, and it is safe to say that there is not another clock in the world like it. He began the work in January, 1886. The works are made of the finest brass and steel. Every wheel, pinion and other parts of the works were made by hand, at the little work-bench in the little shop on Main Street. The dial, which is twelve inches, is made of hand-hammered German silver plate, and finished with the finest polish. The pendulum bar is 47 inches long, with two glass tubes filled with twelve and a half pounds of mercury. The weight, which furnishes the power, is made of two-inch nickelplated brass tubing, filled with lead. There are 176 pieces of metal work in the clock, each finished in the most perfect manner. The case is 4 feet 9 inches high, 20 inches wide, and 7 1-2 inches deep, with 8-inch panels and ornamental work at top. The front and sides of the



Our Illustrated Catalogue—Largest and most complete published. Sent to the trade FREE. Sole Agents for Improved Terry Clocks.

48 and 50 Maiden Lane, 33 and 35 Liberty St., New York.

Importers, Exporters, Jobbers or Controlling Agents in all lines of goods that appertain to the Legitimate Jewelry Trade.

21

Different Departments.

21

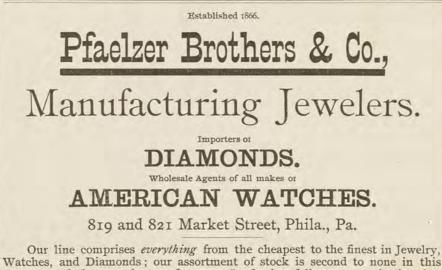
Requiring and Occupying Larger Salesrooms than any other Wholesale Jewelry House in the World.

KANSAS CITY, MO.

We have all grades of American Movements and an elegant line of Gold and Gold Filled Cases. Also all the Patent Silver Cases. Our Jewelry Stock is all new, and the latest designs.

We solicit a share of your orders and promise you a square deal and fair price.

Woodstock, Barger & Hoefer, Kansas City, Mo. Water Works Building.



Watches, and Diamonds; our assortment of stock is second to none in this Country and always at bottom figures. Goods cheerfully sent on selection, but those unacquainted with our House will please furnish references. We sell on close profit and short time only.

Col. J. M. Rutherford, Auctioneer,

Specialty made of Diamonds, Watches, Jewelry, etc.

Sales made only for established jewelers in their regular places of business. Am a practical jeweler, with an experience of 25 years as a special salesman. Can refer to over 100 jewelers, for whom I have made successful sales in all parts of the United States. Address,

Room 7, 618 Chestnut Street, Philadelphia.

At Last! A Jewelers' Guild Watch.

The WATERBURY WATCH is now entirely under the control of the

Recognized Retail Watch Dealers of the

NOVELTIES IN JEWELRY.

Busts and heads of Labrador spar make odd scarf pins.

A horseshoe of silver, with a link fastening at the extremities, makes a peculiar bracelet.

A Brazilian bug nearly two inches in length is an odd brooch shown by a downtown jeweler.

An odd design in hair-pins represents a serpent coiled about and supporting a large pearl.

Diamond crescents on polished gold scrolls are still in high favor as brooches and lace-pins.

An intricate scroll in black enamel, set with two handsome pearls, is a pleasing pattern in brooches.

A victorious gamecock is a pattern in scarf-pins which will be received with favor by sporting men.

A dainty brooch represents a 'jack in the pulpit' of cut moonestone rising from a jeweled calyx of Roman gold.

A pretty charm is a small flask, the body of which is a square knot of red and yellow gold set with diamonds and rubies.

An odd purse has a cover composed of a silver dollar which tightly closes over a frame from which hang the silver meshes.

Parasol handles of twisted silver, from 12 to 18 inches in length, are shown in plain and oxidized patterns in great variety.

A pretty bib pin for infants has six alternate diamonds and pearls set upon a knife edge, while a larger pearl graces the hinged end.

A novel cigar clipper recently seen was a dainty pair of scissors in dull gold, intended to be worn as a watch charm by the smoker.

A square of hammered Roman gold, having a ruby in each corner and a diamond in the centre, is a pattern both pleasing and artistic in cuff buttons.

Frosted silver match safes, bearing an enameled match and appropriate legends, are among the latest novelties.

A gold griffin seated upon a black pearl, which is firmly grasped by claws and tail, is a peculiar design in scarf pins.

A handsome butterfly brooch in transparent enamels has a row of brilliants extending along the edges of both wings.

Eye-glass holders, in frosted silver, and lined with soft plush, will be appreciated by those who carry aids to their sight.

A handsome curved gold pungent, having a spray of flowers in enamel on its sides, is much in favor among ladies with long purses.

case are of glass, with oval top. The case is mounted on a base 2 feet 4 inches high, 2 feet 8 inches long, and 12 inches deep, with double-panelled doors.

"The whole case was made of the finest cherry, finished with oil polish. The entire work, including the carving, which is very fine, was done by hand by Mr. Lautermilch, who it seems is as skilled at work in wood as in metal. He informed us that many of the tools needed to complete the work he made himself, which consumed much time.

"Taken altogether, the clock is a wonderful piece of work, and its great beauty would make it an ornament to the finest palace in the country." United States and British Provinces of North America. Out of 16,000 legitimate retail watch dealers, over 9,500 have become members of the

Waterbury Watch Guild,

and that number is receiving additions every day.

These RECOGNIZED RETAIL WATCH DEALERS fully realize that the WATERBURY WATCH CO. has kept FAITH with them.

The policy which we inaugurated in May, 1887, has been thoroughly appreciated, AND IT WILL BE CONTINUED. We make this pledge as a renewal for the year to come, and trust that the day is not far distant when the RECOG-NIZED RETAIL WATCH DEALER, who is not a member of the "Guild," will be a rare exception. The Waterbury Watch is and will be sold by us only to LEGITIMATE RETAIL, WATCH DEALERS.

The Waterbury Watch Company.

GEORGE MERRITT, Gen. Selling Agt. Factory; Waterbury, Conn. New York Office; 92 and 94 Liberty St A curved silver pungent, with a mottled oxidized surface, bearing a spray of dainty morning-glories in enamel, flush with the sarface, is much admired.

A handsomering has two moonstones set diagonally opposite each other on a plain gold wire shank. Behind each moonstone streams a tail of small diamonds.

A calla lily in pure white enamel, with a gold stamen and having a brilliant dewdrop clinging to its side, is a much admired design in brooches.

SEEWALD'S New Balance Truing Tweezers.

The only Tools on the market by which a jeweler without especial experience can properly True an Expansion Balance.

The accompanying illustrations show the manner of using them, and any workman can quickly accomplish the act of truing such balances perfectly.

The Tweezers are highly finished, and two pairs will be sent to any address upon receipt of \$1.00, Nickel.

> The "Jewelers' Journal," Chicago, says : "The illustration here given explain a new and very useful device, in fact, a pair of the most valuable little tools for watchmakers we have inspected for a long time. There are a few jobs in the repair shop that are more perplexing to an ordinary workman than that of truing an expansion balance nicely within a

reasonable time. Our old-time friend, Phil. Seewald, of Hudson, Michigan, deserves much credit for devising such efficient helps for the craft for this purpose. The illustrations so fully show, in three different positions, how the two tweezers, one for holding the balance while the other is used in truing, are used, that further description is unnecessary, except to say they are very nicely made."

Full particulars and samples will be sent by addressing as below.

Address Patentee and Manufacturer,

PHIL. SEEWALD, Hudson, Mich.

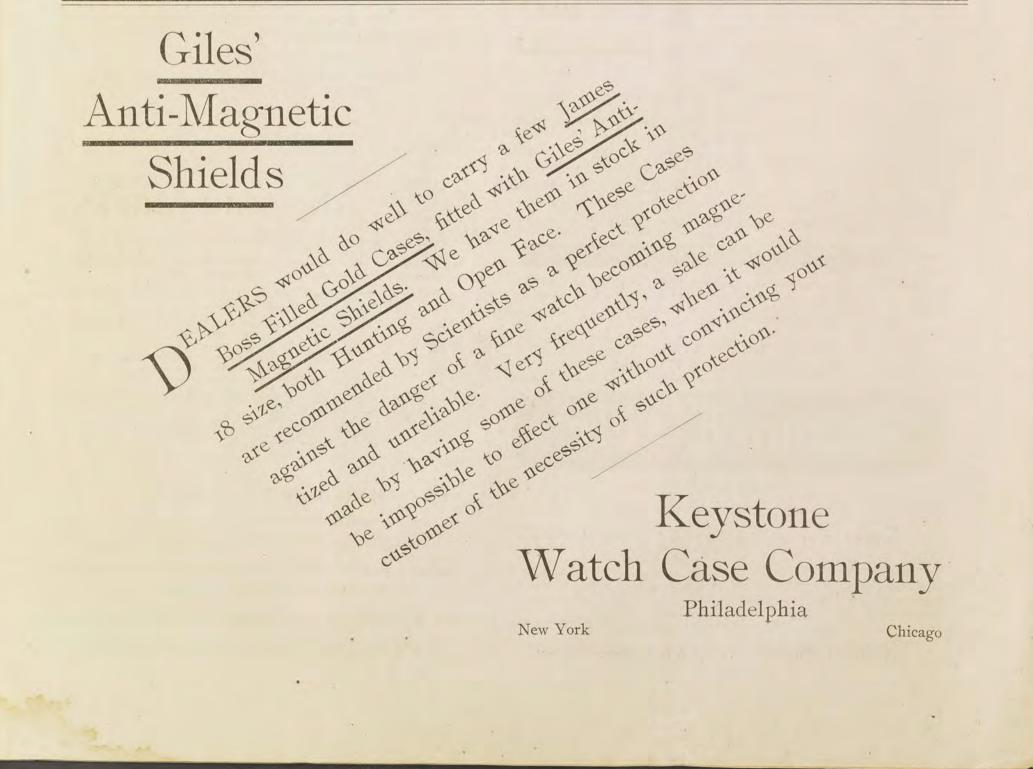
Prices to Jobbers on application.

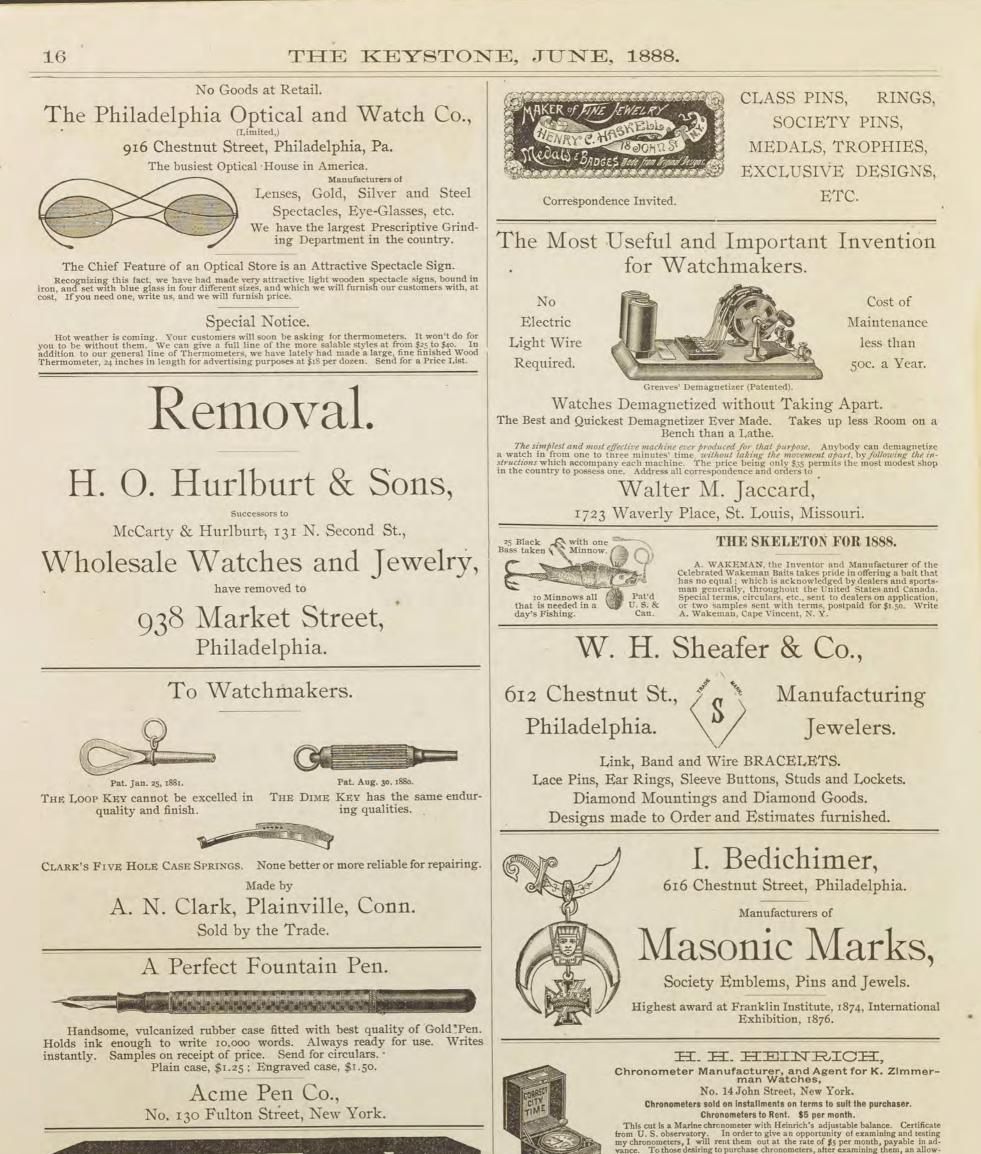
Anti-Magnetic

Shields

Patent applied for.

15







t. _____



vance. To those desiring to purchase chronometers, after examining them, an allow-ance of the first month's rent will be made from purchasing price. A large stock of new and second-hand marine chronometers on hand for the trade. All my second-hand chronometers are in the very best condition, readjusted, and look like new. Springing and Adjusting with C. A. Paillard's Palladi-um Balanee Springs a Specialty.

Buffalo, New York.,

Are offering for a short time their

Snaps No. 2, 3, 4, 5 and 6

At usual snap prices. Send business card for the lists, and take advantage of a bargain that can be given only by King & Eisele, because they run their own factory.

Factory, 198 and 200 Terrace St. Salesrooms: 283 Main St., and 2, 4, 6 and 8 Swan St. Breitinger & Kunz,

Importers, Manufacturers, Jobbers and Dealers in Diamonds, Watches, and lewelry,

Silverware, Musical Boxes, Foreign and American Clocks, Watchmakers Tools and Materials.

No. 37 and 39 N. Ninth St., Phila., Pa. Sole Agents in the United States for G. Becker's Regulators.



17

S. Kind & Co., 441 and 443 Market Street, Phila., Pa.

Wholesale Dealers in American Watches, Jewelry and Silverware.

We carry a full line of all grades of movements and cases in 14 K., 10 K., Wheat and Eagle. Full line of Boss and other filled cases. Mail orders get our special attention. Our motto: "No Misrepresentation."

MR. WILLIAM F. NYE, DEAR SIR: It is now one year and nine months since I commenced testing your Watch Oils, and it affords me pleasure to state that I am satished with the results. They have been subjected to various tests, but the severest and best test has been its actual use upon watches carried in the pocket. In every instance your "Melon" and "Jaw" Oil has made an excellent showing. The "St Albans" Oil which you sent me a few months ago, is, I believe, from such tests as I could give it in soshort a time, a better oil than you left with me nearly two years ago, and to which I have made reference. It is essentially the same except that it seems to have more "body," and, therefore, will no doubt wear longer. It shows no tendendy to "dry up," "spread" or "gum" when subjected to high temperature (200° F.) for several weeks. We received the Oil ordered from you, and I trust it is all the "St. Albans" Drand. I term it the "St. Albans" Oil to distinguish it from regular oil or that which I first had. I now have so much confidence in this oil that I have ordered its use upon all watche sent out from the factory. It may seem to you that it has taken me a long time to arrive at a conclusion regarding your oil, but unfortunately, it takes a long time to thoroughly test watch oils, and it is a matter of great importance to a large Watch Company. *Due St. ELDRIDGE*. *General Inspector American Wallham Watch Co.*

To the Watch and Clock Trade.

Realizing that we were in possession of the finest stock of raw material for such goods, the "Jaw" and "Melon" Oil, and knowing from years of experience the great difficulty of producing a uniform quality of this Oil in a climate so variable as in the vicinity of our factory at New Bedford, we attempted the scheme of refining it in a higher latitude, and accordingly a stock was sent to the borders of Canada—St. Albans, Vt.—and after a thorough chilling at a temperature 35° below zero, the process of refining was completed at an average temperature of 20° below zero. The experiment was a great success, and we can now assure the trade that we have produced the finest quality of watch and clock oils ever shown to the world. Watchmakers have only to ask their dealers to send them a bottle of Nye's Watch or Clock Oil to prove the correctness of our statement.

WILLIAM F. NYE, New Bedford, Mass., U. S. A.



18

To the Trade. Do you wish your repairing done well at reasonable prices? If so, send to Edward W. Fox

all your broken jewelry, silverware, watch cases, movements, clocks, spectacles, eye-glasses, pipes, fancy goods, also engraving and plating. Save ex-press by sending everything in one package to 7 Province Ct., Room 3, Boston, Mass.

To the Trade.

We make a specialty of doing all kinds of watch repairing for the trade, having had years of exper-ience in the largest houses in the city, and having all the best facilities for doing work. We are enabled to do the most difficult repairing promptly, and on short notice. Send for our new price list.

Richards & Rutishauser, 149 and 151 State St., Room 10, Chicago, Ill.

To Whom It may Concern.

It having come to our knowledge that certain persons are manufacturing Ladies' Cuff Holders, claiming an "improvement" on "The Queen" Cuff Holder, manufactured by us, for which letters patent were granted to us Oct, 4th 1887. The so-called "improvement" consists in a movable or swivel head; and in all other respects, the said cuff holders are identical with ours; the same being a plain and palpable infringement on our patent, having been so pronounced by competent authority at Washington, after due investigation. Now, therefore, we hereby caution and forbid all persons from manufacturing, selling, buying or using the said so-called "Improved Cuff Holders," as we shall proceed against all such persons, and protect our rights under the said patent by every legal means.

J. W. Henry & Co.

HOUGHTON

& CO.,

Manchester, N. H.



Here is just what you want to set off your bench. One of HIBARGER'S PATENT OIL CABINETS. It is a pretty ornament, and perfectly protects the oil from dust and light. On the top you can put your eye-glass and screw drivers. Wholesale Agents : Sussfeld, Lorsch & Co., New York.

All Jobbers have them. Price \$2.50.

H. M. DAVIS, No. 73 Nassau Street, Room 6, New York. Watch Case Repairer.

Jewelers desiring first-class workmanship and prompt attention will find it to their advantage to give me a trial. Jobs sent me by mail or express will be repaired and returned promptly. Engine Turning, Springing, Jointing, Polishing and gen-eral repairing neatly and quickly executed.

Send to Headquarters for Goods. H. H. Kayton, 82 Nassau Street, New York.

Importer and Jobber In Watch Materials, Tools, Jewelers' Findings, Spectacles, and other Optical Goods. Best goods at lowest prices. Work for the trade promptly attended to. Orders filled by any catalogue.

Tools

For Jewelers, Watchmakers, Engravers, etc.

Write for prices. All correspondence promptly answered.

Manufacturers of face plates and slide rests. Prices reasonable, and quality guaran-teed. Ask your jobber for one on approval. Tallman & McFadden 1025 Market Street.



Cash for Old Gold and Silver.

Do you use a polishing Lathe or a lathe of any kind? If so, and you have not a

Hammond Wheel

You are simply behind the times. More and finer glass grinding and polish-ing can be done in one hour, than is possible to do all day by the old rigs or new-for ten times its price.

No set of lathe furniture complete without it. For sale at all stock houses, or free by mail on receipt of price, \$1.00

W. F. HAMMOND, Man'f'r, 38 Main St., Greenport, Suff. Co., N. Y.

Chas. Reiss, 31 and 33 S. Pearl St., Albany, N. Y. Watchmakers' Tools and Materials Watchmaker to the Trade. Watchwork received from all over the United States and Canada.

Established 1869.

Send for Price List.

Foot-Power Machinery.

Complete Outfit for actual Workshop Business. Lathes for wood or metal. Circular Saws, Scroll Saws, Formers, Mortisers, Tenoners, Etc. Polishing Machines. Lathes for the heavier work of Jewelers.



OUR Patent Velocipede Foot-Power is without question the best yet applied to Lathes. Read a few expressions from those using them : "I do not see how your lathes can be produced at such a low cost." "The Vel-ocipede Foot-Power is simply elegant." "Can turn a whole day, and

feel as little tired as though only walking around." "In regard to the Velocipede Foot-Power, I consider the lathe without an equal." "Using the Velocipede Foot-Power, the operator can hold a steady hand for doing the work." "For doing actual business, the lightest or the heaviest, give me the Velocipede Foot-Power.' 'The $4\frac{1}{2}$ Lathe is equal to any costing twice the money." "What astonishes me is, how you can make machines to pay you for so small a sum of money." "The No. 6 Lathe is the most perfect tool I ever saw for the money." "I can do double the amount of work on the Velocipede that I can on any other style of foot-power lathe." "There is no tax on strength, the body is at rest, steady, the hands and attention free for the job." "The Velocipede— is the best foot-power of any for lathes." Sold ON TRIAL. Price List Free

W. F. & John Barnes Co., 660 Ruby Street, Rockford, Illinois.



Star Filled Gold Watch Cases.

VERY few years ago, the Star Filled Gold Watch Cases would have been considered as first-class,

judging by the color, fit and general finishnotably the engraving. And now they will rank as AI goods, if they are not compared with their more fortunate brethren, the James Boss and Keystone Filled. But take them in any company, they stand as the





choicest goods of their kind on sale.

Any man desiring a cheap, yet at the same time, a serviceable Gold Watch Case, can not go wrong in buying a Star Filled.

Keystone Watch Case Co., Philadelphia.

New York.

Chicago.





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willing to pay for a James Boss. Dealers will bear in mind that these cases are guaranteed for fifteen years, and a bona-fide guarantee, by parties willing and able to make it good, is a big thing in filled gold cases, and should be of itself enough to sell the goods.

Filled Cases. Many of our friends assure us these cases must have been specially gotten up for their individual trade. They do certainly come in very conveniently for such customers as want a neat, serviceable case, and do not feel able or

as their earlier productions, the James Boss and Star

Keystone Watch Case Company, Philadelphia. Chicago.





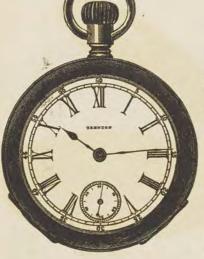
Straight Line Lever Escapement—Two Pair of Jewels—Diamond Silver Case—18 Size—Quick Train— Stem Wind and Set—Second Hand

NON-MAGNETIC BALANCE.

To the Jewelry Trade.

Revolution at Trenton.

Our Improved Case with Jointed Back and Bezel adds another practical feature to our Watch, Be on Time. Don't get Left.



"The Trenton

Is now THE LEADING low-priced Watch. Profitable to Jewelers and satisfactory to those who carry them. We guarantee each Watch to be a good Timekeeper. No Jeweler can afford to be without them.

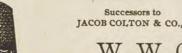
can afford to be without them. The DEMAND for a good cheap Watch is acknowledged by all. We sell only to the legitimate Jewelry Trade. Send for sample Watch, or for prices and terms. Show cards furnished all customers.

Sold by all Leading Jobbers.

Trenton Watch Co.



Trenton, New Jersey. New York Office: 202 Broadway, New York.





Manufacturers of Gold and Silver Spectacles, Gold Eye-Glasses, and Gold and Silver Thimbles. Long Meadow, Mass.

Birch's Patent Bench Keys.

No. 41 Bench Key (Nickel Plated with Hard Rubber Handle.) Engine Turned, Assorted Patterns. Sold by the trade. John S. Birch & Co., 182 and 184 Lewis St., N. Y.

Aurora Watch Company

Manufacturers of Full Plate 18 Size Movements of Superior Finish and Time-Keeping Qualities of Highest Character.

The Best Watch Made for the Price.

Eleven Grades of Open Face Pendant Setting Movements.

Eleven Grades of Htg. Stem Wind Movements. Seven Grades of Key Wind Movements.

Five Grades of Adjusted Movements with Bre-



No connection with Trusts or Combinations. Movements are sold without Cases. Jobbers and Dry Goods Stores do not get them. All movements are sold by the Company direct

guet Springs and Patent Regulators that are especially adapted to the requirements of railway service.

to the Retail Dealer and to Jewelers only. Dealers are protected from unfair competition.

Manufacturers also of the GUILD Watch, made under special contract with the U.S. Jewelers Guild and bearing its registered trade mark. Sold to none but members of the Guild.

Write to the Factory for information.

General Office at the Factory.

Aurora, Illinois

Something New and Low Priced INSULATED WATCH PROTECTORS.

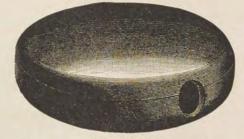
Will Protect all Watches against Magnetism.

Convenient in Use.

Made in various Sizes.

Perfect in Action. Price within the reach of Everybody.

For Sale by all Jobbers and Wholesale Dealers.



Pat. Applied For.



21

Pat. Applied For.

Manufactured only by the

Newark Watch Case Material Co., Alex. Milne, President.

Manufacturers of PENDANTS, BOWS, CROWNS, SPRINGS, etc.

New York Office: No. 41 Maiden Lane.

Mention this Paper.

Factory : No. 19 Ward St., Newark, N. J.

The 16 Size Three-Quarter Plate Watch Movements

Manufactured by the

American Waltham Watch Company named "ROYAL," are now ready for delivery by

David. F. Conover & Co., S. E. Corner Chestnut and Seventh Sts., Philadelphia, Pa.

Prices sent to Watchmakers and Jewelers only.

We issue no Price Lists.

DAVID F. CONOVER.

B. FRANK WILLIAMS.

22

James Boss Filled Cases.

VERY little need be said here about these cases, except to remark, as the old farmer did about his daughter: "Thar she is, Squire, jist as good as she is purty."

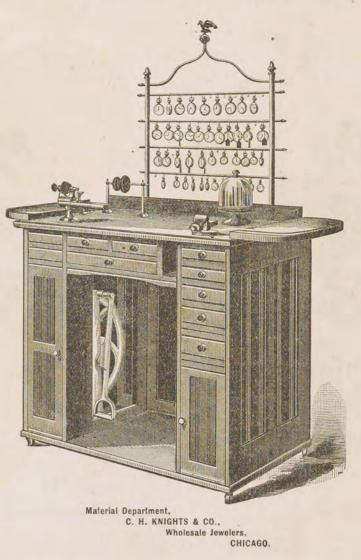
Keystone Watch Case Company, Philadelphia. Chicago.





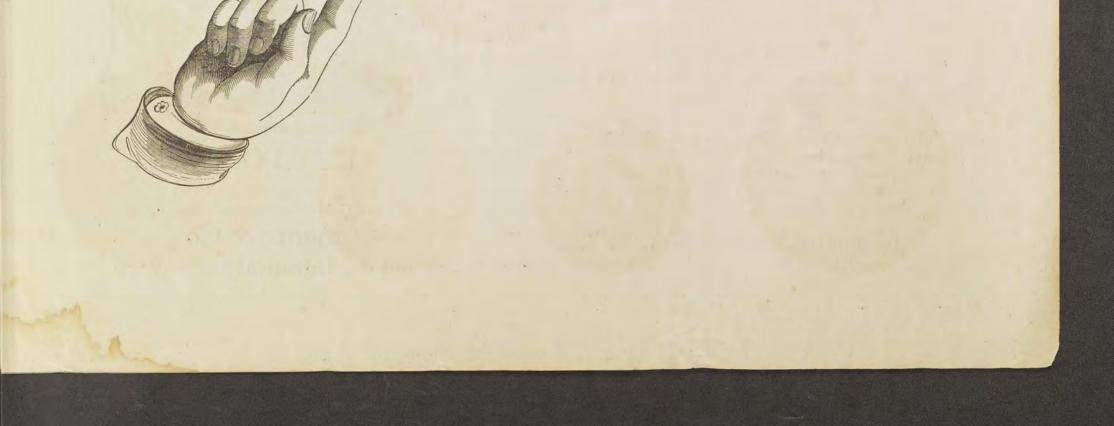


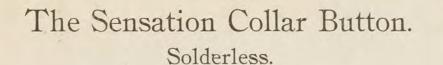
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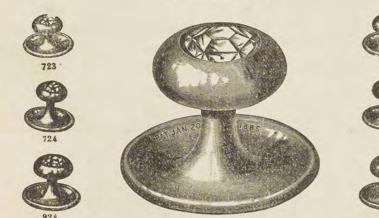
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Composed of Two Pieces only, with fine Foil Stone Head.

A perfect imitation of a



Diamond Collar Button.

Is now offered to the trade in three sizes, Nos. 723, 724, and 924. Numbered Illustrations above show EXACT size. SENSATIONS also made in NINE sizes plain without stone.

Howard & Son,

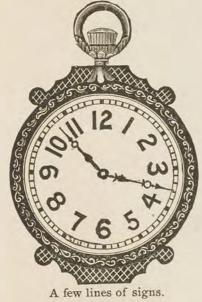
102 Orange Street.

24

We sell to Jobbers only.

We will on application furnish any retailer with names of jobbing houses carrying above goods. Mention KEYSTONE.

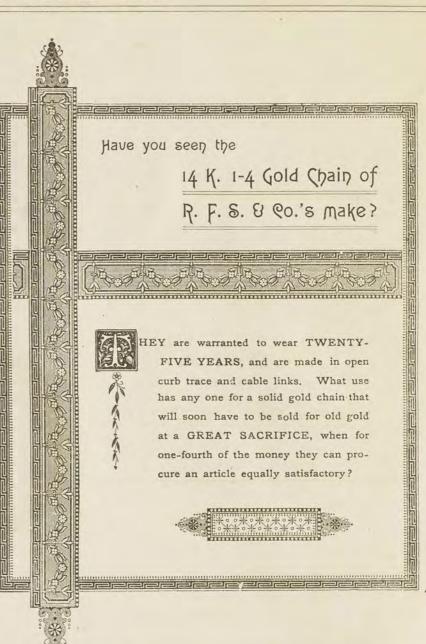
R. & L. Friedlander.



Watch Protectors. \$2.50 per Dozen.

Providence, R. I.

Adjustable Casesprings. Best in the Market.



Krementz & Co.,

184 and 186 Broadway, Cor. John Street, New York.

Manufacturers of

Fine Gold Jewelry,

and the Well-Known

"ONE-PIECE"

Send for Prices.

50 cents per Doz.

Watches, Jewelry, Optical Goods and Jewelers' Supplies.

We have on hand a large stock of Bamboo goods and offer the following bargains:

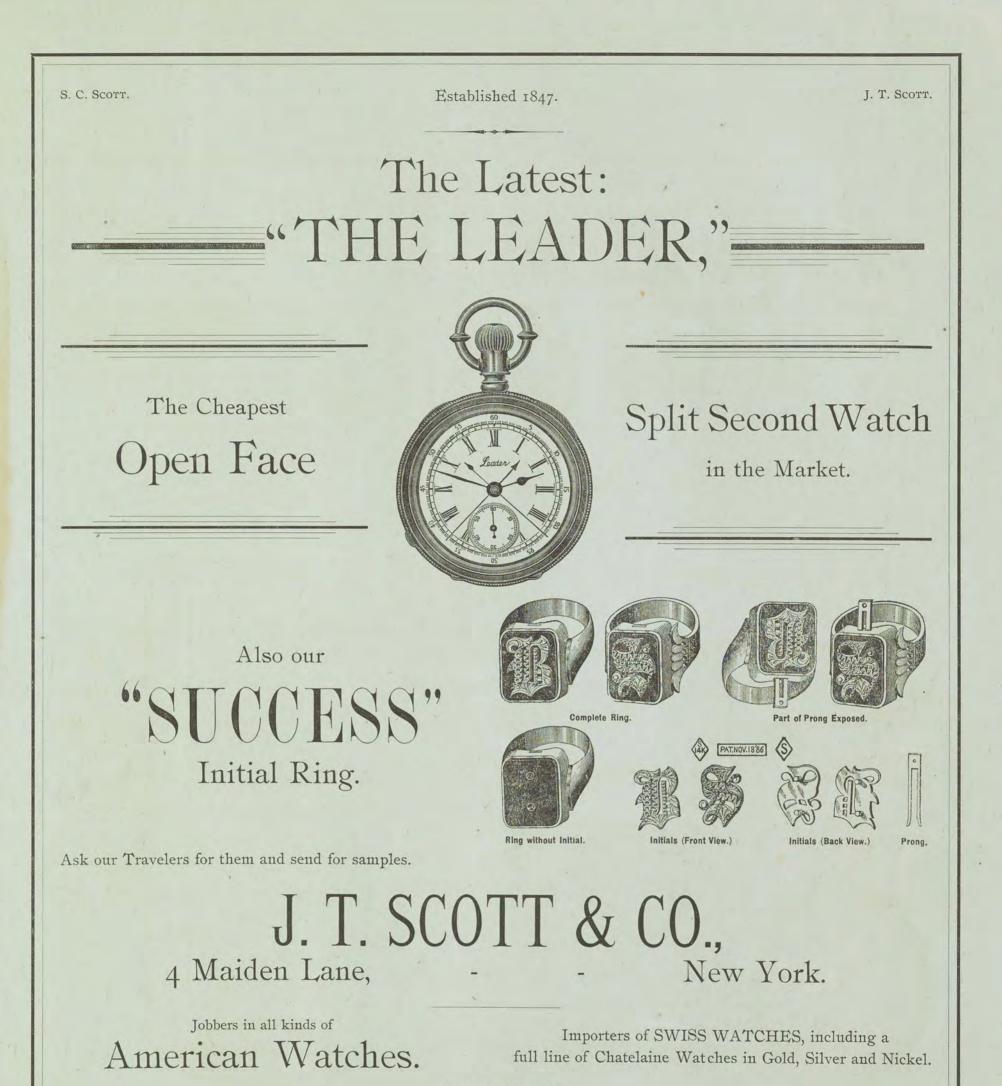
1000 dozen Bamboo Vest Chains @ 75 cents per dozen. 1000 '' Guards @ 50 cents per dozen.

65 and 67 Nassau Street, N. Y.



BUTTON in ten sizes.

Ask your Jobber for them or address Krementz & Co, 182 and 184 Broadway, New York.



Also a full line of

Diamond Goods,

Comprising Loose Stones and Mounted in Ear-Drops, Lace-Pins, Scarf-Pins, Collar-Buttons, Fancy and Soltaire Rings.

Sole Agents for Chas. F. Tissot & Son's Fine Movements, fitting the 6 and 16 Size Elgin Cases ; Also for Nickel Open-case Roskopf Triumph-Roskopf Watches.

Largest and most complete Stock ever offered.

Would call special attention to our full and complete line of Chronograph Watches.

Our Jobbing Department is under our Personal Supervision.

The Julius King Optical Co., have their New York Office in our Store.

"Things of Beauty never tire us."

THE QUEEN OF FLOWERS

JUNE ROSES

Companions of the Season.

BOSS CASES

Cultivation and care every year improves the regal rose. Assiduous study and experience adds to the beauty and elegance of Boss cases. The quality of these goods, which have so long ruled the market, will never be lowered.

