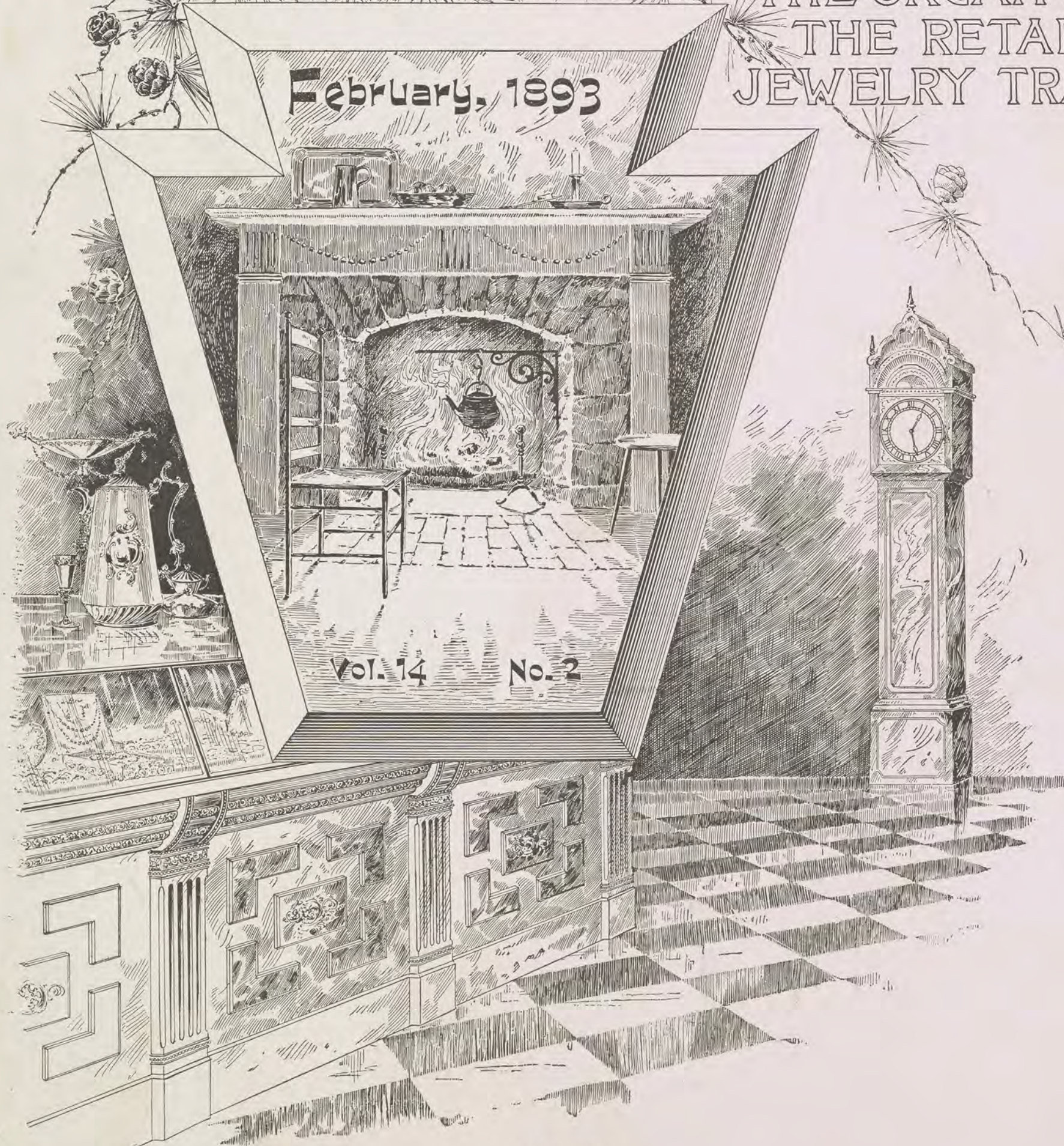


THE KEYSTONE

THE ORGAN OF
THE RETAIL
JEWELRY TRADE

February, 1893

VOL. 14 No. 2



Announcement for 1893

By the time this issue of THE KEYSTONE reaches you all of our travelers will have started out on their semi-annual pilgrimages. They all go out, if possible, better prepared than ever to supply the wants of our customers. We think we can safely say without misrepresentation that the lines that they carry are the largest, most complete, and the best-selected of any of the same class which are sent out from anywhere. An inspection of our sample trunks will convince you, we think, that this statement is correct.

MR. EASON will continue to cover the Eastern trade for us, as he has done for the past five years, and we feel sure his friends will continue to give him the same hearty encouragement which he deserves.

MR. COURVOISIER begins his fourth year with us through the Middle States, and is assured that his coming year will be as satisfactory and profitable as a man of his sterling worth and manners has a right to expect.

MR. COOK's eighth year for us through the Western States will, no doubt, be as large and remunerative as he or his many friends in the trade could wish, and his energetic manners and winning smile, we hope, will long continue to light his way.

The "REV." MR. THORNTON will continue his missionary work for us in the Northwest, which he began in such a satisfactory manner last season. He is bound to make new converts, and to keep those he has already made.

MR. COOPER needs no word of praise from us, as his work and labors through the South for a number of years have earned him a position and trade which he will be sure to make every effort to maintain.

We congratulate you on the prospects of business for the coming year, which, from the present outlook, promises to be as good as any that have preceded it. We thank our customers for their liberal patronage in the past, and hope they will continue to favor us, which we will endeavor to deserve in every way in our power.

We will close by saying if there are any jewelers in any of the above sections covered by our travelers who have never seen our line of samples and would like to do so, if they will send us their card we will have our traveler call on them.

Respectfully,

J. T. Scott & Co.

4 Maiden Lane, New York.

Watches,
Diamonds and
Jewelry.

The following are each the Best of their kind:

The Double-Base Engraving-Block.

Acknowledged the most complete Block on the market to-day. Price, including Leather Pad, Spoon-Holder, Button and Bangle Attachments, Ring-Holder, Cement-Plates A, C and E, and 32 Pins and Pegs, \$18.00.

"Guaranteed" Reversible Gravers.

Double-end—each tool equal to two ordinary. Set ready for use. Price, 50 cents. With Patent Handle and Ferrule, 75 cents.

"Guaranteed" Adjustable Gravers.

Adjustable to the hand and to the wear of the tool. Price, 40 to 50 cents, according to shape and style. Patent Ratchet Handle, 30 cents extra.

"Guaranteed" Adjustable Lining-Gravers.

285 different styles and sizes, suitable for all kinds of work. Price, 75 cents. Patent Adjustable Handle, 30 cents extra.

The Magic Repair-Clamp.

One of the best and most useful tools on the market; almost indispensable to watchmaker, jeweler or optician. Price, \$1.25.

"Lancaster" Hardening Compound.

For tempering pivot-drills and other light tools is endorsed by the best watchmakers in the country. Price, 25 cents.

The "Mascot" Wheels.

For cutting and finishing pebble, glass, stone, and any other metal or mineral, are indispensable to the jeweler, optician or watchmaker. Made in two grades; No. 1 for cutting down; No. 2 for finishing. Price per pair, 3-inch, put in a neat box, \$2.00; price per pair, 4-inch, put in a neat box, \$3.00.

The "Keystone" Gold Paint.

The best substitute for the expensive gold-leaf; especially recommended for covering soft-solder work on jewelry and for ornamental gilding. Large-size bottle and two brushes in neat wooden box, 25 cents.

The "H. A." Bismuth Solder.

The strongest, whitest and most easy-flowing solder made. We are sole owner of the formula, and the manufacturers. Price 15 cents; 2 pieces for 25 cents.

The "Perfect" Bunsen Burner.

The best substitute for the alcohol flame, and much more economical. The principle is a mingling of air with gas before ignition. The result is a smokeless flame of low luminosity, but great heating power. Price, including Bronze Gauze Top, Burner-Tip, with rest for Blow-Pipe, Tripod and Burner-Crown, \$1.50.

The Watchmakers' Bunsen Burner.

Nickel-Plated. Same general principle as above, but smaller and only plain burner. Price, 65 cents.

L^s. E. Junod's Superior Watch Jewels.

These Jewels are of superior quality, and are sold at a price no higher than is usually asked for Jewels of lower grade and irregular in gauge. Prices on the complete line will be furnished on application.

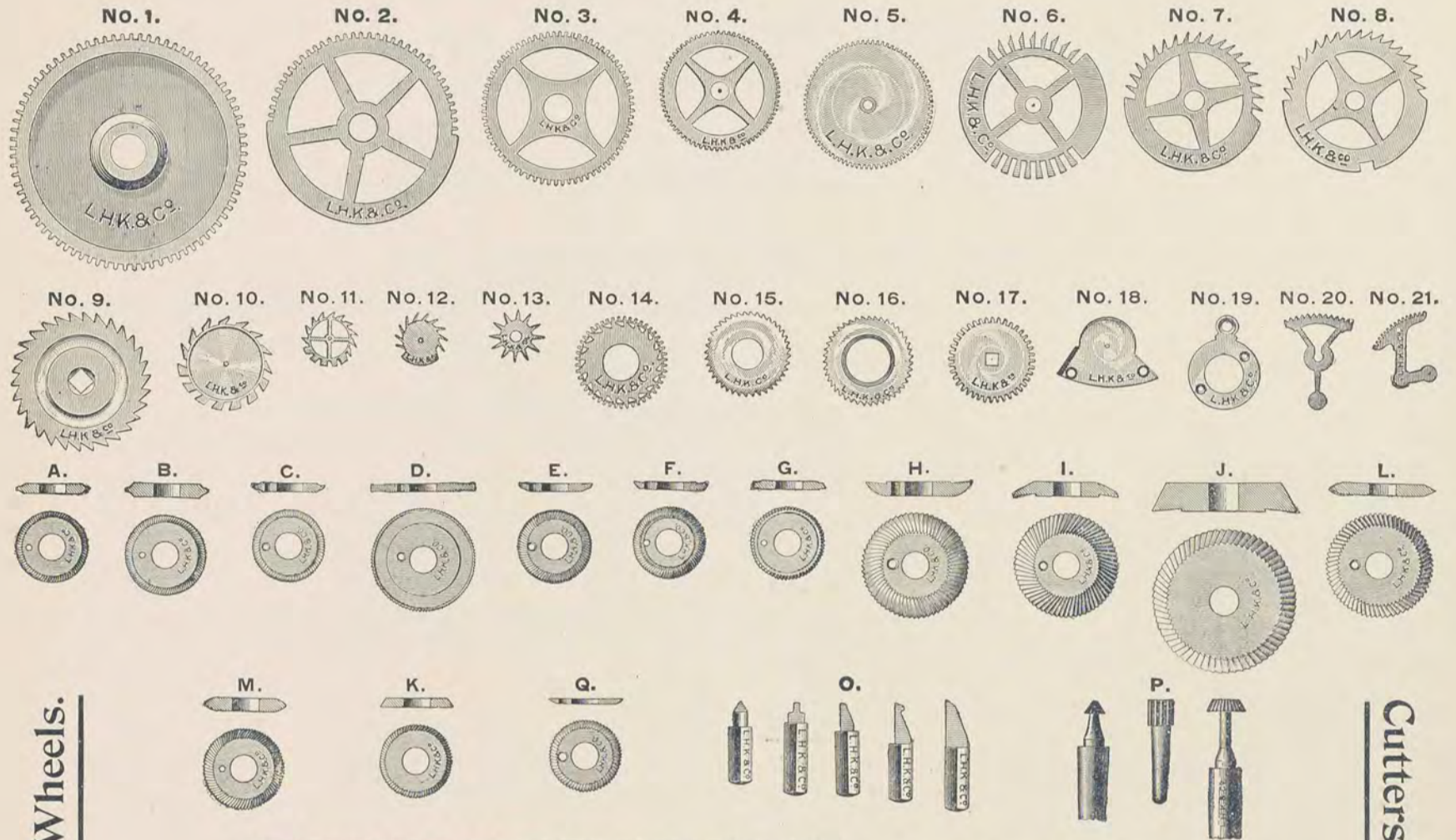
And are sold by the following Jobbers at prices named:

Boston, Mass. Henry Cowan, 409 Washington St. E. A. Cowan & Co., 363 Washington St. Chas. May, 386 Washington St. M. Myers, 7 Bromfield St. A. Paul & Co., 375 Washington St. D. C. Percival & Co., 392 Washington St.	Cincinnati, Ohio. Duhme & Co., 4th & Walnut Sts. C. Hellebush, 77 W. Fourth St. Jos. Mehmert, 185 Race St. Oskamp, Nolting & Co., 5th & Vine Sts. E. & J. Swigart, 101 W. 5th St.	Louisville, Ky. Kettman & Kersting.	Omaha, Neb. Sol. Bergman Jewelry Co., E. A. Dayton & Co., 313 South 15th St. Max Meyer & Bro. Co., 417 South 15th St. Farnam & Sixteenth Sts.
Buffalo, N. Y. King & Eisele.	Denver, Colo. Green-Smith Watch & Diamond Co., 713 Sixteenth St.	Minneapolis, Minn. S. H. Clausin & Co., Bank of Commerce Bldg. Minneapolis Jewelry Mfg. Co., 26 Washington Ave. Spaulding & Aicher, Bank of Commerce Bldg.	Philadelphia, Pa. D. F. Conover & Co., 7th & Chestnut Sts.
Chicago, Ill. Benj. Allen & Co., 141 State St. W. T. Coffin, 34 Washington St. Giles, Bro. & Co., Masonic Temple. Glickauf & Newhouse, 84 State St. C. H. Knights & Co., 125 State St. Lapp & Flershem, 96 State St. B. F. Norris, Alister & Co., 115 State St. J. H. Purdy & Co., 7 E. Monroe St. Swartchild & Co., 47 State St. Otto Young & Co., 149 State St.	Detroit, Mich. Eugene Deimel, 157 Jefferson Ave. Kennedy & Koester, 201 Jefferson Ave.	New Orleans, La. Krower, Leonard & Co., 31 Chartres St. Roder Bros., 37 Chartres St.	Pittsburg, Pa. G. B. Barrett & Co., 101 Fifth Ave. Albert H. Gerwig, 54 Fifth Ave. Heeren Bros. & Co., 525 Wood St.
	Harrisburg, Pa. H. A. Soper, 6 North Market St.	New York, N. Y. Tell A. Beguelin, 71 Nassau St. Church & Sleight, 109 Fulton St. Cross & Beguelin, 17 Maiden Lane. R., L. & M. Friedlander, 65 Nassau St. F. W. Gesswein, 39 John St. Hammel, Riglander & Co., 35 Maiden Lane. H. H. Kayton, 82 Nassau St. Levy, Dreyfus & Co., 9 Maiden Lane. Montgomery & Co., 105 Fulton St. Henry Zimmern & Co., 37 Maiden Lane.	San Francisco, Cal. Armer & Weinschenk, 220 Sutter St. Nordman Bros., 120 Sutter St.
	Kansas City, Mo. M. Benjamin, 9th & Walnut Sts. J. A. Norton & Son, Keith & Perry Bldg.		Toledo, Ohio. Robert Nelson & Co., 342 Summit St.
	Keokuk, Iowa. T. R. J. Ayres & Sons, 509 & 511 Main St.		Toronto, Canada. P. W. Ellis & Co., 31 Wellington St.

Important Information!

Every Man His Own Wheel-Cutter.

READ CAREFULLY!



Cutters for Watch Wheels.

Cutters for Clock Wheels.

Above wheels Nos. 1, 2, 3, 4, 5 were cut with cutters style A.
 Wheel No. 6, first cut at the bottom with style D; the finishing cut at the top with style H.
 Wheel No. 7 was cut with style E.
 Wheel No. 8 was cut with style H.
 Ratchet No. 9 was cut with style J.
 Wheels Nos. 10 and 11 were cut with style G at the bottom; at the top finished with style H.
 Wheel No. 12 cut with style E.
 Wheel No. 13 cut with style M.
 Wheel No. 14 cut with style B on edge, and D on top.
 Wheels Nos. 15 and 16 were cut with style C.
 Wheel No. 17, with style B.
 Bridges Nos. 18 and 19 milled out with cutter style D.
 Rack No. 20 cut with style L.
 Rack No. 21 cut with style B.
 "O" represents fly-cutters of various shapes.
 "P" represents milling-tools of various shapes.

All of the cutters from A to Q we keep in stock, and they are as follows:

- Ratchet cutters for watch and clock work.
- Escape-wheel cutters for clocks, also for chronometers and watches of all kinds.
- Square-bottom cutters for watch and clock wheels.
- Round-bottom cutters for stem-wind work and for pinions.
- Wolf-tooth cutters, also for chronograph wheels, repeating work and star wheels.

All of the above specimens of work, including the fly-cutters and milling-tools, were made on a "Webster-Whitcomb" Lathe, for which we are the agents.

Among the many lathes made, the "Webster-Whitcomb" Lathe stands away to the front.

A good workman equipped with this lathe and its attachments, including cutters, etc., is "a host within himself."

"Webster-Whitcomb" Lathes and their attachments always kept on hand.

Send to us for prices of lathes, cutters, etc. We will take pleasure in giving you more information than you can get elsewhere.

L. H. KELLER & CO.

DEALERS IN
FINE TOOLS, MATERIALS, Etc.

64 Nassau Street, New York.

(Continued from page 97.)

- IF**—Being the Pioneers in Rules protecting the Retail Jeweler.
- IF**—Consistent practice of these rules since **May 10, 1882,**
- IF**—Practical knowledge of every detail of the business.
- IF**—Buying goods in largest quantities and for cash.
- IF**—Employing 34 people well trained for their respective duties.
- IF**—Being sole agents for the largest jewel factory in the world.
- IF**—Having customers in every State and Territory (only one excepted).
- IF**—Having the most complete Jewelry Findings Department.
- IF**—Having the best Mainspring in the market.
- IF**—Filling thousands of orders consecutively without one complaint.
- IF**—Accuracy and promptness in filling orders.

are worthy your consideration, then we have a claim on your patronage.

If you are not now one of our customers, we shall be happy to have you enter business relations with us, and continue only if you find us deserving your patronage.

Sole Agents
U. S. and Canada
For L^s E. Junod
Jewel Factories,
Switzerland.

Ezra F. Bowman & Co.,
Importers, Manufacturers and Jobbers
Watch Materials, Tools and Supplies.
Lancaster, Pa.

Engravers
and Repairers
for the Trade.

New Quarters

The increase in the volume of our business, as well as that of Ezra F. Bowman & Co. (with which firm we have occupied the old firm stand of Bowman & Musser, Nos. 20 & 22 E. Chestnut Street, since our organization, May 10th last), has been so marked that we found the old quarters insufficiently large to accommodate both companies any longer. We have therefore secured the entire ground floor of the large, new building, No. 36 E. Chestnut Street, where we will hereafter be found. We now have very commodious quarters, enabling us to greatly increase our facilities as well as our stock, and with experienced and well-trained help in all the departments we are in a better position to-day than ever before to meet the demands of our customers.

The Non-Retailing Company,
Successor to Bowman & Musser's
Watch, Chain and Spectacle Business,
Lancaster, Pa.

A small snowball constantly kept turning over and over will soon grow to enormous size.

Big Snowballs

Big Fortunes are made the same way. Small capital constantly turned over and over will soon multiply.

Do not let your capital lay idle in dead stock, sweeps, old gold and silver, etc., but send same to us **RIGHT AWAY** and get

Big Returns!

OUR PLAN

Immediately upon receipt of consignment, we will remit by cash or draft (as preferred). If our offer should prove unsatisfactory, we will return consignment intact and pay all charges. Make us a trial shipment in any quantity (small or large), and you will ship again.

MESSRS. GOLDSMITH BROS.:

DEAR SIR: We are in receipt of your esteemed favor of July 20, inclosing check as stated for \$3,288.65, which we have passed to your credit in account for sweepings, and for which please accept the thanks of
Yours truly,

GORHAM MFG. CO.
Per Racton.

PROVIDENCE, R. I.

GENTLEMEN: We are well pleased with all transactions we have had with you, and have always found your estimates on gold and silver to be accurate and full value. Yours respectfully,
M. C. EPPENSTEIN & CO.

CHICAGO, ILL.

GENTLEMEN: We have always found your valuations of old gold satisfactory. Yours,
LAPP & FLERSHEM.

CHICAGO, ILL.

GENTLEMEN: Our business relations have always been pleasant and satisfactory. Very truly yours,
H. F. HAHN & CO.

CHICAGO, ILL.

GENTLEMEN: Our business relations have always been very satisfactory. Yours truly,
M. A. MEAD & CO.

CHICAGO, ILL.

GENTLEMEN: We are well pleased with your estimates on old gold, and your prompt and satisfactory way of doing business. Yours truly,
SWARTCHILD & CO.

CHICAGO, ILL.

GENTLEMEN: Your dealings with us have always been satisfactory. Yours truly,
GILES, BRO. & CO.

CHICAGO, ILL.

GENTLEMEN: We have dealt with you for several years past and cheerfully endorse your reliability. Most respectfully,
ROBBINS & APPLETON,
R. A. Kettle, Agt.

CHICAGO, ILL.

GENTLEMEN: We are pleased to state that our dealings have been perfectly satisfactory. Yours respectfully,
STEIN & ELLBOGEN.

CHICAGO, ILL.

GOLDSMITH BROS.,

Gold, Silver and Platinum Refiners and Assayers,

**63 AND 65 WASHINGTON STREET,
CHICAGO, ILL.**

FREE.—Send for our BOOK giving pointers on preparing acids, testing and buying gold, etc. Mailed free on application.

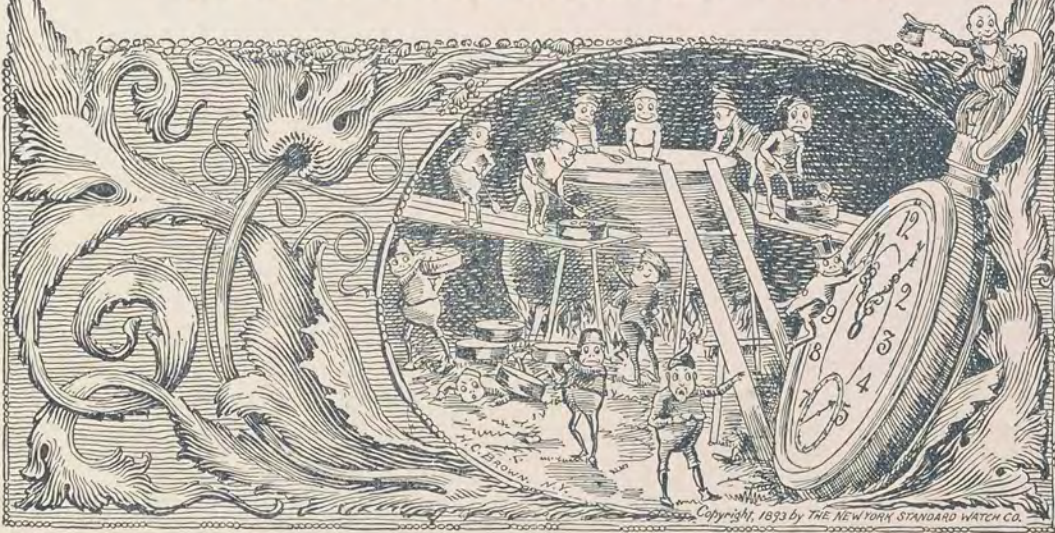
MENTION THE KEYSTONE.



A Time-ly Recipe.

Take ten parts each of Constructive Ability, Watch-making Skill and Managerial Capacity, five parts of Decorative Taste, a good many dollars' worth of Proper Advertising; add a pound of Hard Common Sense, a handful of Innovations and a pinch of Conservatism; stir slowly over the Fire of Determination; skim off Old Foggy Prices; sweeten to taste with Proper Trade Methods; start the music-box to the tune "America," paste on the kettle "The Best Watch in the World for the money," pour off into a little tin box, and label the product

The New York Standard Watch.



Copyright, 1893 by THE NEW YORK STANDARD WATCH CO.

SPECTACLE REPAIRING

We are selling twice as many *long-temple spectacles* as we are the usual length temple (old No. 179). *Three-fourths* of all the spectacles we now sell are *nickel-plated*. In riding bows, we sell our *French style* almost exclusively. The inference naturally follows that for *repairing Willson's Spectacles* you need more *long temples* than usual length, and in riding bows you want the *French style* (swings back all the way—no stop in the joint). *You want every style in nickel-plate.*

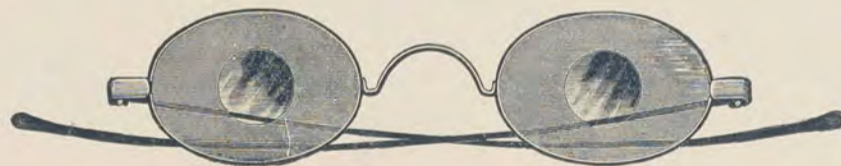
Don't repair a long-temple Willson spectacle with a short temple, or a nickel-plated spectacle with a blued-steel temple. Have you temples to repair the new style Willson's cheap spectacles? Over 1,000,000 pairs sold already. You will need the temples for repairing.

ASK YOUR JOBBER FOR

	Price Per Dozen Pairs.	
	Blue or Bronze.	Nickel-Plated.
Willson's long temples	\$.90	\$ 1.00
Willson's French style, riding-bow temples (no stop—swings open all the way)	1.75	2.00
Willson's No. 400 temples (for the new cheap spectacles)	.50	.60
Willson's usual No. 179 temples	.75	.85
Willson's usual riding-bow temples	1.75	2.00

Should your jobber not carry these grades, we will send post-paid on receipt of price. (We open no retail accounts. Cash must accompany orders.)

HAVE YOU TRIED "SCENERY SPECTACLES"?



Now made in *large-eye*, nickel-plated frame, well tempered, and sold by jobbers at \$1.25 per doz. One hundred fine lithographed circulars, gratis, with every dozen spectacles. It is one of the best-selling novelties to retail at 25 cents ever put on the market.

T. A. Willson & Co., Manufacturing Opticians, Reading, Pa.

On receipt of 25 cts. we will send post-paid a sample pair, each, of the first three patterns *nickel-plated* temples and a sample of our new large-eye, nickel-plated **Scenery Spectacles**.



AIRPOINT MANUFACTURING COMPANY

EDWARD D. MANDELL, PRESIDENT.
THOMAS A. TRIPP, TREASURER.

NEW BEDFORD,
MASS.



No. 054. BOOK MARK AND PAPER CUTTER.



No. 3814. PICTURE-FRAME.

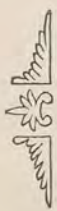


No. 3805. PICTURE-FRAME.



No. 328. TEA SET. SATIN ENGRAVED.

SALESROOMS



20 MAIDEN LANE, NEW YORK.
90 AND 92 WABASH AVENUE, CHICAGO, ILL.
220 SUTTER STREET, SAN FRANCISCO, CAL.

DON'T FORGET US

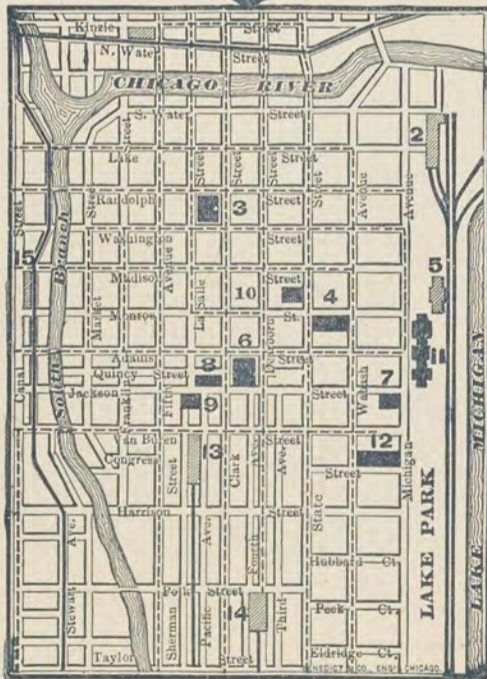
When you want a Trial-Set

When you visit the World's Fair, call in

When you have an Order to place

When you want Special Lenses

When you want a Special Frame



We carry a large stock of
**Optical Goods,
 Spectacles and
 Eye-Glasses**

of best manufactures, in great variety.

**Oculists' Prescriptions
 a Specialty.**

Something New in Trial-Sets

Write us for Special Price-List.
 Mention this KEYSTONE.

- | | |
|-------------------------|-----------------------------|
| 2. Ill. Central Depot. | 9. Board of Trade. |
| 3. Court House. | 10. Chambers, Inskeep & Co. |
| 4. Palmer House. | 11. Exposition Building. |
| 5. Balt. & Ohio Depot. | 12. Auditorium. |
| 6. Post Office. | 13. Rock Island Depot. |
| 7. Leland Hotel. | 14. C. & E. I. Depot. |
| 8. Grand Pacific Hotel. | 15. Union Depot. |

We believe that prompt and careful attention, with courteous treatment, is necessary to hold trade. Give a man what he wants, "if it lays in the pins," and don't think you know more about it than he does.

Chambers, Inskeep & Co.

Wholesale and Mfg. Opticians,
146 State St., Chicago.

THE BARBOUR SILVER CO.

HARTFORD, CONN.

MAKERS OF

≡ Silver Plate *and* Sterling Silver ≡

HOLLOW WARE ONLY.



No. 1007. Embossed Tea Set.

A COMPLETE SAMPLE LINE OF EVERYTHING WE MAKE
can be seen at our

CHICAGO SHOWROOMS:

122 Wabash Avenue.

KANSAS CITY, MO.

Edwards & Sloane Jewelry Co.

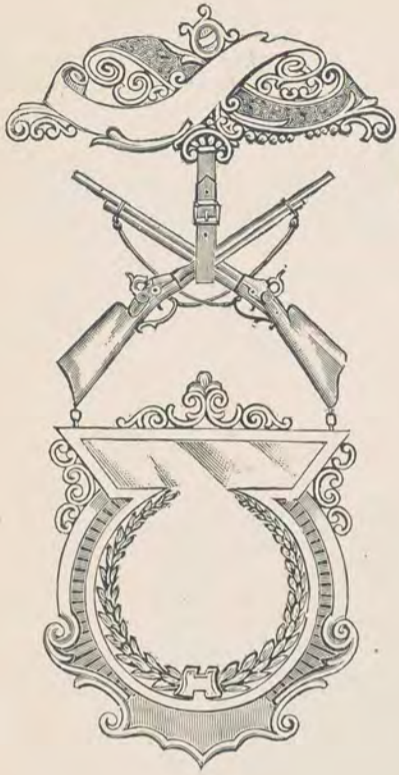
(Formerly S. D. Mills Jewelry Co.)

MANUFACTURING JEWELERS

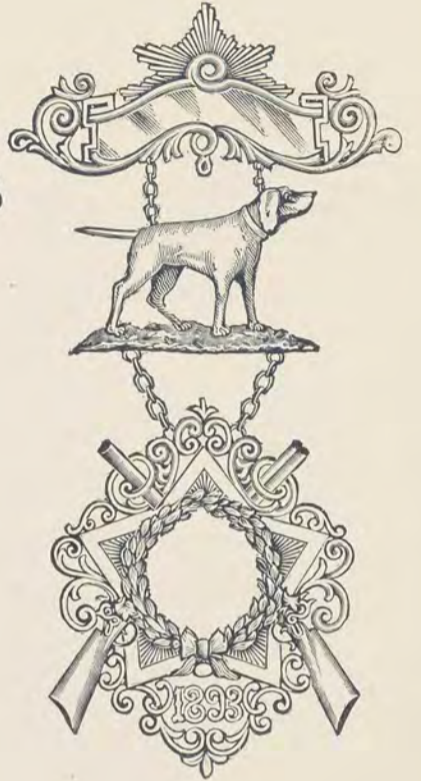
and Watchmakers for the Trade,

MANUFACTURE TO ORDER

Emblems



Badges



Medals



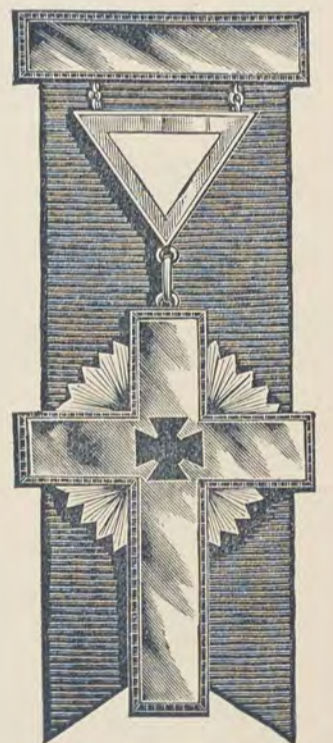
Designs and Estimates furnished to Jewelers only, on application.

Trade Repairing a Specialty.

EDWARDS & SLOANE JEWELRY CO.

(FORMERLY S. D. MILLS JEWELRY CO.)

613 Keith & Perry Building,
9th & Walnut Sts.



KANSAS CITY, MO.

Philadelphia Optical and Watch Co.

916 Chestnut St.

PHILADELPHIA.

917 Sansom St.

Keep our beautiful **Watch and Silverware Reference Book** on your counter, and show it as your own publication. Our name does not appear on any of its pages. **Use it as your own.**

Our Sales Departments.

Diamonds.

We carry a fine assortment, from Fifty Cents up to a Thousand Dollars apiece.

Gold Jewelry.

Scarf-Pins.
Lace-Pins.
Brooches.
Rings.
Earrings.
White Stone Goods.
Cuff-Buttons.
Collar-Buttons.
Onyx Goods.
Etc., etc., etc.

Watches.

Solid Gold Cases.
Gold Filled Cases.
Silver Cases.
Nickel Cases.
All kinds of Cases.
Elgin.
Waltham.
Standard.
Columbus.
Seth Thomas.
All kinds of Movements.

Silverware.

Pairpoint.
Reed & Barton.
Philadelphia Silver Co.
Barbour Bros.
Meriden Britannia Co.
Meriden Silver Co.
Wilcox Silver Co.
Towle.
Rogers & Bro.
All Other Standard Goods.

Optical.

Opera-Glasses.
Test-Cases.
Ophthalmoscopes.
All styles and kinds of Gold, Silver, Nickel and Steel Spectacles and Eye-Glasses, and our

Celebrated Specialty

Solid Gold Riding Bows at \$15.00 per dozen, set with First Quality Periscopic Convex Lenses.

Rx. Lens Grinding.

We guarantee absolutely perfect workmanship and prompt service.

Repairing

We wish to call your attention to our unrivaled facilities for the speedy and accurate repair of Watch Cases, Movements, Jewellery, Silverware and everything pertaining to the jewelry business.

Knowing how very necessary it is for the jeweler to receive his repair work promptly, and to have it finished for him in a workman-like manner, this department of our greatly increased business has been placed in the hands of a man of life-long experience, and he has surrounded himself with men who are thoroughly conversant with every part of their trade.

Send us a trial order or a package, and see for yourself how well you will be pleased with the quality of the work, and also with the prompt return. Make us up a big package of everything you have that needs repairing, and let us give you an estimate of what it will cost to put same in thorough order. If our estimate is not low enough, we will return package at once at our expense.

Give us a trial.

Our Shops.

Watch Case Shop.

We case all manner of odd-sized Movements and make old Cases look like new.

Jewelry Shop.

We do all manner of Jewelry Repairing, Diamond Mounting, etc., etc., etc.

Plain Gold Rings.

We pride ourselves on two things in this Department. First, on our prompt and accurate service. Second, on our absolute guarantee as to the quality of the goods being as represented.

Movement Repairing.

We guarantee perfect workmanship and prompt service—we will not accept a job unless allowed to put it in perfect order.

Optical Shop.

We employ only good workmen, and pride ourselves on our reputation for turning out perfect work.

Rx. Lens-Grinding Shop.

The largest in the country. When a lens leaves our establishment, it is known by the trade to be "perfect." We can offer no better recommendation to the skilled optician than that of turning out absolutely perfect work.

Plating Plant.

Send us your Silverware to be repaired and replated, always, of course, naming the price you wish to pay, so we will understand how much Silver to put on it. Satisfaction guaranteed.

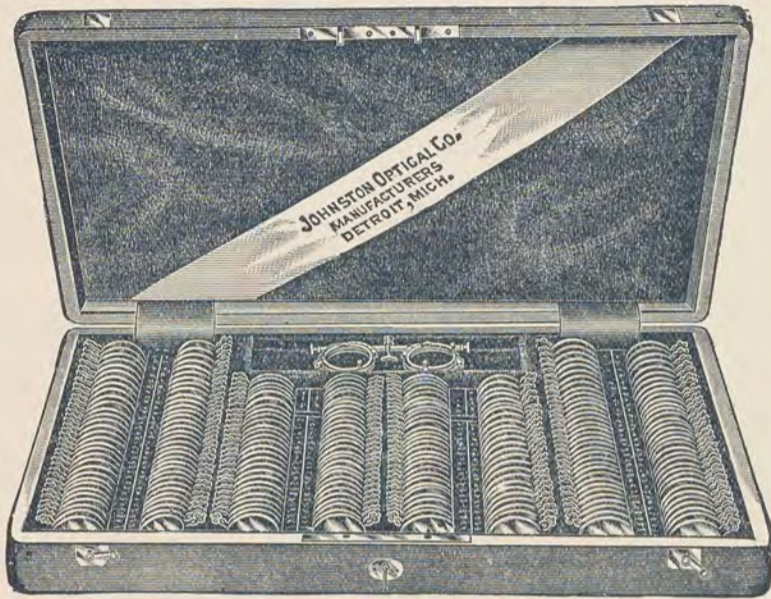
Old Gold and Silver

bought and absolute worth rendered. We furnish estimates on all packages sent us, and if price offered is not satisfactory we will prepay return charges, so you can lose nothing in sending same to us.

Have you got our 1893 Catalogue?

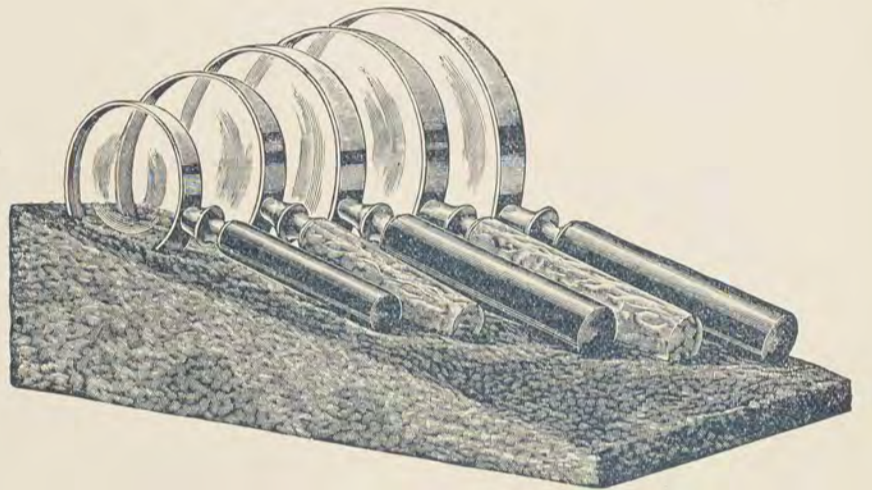
Johnston Optical Co.

Detroit, Mich.



Price, \$60.00.

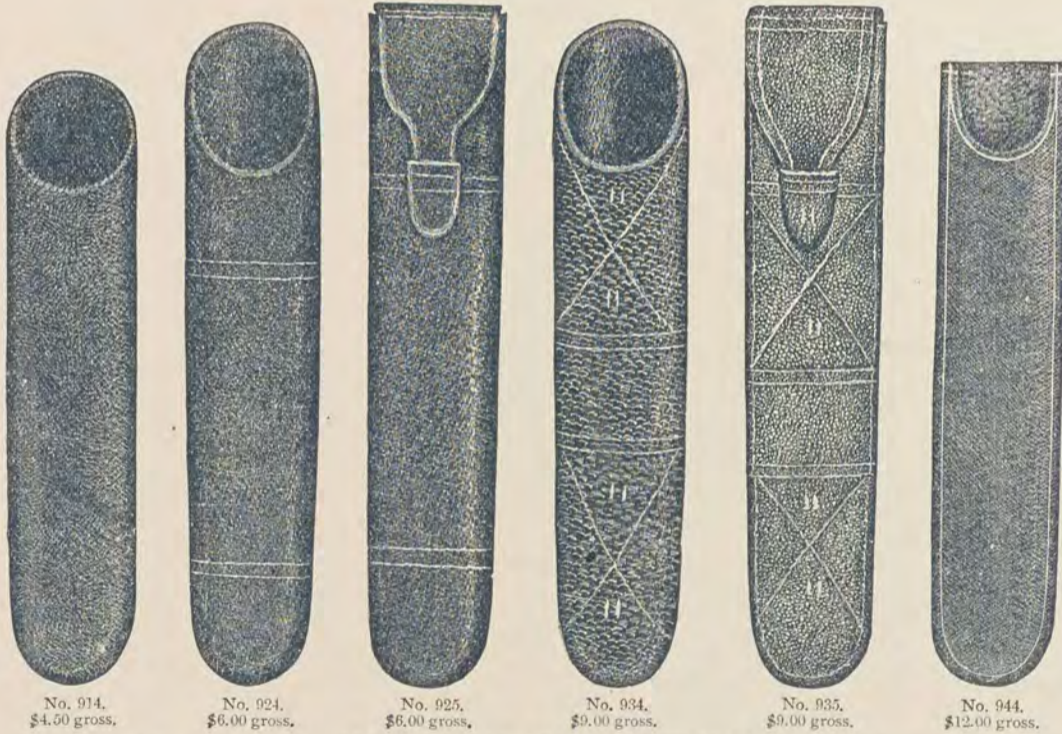
This **TRIAL-CASE** contains the following articles, with first-quality round lenses, mounted with metal rims: 34 pairs spherical convex lenses, from $\frac{1}{4}$ to 20 dioptics; 34 pairs spherical concave lenses, from $\frac{1}{4}$ to 20 dioptics; 22 pairs cylindrical convex lenses, from $\frac{1}{4}$ to 6 dioptics; 22 pairs cylindrical concave lenses, from $\frac{1}{4}$ to 6 dioptics; 10 prisms, from 1 to 10 degrees; 4 plano colored glasses; 2 Johnston patent pupillary disks; 1 plano white glass; 1 plano white glass, frosted; 1 plano white glass, half frosted; 1 rubber plate, solid; 1 rubber plate with hole in center; 1 rubber plate with stenopic slit; 1 No. 1307 Johnston's patent trial-frame, graduated—it registers pupillary distance, width and height of nose, and how far out or in the bridge should be set; 1 of Snellen's test-types and astigmatic diagrams; 1 trial-box, silk-plush lined and genuine morocco-covered. The box is numbered in both dioptic and inch systems.



We illustrate above a **PLUSH STAND**, which holds five **READING-GLASSES**, one of each size from two to four inches. We sell these stands for 75 cents each; but to customers purchasing one of each size readers we will make a present of the stand. The five reading-glasses in nickel-plate will cost \$5.00, and in gold finish \$7.85; three nickel and two gilt, \$6.10.



No. 1954. French Kid. \$8.50 gross.

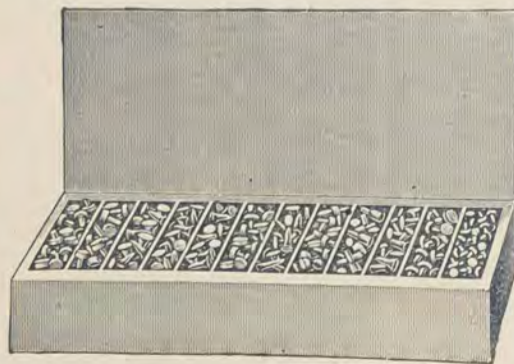


No. 914, \$4.50 gross. No. 924, \$6.00 gross. No. 925, \$6.00 gross. No. 934, \$9.00 gross. No. 935, \$9.00 gross. No. 944, \$12.00 gross.

We illustrate above only a few styles of **LEATHER AND MOROCCO SPECTACLE-CASES** which we manufacture. We make over sixty styles of Chatelaine Cases alone. Having had a good many years' experience in manufacturing cases, with our improved machinery in that department, we are enabled to make a superior quality at a low figure. For other styles see our 1893 Catalogue.



The **STANDART LENS-GRINDER**, illustrated above, is the best friend of the jeweler and optician. It will grind faster than any other glass-grinder in the market, and leave a smooth surface at the same time. There is also a wooden wheel attached to it for the purpose of putting a mirror finish on the lens or watch-crystal if desired. Price, \$1.50 each.



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Six hundred testimonials from men you know. Average break, one in thirty-six; average set, not one in a carload. Exquisitely finished. In every size, every grade, and for every make. In the colors used by the watch companies. Price, **\$1.25 per dozen; \$15.00 per gross.** Sample dozen sent on application; and if not approved of, money returned and no charge made for those used.

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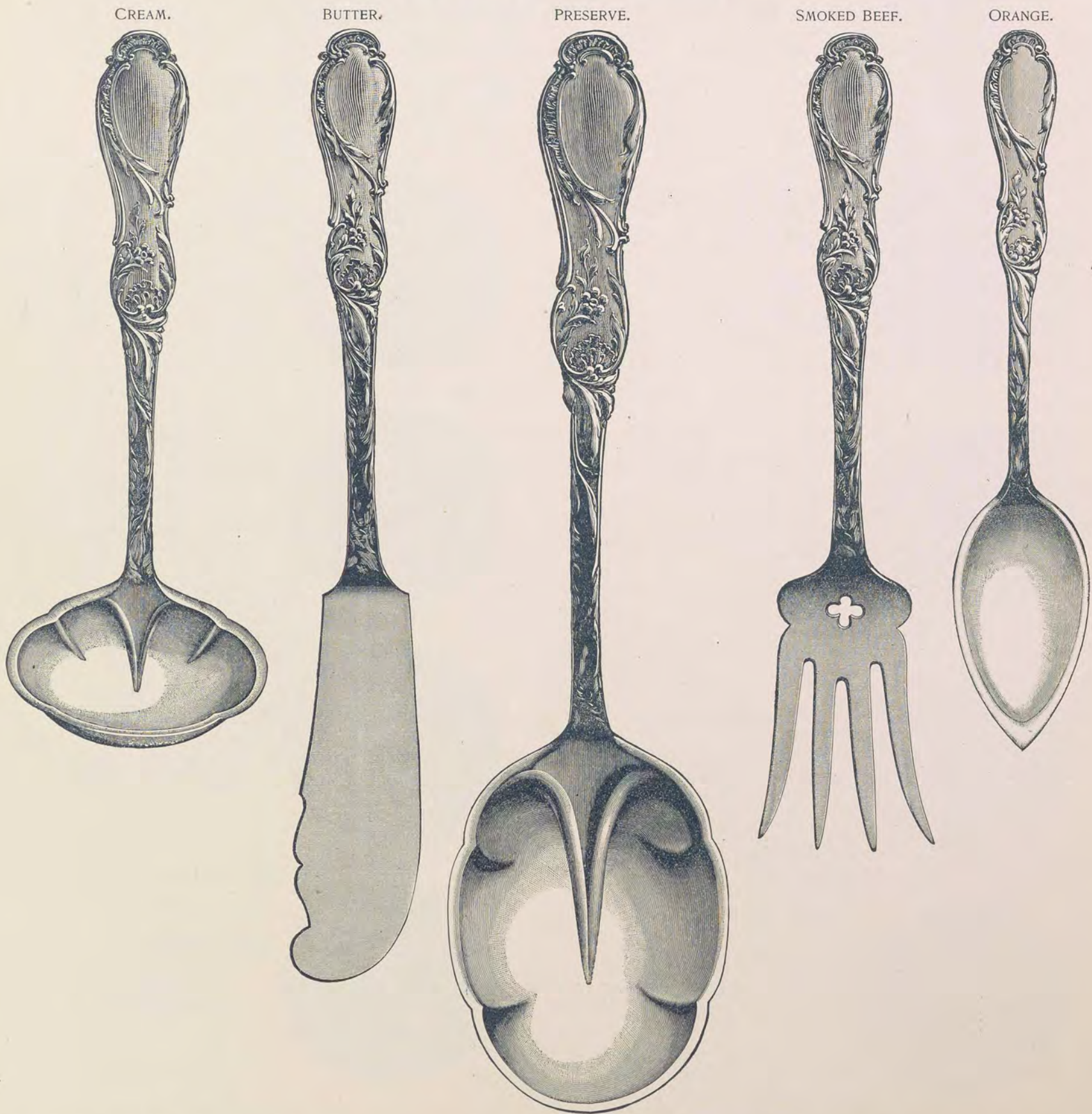
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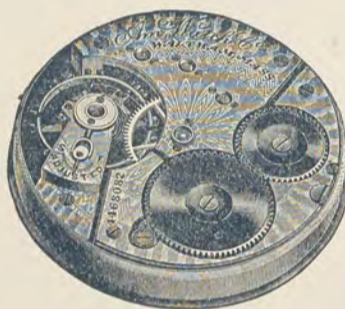
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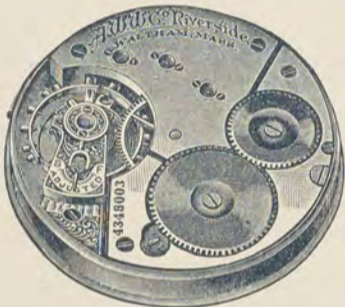
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16 Fine Ruby Jewels in Gold Settings; Exposed Pallets; Patent Regulator; Compensation Balance, Adjusted to Temperature, Isochronism and Position; Patent Breguet Hairspring, Hardened and Tempered in Form.



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15 Jewels in Settings; Exposed Pallets; Patent Regulator; Compensation Balance, Adjusted to Temperature, Isochronism and Position; Patent Breguet Hairspring, Hardened and Tempered in Form.



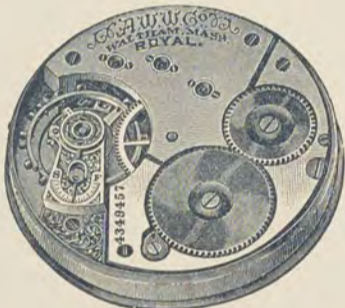
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THE KEYSTONE

VOLUME XIV.

PHILADELPHIA, FEBRUARY, 1893.

NUMBER 2

THE KEYSTONE

A MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF THE RETAIL JEWELRY TRADE.

S. H. STEELE, PUBLISHER.

Subscription—One Dollar per year, postpaid, to all parts of the United States and Canada. \$2.50 to Foreign Countries.

Payment for THE KEYSTONE, when sent by mail, should be made by a Post-Office Money Order, Bank Check, or Draft, or an Express Money Order. When neither of these can be procured, send the money in a Registered Letter. **All Remittances should be made payable to THE KEYSTONE.**

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To Advertisers—Copy for advertisements must reach us by the 1st of each month to insure insertion in the following issue. Notices of changes in advertisements should reach us not later than the 25th of the previous month.

Correspondence—We invite correspondence on all matters of interest to the trade. Correspondents must invariably give their name and address. We do not, however, hold ourselves responsible for the opinions of our correspondents.

All communications should be addressed to

THE KEYSTONE,
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PHILADELPHIA, PA.

CHICAGO OFFICE, 104 STATE ST.
NEW YORK OFFICE, 178 BROADWAY.

Index to Advertisers on page 191.

CONTENTS.

	Page
ANNUAL BANQUET OF NEW YORK JEWELERS' BOARD OF TRADE,	140
DANVILLE, ILL.,	156, 157
EDITORIAL:	
Current Events,	113, 114, 115
Woman in the Jewelry Vocation, Money, etc.,	117, 119
HERE AND THERE IN THE TRADE,	168
HISTORY OF WATCHMAKING IN AMERICA,	120
NEWS LETTERS:	
Attleboro,	125
Chicago,	139
Cincinnati,	128
Cleveland, Denver, St. Louis,	168, 7
New York,	152
News and Gossip from the Great West,	142
Providence,	164
Pittsburg,	142
OPTICAL DEPARTMENT:	
Manual,	148
Questions and Answers,	171
POINTS ABOUT TRAVELING MEN,	123
TECHNICAL ARTICLES:	
American Lathes and Their Attachments,	125
Arts Allied to the Jewelry Trade,	155
Clocks,	164
Jack-Knives,	159
The Detached Lever Escapement,	145
Watchmakers' Tools, and How to Use Them,	140
Workshop Notes,	163, 167
TRADE TOPICS,	127
TWEEZER'S TALKS, JOHN,	161
WORLD'S FAIR, THE	132



On the 25th of February the Inman Steamship Line under that name will go out of existence, and the magnificent ocean grayhound, the *City of New York*, will glide out of the metropolitan harbor proudly flying the Stars and Stripes. The *City of Paris* will follow suit at a later

date, and thus auspiciously will begin the re-establishment of the once mighty, but now nearly defunct, American merchant marine. As the new ships will, of course, be largely patronized by European-going Americans, we may mention that they will sail direct to Southampton, instead of to Queenstown and Liverpool as heretofore. At Southampton the arriving passengers will find a special train ready to receive them, and in one hour and forty-five minutes the voyagers will be enabled to dine on the European plan in the big city on the Thames.

The new American line will be a branch of the International Navigation Company, and will add five new steamships of domestic build within a year or two. This quintet, two of which will be larger than the *City of New York* or the *City of Paris*, will be constructed in this city, and when finished the new line will run twin-screw steamships biweekly from New York—one direct to Southampton, the other to Antwerp *via* Southampton and Boulogne. This arrangement will give a passenger service unequalled for convenience by any at present in existence.

FRANCE has braved the grave crisis precipitated by the Panama disclosures, and all danger to the established republican form of government has now disappeared. The prosecution, however, goes on, and true bills have been found by the examining magistrate against a number of Senators, Deputies, ex-Deputies and others, including the veteran constructor of the Suez canal, Ferdinand de Lesseps, and his son, Charles. A true bill supposes, of course, only *prima facie* evidence of guilt, and by no means implies certain conviction. The charge, as formulated by the magistrate, is the simple one of bribetaking and giving. Public indignation seems to have already spent itself, and by the time the trial comes on the distinguished culprits, notwithstanding the proverbial probity of the French judiciary, may rely on being treated with undeserved leniency.

THE ninth annual meeting of the National Association of Jobbers in American Watches was held in the banquet hall of the Café Savarin, in the Equitable Building, New York, on January 17th and 18th. President Hahn occupied the chair and delivered a brief address introductory to the business of the meeting. There was a good attendance, every section of the country being represented. Members whose absence was unavoidable were represented by proxy. A conference committee consisting of M. J. Lissauer, of Lissauer & Co., New York, chairman; N. H. White, of N. H. White & Co., New York; E. S. Smith, of Smith & Knapp, New York; L. W. Flershem, of Lapp & Flershem, Chicago, Ill.; Benj. Allen, of Benj. Allen & Co., Chicago, Ill.; Otto Heeren, of Heeren Brothers & Co., Pittsburg, Pa.; H. O. Hurlburt, of H. O. Hurlburt & Sons, Philadelphia, Pa.; A. G. Schwab, of A. G. Schwab & Bro., Cincinnati, Ohio; and the president *ex officio*, after conferring with the manufacturers, who co-operated during the past year, reported that the manufacturers had agreed to again co-operate on a basis as embodied in the proposition made by the Jobbers' Association.

After the transaction of miscellaneous business, the election of officers was proceeded with. Mr. Herman F. Hahn, the president, declined a renomination, but finally yielded to the entreaties of the members, who emphasized his peculiar suitability for the position, and was unanimously elected. Mr. Hahn has always taken a deep interest in the Association since its inception. He was the permanent chairman of the national convention held in New York in March, 1885, when the present Association was organized. He was vice-president for three years, and president for five years, being re-elected for the sixth time at the last meeting. Mr. Hahn is senior member of the firm of H. F. Hahn & Co., Chicago, whose business was established in January, 1873, and which is now well and favorably known as one of the leading jobbing houses of the United States.

Mr. M. J. Lissauer was unanimously re-elected vice-president, and the members of the executive committee were also re-elected. Mr. J. H. Noyes continues to be secretary and treasurer,



H. F. Hahn.

It is with pleasure we announce to our subscribers that we have completed arrangements whereby we shall be enabled henceforth to publish our paper on the first of each month. We beg, in this connection, to extend our thanks to our advertising patrons, whose kind consideration made it possible for us to change the date of publication (a journalistic feat of much difficulty) with a minimum of inconvenience to all concerned.



James G. Blaine.

OF all the prominent men who constituted the historic January harvest of the Dread Reaper, by far the most illustrious was James Gillespie Blaine, the greatest and most brilliant of American contemporary statesmen. For twenty years he has been the bright particular star of our political firmament; the leader and idol of his party; the pride and hope of the nation. Three times during that period he held the honored position of Speaker of the House of Representatives. He was a Senator of the United States, the Premier of two administrations, and once the nominee of his party for President. His patriotism was undiluted, and only equaled by his ability to uphold it with honor to himself and credit to his country. The most magnificently representative of Americans, his career of achievement, however sad and disappointing its ending, entitles him to the lasting gratitude and honor of the nation. Perhaps the most remarkable trait in his character was that powerful and peculiar something in his personality which, for want of a more expressive name, his friends were pleased to call "magnetism." He was eminently democratic and social, had a warm heart, a friendly temperament, an elevated purpose, and a cordial and delightful manner. At times impulsive and imprudent, his genius generally triumphed in the end, and he had no regrets for the scars that marked the conflict. His pathetic peroration to his eulogy of Garfield no doubt occurred to many, as it did to us, as being singularly applicable to himself during his recent long and harrowing struggle with the dread tyrant. "With wan, fevered face, he looked out wistfully on the red clouds of evening arching low to the horizon; on the serene and shining pathway of the stars. Let us think that his dying eyes read a mystic meaning which only the rapt and parting soul may know. Let us believe that in the silence of the receding world he heard the great waves breaking on the further shore, and felt already upon his brow the breath of the eternal morning." A truly great man has passed away, and a sorrowing nation mourns its irreparable loss.

THE British Parliament has again met in session, and the veteran Premier, William E. Gladstone, has inaugurated one of the greatest party battles that history will record. Home rule for Ireland and manhood suffrage for the British Isles form a programme well worthy of his genius and his mettle. There is something peculiarly touching in the spectacle of this sturdy champion of right undertaking, in his eighty-fourth year, one of the most sweeping constitutional reforms that has ever fallen to the lot of any statesman. Neither has he entered on the conflict with a debilitated constitution or decayed intellect. On the contrary, he enjoys a physical and mental preservation that is extraordinary, if not unique, and has already oratorically thrown down the gauntlet with a vigor, an intellectual clearness and a personal prowess that have dazzled admirers, inspired followers, and put fear in the hearts of the opposing forces. What the result will be is doubtful. If a just cause, limitless pluck, towering genius and energetic and skilled leadership always insured success, yet another laurel wreath would crown the hoary locks of the veteran statesman.

THE admission of new States into the Union is again being agitated in Washington, and it seems probable that a few additional stars will ornament our national flag in the early future. It is even reported that a caucus of Republican Senators recently pledged the Senatorial advocacy of their party to the admission of New Mexico, Utah and Oklahoma. Arizona is omitted from this calculation, seemingly for political reasons only, as that Territory is now better qualified for Statehood than was Wyoming when admitted to the dignity some time ago.

In connection with the proposed admission of Territories into the Union, it is worthy of mention that President Harrison recently issued a proclamation extending conditional amnesty to that class of Mormon citizens who were liable to prosecution for polygamy. As this latter practice, and this alone, hitherto disqualified Utah for admission to Statehood, the amnesty proclamation is significant as a proof that the Mormons are, at last, willing to adopt the American basis of civilization and to work in harmony with their gentile fellow-citizens in developing the resources and promoting the welfare of the Territory. Utah has now a moral as well as a material right to Statehood, and there seems no longer any tangible reason for refusing the inhabitants the blessings of our glorious constitution.

THE indiscreet queen of the pigmy kingdom, Hawaii, has been deposed by a bloodless revolution; a provisional government has been established by the revolutionists, and a delegation of Hawaiians has arrived in Washington charged with a petition to our government to annex the islands to the United States. This country has no desire to annex, either by force or intrigue, outside territory; but there are other reasons besides gallantry which should influence Uncle Sam to accept the slightly post-leap year proposal of the little Pacific maiden. The Sandwich Islands are the key to the commerce of the Pacific, and equally important to England and the United States—to the former, because they are the most important station between the western terminus of the Canadian Pacific and Australia and India; to the latter, because they are the natural outpost in the Pacific of America's system of national defense, a very desirable station for our war-ships, and a valuable refuge for our merchant marine. It is an open secret that the dread of friction with this country alone prevented the British from long since hoisting the Union Jack on the flagstaff of Queen Liliwokalani's palace. Uncle Sam is not shivering in his boots with fear, but he is decidedly averse to having any more Bermudas planted around our coasts. The population of the Hawaiian group is less than 100,000, and their trade is nearly altogether with the United States. If they insist on it, why should we not have them?

THE sixteenth annual meeting of the Jewelers' League, a flourishing fraternal life insurance institution, with an executive that can boast of some of the best talent in the trade, was held in New York last month. The report of the executive committee revealed the fact that the League is one of the most solid mutual associations in existence, and well worthy of the liberal support now given to it. It differs widely from a life insurance company in the accepted commercial sense of the latter. As stated in the report, "the League is no life insurance company, which, in order to be able to meet its losses, and for the

sake of making profits out of insurance, has to collect at certain periods certain premiums, much higher than the League can ever cost. The League is a fraternal association in which every member agrees to pay a certain amount, according to his age, toward the support of a deceased member's family, whenever a member dies. The basis of this insurance is not a speculative one, like that of a life insurance company, and its business is done at as near cost price as it can be accomplished."

The officers for the present year are as follows: Henry Hayes, president; James P. Snow, of Snow & Westcott, John R. Greason, of J. R. Greason & Co., Joseph B. Bowden, of J. B. Bowden & Co., and George R. Howe, of Carter, Sloan & Co., vice-presidents; and William L. Sexton, of Sexton Bros. & Washburn, secretary and treasurer.

IN the death of Benjamin F. Butler public life loses one of its most remarkable and interesting personages. The unique and, in many respects, contradictory character of the deceased



Benjamin F. Butler.

stands in the way of arriving at a just estimate of his greatness, and it is thus easy to account for the diverging views of the biographers who have been trying to assign him to his proper niche in the temple of fame. Apart, however, from the towering intellect of the eminent soldier-lawyer, his forceful and persevering combativeness seems to have been his most distinguishing characteristic. This was the sustaining, if not the motive, power in his rapid ascent to legal, military and political eminence, and his great talent enabled him to utilize it with singular effectiveness both in the courtroom and on the battlefield. In the former he was thorough to the point of being aggressive, and in the latter he was aggressive to the point of desperation. Gifted though he was to an abnormal degree with legal acumen and subtlety, it was, nevertheless, this irrepressible and never quiescent force of character that made him a legal luminary, while others with equal gifts and less pluck were still satisfied with being commonplace legal quibblers. Without remarkable soldierly qualification other than an ironclad purpose and a bravery that was reckless, this same force, despite some egregious military blunders, made him a general, a conqueror and a hero.

In politics he was wonderfully clever and versatile, though notoriously erratic. In this field laxity of political principle, whether founded on ambition or evolving conviction, gave his legal cunning and powerful intellect full sway. He was a seemingly ardent Republican, Greenbacker and Democrat in turn, and in each he shone at times with his wonted flash-like brilliancy. His career was cast in an eventful period, and one who played so prominent a part in the historic drama could not fail to make bitter enemies as well as fast friends. His rigorous exactitude and thoroughness often gave offense, but, to his credit be it told, they as often served some good purpose. Whatever differences of opinion may exist as to his relative greatness, all have generously paid post-mortem tribute to his uniquely interesting character, blunt earnestness and powerful personality.

THE unreasonable filibustering that is delaying, to the point of aggravation, the passage of the Torrey bankruptcy bill, gives peculiar emphasis to a recent speech of the Hon. Michael D. Harter, of Ohio, delivered before the Business Men's Democratic Association of Springfield. In the course of his oration Mr. Harter said: "As the great proportion of the membership of Congress is composed of men from the professions, what can business men expect from such a body in the way of legislation on business questions?" The Congress of the United States is certainly the most be-lawyered legislative assembly in the world. The fitness of experienced lawyers to make laws is unquestionable, but their unfitness to deal squarely with purely business legislation is baldly revealed in the checkered career of the Torrey bill. There is no doubt that the presence in Congress of practical business men, familiar with the needs and wishes of the business world, is eminently desirable, and, now that politics and business are so intimately related, we might almost say necessary. The Torrey bill affords a much-needed remedy for a fatal financial disease, and the political considerations that are delaying its passage are unpatriotic to an almost criminal degree. When there is a political axe to grind, nothing seems sacred to the professional politician.



Ex-President Hayes.

THE remarkable fatality among eminent public men during January has given that frigid month a historic significance. Among the prominent individuals called away have been ex-President Rutherford B. Hayes, ex-Secretary of State James G. Blaine, General Benj. F. Butler, Senator Kenna, Bishop Brooks, Justice L. Q. C. Lamar, ex-Postmaster General Judge Campbell, and several others of widespread if not national fame. Among the most noted of these, if not by reason of his personality, at all events by reason of his former position and the events connected with his election thereto, was Rutherford B. Hayes. There was a time when the fate that called Hayes to the presidency might justly have been called cruel; but time mellows all things, and many of the party then most earnest in his vilification lived to acknowledge the injustice of their malevolence and to recognize in the deceased President the scapegoat of a situation of their own making. Though not a Jackson, a Lincoln or a Grant, his administration was eminently creditable to him, and characterized by the utmost cleanliness, capability and patriotism. The accidental target of more abuse and partisan malice than Washington himself, he bore it with a patient manliness equal to that of the great General, and the olive-branch semi-officially laid on his grave by his personal friend, the President-elect, was a final reparation well worthy of the American character and spirit of justice. His private life was conspicuous for its purity, gentleness and benevolence; and history will speak well of all his public acts, whether as representative in Congress, Governor of his native State, a soldier on the field of battle, or President of this great Republic.

THE ninth annual meeting of the American Watch Case Manufacturers' Association was held last month in the office of Secretary and Commissioner James H. Noyes, in the Corbin Building, 11 John Street, New York. The following officers for 1893 were unanimously elected: president, Howard L. Roberts, of the Keystone Watch Case Company; vice-president, A. M. Crommelin, of the Crescent Watch Case Company; treasurer, George E. Fahys, of Joseph Fahys & Co.

Now that there is a pretty general consensus of opinion as to the advisability of restricting immigration, the advocates of restrictive legislation are puzzled as to the best means of differentiating between desirable and undesirable immigrants. That this is a task of very great difficulty is shown by a recent investigation of the books at Ellis Island. The records put the number of arriving immigrants last year at 374,741, and although a majority registered as common laborers, a very large minority gave their occupations as skilled mechanics, miners and farming men. The number who registered as devotees of higher arts, however, and who form an eminently desirable addition to our population, is somewhat remarkable. There were 660 musicians (not organ-grinders), 909 florists and gardeners, 72 architects, 431 professional cooks, and no less than 848 barbers. The wholesale restriction that would prevent the arrival on our shores of highly skilled talent in these higher branches would be simply legislative folly, and justifiable, from a patriotic point of view, only under the most critical circumstances. A consular certificate at the port of departure seems, after all, to be the only method at the same time feasible and just to the country.

THE first national convention of the American League for Good Roads was recently held in Washington, and its heterogeneous composition was the most conclusive proof yet afforded of the unanimity of feeling as to the absolute necessity that exists in this country for better roadways. Almost every State in the Union was represented, and in each case the representatives were intelligent, matter-of-fact, practical reformers. State and county leagues, commercial bodies, agricultural organizations, railroad companies, wheelmen's societies, and even college associations sent delegates, all of whom joined efforts for a common cause, and an eminently patriotic one. The Farmers' Alliance man rubbed shoulders with the delegate from the New York Chamber of Commerce, and the granger and board-of-trader were found for once in friendly unison. "Good roads" is a platform on which every man can stand, and the willingness of all organizations, even those supposed to be antagonistic, to take their places thereon is a sure sign of the early fruition of this vigorous agitation.

The individual States are up and doing, and even the laggards are now getting in line. Minnesota has taken a leading part in the reform, and a newspaper forwarded us by W. M. Stone, a Minneapolis subscriber, who commends the interest we have taken in good roads, contains the report of a State convention called together to take definite action in the matter. The cause is just now progressing at a rate that promises much for good road-making during the coming dry season, when we expect the talk to materialize into action.

IN the death of Clemens Hellebush, the well-known and highly respected Cincinnati jobber, the jewelry trade has lost one of its most prominent and successful members.



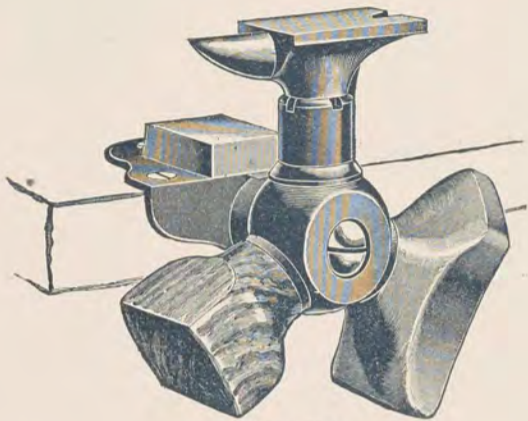
Clemens Hellebush.

The life of the deceased furnishes yet another instance of the great possibilities of individual effort, and his noble example is yet another beacon-light in the thorny pathway of the struggling beginner. Clemens Hellebush was born in Boeninghouse, Germany, in 1833, and had the advantage, while still in his native land, of receiving a liberal education from his father, who was a professor in one of the schools. When only fifteen years old he pluckily crossed the Atlantic, and, at once entered upon the career that was destined to bring him wealth and happiness in the great land of his adoption. A craving for mercantile life had early taken possession of him, and when an opening was furnished him by a clerkship vacancy in a Cincinnati dry goods house, he eagerly grasped at the opportunity. When only eighteen years old his connection with the jewelry trade began, and his subsequent history is a series of business triumphs that were not the mere accidents of an auspicious fate, but rather the well-earned reward of industry, perseverance and well-directed business capability. When he started in business for himself in 1866, his friends were already numerous, and their generous support was cordially extended to him. His first opening on his own account was at the corner of Pearl and Main Streets, in the year mentioned; but the expansion in his business necessitated, in the course of time, larger quarters, and in 1877 he removed to the present location, where larger space and greater facilities permitted the desired increase in his stock and force. His subsequent career is too well known to the trade to need recapitulation. He was a business man of the most rigid integrity, and upright in all his dealings. He took an active interest in all movements calculated to benefit the trade, and belonged to a number of organizations having this object in view. He was prominent in church matters, and remarkable for unostentatious charity. The chords of his sympathetic heart never failed to vibrate to the appeals of the needy or afflicted, a fact well attested by the many letters of grateful condolence received since his death from persons who are entire strangers to the family. A loving husband, indulgent father and sincere friend, Cincinnati has lost in Clemens Hellebush a typical citizen, and the jewelry trade a most worthy member. To his bereaved wife and family THE KEYSTONE extends heartfelt sympathy.

RALPH SPENCE HAMILTON, of the well-known manufacturing firm of Hamilton & Hamilton, Jr., Providence, R. I., died on January 31st, at the residence of his son Ralph. The deceased was born in St. Louis, Mo., and was sixty-four years old. He first began the manufacture of jewelry in New York City, and subsequently removed to Attleboro. In 1870, he located in Providence, and formed the firm of Hamilton & Hunt. Later Mr. Hunt withdrew from the business, and in 1886 the present successful firm of Hamilton & Hamilton, Jr., was formed.

SWARTCHILD & CO.

Masonic Temple, Chicago, Ill.



No. 3422.

Melotte's Revolving Combination Bench-Block.

Patented September 13, 1892.

Anvil and two blocks combined in one—steel anvil, one rubber and one wood filing-bed. These blocks can readily be turned to any position. The three-armed hub is revolved by pulling out slightly, and is automatically held perfectly firm and solid in any of the three positions. Those having them in use pronounce them the most complete anvil and filing-block ever used.

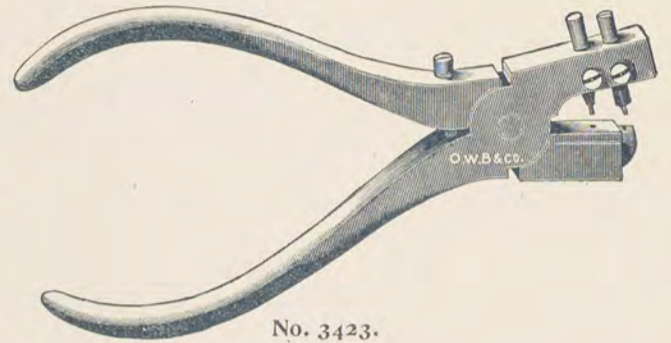
Price, complete, \$3.00.



Jules Robert's Celebrated Mainsprings.

Now is the proper time to test the quality of a good spring; and having had the exclusive agency for this make in the United States for the last two years, we warrant this spring to be superior to any other spring in the market. Every one is guaranteed. We handle them for all the leading American watches. Each spring has our name on the end.

Price per dozen, \$1.50. Per gross, \$15.00.



No. 3423.

New Style Mainspring and Barrel-Hook Punch.

The best and cheapest punch out.

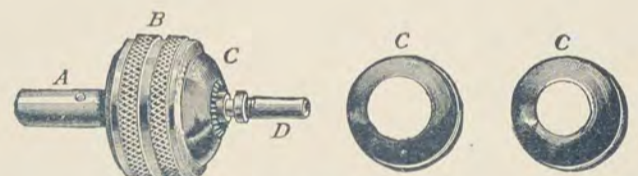
Price, plain, 85 cents. Nickel-plated, \$1.10.



Magic Jewelry Wash.

For cleaning all kinds of Diamonds, Foil-Backs and Jewelry. Put up in glass bottle, with wooden case over it to prevent breakage. Full directions with each package.

Price, 25 cents. Per dozen, \$2.50.



Mills Pat. Jan. 19th, 1892.

No. 3425.

Mills' Patent Watch-Crown Holder and Graver.

The simplest and easiest crown-chuck made. Will fit any American lathe with a No. 50 wire-chuck.

Price for Crown-Holder, \$3.00. With Graver, \$3.50.

Notice.—Parties not having received our new 1893 and 1894 645-page Catalogue will please advise us of same, and we will forward one to them, as this is the most complete catalogue ever issued.

SWARTCHILD & CO.

Masonic Temple, Fifth Floor, Chicago, Ill.

Woman in the Jewelry Vocation.

It is a noticeable fact that woman is pushing her way steadily into the avenues of trade heretofore dominated by men; that she is gradually finding other vocations for the exercise of her merchandising skill than those conventional asylums of decayed fortune, the millinery store and the candy shop. The greatest department store in Europe—the "Bon Marché" of Paris—for a long time was managed in person by the widow of the founder; the greatest enterprise in South America is personally conducted by the enormously wealthy woman who has developed a system of ranches, mines and steamship lines into an immense property; the widow Cliquot was actively employed in the expansion of the wine business bearing her name as its brand; and instances are numerous in the United States where woman's hand has held the helm, and her voice has directed the course of noble ships upon the sea of trade.

The jeweler's vocation presents special attractions to feminine enterprise. The materials of its trade appeal strongly to her fine taste and discriminating judgment; and when the merits of a beautiful piece of jewelry are exploited by lovely woman herself, the customer has his appreciation magnified by observation from a new point of view. The record shows that she is taking advantage of the favorable conditions presented by this avocation. In every State the commercial traveler meets with an increasing number of female jewelry merchants, and a consensus of opinion would establish the fact that she performs her functions right worthily. It is, of course, true that a considerable number of "Mrs." in the Trade Directory are only transparent shields behind which hide insolvent husbands; but it is also true that the feminine ownership is not always a subterfuge.

A most gratifying collateral fact is the number of women who are serving apprenticeships at the bench. There is no reason why she should not attain the highest degree of skill in the watchmaker's deft handiwork. She certainly has great delicacy of touch by nature; she is generally patient; and while it is likely true that she is at present ignorant of her possession of that taste for mechanics which often comes of environment and inheritance, her descendants will increasingly manifest the qualities of the true mechanic.

Nor are the counting-room and watchmaker's bench the only fields, within the jeweler's vocation, where she might profitably exercise her talents. The *Illustrated American*, in a recent issue, points out a new direction for her activities. It says:

"It is strange enough that a woman casting about in her mind for some congenial avocation in which to engage, has not found her way into the jeweler's workshop, where men, so far, quite monopolize the dainty industry of cutting and polishing stones, setting, and designing. Curiously enough, encroaching femininity has, so far, cast no envious eye on this well-paid, steady, most interesting, and dignified calling. At a glance one can appreciate that its requirements are many and severe. A long, careful course of apprenticeship in order to gain the mechanical skill, an artistic sense to guide, a firm and delicate hand to execute, are some of the elements necessary to success as a worker in precious stones and metals. Yet many women endowed with just such qualities throw away their cleverness on fancy work, and exhaust their eyesight over a needle, when, as designers of jewel patterns, they could earn sixty and eighty dollars a week, or, as lapidaries, a good fixed salary might be secured."

There is a general tendency in all civilized countries, and especially in this Republic, to fix the status of woman on a higher plane, with respect to the opportunities for success in independent efforts for her material welfare. Humanitarians of all degree, not confined to the isms which distinguish fanatics, unite in a demand that

she should not be discriminated against in any of the many fields now exclusively dominated by her brother man. In this larger prospect of her privileges loom prominently the advantages which especially favor her in the jeweler's vocation; and we shall be happy to welcome her in increasing number to the fold.

"Festina Lente."

A very old man (and presumably a very wise one) once suggested to an ambitious youngster, who was endeavoring to devour all of the tree of knowledge—root, bark, leaf and fruit—at one gulp, this sententious Latin counsel: "*Festina lente*"—which, translated into United States, means literally, "Hasten slowly." And there is a world of wisdom in the brief direction.

It is especially appropriate for the consideration of bustling young America. Our grandfathers lived up to the injunction; deliberated long and thoughtfully, acted cautiously and slowly, and were content with belated fruition of their projects. For this reason, and because of the collateral conditions involved in these slow-moving ways, they builded business structures of such ponderous and stable character as to have inspired the designation of "solid old houses."

But they have disappeared from the scene of action, accompanied by the lumbering stage-coach, the slow post, and all the crude methods of dispatch and exchange which characterized their times. In their places, to-day, stand the nifty and nervous business men of the later dispensation, whose only apparent object appears to be to do the most possible in the least possible time; to make the most money, or acquire the most learning, or achieve the most fame, in the fewest minutes that can be spared out of the flying hours. Behind and beside and before them rattle the printing press, the locomotive engine, the electric telegraph, each urging the human creature to emulation of their own mad haste. Life never seemed so short because of art which never seemed so long; and the mountain rises higher and higher before their vision with each step of nearer approach to it. There is so much to be comprehended, such vast stores of knowledge to be acquired by each of these terrifically busy units in the human mass, that they must not delay a fraction of a second longer than necessary at their meals or in their sleep; they "haven't time."

All of this leads, of course, to an enormous development of the material industries and a very great increase in wealth and superficial knowledge. It has made the age one of intense striving, and of an intellectual brilliancy like to the electric light, which would properly symbolize it. But we question whether, after all, "the game is worth the candle." We do not know the luxury of ease, the infinite comfort of repose. We work twenty-four hours a day—for our business follows us into our dreams. And, indeed, we *boast* of our slavery to this tireless, this unyielding task. "Restless and sleepless" stands for the spirit of the times.

There is no doubt that the keenness of perception, the rapidity of judgment and the quickness of decision which characterize the business man of to-day are the outcome of this universal haste. There is no question but that the friction of bright minds has developed a super-sensitized intellectual condition in the body politic. But we are in constant danger of quickening our pace to the prejudice of the heart's action; we are coming to the point at which we read indexes instead of arguments, buy

on Smith's opinion instead of taking time to formulate our own, and estimate the man by his products rather than by his principles. It might not be injudicious to get outside of ourselves for a minute and forecast the ultimate result of all this mad race.

The Latin philosopher intended to convey another lesson than that which we have deduced from his proverb; but Truth is many-sided, and can be studied from every point of view. He gives us all a good text for our consideration, which each may expound to suit his individual taste—and then "hasten slowly" to apply to the betterment of his individual life!

Long Essays Boiled Down into Little Paragraphs.

Don't look longingly over your back fence at the successful shoemaker and wish you hadn't ventured into the jewelry line. As soon as you conclude that every other business is superior to your own, you establish the evidence that your own business is superior to yourself.

He who successfully solves the problems of
the time When,
the place Where, and
the method How,
has begun the building of a successful career.

Overwork means too much work *in one direction*. Vary your employment. Almost every man is capable of fourteen hours' daily work, when it is broken up into variety; while eight hours' devotion to a single subject, day after day, will break down the brightest intellect. Gladstone is young at eighty-four, because he manages in one day to dictate the policy of a government, translate a dozen pages of Homer, play a game of chess, write an article on Biblical history, study the process of candy-making, and fell a tree.

It is a mistake *not* to "change one's mind" in fear of being accused of fickleness. A well-balanced scale fluctuates under the pressure of a grain of sand. We should always hold ourselves open to conviction, both from arguments without and within.

Always be prepared for the unexpected. "The unexpected is forever happening." At the same time you need not carry an open umbrella over your head in clear weather, waiting for the financial storm to break. It will be time enough to begin to be anxious when the first little cloud shows itself.

Don't tie too fast to old proverbs. While "a rolling stone gathers no moss," it is also true that "a setting hen gathers no fat." "Honesty is the best policy"—but *real* integrity needs no incentive. It is all right to say that "a contented mind is a continual feast"—when you apply the proverb to the imagination only. Content is never progressive. You have even to take with a considerable grain of salt the time-honored "Do not put off until to-morrow what can be done to-day," when you consider the many things done yesterday which you regret to-day. Think for yourself before bowing low to that inflexible tyrant, Old Proverb.

An attractive window is a beckoning finger; an attractive advertisement is a cajoling and persuasive voice; an attractive display of goods is a convincing argument; and attractive price is the soothing balm with which The Good Housekeeper salves his conscience.

How's Your Old Gold *and* Silver?

Of course you have not always been satisfied with your returns from your Old Gold and Silver. Hardly—very few jewelers are. The reason is plain—you mostly sell on estimate—a most unsatisfactory way of dealing, always. We believe our plan will help you out in this matter. We make a specialty of buying Old Gold and Silver. No matter how large or how small the consignment—whether it be 10, 25, 100 or 1000 pennyweights of Scrap and Old Gold, or 10, 50, 100 or 1000 ounces of Old Silver—you will receive from us full, prompt, accurate cash returns for same. Our methods and facilities are not excelled by any, and we can and do give returns to our customers that are satisfactory. By reason of ours being one of the largest Refining and Smelting Works on this continent, we handle large or small quantities of material on the smallest margin. Why not give us a trial and get exact value for your Old Gold and Silver? Send us your next shipment and be convinced that we are the people to deal with in this line.

Chicago and Aurora Smelting and Refining Co.

184 La Salle Street,

Chicago.

Money.

BY A. B. C.

II.

In the January KEYSTONE I defined the term "money" and explained why *gold* money was the proper basis of all measures of value. I promised to say something in this issue concerning

PAPER MONEY,

which has been aptly described as "the ghost of gold, and the incomparable medium of exchange."

Paper money is only a *representation* of value, and has no value in itself. It has vitality simply because of the faith of the people in the sincerity of the promise of the Government that it will exchange coin for its paper currency on demand. Assured of the ability of the Government thus to redeem its promises to pay, and of the integrity of its intentions, "paper" money is invariably preferred in all the operations of trade, because of the greater convenience in handling it. It is really only a form of credit—"its highest and most general form," says Macleod; and as such, exemplifies the enormous possibilities of credit as a factor in the economics of government, no less than in the affairs of business. As soon as the faith of the people in the stability or solvency of the government declines, its paper money is discredited—just as we refuse to sell goods on credit to a person who has no financial resources or who is dishonest.

When the prospects of the success of the Southern Confederacy in the late civil war began to decline, the face value of its promises to pay declined more rapidly still, and finally disappeared totally. Its paper money, which at any time was only a representation of the value of the *chances* of successful conflict (since it was redeemable "after the declaration of a peace"), thus became absolutely worthless; but the *metal* money in the hands of the Southerner was not affected by the reverses of his government, since it could be sold at its bullion value or exchanged in barter in any civilized country.

VARIOUS FORMS OF PAPER MONEY.

In the previous article I showed that various substances have been used as money—such as dried cod, nails, sugar, tobacco, etc. Similarly there has been a variety of forms of paper money—due-bills of contractors, store-orders, milk-tickets, etc. But all of these were based for their availability on the frail security of individual honor and success; consequently they constituted what is economically known as "bad" money. For the same reason the old forms of "State bank money" were accepted by merchants at various discounts, owing to the varying degrees of security offered by their respective issuers. They lacked, moreover, those essential features of convertibility and perfect interchangeability which are vital to the success of any scheme of currency. The currency, like Cæsar's wife, must be above suspicion. Hence it follows that it is only when paper money is issued, or its redemption pledged, by a prosperous and independent government, which is the safest conceivable debtor, that it obtains universal confidence as a "representation of real value." For it must not be forgotten at all times that the very best possible paper money is but a *promise to pay* money; and in consequence the proverb of the Italian economists can only be taken literally when applied to those forms of currency which are supported by the total resources of solvent and sovereign governments:

"Che oro vale, oro è"—"That which is of the value of gold *is* gold."

THE FUNCTION OF PAPER MONEY AS CREDIT.

When we consider that the amount of paper currency in circulation in England is more than fifty times the amount of bullion in the United Kingdom, and that less than one one-hundredth of one per cent. of all the exchanges in the United States are made in gold coin, we see the enormous consequences of the institution of Credit in the operations of business and national polity. One of the old Roman jurists, Vulteius, wrote of "Incorporeal Money" as "that in which not the material but the *value* is regarded"; and an eminent English economist suggested this theorem as the fundamental concept of monetary science: "The quantity of money in any country represents the quantity of *debt* that there would be, if there were no money." It is essentially true that the great financial crises which the world has experienced have been produced by ignorant violation of this primary axiom.

Dutot says: "The first use of credit is to represent money by paper." Macleod states that money is simply "a *right or title* to demand some product or service from some one else." A long line of authorities from the time of Aristotle, including Edmund Burke, Bishop Berkeley, Adam Smith and John Stuart Mill, hold to this opinion. I am tempted to outline further the nature and functions of money, viewed from an economic standpoint, but I shall cover this point, instead, as a collateral subject in a future essay on "Wealth, Value and Credit."

In concluding this article I would add this historical fact: The Chinese were the first to employ paper as a form of money, in the year 807. It was a glossy black; the different denominations differed in size, and thus indicated their respective values; every piece was stamped with the royal seal, to counterfeit which was death; and it was forced upon the people in exchange for their valuables, under penalty of death to those who declined making the exchange *willingly*. It was significantly called *fey-thsian*, or flying money.

My next and last paper on the subject of "Money" will be entitled "Silver Money: Its Place as a Medium of Exchange."

A New Text for an Old Sermon.

Wednesday night the store of ——— was entered by burglars, who chloroformed the proprietor, bound and gagged him, and then helped themselves to \$400 in cash and several watches. There is no clue to the rascals as yet.

The above item of current news affords a topic for comment which we trust will not be altogether lost upon the retail jeweler.

The editor of this journal does not know the jeweler in question personally; nor does he know further of the circumstance related above than the facts as given in the brief dispatch. But to "point the moral" one does not need to "adorn the tale." It is sufficient to know that the bold robbery occurred in a community as far removed as possible from the dare-devil tendencies which are present on the frontiers of civilization, and among a people justly reputed for observance of law and the proprieties of daily life. These facts add all the greater force to the conclusions which may be fairly drawn from the meager data afforded by the newspaper clipping.

In the absence of better knowledge of the facts, we may infer that the jeweler was *alone* in the store at the time he was overpowered, and that it was his habit of remaining alone that gave

the thieves the first suggestion of the robbery. If he was *not* alone, then these comments will not apply to his case, and are henceforth impersonal; but the instances of robbers availing themselves of the knowledge that a jewelry store is attended by a single individual are so many as to justify the presumption that this jeweler duplicated a frequent practice—and experienced the frequent punishment. His experience is at least "a good enough Morgan until after election," as they used to say in the time of the anti-Masonic excitement; and he will at least be patriotic enough to stand as the "horrible example" in this practical sermon.

No one man, whoever he may be, however brave he may be, whether he be jeweler or banker or paymaster or what-not, is a match for the deliberate robber, resolved upon personal violence if necessary. If the jeweler always had the possible thief *in mind*, always kept one hand on a gun and his eye on the store-door, then he would not be so likely to be overpowered; but the jeweler has other use for his hands and eyes, and is properly inclined to *welcome* strangers, instead of asking them to give a countersign before passing the threshold. So he saves money by attending to his business "all by himself"; and some pleasant afternoon he looks up from his work-bench into the barrel of a revolver, while the stranger suggests a transfer of all the diamonds and gold watches without a consideration. Or he hits the jeweler with a billy and helps himself; or he grabs a tray of jewelry, "blocks" the door behind him and grins through the window at the jeweler before slipping down the alley; or he possesses himself of his victim's chattels in the divers other ways of "bluff" robbing familiar to readers of the daily news. Then the jeweler pities himself and laments his "hard luck."

It *isn't* hard luck. It is the legitimate outcome of conditions. The jeweler simply gambled against the possibility of such an experience—and lost. Others take the chance and win. But gambling is reprehensible whether the player wins or loses; and to gamble in business is to violate all the proprieties of trade.

A jewelry store should never be guarded by less than two people during the hours that its door is open to the public.

If for any unavoidable reason one person is left alone in the store the door should be locked, and opened only to acquaintances; or, if that is not practicable, the valuable goods should be locked in the safe, and the lone guardian should keep his best eye on the store-door and be watchful of "the stranger within his gate."

And why not, my sarcastic young friend in the back row? Isn't it a fact that, next to a bank, a jewelry store is the apple of the "professional's" eye? And did you ever hear of a banker who would take for a single hour such a risk as you incur day after day?

No, there is too much indifference concerning this grave matter, and jewelers owe it to themselves, to their creditors and to society at large that they correct the prevailing practice. They owe it to society, because of their present moral responsibility in holding out to weak or vicious natures a temptation to robbery and possible murder such as is rarely offered in any other direction. And it is not hazarding the truth to say that the day is approaching when the question of credit will be seriously affected for good or ill by the practice which obtains with each individual jeweler with respect to *store-guarding during business hours*.

HISTORY OF EARLY WATCHMAKING IN AMERICA.

A series of articles on the origin and history of Watchmaking in this country, written by **Mr. E. A. Marsh**, Master Mechanic, and approved by **Mr. R. E. Robbins**, Treasurer of the American Waltham Watch Company.

IV.

(Continued from page 24, January (1893) number.)



THE fact that the principal owners of the Elgin factory were men of wealth, and thus able to replenish their frequently exhausted treasury, alone prevented the repetition there of the unfortunate experiences of the earlier Waltham and Nashua factories. But notwithstanding the fact that ten years passed before the Elgin company began to realize anything in the way of dividends, and with the struggles and disasters of the New England companies well known, there has ever seemed to be a fascination in the idea of organizing watch factories, which has caused to be brought into existence a multitude of such establishments, to the financial ruin of many a too-confident investor and the heavy losses of very many more.

From this digression we now return to the consideration of the fortunes of the American Watch Company.

As has already been said, the original factory buildings were constructed of concrete, but when future enlargements took place another form of construction was adopted. Following the building of the additions made needful by the absorption of the Nashua concern, several new wings were added, the years 1864 and 1865 being particularly busy ones in this direction.

A short, two-story wing had already been built in front, the lower story being devoted to the uses of the gilding department and the upper one to the work of fitting the "trains." Further additions were made by constructing other wings parallel with the street, the original two-story, flat-roof corridor building giving place to one of brick with an additional story, which was used as a finishing room. A second corridor building was built, also of brick. This was located about a hundred feet south of the first, and the two connected by a two-story workshop; another similar wing extended about eighty feet to the south of this second corridor, and in it was established a portion of the Nashua machinery. In addition to these the machine shop wing was extended toward the river, and two wings, parallel with the front but between it and the river, were built. Besides these, a second engine-house and boiler-house were built and equipped. With the exception of the two corridor buildings, and the engine and boiler-houses, all of these buildings were constructed of wooden frames filled in solid with brick.

This period of extensive building seems to mark an epoch in the history of the enterprise, which may, perhaps, be designated as the fourth stage. While the business was located at Roxbury, it may be said to have been in the ideal stage. After the removal to Waltham, up to the year 1857, came the period of experiment and failure. Following that, and lasting till 1861, came a period of suspense; succeeded by the four years which we have just considered, and which may properly be regarded as a period of achievement and firm establishment.

The fifth stage, commencing about 1866, and reaching to the present time, has been one of

continued enlargement, of which more will be said hereafter. Still further additions are definitely planned, and will doubtless be completed in due time.

In conjunction with the renewal and enlargement of the factory buildings, the Company was engaged in providing homes for its people.

A large number of dwellings were erected within a convenient distance of the factory. These were planned in a variety of styles and of varying sizes, so as to accommodate the operatives with larger or smaller families.

In many cases money was advanced to employees who desired to build houses for themselves. The streets were also adorned with young shade-trees, which, at this time, are assuming fine proportions.

The character, and consequent reputation, of the watches made by this Company had been steadily gaining, and as a consequence were in demand and found ready sale. But the attempts of foreign makers to retain their market in America, and the competition resulting from the multiplication of watch factories, has had the effect of continually reducing the prices, and so compelling a corresponding reduction in the cost of manufacture, either at the sacrifice of quality, reduction in wages, or in greatly increased production.

Manifestly the first of these plans could only result in eventual failure; but even if it could be otherwise, a concern which had, by the labor of years, gained a high place in the estimation of the watch trade would realize the value of what had cost them so much, and endeavor by all means to retain their good reputation by adhering to their high standard of quality.

The increased sales of watches also made necessary the corresponding increase of means for their production; and, while the tools which had been in use up to the period of which we are writing (1865) had probably never been equaled, it was by no means certain that great improvements might not be made, both in capability and accuracy. It was natural that in the beginning of the enterprise the idea should obtain that accuracy of operation would be secured by delicacy of construction; and therefore the machinery of those earlier years was made very light and with resulting sensitiveness, which involved a corresponding delicacy of manipulation on the part of the operative, which could only be acquired by a period of education, and with results depending largely upon individual ability.

But the experience of years had demonstrated that delicacy of machinery did not insure uniformity of result; and from about this time the theory of machine-building has been materially modified in the direction of increased strength and solidity. But while obtaining a very marked improvement in strength, and consequent uniformity of operation, no radical departure was made in the principles of the machines, the increase of factory capacity being secured by the multiplication of existing machines. There were occasional exceptions, however, in the direction of semi-automatic machines, serving to foreshadow what might be done when the proper time should come.

But without doubt the policy pursued in this matter was the wisest for that time. Moreover, it may be doubted if the peculiar mechanical or inventive talent required for the production of automatic machines had then been developed to any considerable extent, although there was not lacking evidence of no mean order of ability in machine construction.

The era of automatic machine construction commenced a few years later, and Mr. Vanderwoerd was probably more prominent in his achievements in that direction than any other individual. The most interesting and valuable of his inventions was a machine for making the delicate screws which are so indispensable in the structure of watches. This machine is able to accomplish the work of three men and is, moreover, so arranged that but little attention is required, so that one man can easily attend to six machines.

When the United States Government called for volunteer soldiers to aid in putting down the Rebellion, and all through the loyal North men were leaving their homes and business, and enrolling themselves in the ranks of the soldiery, the managers of the watch factory were active and earnest in the endeavors to raise the needed recruits. Men who were valuable to the Company by reason of their skill and experience were not, on that account, dissuaded from offering their services to their country in its hour of peril and need, but were urged to enlist in the army, with the promise of employment on their return.

Of the numbers who went to the front, some returned in safety, some were honorably discharged in consequence of wounds, others came home maimed, leaving, perhaps, some of their limbs to mingle with the sunny South; and some gave up their lives on the field of battle.

A stranger would be impressed in observing the employees as they leave the factory, by the number of persons walking with the aid of a cane, others needing crutches, and still others having but one arm; and it might seem that they were engaged in a business especially dangerous. Quite the contrary is the fact, however, for, among the tens of thousands of persons who have been employed during the existence of the Company, there has not a single fatality occurred, the most serious accidents resulting in the loss of one or two fingers, in almost or quite every instance the result of individual carelessness.

The unusual number of lame and halt who are here gathered is explained by the fact that many veterans of the war are still employed, and that the nature of the work is such that bodily infirmities, which in many other industries would prove serious obstacles, do not prevent the performance of certain kinds of work which is essential. So, too, there are many individuals who are not in the enjoyment of vigorous health, and who are yet compelled to labor, who here find work which is within their ability.

But notwithstanding the fact that so many persons in delicate health, and a larger number by no means robust, are here employed, it has been a matter of surprise to those who have investigated the subject to find that the death rate is remarkably low.

(To be continued in our March number.)

E. & J. SWIGART,

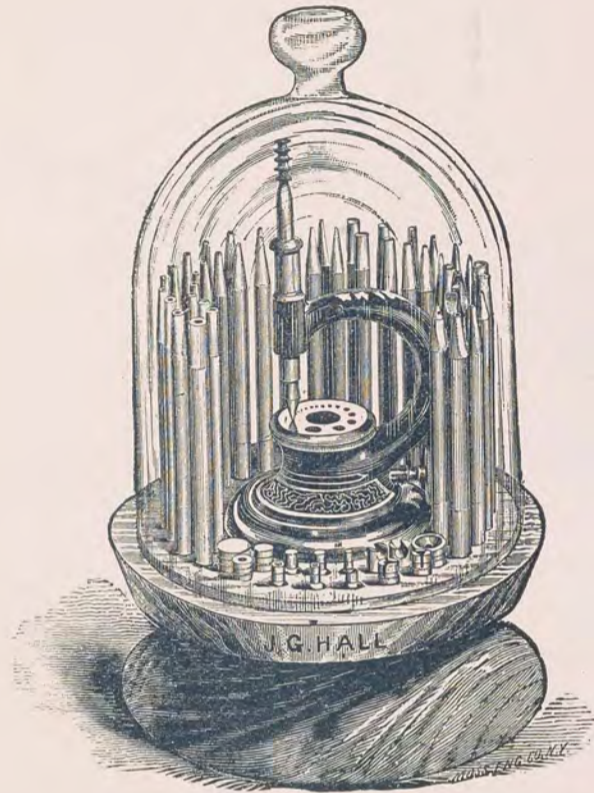
121

TOOLS and MATERIALS for { Jewelers
Watchmakers
Engravers



IDE'S SCREWDRIVERS.

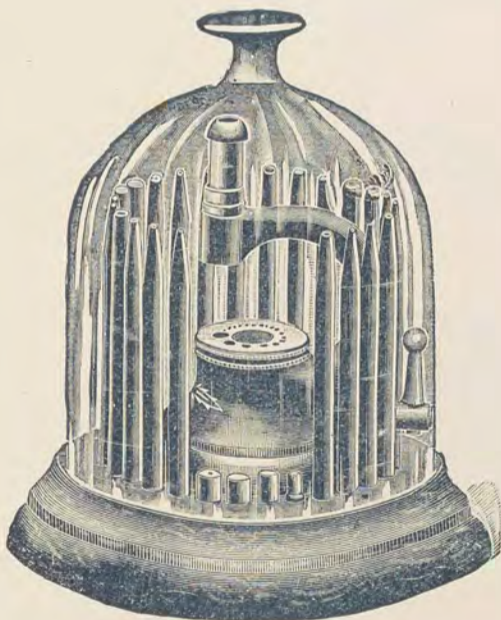
Wood Handles, each, 60 cts. Set of five, - \$3.00.
Ivory " " 75 " " " " " - 3.75.
Morocco case, extra, 85 cts.
Less 6 per cent. for cash.



STAKING-TOOLS.

No. 2. "Hall's" genuine, fifty punches, - \$12.50.
" 7. "Boley," " " " " " - 7.75.
" 8. Imported, thirty-two punches, 6.00.
Less 6 per cent. for cash.

Our Hall tools have all the late improvements.

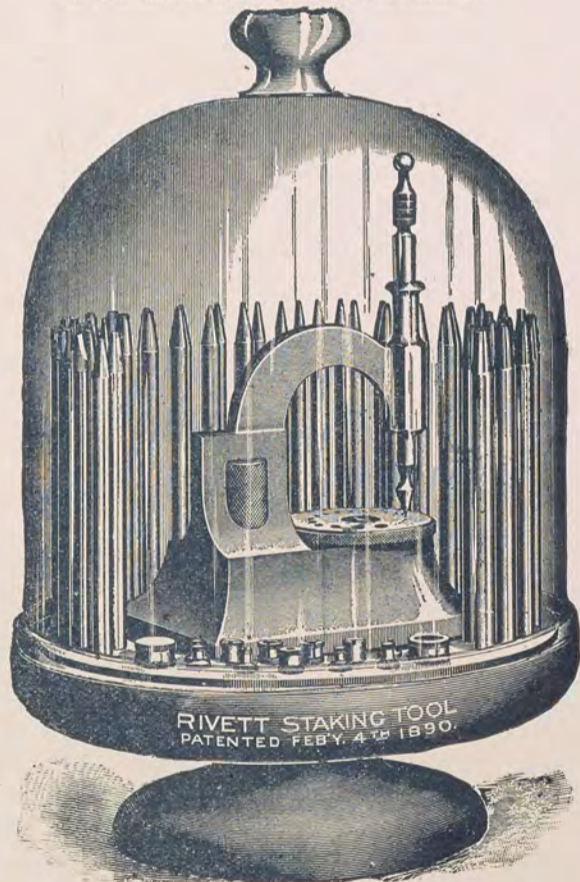


STAKING-TOOL NO. 4.

Twenty-four punches and four stumps,
with heavy glass globe.
Each, \$3.50.
Less 6 per cent. for cash.

**We do
Not
Buy poor
Stuff
In
Order to
Quote
Apparently
Low
Prices.**

First-class goods are
always the cheapest in the
end. Any article we recom-
mend can be depended on
every time.



RIVETT STAKING-TOOL.

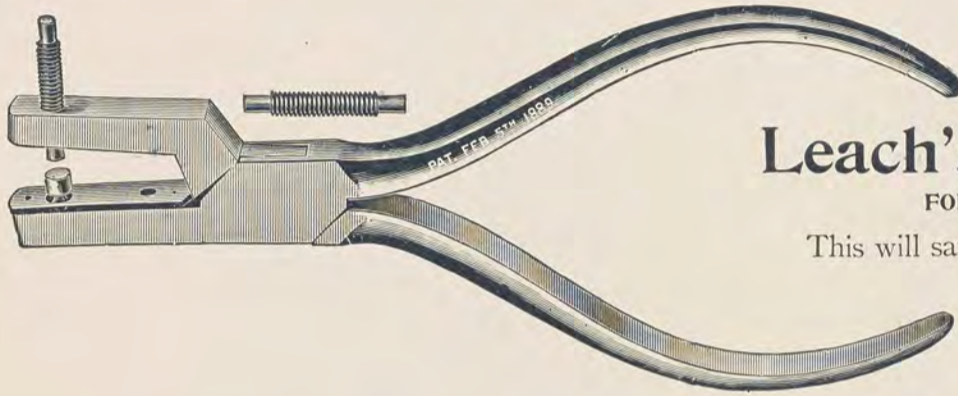
A BEAUTY.
Full nickel-plated, each, - \$13.50.
Less 6 per cent. for cash.

Material wants we make a great concern. Dealers who have trouble in getting small orders cared for, will do well to try us. We get them correct, and do not substitute. Our New Catalogue is a great help for making up orders. If not received, send to us for a copy. In Lathes, Benches and Tools generally, we have never been so well prepared for orders as at the present time.

Cincinnati, Ohio. 101 W. Fifth Street.

To the Jobbing Trade Only

"Superior" Mainsprings for all grades of American Watches. The name of this spring indicates its quality. We warrant it to be superior to any other spring in the market. Every one is guaranteed. The cut represents a fancy Enamelled Anti-Rust Tin Box, containing one dozen springs. The name "SUPERIOR" is scratched on each spring. To be had at all the leading jobbing houses throughout the United States.



Leach's Patent Jewel-Plyer.

FOR SETTING AND EXTRACTING JEWELS.

This will save a great deal of time and protect the jewel.

Also Sole Agents for the following:

Coe's Patent Plyers, for taking dents out of watch cases.
Patent Movement-Holders, to regulate movement in any position.
Harstrom's Patent Case-Springs.
Sanderson's " " " "
Schwerter's Jewel Bezel-Openers.
White Metal Chains a Specialty.

HENRY ZIMMERN & CO.

Importers of Watch Materials, Tools, Glasses, Silk Guards and Optical Goods,
37 MAIDEN LANE, NEW YORK.

The OLDEST and BEST.

PARSONS' HOROLOGICAL SCHOOL

Every branch of the Horological Art, including Engraving and Jewelry Work, taught by experienced and reliable instructors.

Special Classes
in Optics.



The school is equipped with the latest and most improved machinery and tools.

Write for
Catalogue and
particulars.

Parsons, Ide & Co.,

Formerly of LA PORTE, IND.

119 Fredonia Ave., Peoria, Ill.



NO class of men have more friends than the "boys" on the road—these friends enjoy reading of their goings and comings. No class of men can enjoy news from their comrades more than the traveling salesmen. This is especially true about the jewelry traveler. Hereafter they shall have a page in THE KEYSTONE to give an account of themselves. We trust they will feel themselves perfectly free to avail themselves of it, and that we shall hear from them often.

Ben. Kramer is doing Chicago and vicinity for the Stein & Ellbogen Co.

Geo. C. Ridgway is out again this year for the Geneva Optical Co., in his old territory.

George Lunt will represent the Towle Manufacturing Co. on the Pacific Coast this year.

H. W. Burdick is the eastern Ohio man for the Bowler & Burdick Co. of Cleveland.

Geo. N. Rouse is the jolly "big boy" who represents the Geneva Optical Co. in the South.

L. F. Capshaw takes "Gil" Steese's old Michigan territory for Benj. Allen & Co., Chicago.

Rufe Hawkins will make Ohio, Indiana and Michigan for Clemens Hellebush, Cincinnati, for another year.

E. F. Straw will represent the Pittsburg jobbers, Goddard, Hill & Co., in Ohio and Indiana during '93.

T. K. Wall will cover Minnesota and the Dakotas for the Geneva Optical Co., Chicago, for the coming year.

Earl J. Brown will cover Indiana, Illinois, Missouri and Kansas this year for Chambers, Inskeep & Co., Chicago.

Geo. West, with G. B. Barrett & Co., Pittsburg, will start out about the first of this month on a trip in the interests of his house.

G. L. Lowe, who travels for Kennedy & Koester, Detroit, Mich., has been, of late, a severe sufferer from an attack of influenza.

F. A. Boegershausen is again with F. M. Sproehle & Co., Chicago, for another year, and will travel over his old Michigan territory.

D. P. Ingram, who has covered Kansas for years for J. Niles Kimball, Kansas City, will take his old territory for J. A. Norton & Son.

F. Willman is now out on his first trip for the new year for F. M. Sproehle & Co., Chicago. His territory is Wisconsin and Minnesota.



Albert Jampolis.

Albert Jampolis will again represent Lapp & Flershem, Chicago, in Missouri and Kansas. He left early in January for an extended trip, and was doing a fine business among his Missouri friends, when he was telegraphed to come home to attend to business in court. At present he does not know

just when he will be able to finish up his trip, and fully realizes just what a dreadful thing the law's delay is.

D. Chambers will see his old friends and make new ones for Chambers, Inskeep & Co., Chicago, in his old western territory this year.

C. E. Montford, of Utica, Mich., who represents the Columbus Watch Co., has started on the rounds again after a brief vacation at Detroit.

Burt B. Harlan makes his home at Ottumwa, Iowa, and travels Iowa, Missouri, Kansas and Nebraska for the Geneva Optical Co., Chicago.

J. T. Brayton, the "emergency man" of the Geneva Optical Co., will make occasional trips through Michigan and the Northwest this year.

G. W. Cook, Illinois man for Otto Young & Co., is one of the early birds this year, having already returned from his first trip for the new year.

Joseph Buerkley, Western traveler for Heeren Bros. & Co., Pittsburg, will visit his friends and customers in his old territory this year for the above firm.

H. M. Tenney, Western traveler for Lapp & Flershem, Chicago, is enjoying a short vacation at Hot Springs, Ark., ere starting out on his Spring campaign.

N. C. Nason, with the Geneva Optical Co., Chicago, has for his field Michigan, Wisconsin and Minnesota, and will soon be out among his friends again.

T. Lindberg did a fine business for Glickauf & Newhouse in 1892 in their western territory, and goes out this year with a handsome increase in his salary.

Geo. B. Bridestone, with Sigler Bros., Cleveland, is among his friends in the West this month. His territory includes Indiana, Illinois, Iowa, Nebraska and Colorado.

W. H. Houston, formerly with Lewis, Kaiser & Luthy, New York, has entered the employ of Heeren Bros. & Co., Pittsburg, and will travel in Ohio and Indiana for this firm.

E. Fry, with Glickauf & Newhouse, Chicago, representing this firm in the Northwest, is already among his friends and customers in this territory, sending in good orders to his house.

"**Gil**" **Steese**, the veteran traveler for Benj. Allen & Co., Chicago, has resigned his position. For sixteen years "Gil," as he is best known, has represented this house in their Michigan territory.

C. H. Pixley, in the Northwest, G. W. Hamilton, in the Southwest, and L. W. Melchor, in the Middle States, road missionaries for F. A. Hardy & Co., are all out in their respective fields this month.

C. L. Merry, who formerly represented the Julius King Optical Co. in Missouri, Kansas and the Rocky Mountain country, is now resident manager of the Kansas City branch of this house.

C. C. Hoefler, of the firm of Woodstock, Barger & Hoefler, Kansas City, will give up his old territory to a new man this year, and devote his attention to their house trade and the city trade in Kansas City.

H. J. Linn, Northwest; Hugo Schmidt, West and Southwest, and J. G. Adler, Illinois and Indiana, salesmen for Swarthchild & Co., Chicago, "the only" exclusive material house, are now out on extended tours.

C. E. Patterson will cover Illinois, Indiana and Missouri for the Towle Manufacturing Co. from Chicago branch this year, and O. P. Ryan will look after the interests of this same house in the Northwest and Kansas.

Tom Davis, the veteran traveler for the Middletown Plate Co., and Barney Crossin, the genial and smooth man from Providence, of the firm of Crossin & Tucker, were visiting the Chicago trade the last week of January.

V. P. Cuthbert, representing Otto Young & Co., Chicago, in Missouri and Kansas, is out on his first trip for the new year, and at present is visiting among his Missouri customers. Cuthbert resides in Kansas City.

A. G. Perry, Michigan; H. C. Goodfellow, Missouri, Kansas and Colorado; Geo. J. Lewis, the South; J. W. Forsinger, the Northwest through to the Pacific Coast; and E. K. McGillivray, in Indiana and Ohio, travelers for Giles, Bro. & Co., Chicago, are all out in their respective territories this month.

Steve Smith, the well-known Western salesman, for a number of years traveling out of Chicago, but of late with J. A. Norton & Son, Kansas City, has resigned his position, and will travel for a Chicago house throughout the West.

B. F. Simpson is the gentleman who will greet the customers of Otto Young & Co., Chicago, throughout the Northwest during this Columbian year, and will be among his friends this month with the latest World's Fair smile.

Geo. Wettstein, the veteran traveler for C. F. Happel & Co., Chicago, starts out on his spring trip the first of this month. E. K. Bennett, also with this house, and who covers the Northwest, is out among his customers.

Geo. E. Zimmern is the new man with the Geneva Optical Co. in charge of the meteorological instrument department. He was formerly with the Taylor Bros. Co., Rochester, and will handle the jobbing trade in the West.

Emil Bieler, of the firm of Heckel, Bieler & Co., Pittsburg, is one of the best-known travelers in his section. He and Charles Meister, the junior traveler for this house, have a very nice arrangement, inasmuch that when one is on the road the other is in the house.

Max Noel, in Michigan, Indiana and Ohio; Frank Shadbolt, the North and Northwest; George Finck, the West and Southwest; and M. Zuckerberg, the South, the "big four" of the Stein & Ellbogen Co., Chicago, have all been sent out on their first trip this year.

L. Newhouse, of the firm of Glickauf & Newhouse, Chicago, is an old-timer on the road. Though spending a part of his time in the house, he will make occasional trips this year among his old friends and customers. He starts on an extended trip the first of the month.

Charles Alexander taking the position vacated by Thomas H. Huteson, C. M. Barnes replacing M. B. Rosenstock, and Otto S. Lambers, formerly with A. K. Hawkes, of Atlanta, Ga., entering the employ of the Company, are several changes that have been made in the traveling force of the Spencer Optical Manufacturing Co. of New York.

Tom Hoefler, Tom Anderson, Arthur Perry and A. N. Brittain, the widely-known quartette who represent M. A. Mead & Co., Chicago, are all out in their respective territories this month, and will continue to greet their old friends during the Columbian year for the above firm.



Thomas J. Hoefler.

Tom Bristol, of C. H. Knights & Co., Chicago, has again taken up the trunks of this firm for another year. No traveling men's page can well be introduced without "Tom," as he is one of Chicago's widely-known salesmen. The remainder of the old force of this house have also been retained. "Bob" Barlow has already gone to the Southwest; "Charley" Garlick will cover the West; S. H. Scaggs, the Northwest; and E. D. Gallagher, the East and South.

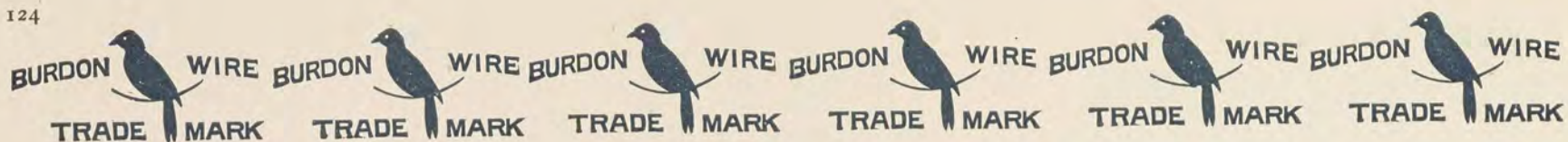
C. S. Hungerford is representing the New York ring house of J. B. Bowden & Co. in the larger cities in the West, and is now in California. For years Hungerford traveled out of Chicago, at various times representing several different jobbing firms in that town, and is so well known in the World's Fair city that everybody calls him "Charley."

H. P. Cutter, who has traveled for the last fifteen years for B. F. Norris, Alister & Co. through Indiana, Illinois and Iowa, is again out in his old territory for another year. S. W. Robinson looks after the Northwest for this firm; W. H. Squier is in Michigan and Wisconsin; R. J. Hendershot has Michigan alone; and F. P. Robey covers parts of Illinois and Iowa. These gentlemen are all absent on their respective territories, save Mr. Robey, who is ill at his home in Danville, Ill.

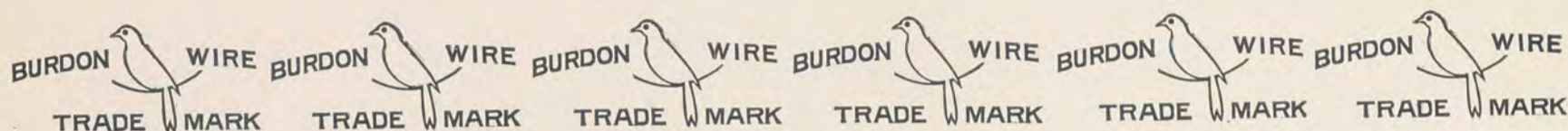
A. J. Chase, the veteran salesman for Benj. Allen & Co., after a month's rest, is out again among his Wisconsin and Minnesota friends. All the traveling force of the above firm are out this month. The list includes R. B. Truesdale, in Illinois, Indiana and Ohio; Geo. A. Turner, in Indiana, Ohio and Kentucky; John G. Spencer, in Illinois and Iowa; C. W. Angevine, from St. Paul to the Pacific; Julius Ghislin, in Kansas, Oklahoma and Texas; John F. Barnhart, in Nebraska, Colorado and Utah; and L. F. Capshaw, in Michigan.

Tom J. Huteson is the new man with the Julius King Optical Co., and will cover his old territory, which includes the larger towns and cities from the Mississippi to the Pacific Coast. The other travelers for this house include Geo. F. Merry in the large cities from Cleveland to the Mississippi; John P. Ryan, in Ohio, Indiana and Michigan; Rodney Pierce, in Pennsylvania and West Virginia; Chas. S. Lesser Chicago and the Northwest; G. F. Whittlesey, in northern Ohio and western Pennsylvania; and W. D. Godfrey, in Missouri, Kansas and Iowa.

O. H. Hull and **C. F. Coutts** will henceforth look after the interests of the Pairpoint Manufacturing Co. in Chicago and the great cities of the West and Northwest until May 1. They will spend the greater part of their time in Chicago, where they will be found permanently located at 224 Wabash Avenue, assisting Manager Corey and looking after exhibits at the Exposition. O. E. Baumgarten is now out, representing the Pairpoint Co. in Illinois, Missouri and Kansas; E. B. Frank, in Iowa, Nebraska, Colorado and New Mexico; and C. W. Miller, in Wisconsin, Minnesota and the Dakotas.



The old-style rolled plate wire with the objectionable seam now being almost a thing of the past, we publish, for the protection of the trade in general, the following



MANIFESTO:

THE BURDON SEAMLESS FILLED GOLD WIRE is made in high, medium and low grades.

The thicker the gold and finer the karat, the higher the grade and the cost of the wire. The thinner the gold and lower the karat, the lower the grade and cost.

The demands of the trade compel us to make all qualities.

Articles made from the higher grades must, of course, outwear those made from the lower grades.

Some manufacturers use the higher grades, while others use the medium and lower grades.

The trade-mark of the "bird-on-wire" guarantees the articles to be made from the original and only genuine seamless filled gold wire, and the only filled gold wire which is absolutely seamless and solid, and which has a uniform distribution of gold—but this trade-mark does not indicate any definite quality, inasmuch as the manufacturers are authorized by us to affix this trade-mark upon articles made from any and all grades of our wires.

To insure stated wearing qualities of articles made from our seamless wires, dealers must rely upon the private stamp of the manufacturer, or the reputation of the concerns from whom they purchase, just as they did formerly with the old-style rolled plate "seamed" wire.

Whether you want a low-price article or a long-wearing one, make sure that no seam appears, and demand goods made from the Burdon Seamless Filled Gold Wire, bearing in mind that the wearing quality of the article is dependent upon whether the high, medium or low grade of our wire is used.

Burdon Seamless Filled Wire Company

109 to 119 Summer Street,
Providence, R. I.

American Lathes and Their Attachments.



easily-made device for supporting and keeping a screw from springing while being turned is shown at Fig. 1. In this cut, *A* represents the piece to be turned; *B*, the tail-stock spindle; and *C*, the back cone-center. The device which supports the piece *A* is composed of the parts *D D' D''*, *E* and *F*, arranged as shown. The bar *D* is best made of steel, and should be about two and one-quarter inches long, three-eighths wide up and down, and one-eighth thick. The pieces *D' D''* can as well be of sheet-brass about one-eighth of an inch thick and shaped as drawn at Figs. 2 and 3. As illustrated in these figures, they are supposed to be seen in the direction of the arrow *c*, Fig. 1.

The piece *D''*, Fig. 2, has the hole at *B* large enough to slip on the tail-stock spindle with an easy fit; but when the clamping-screw *b* is set up it becomes rigidly fixed to the spindle. The piece *D'* is similarly shaped to *D''*, except the hole *C* is only large enough to receive the cone-center *C*. About as secure a plan as can be adopted is to make the hole *C*, Fig. 3, just a trifle too small for the cone-center to pass through unless it (the cone-center) is removed and the small end of the taper is passed through the hole *C*, the taper being then inserted in the spindle *B* and pushed home. If we now move *D' D''* in the direction of the arrow *c*, the cone-center *C* will bind in *D'*, and if we set up the screw *b* the parts are secure and firm.

The slide *F*, Figs. 1 and 4, is made to move back and forth on the bar *D*, and also to receive the piece *E*, said piece being forked at the lower end, as shown at *E'*, Fig. 4, so as to grasp the piece *A*, upon which we are supposed to be turning a screw. The tendency of the bar or rod *A*, when acted upon by the turning-tool, is to rise, and also move backward, or about in the direction of the dotted line *D'''*, Fig. 3; consequently the entire device shown in Fig. 1 should be set at this angle; that is, so the strength of the device is best placed to resist the thrust. This setting is easily done by merely turning the tail-stock spindle in the tail-stock and clamping it fast.

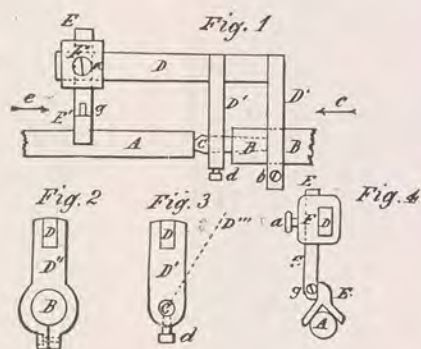
The slide *F*, Fig. 1, is made to move back and forth on the bar *D*, and it also permits the bar *E* to be moved up and down. Fig. 4 is a view of the slide *F* and bar *E* seen in the direction of the arrow *e*, Fig. 1. To the lower end of the bar *E* is fitted the forked part *E'*, jointed with a clamping-screw *g*. The idea of the parts shown in Fig. 4 is, the slide *F* is moved back and forth on the bar *D* until the fork *E'* rests on the proper part of *A*, when the screws *a* and *g* are set up firm. The pieces *D' D''* are rigidly attached to the bar *D*. By the aid of such a support quite a long screw can be turned.

The angle of the fork *E'* should be about sixty degrees; and by adjusting up and down, and allowing the lower part or fork *E'* to swing on the setscrew *g*, it will adapt itself to any size wire. Of course after the parts are in position the screws *a* and *g* are set firm. We would suggest that workmen who anticipate making such a screw-cutting attachment should look over a large screw-cutting lathe in a machine shop, and get an idea how they can arrange for a slow feed for smooth turning, as all such feeds are only arranging to cut very fine screws. A tap, after the thread is cut, is best fitted for doing its work

by milling out longitudinal grooves in the tap, and our next task will be to consider how to make and use such an attachment.

We are aware that most of the manufacturers of the best American lathes supply a milling attachment; and when any of our readers feel disposed to buy one, and feel able to do so, we unhesitatingly advise purchasing; but we are aware many of them do not feel as if they could afford the expense, and it is for such we shall describe an attachment of this kind, which can readily be fitted to any American lathe. What we understand by a milling tool is, the employment of a rotary cutter for shaping metal to various forms. We will, however, waste no time in definitions, but proceed to describe an attachment of this kind which will do a great deal of work to aid a watchmaker.

We shall first speak of such mills as are made use of in connection with the lathe-spindle; that is, we attach them to the spindle in some way for their rotary motion. For all small mills, say up to one-fourth inch in diameter, the cone-chuck can



be used for holding them. All sizes above one-fourth inch in diameter are better placed on a saw-arbor or a special arbor which we shall describe later on. For milling steel pieces a rather slow motion is required; that is, not faster than the spindle of an American lathe would have with the band running on the largest of the cone-pulleys.

The Waltham Horological School, Waltham, Mass., has started on another year with an ironclad confidence founded on prestige in the past and extensive present patronage. John Stack has received from the school a large order for lathes, and the Waltham Electric Clock Co. are at present constructing for the institution one of the finest regulators that can be made. These are unmistakable evidences of success, and success in this competitive age is by no means accidental.

Don't Snub the Drummer.

Christmas and New Year have passed; the brief furlough granted the road representatives is over, and the boys have gone back, better men for having passed a few days at home, living as you, Mr. Proprietor, live, surrounded by those you love, and by those who hold you dear, and embrace every opportunity to make home bright and cheerful. The employer who has never been through the mill himself is apt to regard his ambassadors to the trade as extravagant necessities, the source of heavy expense, only to be tolerated for the orders they secure, and the subjects for an unlimited amount of advice, instruction and reproof. Such men know little of the trials and vicissitudes attendant upon a life on the road. They know little of cold waiting-rooms for midnight or morning trains, entailing loss of sleep; they know little of poor fare and poorer beds, are not accustomed to gruff answers and surly demeanor, and would, nine times out of ten, fall victims to the thousand and one snares laid to catch the unwary. Oh, a drummer's life is not all sunshine, Pullman cars and jolly companionship, by any means; so we say, don't snub the drummer, but give him a hearty welcome, a cordial clasp of the hand, and you have established for yourself an advocate who will do you good whenever your name is mentioned by a brother drummer.

—Shoe and Leather Gazette.

Attleboro Notes.

ATTLEBORO, MASS., January 28, 1893.

If business were freezable, the works at Attleboro would have had a vacation during the past month. The retail trade was, of course, affected to some extent, but the prolonged inclemency had no apparent effect on the factories, which have been all duly busy. The manufacturers express strong confidence in trade conditions, and the abundance of incoming orders seems good grounds therefor.

W. & S. Blackinton are still in the vanguard of the procession of chain manufacturers, and their products are permanently installed in popular favor. The trade should at once lay in a good supply of these chains on the principle that "the early bird catches the worm."

James E. Blake, of Blake & Claffin, recently returned from the West with an amount of orders that spoke well for the condition of Western trade.

The following were elected directors of the North Attleboro Bank: J. L. Sweet, Roswell Blackinton, Henry F. Barrows, S. E. Fisher, H. N. Daggett and Edwin Whitney.

C. A. Wetherell & Co. have moved into R. F. Simmons & Co.'s new factory building.

Mr. Marsh, of Marsh & Bigney, recently returned from a trip and reports the business pulse as favorable. The last year was a successful one for this firm, and they have no doubt of their ability to duplicate it.

J. T. Inman, of J. T. Inman & Co., recently returned from the West, where he disposed of souvenir spoons in large quantities. He also secured good orders for other lines.

R. F. Simmons & Co. are now located in their mammoth new factory, which is a magnificent monument to the merit of the R. F. S. & Co.'s chains. The long-distance telephone puts the factory people on talking terms with their New York office hands.

Sumner Blackinton, of W. & S. Blackinton, who is on a trip around the world, recently took in the sights in San Francisco, Cal., and vicinity.

W. F. Briggs & Co. began the hustling early this year, and are being rewarded with orders gratifyingly large and numerous. It is unnecessary to talk of the merit of their product, but they are still exercising their facility for turning out new designs.

Scarlet fever has been an unwelcome visitor to North Attleboro, and some alarm reigns in consequence.

The annual election of the directors of the First National Bank resulted in the selection of Joseph M. Bates as president, and George A. Dean, Benjamin S. Freeman, James H. Sturdy, James J. Horton, Clarence L. Watson, Albert A. Bushee, J. W. Wolfenden and Joseph E. Blake as directors.

J. G. Cheever & Co., the old and popular chain manufacturers, are producing, in their great specialty, goods that will appeal more strongly than ever to the favor of their patrons. The trade would do well to pay early attention to the new product.

A recent new applicant for membership in the New York Jewelers' Board of Trade was the Richards Manufacturing Company.

There is a report that Horton, Angell & Co. will move into W. H. Wilmarth & Co.'s new factory building when that structure is completed.

The patrons of the Richards Mfg. Co. are giving proof of their past satisfaction with the Company's products by forwarding earlier and larger orders than usual. An examination of this year's output convinced us that the trade are making no mistake in giving early attention to these lines.

"Enclosed find One Dollar to renew my subscription. THE KEYSTONE is worth much more than it costs. I would not be without it for \$1,000,000."—FRANK J. VOIROL, Fort Wayne, Indiana.

Book Notice.

Nathaniel C. Fowler, Jr., Boston, the noted advertising expert and advertisement writer, has just published a handsome 500-page volume entitled "Building Business," in which every conceivable branch of his favored art is treated in a masterly and illustrative manner. Mr. Fowler admittedly stands at the head of his profession, and writes with an intelligence founded as well on experience as on a rare natural aptitude for advertising. The book, in matter, style and usefulness, is a credit to its author, and should hold the position of honor in the business library of every merchant. Bound in cloth, the book costs \$3.75; in half leather, \$4.50; and in full leather, \$5.00.

F. A. Hardy & Co.

WHOLESALE AND
MANUFACTURING OPTICIANS.

Case Department.

We manufacture our own Spectacle-Cases, and would call special attention to the product of this department, in which we make a specialty of fine-quality cases. Our line of



STAR BRAND CASES

is made with light, stiff bodies, covered with a fine-grain black leather cut from whole skins, with all damaged pieces carefully culled out and discarded. They are, therefore, of a uniform and fine quality.

The riding-bow cases are made in seven sizes, as illustrated above, thereby enabling opticians to provide their customers with cases adapted to the style of frame prescribed.

Send for catalogue and samples to

F. A. Hardy & Co.
46 & 48 Madison Street, Chicago, Ill.



The measure of the year's success of the Wm. Rogers Manufacturing Co., Hartford, Conn., is no longer a secret. At the recent meeting a dividend of twenty-five per cent. was declared! If big dividends could become monotonous, this Company would long ago be afflicted with *ennui*. That their success, voluminous as it is, is fully deserved is acknowledged by every member of the trade.

The business of Lapp & Flershem, Chicago, became so swollen toward the end of the year that their immense room of 90 feet square was found insufficient for the enormous stock. A gallery 18 x 36 feet, supported from the ceiling, has consequently been put up, thus adding 648 square feet to their available space. The new space has been filled with bins and shelves to the ceiling. Other changes are being made with the object of increasing still further their accommodations.

Hayden W. Wheeler & Co., New York, after stock-taking and general overhauling of supplies on hand, have increased the latter to their usual voluminous dimensions, and are prepared to fit out the trade with all perquisites. Their salesmen on the road have been pursuing their vocation for some weeks with most encouraging results. An interview with them will profit you.

The Johnston Optical Company, Detroit, Mich., has issued a new catalogue that will immeasurably convenience the ordering of goods by the trade. A copy should be in the hands of every optician and dealer in optical goods. Their new system of quoting prices on prescription orders, etc., is interesting. The compilation, as a whole, is well worthy of this enterprising Company.

R. H. Franklin, 79 & 81 Washington Street, Brooklyn, is showing the trade a varied stock of tools and small metal goods. If you require anything in these lines write for his estimates, and it may save you money.

The predilection for foreign goods and the lingering idea of their superiority got a rude shock when the government gave the award of merit to a product of the Elgin Watch Spring Co., Elgin, Ill. This was not from sentimental preference, but after the most rigorous tests. Is there a moral in this for the watch spring consumer? If you have not the means of testing, the government has.

Beauty and attractiveness in a watchmaker's sign are really of more importance than they are in the internal fixtures. The sign, however, rarely gets the attention it deserves. For signs of genuine trade-attracting beauty we can commend those of Lon Barnhart, 908 West Madison Street, Chicago.

The Pairpoint Mig. Co., New Bedford, Mass., issued one of the handsomest calendars that came under our notice this year. The design is peculiarly appropriate and the execution perfect. Its general excellence is on a par with everything sent out by this Company.

Hutchinson's Practical School for Watchmakers, La Porte, Ind., continues to unearth horological genius, and to draw the possessors thereof from various parts of the country. When they point their nasal organs in the direction of La Porte and make a "bee" line therefor, they are consulting their best interests. Experience is notoriously reliable.

The Edwards & Sloane Jewelry Co., of Kansas City, Mo., are headquarters in the West for medals, badges, etc. These they make from original designs for the jewelry trade exclusively. A happy combination of artistic designing, only first-class workmanship and moderate prices have procured for them an enviable reputation. They report the past season the best in their history in the diamond line. Their line of medium-price rings seems to be just what the Western trade desire, and is meeting with ready sales.

Emblems and charms are yearly increasing in demand in almost geometrical progression, and a better and more artistic article is continually being called for. This is a condition and not a theory, and E. L. Logee & Co., 18 Cortlandt Street, New York, are meeting the condition in genuine up-to-date shape. They are showing over 700 styles of gold charms alone! Just think of it.

Eugene Deimel, Detroit, Mich., seems determined to reward the trade for the increased patronage of the past year by catering to their requirements with even greater satisfaction and liberality than heretofore. His stock is complete in every respect and is now ready for distribution.

We don't want to expatiate on the merits of the Webster-Whitcomb lathe. It is needless. But we do want to tell you that if you require one now, or if you will require one in the early future, you should hearken to the generous offer made elsewhere in this issue by the makers, the American Watch Tool Co., Waltham, Mass.

Kendrick & Davis, Lebanon, N. H., have found a profitable specialty in their standard dust-proof watch keys, which are having a rapid and profitable sale. Have you procured a supply yet?

"It is bad wind that does not blow fair for somebody" is an old saying, and the January inclemency seems to have borne this relation to Frank H. Wells, the selling agent of the far-famed Franco-German rings. No incantation of Frank's is, of course, responsible for the rheumatism-generating weather, but he reaped the benefit all the same. Have you begun to sell these rings yet?

Advertisers will please take notice that owing to our change in the date of publication to the first of the month, all copy for advertisements, to be in time for insertion, should reach us by the 15th of the preceding month.

We congratulate on their wisdom those who have patronized W. W. Oliver, Buffalo, New York, for their tools. "Efficient in work; economic in price" is a fair embodiment of their merits. The rapid growth of Mr. Oliver's business is easily accounted for.

The Union Show Case Co., Chicago, are turning out some brand new designs in show-cases that are of unique attractiveness. No jeweler who is in business for money can afford to do without a supply of good cases, and the Union Company's product is varied enough to suit all tastes and purses.

Every optician and dealer in optical goods will find it to his benefit to read carefully page 102 of this issue, whereon there is much profitable information well conveyed by T. A. Willson & Co., the celebrated Reading, Pa., manufacturing opticians. Ponder over the advice first, and afterward note the prices.

Kennedy & Koester, Detroit, Mich., are showing a large and elegant assortment of goods. Henry Koester made a business trip through Ohio recently, and found the business pulse beating healthily. G. L. Lowe, one of their traveling salesmen, has been confined to his home by a severe attack of influenza.

Actual experience, and not mere assertion, counts with the wide-awake public of our generation. They know the goods that have been tested by time and wear, and they know the goods that have stood the test. This accounts for the ever-increasing demand for the far-famed rings of M. B. Bryant & Co., New York. Have you got your spring supply?

Another testimonial to the merit of the products of the Carpenter Lathe & Tool Co., Boston, Mass.: At the late exhibition of the Massachusetts Charitable Association in the Hub city, a silver medal for improved polishing-lathes and foot-wheels was awarded the Company. They are at present filling a lathe order for a London, England, house. These are just straws showing how the trade-winds blow.

The Meriden Silver Plate Co., Meriden, Conn., have made some marvelously happy hits in new designs for this season. The ornamentation on some of their products shown us recently is more than decorative; it is thoroughly artistic. Examine the new goods at your earliest opportunity, and give them a value as profit-makers.

The firm of Odenheimer, Zimmern & Co., New York, is prepared with an elegant stock for the spring trade. All orders, however large or varied, can be filled promptly and satisfactorily.

Albert H. Bonnet, the widely-known Columbus, Ohio, jobber, is prepared for all patrons, however fastidious their taste or varied their requirements. Few have more friends in the trade than Mr. Bonnet, and his present stock is well calculated to add to the number.

When horology has an educational seat of the dimensions and excellence of Parsons' Horological Institute at Peoria, Ill., we may well feel proud of the progress of the science and the status of the profession. The prestige of the Institute's greatness, apart from the acquired knowledge of the pupil, is a strong point in favor of advancement of the latter.

King & Eisele, Buffalo, N. Y., having completed a general overhauling of stock and replenished depleted lines, are now in a position to fill all orders as soon as received. We would merely insinuate to the trade the advisability of having a look at their voluminous supplies before making definite purchases elsewhere.

W. S. McGowan, Jr., Boston, Mass., is the well-known maker of the "Lamb Eye-Shield," which has proved a boon alike to opticians and the public. Its merits as an eye-protector are manifest, and opticians without a supply are missing a profit-making opportunity. The moderate price makes it eminently salable.

Kettmann & Kersting, who conducted a jewelers' supply business in Louisville, Ky., have dissolved partnership by mutual consent. Mr. Kettmann assumes all assets and liabilities, and is alone authorized to settle up the affairs of the firm. The business will be continued at the same stand by George H. Kettmann, under the title G. H. Kettmann & Co.

Wendell & Co., Chicago, are purchasing old gold and silver on rarely advantageous terms. Those of the trade who have at any time quantities of these metals for sale should not fail to communicate with this Company. It may mean dollars to them.

Henry Zimmern & Co., New York, with their usual enterprise, are already out for spring business with as elegant a stock as ever tickled the retailers' powers of selection. Don't fail to examine their samples when you get an opportunity.

The predilection of municipalities for New Haven clocks is becoming remarkable. Town clocks of New Haven make are to be met with all over the country, and orders for them are unusually frequent. The Western business of the New Haven Company is expanding at a rapid rate, under the intelligent supervision of their Western manager Mr. Strickland, one of Chicago's most popular business men.

System is the fundamental principle of success, and the jeweler who values this essential at its proper worth should use the watch guarantees for repairs and sales manufactured by Harry Emrie, Aurora, Ind. They will save oceans of trouble, anxiety and time, and fill to the brim a want of the long-felt variety.

The annual meeting of the Manhattan Silver Plate Co., Lyons, N. Y., was held recently, and O. F. Thomas was re-elected president. George M. Hill was chosen secretary and treasurer. The past year was the most prosperous in the history of the Company, the output amounting to \$174,000.

The dial factory connected with the Trenton Watch Factory, Trenton, N. J., which is under the supervision of E. D. Wetherbee, is now in operation, and fancy and under-glaze dials in great variety are being produced.



CINCINNATI, OHIO, January 28, 1892.

Since the weather has moderated there are prospects of good business for the spring, but with the thermometer at zero, the river frozen, and a fall of snow every day or two it was no wonder there was a decline in markets. Monetary affairs are a little more active this week. The banks are reporting improvement in the borrowing demand, and there was a moderate flow of currency to and from the country. Reports from the Southern field indicate a better feeling. It is thought by some, however, that the purchasing power of the West and South will be affected by the large sums of money required by visitors to the World's Fair this year. Our jobbers have bought largely of novelties this year, owing to the expected demand for something out of the ordinary on account of the "great show." The general line, which was depleted by the heavy fall and holiday trade, was filled with care and discretion this month, the large orders being given for the new and pretty designs, the unique and the attractive.

Oskamp, Nolting & Co. are still sending out that mammoth catalogue, and the jeweler who has not yet seen it should send for it at once; it will cost him nothing. It is certainly a valuable reference-book and a great "suggester" to the jeweler. If your stock is a little dull-looking, see the beautiful specimens of goods they offer that will brighten up your display. The book is a decided acquisition to the trade.

Leo Gumbert, of Gumbert Bros., Evansville, Ind., whose store was recently burned, was in the city this week purchasing new fixtures. He expects to soon have a new store with an exceptionally fine stock to start on.

The wide-awake house of Bene, Lindenberg & Co. have purchased a liberal stock of spring goods, which includes all the novelties of the season. The new year has opened with greater prestige and brighter prospects than at any previous period in their history, and they are determined to add more laurels by making their house better known and giving their patrons better goods at better prices than ever before. Both of the proprietors will be on the road next month with a full line; also, August Neustedt, who will represent them on a special route.

J. M. Howe, formerly of Hopkinsville but now of Nashville, is in town visiting the trade.

Gus. Fox & Co. find no diminution in their order work. That good work and prompt service will command trade is illustrated in their daily experience.

A. G. Schwab & Bro. will open the spring trade with a trio of new travelers: Messrs. C. C. Martin, Will. Smith and Harry Kemper, who will keep in incessant motion with the finest goods purchasable, for A. G. is noted for the high-grade goods he sells. He has just returned from the East, where he completed their list of spring novelties, and the firm are now prepared to show an elaborate display.

Frank G. Meyer, of Dayton, Ohio, was in the city recently and remained to attend the funeral of his friend, Clemens Hellebush.

Every jeweler is pecuniarily interested in badges and medals, since in every contest, nowadays, must be awarded either one or the other, and it is well to remember that the most eminently-popular medal designer and maker is Joseph Noterman, who has grown gray manufacturing these goods. They can be made to suit the varied resources of their patrons, from the plainest college pin to the most elaborate diamond-ornamented emblem badge. Many new designs are being prepared for this season.

Jewelers of note in the city are W. O. Amann, Sidney, Ohio; H. P. Lorbach, Circleville, Ohio; Chris. Hewig, Evansville, Ind.

D. Schroder & Co. have replenished their stock with their customary good taste and liberality, and their travelers will soon be on the road with a line of samples that will command the interest of buyers. Wm. Schultz, who has been enjoying a brief rest, starts this week on a trip south, and Eugene Frohmeyer goes forthwith to visit the trade of Indiana, Ohio and West Virginia. I. Schroder will, in a short time, be welcomed by the trade in his accustomed territory.

Dukme & Co. have their agents already in the field, and expect a larger volume of business than last year, because they have a larger variety and a beautiful and well-selected stock, while the prices are not excessive.

Clemens Hellebush, Jr., who really supervised his father's establishment for some years, will, with his mother, continue the business. An elegant stock is being shown, and the numerous patrons of the house seem to be taking early advantage of the same.

The Albert Bros. began last year and were immensely gratified with the success of their maiden venture. They are beginning the second year with a full-fledged determination to boom it clear through to the finish with real, unadulterated bargains, and will not only duplicate their first year's good sales, but will top it the first six months. The trade may rely upon the goods they offer.

E. & J. Swigart, outfitters of everything in the watch trade, importers and dealers of every known material and tool used by the trade, are still at the top. They are the best-equipped house in the West. They have the most thoroughly organized methods of handling the same. They are the most prompt and reliable shippers, and employ the most competent men to aid them in filling orders. See their new catalogue and be convinced that whatever you want they have in stock, ready to ship at a moment's notice. Note their prices on lathes, foot-wheels, countershafts and other attachments. They are prepared to please you and satisfy your wants, because of the completeness of their stock in all lines.

The Cincinnati travelers who will be on the road the 1st of February are Wm. Schultz, Is. Schroder, Eugene Frohmeyer, for D. Schroder & Co.; Wm. Pfeuger, John Osthoff, for Jos. Noterman & Co.; L. Strauss, Chas. Rauh, Louis Rauh, for Strauss & Stern; F. C. Strang, Hugo Jonas, for Jonas, Dorst & Co.; S. Bene, Simon Lindenberg, August Neustedt, for Bene, Lindenberg & Co.; I. Levendorf, Maurice Hahn, E. Rosenberg, for Henry Hahn & Co.; C. C. Martin, Will. Smith, Harry Kemper, for A. G. Schwab & Bro.; Sam. and Sol. Goldberg, Ralph Biesenthal, for Amberg & Co.; L. Kaufman and S. Hendricks, for Gus. Fox & Co.; Will. Moore, J. Augustine, Cliff. Miller, for Dukme & Co.; Chas. Goebhardt and S. Hawkins, for C. Hellebush. Others will follow as the season advances.

Jonas, Dorst & Co. had an exceptionally large holiday trade, and since then have found time to get in readiness their new designs for spring. Their new snake ring, with eyes of rubies and a diamond on the head, are of new and original design, and need only to be seen to meet favor. Hugo Jonas will be found more affable, if possible, than ever on his next trip, for the reason that he celebrated his wonderful holiday sales by getting married, January 10th, to Miss Minnie Bates, of Covington, Ky. The wedding was a delightful affair, and the couple received a large number of elegant presents. Jonas, Dorst & Co. will be represented on the road this year by F. C. Strang.

Henry Hahn & Co. are following up the success of the holiday trade by large additions to their stock of beautiful goods, and are in the field to be winners in the spring trade. Their new traveling man, E. Rosenberg, starts out under most favorable auspices, while their other traveler, who rested from the overwork of the holidays, will enter into the business of the season with a vim that insures success.

Joseph T. Homan, of Homan & Brothers, manufacturers of silverware, and Miss Agatha K. Rudolph, youngest daughter of Mr. and Mrs. Sebastian A. Rudolph, of the Ashland Paper Mills, West Manayunk, Pa., were married recently. THE KEYSTONE extends congratulations.

Strauss & Stern are done taking stock, and have a fine line of new goods. The members of the firm will travel alternately this year. Mr. Strauss will take the lead at an early date with a choice line of samples, and upon his return Mr. Stern will make a trip. Their own personal merit and well-known reputation for fair dealing insures them a cordial welcome from the trade.

Peter Henry has on hand a number of watch cases which he is transforming to fit American works instead of the English works for which they were made. He has been very successful in remodeling these cases. The excellent work done by Mr. Henry in repairing watch cases that seemed hopelessly ruined guarantees him a busy season the year round, and such is his experience—busy all the year.

Joseph Mehmert found his stock greatly reduced when the holiday trade was over, and has replenished liberally. He will, in a short time, greet his friends on the road with his new and elegant samples. He has profited by years of experience, and no one is better posted than he is concerning the demands of the market.

"Got no excuse for not sending it before, but shall be a subscriber to THE KEYSTONE as long as it shall be as bright a paper as it is."—G. O. SCHNEIDER, Kansas City, Missouri.

*We are now
perfecting arrangements
for a fine display
at the
World's
Columbian Exposition*

OUR PURPOSE:

We propose to have, as an attractive feature of the display, a collection of curiosities in watches and watch cases.

YOUR OPPORTUNITY:

If you have anything interesting in this line, we shall place it in our exhibit, properly marked with your name and address.

OUR RESPONSIBILITY:

We shall also make ourselves responsible for its safe-keeping and return to you.

Send to us by express at our expense.

Keystone Watch Case Co.

Nineteenth and Brown Streets,

Philadelphia, Pa.

Manufacturing Jewelers

Wholesale Dealers
Importers and Jobbers
of
General Supplies

HEEREN

BROS. & CO.

Clocks
Watches
Jewelry
Diamonds
Silver and Plated Ware
European Novelties
Bric-a-Brac
Art Goods
Statuary
Bronzes

Tools
Materials
Machinery
Findings
Diamond-Mountings
Optical Goods
Morocco Boxes
Plush Goods
Musical
Boxes



HEEREN

BROS. & CO.

for
Jewelers
Watchmakers
Engravers, Opticians
Dentists, Electricians, Machinists

PITTSBURG, PA.

Philadelphia Notes.

There is nothing remarkable about the condition of local trade. In common with other branches of business, it was somewhat injuriously affected by the zero weather, but has again assumed its normal condition, and symptoms for an early spring activity seem unusually favorable. The wholesale trade was apparently unaffected to any noticeable extent by the atmospheric inclemency, and a satisfactory number of orders embodies the general report.

David F. Conover & Co. are remarkably busy, considering the season, and numerous and good-sized orders claim daily attention. Their present stock is certainly a drawing card, their watch department meriting special mention. The completeness of the supplies for spring trade would be a revelation to many visiting jewelers. Edward Titus, with this house, has returned to his duties after an absence of several weeks owing to sickness.

The big social event in the local trade this month will be the banquet at Wiener's cafe on the occasion of the fourth annual convention of the Retail Jewelers' Association of Pennsylvania. The entertainment will be a brilliant one, and well worthy of the organized jewelers of this great State.

Queen & Co., now a stock corporation, with a capital of \$600,000, are taking steps in various directions to make this year the starting point in a new era of their very successful history. Their window-displays are models of the art of window-dressing, and excite general admiration and pleasing astonishment.

During the cold weather, a water-tank on the roof of 818 Arch Street was found to have overflowed, and did considerable damage to the building. The ground floor is occupied by Weinmann Bros. & Co., who suffered loss to the extent of several hundred dollars.

Frederick M. Simons, of Simons, Bro. & Co., has been elected one of the directors of the Merchants' National Bank.

S. C. Levy, whose very attractive store is the admiration of northern Philadelphia, continues to make remarkable additions to the volume of his trade. Mr. Levy is a typical storekeeper, and a leaf out of his book would be money in the pocket of half the storekeepers in the land. There is science in keeping a jewelry establishment, and Mr. Levy is entitled to the degree of D. Sc. in this respect.

Sickles & Sons continue to receive order-laden epistles from their multitudinous friends in the trade. They are enjoying remarkable activity for this season, and the retailers' appreciation of their business methods insures its increase and permanency. By a printer's oversight, one of the cuts in their advertisement in our last issue was wrongly placed. We regret the mistake, which was, of course, too manifest to be misleading.

A jewelers' club is being organized in this city, and the leaders in the movement are enthusiastic over its prospects. Liberal promises of support have been had from prominent local jewelers.

H. O. Hurlburt & Sons have just completed preparations for inaugurating the spring trade, and their stocks are now complete in all lines, and await the early attention of patrons. The past year made still stronger the bonds of goodwill between this house and the retailers.

A jeweler of refined tastes and wide-awake proclivities can add to a stock of jewelry an artificial attractiveness that will much facilitate sales and increase the profit on same. One way of doing so, and an effective one, too, is to get a supply of the handsome jewelry-trays, cases, boxes, etc., now being shown by H. B. Sommer & Co., of this city.

It has gone hard with the jewelry thieves here recently. James E. Barber, for theft of silverware and watches from George Eakins & Son, was sentenced to fourteen months in the penitentiary by Judge Hare.

S. R. Kamp & Co. begin the year with a finer stock and greater prestige among the trade than ever before. They have a happy knack of giving satisfaction to all patrons that is evidently appreciated by the latter.

Plans are being prepared for the erection of a new building at 1324 Arch Street, by Vaesch & Co., opticians and dealers in optical supplies.

Jewelers having repairs to do on musical boxes will save time and money by having it done by those who make a specialty of this line of work. There are several such firms in this city, and among the best is the old-established firm of A. Jaccard & Sons, 1016 Chestnut Street. Both members of the firm are experienced workmen, who learned their trade in Switzerland, the great manufacturing center of music-boxes. They guarantee all their work and do it at very reasonable rates, and jewelers leaving anything in their line would do well to consult them.

City of Watches.

WALTHAM, MASS., January 31, 1893.

D. D. Palmer, of the Waltham Horological School, is much improved in health, after a very severe illness.

Bessie Jameson, formerly of the American factory, but now connected with the Nurses' Training School in Philadelphia, is visiting friends here for a few days.

Fred. B. Ripley, for many years at the American factory, is to start a job-shop here in a few days.

George Bergin, son of Engineer Bergin of the American factory, is to have a medal from the Massachusetts Humane Society for saving from drowning in the Charles River the five-year-old son of Melquiades Hernandez.

Grace Law, formerly of the American factory, is en route for Denver, Colorado, where she is to marry Charles Doherty, a watchmaker, formerly of Waltham.

Western Agent Bentley, of the United States Company, has returned to his home in Chicago.

The American Company is having some photographs of the several departments taken, to be used as a part of the exhibit at the World's Fair.

E. R. Lyle and M. H. Stevens, who have been assistant foremen of the hairspring and mainspring departments, have been made foremen, owing to Foreman Logan's death.

W. N. Mortimer, late of the American factory, has the New England agency for some English bicycles.

A new, automatic damaskeening-lathe at the American factory is attracting considerable attention.

The Watch Factory Relief Association, at the American factory, paid out as benefits in 1892, \$5384.80; cash on hand, \$1252.79.

John Logan, a valued foreman of the American Waltham Watch Company, committed suicide at his residence on Crescent Street, about six o'clock Friday morning, January 20th, by shooting himself with a rifle. He had been suffering for several months with nervous prostration, and his mind was undoubtedly unbalanced. Mr. Logan arose early on the morning when he committed the fatal act, being, as his family believed, unable to sleep. When his wife arose she found he had visited the library, and a search for him revealed the fact that he had shot himself.

Mr. Logan had decided to pass the winter in the South, but changed his mind just before his dreadful deed. He was born in Lowell, Mass., in 1844, and in 1862 secured a position at the American factory. He afterward worked for the E. Howard Watch and Clock Company and the Giles-Wales United States Watch Company at Marion, N. J. He returned to Waltham in 1880, and, after experimenting on his own account, established a small shop for the manufacture of hairsprings for the trade. The fine quality of his product attracted the attention of watchmakers in general, and in 1886 he again went to work for the American Company, and had since been in charge of the hairspring and mainspring departments. During his connection with the American Company he had invented many labor-saving devices which have proved valuable to the Company and himself alike. He left a widow, one son and an aged mother, besides a brother, Andrew J. Logan, manufacturer of watchmakers' specialties. His funeral was private, but the floral tributes from friends were numerous and beautiful. Those who were present outside of his immediate family were Treasurer Royal E. Robbins, President Fitch, Assistant Superintendents Shirley and Church, Mechanical Superintendent Marsh, and the foremen of the several departments at the watch factory. He was the third foreman to die while in active service for the Company, Foremen Lynch and Hicks being the other two.

The Foremen's Association adopted the following resolutions:

WHEREAS, We have been called upon to mourn the untimely loss, by death, of our associate and friend, John Logan; therefore

Resolved, That by the death of Mr. Logan, we, as members of the Foremen's Association, are deprived of the friendship and companionship of one who was in all ways and at all times a genial, honest and faithful comrade.

Resolved, That we voice the opinion of many who have benefited by his openhanded generosity, that his desire to lessen the discomforts of those with whom he came in contact, and the unassuming manner in which he aided those who were in need, have endeared him to all who knew him.

Resolved, That we express to his bereaved widow, son and aged mother our heartfelt sympathy in this hour of their affliction and sorrow, and our hope that "He who doeth all things well" will give them strength to bear their great misfortune with Christian fortitude.

Resolved, That we send a copy of these resolutions to Mrs. Logan, and that they be spread upon the records.

J. L. KEYSER
E. L. HULL
W. H. WRENN } Committee.

St. Joseph Letter.

ST. JOSEPH, MO., January 30, 1893.

The trustee of Baldwin & Co. has been closing out that stock at auction the past week with fair success. Geo. P. Dixon, a local auctioneer, is carrying on the sale.

K. H. Clark, our leading retailer, has again been forced to close down his establishment on account of financial difficulties. On the evening of January 11th his store was closed under a deed of trust given the National Bank of St. Joseph for \$15,625. Elias Gatch was placed in charge as trustee for the benefit of creditors. There are a large number of claims outstanding besides the banks, and are said to aggregate about \$25,000. The stock on hand and outstanding accounts are said to invoice about the same as the liabilities. The stock is now being closed out at a sacrifice sale by the trustee. The failure is attributed to dull business the past year. The first reports sent out from here were in error when they stated Clark's failure was caused by the Baldwin & Co. assignment, as he was in no way a creditor of theirs. The throwing of the Baldwin stock on the market at forced sale during the holiday season may have hastened Mr. Clark's difficulties, however. St. Joseph now has her two largest jewelry stocks on the market at forced sale, and her citizens can revel in jewels at their own price.

J. W. Phillips, of Fairfield, Neb., was one of our trade callers this month. Mr. Phillips is suffering from an affection of the eyes and came here for treatment.

Paul Scholz, of Fairfax, Mo., paid the trade a visit last week.

W. B. Crook, of Edgar, Neb., accompanied by Mrs. Crook, who was visiting relatives in this section this month, has returned home.

W. E. Geirmann, the well-known jeweler of Rockport, Mo., has been carrying on an auction sale since the holidays.

Loren Boyle, of THE KEYSTONE, will remove his family to Chicago next week, where they will reside hereafter.

J. C. Baldwin, of Baldwin & Co., was called to Columbus, Ohio, Saturday by a telegram announcing the illness of his brother Charles. He immediately started for the sick man's bedside, but he arrived in Columbus too late to see him alive, for he passed away quietly and peacefully at 6 P. M. Sunday. Charles Baldwin was the youngest son of J. W. Baldwin, Columbus, senior partner in the house of Baldwin & Co., of this city, and he and his brother J. C. were partners in the firm of Baldwin Brothers, retail jewelers, High Street, Columbus. His business life had been spent in the jewelry line, and by close application and careful methods had built up a fairly prosperous retail business. His interment will take place at Marietta, Ohio.

The report of the assignment of C. T. Ahlborn, Allegheny City, Pa., was an error. It was his father, Charles Ahlborn, the Sharpsburg, Pa., groceryman, who failed.

The "New Departure" call-bells, which produce electrical results without a battery, are an innovation that have all the merits of ready sellers, and it is our duty to direct the attention of the trade to all such goods. They are made by the New Departure Bell Co., Bristol, Conn. The bicycle-bells made by this Company are simply perfection.

A. Hirsch, head of the firm of A. Hirsch & Co., 175 Madison Street, Chicago, has lately returned from New York and the East, where he has made heavy purchases for the spring trade. Wm. Hirsch, of the same firm, accompanied by his wife, has gone on a visit to Hot Springs, Ark. The traveling force of this house are all out in their territories this month. Marc Weill is in Iowa and Nebraska; Nathan Cohn is doing Wisconsin and Minnesota; Oscar Hirsch is covering Missouri and Kansas; and Isaac Springer is among his Illinois and Indiana friends.

R. Wallace & Sons Mfg. Co., 86 Wabash Avenue, Chicago, have become exclusive agents in the Western metropolis of the Hartford Silver Plate Co. The World's Fair novelties are well worth the attention of the trade, and comprise among other things, Smoking Sets, Thermometers, Writing Sets, Jewel Cases, Pin Cushions, Trinket Trays, Tooth Pick Holders, Card Cases, Colognes, Puff Boxes, Shaving Cups and Brushes, etc.; and, most unique of all, they are made up of natural objects—imported and native Sea Shells, Corn Cob Pipes, Turkey Legs, etc., etc., and other real objects, to which by a patented process of their own they have in many cases applied directly a gold plate.

We Want Business More Trade from Old Customers More New Customers

On what grounds do we ask it, do you say?

No unusual schemes or intricate devices; but plain, earnest efforts to merit the patronage we get, by doing quickly and well, for a close margin, all that is expected of a jobber by the trade. This means the right kind of goods—promptly handled—at the right price. It means that we easily become acquainted with jewelers who deal with us, for we have no unpleasant forms to go through with—we do not subject first orders to any delay when accompanied by the proper reference, but, instead, fill them as though the dealer had transacted business with us for years. Five-dollar favors awaken us as thoroughly as favors one hundred times larger. We believe jewelers are easy to please when their wants are known. We can come near knowing yours if you will be frank with us, and give us your confidence. Why not begin thus early in this great Columbian year, and send us your orders? We try to make visitors feel welcome. Call on us when in the city. We have a clerk near the door to direct you to the proper department, or introduce you to those who will entertain you.

OTTO YOUNG & CO.

Diamonds, Watches, Jewelry, Silver-Plated Ware,

Tools, Materials and Optical Goods,

AT WHOLESALE ONLY.

NOS. 149, 151 & 153 STATE STREET, CHICAGO.

The World's Fair

(Continued).



ADVANCES up to date to the International Exhibitors' Association, of the Stewart Building, New York, indicate that exhibitors are still clamoring for space in the World's Fair buildings.

The final allotment of space in the Liberal Arts Building was made on January 2d. This building is the great center of the whole system.

The illness of Chief Allison delayed the assignment of space. Requests for five times more than the available space have been received. Manufacturers seem to be fully alive to the advantages to be derived from an exhibit.

Foreign governments and exhibitors are showing increased interest in the Fair. The custom-house officers recently announced the arrival of six cars of building material for the German Building, one car for the French Building, and one car for the Japanese Temple. Russia has made application to erect a grand dome seventy feet high over its court in the Manufactures Building. The Swedish Building has been shipped from Stockholm and is daily expected.

It is estimated that 16,000 carloads of exhibits will be received at the grounds between now and May 1st. Reducing the proportion to figures, it would mean a train of cars over one hundred miles in length.

A representative is in Chicago from the colony of South Africa. He reports great interest in the Fair in that remote district, especially among people engaged in mining.

The number of guards employed to look after the grounds and exhibits has been increased to 500, and a further addition to the force is to be made soon.

Exhibitors in all lines of business are urged to get their exhibits in as soon as possible, so that they may be included in the mammoth official catalogue of exhibits. This catalogue will be an elaborate publication, and a separate portion will be devoted to each department.

Many Eastern manufacturers are writing to the World's Fair management for information regarding the entry of exhibits, their care during the show, and other matters. The best and earliest available information for all such inquiries can be obtained at the office of the International Exhibitors' Association, in the Stewart Building, New York. By making inquiries there, Eastern exhibitors will be more promptly answered than by troubling the World's Fair committees in Chicago. The Association is using every effort to see that its members get available information, and at the same time receive an equitable allotment or the space asked for by them.

Intending exhibitors wishing the Association to assist them regarding their exhibits, should immediately communicate with the secretary of the Association, and their interests will be looked after at once.

Jackson Park is now one vast warehouse, toward which every railroad and steamship system in the world is bringing exhibits for the Fair. It is expected that March 1st will find a large portion of the exhibits in Chicago, excepting those intended for the Horticultural Department.

Foreign nations have been the earliest on the grounds. The early arrival of exhibits from abroad may be accounted for on the theory that most of the foreign commissioners are experts in exposition matters. Domestic exhibits, on the other hand, have been delayed on account of the time that it has taken to make the allotments. The fact should be impressed on domestic exhibitors that the advantages of being represented early on the grounds cannot be over-estimated.

John Boyd Thatcher, chairman of the Committee on Awards, is in Chicago consulting with the World's Fair officials. It has been decided to have only one judge in each case where an award is to be made, instead of leaving it to a jury of six, as is usually done at expositions.

The location of the educational exhibit has been definitely settled, and it will be in the south gallery of the Manufactures and Liberal Arts Building. The space assigned to it is 175,000 feet gross.

Director General Davis nominated Dr. J. A. Hornsby for assistant chief of the Department of Electricity.

Jewelry Notes.

An inquiry was recently received at the Treasury Department from G. H. Harlow, of Chicago, Ill., as to whether the use of the Columbian half-dollars in the manufacture of various articles as souvenirs, such as spoons, forks, etc., would be an infringement of existing laws. He has been informed that the Solicitor of the Treasury is of the opinion that such use of the coins would be a violation of law, inasmuch as the similar use of other coins of the United States has been so regarded by the Department.

Horticultural Hall will be shown in miniature in a solid silver model. This representation will be produced in the city of Mexico by jewelers who think the project will be eventually profitable to them. The edifice which they propose to construct will be eleven feet two inches in length, three feet two inches in width, two feet three inches high. There have been employed in its construction 110 pounds of silver. The Mexican coat of arms, which will ornament the center dome, is of enamel, showing the national colors. The plans for the work were furnished by W. L. B. Jenny, architect of the Horticultural Building.

Nielsen & Taylor, Salt Lake City, Utah, are making a clock which the ladies of the American Fork Club will send to the World's Fair. The clock will be seven feet high, eight inches wide and eight inches deep. The dial will be of silver, with enameled figures and gold hands. On the pendulum, which will be of silver, are to be engraved the names of the president, secretary and treasurer of the Club.

It has been decided to have a 2000-pound bell in the tower of the Pennsylvania State Building at the World's Fair. It is being cast by McShane & Co., of Baltimore. The four nine-foot sectional glass dials with gilt figures are in place. The clock is being put in by the Seth Thomas Clock Company.

Collections being made in Idaho for the World's Columbian Exposition afford unusual opportunity for studying the geological and mineral production. The exhibit for Custer county contains a beautiful specimen of onyx. Indications are that an agate field exists in the county. Sapphires have also been found, one lot of which sold for \$1100, but recent efforts have failed to produce one for the Exposition. A sample of rock has been received from Lewiston, the exact character of which has not been determined, but which appears to be a variety of jasper. This specimen cuts glass readily, and is said to be so hard that ten minutes' grinding on an emery-wheel has scarcely any effect on it. It is variegated in color, with pink and green tints. It is quite small, and efforts are being made to secure a larger one. Its value is not known. The variety of opals will be large. They are the genuine fire opals, and said to be of a very superior quality. Petrifications are very numerous in the State. The chief specimen in this department is a sample from the petrified forest in Custer county, near Challis. This distinctly shows the bark and wood of a conifer, a species of pine. The stump from which it was taken is fourteen feet above the ground, twelve feet in diameter at the top, and fifteen at the base. The bark is six inches thick. It was discovered about five years ago, and is now among the curious articles which will form a part of the Idaho exhibit.

The Columbian Association, composed of the ladies of Gallatin County, Mont., proposes to make a novel exhibit at the World's Fair in Chicago. The exhibit will be in the form of a table, the top of which will be about two feet square, and inlaid with forty-four Montana sapphires, the gems representing the States of the Union and reproducing the arms of the Association.

Among the specimens of precious stones of America in the collection to be exhibited at the World's Fair are opals from Washington, fresh-water pearls from many Western States, turquoise from New Mexico and diamonds from Idaho.

Japan will have an exhibit of jewelry at the World's Fair, which will include specimens of ornaments worn in that country during the last 2000 years.

Commercial Travelers' Day.

Fifteen delegates, representing seven of the largest commercial travelers' associations in America, met recently in Chicago to organize for the purpose of entertaining commercial travelers at the World's Fair next summer. A. J. Dowd was elected president, and George C. Cooper secretary. Mr. Dowd read a letter from Director General Davis, of the World's Columbian Exposition, offering the traveling men their choice of the weeks in July, and after a short discussion the week commencing July 24th was selected. The delegates claim that they will have 100,000 men in their parade, July 26th.

The Fair Gets the Earth.

An interesting feature of the Government's exhibit at the World's Fair will be a model of the earth, with all the geometrical accuracy that mechanism and art can give to such a difficult representation.

The globe is about sixty-five feet in circumference, with a diameter of twenty feet, superficial area of 1256 feet, and weight of 4000 pounds. It will bear upon its surface representations of the land and water on a scale of sixty-nine miles to one and three-quarter inches. The degrees of longitude and parallels of latitude are indicated, together with the zone lines, the isothermal lines, the principal steamship lines, and an appropriate tracing of the route of Columbus on the voyage of 1492.

The globe will, be supported on a horizontal axis, since that position affords a much better view of the depiction on its surface than if it were tilted to the geometrically accurate angle. There will be very little to represent at the south pole beyond the vague lines of Graham's Land. The apparatus for turning the globe, a small motor, will be placed at this end of the axis and hidden from view by an immense representation of the official seal of the General Land Office, which will serve as a screen and lend significant decoration to an otherwise prosaic part of the globe.

An interior stairway will afford access to a balcony around the base of the globe.

The Director General Speaks.

Director General Davis announces that of 3,642,812 square feet of space in the World's Fair buildings, only 214,476 square feet remain to be assigned to exhibitors. This showing is considered to be a sufficient answer to numerous complaints of the delay in assigning space to applicants.

The Director General further states that the chiefs of the various departments have made a better record in this respect than in previous expositions. He says that it is always necessary to hold a certain area of space in reserve for first-class exhibitors who want to come in at the last moment, rather than to give the space to inferior concerns simply because the latter forwarded their applications early.

Director General Davis's statement shows that foreign countries have been given 1,419,517 square feet of space, and American exhibitors are allowed 1,787,263 square feet.

Besides the 214,476 square feet of space unassigned in the various buildings, 211,465 feet have been reserved for restaurants and other concessions.

The assignments already made are as follows in square feet:

Building.	Total Area.	Foreign.	American.
Agriculture,	415,348	134,722	281,471
Horticulture,	158,598	40,516	69,612
Fisheries,	80,598	24,875	42,132
Mines,	272,615	86,350	142,918
Machinery,	456,661	129,002	204,771
Transportation,	590,589	166,654	402,938
Manufactures,	799,942	428,670	215,927
Electricity,	185,160	60,938	137,000
Fine Arts,	192,436	161,992	30,444
Liberal Arts,	346,000	119,754	202,040
Ethnology,	101,312	43,656	57,656
Forestry,	52,656	22,664	29,992

In the matter of the space already assigned to domestic exhibitors, it is said that in nearly every instance the space which had been allotted was from thirty to fifty per cent. less than the amount applied for. It is, therefore, expected that a large number, on receiving their allotment, will refuse to make an exhibit on account of the limited amount of space offered them, and that this space so rejected will then remain to be assigned to many intending exhibitors whose applications were received at a later date. It is expected, therefore, that many assignments will yet be made, as soon as the officials of the Fair are able to re-allot the space rejected.

An Antisudorific for Perspiring Windows.

WEST BAY CITY, MICH., Jan. 16, 1893.
THE KEYSTONE.

GENTLEMEN:—In looking over a back number of your paper I find somebody inquiring about a remedy for preventing the sweating of show-windows. To cure this much-lamented evil, I will give to anybody who wants it, a recipe which not only never fails to work satisfactorily, but is also a great attraction to the show-window. Myself and many others tried it successfully while I was still living in Germany, ten years ago. The secret is simply to keep the plate of glass warm by a method which is at once cheap and decorative. Where there is gas connection in the store the plan can be worked and maintained at a very small expense. I know it works well, and have seen it in many stores in Europe. It first originated in Hamburg, Germany, I think.

Yours truly,
F. W. A. KLEINAU.

DO YOU

133

wish to handle a

RELIABLE BRAND

of

SILVER-PLATED WARE?

Then buy the



as it is superior to any of so-called Rogers Brand of Goods,
and is the

Only Genuine Brand of Rogers Silver-Plated Ware

on the market which is guaranteed to strip on extra plate, per gross:

50 dwts. of Silver on Tea Spoons
75 " " " " Dessert Spoons
100 " " " " Table "

or 25 per cent. more silver than standard plate.

All our Extra, Double and Triple Plate Spoons and Forks are plated by the Sectional Process. We plate our goods the regular plate, then put the extra amount of silver on by our New Improved Sectional Process.

Our Extra Plate is more than equal to regular 12 oz. or Triple Plate.
" Double " " " " " " " " 16 oz. " Quadruple Plate.
" Triple " " " " " " " " 24 oz. " Sextuple "
" Extra Sectional XII Plate is more than equal to regular 16 oz. or Quadruple Plate.

Making them the heaviest plated goods on the market.

The Wm. Rogers' Mfg. Co.

FACTORIES:

Hartford, Conn.
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Address all communications to Hartford, Conn.

NEW! NEW! NEW!

SPRING LINE NOW READY!

DIAMONDS	GENTS' CHAINS	DIAMONDS	VICTORIA CHAINS	DIAMONDS	LACE-PINS		
	LOCKETS		CHATELAINES		BIB-PINS		
	SLEEVE-BUTTONS		CHATELLETES		NECKLACES		
	SCARF-PINS		SHETLANDS		BRACELETS		
	RINGS		BROOCHES		HAIRPINS		
	BUTTON SETS		EARRINGS		HAT-PINS		
GOLD PENS.		PENCILS.		TOOTHPICKS.		SILVER MATCH-BOXES.	

Headquarters for Waltham and Elgin Movements.

We carry all the leading makes of Watch Cases in Solid Gold, Gold Filled and Silver, and a complete line of WATCH MATERIALS, TOOLS, OPTICAL GOODS, Etc.

M. SICKLES & SONS,

618 Chestnut Street, Philadelphia, Pa.

ESTABLISHED 1888.

INCORPORATED, JUNE, 1892.

KNOWN AS THE BEST.

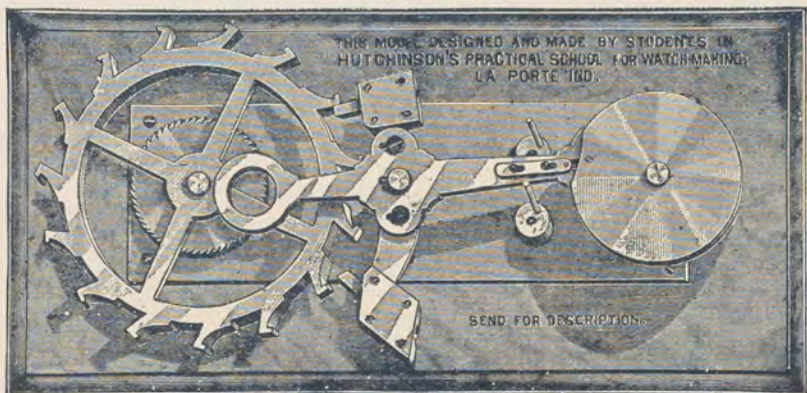
Hutchinson's Practical School for Watchmakers, LA PORTE, IND.

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Our Famous Escapement Model. Designed by Prof. J. L. Hutchinson. Built in this school by Student R. W. Keeler. Send for description.

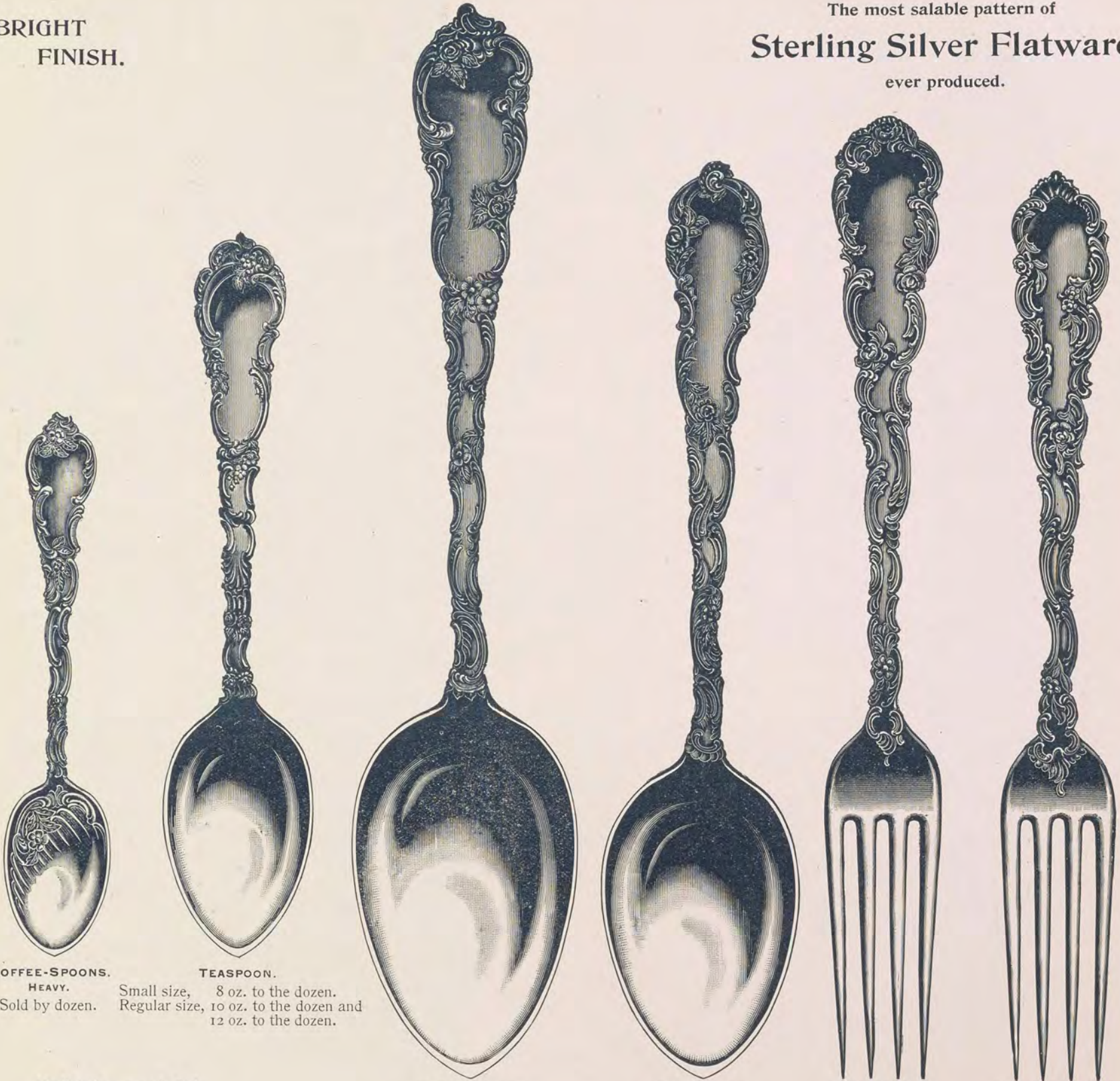
YOU can acquire a more thorough knowledge of everything pertaining to watchmaking at this school in less time and at less expense than at any other place in the United States. Tuition lower than that of any other school and includes an optical course. Cost of living less than at any other place where similar schools are established. Students received at any time. Send for catalogue, samples of engraving, etc.

J. L. HUTCHINSON,
Superintendent.

The "Junior Rococo"

BRIGHT
FINISH.

The most salable pattern of
Sterling Silver Flatware
ever produced.



COFFEE-SPOONS.
HEAVY.
Sold by dozen.

TEASPOON.
Small size, 8 oz. to the dozen.
Regular size, 10 oz. to the dozen and
12 oz. to the dozen.

DESSERT-SPOON.
15 oz. to the dozen and
20 oz. to the dozen.

TABLE-SPOON.
20 oz. to the dozen and
26 oz. to the dozen.

MEDIUM FORK.
20 oz. to the dozen and
26 oz. to the dozen.

DESSERT-FORK.
15 oz. to the dozen and
20 oz. to the dozen.

Sold by weight
at manufacturer's price.

The outline of each size is different, but all have the same general appearance, in true Rococo style.

WENDELL MFG. COMPANY,

The Silversmiths for the Medium Classes.

NEW YORK,

After April 1, 1893.
93, 95 and 97 William Street,
Near Maiden Lane.

CHICAGO,

63 to 69 Washington Street
FACTORY,
Washington and Franklin Sts.

SAN FRANCISCO, CAL.

528 and 530 Market Street.
A. I. HALL & SON, Agents.

Philadelphia Optical and Watch Company.

A flourishing Watch, Jewelry and Optical Jobbing Establishment—Origin of the Business—Its Phenomenal Growth and Present Dimensions.

We are enabled, through the kindness of Mr. W. Reed Williams, president of the Philadelphia Optical and Watch Company, to reproduce, in half-tone, photographs of the various departments, and are also indebted to this gentleman for taking the time from his busy occupation to furnish us with sufficient data to make our sketch an accurate, though brief, history of this exceedingly prosperous house. He thus speaks of the beginning of the business and the ideas and thoughts that inspired him to make the effort which has resulted in creating a typical wholesale jewelry and optical house, and an ideal one for the trade to transact business with:

"Having devoted over ten years of earnest labor to the different branches of a wholesale optical and watch business, and having, during that time, traveled over a great portion of the country and come in contact with many dealers, I became imbued with the idea that to make a success of a wholesale business it was necessary to conduct it on a broad basis; that if we claimed to be wholesalers, we should prove to the trade, by *selling no goods at retail*, that we were *wholesalers* and did not need to depend on any other trade than that of the legitimate retail jeweler and optician. I felt that we could, by this plain, simple rule, rigidly enforced, first gain the sympathy and patronage of every liberal-minded dealer in the country, and then hold it by doing absolutely first-quality work, giving prompt service and as good terms and close prices as were consistent with good workmanship."

We leave our readers to be the judges of whether or not the idea, as advanced by Mr. Williams, is the secret of their success, and if their rapid growth is not also due to his personal devotion to the development of each particular branch of the business he created, combined with his persistently carrying out the idea of *protection* to those whose trade he was anxious to secure. In any sense, their business, since its very commencement, has been a conspicuous example of the success that attends honesty of purpose, hard individual effort, invincibility of will, and a rigid adherence to the maxim "Do unto others as you would have others do unto you."

Commencing business in 1886 with but four employees and a paid-up capital of \$18,000, they transacted the first year a purely optical business of \$36,000. As Mr. Williams expressed it, he was "bookkeeper, traveling salesman and utility man in general." Three of the employees were skilled mechanics, employed in the optical lens-grinding shop, and the fourth a boy to run errands. This was not a very big commencement, and it seems hard, indeed, to realize that the present large plant is the outcome of it.

Steadily, week by week and month by month, the business grew, surprising even the most sanguine of its friends who had predicted its success.

In 1887, the second year of its existence, it did a business of \$75,000, an increase of over one hundred per cent. over the preceding year. About this time Mr. Williams succeeded in buying the jewelry and watch business of T. B. Hagstoz & Co., and changed the title of the concern from The Philadelphia Optical Co. to its present title, Philadelphia Optical and Watch Co., increasing the capital stock to \$32,100, all paid in. Shortly after this event in the history of the business, he also succeeded in buying the watch case manufacturing plant of Diesinger & Williams, Mr. W. Howard Williams and Mr. Dayton Ball becoming partners in the growing enterprise.

The business continuing to grow, it was decided to add more capital in order to take proper care of the increase, and, with this end in view,

Mr. Jos. W. Robinson entered the firm and the capital stock was increased to \$42,100, all paid in. There is no question but that at this period, 1890, they were one of the largest optical houses in the country, with an optical and prescription lens-grinding shop second to none. Their jewelry and watch business had also grown enormously, and in this year they still further increased their capacity by adding a diamond department, which, at the present writing, has grown to such an extent that it bids fair to equal in volume of business, if not exceed, the older departments.

But Mr. Williams' restless and enterprising spirit would not be satisfied there, and he began early in 1892 to agitate the minds of his partners with a proposition to still further increase the active capital of the house, with a view to largely increasing the plant and adding other facilities for doing a still more extensive business. He continued to press the matter vigorously until, finally, sometime in June, 1892, his partners acceded to his wishes and the increase in the authorized capital stock was made, bringing the sum up to \$200,000, and of this amount \$100,000 was paid in on July 1st, 1892. They at once commenced to greatly enlarge their plant, already occupying the second, third and fourth floors of the building 916 Chestnut Street, by leasing an equally large building directly back of them on Sansom Street. These two large buildings were separated by a fifteen-foot-wide alley, which necessitated the tearing out of the rear walls of both buildings and the arching over of the alleyway in order to join them into one building and obtain the needed accommodations.

This improvement has given the Company three floors, twenty-five feet wide by two hundred and twenty-five feet deep. The first floors on both Chestnut and Sansom Streets have been leased to other firms, and the entire second floor, which has been handsomely refitted its whole length in quartered white oak, is occupied by the different offices and salesrooms of the Company. The third and fourth floors of the Chestnut Street building are occupied by the jewelry and watch case shops, and the third and fourth floors of the Sansom Street end by the optical and prescription lens-grinding shops.

The result of this wise move is the present extensive and handsome establishment. We should like to be able to give a full description of the industry which has helped to make this firm famous, "the grinding of optical and prescription lenses," but, unfortunately, we have not the space to permit of our doing so in this issue. Every jeweler and optician knows, however, that when a lens is said to come from the Philadelphia Optical and Watch Co. it is equivalent to saying it is a "perfect lens."

Another department we have not yet touched upon is that of silverware, which, while it was only added last fall, has been so successful that it bids very fair indeed to soon require more space. In order to make this feature of their business as nearly perfect as possible, a large gold and silver-plating plant was added and is now in full operation, employing over a dozen hands.

The shipping and general express room is situated in the basement of the Sansom Street building, where a very careful system is employed in checking all outgoing or incoming packages.

The silverware storeroom is also in the basement, and is fitted up with the latest improvements for the protection and safe-keeping of the goods.

A very unique idea is the fitting up of a room especially for the messengers. Every town and

village within a radius of sixty miles has a messenger who makes daily trips to "the city"; who is, in fact, a responsible messenger for many different merchants, and looks carefully after whatever they desire attended to. This room has a number of closets, one for each messenger, who can have goods sent him from any part of the city and feel assured they will be received and properly taken care of. As the goods come in they are put in the closet belonging to the messenger they are intended for, and the closet is locked. The messenger calls before train-time and finds everything received waiting for him under lock and key, thus saving him a great deal of worry and extra running. This room has a desk, electric lights, etc., and is made very comfortable for the messengers' use.

The entire building is heated throughout by steam and lighted by electricity, both arc and incandescent lights being employed for this purpose; the power for running the shops is also supplied by an electric dynamo. All in all, it is one of the best-equipped wholesale jewelry and optical establishments in the country.

It has certainly been a great pleasure for us to follow the growth of this Company as we have year by year, and to be able to say we consider their success a well-merited one. No jeweler visiting Philadelphia, or indeed any portion of the East, should be content to return home without first paying the Philadelphia Optical and Watch Co. a visit. We can assure you that your time will be well spent, and that you will always be accorded a hearty welcome both by Mr. Williams and his large corps of able assistants, whether you come to buy or merely to go through their salesrooms and shops.

More About Methods for Obtaining Correct Time.

We are in receipt of a communication from Mr. Elwin S. Coutant, of Oak Hill, Florida, in reference to an instrument for obtaining correct time by solar observations. The instrument is known as the *chronodeik*, invented and patented by Mr. S. C. Chandler, of Cambridge, Mass. These instruments were (in 1880) manufactured in Boston, Mass., and sold for fifteen dollars each. The address at that time was Post Office Box 2725, Boston, Mass. The instrument is fully described in a copy of the *Science Observer* for September, 1880, which also contains the proper tables for conducting the necessary observations. Mr. Coutant speaks in very high terms of the instrument, which he constructed for himself from the description in the *Science Observer*.

Dunning Postal Cards.

An article has been going the rounds of our exchanges that it was a criminal offense to mail a dunning letter on a postal. An editor wrote to the first assistant postmaster-general last week and received the following reply, giving the decision of Judge Thayer, December 14, 1889, on the wording of a postal that was mailable, and one that was not. The mailable one read: "Please call and settle account, which is long past due, and for which our collector has called several times, and oblige." The one decided unmailable: "You owe me \$1.80. We have called several times for the same. If not paid at once we shall place with our law agency for collection." Postal cards are not mailable if they contain language of a threatening character.—

—Exchange.



OPTICAL DEPARTMENT



SILVERWARE DEPT.



COUNTING ROOM



WATCH & JEWELRY DEPT. & DIAMOND ROOM.



STENOGRAPHERS ROOM



SHIPPING DEPT.



OPTICAL PRESCRIPTION DEPT.



WATCH CASE SHOP.



PLATING ROOM



SURFACE GRINDING SHOP.



OPTICAL SHOP.



LENSE GRINDING ROOM IN OPTICAL SHOP.



POLISHING ROOM.



J. J. Cohn

Manufacturing
Jeweler.

NOVELTIES IN JEWELRY

Special Designs in **BADGES, GOLD EMBLEMS, PINS** and **CHARMS** made to order.

31 Maiden Lane, New York.



A New Lathe.

The only way we can compete with other makers and answer our customer's who want us to put the price of our lathe as low as other manufacturers, is to make a lathe that will not cost as much.

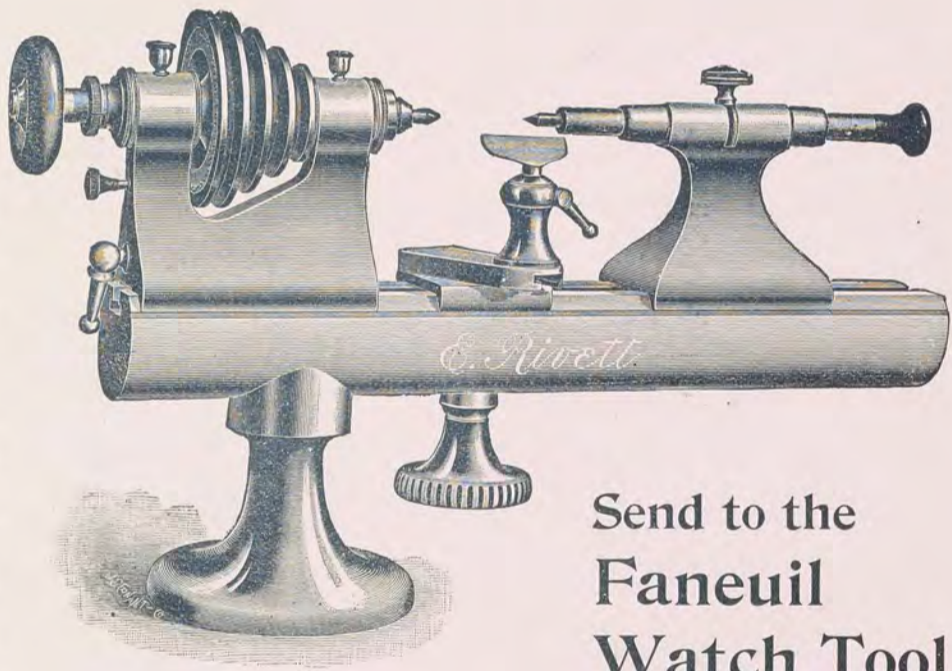
This lathe will be made

- For those watchmakers who think that a cast-iron bed is as good as a steel one.
- For those watchmakers who think that a lathe without oil-cups is as good as one with.
- For those watchmakers who think that a cone with an iron ring around it is as good as one with a solid flange.
- For those watchmakers who think that a tail-stock spindle with soft bushing and taper, is as good as a hardened and ground center.

The saving in the above parts will enable us to list the New Lathe at **\$45.00** where the "Rivett" is listed at **52.00**

The spindles, bushing, and the workmanship all through, will be in every particular equal to that of the "Rivett," and the "Rivett" chucks and attachments will fit the New Lathe. By the time that this issue reaches the public, the New Lathe will be ready for shipment. It will be known as


The Crosby Lathe.



Send to the
**Faneuil
Watch Tool
Company**
for Catalogue,
Price-List,
and further
particulars.

Office: 474 Washington Street,
Boston, Mass.

Factory: Faneuil Station, B. & A. R. R.,
Faneuil, Brighton, Boston, Mass.

Silver-Plated Ware 193 pages filled with best-selling styles.	Sterling Silver Table-Ware and Novelties. 47 Pages.	Clocks The largest line ever in one catalogue. 111 Pages.
Watches Watch Cases and Movements. 124 Pages.	Optical Goods Spectacles, Opera-Glasses, Magnifiers. 47 Pages.	Plush Boxes and Trays Paper Boxes, etc., For Jewelry and Silver. 4 Pages.
Canes Filled, gold and silver. 4 Pages.	Gold Pens, Pencils, Etc. Large variety. 17 Pages.	Diamonds In fine mountings. 40 Pages.
Fine 14 K. Gold Jewelry 44 Pages.	Ladies' Chains In rolled-plate and silver. 35 Pages.	Gents' Chains Largest variety of all kinds. 37 Pages.
Jewelry Trimmings in gold, rolled-plate and silver. 13 Pages.	Locketts and Charms In 10 K. gold, rolled-plate and silver. 27 Pages.	Gold Rings For ladies, gents and children. Finest assortment. 46 Pages.
Initial Rings Largest stock, best assortment. 3 Pages.	Bracelets Gold, silver and rolled-plate. 9 Pages.	Garnet and Jet Jewelry 7 Pages.
Solid Gold For ladies. An immense line	Sterling Silver and For children. filling 64 pages.	Plated Jewelry For gents. We keep the goods in stock.
Society Society Emblem Rings. 4 Pages.	Emblem Society Emblem Charms. 19 Pages.	Jewelry Society Emblem Badges, etc. 18 Pages.
All above to be found in "Busiest House in America" Catalogue for 1893. The most extensive and complete ever issued in the Jewelry business. Sent to legitimate Jewelers on application.		
Lapp & Flershem, Chicago, Ill.		
 We carry all the goods in stock, so can fill orders promptly.		



CHICAGO, January 28, 1893.

As the volume of local business was fully up to the average for January, the cold weather seems to have had but a slightly, if at all, injurious effect. The spring trade is already looking up, and reports from the traveling salesmen, the men on the ground, are redolent of big orders in the early future. A general overhauling of stock has taken place, and nearly all the stores wear a brand new and exceedingly bright appearance. The approach of the World's Fair season strengthens and sustains confidence, and the outlook generally is of the gilt-edged variety.

C. H. Knights is expected home from his Florida trip the first week in February.

Chambers, Inskip & Co. are showing the most complete lines of optical goods and appliances that it is possible to conceive. A survey of their present stock with its variety and new contrivances would be a revelation even to the professional optician.

W. S. Brown, salesman at the Barbour Silver Co.'s rooms, 122 Wabash Avenue, is a Hartford young man who has lately come to the West.

Charles Wathier, who died January 12th, in his seventy-seventh year, was the father of Joseph P. Wathier, of this city.

B. Berg, of the large retail house of Hyman, Berg & Co., paid New York a visit the past month.

The A. H. Revell Mfg. Co., 431 to 437 Fifth Avenue, have just issued and are sending out to the trade a handsome new catalogue of jewelers' fixtures, which they have taken a great deal of pains to make complete in every detail. They have succeeded well. Their designs of store fixtures are certainly original and exclusive, and are worthy of the attention of all jewelers who desire to refit their stores, or parties fitting up new stores. Call on them when in Chicago.

Richard O. Kandler, the proprietor and chief instructor of the Jewelers' School of Practical Letter and Monogram Engraving, makes a specialty of looking after the home interests of his pupils, as he makes it a point to find them pleasant boarding places while under his care. By the way, this School will find quarters in the new Columbus Building after May 1st. At present it will remain at its old quarters, 63 to 69 Washington Street.

Chicago jewelers have sold nearly \$50,000 worth of Columbian souvenir coins.

F. E. Lindahl, manufacturer of Lindahl's watch-case opener, 269 Dearborn Street, has reduced the price of this useful tool to the popular price of twenty-five cents each, which will bring it within the reach of every jeweler at once. This he has done without affecting the quality of the material used in the manufacture of his case-opener, but rather has increased its durability. You can order from any jobber.

Glickauf & Newhouse are again to the front with trade opportunities, and jewelers gunning for a spring stock at advantageous rates will strike a happy hunting-ground in this big Chicago store. Read their monthly announcements in this journal.

The early-closing movement is growing in strength in Chicago. At a recent mass meeting of retail merchants, it was decided to close all stores at 6 p. m. on Wednesdays and Fridays.

With a capital of \$3000, and for the purpose of manufacturing souvenir coins and novelties, H. C. M. Thompson, W. A. Stephens and Harry Goldstine have incorporated the Columbian Souvenir and Novelty Co., at Chicago.

The Pairpoint Mfg. Co. has been awarded space in the Manufactures Building at the World's Fair, just off the main aisle. Tiffany and the Gorham Mfg. Co. are near neighbors. The design for the Pairpoint pavilion for exhibits is the work of S. S. Beeman, who designed the Mines and Mining Exposition Building.

W. H. Becken, of Beaver Dam, Wis., was among the trade callers this week. Mr. Becken has made a watch in the design of a palette, which is a novelty in its way. He is thinking of exhibiting it in the Keystone Watch Case Company's collection at the World's Fair.

At Otto Young & Co.'s, all hands have been busy taking stock recently. This is no small undertaking in a house like this, but the force expect to finish it to the dot on February 1st.

F. A. Hardy & Co. have a laudable ambition to stand at the head of optical purveyors, and a glance at their stock will prove to anyone that they are fully equal to the task. There is, besides, a magnetism about their business methods that draws and holds trade.

J. J. Finan & Co. is a new firm of manufacturing jewelers lately established at 71 Washington Street, and is composed of young and enterprising men of practical experience in their line. They will make a success of their venture.

Julius Heinemann, manager of the Chicago Watch Tool Co., 50 and 52 Madison Street, reports a good mid-winter business, and is looking for a spring business that will crowd their factory to its utmost.

S. L. Barbour, secretary of the Barbour Silver Co., of Hartford, who was visiting their Chicago branch the early part of the week, was called home by telegram on account of sickness in his family.

Among the recent admissions to membership in the Chicago Jewelers' Association is the firm of F. A. Hardy & Co., of 46 and 48 Madison Street.

Carrying in stock a complete line of each kind of goods mentioned on the opposite page makes the aggregate very large. This is what Lapp & Flershem do, and so they are enabled to completely and promptly fill orders sent them. Everything is sold at as low prices as possible, so jewelers can order anything offered by them and rely on getting low prices on every item. They have no leaders or baits, making it necessary to get larger prices on other articles to average up, as some do.

J. V. Ridgway, secretary and treasurer of Giles, Bro. & Co., has returned from a ten-day trip to New York.

Pike, Willson & Ternend, 57 Washington Street, who do all kinds of repairing for the trade as well as a manufacturing business, are enjoying a good run of work. The usual January dullness does not seem to affect them.

J. Kasper, of the firm of Shourds & Kasper, has been in New York the latter part of this month.

President H. M. Martin, of the Chicago Ophthalmic College, has lately returned from a trip to the Pacific Coast.

The Aluminum Silver Tableware Co. has been incorporated at Chicago with a capital stock of \$25,000. The incorporators are A. E. Howes, Charles H. Wood and James H. Scrimgeour.

E. H. Goodrich, M. J. Goodrich and E. R. Stephens have incorporated the E. H. Goodrich Co. at Chicago, with a capital stock of \$100,000, to do a wholesale and retail business in jewelry and diamonds.

Secretary Monsch, of the World's Fair Bureau of Information of the Chicago Jewelers' Association, is busy sending out statements to the trade throughout the country respecting accommodations to be provided visiting jewelers during the World's Fair season.

Fire threatened the Newmann Clock & Watch Co.'s factory, but the blaze was extinguished with a loss of \$200 on building and \$500 on stock.

Moritz Stein, formerly of Freeport, Ill., has purchased an interest in the jewelry house of M. S. Fleishman & Co., and the firm will hereafter be known as Fleishman & Stein.

Part of the machinery for the new silver-plate factory at Rockford, Ill., has been delivered. The officers of the Company are George Tongues, president; William Bergersdorf, vice-president; Claus Palersor, secretary and treasurer; John Newton, superintendent; Charles Blewfield, business manager.

The annual inventory siege is going on at C. H. Knights & Co.'s.

The paid-up capital of the newly-incorporated Stein & Ellbogen Co. is \$175,000. The head of the new Company is Max Ellbogen, who contemplates going to Europe sometime this month on a diamond-purchasing tour.

In a thousand different ways the jewelry trade will find the adjustable printing outfit offered by Wm. H. Dietz a great help for advertising and printing purposes. You often want a rubber stamp for immediate use. And for printing price-tickets for show-window goods, it is just what every merchant needs. See Dietz's *estrevda* on another page. Mr. Dietz has reduced the price of his popular monogram book to one dollar.

The newly-incorporated Juergens & Andersen Co. have succeeded the old-established diamond and manufacturing jewelry house of Juergens & Andersen. This firm began business in Chicago in 1857, with the two members of the firm as the only workmen in their shop. To-day they have ninety-seven employees, and do a large business. The officers of the new Company are S. Andersen, president; W. G. Andersen, vice-president; Paul Juergens, treasurer; and W. F. Juergens, assistant treasurer.

The sixteenth annual banquet of the Chicago Jewelers' Association takes place Wednesday evening, February 8th, at 7 o'clock. Kinsley's celebrated dining-hall will be the scene where the dull cares of business will be driven away by mirth and merriment. The banquet committee is L. W. Flershem, chairman; H. F. Hahn, M. A. Mead, J. A. Todd, T. H. Purple and A. L. Sercomb, *ex officio*. The approaching banquet promises to surpass all its predecessors in attractive features. Besides the members of the Association, there will be a large number of invited guests in attendance, both from at home and abroad.

R. C. Demarest, manager of the Chicago office of the Barbour Silver Co., Hartford, Conn., is displaying a line of new samples of the latest productions of this Company at their rooms, 122 Wabash Avenue, which he is very proud of; and justly so, for this Company are making a handsome line of goods in sterling silver and silver-plated hollow ware. Call on Mr. Demarest when in Chicago, and he will take pleasure in showing you through one of the most desirable and best-selling lines of silver hollow ware in the country.

There is much rivalry between the Columbus Memorial Building and the new Masonic Temple at Chicago to secure tenants in the jewelry trade. It is expected that after May 1st the two structures will contain about the entire jewelry jobbing trade of the city.

The Chicago Watchmakers' Institute bids fair to occupy the whole of the vast Masonic Temple in a short time if the present rate of increase continues. About fifty pupils are now in attendance, and more rooms are being added to the suite. Space for one hundred is to be provided at once. Read their "ad." in this issue.

The A. H. Revell Mfg. Co. are now very busy on World's Fair work. The full capacity of their large factory will be taxed with this line of work from this time on until the opening of the Fair.

One of the most interesting of the New Year weddings at Chicago was that of Frank M. Sproehle, of the wholesale jewelry house of F. M. Sproehle & Co., to Miss May Reeves Caliger. The wedding was solemnized at St. John's reformed Episcopal Church, over 900 guests being invited to witness the ceremony, and fully 300 to the reception which followed at the residence of the bride's parents. Mr. and Mrs. Sproehle are now in the South, but will be at home March 15th, at 28 Groveland Park.

T. H. Purple, manager for the Holmes & Edwards Silver Co., recently returned from a brief vacation at his wife's home in Michigan.

Meyer & Hawkins, manufacturers and repairers of jewelry at 78 State Street, have succeeded to the business of the late firm of Meyer, Diederich & Tighe.

The Jewelers' School of Practical Letter and Monogram Engraving, 63 to 69 Washington Street, has changed hands; or, rather, Richard O. Kandler, the chief instructor, has bought out the interest of Wendell & Company, and is now sole proprietor as well as chief instructor of this excellent institution of practical learning for jewelers. This School is now in a most flourishing condition, and Mr. Kandler reports that they are better able than ever to look after the interests of their pupils in every particular. The standing of this School with the trade throughout the country is now first-class, and its graduates find little trouble in procuring situations with the best retail jewelers of the land.

The Retail Watchmakers' and Jewelers' Association of Illinois will open World's Fair headquarters in Chicago for the comfort and accommodation of all watchmakers and jewelers who will visit the World's Fair in 1893. This consideration of the Association for the benefit and comfort of their brethren from a distance deserves recognition, and will be highly appreciated by the trade generally. Many jewelry companies and firms have promised co-operative aid to the Association.

Chicago dealers have made many friends with buyers in person of late. In many cases the customers reported that they wanted to see Chicago, and took advantage of the dull season in trade to see the World's Fair grounds in winter. Among those who registered from out of town were S. C. J. Peterson, Morris, Ill.; D. B. Holton, Genoa Junction, Wis.; Mr. Smith, Harvard, Ill.; J. F. McCoy, Seneca, Ill.; D. C. Spaulding, Zumbrota, Minn.; O. Rose, Crown Point, Ind.; W. S. Still, Delavan, Ill.; Thomas & Thomas, Kenton, Ill.; A. Bishop, Joliet, Ill.; J. F. Ingalls, Waukegan, Ill.; Milo Putney, Ottawa, Ill.; M. F. Warren, Colorado Springs, Colo.; W. D. Emerson, Aledo, Ill.; E. H. Coles, Michigan City, Ind.; L. A. Bauer, Elgin, Ill.; L. C. Bailey, Hartford City, Ind.; F. V. Kent, Grand Forks, N. D.; I. H. Trowbridge, Marseilles, Ill.; and Mr. McGregor, of Caldwell & McGregor, Pontiac, Ill.

Watchmakers' Tools, and How to Use Them.



THE flat steel disk *F*, shown at Fig. 6, in January, 1893, *KEYSTONE*, is reproduced at *F*, Fig. 1 of the present issue. It will be remembered that after hardening we ground the face of this disk dead flat and smooth, and fitted up a diamond point as shown at Fig. 8, January, 1893, *KEYSTONE*, for cutting the face of the disk into fine channels or grooves which serve as teeth. The diamond graver, because it will serve this purpose as well as roughen the disk, should contain a good-sized crumb of a diamond, say as large as a pinhead, with a sharp angle protruding. It is not necessary this angle should be an acute one; if it is one of ninety or more degrees it will answer our purpose very well and last the longer.

The idea is, with the diamond point set in the steel wire we scratch the hard steel into innumerable fine lines, as shown at *b*, Fig. 1. These lines are for the sole purpose of making the surface of *F*, outside of the dotted circle *c*, a cutting one for dressing up the face of the brass escape-wheel teeth we are to true up. We should examine the face of the disk *F* with a double eye-glass to see if we could in any way improve the cutting qualities of the disk—not so much for rapid cutting as for cutting with extreme accuracy and smoothness. A steel disk of the kind described, if properly made, leaves nothing to desire for brass wheels.

For truing and manipulating steel escape-wheels nothing equals a diamond lap of precisely the same shape, but with the flat face forced full of diamond-dust. In making such a diamond lap, about the best way to go about it is to take a piece of steel of the same size as was employed for the hard disk *F*, Fig. 1, except that we leave it soft, and after grinding the face dead flat and free of scratches we fill the face outside of the line *c* with diamond-dust.

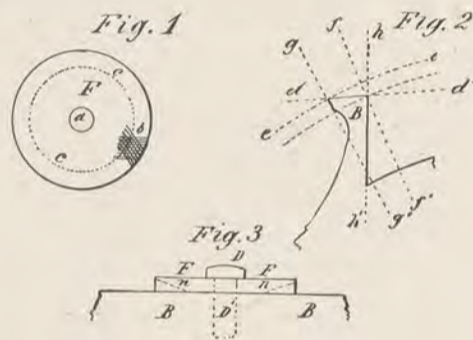
There is a good deal of misunderstanding about what constitutes the grades of fine particles of diamond. The kind to which we refer shows, with a double eye-glass, distinct particles of crystallized diamond, clear and white, and would be generally classed as diamond-dust No. 7. The size of the particles is such that a square one-fiftieth of an inch each way would permit twenty-five diamond particles to lie, if packed close side by side. We have on the market diamond-powder composed of much finer particles, and resembling reddish-gray slate-stone-dust. This is *not* the kind to use, but such as shows the particles of diamond distinct. The disk of soft steel requires to be firmly held on a rigid bed of metal while being charged with diamond. At Fig. 3 we show an edge view of the steel lap *F* placed on a smooth block of cast-iron, shown at *B*. This block of cast-iron should weigh a pound or two, so as to be steady, and the top filed flat and smooth.

The disk is attached to the cast-iron block *B* by the screw *DD'*, passing through the center. The particles of fine diamond are placed on the upper face of *F*, and forced in either by a hard steel roller or by striking with a light hammer having a slightly convex face. The hammer process is much the slowest, but makes the best job. Where a roller is used, it is made of steel about one-eighth of an inch in diameter, and

three-sixteenths long, mounted in a handle like a knurling-tool. The roller is made as hard as fire and water will make it, and force enough must be applied to firmly imbed each particle of diamond securely in the steel.

The diamond-dust should be placed on the face of the lap, and the hammering or rolling continued until the face of the lap is completely set with little diamond points. After the lap is charged, the back should be turned away to the dotted lines shown at *nn*, Fig. 3. It is to be borne in mind that for manipulating brass escape-wheels the hard steel lap is used, and for steel escape-wheels the soft steel lap charged with diamond-dust is employed. We will now refer to Fig. 2; here we show at *B* a club-tooth; and if the reader will follow the description of the truing device back, he will see we have it in our power to grind or mill this tooth perfectly to the form we desire.

Suppose, for illustration, we wish to mill the tooth *B* on the face, or to correspond to the line *hh'*. The escape-wheel is placed in the centers illustrated at Fig. 4, page 1116, November, 1892, *KEYSTONE*, and by means of the division-wheel *D* (shown also in the same cut) we revolve the escape-wheel until it comes in the position to



bring the line *hh'*, of the present number, horizontal, when we can adjust the lap *F* to exactly face off the front of the tooth *B*. The lap is moved out of the way, and with the division-wheel the escape-wheel is set one-fifteenth of the way around, and another tooth is milled. We can also set to mill to the line *dd'*, and mill the wheel around, and make all the impulse-planes of the teeth exactly alike.

We can also set the device to mill the back off the tooth to the line *gg'*. It will be noticed by inspecting Fig. 1, page 60 of January, 1893, *KEYSTONE*, that by means of the screw *M* the lap can be brought down gradually to the stop-screw *K* and do the work cautiously and perfectly. We would beg to say there is no fixed rule for grinding the teeth like *B*; but if the reader will master the instructions we are now publishing in the articles on "The Detached Lever Escape-ment," he will be able to mill an escape-wheel to the proper form and make a pair of pallets to match.

"A Phenomenal Success."

NEWAYGO, MICH., January 2, 1893.

Enclosed please find P. O. order for the sum of one dollar, which apply to my subscription for *THE KEYSTONE* for the coming year. With the compliments of the season, allow me to compliment you on the progress so clearly manifested in the publication of *THE KEYSTONE*. I was one of its first subscribers, when it was merely a four half-sheet; and now just look at it! Such a grand success is phenomenal. *THE KEYSTONE* is worthy of the highest praise and award as a trade journal. May the New Year be one of prosperity to *THE KEYSTONE*, and may its future, which now looks so bright and prosperous, never be darkened by adversity.

Yours truly, F. JACOBI.

Annual Banquet of the New York Jewelers' Board of Trade.

The fourth annual banquet of the New York Jewelers' Board of Trade, and the most brilliant of all, was given at Delmonico's on January 19th. The members of the Board appear determined on each occasion to surpass every previous effort, and so far they have been most gratifyingly successful. No accessory was overlooked at the recent feast that could add in any way to the brilliancy of the scene, the *gout* of the guests for the viands and beverages, or the mental entertainment inseparable from such festive occasions. The tables were elaborately decorated with flowers, and their arrangement by deft fingers gave them an Arcadian reality; the beautiful silver service, reflecting the glare of a thousand lights, lent a dazzling brilliancy to the scene, while the many-colored gems that sparkled in the breasts and on the fingers of the guests completed the array of bewildering splendor.

Toward eight o'clock the Rev. Dr. MacArthur said grace, and three hundred oesophagi were forthwith in motion. After justice had been done to the edibles and beverages, President Edmund J. Scofield opened the floodgates of oratory by delivering the address of welcome.

The toasts were next in order, and the first toast, "The President of the United States," was honored standing. The next toast, "Business and Politics," was responded to eloquently and humorously by Rev. R. L. MacArthur, who blended fun, philosophy and historical reminiscence in the typical post-prandial fashion. The toast "Our Guests" was happily responded to by Col. John A. Cockerill. In reference to the craft he said:

The work of the jeweler of to-day stands among the foremost of the arts. It is one of the most generally recognized arts, and one having the deepest hold upon the affections of our fellowmen because it appeals to the hearts of women.

"The Bar and Judiciary" was responded to with characteristic eloquence by the Hon. W. C. DeWitt, and "The Greater New York" found a worthy advocate in the person of Mr. William J. Gaynor, of Brooklyn. The inevitable toast "The Ladies" was next on the tapis, and elicited a serio-comic response, but eloquent withal, from the Hon. Noah Brooks. "America" was the last toast on the list. In the unavoidable absence of the Hon. Chauncey M. Depew, whose name was coupled with this toast, the chairman found an admirable substitute in Mr. John L. Shepherd, whom he introduced as the Chauncey M. Depew of the jewelry trade. In the course of his remarks Mr. Shepherd said:

I should have liked to respond to the toast "The Jewelers' Trade," as it would have given me an opportunity to tell you of my admiration for the integrity, the ability, and the goodfellowship that characterize the gentlemen of the jewelers' trade; for you are gentlemen who are in partnership with nature's most wonderful resources, with her diamonds, her gold and her silver, which, with your energy, combined with the skill of your workmen, you have blended into the most beautiful specimens of ornamentation in the world. With the jewelry which you have made, you have added to the beauty of the most beautiful thing in creation, the mothers, the wives and the sweethearts of your members. (Applause).

The souvenirs on this occasion were unique in design and beauty. They were oblong silver pin-trays, on which were oxydized the words, "New York Jewelers' Board of Trade." Each souvenir was enclosed in a celluloid box.

S. F. Merritt, Springfield, Mass., celebrated the advent of the new year by an addition to his factory that doubles the working space and enlarges the office room. New machinery has been put in and the number of workmen increased. This is a significant revelation of the great and growing success of his eye-glass holders and fine chains.

You had a good Holiday trade, and now you have had a good rest. Are you ready for business? Are you sorted up in staples? You know we are great on NOVELTIES. Well, we are immense on Staples, also. New, taking designs—and lots of them.



Don't be afraid to come and see us! Walk right in, just as though you belonged here. Admittance, nothing, and costs same to go out. You don't have to buy if you don't want to. But we would like you to see what a beautiful lot of sellers can be made and shown by just one factory.

Factories:
Meriden, Conn.

The Meriden Silver Plate Co.
133 and 135 Wabash Ave., Chicago.

News and Gossip from the Great West.

Leopold Barr, one of the pioneer jewelers of Lincoln, Neb., has removed from his old stand at 1136 O Street, to the corner of Twelfth and O Streets.

George Butler, jeweler, Deadwood, South Dakota, was last month united in marriage to Miss Dollie Chambers.

Charles Richards, of Granite, Montana, has been paying his old Kansas friends a visit the past month. Richards was formerly in business at Eldorado. He went to the far West about three years ago, and has done well in his new home.

Will. H. Beck, one of the best-known men in the trade in Iowa, and Sioux City's leading jeweler, visited New York and Chicago the past month.

Mrs. H. M. Lapham, who conducted a jewelry store at Cedar Rapids, Ill., is dead.

The Moore Jewelry Company of Waupun, Wis., have been conducting an auction sale the past month.

O. E. Browne, of Sheldon, Ill., has gone out of business.

J. J. Estey's store at Little Falls, Minn., was recently burned by an explosion of gasoline. Nothing except the jewelry that was in the safe was saved, entailing a loss of \$2000. Insurance light.

Walton Talbot, an enterprising jeweler of Nevada, Mo., recently gave a series of stereopticon entertainments in that city for the instruction of children. He was given a hearty vote of thanks by the children and their parents as well, who were highly edified by the illustrations and accompanying lectures by Mr. Talbot.

A. M. Joplin, recently a traveling salesman for Shook, Patterson & Co., has been made manager of the Omaha Jewelry Co., which has started in business at 622 North Sixteenth Street, that city.

H. G. Chase will solicit customers for optical goods from his store at 178 First Street, San Jose, Cal., hereafter.

Gorton Rushmer, of Pueblo, Col., has recovered from a recent severe illness.

H. Schenkein & Sons will probably discontinue their store at Pueblo, Col., and devote their attention entirely to their New York house.

Carl Walk, for many years in the store of Julius C. Walk, Indianapolis, Ind., has become a member of the firm.

T. A. Mauch has removed from Keota, Iowa, to Waukon, Iowa, where he will hereafter be found by representatives of the jewelry trade.

J. B. Patterson has opened a store and repair-shop, at Riverside, Cal.

J. M. Barrett has established a jewelry business at Yankton, South Dakota.

R. R. Reil, of Sterling, Neb., has remodeled and refitted his store, and will enlarge his stock.

H. C. Ryan, of Wilsonville, Neb., has opened an extensive store with a fine stock.

Morris Yost, South Omaha, Neb., has removed into a handsome new brick block, and carries a splendid line of goods.

A well-dressed young man beat Davis & Bro., of Colfax, Ind., out of a small amount of jewelry recently. The stranger asked to see some gold rings. After selecting one, and putting it on his finger, he asked to be shown some watch-chains. Selecting one he quickly ran out of the store, mounted his horse and made good his escape.

The latest fad among Cincinnati young ladies is collecting souvenir spoons, one for each year of their age.

John Hollister, a well-known jeweler of Dundee, Mich., died recently, and was interred at Brighton.

W. T. Blakemore's store at Davenport, Iowa, was burglarized January 10th. The thieves entered the place while the proprietor was at lunch, and secured several trays of jewelry and a number of watches, valued at about \$2000. No clue has been discovered.

The Coatsworth jewelry store at Galena, Ill., which for forty-two years has been conducted under the firm name of J. Coatsworth & Son, will hereafter be conducted by J. W. Coatsworth under his own name. Mr. Coatsworth, who has had entire charge of the business since his father's death, has purchased the interests of the other heirs.

Large quantities of onyx have been found by workmen employed at digging wells near Pomeroy, Wash. Oscar Levy, a jeweler of that place, pronounces the find of considerable extent and value.

L. C. Henrichsen, of Portland, Oregon, is to open branch stores at Elgin and The Dalles.

Victor E. Gobat, a well-known and successful jeweler of Goldendale, Wash., died recently.

Fulda, Minn., has a new jewelry firm in Dolan & Heinlein, both well-known, prosperous and experienced men.

George M. Klein, of Muncie, Ind., was recently married to Miss Ada Bowles.

E. F. King, of Deadwood, South Dakota, has recovered from temporary financial embarrassment, a chattel mortgage on his stock having been released.

Jewelers of Sioux Falls, South Dakota, have sensibly adopted an early-closing movement.

C. D. Taylor has established a jewelry business at Mankato, Minn.

W. R. Davis, Jr., & Co., of Eureka Springs, Arkansas, have dissolved partnership. P. Noel succeeds to the business.

Albert L. Pratt, an expert employee in the factory of the Elgin National Watch Co., of Elgin, Ill., is dead. His death was sudden.

A. A. Joseph has been engaged to take charge of Wallach & Schiele's Chicago house. Joseph Forsheim, formerly with L. & M. Kahn, will cover a Western territory for the same firm, traveling from the New York house, 6 Maiden Lane.

T. J. Dowd, Jr., has sold his stock and will remove to Deadwood, South Dakota, leaving a good field open for an enterprising man.

N. C. Pabst, of Fargo, N. Dak., formerly well known in Minneapolis, Minn., was married to Miss Annie C. Johnson early last month.

W. P. Mulholland, who some years ago conducted a business at Jamestown, North Dakota, has returned to that place after an unsatisfactory venture at Livingston, Montana.

Ottumwa, Iowa, has one less business firm, the Ottumwa Jewelry Company having discontinued operations. George M. Davidson was the proprietor.

H. J. McGrade, who has been in business at Belle Plaine, Minn., for a couple of years, was recently married to Miss Maggie Gates, and will remove to Sheldon, Iowa.

J. C. Hamil, of Farmington, Minn., is closing out his business.

E. H. Smith will open a jewelry store at Estherville, Iowa, in the spring.

Fred. A. Hayden, of Topeka, Kans., will leave his old stand and move to 727 Kansas Avenue.

The store of Watson & Meyers, of Pekin, Ill., was recently damaged by fire to the extent of about \$2500. The origin of the fire is unknown.

A. N. Wright, formerly doing business at Chariton, Iowa, is now established at 305 Morrison Street, Portland, Oregon, and is doing a nice business in his faraway Western home.

J. A. Robertson has again taken up the jewelry business at Slater, Mo., after several years' retirement, and has opened up a neat stock.

F. P. Turner, formerly of Hastings, Minn., now greets the traveling salesmen from the show-windows of a St. Paul firm.

The clock in the new Union Depot tower at Detroit was put in by Nels. Johnson, of Manistee, Mich.

A. H. Simon, of St. Paul, Minn., has secured the services of Emil Rose, formerly with L. W. Arnold & Co., of that city. C. S. Sutter now has entire charge of Mr. Simons' watch department.

The Great Indispensable.

WOODBURY, PA., January 18, 1893.

THE KEYSTONE:—Enclosed find One Dollar in payment of THE KEYSTONE for one year. Could not do without THE KEYSTONE. It is the newsiest, brightest and best journal published in the interest of the jewelers and jewelry trade. The beauty of THE KEYSTONE is that every number is getting larger and contains more interesting news.

S. B. FLUKE.

To Tell the Speed of Railroad Trains.

Arthur G. Leonard, private secretary to H. Walter Webb, third vice-president of the New York Central Railroad, has invented a watch which is said to enable the holder to measure the rate of speed at which he or she may be traveling on a railroad train, a steamboat, or any other conveyance. It is thus described: In the hands of a person on a swiftly moving train the watch may, by pressing a tiny lever, be started at a given point, say a mile-post, and when the next mile-post is reached a quick pressure on the lever will stop the hands of the watch on a figure which accurately indicates the rate of speed per hour at which the train is moving.

Pittsburg Letter.

PITTSBURG, January 28, 1893.

There is but little interesting in the condition of local business, except a somewhat abnormal post-holiday activity. The retail trade are pursuing "the noiseless tenor of their way" with fairly profitable results, and interviews with wholesalers elicited no expression of dissatisfaction. The traveling salesmen are in harness, and communications received from them are quite encouraging. Unshakable confidence in the future obviates present kicking even though, in exceptional cases, the wheels of trade are not running with their usual velocity.

G. B. Barrett & Co. are enjoying an activity in business that would seem premature if symptoms for its continuation were not so reliable. Orders are arriving with gratifying frequency, and but little idle time falls to the lot of the staff. They are showing an elegant and bulky stock in all lines. Concentrate your attention on the opposite page.

Grafner Brothers, it is reported, will move in the spring into a new store.

A new clock is being placed in the fire-alarm office in City Hall, which, when completed, will be among the finest pieces of mechanism in the world. It is to cost \$1000, and is being put in by the Western Union Company, under the direct supervision of the Gamewell patrol system. It will stand eight feet high and will measure three feet across from top to bottom, with a face three feet in diameter, and will be regulated direct from the observatory at Washington city.

Geo. White has left the employ of Heeren Bros. & Co. to take a course in chemistry.

W. S. Bickart, traveling salesman for I. Ollendorff, will take the place of B. Wolf, who recently resigned to engage in the clothing business in Coshocton, Ohio.

Heeren Bros. & Co. have attended to the big holiday disappearances in their stocks, and complete assortments in all lines await the attention of patrons. Their art department is especially attractive, and a visit thereto fully justifies the national fame it has achieved. Their traveling salesmen are plying their vocation in their various territories with customary success. Mr. Otto Heeren attended the recent meetings in New York of the several organizations in which the firm is interested.

Burglars recently entered the store of H. Kochler, of 17 Sixth Street, and stole about sixty watches and several rings. An entrance was effected through a rear window which had not been fastened. A watchman discovered the burglary and informed Mr. Kochler.

Jos. Burkle, traveling representative for Heeren Bros. & Co., returned recently from his western trip, and will remain in Pittsburg till early spring. W. J. Johnston, traveler for this firm for many years, retired January 1st, to engage with N. H. White & Co., New York.

Encouraged by the voluminous success of the past year, Goddard, Hill & Co. have already set their sails to take maximum advantage of the expected business breeze. A general replenishing of stock has been completed, and their numerous patrons can forward their orders with the certainty that they will be filled with characteristic dispatch and satisfaction.

H. Bower, of Lewisburg, Pa., is now employed in the store of Heeren Brothers & Co.

Jas. A. Stanger & Co., the well-known manufacturing jewelers, of 20 Fifth Avenue, have lately added to their manufacturing department a line of diamonds and jewelry, along with a well-assorted stock of materials and jewelers' findings. James M. Keller, formerly with G. B. Barrett & Co., will have charge of this new department.

Every jeweler nowadays has an ambition to make his store "as pretty as a picture." The feat will be much facilitated and cheapened by a liberal use of the patented metal ceilings and side-walls manufactured by A. Northrop & Co., of this city. For the jeweler with good taste and little cash these appliances are a bonanza.

George W. Haslett, a former jeweler in this city, died here recently. During several years he was a member of the firm of Dunsath & Haslett, who were succeeded by George W. Haslett & Brother. During the last eight years he has been manager of the Pittsburg Label Company.

John O. Slemmons, a former jobber of this city, who was with G. B. Barrett & Co. a short time, has severed his connection with that firm.

The books of Heckel, Bieler & Co. show a significant expansion for 1892 in the already extended list of their patrons. As tool and material purveyors they are evidently held in high and growing estimation by the trade. Their present stock is voluminous and varied enough to suit all customers, from the easiest-going to the most fastidious.



Watches

Diamonds

Jewelry

Clocks

Silverware

Tools and Material

Optical Goods

Plush Goods

Art Goods

Bronzes

SPECIAL BARGAINS IN DIAMONDS.

BOTH LOOSE AND MOUNTED.

G. B. BARRETT & CO.

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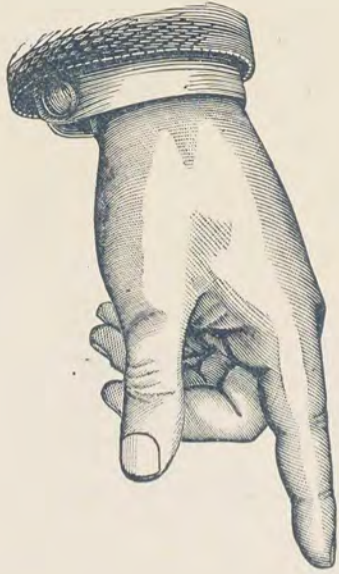
Pittsburg, Pa.

MOUNTED AND LOOSE

DIAMONDS

HAYDEN W. WHEELER & CO.

2 Maiden Lane, New York.



STAPLE GOODS AT POPULAR PRICES.



Harstrom's Celebrated All-Steel Adjustable Watch-Case Springs. Very easily fitted. Price, 90 cts. per doz.; \$10.50 per gross.



Gem Pivot-Drill Chuck. Made for all American lathes. Will fit any tail-stock, taper-chuck or spindle. Please mention what lathe you want it for. Price, 75 cts. each.

Have just received a large stock of Extra Quality SUPERIOR Mainsprings (tipped) for all grades of American watches—Waltham, Elgin, etc. They are noted for their elasticity and fine finish (do not set), and are guaranteed against breakage. Each dozen packed in an anti-rust tin box. Price, \$1.25 per doz.; \$13.50 per gross.

Finished Balance-Staffs, fitting Elgin, Waltham, Hampden, Illinois, Rockford, Seth Thomas, New York Standard and Columbus movements, \$1.50 per doz.; \$15.00 per gross.

Cock and Foot Balance-Hole Jewels in settings for all the above companies' movements, \$1.25 per doz.; \$12.00 per gross.

Pendant-Screws. A very handy screw for holding the stem in place (a long-felt want supplied). 1 gross, well assorted, in vial, including some extra large sizes, 75 cts.

Swiss Cap-Jewels, extra fine quality, turned and perfectly round. 1 gross, nicely assorted, in vial, \$1.00.

Excelsior Balance-Screw Collets or Timing-Washers, for poising and timing watch-balances. No hairspring unpinning required where these washers are used. Price, per gross, 50 cts.; assorted as follows: one-half gross gents' 18 size, one-quarter gross each 6 and 16 sizes.

Swiss Balance and Wheel-Jewels, nicely assorted, in vial; first quality, \$4.50; second quality, \$3.50; third quality, \$2.50; and fourth quality, \$1.50 per gross.

Birch's Genuine Patent Watch-Keys. Brass. 75 cts. per doz.

American Screws, assorted in gross lots for Waltham or Elgin, \$1.00 per gross in vial.

N. B.—All the above items subject to 10 per cent. cash discount as an inducement, and all orders, to receive prompt attention, must be accompanied by the cash. Parties ordering goods shipped by mail will please enclose stamps, or their equivalent, to cover postage. Send all orders and remittances to

H. B. PETERS,
37 MAIDEN LANE, NEW YORK,

DEALER IN

Fine Watch Materials and Tools,
Rolled-Plate and Fire-Gilt Chains, Locketts, Charms, etc.

Mention THE KEYSTONE.

Orders filled from any Catalogue.

The Detached Lever Escapement.



PERHAPS we cannot do our readers a greater favor than to digress from the study of the detached lever escapement long enough to say a few words about drawing instruments and tablets or surfaces on which to delineate, with due precision, mechanical designs or drawings. Ordinary drawing instruments,

even of the higher grades, and costing a good deal of money, are far from being satisfactory to a man who has the proper idea of accuracy, to be rated as a first-class mechanic. Ordinary compasses are obstinate when we try to set them to the hundredth of an inch; and usually the points are dull and ill-shapen, and if they make a puncture in the paper it is large and unsightly.

Watchmakers have one advantage, however, because they can very easily work over a cheap set of drawing instruments, and make them even superior to anything they can buy at the art stores. To illustrate, let us take a cheap pair of brass or German-silver five-inch dividers and make them over into needle-points and "spring set." To do this the points are cut off at the line *a a*, Fig. 1, and a steel tube is gold-soldered on each leg. The steel tube is made by taking a piece of steel wire which will fit a No. 16 chuck of a Whitcomb lathe, and drilling a hole in the end about one-fourth of an inch deep and about the size of a No. 3 sewing-needle. We show at Fig. 2 a view of the point *A'*, Fig. 1, enlarged, and the steel tube we have just drilled out attached at *C*.

About the best way to attach *C* is to hard-solder it to *A'* with fourteen karat gold solder. After the tube *C* is attached, a hole is drilled through *A'* at *d*, and the thumb-screw *d* inserted. This thumb-screw should be of steel, and hardened and tempered. The use of this screw is to clamp the needle-point. With such a device as the tube *C* and set screw *d*, a No. 3 needle is used for a point; but for drawings on paper a turned point, as shown at Fig. 3, is to be preferred. Such points can be made from a No. 3 needle after softening enough to be turned so as to form the point *c*. This point at the shoulder *f* should be about $\frac{1}{1000}$ of an inch, or the size of a fourth-wheel pivot to an eighteen size movement.

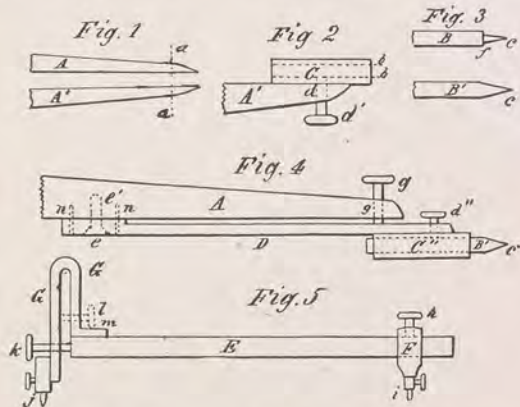
The idea is, when drawing on paper the point *c* enters the paper up to the shoulder *f* and gets a secure hold for sweeping circles, but does not leave a large and unsightly puncture in the paper. For drawing on metal the form of the point is changed to a simple cone, as shown at *B' c'*, Fig. 3. Such cones can be turned carefully, then hardened and tempered to a straw-color; and when they become dull can be ground by placing the points in a wire-chuck and dressing it up with an emery bluff or an Arkansas slip. The opposite leg of the dividers is the one to which is attached the spring for close setting of the points.

In making this spring, we take a piece of steel about two and one-fourth inches long, and of the same width as the leg of the divider, and attach it to the inside of the leg as shown in Fig. 4, where *D* represents the spring and *A* the leg of the dividers. The spring *D* has a short, steel tube *C'* and set screw *d* for a fine point like *B* or *B'*. In the lower end of the leg *A*, Fig. 4, is placed the milled head-screw *g*, which serves to

adjust the two points of the dividers to very close distances. The spring *D* is, of course, set so it would press close the leg *A* if the screw *g* did not force it away.

It will be seen that we can apply a spring *D* and adjusting screw opposite to the leg which carries the pen or pencil-point of all our dividers if we choose to do so; but it is for metal-drawing that such points are of the greatest advantage, as we can secure an accuracy very gratifying to a workman who believes in precision. For drawing circles on metal "bar compasses" are much the best, as they are almost entirely free from spring, which attends the jointed compass. To make (because they cannot be bought) such an instrument, take a piece of flat steel, one-eighth by three-eighths of an inch and seven inches long, and after truing and smoothing it carefully, make a slide half an inch wide as shown at *F*, Fig. 5, with a set-screw *h* on top to secure it at any point on the bar *E*.

In the lower part of the slide *F* is placed a steel tube like *C*, shown in Figs. 2 and 4, with set-screw for holding points like *B B'*, Fig. 3. At the opposite end of the bar *E* is placed a looped spring *G*, which carries a steel tube and point like



the spring *D*, Fig. 4. Above this tube and point, shown at *j*, Fig. 5, is placed an adjustment screw *k* for fine adjustment. The inner end of the screw *k* rests against the end of the bar *E*. The tendency of the spring *G* is to close upon the end of *E*; consequently if we make use of the screw *k* to force away the lower end of *G*, we can set the fine point in *j* to the greatest exactness.

The spring *G* is made of a piece of steel one-eighth of an inch square, and secured to the bar *E* with a screw and steady-pins at *m*. A pen and pencil-point attachment can be added to the spring *G*; but in case this is done it would be better to make another spring like *G* without the point *j*, and with the adjusting screw placed at *l*. In fitting pen and pencil-points to a spring like *G* it would probably be economy to make them outright; that is, make the blades and screw for the ruling-pen, and a spring or clamping tube for the pencil-point.

"I do not want to do without THE KEYSTONE."
I. K. THOMPSON, Columbia, Alabama.

We are informed by the chief instructor, Dr. Brown, that the correspondence department of The Philadelphia Optical College has found phenomenal favor with the optical profession, and is enjoying unparalleled success. No expense has been spared to adopt any new feature that experience proved to be valuable, and in this way the correspondence course has been improved by constant additions, until now all these valuable features have been incorporated in a newly-written course, which is thus made larger and better than ever before. This correspondence department has become a permanent institution, and hundreds of intending opticians are thankful that they can receive a thorough training and a diploma without leaving home or neglecting business.

Women as Drummers.

"That's just my luck," said a commercial traveler in a little country hotel the other day, as he turned in disgust from the clerk's desk.

"What's the matter?" queried a friend.

"Matter? Why, that fellow Clark got in here ahead of me and has engaged both of the sample-rooms, and I'll have to show my goods in a bedroom."

"What does Clark want of two rooms?"

"Oh, one for his goods and the other for his wife."

"His wife! Why does his wife want a sample-room?"

"She carries a separate line of goods and they work the business together. Great scheme, that," and he mused reflectively. "There they come now," he added, and the friend turned in time to see an energetic-looking man of middle age, with a bright, attractive little woman approaching. Later an introduction was sought.

"Yes, it is so pleasant for each of us to be able to travel with the other," said Mrs. Clark. "My husband carries men's furnishing goods, and I have notions for women, silk handkerchiefs and embroideries. We are going through this section of the country for the first time and are working up a trade route. Just now is a dull time with both of us, in business, so we decided to spend the time working up an extra route."

"Don't you find it hard work to keep up with your husband, day after day, traveling and working?"

"I did at first, but I have learned how to take things now. I don't worry and do useless things. Then John is very good about helping me out and waiting for me. Of course, sometimes I get heavy orders in a town, and he gets light ones. Then, again, it will be the other way; so we help each other."

"How did you happen to get into this work?"

"Well, various things happened which pointed out the way. When my three little ones died, one after the other, and I was left alone, I began to miss John as I never had done before. (And the voice trembled a little.) He could not leave his business, for he had a good trade; and so, if he couldn't get out of the work, I could get in, in order to be near him. I have worked with my house for almost two years now—they seem to be satisfied, and I surely am. But I must go now," and she nodded, smiling.

"Can you do as much work with your wife along as if you were alone?" asked the inquirer of Mr. Clark. He stopped, thought a minute, and said: "I'll tell you. Soon after the babies died I took to drinking rather heavily. You know what a temptation drink is to a traveling man. Well, my wife saw it, and, noble little woman that she is, she determined to save me. So she worked around until she got a commission, and then she joined me, and we've been together ever since. She didn't tell me the real reason why she left home for life on the road until about a year and a half ago—after I had given up drink altogether. Yes, I once saved her from drowning—that was before we were married—and now she's evened things up, you see. This last year we've made more than double the money that I ever made in one year alone, and I've been eight years on the road."

There are a number of commercial women traveling with their husbands, most of them for Chicago business firms, although a few represent houses in this city and Boston. The lines of goods they carry vary from stationery and maps to hardware and jewelry. One couple are traveling through the country with horse and wagon, dealing in sewing-machines; while another couple are employing the same method to carry lines of gloves, mittens, etc. One woman said that the number of women who had taken to commercial traveling within the last year was four times as great as in the previous year.

"And why shouldn't women go into this business as well as any other?" she demanded. And why shouldn't they?
—New York Tribune.

The suit of John H. Jacobson, of New York, against Chas. Price, of Jacksonville, Ill., for malicious prosecution, assault and defamation of character was, recently decided in the plaintiff's favor, damages being assessed at \$200.

The adoption of the department system is the latest innovation in the business machinery of Smith & Patterson, Boston, Mass. The establishment has been subdivided into distinct departments, and a responsible head placed over each as buyer and manager. The heads of the departments are Mr. Smith, of the firm; Carl D. Smith, Arthur Smith, Arthur E. Fische, Charles T. Derry, Joseph C. Batchelder, Harry H. Vaughan and W. H. Prescott.

The Chicago Ophthalmic College and Hospital.

This well-known school and hospital was incorporated in 1886. The college is designed for opticians and physicians who desire to become more thorough in the science of ophthalmic optics, ophthalmoscopy and ophthalmology, and claims the distinction of being the first regularly incorporated ophthalmic college in America to give a thorough course to physicians and opticians in this special branch. The promoters of the school from its first inception have made the optical department one of its chief features. From a small beginning in 1886, it has grown, until the present time, when it can claim graduates in all the States in the Union, Canada, England and France. This steady growth has not taken place by chance, but simply for the reason that the faculty have always endeavored to give the most thorough and complete course possible to attain. Opticians at this school enjoy all the privileges and opportunities extended to physicians in the same department. During the past year more than a hundred operations were performed. The institution claims to give opticians more clinical experience, and the advantage of having those for instructors who have had more experience as instructors of optics and ophthalmoscopy, than can be procured elsewhere in America.

Nothing pays the optician at this day and time so well as to become thoroughly posted in the science of ophthalmic optics as applied to the human eye in the correction of visual and optical defects. No sight is so pitiable, and at the same time fraught with so much danger, as the work of an incompetent optician. Unfortunately for the public, the incompetent optician is too numerous. The public are easily deceived in this specialty, thinking all that is necessary is that they procure some lens which they can get along with, the so-called optician assuring them that they will see all right very soon, and that if they do not procure and wear their lenses in all probability they will go blind. However, fortunately for the public, the standard of optical science is fast advancing to the front, and at this day and time no one who is conscientious needs to practice the science in anything but a straightforward manner, as the opportunities are now at hand whereby all opticians may become thoroughly proficient if they will only take the time and apply themselves closely. It is not so much how much an optical education costs one, but it is the financial benefit one can derive from it thereafter; also the amount of good one may do his fellow-beings, coupled with a consciousness of knowing that one is doing all that *can* be done for one's patients. Opticians are thus enabled to do their work with greater rapidity and, at the same time, with more satisfaction to their patients

and themselves, ever remembering that "that which is worth doing at all is worth doing well."

The Ophthalmic College certainly offers to all opticians an avenue whereby they may become proficient; and opticians throughout America do not seem slow to recognize its claims. As an evidence of this, we may mention that each of the six sessions which have been given during the past year had the full amount of students registered long before the opening of the respective sessions. The faculty are thoroughly impressed with the fact that nothing so fits an optician as a



CHICAGO OPHTHALMIC COLLEGE AND HOSPITAL.

session of complete individual instruction. Recognizing this fact, each class is limited so that they may receive personal instruction. The college building is easy of access and desirably located. The lecture and clinical rooms are large and well-arranged, being furnished with all the instruments and apparatus for a thorough and practical study of the subjects taught. The intelligent use of the ophthalmoscope is practically and thoroughly taught to each student, so that they can use it with a maximum degree of satisfaction to their patients and themselves. A dissolving lime lantern with colored plates is a special feature.

THE COLLEGE HOSPITAL.—The upper floors of the college building are divided into hospital wards and single rooms for private patients. Twenty beds are in constant use, and space for several more, if required. The surgeon in charge resides in the hospital. This insures to all patients entrusted to this hospital the best possible attention, and a professional care founded on fifteen years' experience. Electric call-bells are attached to all beds.

The dispensary supplies ample material for illustrating all acute and chronic affections of eye, ear and throat, also an abundance of cases showing all varieties of refractive errors, muscular defects, etc., which gives all students an opportunity of familiarizing themselves by personal experience with their detection and proper relief with lenses.

The next session at this worthy school will begin March 7, 1893. In all probability, by the time this journal reaches our readers the class will have been completed for the March session. However, persons desiring to join the March class

are at liberty to write to the president, who will take pleasure in answering their queries, and admit them to the class if possible. President Martin informs us that the Ophthalmic has recently introduced several new features which are very instructive and beneficial to all opticians. From the beginning of this school to the present time, it is a well-known fact that it has been managed by oculists who have a reputation second to none. Its diploma with the degree of M. O. is recognized in all States of the Union as an evidence of superior optical knowledge.

You would do well to write them for their new catalogue.

The January class at the Chicago Ophthalmic College and Hospital consisted of the following students: Geo. H. Snow, Willington, Conn.; John Kirk, Chicago, Ill.; Jesse N. Hoyt, Columbus, Ohio; N. T. Weston, Colfax, Iowa; J. T. Corwin, Union City, Mich.; Adolph Krebs, McKeesport, Pa.; Geo. S. Drake, Pendleton, Indiana; C. N. McCormick, Chicago, Ill.; W. J. Francis, Uhrichsville, Ohio; F. D.

Paquette, Ludington, Mich.; I. B. Roberts, Rome, N. Y.; M. B. Ketchum, M. D., Mineral Wells, Texas; Frank V. Kent, Grand Forks, N. Dak.; G. A. Squires, Chicago, Ill.; B. L. Brown, Butte, Montana; G. E. Zimmerman, Chicago, Ill.; Dan. Curd, Chicago, Ill.; F. Lorenz, Chicago, Ill.; H. Wilcox, Chicago, Ill.; Lewis M. Lea, Chicago, Ill.; and Chas. Kuesel, Manitowoc, Wis.

The success of the Chicago Ophthalmic College and the patronage extended to it by intending opticians is easily explained. The use of the hospital as an optical college adjunct cannot be overestimated. Every physician recognizes the difficulty at times of diagnosing merely functional as distinguished from organic defects, and actual acquaintance with such cases can alone lessen this difficulty. Intelligent treatment of visual deficiencies presupposes such knowledge as is thus afforded, and Dr. Martin is to be congratulated on his very effective method of supplying it.

The large and ever-increasing number of Dr. Martin's pupils is probably the best evidence of the efficiency of this widely-known institution.



Ringers Sellers

We simply make rings—nothing else—we know the ring business—that's our business—it's our business to sell you sellers in your business—rings, nothing but rings—solid rings—guaranteed rings—rings you can swear by, but never swear at—solid gold carved and engraved band rings—and all other kinds of gold rings—no cheap goods, plated goods, or any other goods not backed with reputation as good as the gold in 'em—There isn't a big wholesale jeweler or jobber who doesn't carry our rings—We want you to sell 'em—we purpose to have you—Ostby & Barton, Makers of rings of selling quality, Providence, R. I.

THE OPTICIANS MANUAL

A Hand-Book of Spectacle Adjusting for the Use of Jewelers and Opticians.

[Commenced April, 1890. Subscribers are advised to file all the back numbers, thus affording them (when completed) the most thorough treatise on the subject extant.]

CHAPTER I.—INTRODUCTORY REMARKS.
CHAPTER II.—THE EYE ANATOMICALLY.
CHAPTER III.—THE EYE OPTICALLY; OR, THE PHYSIOLOGY OF VISION.
CHAPTER IV.—OPTICS.
CHAPTER V.—LENSES.
CHAPTER VI.—NUMBERING OF LENSES.
CHAPTER VII.—THE USE AND VALUE OF GLASSES.
CHAPTER VIII.—OUTFIT REQUIRED.

CHAPTER IX. (Continued.)

The appearance of the two eyes should then be compared for the purpose of noting whether there is any difference between them, and for the purpose of detecting any slight divergence or convergence of one eye, or any inequality in the size or dilatation of the two pupils, or any protrusion of one eye more than the other, or any drooping of either eyelid. A difference in the size of the opening of the lids can be readily recognized in this way.

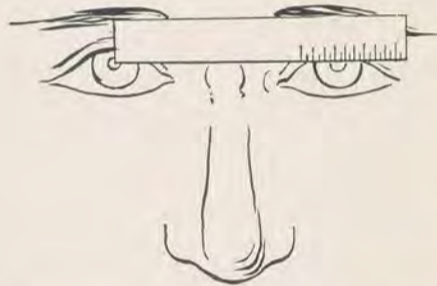
A careful glance at the edges of the lids comes next, to determine the existence of any swelling or inflammation, and also to note the position of the lashes, which is a very important matter as regards the welfare of the eye and the transparency of the cornea. Displaced eyelashes, or lashes with their points directed toward the eyeball and scraping over the sensitive surface of the cornea, will set up and keep up a condition of irritation and inflammation that will neutralize the benefits to be derived from the most carefully-adjusted glasses. And again, it should be remembered that an inflammation and swelling of the lids may be due to the strain caused by an uncorrected optical defect, and be speedily cured by the proper glasses.

The distance between the two eyes is a matter that should not escape the attention of the careful observer, because of the disturbing effect it may have on the act of convergence. It is a self-evident fact that in converging the eyes for vision at any given distance, the more widely the eyes are separated the greater must be the effort at convergence; while the closer the eyes are placed together the less convergence will be called for. In this way, in a certain number of persons fixing the eyes for vision at a given distance, there will be a great variation in the angle of convergence that is required for each person. As convergence is an act that is being constantly brought into play, it can easily be seen that any increase in the effort required (however slight) may be the source of great discomfort, and the overlooked cause of many cases of asthenopia. Prof. Landolt, the eminent French oculist, says: "For my part I am thoroughly convinced that the insufficiency of the internal recti muscles, which is such a frequent cause of the asthenopia of myopic patients, is due in many cases to an excess of the distance between the two eyes."

This is a subject which is almost entirely overlooked, and yet it is one that deserves the most careful attention. It seems like a very simple matter to measure the distance between the eyes,

and yet when we inquire into the question carefully, we will find that to make an exact measurement is attended with no little difficulty. If we measure the distance between the centers of the pupils as is commonly done, there may be two sources of error. In the first place, the pupil is not exactly in the center of the anterior part of the eyeball, but is a trifle to the inner side. This is an anatomical point that is not always borne in mind, as we are apt to take it for granted as a matter of course that the center of the pupil represents the center of the eyeball, and many opticians have never known anything different. The second element of error lies in the difficulty of measuring the exact distance between the pupils, as this is a point that can only be determined approximately.

Another chance for error lies in the fact that the distance between the two eyes or between the pupils should represent the distance between the eyes when they are directed in lines parallel to each other; and here is where the difficulty lies, for it is almost a matter of impossibility for any patient to direct his eyes absolutely parallel;



there always remains a greater or less degree of convergence, the amount of which cannot be determined. This objection is particularly applicable in cases of strabismus, where it is evident the eyes can never be brought to a state of parallelism, and yet these are the very cases where it is most desirable to measure the intraocular distance.

We have been considering the distance between the eyes with regard to its effect upon convergence and the relation it may bear in the causation of many cases of asthenopia, and I desire to emphasize the importance of this matter because it is too often overlooked. Of course all opticians are accustomed to make a simple approximate measurement when they want to determine the interpupillary distance, or the distance which should separate the glasses of spectacles, for which purpose an ordinary graduated rule may be satisfactorily employed. The patient is directed to look straight before him at some distant object, so as to make the axes of vision as nearly parallel as possible.

The measuring rule or yard-stick is placed across the nose on a line with the center of the pupils, as close to the patient's eyes as possible, and in such a position that the end will be directly in front of the center of one pupil. The point of the rule that is directly in front of the center of the pupil of the other eye may be marked by the optician's thumb-nail, and the distance between these two points may be read off the rule, and the result will give the pupillary distance.

The optician should stand as far away from his patient's face when he makes this measurement as the length of his arm will permit, so as to diminish as much as possible the error that may be caused by the convergence of his own eyes. The optician's eyes will scarcely be more than two feet away from his patient's eyes, and the lines converging from his own eyes towards the patient's eyes will make the interpupillary distance a little less than the real distance. It has been calcu-

lated that the error in measuring the pupillary distance by this method is about one line (one-twelfth of an inch), which should be added to the apparent distance in order to obtain the correct measurement. While this method, if carefully employed, answers every purpose and its results are sufficiently satisfactory, yet a still greater degree of accuracy may be insured by adding about the sixteenth of an inch for distance, and deducting the same amount for reading. For instance, if the distance on the scale was two and three-sixteenths inches, we would add one-sixteenth for distance, which would make two and four-sixteenths inches or two and one-quarter inches; for reading we would deduct one-sixteenth inch, which would leave two and two-sixteenths or two and one-eighth inches. The optician will understand that this is done to make the optical centers of the lenses correspond to the pupillary distance, which varies with the increased and diminished convergence required in reading and distance.

Another method of securing accuracy and of obviating the error that may be caused by the convergence of both patient's and optician's eyes, is to measure with each eye separately as follows: the optician is seated directly in front of the patient, who is asked to fix his eyes on some distant object which will give them an essentially parallel direction. The rule is then applied across the patient's nose as before, with its end directly in front of the center of the pupil of the right eye, the exact position of which is determined by the optician's left eye alone, his right eye being closed. Then the optician's left eye is closed and the right eye is opened in order to read off the point on the rule which is exactly opposite the center of the pupil of the patient's left eye. This method requires that during the examination the optician should keep his head and eyes absolutely motionless.

Pupillometers are special instruments designed for measuring the interpupillary distance. There are different forms on the market, but they are all made on the same principle, and consist essentially of projecting points, one or both of which slide on a scale and can be placed at any desired distance apart, one in front of the center of each pupil, while the distance between them is read off the scale on the instrument. To rectify the result obtained by one of these instruments, the same correction must be made as when a simple graduated rule is used.

The next point to be noted in the examination of a patient's eyes is the amount of *protrusion* of the eyeball, which is sometimes a symptom of very great importance, and the principal symptom in a number of diseases of the eye or orbit. When there is any inflammation or swelling, or tumor or growth of any kind pressing upon the ball, it protrudes outward, because, being encased in the bony orbit, that is the only direction in which it can recede before the offending material.

If the protrusion attains such a degree that the lids no longer suffice to entirely cover the surface of the cornea, the condition is a serious one on account of the pernicious effects it entails upon this membrane and other portions of the eye. The cornea becomes dry, rough and scaly, then ulcerates and becomes opaque, until it is finally destroyed and blindness results.

This condition of protrusion is known as *exophthalmus*, and can only be measured approximately and without any great precision. It usually suffices to gain a relative knowledge of its degree as compared with the normal condition; or if the exophthalmus is great enough to prevent closure of the lids, then we notice the size of the palpebral opening.

Geneva Optical Company,

67 & 69 Washington St., Chicago.

The Geneva Lens-Measure Improved.

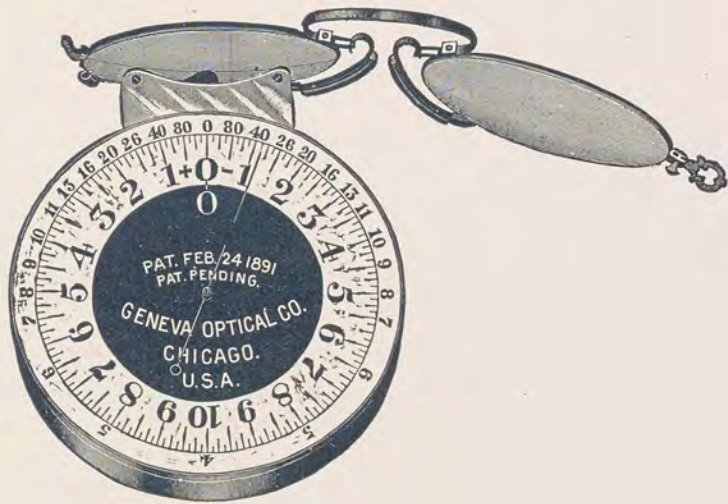


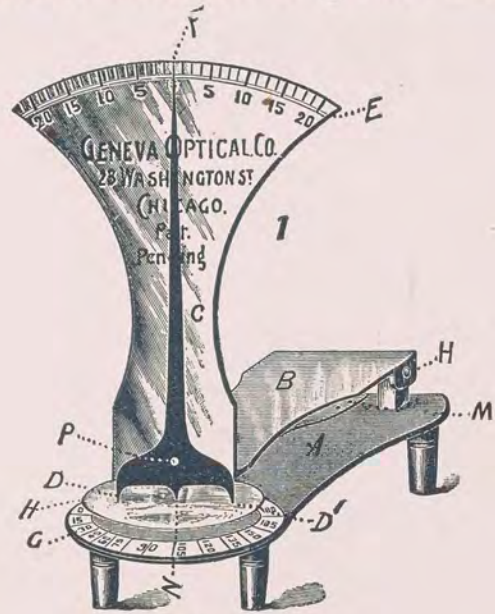
Illustration full size.

Price, \$10.00, net.

The improved Lens-Measure works upon the same principle as the original instrument, but the movement is different and more exact. The size is reduced so that it can be readily carried in the pocket. The inch numbering is added upon the outer circle, and in addition a Vernier movement is added for the purpose of more readily measuring periscopic lenses.

Full directions with each instrument for measuring every form of spherical, cylindrical or sphero-cylindrical glasses.

Prism-Measure or Lens-Centering Instrument.



Price, \$5.00.

We illustrate here a new device for the use of opticians and oculists for the purpose of centering lenses, and also for measuring the degree of prism or prisms in lenses combined with spherical or cylindrical surfaces. The instrument is so simple in its action that a description is hardly necessary. The illustration will make plain to any oculist or optician the entire practicability and range of its work. It will give instantly the amount of prism in any lens. The value of such an instrument will be appreciated by the trade and profession, as it is one of the most difficult and annoying parts of the business to analyze a lens and give the amount of prism, especially when combined with convex or concave surfaces. Its action will be readily understood from the description and directions for use sent with it.

IMPROVED Loring Ophthalmoscopes.

Net, \$10.00.



FIG. 1.



FIG. 3.



FIG. 4.

New No. 961.



FIG. 2.

This Ophthalmoscope has several valuable improvements over any heretofore offered on the market. Fig. 1 represents the side of the instrument used next the eye of the patient. It will be noticed the mirror is long, and allows greater inclination and obliquity of light. Fig. 2 represents the side of the instrument next the eye of the observer. It will be observed that in the quadrant, as shown in Fig. 4 in detail, there are four lenses, with a vacant hole between, so that in using it is not necessary, in order to look without the lens in the quadrant, to turn the quadrant half way round to bring the vacant hole on the other side of the quadrant in front of the eye. In this Ophthalmoscope it is not possible to read the figures wrong, as every figure except the one noting the power of the lens in use is covered. Owing to the systematizing in manufacture we are enabled to make a better Ophthalmoscope than has heretofore been offered, while we can make a special introductory price, lower than heretofore made for these instruments. It is offered for introduction at the net price of \$10.00, put up in a fine morocco case, with one condensing lens.

**Prescription
and
Repair Work
Done
Promptly
at
Lowest Rates**

Geneva Optical Company,

67 & 69 Washington St., Chicago.

Watches that Can be stolen.

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to obtain his services.

A Thief Confesses His Methods.

"In getting watches the man who does this work stands still, with his back to the party wanted. The 'stalls' get behind the victim and commence crowding until, one way and another, they get the gentleman square against the left shoulder of the pickpocket. On his left arm he carries a duster or shawl as a 'cover.' When the victim is all placed the pickpocket goes through him with his right hand—reaching across himself to do the feat, covering his right arm and hand from sight with the duster and looking steadily the other way all the time. As a rule, I never take the chain. **It is easier and quicker to take the watch alone. The rings are only sprung into the watch-stems, not riveted, and as you take the watch you can twist the ring free from the watch and chain by an easy effort of the thumb and forefinger. You don't drop the ring—you bring watch and ring both, but separate from each other.**"—
Kansas City Star.

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The National Cycle Show.

As the end of the cycle show draws near
it is visited by larger and larger crow
the attendance yesterday was over "

Watches that CAN'T be stolen.



According to the above confession a watch with a ring, or bow, that cannot be pulled or twisted off the case can't be stolen. There is only one such bow made—

The **Non-pull-out** Bow,

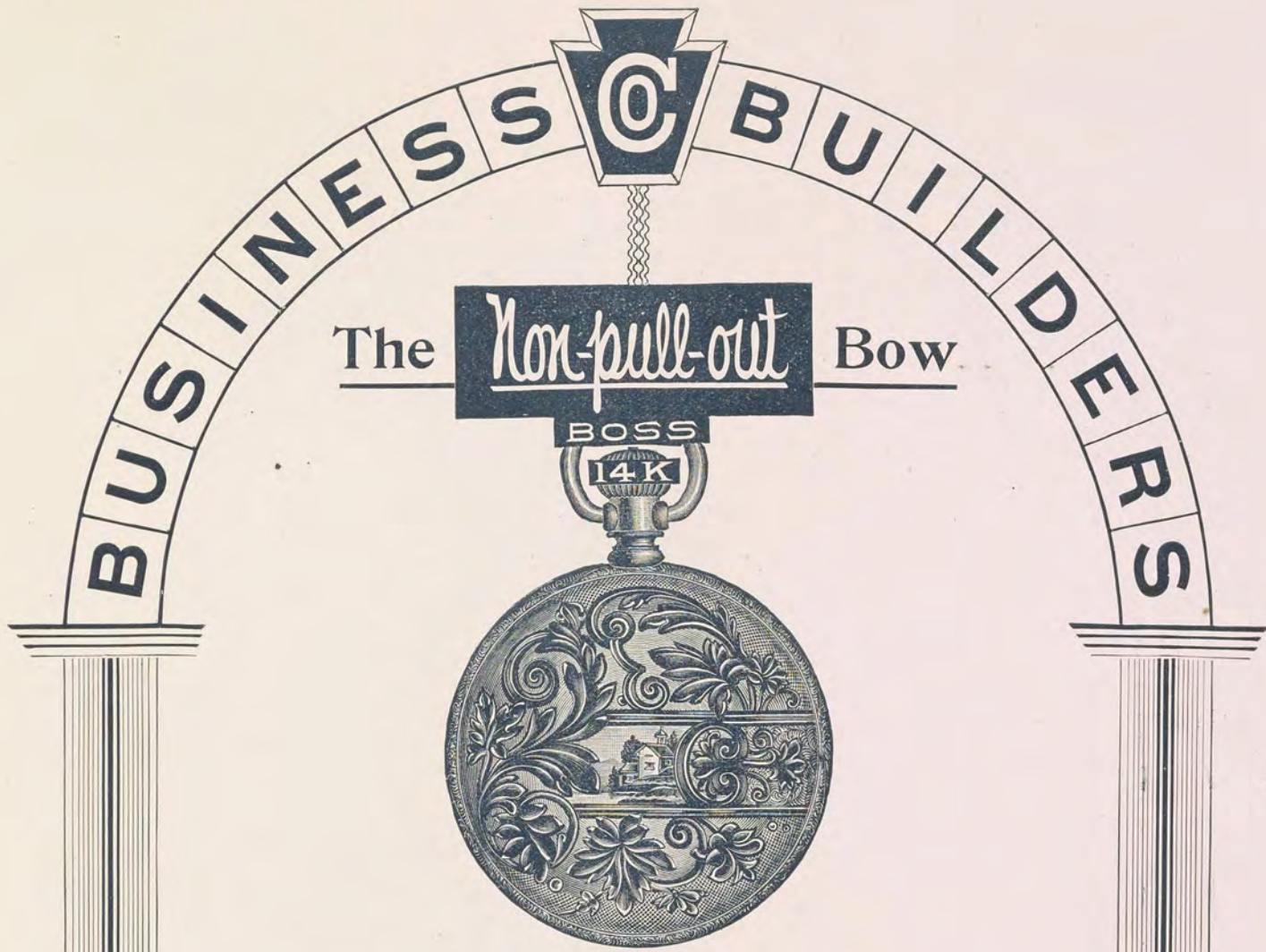


and this bow is found only on **BOSS** cases and other brands of cases made by us. Hence the only thief-proof watches are those with our cases, which are acknowledged to be the best made.

Remember that all intending watch-buyers who read this notorious confession in the newspapers will be inquiring after thief-proof watches.

Are you ready with a supply?

Keystone Watch Case Company.



The **THIN**

Screw Cases

Are the newest, thinnest, prettiest and best screw filled cases ever put on the market.

Have more exquisite designs, more delicate engravings, more perfect workmanship and finer finish, than seen hitherto on filled cases.

Made in our Boss 14 K., Boss 10 K., Cyclone and Silveroid grades.

Keystone Watch Case Co.



NEW YORK, February 1, 1893.

This city has been stormed during the past few weeks by visiting jewelers from all points of the compass, called hither to attend the annual meetings of the various organizations or to partake of their hospitality. Familiar figures in groups from all sections of the country could be seen sauntering among the jewelry palaces on the Lane, loitering in the hotel corridors, swapping yarns in the commercial rooms, indulging moderately in temperature-raising beverages, or carelessly puffing the soothing narghile. Enjoyment for the nonce seemed to have got the better of business, and 1892, deceased, was feted luxuriously. Business is fair, and the situation so far practically featureless.

The E. Howard Watch and Clock Co. are the makers of the big clock for Stern Bros., West Twenty-Third Street. The dial is six and one-half feet in diameter, and the figures are Arabic. The hands are novel in shape, and decorated with a *fleur de lis* design. It is a magnificent timepiece.

In the trial of the suit of H. B. Clafin & Co. vs. the New York Standard Watch Company, which has been pending in the city court for two or three years, a verdict was some days ago rendered in favor of the defendant, the New York Standard Watch Company, in the sum of \$5444.15, with five per cent. allowance, and interest from March, 1888. This trial has excited considerable interest in trade circles in the past few years, and the New York Standard Watch Co. is to be congratulated on the result of the verdict. The case has been warmly contested by able counsel on both sides, and the finding of the jury seems to meet with general approval.

Wm. I. Rosenfeld, 34 Maiden Lane, has purchased the entire bankrupt stock of Tobias & Wolf, 51 Maiden Lane, comprising a complete line of solid gold and plated jewelry, solid gold set-rings, diamonds and watches (both Swiss and American). Great bargains are promised the trade.

At a meeting of the stockholders of the Gustave Walter Optical Co., 33 Maiden Lane, Gustave Walter was elected president, J. M. Bloomfield, vice-president, and G. A. Walter, secretary and treasurer. These gentlemen, with two others, will constitute a board of directors for 1893.

H. B. Peters is still the same restless personification of business, and displaying his ubiquity by being always found gunning just where orders are on the wing. He has an elegant stock and many rare bargains at present at the disposal of the trade.

David Zimmern, nephew of Mr. Zimmern of Odenheimer & Zimmern, who has been a salesman on the road for that firm for some years, has been given an interest in the business. Joseph Rees, for ten years with the same house, first as bookkeeper and then as office manager, has also been given an interest. Simultaneously with their admission the name of the firm was changed, and it will henceforth be Odenheimer, Zimmern & Co.

The board of management of the Jewelers' Building and Loan Association, of New York, recently issued its first annual report. It announces the payment of two semi-annual dividends of four per cent., covering the period from May 1, 1891, to May 1, 1892.

The Howard Sterling Co., Providence, R. I., have recently had their New York offices, at 860 Broadway, completely renovated. The new mahogany fixtures are a fascinating proof of the beautifying effect as well as utility of rich show-cases.

Hammel, Riglander & Co. protested against a decision of the collector at New York, fixing a duty of fifty cents per dozen and fifty per cent. on twenty-four dozen watch-case openers. The decision was in favor of the jewelers, who thus effected a big saving.

Fred. Kaufman has now at the disposal of the trade a catchy novelty in the shape of a celluloid rose boutonniere, which is strikingly true to nature. That it is having, and will have, a large sale is a foregone conclusion. Mr. Kaufman is well prepared in other lines for the spring trade.

The Spencer Optical Manufacturing Co. have made additions to their traveling salesmen, the force of the latter now numbering ten. Chas. Alexander takes the position vacated by Thomas H. Hutson, and C. M. Barnes replaces M. B. Rosenstock. Otto S. Lammers, formerly with A. K. Hawkes, of Atlanta, Ga., is another valuable addition to the number.

J. W. Riglander, of Hammel, Riglander & Co., and B. H. Blank, in charge of the optical department, have sailed for Europe on the *La Champagne*.

B. & W. B. Smith, the well-known show-case manufacturers, are now at work on the World's Fair exhibition-cases for the Gorham Manufacturing Company. The Gorham Company could place their big show-case order in no better hands.

Captain Cook, of J. T. Scott & Co., has had a recent masculine addition to his family, and is enjoying the transcendental parental bliss peculiar to so happy an incident.

The trade will find at the store of M. L. Sheehan, 785 Eighth Avenue, a man, stock and business methods exactly to their liking. Mr. Sheehan is now showing elegant assortments of French, Swiss and American movements, also a large and handsome line of office clocks. His watch-roller remover is a tool that should be in the hands of every workman.

M. A. Sawyer, who for the past two years represented Messrs. Bippart & Co. in this city and vicinity, is now with James W. Miller, jewelry manufacturer, of Newark, N. J.

There is a change in the well-known house of Koch, Dreyfus & Co., Mr. Jonas Koch retiring. The business will be conducted as heretofore, and in a neat circular the firm announce this fact, and solicit the continuance of the patronage that has heretofore been bestowed upon them by their many friends in the trade. There is no change to announce in their force of traveling salesmen for this season. George Malett, Henry Heyman, Adolph Rosenthal, A. H. Lewenthal and L. Goldsmith, all of whom are well known to the trade, continue to represent them.

Mr. Arthur Hirsh announces through a circular to his friends that he will hereafter represent Marx, Veit & Co. in the South, and we have no doubt but that the many friends of Arthur will extend the same welcome and bestow the same patronage upon him in the future that they have in the past, as he is known as a live, wide-awake young man.

On December 31st Messrs. N. H. White & Co. gave their eighth annual dinner to their employees, having as their guest Mr. John L. Shepherd, who was invited for the purpose of eating and talking. The evening was spent in a very pleasant manner. At a late hour all adjourned, thanking their lucky stars that they were in the employ of N. H. White & Co., which is most certainly a firm composed of wide-awake business men, who look after the interests of those in their employ.

Mr. Louis Freund, of the firm of Max Freund & Co., spent the month of January in the city. Louis looks well, and reports a good trade for the year. He was anxious to get away on the road among his many friends. August Freund has recovered from his recent illness, which was at no time of a dangerous character, but was caused by over-work. "Gus" is one of those young men that it is difficult to hold in check when there is work to do, and always does his own work and that of several others. His friends, I am sure, will be as glad to hear of his recovery as they were, no doubt, sorry to hear of his illness.

Sol. K. Jonas, for wellnigh a dozen years connected with the house of L. Black & Co., and known all over the States as their traveling representative, is now an active partner in the business and permanently installed at headquarters. His intimate knowledge of trade requirements will enable him to intensify the satisfaction always given to patrons by this house. They are this year very ably represented on the road. S. Caro, one of the oldest and best-known travelers, represents them in the South and far West. Henry Anthony will act in a similar capacity in Ohio and Indiana. To S. Aronsberg has been assigned the territory of Michigan, Wisconsin, Minnesota and the Dakotas; to C. M. Cassal, New York, Pennsylvania and New Jersey; and to T. Harold, Missouri, Iowa, Nebraska, Kansas and Illinois. All are well known to the trade, deservedly popular, and veritable walking encyclopedias on matters optical.

The well-known firm of Lissauer & Sondheim has been dissolved, Mr. Sondheim retiring. The new firm will be known as Lissauer & Co., the following gentlemen constituting the firm: Max J. Lissauer, Max S. Kallman, D. H. Lowman and Alexander Boehme. It is not necessary to say anything of Mr. Lissauer, as he is among the best-known and one of the most highly-respected gentlemen in the trade. There is no movement made to better or advance the interests of jewelers in any way that he is not prominently connected with. He is vice-president of the National Jobbers' Association, and its success is largely due to his devotion to its interests. Max S. Kallman is known on the Lane as one of the shrewdest and brightest young men in the trade, and this is

but the first step of his career to that position in the Lane that was held by Jay Gould on Wall Street. As to Mr. D. H. Lowman—well, almost everyone knows this genial, good-looking fellow—many know him as "Alderman Dave." All will rejoice at this new step in his life, which, we feel sure, is but the beginning of a career that will at once be felt in the trade, he being a wide-awake and energetic business man. Mr. Alex. Boehme has always confined his attention to the books, and to most people on the Lane he is as little known to the public as are the contents of his books, although the writer has long known him, and can truthfully say that he is a worthy partner of the gentlemen with whom he is associated. In getting these bright and energetic young men around him, Mr. Lissauer illustrates anew the wisdom that has always characterized his business methods.

A certificate has been filed with the Secretary of State of the increase of the capital stock of the Wilcox Silver Plate Co., of Meriden, Conn., from \$370,000 to \$500,000.

Horological pupils who have been under the instruction of Professor Jones will be pleased to learn that he has started a school of his own at the corner of Main and Elizabeth Streets, Peoria, Ill., where work for the trade will be done.

The following auction sales are reported by H. M. Rich & Co., 61 Hanover Street, Boston, Mass., for January: Franklin Wadsworth, Manchester, N. H.; H. E. Dann, Worcester, Mass.; G. L. Kerr, Chelsea, Mass.; J. F. Cook, West Gardiner, Mass.; T. C. Spencer, St. Johnsbury, Vt.

E. P. Ledos, 118 Market Street, Newark, N. J., has given proof of his confidence in the future of business by increasing the size of his factory and adding chain-findings to his watch case material product. His prestige with the trade is such as to ensure a ready demand for the new addition to his specialties.

An Anti-Swear Trade Journal.

LIBERTY, N. Y., January 15, 1893.

THE KEYSTONE.

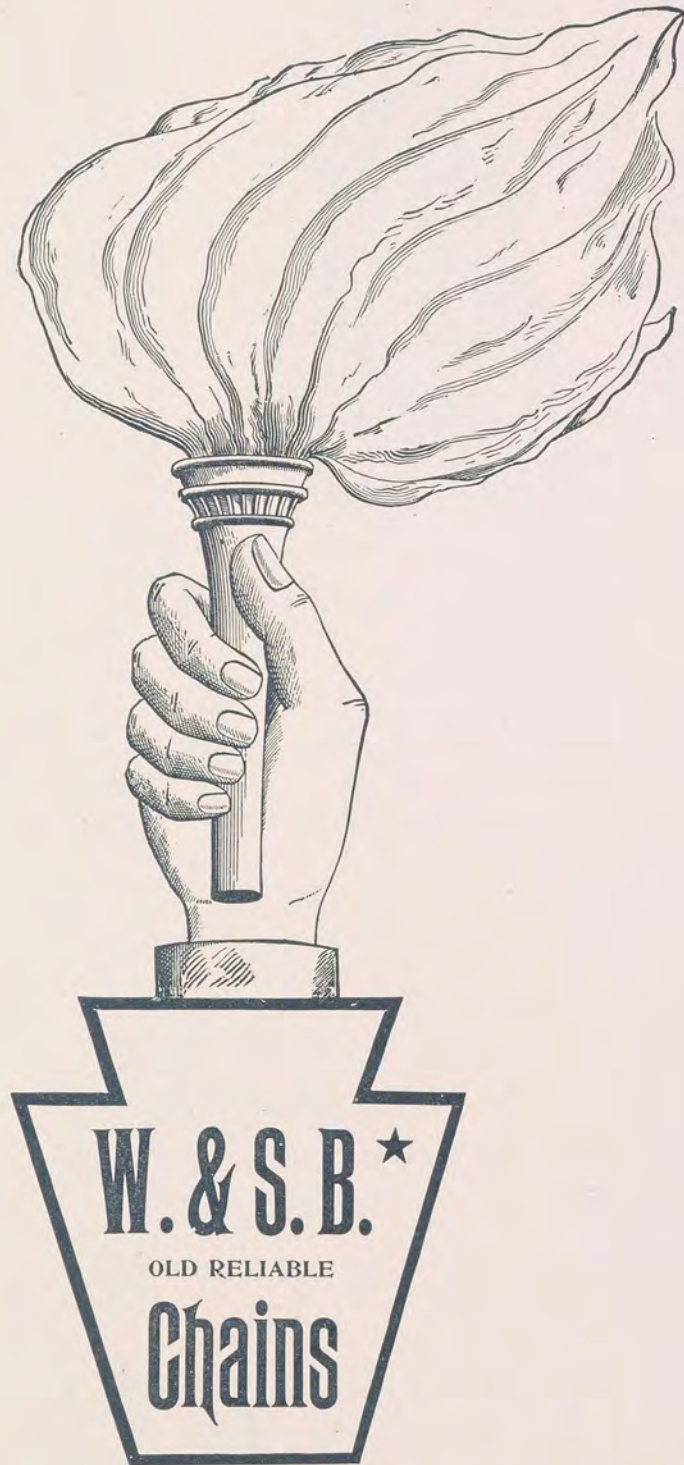
GENTLEMEN:—Enclosed find two dollars for subscription to THE KEYSTONE. I would not be without it for five dollars a year. I have picked up ideas in it that are worth more than money. The optical department is of special interest to me, and a couple of ideas that I obtained from it—that of putting beeswax on the end of a screw-driver in putting in clock screws, and tapping the end of spectacle-frame to loosen rusted-in screws—have saved me any amount of "cuss" words, to say nothing of time.

Yours, J. M. HALL.

The Annual Meeting of the Jewelers' and Tradesmen's Company.

The members of the Jewelers' and Tradesmen's Company, of New York, held their fifth annual meeting on January 16th at the Company's office, 187 Broadway. E. S. Johnson, Jr., and Edmund L. Mooney, were re-elected directors, while George E. Godward was elected to the assistant secretaryship. At a recent meeting of the Company the by-laws were so amended as to permit of the absorption of other similar concerns, and the sphere of usefulness of the institution has thus been considerably enlarged. The Company has already reinsured the members of the National Benefit Society, 187 Broadway, and are now reinsuring in like manner the members of the Life Union of New York, 187 Broadway, and the New York State Mutual Benefit Association, of Syracuse, N. Y. Negotiations for the absorption of other companies are in progress, and all combined seem to fully justify the claim of the absorbent concern that within six months it will have increased its membership by from 2500 to 3000, and will have a total insurance of from \$8,000,000 to \$10,000,000. The official reports of the secretary, treasurer and executive committee will be submitted at a future meeting.

Enlightening the World!



Every retailer should make sure that every Chain he buys bears one of the following tags and has our stamp, W. & S. B. ★, on the swivels. This plan of stamping the initials of the manufacturer on swivels was originated by W. & S. BLACKINTON (everything to the contrary notwithstanding,) and is a guarantee of quality.

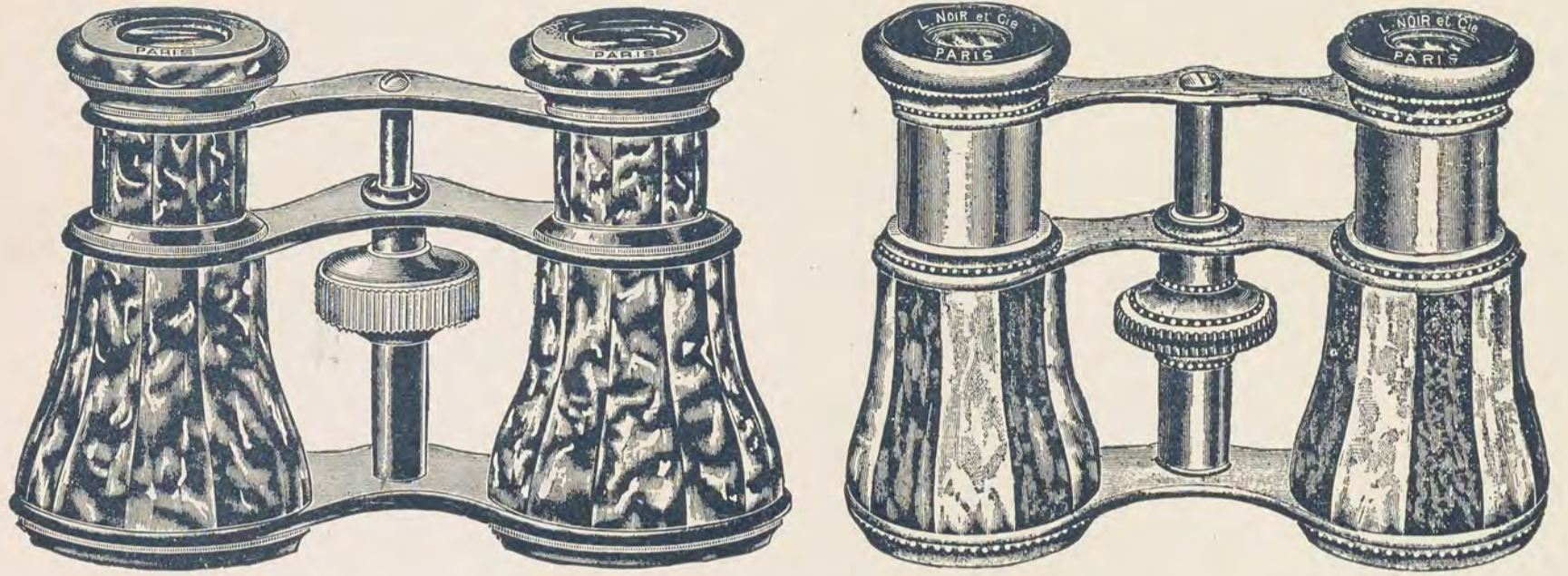
NOTE.—This, like our endorsement, can be proven.

<p>Superfine Quality.</p>	<p>Extra Fine Quality.</p>	<p>Regular Quality.</p>	<p>Second Quality.</p>	<p>Second Quality.</p>
<p>Swivel stamped "14 K. 1/2"</p>	<p>Swivel stamped { "Globe" inside. "W. & S. B. ★" outside.</p>	<p>Swivel stamped "W. & S. B. ★" only.</p>	<p>Swivel stamped { "W. & S. B. ★" inside. Star and Crescent outside.</p>	<p>"W. & S. B. ★" inside. Star and Crescent outside.</p>

(THE ABOVE TRADE MARKS ARE PATENTED.)

Having received complaints that tags have been changed on our goods, dealers should note carefully that the swivels are stamped with the quality to correspond with the tags, as noted above.

NOW IS THE TIME



TO PLACE YOUR IMPORT ORDERS FOR

OPERA-GLASSES

L. BLACK & CO.



We have just received from our foreign connections a new line of samples to take import orders with. This line is, without exception, the lowest-priced fine line of goods ever carried in this market. Besides our celebrated brand of

L. BLACK & CO.



L. Noir et Cie Star ★ Brand,
we carry complete lines of the Lemaire, Colmont and other leading makers, and you can rest assured we are the people to give you prices low.

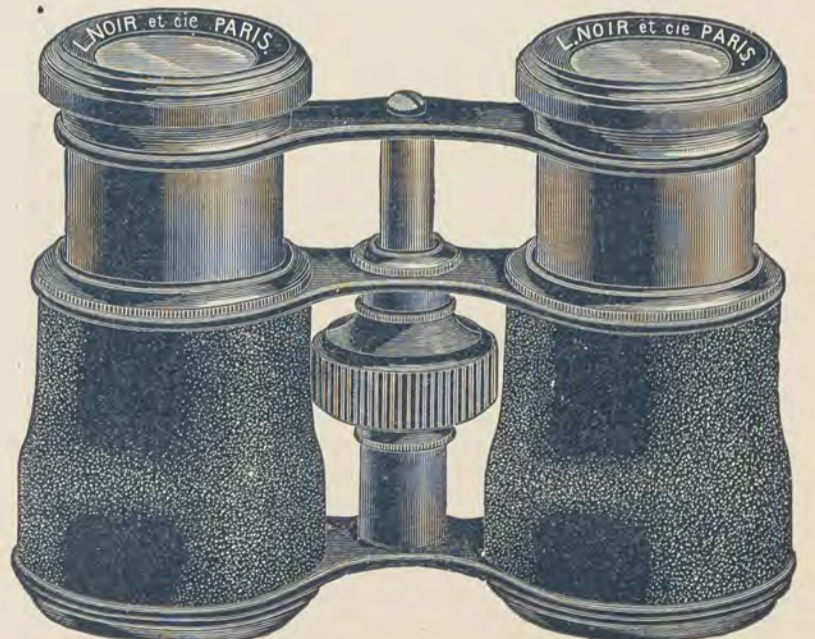
SEND FOR OUR PRICES.

L. BLACK & Co. Direct Importers,

16 Rue De Enghein, Paris.
40 Hatton Garden, London.
69 Sebastian Str., Berlin.

178 Broadway, NEW YORK.

Between Maiden Lane and John Street.



Arts Allied to the Jewelry Trade.



AFTER the zinc plate is removed from the acid-bath described in our last article, it is thoroughly washed in pure water, rubbing with a soft sponge or lock of cotton. The plate should now be examined carefully for specks of dirt and fiber of lint, because any foreign substance would injure the film; as, for instance, should

a very insignificant atom of dirt come in an important part of the picture, it would be ample to ruin the engraving. An important part of the apparatus must now be made, which is known as the "twirler" or "whirler." A very cheap substitute can be gotten up from a cheap "brace" such as carpenters employ for holding a bit for boring holes, but, like many other make-shifts, requires more skill and practice to use than a better tool.

The object of this twirler is to produce a very thin film of bichromated gelatin on the plate. It will be remembered that in the swelled gelatin process a very thick film was desired; but in this instance we can almost say the thinner the better, as long as there is a film at all. At Fig. 1 is shown a very simple substitute for the more expensive machines. It consists of two pieces of board *A A'* joined at right angles, as shown in Fig. 1. The piece *A* is about six inches long and the piece *A'* about ten inches long, and each about five inches wide. For the sake of strength and security a block *b* can be inserted in the joining angle, as shown at *b*, Fig. 1.

For producing the twirling we cut out a wheel, about six inches in diameter, from a piece of half-inch board and cut a groove in the edge to receive a round band for revolving the table *C*, to which the zinc plate *E* is attached during the process of coating. The table *C* is much like the wheel *B*, except that it has no groove cut in its edge. Attached to *C*, on the lower side, is a pulley *D* about one and one-half inches in diameter. This pulley has a groove in its edge to receive the band *g*, which comes from the wheel *B* and is turned to the proper angle by the small pulleys *f f*. The pulley *D* is securely attached to the table *C*, and both revolve on a common wood-screw as a center, the screw being fast in *A*. The same kind of a center is employed for the wheel *B*, shown at *d*, Fig. 2, said figure being a view of Fig. 1 as if seen in the direction of the arrow *c*.

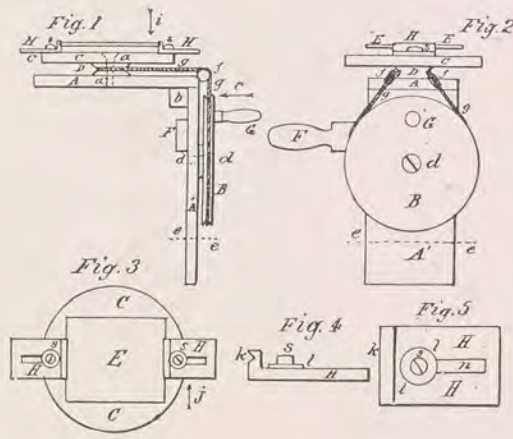
The device for twirling can be screwed in a bench-vise up to the line *e* for holding while being operated, or it can be held in the left hand by the handle *F*, while the right hand revolves the pin *G* as a crank. For securing the zinc plate *E* to the table *C*, two slides can be employed, as shown at *H H*, Fig. 3, which figure is a view of Fig. 1 seen in the direction of the arrow *i*. These slides or clips can be made of heavy sheet-brass bent to the form shown at Fig. 4, which is a view of one of the clips seen in the direction of the arrow *j*, Fig. 3.

These clips have a slot cut in them, as shown at *n*, Fig. 5 (which figure is an enlarged view of one of the clips shown in Fig. 3), to enable the

clip *H* being set forward or back for grasping different sizes of zinc plates. The screws *s s*, Figs. 3, 4 and 5, are round-headed wood-screws, and have a washer *l* placed between the head of the screw and the clip. The bent-up portion of the clip *H'*, Fig. 4, has a notch *k* cut in the side for grasping the plate *E*. The zinc plate, after thorough washing, is placed in the twirler and the superfluous water thrown off by centrifugal force, which develops as *C* is rapidly revolved by turning the crank-pin *G*.

For coating the zinc plate we make a mixture of the white of one fresh egg, seven ounces of pure water, and one ounce of saturated solution of bichromate of potash. This mixture is placed in a clean bottle with a lot of pieces of broken glass, and violently shaken to thoroughly incorporate them and "beat up" the white of the egg. The mixture is next filtered by placing a lock of cotton loosely in the neck of a glass funnel and allowing the solution to pass through. The precaution must be taken of first letting a funnel full of water run through, or the gelatin solution will not pass through the cotton.

In filtering the gelatin solution, the tube of the funnel should nearly touch the bottom of the vessel into which it passes, to prevent the formation of air-bubbles. After filtering, as good a



vessel for pouring from as one needs is a ten-ounce graduated glass measure. While the zinc plate is still wet, pour on enough of the bichromated gelatin solution to cover the face of the plate, and set the twirler in motion to spread the gelatin coat evenly. Repeat the operation two or three times, until the washing water is displaced and a perfect coating is produced. The coating should now be dried in the dark at a temperature of 75° F.; a current of air facilitating the process materially.

As soon as dry the zinc is exposed under the negative in the strong printing-frame already described in former articles. The exposure should be for about five minutes in full sunshine. The gelatin-coated zinc plate is now taken into the dark room and removed from the printing-frame and placed face up on a flat stone or iron slab, and with the dabber described in last article coat the plate with printers' ink of a fine quality and pretty stiff. It may be necessary to add a little turpentine to the printers' ink in order to have it spread evenly over the gelatin surface, patting the surface of the zinc with the kid-leather pad until a perfectly even coat of ink is obtained. The ruling feature of the coating of printers' ink is to not cover the bichromated gelatin surface with an absolute film, but with innumerable dots of ink through which the yellow surface of the gelatin shows. In fact, we want the ink coating to let the water-bath reach the soluble gelatin unaffected by the light.

The Jewelers' Security Alliance.

- President, AUGUSTUS K. SLOAN, Of Carter, Sloan & Co.
- First Vice-President, J. B. BOWDEN, Of J. B. Bowden & Co.
- Second Vice-President, HENRY HAYES, Of Brooklyn Watch Case Co.
- Third Vice-President, DAVID UNTERMAYER, Of Keller & Untermeyer.
- Treasurer, BERNARD KARSCH, Of Bernard Karsch.
- Secretary, GEO. H. HODENPYL, Of Hodenpyl & Sons.
- EXECUTIVE COMMITTEE:
- H. H. BUTTS, Of Hayden W. Wheeler & Co.
- N. H. WHITE, Of N. H. White & Co.
- F. KROEBER, Of F. Kroeber Clock Co.
- HENRY ABBOTT, Of Henry Abbott & Co.
- JOHN C. DAY, Of Day & Clark.

For further information, application blanks for membership, by-laws, etc., address
P. O. Box 3277. 170 Broadway, New York.

The regular monthly meeting of the executive committee was held at the Alliance office on Friday, January 13, 1892. There were present A. K. Sloan, president; J. B. Bowden and Henry Hayes, vice-presidents; Bernard Karsch, treasurer; Messrs. White, Kroeber, Abbott, Day, and Geo. H. Hodenpyl, secretary.

The following were admitted to membership: Andrew Beck, Mamaroneck, New York; Beilenson Bros., 125 South Main Street, Marion, Ohio; L. G. Goodspeed Estate, 26 East Pike's Peak Avenue, Colorado Springs, Colorado; Hayter & Brucker, 13½ East Fifth Street, Kansas City, Missouri; Howes Bros., 500 Second Street, Clinton, Iowa.

Hire Mental Service, Not Mechanical.

If you notice one of your employees to whom it does not seem worth while to indulge in thought for the initiation or development of improvement in his department, the time has arrived for *you* to initiate a change in one of two directions: either make it worth his while to do so, or let him understand it is worth his while to quit.

No need to hesitate. "There are as good fish in the sea as ever were caught"—if not better.

No need for sentiment. You may be doing the man the greatest service of his life. In some other sphere his mental activity may be called out, as it is not in your establishment. Besides, another may avail himself of opportunities with you, as he failed to do, and there is a chance of benefit all around.

"The survival of the fittest" makes for universal good, anyhow.

There are clerks who want high wages, but are not consumed with a burning desire to render high service.

There are merchants who yearn for high service, but betray a uniform repugnance to the payment of high wages.

Both should weigh things up a little. Grudging service was never yet good policy for an employee. Stingy remuneration cuts cents off the expenditures and dollars off the returns.
—Dry Goods Chronicle.

"Do not care to miss a single copy, as the information contained in one single number is often worth more than the yearly price of your journal. A special item of interest to me are your editorials, which show marked ability to handle all subjects with sound reasoning."—E. T. SHAW, Winterport, Maine.

A Wierd Superstition.

Pearl-hunters of Borneo and adjacent islands have a peculiar superstition. When engaged in opening shells in search of pearls they take every ninth find, whether large or small, and place it in a bottle, which is kept tightly corked with a dead man's finger. The pearls thus kept are known as seed or breeding-pearls, the natives of the island firmly believing they will reproduce their kind. For every pearl put into the phial two grains of rice are added for the pearls to feed upon. Some whites in Borneo believe as firmly in the superstition as do the natives, and almost every hut along the coast has its "dead finger" bottle, with from nine to fifty seed-pearls and twice their number of rice-grains carefully and evenly stowed away among them. Nearly all the burial-places along the coast have been desecrated by "pearl breeders," in search of corks for their bottles.



THE CITY OF DANVILLE

The city of Danville, Ill., is beautifully situated at the junction of the Vermilion

River with its North Fork, and sixteen miles north-west of that river's confluence with the Wabash. Stony Creek cuts through the eastern part of the city on its way to join the Vermilion. The main part of the city is built upon an elevated plateau which rises one hundred feet above the water-level of the Vermilion.

Located as to Chicago, it is 124 miles due south; as to Cincinnati, 200 miles northwest; as to St. Louis, 183 miles northeast; or nearly in the center of the triangle formed by the above-named cities, and in direct communication with all of them. There is no city of importance in a direct line between it and Chicago. On the south it has no competition until Terre Haute is reached, fifty-four miles distant. No city of its size intervenes on the southeast between it and Indianapolis, eighty-five miles distant. Lafayette, its only rival on the northeast, is distant forty-six miles. On the southwest Danville holds undisputed sway in the territory reaching nearly to Decatur, distant seventy-four miles. Bloomington, on the west, is separated from it by a distance of eighty-one miles.

Located with reference to Indiana, it is only a few miles from the State line, and draws largely from the western portion of the thrifty Hoosier State.

Thus situated in the midst of a vast agricultural region which embraces the garden-spot of two great States, Danville is justly entitled to the sobriquet "The Queen of Eastern Illinois." In the territory embraced in eastern Illinois there is no city approaching it in population or promise.

Coal is Danville's chief product. The city lies on the northeast outcrop of the great coal-fields of Illinois. The wells in the older part of the city are sunk to a depth of from eighteen to twenty feet, to the shale overlaying the coal, which dips south and west, going, as it were, deeper and deeper beneath the surface. The North and Salt Forks of the Vermilion and many ravines cutting through the surface, the coal is exposed in many places, where it is obtained by stripping the little earth that overlies, and wedging out the same

as the product of a stone-quarry is wedged out. This was the primitive way of getting coal, and is still pursued. Anyone who can get trusted for a scraper becomes a coal-operator and supplies houses, factories and stationary engines.

The valuable earth known as fire-clay abounds in the Danville coal-formations, and is found in large quantities below and above both the Danville and Grape Creek coal-seams, especially the latter.

Danville has railroad facilities equaled by very few cities in the Union. The railroads are not merely branches, but great through lines. They radiate from Danville in all directions of the compass, and make important connections, their several termini being at established cities on the lakes, the Ohio and Mississippi Rivers. The following railways enter the city: The main line of the Wabash Railway Co., extending from Toledo to St. Louis, with branches to Quincy and Champaign; the Chicago and Eastern Illinois, extending from Chicago to Evansville, with its St. Louis branch leaving the main line at Danville; the "Big Four," Peoria Division, extending from Indianapolis to Peoria; the Chicago, Vincennes and Cairo, extending from Danville to Cairo.

The Jewelers Danville

LION & KYLLING
FRANK SCHARIO
L. E. SCHARIO
J. L. HILL & SON

III.

W. C. ERNST
F. WETZEL
E. E. GERNAND

Among the most enterprising of Danville's citizens are the jewelers, many of whose establishments would do credit to more pretentious civic centers. Chief among the jewelry establishments is that of Lion & Kylling. F. Lion and George F. Kylling succeeded August Blankenburg in the jewelry business in this city, coming to Danville from Evanston, the leading aristocratic suburb of Chicago, where they were the proprietors of the leading jewelry establishment of that city for fourteen years, when the business was sold out and a rest taken for health and recreation for a short time. They purchased the stock and goodwill of Mr. Blankenburg, and since then moved into new and better quarters, fitted up with new and elegant side counter-cases, and are continually enlarging their stock. Both proprietors are practical men in their line of business. They carry a full line of watches of all the leading American manufacturers, diamonds, jewelry, solid and silver-plated ware. They make a specialty of repairing fine complicated watches. Captain A. S. Bixby, whose portrait we reproduce, for many years a respected citizen and veteran jeweler of Danville, is in the employ of the above firm.

Frank Schario is another popular jeweler. He came to Danville from Waterloo, Canada, in 1876, and opened a store. He has since enjoyed a good trade. The stock carried by him is large, and comprises all the novelties pertaining to the watch and jewelry business. He is a good engraver as well as watchmaker, and is well prepared to meet the wants of his many customers in any branch of the jewelers' art. Mr. Schario is the oldest-established jeweler in Danville, Ill., at present. One of the chief attractions on East Main Street is his large clock on the sidewalk, which serves the double capacity of being an attractive business sign and the time-regulator for the general public. Like its owner, it is always "on time." A well-selected line of musical instruments forms a portion of his large stock-in-trade.

L. E. Schario came to Danville from Waterloo, Canada, in 1880, and entered the employ of Frank Schario, his brother. After working three years for the latter, he opened a store in 1883, and has since been doing a good trade. Mr. Schario, being an excellent watchmaker, soon gained a reputation, and now controls a liberal share of the work and business of the city. He carries a large stock of goods, principally watches, and is always in a position to fill any order that may come his way.

J. L. Hill began business in Danville in 1883, buying the stock and fixtures of the estate of L. N. Monroe, the pioneer jeweler of the city. In 1890 Mr. Hill gave his son, J. P. Hill, an interest in the business, and the firm name has since been J. L. Hill & Son. The Hills, *pere et fils*, are very enterprising and carry a very large line of goods, every conceivable description of jewelry being represented. The repairing department is under the excellent management of Mr.

Fred. Robey, who is an accomplished workman and who is capable of undertaking any piece of work in the watch-repairing line that may be brought before him. Mr. Robey has been with the firm since it went into business, which is sufficient evidence that he has filled his position to the entire satisfaction of his employers. The Messrs. Hill are very popular citizens as well as business men, and enjoy the patronage of a goodly portion of the élite of Danville.

W. C. Ernst located in Danville in February, 1881, where he was first employed by L. N. Monroe, now deceased, who, as before said, was the pioneer jeweler of the town. After remaining with Mr. Monroe for a time Mr. Ernst was employed by Mr. A. Blankenburg, with whom he



worked until 1885, when he went into business for himself. He is an excellent mechanic and watchmaker, has built up a good trade, carries a large and well-selected line of goods, and does a growing share of the jewelry business of the town.

F. Wetzel, who was formerly in the employ of A. Blankenburg, is yet but a short time in business. He carries a nice stock, and makes repairing a specialty. Mr. Wetzel is a good mechanic and will undoubtedly do well, as he is very popular, more especially with the German element of Danville.

E. E. Gernand, Danville's youngest jeweler and optician, was born October 20, 1862. It was not, however, till 1886 that his career as a jeweler began, Mr. A. Blankenburg, before referred to, initiating him into the mysteries of the trade. In 1888 he left Danville for Reading, Pa., and while there worked for A. B. Yorgey, John F. Beyerle and S. L. Dunkle. In 1890 Mr. Gernand left Reading for La Porte, Ind., where he took a three months' course in horology and graduated in optics. He subsequently went to Chicago, Ill., where he took instructions in the Wendell School of Engraving. He began business in Hoopston, Ill., in September, 1890, but sold out the following May and went to Anderson, Ind. In September, 1891, he sold out his business in the latter place and went to Chicago, where he

took a course in the Chicago Ophthalmic College under Dr. H. M. Martin, graduating November 25th. He then went to Danville, where he opened up his present store in December, 1891. His qualifications have already secured for him a measure of success that promises great things for him in the near future.

The progress of Danville has been of the genuine Western variety, and industry, affluence and enjoyment are evinced in every quarter. There seems no merchandise but what has its mart, no interest without its representation. All facilities for travel abound—the car upon the paved streets, or the miles of walk for the passing throng. The melody of bells proclaims the passing hour, and the shriek of the steam whistle announces the cessation or renewal of a multiform industry. Prosperous as is the present, situated as it is there is still greater prosperity in store for the city in the early future. There is a yearly influx of money and enterprise, and the increase in the number of local jewelers in a very few years is, in itself, a significant reflex of the civic growth and progress.

Make the Clerks Work.

Business in all its branches is essentially the same, and the methods that bring success or failure to the grocer are likely to similarly affect the jeweler. The following may, therefore, prove interesting to our readers. The St. Louis *Grocer* has been favored by a country dealer with a plan by which, as he asserts, his two clerks are made to give as much attention to the building up of a profitable trade as he himself does. He says, in substance, that the whole secret of the matter lies in the fact that he has put in practice a number of plans that make it imperative as well as interesting for the clerks to give special attention to the various features of his business.

One of these features involves a new system of buying stock. Each clerk is held responsible for certain lines, and is expected to keep an accurate account of the stock on hand, as well as the supplies that will be needed. When a traveling salesman comes in the clerk is called on to furnish the proprietor with a memorandum of the goods that he positively needs, and an estimate upon the goods that he will probably have a sale for in the immediate future. He is really allowed to make up the order, but only with the understanding that he will be held responsible for his selections. One very profitable result of this system is to be seen in the eagerness with which the clerks record the salable qualities of every brand in the various departments. They know just exactly what quantities the customers will want, and what brands will be likely to sell the readiest. Another outcome of the system is the establishment of a "job lot" counter in the store. Compelled to keep a salable stock on hand at all times, and hence not allowed to let old stock accumulate, the clerks every month or two go through their departments and set aside all goods that have failed to please the trade. These are marked down to cost prices, and are displayed on a special counter, where they always excite attention and find buyers. The bargain counter in this establishment, therefore, is an advertisement as well as a source of cash income. The plan seems to merit consideration.

Headquarters for

WALTHAM WATCHES

DIAMONDS

WATCHES

SILVERWARE

OPTICAL GOODS

TOOLS

MATERIALS

We carry the largest stock of

WALTHAM MOVEMENTS

in the world.

David F. Conover & Co.

Chestnut and Seventh Sts.

Philadelphia, Pa.

DAVID F. CONOVER.
B. FRANK WILLIAMS.

Jack=Knives.



AFTER the outside and ends of the cylinder have been turned as directed in our last article, the heads are attached. It is well to make these heads of pretty thick sheet-brass, say one-eighth of an inch or a trifle over. If we leave a ledge on the brass which will just go into the end of the cylinder, it will be found to be an advantage, as it not only serves as a guide for fitting the cylinder-head to the cylinder, but allows us to cut the steam-ports a little back of the extreme end of the

cylinder-shell. We show a plan of such a cylinder-head at *A*, Fig. 1, the ledge at *b* going tight inside the cylinder. Fig. 2 is a side view of a vertical section of Fig. 1 on the line *a*.

In making the steam-chest we shall have to make a departure from the plan to be pursued when castings are employed. One of the first things to be got up is what we may term a saddle. To make this we take a piece of heavy sheet-brass about one-fourth of an inch thick, seven-sixteenths wide, and the same length as the cylinder, and on one side bore it out in a similar way to what we did the cylinder. This will be better understood by a detailed description.

At Fig. 6 we show a plan or top view of the piece of brass for the saddle; now what we must do is to recess the lower side to fit the outside of the cylinder. To do this we place it on the shoe employed for boring out the cylinder, shown again at *D*, Fig. 5. The piece *B* is attached with soft solder to *D* as shown; when with the boring-out device *B* is recessed to the dotted line, which will cause it to exactly fit the outside of the cylinder. We show at *B*, Fig. 4, an end view of the saddle-piece, the dotted arc *e* representing the outside of the cylinder.

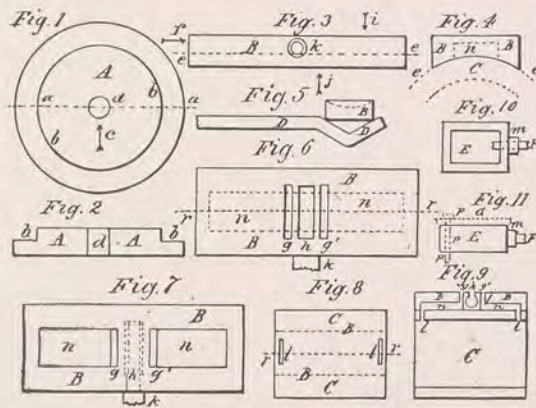
The turning of the cylinder and the boring out of the piece *B* should be very carefully done, in order that the two parts may fit steam-tight by the addition of a little cement. It is well to grind the piece *B* to match the cylinder. This operation will be best conducted by laying the saddle-piece down flat with the concave side up, and with hard, white glass ground to a fine powder and mixed into a paste with a little oil, we proceed to grind the two surfaces to fit. The object of using pulverized glass is that it leaves less grit embedded in the surface of the metal.

At Fig. 7 is shown a bottom view of the saddle *B* as if seen in the direction of the arrow *j*, Fig. 3. In the concave side of *B* we must recess two channels *n n*, for conveying the steam from the ports *g g'* to each end of the cylinder. These channels should be about three-sixteenths of an inch wide and one-sixteenth of an inch deep, and of the shape shown. In construction we get out the saddle-piece *B* as we have described, and show in Figs. 3, 4, 6 and 7 of the correct size. Through this saddle we cut ports as shown at *g g'*. The ports *g g'* admit the steam to the cylinder, and are one-fourth of an inch long by one thirty-second of an inch wide. It will be borne in mind that these ports open into the channels *n n*. The port *h* is for the exhaust, or to let the steam out of the

cylinder. This port is one-fourth of an inch long and one-sixteenth of an inch wide, and is not cut entirely through *B*.

We show at Fig. 8 a top view of the cylinder one-half the actual size. The dotted lines *B* indicate the position of the saddle *B*, said saddle, when in position, bringing the ends of the channels *n n*, Fig. 7, exactly over the slots *l l*, which admit the steam into the cylinder. Fig. 9 is a vertical longitudinal section of the cylinder on the line *r*, Fig. 8, and shows both the cylinder and the saddle-piece shown in Fig. 6. A hole *k*, Fig. 3, is drilled so as to open into the exhaust-port; this hole should be as large as we can get without weakening the saddle, in order that the steam shall have free egress. It will be remembered the saddle *B* is not quite one-fourth of an inch thick, which will allow us to employ a tube *k* one-eighth of an inch inside diameter for the escaping steam to pass out of.

We would take this occasion to say that the moisture from the steam of such a little engine, if not conveyed away or condensed, will be found to be a decided nuisance in a workshop; consequently we must provide for the disposal of it when making the engine. For attaching the saddle *B* to the cylinder the best plan is to screw it fast with small screws. It can be secured with soft solder, but screws will be much more satis-



factory. The cement we spoke of for the joint between the saddle and the cylinder is composed of glycerin and red-lead ground together to the consistency of artists' tube-colors. In applying it a little is smeared on the two surfaces, when they are rubbed together and the screws put in. In a few days the cement will set hard.

The steam-chest, which goes on the saddle *B*, is simply a rectangular box made of sheet-brass a little over one-sixteenth of an inch thick, and constructed so it is five-sixteenths by one-half inch on the inside, and about one-fourth of an inch deep. We show such a chest, as seen from above, at Fig. 10, with a side view at Fig. 11. This box, or chest, is filed so as to be of the same width as the top of the saddle, and secured to it by screws, which pass through the lid or cover and also through the sides of the steam-chest into the saddle. The location of the cover is indicated at the dotted line *G*, Fig. 11, and the position of one of the screws at *p*. The ledge of the head to the cylinder is supposed to be a trifle less than one-sixteenth of an inch—say three sixty-fourths of an inch—deep, leaving a space of one sixty-fourth of an inch between the piston and the cylinder-head.

"Your reminder that my subscription to THE KEYSTONE had expired, received. I can't see how I could get along without it. It is the best paper I have ever taken in the jewelry business, and I have learned more from that than all the other trade papers I have taken. Enclosed find One Dollar, and send me the paper another year. I have taken it seven years, and I hope to take it seven more. Wishing THE KEYSTONE great success."—WM. GOOBY, Carthage, South Dakota.

Watchmakers' and Jewelers' Association of Illinois.

The regular quarterly meeting of the Retail Watchmakers' and Jewelers' Association of Illinois was held at Chicago, January 12, 1893. The following craftsmen were accepted as members: H. Von der Heydt, of Chicago, Ill.; G. W. Tallman and Clay Glotfetty, of Lanark, Ill.; Geo. Hart, of Yellow Creek, Ill.; Otho N. Gay, of Camp Point, Ill.; Ed. H. Lane, of Genoa, Ill.; A. K. Phileo, of Alexis, Ill.; C. E. Nicodemus, of Forreston, Ill.; E. F. Randolph, Farina, Ill.; Geo. C. Schreiber, Lincoln, Ill.; and S. Rhodes, of Ulysses, Neb.

The following companies and firms promised their support in establishing World's Fair headquarters in Chicago for the accommodation of all retail craftsmen: Elgin National Watch Co., Waterbury Watch Co., New York Standard Watch Co., Wadsworth Watch Case Co., C. H. Knights & Co., of Chicago, Rockford Silver Plate Co., Howard Sterling Company, R. F. Simmons & Co., of Attleboro, Mass., and Foster & Bailey, of Providence, R. I.

Digging the Turquoise.

The production of precious stones in the United States, until the past year, has never been of sufficient importance to attract any particular attention to this industry. Many varieties of precious stones are found in different sections of the United States, but the average production of all varieties per annum has not been considerable. Last year a New York company commenced mining for turquoise in the Burro Mountains, near Silver City, N. M., and a dividend of six per cent. on the capital stock of \$1,000,000 has just been declared. The dividend was earned from the operation of the mines for the period of nine months.

The existence of turquoise in different parts of New Mexico has been known for many years, but the stones were supposed to be of an inferior quality and of but little value, consequently turquoise-mining was left chiefly to the Pueblo Indians, who sold stones of an inferior quality at various railroad stations in the Territory.

Most of the stones came from Santa Fe County, and they were sold by the Indians at such low rates that nobody thought of investigating the matter, and it was not until specimens of turquoise from an old mine in the Burro Mountains were sent to Tiffany & Co., New York, that any steps were taken to work turquoise mines in New Mexico in a systematic manner. The mines which are now being worked in the Burro Mountains were worked many years ago, probably by the Aztecs, on quite an extensive scale, as the dumps plainly show. They took only the best stones and left the inferior ones in the dirt on the dump. Many of these were found prior to the time the New York company came into possession of the mines, and it was supposed that none but inferior stones were to be found there; but the developments within the past few months have shown that the best stones found in the Burro Mountains are not surpassed in quality by the best Persian turquoise.

Although the Company, which is known as the American Turquoise Company, has only been operating the mines a short time, it is the principal producer of turquoise in the world, the output being much larger than that of the Persian mines. Most of the heavy stockholders in the Company live in New York, and Charles L. Tiffany is one of the heaviest.

Quite a large percentage of the stones found are comparatively worthless, but a large number of very fine ones have been found.

A Story of Ex-President Hayes.

One of the peculiarities of Gen. Hayes was that since he was a young man he never carried a watch. The reason for this was that in his younger days a watch that he carried was the cause of sending two men to the penitentiary. It was stolen from his pocket; the thief was captured, tried, convicted and sent to the penitentiary for a term of years. The General recovered his watch and a second time it was stolen. The thief turned out to be a poor man with a large family, and after he was sent to the penitentiary the General came to the conclusion that he would get rid of the cause of so much trouble to his fellow-men. Since then he has never owned a watch.

The Irax of the Centuries.

BY JOHN TWEEZER.

Once upon a time, as we are told by Voltaire in one of his delightful tales, there lived a very vain governor of one of the Babylonian provinces, named Irax, whom the King of Babylon determined to cure of his inordinate self-esteem. So it was arranged that a full orchestra and chorus should attend his waking, and soon as sleep had unlocked his ears he was saluted with a cantata two hours long, every third minute of which was occupied with a refrain that was broadly flattering. Then the royal chamberlain harangued him for three-quarters of an hour, commending him for a thousand good qualities which he did not possess. When Irax opened his lips to make the most trivial remark, the assembled company would exclaim with awe, "What wisdom do we hear!" When he said nothing his flatterers fell on their faces in pretended respect for the *unspoken* wisdom which they were not worthy to hear; and the overwhelming adulation continued "from morn to noon, from noon to dewy eve." On the first day Irax was delighted; on the second, bored; on the third, disgusted; on the fourth, mad; and on the fifth day he was cured.

It seems to me that the Nineteenth Century is being treated much as the wicked conspirators of the Babylonian court treated poor Irax; and I hasten to its defense, that it may not suffer a similar cruel reaction of self-opinion. It is hardly awake of a morning before a chorus of ten thousand newspapers, orations and essays dins into its ears, as in *Zadig*,

Que son mérite est extrême!
Que de grâces! que de grandeur!

and a million of courtiers, with eyes variously directed toward the late Paris Exposition and the coming World's Fair, tell it to its face that there never was such an age. "If you doubt it," say they, "behold the triumphs of steam, and electricity, and patent harvesters, and automatic incubators! There *never*—no, NEVER—was such a time!" Impelled by a merciful disposition I want to seal the ears of the Century to this tireless praise, while I discuss for a minute whether all this marvellous multiplication of mechanical appliance in modern life is an *unmixed* gain to civilization, in its widest and highest sense; whether the good of it is *quite* so vast, *quite* so immediate as the chorus makes out—and if I shall look at the question more or less closely through the spectacles of Mr. Frederic Harrison, his spectacles will be none the worse for the prospect which unfolds to my eye, and the reflected vision of KEYSTONE readers will be all the clearer.

If it is, then there is no need for further debate; and I will remove the plugs from the ears of the Century, that it may hear the truth. But I doubt that we can fairly measure civilization by our material progress—even if we can agree upon what civilization *is*. Certainly, the cause of progress is bound up with every principle worth having; and "material progress is an indispensable step in general progress." Railways and gas and telephones and watches, and all the appliances and conveniences of our age are doing great service for humanity, no doubt; and we cannot accept the dictum of Mr. Ruskin that it is "the era of moneybags and cant, soot, hubbub and ugliness"; but *is* it the millenium foretold by the prophets—and the inventors of patentable articles?

Everyone can state for himself the hyperbolic contrast between the material conditions as they exist to-day and as they existed one, two, three, twenty or a hundred centuries ago. It is impossible to enumerate even the most conspicuous, in this limited space, except in the sketchiest outline. Thus: The electric light

has displaced the tallow candle. To get news to Central Asia formerly required at least a year; now the President's message is printed in newspapers in all parts of the world within three hours after it is delivered. The loaf of bread on the New York table is made from wheat grown in California; a New England child's penny toy is fashioned in Japan. One of our war ships would sink all the navies which fought at Trafalgar and the Nile. The value of the annual product of a single acre of our towering factories is equal to that of a whole State in the colonial period. I need not continue the tremendous recital further. What was the impossible is now the commonplace. "Take it all in all, the merely material, physical, mechanical change in human life in the hundred years from Watts' day to our own is greater than occurred in the thousand years that preceded"—aye, in 2000 or 20,000 years! But are WE so vastly wiser, or nobler, or happier? Is the advance in *real* civilization at all to be compared with the incredible "leaps and bounds" of material improvement? There are immensely greater opportunities—granted; there are a thousand times the resources of any other age—granted; but do we use them to a thousand times better purpose?

Is there commensurate impetus to civilization in its *high* sense, in the nineteenth century, as we find in its *low* sense, in its physical, material sense?

I trow not; and I submit the reasons for my doubts.

Take science. To place beside the marvellous tools of modern science those with which Copernicus, Galileo, Newton and Harvey worked is like comparing the equipment of a modern ironclad with that of a row-boat of the South Sea Islander, and yet—and yet—will any competent man pretend that the age of Faraday and Darwin and Koch and Edison is distinctly higher than the age which witnessed Newton and Herschel and Priestley; or the age of Buffon and Lavoisier; or the age of Bacon and Harvey and Descartes and Leibnitz? "You may raise your mechanical apparatus of science a thousandfold, you do not double your scientific genius one."

Do you speak of philosophy? Wherein is ours so vastly more profound than that of Kant and Adam Smith, Diderot and Hume? So with literature. On every day in 1893 the press will turn out more printed matter than it turned out in a hundred years of Shakespere's day; yet wherein are we ahead of the respective ages of letters which produced Goethe and Johnson and Voltaire, Burke and Schiller, Milton and Molière and Locke? As for music, can we touch in contemporary accomplishment the marvelous works of Mozart, Beethoven and Bach? And in respect of painting and sculpture we must "forever hold our peace" in the shadowy presence of Phidias and Michel Angelo, Raphael and Rubens, Corregio and Murillo. I fail to see that their lack of our material resources blunted and cramped the lives of our forefathers to the extent that the spoiled sons of the nineteenth century would expect.

We live in an age that is marked by stupendous achievements in every direction of material and mechanical performance. We count wealth by billions. We have power to go anywhere, or learn anything, or order what we will, in as few seconds as it formerly required days. We look billions of miles into starry space; we send billions of letters through the postoffices; we print billions of newspaper pages annually; we whirl billions of human creatures from place to place—it is the century of billions. Our electric lights turn night into day; we tunnel mountains, and cut canals through continents; we gratify every wish for material things by turning a crank or opening a pipe; we are as much superior, in these physical appliances, to the men of Shakespere's day, as they were to the Hottentots. But are we equally superior in cultivation of brain and heart and character? There's the rub!

I question whether the mere opportunities we have of going everywhere, seeing everything and doing anything we wish, have not led us to mistake the multiplication of human *instruments* for the enlargement of human *powers*. We are so overwhelmed with our appliances, so bewildered by our limitless resources, so puzzled with our enormous mass of materials, that the measure of success has come to be *product*. The question should be, how are these products *consumed*, and what sort of lives is lived by the producers? In what degree do they make for the increase of self-restraint, of unselfishness, of high thinking? To what point do they advance real civilization?

So, until all kinds of human energy get into more harmonious proportion, I think that the excessive laudation of the nineteenth century will pall upon the impartial mind. Until the present urgent need for "synthetic habits of thought, systematic education, and a common moral and religious faith" is satisfied, the Irax of the centuries should stop his ears to the cantata of over-praise.

As I was concluding the foregoing essay there came to my memory the following verses, which are in some degree germane to the subject:

What Lack We Yet?

When Washington was President,
As cold as any icicle,
He never on a railroad went,
And never rode a bicycle.
He read by no electric lamp,
Ne'er heard about the Yellowstone;
He never licked a postage stamp,
And never saw a telephone.
His trousers ended at the knees,
By wire he could not send dispatch.
He filled his lamp with whale-oil grease,
And never had a match to scratch.
But in these days it's come to pass
All things are with such dashing done,
We've all these things, but then, alas—
We seem to have no Washington!

ONE OF D. T. Mallet's sententious "Whens" goes as follows:

"When you over-urge a customer to make a purchase, on credit, of an article for which he has no immediate or urgent use, you are preparing a bad debt."

The truth of the observation has been experienced so repeatedly by unfortunate merchants, jobbers and manufacturers, that all should be grateful to the author for putting the fact in such succinct form. It deserves to be written over every counter and on the walls of every counting-room.

A glib talker, eloquent from his own knowledge of the transcendent merits of his own goods, puts a weak or diffident buyer to great disadvantage. The buyer cannot offset the torrent of convincing and persuasive eloquence, and is often reduced to a mild state of hypnotism by the overshadowing personality of the salesman. He buys, on a long credit, what he does not need or cannot easily sell, or he buys in excess of his needs—and when the bill is due and the goods remain unsold on his hands, the creditor asks for his money and finds "there is the devil to pay" instead! And the creditor rails against the merchant, and calls heaven to witness the business iniquity, or incapacity, in this day and generation.

The case is paralleled again and again in examples concerning the merchant and consumer; and the wisdom of Mr. Mallet's "When" is again in evidence.

It requires a finer merchandising instinct to lead one to stop selling an easy buyer, than it does to break down the barriers of the slow and cautious; but it is not generally so understood. When will salesmen learn the danger of making a bad debt *when they become both the seller and the buyer*?—for that is virtually their position with many customers. When will traders stop short of the danger line?
J. T.

A Modern Instance.

The Pith of the Question.

Is Machinery The Last Word of Civilization?

The Contrast of Accomplishments.

R. Wallace & Sons Mfg. Co.

Silversmiths.

Pieces now ready
in "Waverley"
pattern:

Tea Spoons, 6 oz.
" " 8 oz.
Dessert Spoons.
Table Spoons.
Coffee Spoons, large.
" " small.
Orange Spoons.
Tea-Caddy "
Jelly "
Pap "
Ice Cream "
Dessert Forks.
Medium "
Salad "
Oyster "
Medium Knives.
Dessert "
Butter "
Pie "
Butter Spreaders.
Sugar Shells.
Sugar Tongs.
Child's Sets.
Cream Ladles.
Bon-Bon Scoops.
Ice Cream Knives.

Other pieces in
preparation.



MEDIUM FORK.



TEA SPOON.

THE WAVERLEY.

DESIGN PATENTED.

Factories: Wallingford, Conn.

New York Store: 3 Park Place.

JOHN W. SISSON, Manager.

Chicago Store: 86 Wabash Ave.

GEO. M. WALLACE, Manager.

ESTABLISHED IN 1889.

FOURTH SUCCESSFUL YEAR.

The Jewelers' School of Letter and Monogram Engraving,

63, 65, 67, and 69 Washington Street,
CHICAGO, ILL.



Design of 14 K. Gold Pin presented
to every student at end
of course.

Over 200 graduates. All employed at remunerative wages.

THE first, only and best School in the country in which young men and women can learn the art of letter and monogram engraving, and make practical use of it. Every student fit to fill position at end of course. Engravers are more in demand and are better paid than in any other branch of the business. A full corps of competent engravers as instructors. Students practice on gold and silver entirely, including plain silver rings for inside lettering. The School is in the same building with the factory, in which we employ one hundred and fifty men on all kinds of jewelry (making and repairing), stone-setting, watch-case making, gold and silver plating, lapidary work, enameling, ornamental engraving and chasing, raised rustic monograms and bangle work, assaying, refining, etc. While we do not instruct in anything but engraving, students can obtain a superficial knowledge of all kinds of manufacturing, which will be beneficial to anyone in the retail jewelry business. This School is conducted by business men who have employed engravers and instructed apprentices for a number of years. They know exactly what an average student can accomplish, and guarantee to teach the trade in six months, or less, to every student they accept. They are further justified in making this statement by the progress every student already entered has made, and can refer to every graduate of the School. This School is recognized by the trade throughout the country, and its graduates are eagerly sought after by the best retail jewelers in all sections. If you wish to become a first-class engraver, attend a school where engraving only is taught. Full terms and information on application. Correspondence solicited.

Wendell & Company,
The Special Manufacturers for the Retail Jewelry Trade,
PROPRIETORS.

Richard O. Kandler,
CHIEF INSTRUCTOR.



Persons wishing inquiries answered in this department should send name and address—not for publication, but as an evidence of good faith.

“CORRESPONDENT” desires to know where Thompson’s Polishing Fluid is made. Will some of our readers be kind enough to furnish the address?

“INITIALS.”—I have a mastodon tooth which weighs eight and three-quarter pounds, found in a marsh three miles north of here, which is petrified. The nerve cavity is larger than a large-sized lead-pencil. I have some fine fresh-water pearls; where can I find sale for them?

If you wish to dispose of the mastodon tooth you had better correspond with the custodian of the Academy of Natural Sciences, corner Nineteenth and Race Streets, Philadelphia, Pa. We think all jewelers who get hold of fine fresh-water pearls would do well to set them up and trust to local sales. Pearls, unless they are very fine and large, are but of small value.

“EXPLANATION WANTED.”—In January, 1892, KEYSTONE, page 58, in your article “Watchmakers’ Tools,” you describe an instrument for testing the angular motion of a lever and pallet action. You first speak of an index-arc of one and one-half inches radius, divided into degrees, to test the angular motion of the fork; and then say that when testing the fork-action the index should be placed one and one-fourth inches from the center of the pallet-staff. Here seems an inconsistency. Please explain.

The index-arc should be constructed on an arc of one and one-half inches radius. In the wire recommended and illustrated at *F*, the text should read fine copper wire from the bass string of a violin. Both are typographic errors.

“SPOON-HANDLE.”—(1) How can I remove the transparent film or lacquer from spoon-handles made by Towle Mfg. Co.? (2) Where can I procure tools for engraving on wood?

(1) Usually such films can be disengaged by immersing the goods for a few minutes in boiling water. (2) Wood-engravers’ gravers can be had of Weber & Co., 1125 Chestnut Street, Philadelphia, Pa. The ordinary knife-graver, or what H. H. Kayton, 82 Nassau Street, New York, catalogues as “half-round gravers, broad back,” will answer every purpose by selecting numbers 50, 52, 54, 56 and 58 in his 1892 catalogue, page 41.

“SOLID PLATES.”—How can I restore movement-plates that have become colored or dark from long usage? Oftentimes we find very small, dark specks that look like particles of dust, but on close examination we find them to be rust, which cannot be removed with a brush or by any means I have tried, except to scrape them off, which is unsatisfactory. How can I remove them best?

A solution of cyanide of potassium, made by dissolving half an ounce of this salt in a pint of water, will generally remove the stain where it arises from the gilding being worn off; but the cyanide solution, although it helps some, will not remove the small spots of which you speak, which are located below the gilding. Scraping, as you suggest, with a fine, special steel point is about the only practical way to dispose of them. Some of the stronger acids, like a mixture of nitric and sulphuric, will remove them, but the mixture injures the gilding and all steel parts must be

removed. Where the gilding is gone, as in the first instance you mention, and also when rust and verdigris spots are conspicuous, the better plan is, on taking in such a watch, to call the owner’s attention to the fact, and recommend new gilding for the movement. It might not be advisable to make a heavy charge for the operation, but just get money enough to pay for time and material; such a policy would have a good influence on a workman’s trade. With a small hand-dynamo gilding the plates of a watch occupies but a very few minutes, and costs but a few cents for material. It is not like having to do the work with a chemical battery that is always out of order.

“RINGS.”—Can you give me the signification of wearing rings on the different fingers of the hand? I often have the question asked, and would like to be able to answer.

Our expert says he knows more about rings mechanically than sentimentally. We have been trying for a year to obtain a book on this subject published in London, but so far have not obtained it, but think we shall be able to do so very shortly, when we will give KEYSTONE readers the benefit.

“ELECTRIC MOTOR.”—(1) How can fine gold be hard-soldered without burning the gold, and how do you restore the color of gold after hard-soldering? (2) Would you prefer an electric motor before a small steam engine for running a watchmakers’ lathe? If so, where can the cheapest motor be had, and what would be the cost per month to run?

We hardly think you mean fine gold in the sense in which manufacturing jewelers employ it. Strictly speaking, “fine gold” is pure gold; and pure gold will not blacken by heating. For hard-soldering such gold as is usually employed in the manufacture of jewelry—of, say, from nine to fourteen karat, the surface should be protected by a coating of some kind of anti-oxidizer, for which the following is a good recipe:

To hold the color of gold or silver during the process of hard-soldering. It is composed of

Yellow ochre	4 parts
Boracic acid	1 part

The above ingredients are mixed with boiling water to thoroughly incorporate them, and allowed to boil for an hour. The composition is applied as a paint to all the surface heated, except where the solder is to flow, as it prevents this action.

After the soldering is done, and while at a blue-heat, throw into a pickle composed of water five parts, sulphuric acid one part. If the article looks a sickly green, after coming out of the pickle dip it in a porcelain dish containing hot sulphuric acid and a few crystals of saltpeter. (2) Small steam engines spit steam and water, and the boiler usually gives no end of trouble. While we advise all jewelry concerns which do any great amount of work to economize man-power by employing steam, still we would, in no case, advise employing steam-engines of less than one horsepower; and where one horsepower is needed, it is the better economy to make use of a two-horsepower engine and boiler. In regard to electric engines, if you are situated so as to get a current from an electric light wire, this, undoubtedly, is the best and cheapest source of power for a watchmaker’s lathe. Where chemical batteries are employed, the cost is worth counting—say from three to five cents a day; but we are positive no workman who has ever used a motor will ever condescend to kick a foot-wheel for three times what it costs for running one by an electric motor. Motors in which cast-iron is employed in construction should never be employed for any purpose where chemical batteries furnish the current, as they waste from thirty to

fifty per cent. of the electrical energy; and when such energy costs money we should seek in every way to economize it. We consider the Ben. Franklin Electrical Co., of 1331 North Tenth Street, Philadelphia, Pa., is making about the cheapest, and certainly as effectual, small motor as any on the market.

“POLISH.”—How can I restore the beautiful polish on gold or silver watch cases? I do considerable engraving on watch cases, and in the operation they get more or less scratched, and I cannot restore the perfect polish.

Watch-case polishing is, like all mechanical operations, a trade. But before we go further we would beg to say you should not let a case get scratched while being engraved. A workman should never handle a watch case with his fingers. In a watch case factory all polished cases are handled with clean pieces of cotton cloth. A case-factory man will handle a movement with his fingers regardless of smear, but the immaculate polish of the case he preserves by always using a piece of clean cotton cloth. The polishing of watch cases, and, for that matter, any gold or silver article, is, theoretically, a very simple operation; practically the failure of ninety-nine workmen in a hundred to obtain a fine polish is lack of cleanliness. We have spoken of this repeatedly, but such instructions are like those given in a school, and those to whom the advice is a “chestnut” must let on they do not hear it. If we bear in mind the fact that *polishing any substance is only perfectly smoothing the surface* we have acquired half the mystery, and the remaining half is to know the best materials to employ and how to use them. For illustration, let us take a silver coin (say a quarter of a dollar) and smooth and polish it for engraving. The first process is to turn or file off the face of the coin. Even this should be conducted with an eye to the subsequent perfect surface produced by polishing; that is, *let every operation do as much as possible toward the final perfect surface*. In filing, for instance, there would be no object in employing a fine file in which pins or small lumps of metal were allowed to accumulate, which produce deep gutters across the face of the coin only to be removed by some subsequent process. When we come to removing file-marks, fine emery can be employed, or pumice-stone powder; but, in all instances, let no coarse particles interfere with the gradual advance of the smoothing process. For employing rotten-stone or tripoli, a stiff, round brush in a polishing-lathe is the tool to use, mixing the rotten-stone or tripoli with oil to a thick paste—kerosene does well. After all scratches are removed, wash the article well with soap and water to remove every particle of the rotten-stone, or your subsequent polish will be milky. Do not think you can handle the work with gritty, dirty hands. Everything must be absolutely free of grit. The great trouble about producing perfect polished work in a jobbing shop is to so employ the polishing-lathe as to keep the rouging process perfectly free from the contamination of grit from former smoothing operations. The rouge-polish is produced by first brushing with round bristle-brushes in the polishing-lathe, using rouge mixed with oil, or rouge tablet, followed by buffing with a rotary buff made of cotton-flannel or elk-leather, making use of best plate rouge wet with gin, which experts claim to be better than alcohol. The final black polish is obtained just as the rouge gets black and dry on the buff, and is really produced by a film-surface on the buff of the metal we are polishing.

Clocks.



PROBABLY the best escapement to adopt with a torsion pendulum is the recoiling anchor. As stated in our last article the dead-beat anchor, after the manner of the Graham escapement, can be used, but it is more bother to make and gives no better results. Let us suppose we wish to make one, and adapt an eight-day clock beating seconds to a torsion pendulum which will cause the same movement to run 480 days. If the pallets and escape-wheel are well adapted for our use, we can retain the escapement, and the problem then is simply to cause the clock, by the employment of the torsion pendulum, to beat minutes instead of seconds.

The duration of the vibrations of the torsion pendulum admits of very wide range. Suppose we take two pieces of steel piano-wire, four feet long, and suspend them as shown in Fig. 1, where *C C'* shows the two wires; *A*, the suspension stud; *B*, the revolving disk, or what nearly corresponds in controlling power to the ordinary pendulum-bob. Now what controls and governs the rapidity of the vibrations of the disk *B* is not so much the weight of the disk *B* as the diameter of it. To illustrate, suppose the disk *B* to be a flat plate of metal, say six inches in diameter, half an inch thick, and weighing four and one-half pounds, and suspended on the two wires *C C'* as shown. Now if the disk is revolved in one direction, say four full turns, and released, the weight of the disk, in conjunction with the torsion force of the wires, will cause it to turn back the four revolutions, and the velocity which it has acquired in the four revolutions will carry it *nearly* four revolutions in the opposite direction. The force of torsion of the two wires and the weight of the disk, which was raised a little by the twisting of the wires, would carry it back exactly four times (or any other number of turns which would not break the suspension), if it was not for two frictions—first, the air, and second, the molecules which compose the suspension wires. If we should make the disk *B* thinner in the middle, and carry the weight outward toward the edge, we would also diminish the number of vibrations in a given time.

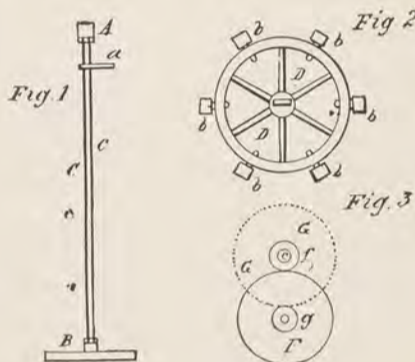
Hence it will be seen we have the means at our disposal to readily make the beats of the pendulum agree with our requirements, because if we should substitute a solid metal sphere of the same weight, the rapidity of the vibrations would be greatly accelerated. It is also to be borne in mind that the length of the suspension, that is, the distance between *A* and *B*, has but little influence on the duration of the vibrations, because with a very short suspension of two fine wires close together, and a broad disk carrying the weight out from the center of revolution, we could obtain a very slow rate.

Of course, judgment should be exercised in making the parts in the proper proportions to obtain good results. We have seen notices of such torsion pendulums being made by attaching lead balls to the edge of a metal disk. While such a method of construction would make a pendulum quite attractive as far as appearance goes, still it is one we would not recommend to the practical workman, because it is very difficult to make lead balls stay just where they are put. A very nice torsion ball can be made of such brass wheels as are used for flywheels of toy steam-engines, as

shown at Fig. 2; where *D* represents the wheel, and *b b* screws added to the rim to make the weight right for the required number of vibrations. Such a pendulum ball looks very much like a six-arm balance with screws in the rim.

By adopting such a style of ball for a torsion pendulum it is very easy to bring it to time by putting more or less screws in the rim, and also by making the screws larger or smaller. In Fig. 3, the small circle *c* is supposed to represent the arbor of an escape-wheel to a clock-movement beating seconds, which under the new conditions becomes the center-arbor and makes a revolution once an hour. In order to get the hour-hand to perform its functions, we place on *c* a cannon-pinion shown at *f*, and locate a minute-wheel at *F*, with its pinion *g* working into the hour-wheel *G*.

On the arbor *c* is placed the escape-wheel with the proper number of teeth to agree with the beats of the torsion pendulum; that is, if the torsion balance *D* requires a minute to each set of gyrations, we can use a thirty-tooth escape-wheel on the arbor *c*, just as if we were using it for a seconds pendulum. The gist of the idea is, the



torsion pendulum runs precisely sixty times as slow as the ordinary seconds pendulum. If the torsion pendulum requires two minutes for a beat, we employ fifteen teeth. Care should be taken to economize all the power possible in the escapement; shaping the pallets and limiting the drop so that the largest possible percentage of the power of the train goes to useful work.

It is better to make use of a weight for propelling such a clock than a spring, as such power is equal at all times, and we can easily add to the motive power as desired—of course, within the limit of safety. Extra power on clocks with torsion pendulums does not injure the train, inasmuch as it only moves with one-sixtieth the velocity of an ordinary eight-day clock.

Indulge the customer who "knows it all." He will undertake to tell you more about watches than even the superintendent of a watch factory would swear to; give him the benefit of believing that he has instructed you. It will pay you better to make the sale to him than to convince him of his ignorance. You are not paid to be a missionary to invincible self-conceit.

"A man may smile, and smile, and be a villain." But at least the smile sugar-coats his villainy, and makes the pill slip down the victim's throat more easily. You, who are presumably *not* a villain, can add immensely to your popularity in your community if you will lay aside your habitual frown and doff your surliness. It costs nothing to look pleasant, and a cheery manner is the passport to the good opinion of "good fellows." There is no essential trade merit in a severe countenance.

Providence Letter.

PROVIDENCE, R. I., February 2, 1893.

Trade is featureless here at present. The post-holiday reaction produced a temporary lull, and a seasonable quietness has prevailed in consequence for the past few weeks. The outlook, however, seems auspicious, and unlimited confidence in the future of business is expressed. Providence is now first in the running as a jewelry supply center, and her manufacturers can be relied on to uphold the distinction. The leading companies and firms start the year's operations with greater prestige, bigger plants and better manufacturing facilities than ever before.

The Gorham Manufacturing Company has completed the bronze statue which is to be placed in Roger Williams Park.

The people seem to have constituted the products of Ostby & Barton the autocrats of ringdom. The volume turned out, and distributed by request as soon as produced, during the last months of '92 was simply enormous, and fresh orders since from those in the trade who patronized their rings most liberally prove that all found purchasers. This is yet another triumph of merit, and foretells an unusually busy year at their factory.

Where the manufacture of jewelry is the chief industry it is not surprising that the jewelers should take a leading part in the local banking business. At the recent annual meetings, quite a number of them were elected bank directors. Edwin A. Smith, of Albro, Eaton & Co., was elected a director and cashier of the State National Bank; Beriah Wall, John S. Palmer and Sylvester G. Martin were elected directors of the National Eagle Bank; Stillman White, John M. Buffinton and Charles Sidney Smith, of the Roger Williams Bank; Dutee Wilcox, of the National Bank of Commerce; Isaac M. Potter, of the Commercial National Bank; and Stephen M. Knowles and S. M. Lewis, of the Fifth National Bank.

A visit to the factory of Foster & Bailey, even at this between-seasons date, found everything brisk. They are evidently determined to maintain, if not to strengthen, the position now occupied by them in the good wishes of the trade, and their products in all lines, as recently shown to us, are equal to the accomplishment. They are marvels of artistic beauty and merit combined.

Seamless wire is now firmly established as a necessity in every workshop and store, and the enormous demand for the Burdon product is sufficient proof of its special merit. The conclusive tests of time and wear have been tried with victorious results for this wire. The factory of the Burdon Company is quite busy at present.

Among the officers of the recently-organized Rhode Island League for Good Roads are H. W. Ladd and Hiram Howard.

Col. Thomas Wilbur Manchester, well known in jewelry circles, was recently elected commander of Prescott Post, No. 1, G. A. R., in this city. Col. Manchester was a soldier of almost reckless bravery, and his record on the field is a most enviable one. He took a leading part in the organization of the New England Manufacturing Jewelers' Association.

J. C. Hutson, the Western representative of Hamilton & Hamilton, Jr., started some weeks ago for the Pacific Coast with a handsome line of chains. The fame of the chain product of this concern is only bounded by the oceans.

The copartnership existing between Frank T. Pearce, A. B. Gardiner and C. H. Perkins, under the firm name of Frank T. Pearce & Co., expired December 31, 1892, and a new partnership was formed under the same firm name by these gentlemen, commencing January 1, 1893, and terminating December 31, 1897. The firm are to move, April 1st, to the new building now being erected on Sprague Street, where they will have about 8,000 square feet of floor room.

The factory of the Plainville Stock Company shows no signs of a post-holiday reaction. They are normally busy, not piling up any surplus, but simply filling incoming orders. Those anticipating an active spring business make no mistake in laying up a supply of the Plainville products.

Campbell, Metcalf & Co. are forging ahead in the silverware business. Last year not only showed a big increase in the aggregate volume of their transactions, but so largely added to their prestige that a still more expanded patronage is insured during 1893.

Hancock, Becker & Co. already find some difficulty in attending to orders for spring goods, a fact which speaks volumes for the all-the-year-round popularity of their products. They are at present hustling with arrangements to expediate production, and, however numerous their patrons may become, no delay in filling orders may be anticipated.

FOSTER & BAILEY,

PROVIDENCE, R. I., U. S. A.

SOLID GOLD, SOLID SILVER, FINE ROLLED-PLATE

JEWELRY for Ladies' and Gentlemen's Wear.



PINS,
CHARMS,
CROSSES,
EAR-RINGS,
BRACELETS,
NECK CHAINS,
LINK BUTTONS,
INITIAL BUTTONS,
GLOVE BUTTONERS,
"MT. HOPE" BUTTONS,
GOLD FRONT LOCKETS,
HAIR CHAIN MOUNTINGS,
ROLLED PLATE LOCKETS,
GOLD LOCKETS, ENGRAVED,
WATCH CHAINS FOR LADIES,
WATCH CHAINS FOR GENTLEMEN,
GOLD LOCKETS SET WITH DIAMONDS.

Good Quality, Fine Finish, Popular Prices.

Do you know how Rolled Plate is made? If you do not, and would like to know, we will tell you; for the more the dealer who sells our goods knows about them, the better it is for him and for us.

Take a bar of plater's metal (a composition composed of more copper than ordinary low brass) twelve inches long, two and one-half inches wide, and three-quarters of an inch thick, which has been sawed out from wide slabs after being rolled down from a large ingot; plane the surface very fine, draw-file it, and cover it to keep off all fly-specks or dust. This bar, when prepared, will weigh, say, one hundred ounces. Take twelve or fourteen karat gold, melt, and run into a bar of same width as plater's metal, carefully roll down to a size determined by a micrometer gauge set to measure one-thousandths of an inch. This plate of gold, when cut to fit the surface of the composition must weigh, if one-tenth plate is wanted, 200 pennyweights, or two pennyweights of gold to each ounce of base metal used. Scrape this gold perfectly clean, paint the base metal and gold with thick borax-water, and place a strip of silver solder between the two. Bind them together with four steel clamps, put the bar into the gas plating-furnace, and in six or eight minutes the solder flows out to the edge, and the bar is ready to pickle out and roll down.

This is an interesting process, and one that requires the greatest skill and care. Plated goods must have gold enough on them to stand all finishing and handling; and the main point about this business is to have the goods reach the dealer's hands with gold enough on them to wear well and give satisfaction. This is the nub of the whole thing, and where experience and good judgment comes in. As we have a large capital and a reputation at stake, we must make, and are able to make, the best goods; and plainly stamp cards and tags with our Flag and F. & B., thus guaranteeing to the jobber and his customer that our goods are right. Ask for goods made by F. & B.

Our Trade-Mark is our property, and we shall begin legal action against any persons using it on goods not made by us.



Col. J. M. Rutherford,

The Leading Jewelry Auctioneer

618 Chestnut Street, Room 7,

Philadelphia, Pa.

MY business is the conducting of auctions, for Jewelers exclusively, in their places of business. My methods are original, and have been imitated by many others since I first introduced the business in 1858; and I take pride in stating that I never yet have made a failure of an auction, and have succeeded in selling stocks in many instances where other Jewelry Auctioneers abandoned an unsuccessful attempt. If you desire to go out of business, and fear that you cannot dispose of old stock by regular sales except at a sacrifice; or if you wish to move to another locality; or if you wish to reduce an over-large stock, or realize a round sum in cash—write to me, giving me an idea as to the amount and character of your stock, the size of your store, and the number of inhabitants of your town, and I will frankly tell you my idea of your prospects of success with an auction. My experience has been so extended, that you might safely rely upon my judgment on the main question, as well as on details of procedure. I can refer to many hundreds of jewelers for whom I have made auctions, and to Banks and Trust Companies as to my personal responsibility. My terms are uniform, and are liberal, considering the quality of my service and the unvarying success of my work.

All correspondence is strictly confidential. Write for further particulars to

COL. J. M. RUTHERFORD, 618 Chestnut Street, Room 7, Philadelphia, Pa.

All letters sent to my office in my absence are forwarded to me and replied to at once.

References by Permission

OPPENHEIMER BROS. & VEITH, NEW YORK.
CHARLES L. KRUGLER, NEW YORK.
GEORGE L. STREETER, NEW HAVEN, CONN.
WILLIAM H. WATROUS, HARTFORD, CONN.
HENRY J. YOUNG, JOLIET, ILL.
WILL SUCHMILCH, DULUTH, MINN.
THOMAS E. DOUGHTY, EAST SAGINAW, MICH.
BURT & HURLBUT, DETROIT, MICH.

BOWMAN & MUSSER, LANCASTER, PA.
REED, McGRANN & CO., BANKERS, LANCASTER, PA.
H. Z. RHOADES & SON, LANCASTER, PA.
GUSTIE RHOADS, LANCASTER, PA.
H. MUHR'S SONS, PHILADELPHIA, PA.
LOUIS ATKINSON, PHILADELPHIA, PA.
BURT DENNISON, ASHEVILLE, N. C.

PERKINS & PYNE HARRISBURG, PA.
W. W. RUDISILL, ALTOONA, PA.
ALBERT FRANZHEIM, WHEELING, W. VA.
C. F. VON KANEL, MASSILLON, OHIO.
MARTIN BOCK, HAZLETON, PA.
JOHN A. WORRELL, WASHINGTON C. H., OHIO.
S. R. PARLIN, NORWICH, CONN.

AND OVER FIVE HUNDRED OTHERS.

Jewelers' Show Cases

in stock and made to order.

No delay in filling orders.

WALL AND SHOW CASES MADE
IN ANY LENGTH

FROM SIX FEET TO ONE HUNDRED FEET.

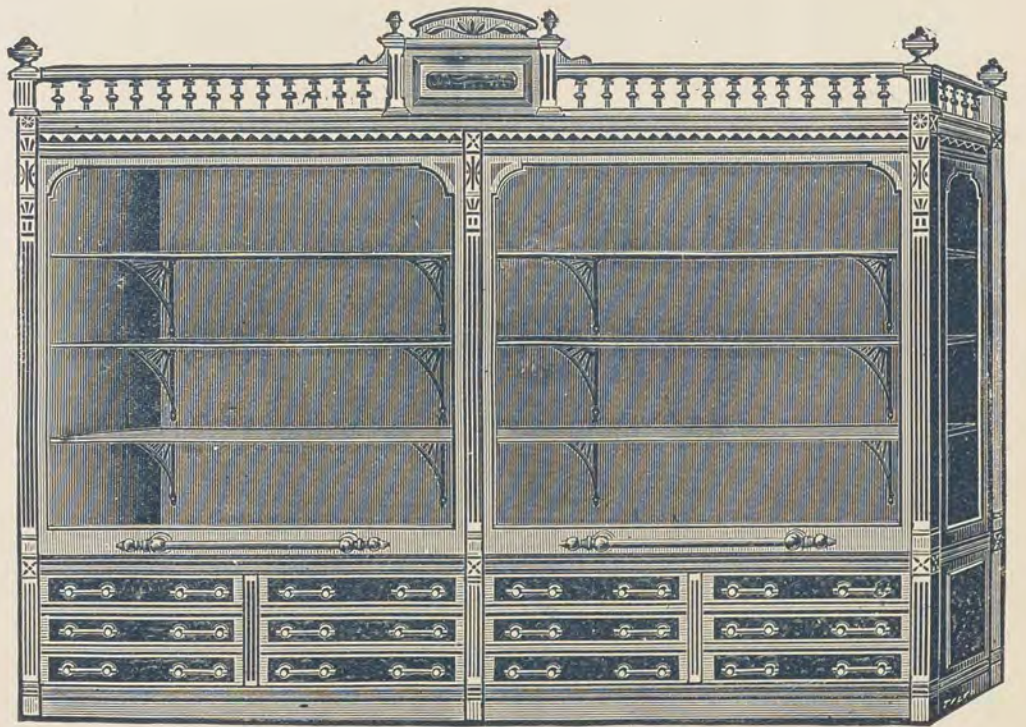


FIG. 68. WALL CASE.

Fitted with elaborate Polished Brass Handles and Shelf-Brackets. These fittings may be applied to any Wall Case when desired.

DIMENSIONS:—Height of base, 28 inches; depth, from 20 inches to 34 inches; height of center, 9 feet—all extreme outside measure.

One of the handsomest Wall Cases ever shown to the trade.

UNION SHOW CASE CO.

Manufacturers,

169 East Randolph Street, Chicago.

SEND FOR OUR
NEW '92 CATALOGUE.

MENTION THE KEYSTONE.



Persons wishing inquiries answered in this department should send name and address—not for publication, but as an evidence of good faith.

"INITIALS."—We are in receipt of several letters with no genuine signatures. Now we wish it distinctly understood we do not in our "Workshop Notes" answer querists except they are subscribers, and also give name and address in full.

"BULL'S-EYE WATCH."—I have an old watch with the name of Wm. Dawes, Liverpool, No. 5595. Could you tell me how old it is? It is of the old "bull's-eye" pattern, and has a verge escapement.

We have no means of ascertaining the date of its construction. The name Wm. Dawes is not among the eminent British makers.

"DRAWING INSTRUMENTS."—Where can I procure the T-square with fifteen-inch blade and other instruments you recommend for delineating the detached lever escapement spoken of in October, 1892, *KEYSTONE*, page 1000b?

Any artists' material house can supply them except the steel rule, which can be had of P. M. Wilson, 35 North Seventh Street, Philadelphia, Pa. When writing for this steel rule, say you wish a Brown and Sharpe steel six-inch scale graduated to one-hundredths of an inch. It will cost you seventy-five cents, and has a scale for setting dividers to $\frac{1}{1000}$ of an inch.

"CEMENT-BRASS."—I made two little face-plates for my American lathe. I made centers, male and female, to screw into the cement-brasses, the cement-brasses to screw into a solid screw-chuck. After centering and turning the centers true I hardened them, and, on putting them back in their places I find they do not run exactly true. How can I make centers so they will be true after hardening? I have no grinding attachment to my lathe.

A cone-chuck does better for such centers than a screw-chuck. With a cone-chuck, if you make your centers rather short they will come out pretty true after hardening. Grinding, after hardening, is the only way to obtain extreme accuracy.

"ALUMINUM."—Will you please answer the following questions: (1) Where can I obtain aluminum—wire, plate, etc.? (2) How can I put a pivot into a train-wheel when the pivot is to be very close to the pinion, as it is on some of the third-wheels, the pinion being so hard I cannot drill it—must I soften the pinion, and if so, how can I repolish? (3) As I understand it, to vibrate a hairspring for a quick-train watch, we vibrate the spring to make 300 vibrations per minute, the spring being held at the point where the stud is to be pinned on. Now, if it vibrates 300 times a minute from the stud, can you explain why it will not make the same number in the watch without the regulator?

(1) You can obtain aluminum of Cowles Electric Smelting and Aluminum Co., Lockport, New York, in sheets, ingots, wire or castings. (2) You will have to soften some American pinions if you want to drill them with any satisfaction. The color need not exceed a full blue, which a little muriatic acid applied with a match-splint will remove. To restore the gloss, take a peg-wood wet with alcohol and touched to a little dry diamondine, and rub lengthwise of the leaves. (3) There is more friction on a pivot even when running in a smooth jewel than when free in being vibrated.

"COMPLICATED CLOCK."—A friend writes: Possibly the complicated clock lately inquired about through the columns of *THE KEYSTONE* was the one exhibited at the Ottumwa, Iowa, Coal Palace in 1890 under the name of the Columbian Clock, and I think made in Cincinnati, Ohio. Some of its features were the signs of the zodiac, Thomas Jefferson signing the Declaration of Independence, Peter denying our Saviour and the cock crowing, George Washington walking erect across the stage with no visible propelling power, a slave kneeling to Abraham Lincoln after the emancipation. This will probably suffice to give the inquirer an idea as to whether this is the clock he was inquiring about. I think further information could be had by writing to the Coal Mining Co., Ottumwa, Ia.

"ROMAN GOLD."—Will you give me a recipe for restoring the color to Roman-gold goods after hard-soldering, also how to oxydize silver?

We have two ways of restoring the color of solid gold Roman goods: first, recoloring by the wet or dry coloring baths; second, by gilding with a gold solution. Most solid gold goods of Roman color are too light to stand the process of recoloring safely, inasmuch as at each operation more of the alloy is dissolved out and the shell of alloyed gold becomes thinner; consequently, in the repair shop the safe way to do is to gild to Roman color, a process effected in a very few minutes. For such work the old-time chemical battery is not well adapted, for the reason that it is seldom to be relied on; that is, the solution is played out—the zinc is used up, the connections are bad; always something to prevent and interfere with good results. Now for all mechanical purposes we desire and must have definite results. Nothing equals a dynamo as a source of electricity. With one of these instruments the whole process of gilding and coloring is reduced to extreme simplicity. Use a good gilding solution, in which you suspend the article to be colored by attaching it by a wire to the pole of the dynamo which corresponds to the zinc pole of a galvanic battery, and suspending a plate of pure gold as an anode; then a few seconds devoted to turning a crank, and the job is done, and a good color obtained even with a cold gold solution. A thoroughly good dynamo for such purposes can be had of the Ben. Franklin Electrical Co., 1331 North Tenth Street, Philadelphia, Pa., for fifteen dollars.

"SHOW-WINDOW."—(1) Could you please inform me where I could get the information how to make up an attractive show-window for the holidays? My window is quite narrow, but high. (2) Can you tell me how to remedy a B. W. Raymond setting-parts when it will not set any more? I have had trouble with these movements, and always had to buy new setting-wheel and cannon-pinion.

Window-dressing is much like person-dressing; that is, it depends mostly on the innate taste and skill of the person doing the dressing. There are certain rules, however, which can be laid down to guide those who desire to acquire the art—for window-dressing is an art as much as painting, sculpture or music. Before beginning to dress the window, we must be sure it has a bright, smart look—clean, and all that paint and putty can do for it. Then ask ourselves what of our goods we desire to or think we have the best chance of selling the most of, letting these lead in the display. We have no hesitation in saying a jeweler's display window is the most difficult window in existence to make conspicuously attractive. Plush, silk, worsted, and their cheap relation, cotton-flannel, have been and are run to

the death. But the trouble is to get a substitute. For displaying diamonds, set or unset, nothing surpasses pure white cotton-wool. The next best background is a very pale blue-gray velvet. Arranging the lights of a jeweler's window has much to do with the effect. Lights for jewelry display should all be arranged to throw their rays inward and on the goods. Placing incandescent electric lights among jewelry, so their light shines directly into the eyes of persons looking in, is barbarous. In dressing a window, let the controlling idea be toward selling the goods displayed, or similar ones inside. For catching the eye of the passer-by, let the first attraction be from light effects—not, as suggested above, lights shining out into the street, but first on the goods, and from them into the street. (2) We know of no way of tinkering up such hand-setting parts after they have worn so as to be ineffective. Adjusting the friction of the cannon-pinion so it is entirely safe and yet not excessive, has much to do with the life and service of such parts.

"SHELL."—(1) How are shells like the enclosed (two very pretty specimens of univalve seashells) polished? (2) What kind of acid is used in etching on such shells? (3) Sometimes in soldering low karat gold rings, the solder will not flow and unite with the job. The same solder, flux and heat, if used on other gold goods, work perfectly. I cleaned with cyanide, also filed and scraped the joint, still could not get the solder to flow. The gold seems as if greasy. Has the alloy anything to do with it? What is the alloy in rings that makes them so soft that large points can be turned over brittle stones? (5) Have you binders for *THE KEYSTONE*?

(1) Stiff, hard, round, bristle brushes in a polishing-lathe, using flour of emery or fine pumice-stone and oil to smooth, followed by rotten-stone or tripoli and oil to polish. Do not use the same brush for smoothing and polishing. (2) Muriatic or nitric acid, diluted with three or four parts of water. Shellac dissolved in alcohol can be used as a resist. Asphaltum varnish also does well to protect from the acid the parts you do not wish acted upon. (3) If you grind your borax into a paste with water, and paint with it the surfaces to be united, we think you will have no trouble. The usual trouble with inexperienced workmen is that they do not heat the job to be soldered hot enough. As an illustration, take a heavy ring of, say, nine karat gold. We should be sure the joint to be soldered is as perfect a fit as possible. We next apply with a small camel's-hair brush a full coating of borax paste where we wish the solder to flow. The other portions of the job are coated with a mixture of boric acid and yellow ochre "to hold the color." In heating we use a scattered flame to heat the entire job up to as near the melting point of the solder as possible, and just at this instant direct a concentrated blowpipe flame directly on the solder, or rather on the parts to be soldered, when the solder will flow without any difficulty. We are usually so afraid our job will melt, or shrivel, that we do not heat it hot enough all over; and the consequence is we try to make the melted solder flow on a substance not as hot as itself. Melted solder will always flow to the hottest parts. It is not desirable to have a pool of borax glass (that is, fused borax) at the point where the solder is to flow—just borax enough to coat the part and prevent oxydizing is all that is required. The alloy has not much to do with the operation of soldering, except that it should not melt easier than the solder. (4) The larger the percentage of silver in the alloy, the more easily it is bent and worked. (5) We have *KEYSTONE* binders, price seventy-five cents.

Here and There In The Trade

The jewelers of Aurora, Ill., have been closing their stores at 6:30 P. M. since January 1st.

John M. Bonnet, Zanesville, Ohio, has been appointed official watchmaker of the B. & O. Railroad.

The Julius King Optical Company, Cleveland, Ohio, has established a branch office in the city of Mexico.

The Griffin Silver Plate Co.'s factory in Elgin, Ill., is completed. The building is said to have cost \$18,000.

Henry Porter, with the Edwards & Sloane Jewelry Company, Kansas City, Mo., spent January in Chicago.

The jewelers of Sioux Falls, S. Dak., are closing their stores by agreement at 6 P. M., Wednesdays and Saturdays.

The machinery from the factory of the Aurora Watch Company, Aurora, Ill., has been shipped to Lancaster, Pa.

The handsome new store of Frank E. Smith, San Jose, Cal., was recently opened, and presents a most attractive appearance.

The Oswego Silver Metal Co., Oswego, N. Y., will, it is said, increase its capital stock from \$10,000 to \$30,000, and enlarge its factory capacity.

P. M. Koch, Columbus, Ohio, is making an ingenious and unique clock for the World's Fair. He has already expended, it is said, \$3000 on it.

Mr. and Mrs. Walter G. King, Cleveland, Ohio, have moved into their new residence, 108 Tilden Avenue, where they gave their first reception, January 11th.

At a recent meeting of the directors of the Wilcox Silver Plate Company, in Meriden, Conn., a dividend of fifteen per cent. on the capital stock was declared.

F. H. Shearer & Co., Bay City, Mich., are among the most enterprising jewelers in that section. Their business methods are up-to-date, and their work is the finest.

Geo. E. Mendel, Appleton, Wis., an expert watchmaker, is acquiring much prestige as a repairer for the trade, by reason of the excellence of his workmanship and his moderate prices.

Herbert E. Arnold, Aurora, Ill., son of J. B. Arnold, president of the Chicago and Aurora Smelting and Refining Company, was married recently to Miss Anna E. Arnold, of the same city.

Frank B. Kehrler, the enterprising jeweler of Bucyrus, Ohio, left recently for a trip through the South. During his absence his jewelry establishment will be in charge of Julius Oswald.

The M. Eisenstadt Jewelry Co., St. Louis, Mo., are giving to their patrons a very beautiful souvenir of the city of St. Louis. Operations have begun in their newly-established factory.

J. H. Havill, the well-known jewelers' auctioneer, has succumbed to a vigorous attack of the chubby little god, and taken unto himself a wife. THE KEYSTONE offers congratulations.

The Derby Silver Co., Birmingham, Conn., recently purchased a tract of land between their factory premises and the Housatonic River. They will reserve the land for building purposes.

F. W. Strang, formerly with J. M. Chandler & Co., Cleveland, and E. W. Prince, formerly with Otto Young & Co., Chicago, have gone on the road for Oskamp, Nolting & Co., Cincinnati.

Burnett Bros., Severance, Kan., have admitted their brother, Solomon Burnett, to their business. The firm will open a branch office in Fillmore, Kan., and the new partner will be in charge.

Col. J. M. Rutherford, the jewelers' auctioneer, recently conducted the assignee's sale of the stock of Robert M. Barnitz, York, Pa. The Colonel subsequently opened a sale for J. E. Jarck, Danville, Va.

Four of the salesmen of the Meriden Silver Plate Co., Meriden, Conn., viz.: E. T. Hopkins, R. W. White, Jr., H. M. Jacobs and P. K. Breckenridge, started out on their Western trips early last month.

The E. Howard Watch and Clock Company of Boston, Mass., recently furnished a gold watch, and Wilson Brothers furnished a gold chain, to be presented by the Boston *Evening Record* to the most popular letter-carrier in the city.

The J. H. Leyson Company, of Salt Lake City, Utah, recently opened up a reduction sale for the disposal of portions of their immense stock. The sale proved a success, and was continued until the end of January. R. W. Tirrell, of New York, was the auctioneer.

W. F. Staley, Pittston, Pa., is one of the most enterprising and prosperous jewelers of that section. His stock is always large, well-selected and of the all-embracing variety. He is watch-inspector for that division of the Philadelphia and Reading Railroad.

O. A. Watson, Watseka, Ill., has patented and now manufactures a movable-cup mouthpiece for cornets that will bring balm to the lips and relief to the thoracic muscles of all cornet-players. It is thoroughly effective, and the price is nominal. Write the maker for description, etc.

A diamond locket, worth \$125, was recently stolen from the store of J. H. Leyson, Butte City, Mont. It was traced to a pawnshop, where it had been pawned for \$27.50. A young man was arrested later while attempting to steal a ring from Mr. Leyson's store, and was identified as the man who pawned the locket.

A clerical-looking swindler has been recently operating in Buffalo, N. Y. He represented himself as Lawrence Stevenson, of Washington, D. C., and succeeded in swindling a number of persons and firms, among them King & Eisele, from whom he obtained a valuable diamond ring by means of a forged check.

"Enclosed please find One Dollar for subscription to your valuable journal for the year 1893. I don't want to miss a single copy, as I owe a great part of my success to THE KEYSTONE."—M. J. H. JOYCE, Warren, Arkansas.

"Kingston, N. Y.: Its Representative Business Men and Points of Interest," a new illustrated compilation, has a handsome cut and notice of the jewelry establishment of M. Oppenheimer & Sons in that city.

Leopold Gumberts, of Gumberts Bros., Evansville, Ind., was recently the guest of S. K. Jonas, of L. Black & Co., New York, for a few days at the Commercial Travelers' Club in that city. Mr. Gumberts was in New York to buy a stock of cut-glass ware, Worcester ware, onyx ware, sterling silver ware and fancy goods generally for his new store in Evansville.

The employees in the case-shop of the Waterbury Clock Company, Waterbury, Conn., have organized a mutual benefit society on the tontine plan. The officers are: president, John Dennison, Sr.; vice-president, Wallace Roberts; secretary, E. J. Lewis; treasurer, A. Schureman; and directors, Peter Sanford, John Gillott, Charles Wallace, John Dennison, Jr., James Augrave and Daniel Flaberty.

E. Kirstein's Sons Co., Rochester, N. Y., are now furnishing to opticians the latest improved "Landry" pupillometer, which has the great advantage of obtaining the correct measurement of the center of each eye in its relation to the center of the nose. The little instruments are mechanically perfect, and will be furnished to opticians for seventy-five cents each, and free to oculists who desire to use one.

William Larage, in the employ of Messrs. R., L. & M. Friedlander, 65-67 Nassau Street, New York, very luckily escaped falling from the first floor of the building some weeks ago. While cleaning the front windows, the ladder upon which the young man was standing gave way and crashed through the glass. With quick presence of mind he clutched the woodwork and was thus saved from a dangerous fall.

A bold theft, which might have resulted fatally, was committed recently in the store of N. Kantrowitz, Topeka, Kansas. One of the thieves concerned was arrested in the store, and the other at the railway station, where he was identified by Mr. Kantrowitz. This latter thief, in a desperate but useless endeavor to escape, shot at a policeman, but the bullet instead disabled the left arm of Mr. Kantrowitz. The thieves were caught and the stolen plunder recovered within an hour of the commission of the crime.

In the advertisement in our January number of the Easton School of Optics, conducted by Dr. Seip, Easton, Pa., the charge for a correspondence course was erroneously given as five dollars instead of fifteen dollars. We regret the mistake and the inconvenience, if any, caused by it. To most people the error was, no doubt, manifest.

The Granite Building, at 1012 and 1014 Walnut Street, Kansas City, Mo., which was occupied principally by the Jaccard Watch and Jewelry Company, was recently destroyed by fire. The loss is estimated at \$280,000. At present writing the exact loss of the Jaccard Company cannot be determined, but it must be considerable. The stock was largely insured.

The latest materialized emanation from the fertile brain of manufacturer Geo. A. Schlechter, Reading, Pa., is the Luther spoon. The design is peculiarly appropriate. The top is scrollwork, with the head of Martin Luther in the center, and above is the Lutheran motto. Near the center is the date 1517, followed by the Luther coat of arms. The device in the bowl is the representation of Luther nailing the ninety-five theses on the church-door at Wurtemberg.

Messrs. Graffe, Alexander & Co., of Fort Wayne, Ind., have gotten out a preparation for cleaning diamonds and jewelry which has been very successful. Many jewelers throughout the country are making their customers a present of this outfit, and it has not only made them friends, but saved the dealers many hours' time, as it is customary for them to clean their customers' diamonds and jewelry free of charge. It is neatly put up, with dish, brushes and sawdust, in a handsome box.

G. W. Cameron, Poplar Bluff, Mo., has invented and patented a truing-caliper and poising tool combined in one. The tool is small and said to be thoroughly effective. By its means, it is claimed, the balance of any watch can be trued and brought to poise in a very few minutes without removing same from the tool. It retains the beat-line and replaces the hairspring and roller-table, leaving the wheel on beat and ready for the watch. Mr. Cameron would be pleased to have some responsible firm manufacture his patent on a royalty basis.

The Watch Factory Relief Association, of Waltham, Mass., recently held its annual meeting. President A. S. Batchelder presided. Treasurer L. C. Lane reported that at the beginning of the year there was a balance in the treasury of \$355.22; that the total receipts during the year were \$6,262.72, the disbursements, \$5,384.80, and the balance on hand January 1, 1893, \$1,252.79. The following officers were elected for 1893: president, A. S. Batchelder; vice-president, George C. Mackenzie; secretary, Seth Vinal; treasurer, L. C. Lane.

William Beecher, the founder of the American Optical Company, Southbridge, Mass., died recently. When still very young he learned the jewelers' trade in Providence, R. I., and began business for himself in Southbridge in 1826. He made the first steel spectacles ever produced in this country, and invented various kinds of machinery for the manufacture of eye-glasses. He continued his connection with the American Company, with a slight interruption, until 1862. He was a highly popular and respected citizen, and was at one time the representative of Southbridge in the General Assembly of Massachusetts.

E. A. Bruce, the manufacturer of the now widely-known "Victor" Solution, is in receipt of the following significant testimonial:

DEAR SIR:—We take pleasure in stating that we have used "The Victor" Solution for restoring the finish on either solid or plated metal goods. We find that it does its work quickly and thoroughly, and better than any other article that we have used. We cheerfully recommend it as the best and most economical preparation in the market.
Yours truly,
WM. H. ATWATER,
Agent for the E. N. Welch Mfg. Co.,
13 Maiden Lane, New York.

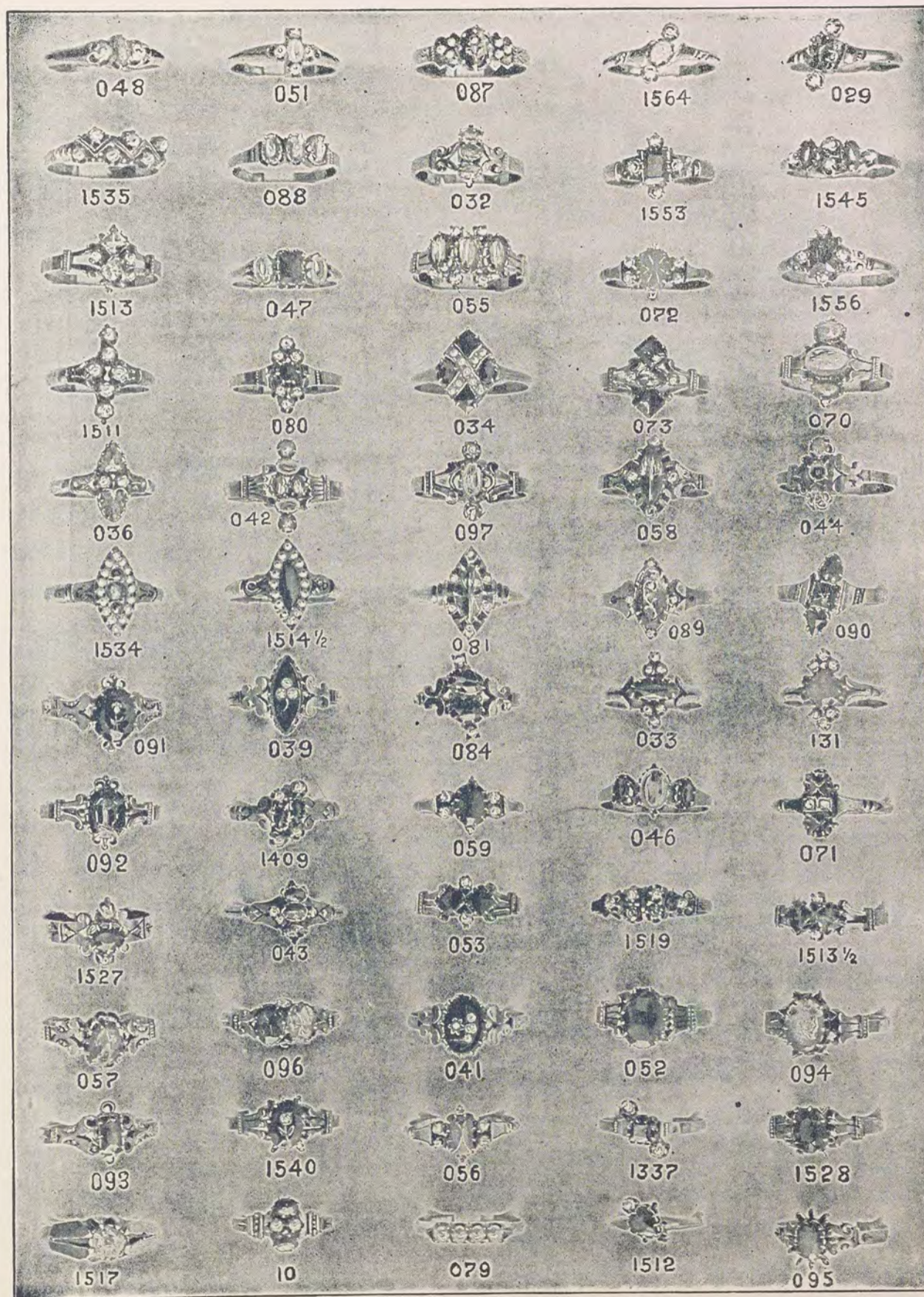
The prominence of the manufacturing jewelers of Connecticut in matters financial is revealed in the recent elections of bank officers. Col. W. J. Leavenworth, Hon. Samuel Simpson, G. W. Hull and F. A. Wallace were re-elected directors of the First National Bank of Wallingford. Geo. H. Wilcox, secretary of the Meriden Britannia Co., President I. C. Lewis, of the Meriden Britannia Co., Hon. Charles Parker and E. Miller, Jr., were re-elected directors of the Meriden National Bank, of Meriden. George R. Curtis, Edward Miller, Samuel Dodd and Walter Hubbard were re-elected directors of the Home Bank, same city; and C. B. Rogers and N. L. Bradley were re-elected directors of the First National Bank, also of that city. D. B. Hamilton was elected a director and president of the Manufacturers' National Bank, in Waterbury.

KING & EISELE,

Manufacturing Jewelers,

Buffalo, N. Y.

14 to 20 North Division Street,
342 and 344 Washington Street,



Bargains always on hand.

We manufacture and sell everything used
and sold in a jewelry store.

Our prices are lower than any other house
for first-class goods.

Prices upon application.

A TRIAL ORDER WILL CONVINCe YOU.

Why We Pay the Highest Cash Prices for Old Gold and Silver.

Our business is so large that it is necessary to run a complete refining and assaying department in connection with it. We can handle without additional expense, and use in our own shop, all old Gold and Silver consigned to us. We are at no expense soliciting consignments, nor are we at any expense selling the Gold and Silver after refining, but use it all ourselves. We are satisfied to make the difference in value between old and new Gold for our profit. It is a very small profit, after deducting the cost of refining, but it is the quantity that counts. Wholesale Jewelers who do not use old Gold and Silver themselves, and have no facilities of knowing its value, and refiners who buy to sell again, and are at great expense soliciting consignments, **CANNOT AND DO NOT PAY FULL CASH VALUE.**

We make returns the same day consignment is received, by New York or Chicago draft, on which there is no exchange to pay. If our offer should prove unsatisfactory, we will return consignment at our own expense in the condition received. We have been so long and favorably known to the trade that it is unnecessary to give a long list of testimonials or references. We publish a few sample letters:

Office of Henry Maurer,
Dealer in Watches, Clocks and Jewelry.
LA CYGNE, KAN., January 8, 1890.
Messrs. Wendell & Co.
GENTS:—I am just in receipt of your check, \$13.06, in settlement of account for old Silver and Gold. You have done as well if not better than I expected. Will forward another invoice soon. Thanking you for your promptness in remitting, I remain,
Yours truly, H. MAURER.

Office of Julius Croneau,
Watchmaker and Jeweler, Solid Silver and Plated Ware.
KEWANEE, ILL., April 11, 1890.
Messrs. Wendell & Co., Chicago.
GENTLEMEN:—Your value on Gold very satisfactory. You may credit my account, \$19.65, and oblige,
Yours truly, JULIUS CRONEAU.

Office of W. H. Summer,
Dealer in Watches, Clocks and Fine Jewelry.
GAINESVILLE, GA., May 7, 1890.
Messrs. Wendell & Co., Chicago.
GENTLEMEN:—The amount of old scrap Gold was a great deal better than I thought it would be. Am well pleased with your returns.
Yours truly, W. H. SUMMER.

Office of E. E. Van Fleet,
Watches, Clocks, Jewelry and Optical Goods.
WHITE CLOUD, MICH., April 4, 1890.
Messrs. Wendell & Co., Chicago.
GENTLEMEN:—I received statement and draft for old Gold and Silver. Am well pleased with same.
Yours respectfully, E. E. VAN FLEET.

WE PAY FOR OLD GOLD:

6 K.	Gold	24	cts.	cash	a	dwt.
7 K.	"	28	"	"	"	"
8 K.	"	32	"	"	"	"
9 K.	"	36	"	"	"	"
10 K.	"	40	"	"	"	"
11 K.	"	44	"	"	"	"
12 K.	"	48	"	"	"	"
13 K.	"	52	"	"	"	"
14 K.	"	56	"	"	"	"
15 K.	"	60	"	"	"	"
16 K.	"	64	"	"	"	"
17 K.	"	68	"	"	"	"
18 K.	"	72	"	"	"	"

Office of W. T. Newton,
Watchmaker, Jeweler and Optician.
KNOXVILLE, TENN., May 7, 1890.
Messrs. Wendell & Co., Chicago.
GENTLEMEN:—Please find receipt for \$43.13, amount of Gold and Silver. Am well pleased with same.
Yours respectfully, W. T. NEWTON.

Office of L. S. Collins,
Dealer in Watches, Clocks and Jewelry.
CAMBRIDGE, OHIO, April 11, 1890.
Messrs. Wendell & Co., Chicago.
DEAR SIR:—I send you a lot of old Gold and Silver Cases. You can remit me amount of this without sending estimate. Your last estimate was entirely satisfactory.
Yours, etc., L. S. COLLINS.

Office of W. E. Cross,
Watchmaker and Jeweler.
AMSTERDAM, N. Y., June 8, 1890.
Messrs. Wendell & Co., Chicago.
DEAR SIR:—Am well pleased with returns for old Gold sent you a few days ago. Please accept thanks for promptness in returning draft for same.
Very respectfully, W. E. CROSS.

WE PAY THE HIGHEST MARKET VALUE FOR OLD SILVER.

REFINERS, ASSAYERS and BUYERS
of Old Gold and Silver for cash.

WENDELL & COMPANY,

Office and Works:

63, 65, 67 & 69 Washington St., CHICAGO, ILL.

YOUR PATRONAGE SOLICITED.



HUNTING AND OPEN FACE

11 LINES
13 LINES

in Silver Cases
in Steel Cases
in 15-year Filled Cases
in 14 Kt. Gold Cases

CHOICE ENGRAVINGS

THE LADY RACINE

is the

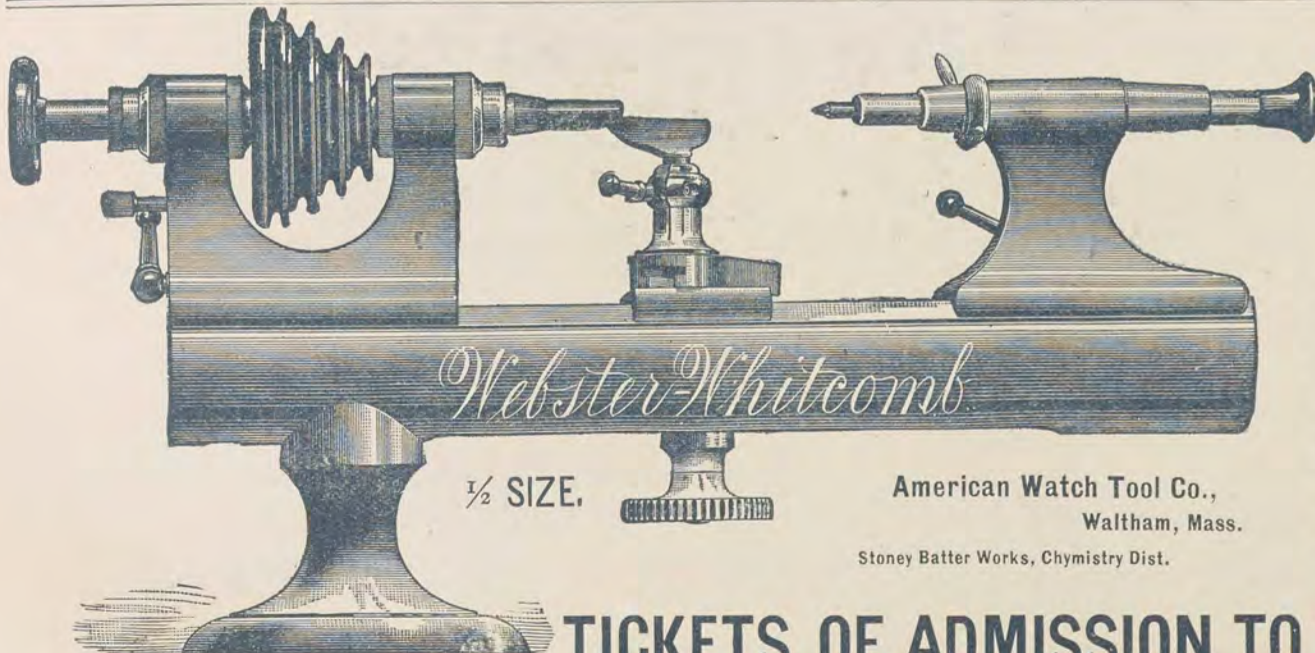
BEST CHATELAIN WATCH

None genuine unless stamped

"Lady Racine"



FOR SALE BY THE JOBBING TRADE



1/2 SIZE.

American Watch Tool Co.,
Waltham, Mass.

Stoney Batter Works, Chymistry Dist.

SPECIAL PRIZE!

To every watch-repairer who buys a Webster-Whitcomb Lathe with at least ten-chuck combination, between the first day of January, 1893, and the closing of the World's Columbian Fair at Chicago, will be given an order on our Chicago office for one ticket of admission to said Fair. To every married watch-repairer two tickets of admission will be given. The proofs required will be guarantee accompanying the lathe, bill of same, and autograph of the watch-repairer and, if married, the autograph of the wife.

TICKETS OF ADMISSION TO WORLD'S FAIR

OPTICIANS

THE CHICAGO COLLEGE OF OPHTHALMOLOGY

is the oldest duly incorporated OPTICAL COLLEGE in the United States
devoted exclusively to the science of

Refraction, Accommodation and Optics

and authorized to ISSUE DIPLOMAS and GRANT DEGREES
by the express authority of the State.

FACULTY—Emeritus Professors: HENRY OLIN, M. D., EDGAR READING, M. D.,
MILTON JAY, M. D., WILSON H. DAVIS, M. D.

B. A. CAMFIELD, M. D., W. H. HEPP, M. D., HENRY S. TUCKER, M. D.,
A. L. WILLARD, M. D., J. V. STEVENS, M. D., A. A. FOSTER, M. D.

It is the policy of this College to steadily develop a higher form of education in the special branches with which it has to deal. We teach everything the scientific optician wishes to know, from the fundamental principles to the differential diagnoses between diseases of the eye and errors of refraction.

Teachers in optics, like those in horology, too often promise everything in their advertisements, and after catching the honest student they begin to fulfill their promises to the best of their ability; but before the term is over the student gets hungry for some thoroughly scientific instruction, and at the end goes home with the feeling that he has just begun to see light.

We respectfully refer those wishing references to any member of the faculty of Bennett Medical College, or below we give you a few of the last (January, '93, class) and others: E. F. Winegar, Kenosha, Wis.; Donald McLennan, M. D., Honolulu, H. I.; J. A. Manning, N. E. Cor. State and Monroe Sts., Room 51, Chicago, Ill.; J. Brod. Ogden, Utah; Ed. A. Aldrich, Creston, Ia.; J. F. Killheffer, Des Moines, Ia.; F. Duncan, Des Moines, Ia.; Lowell M. Spurren, Rushville, Ind.; J. L. Asire, Ash Grove, Ill.; W. L. Busby, Brooklyn, Ia.; I. C. Greer, Iowa City, Ia.; E. Huntsinger, Frankfort, Ind.

Every student in the country should investigate the respective merits of the various optical schools before he ventures too far. Send for our prospectus and terms.

We make no extravagant boast of being the most scientific, practical, complete and thorough school in the world. Positively **WE ARE THE OLDEST ON THIS CONTINENT**, and the most progressive.

Those interested should preserve our address for future reference, or write at once to

B. A. CAMFIELD, M. D.,
No. 163 State Street,
Chicago.

OPTICIANS

The New Union Depot, St. Louis, Mo.



ST. LOUIS has always been known to be the best railroad center in the United States. According to a statement of Mr. Robert Porter, superintendent of the census, the mileage of railroads centering in this city exceeds the total mileage of all the railroads of Germany, and as the German railroad system is five thousand miles longer than that of either England or France, it is a matter of fact that the total mileage of the St. Louis roads is ten thousand miles greater than either England or France. From this it will be seen that St. Louis has the advantage, for the increase of its trade, of a greater mileage of railroads than any one of the three great commercial countries of the Old World. In connection herewith it may be stated that there is now in course of construction, and rapidly nearing completion, the new Union Depot, which, as the following figures show, will be the greatest railroad depot in the world: St. Pancras, England, 243 feet wide; Grand Central, New York, 200 feet wide; Pennsylvania Railroad Station, Jersey City, 236 feet wide, 653 feet long, 12 tracks; New Pennsylvania Railroad Station, Philadelphia, 306 feet wide, 647 feet long, 16 tracks; Union Passenger Station, Frankfurth, Germany, 502 feet wide, 600 feet long, 18 tracks; new St. Louis Union Depot, 601 feet wide, 700 feet long, 32 tracks.

The depot covers the two blocks of Market Street from Eighteenth Street to Twentieth Street, about six blocks west of the old depot. It is built on the Romanesque style of architecture, of Bedford stone, handsomely carved, and decorated with turrets of varying dimensions. At the east end of the building is a tall, square tower, modeled after the style of the Italian Campanile, 222 feet high, the base of which is 30 feet square. In this tower will be placed a large and very fine four-dial clock.

The main entrance to the building will be in the center of the Market Street front. Here will also be the carriage entrance, but under the grand terrace or *porticochere* leading up to the main entrance. From here one can walk to the grand waiting room, the stairway leading to which is built of solid brass, ornamented with bronze ornaments. The grand waiting room will undoubtedly be the finest in the world when completed. The floor area will be 12,000 square feet, all floored with marble mosaic. The height to the ceiling will be 60 feet, and the entire walls will be of Scaglione marble, giving a cream tint to the room. To the east of the grand waiting room will be the gents' smoking and waiting room; to the west, the ladies' parlor (finished in oak and leather).

Travelers arriving can, upon leaving the train, pass first into the general waiting room and from that to the grand waiting room. The general waiting room will have a floor space of 10,000 square feet; will be mosaic inlaid, and walled with cream enameled brick. To the right and left of the south entrance of this room will be the ticket windows, eighteen in number. On the west side is a sub-station of the post-office. Barber shops, bath rooms and lunch rooms will be on the west side of the general waiting room, also the emigrants' room.

The great feature of this depot will be the train shed which is 600 feet wide, 700 feet long, 30 feet high at the sides, and 100 feet from the base to the center of the arched roof, covering thirty-two tracks, about twice the number of the two next largest depots of the world. In the construction of this immense shed will be used 6,000,000 pounds of iron and steel, 1,000,000 square feet of hard wood, 120,000 square feet of glass; and it will cost over \$600,000, exclusive of the tracks and depot buildings.

W. F. K.

Cleveland Notes.

L. M. Sigler, of Sigler Bros., who has been confined to his home for some days by sickness, is again at his desk.

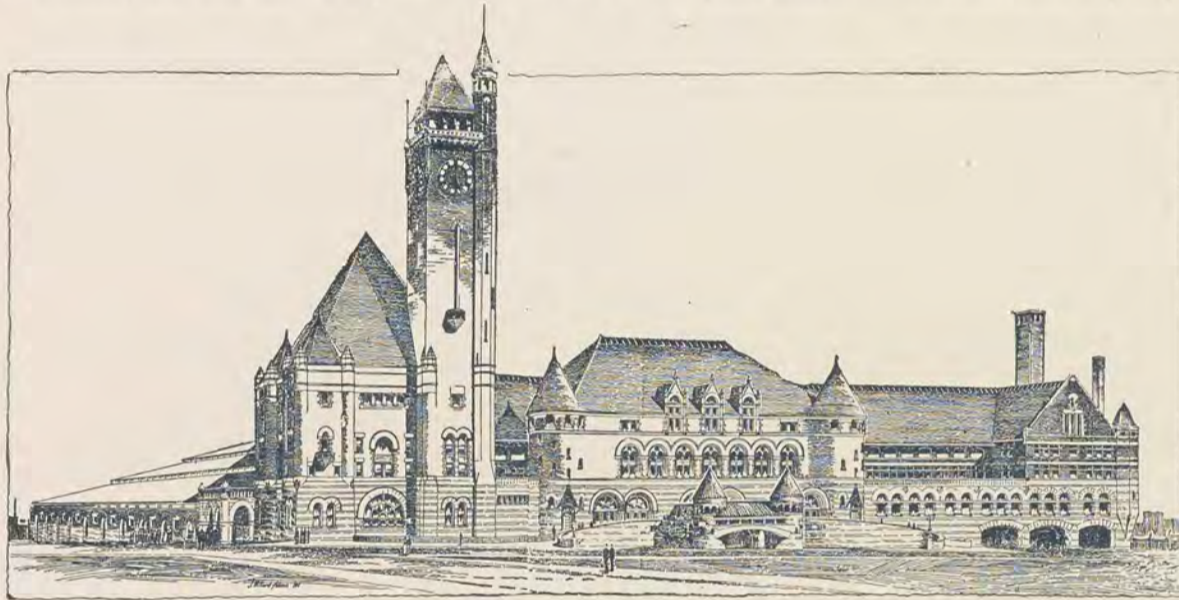
Geo. W. Scribner, manager for the Bowler & Burdick Co., has lately returned from a fortnight's visit to the New York market.

J. W. Corns, 1273 St. Clair Street, has sold out his business, and is now in Chicago, where he expects to make his future home.

Sigler Brothers' traveling force are all out in their respective territories: Joseph H. Crawford in Pennsylvania, Ohio and Indiana; Ed. B. Hoffman in Ohio and Indiana; and Geo. B. Bridestone from Chicago to the Rockies.

A large number of replies have been received to the announcement made by the Julius King Optical Co., in the December KEYSTONE, in regard to their improved course of optical instruction, and a number of jewelers have already taken up the course of study prescribed by President King.

The Mexican branch of the Julius King Optical Co., established eighteen months ago in the city of Mexico, with W. A. Neff, Jr., as manager, is doing a fine trade. Mr. Neff transacts his business in four different languages, and is ably assisted by Guillermo Pfeifer, a young Mexican.



NEW UNION DEPOT, ST. LOUIS.

Denver Notes.

Joslin & Park have recently added a manufacturing department to their retail store.

Harry E. Howard, formerly at Beaumont, Texas, has opened a business on Champa Street, near Twenty-First.

The Lewis Jewelers' Supply Co. had the largest business last year in the history of this well-known company.

Fred. L. Smith and C. W. Smith, of the Green, Smith Watch and Diamond Company, have been absent on a visit to the New York and Chicago markets.

A. J. Stark, one of Denver's oldest merchants, has removed to handsomer and more commodious quarters at 924 Sixteenth Street.

The A. B. F. Manufacturing Co., whose machinery was recently taken from them under a chattel mortgage, thus disabling them from continuing, are anxious to settle their old accounts, and renew with a clean record. With this end in view, they are notifying their creditors and asking their indulgence. It is thought that every leniency will be extended them.

Frank M. Rogers, agent of the Pacific Express Company at Collinston, Utah, has disappeared. He is charged with having robbed the Henry Bohm Company, of this city, of \$2000 worth of diamonds, which had been sent to his station, C. O. D., upon order. The Bohm Company will hardly suffer any loss, as the Express Company will reimburse them. Rogers also defrauded the Express Company of \$6000 by cashing money-orders in various Western cities. He is now supposed to be in Mexico.

We direct the attention of our readers to the fact that the advertisement, on page 97, of Ezra F. Bowman & Co., Lancaster, Pa., should be read in connection with their additional notification to the trade on page 187. The list of names on page 97 was, by an oversight, forwarded to us, sent to press and printed before its incompleteness was detected.

St. Louis Letter.

St. Louis, Mo., January 31, 1893.

Trade here during the month just closed has been fully up to the January average, although one would have expected that after such a splendid holiday season it would be rather dull. Retail dealers have really no complaint to make, while all the jobbers speak of doing "fine," and having plenty of country orders to fill. Clear and cold weather, no doubt, helped trade considerably, as it allowed the public to spend spare time out of doors.

Herman Henckler has opened a new store at 4450 Easton Avenue. He is a son of Wm. Henckler, of 2237 Chouteau Avenue, and a young man of exemplary habits.

The Retail Jewelers' Association of Missouri will give their annual ball, February 8th, at the Concordia Club House. Members of the craft have been tendered complimentary tickets, and from responses received the ball will undoubtedly be well attended. The regular meeting of the Association was held on the 26th of this month, when a committee of three, appointed to visit the leading dry goods stores, made a minute report of the jewelry departments of these, especially in regard to the kind of watches which they carry in stock.

The Association members are preparing to do some active work this year, especially before the fall season sets in, so that they can regulate their trade accordingly. The secretary was instructed to send out the constitution of the National Retail Jewelers' Association, together with other printed matter, in the interest of the organization; also a complete list of jobbers having pledged themselves not to retail. These will be sent to the jewelers of Missouri and neighboring States. In connection herewith, it may be

stated that the members of the Association often discuss the question why so many jewelers utter their grievances of trade abuse in the various trade papers, when by joining one of the State Associations they could lend material aid toward the abatement of what they complain of. The regular meetings of the Association will be held during the year on the second Thursday of each month, at 8:30 P. M.

Mr. H. J. Oberschelp, who had tendered his resignation to the Association, on account of inability to attend the same in an active manner, was elected to honorary membership by a rising vote of the assembled members.

W. M. Pyle has severed his connection with the Illinois Watch Co., and is now with the Bauman-Massa Jewelers' Supply Co. A. S. Wormwood, formerly of the San Francisco office of the Illinois Company, succeeds Mr. Pyle in this district.

Mr. F. H. Niehaus has been very ill for the past six or eight weeks with rheumatism, and at one time his life was despaired of. He improved, though, and is now at Hot Springs, Ark. Mr. Frank Niehaus is now in charge of the business.

Several jewelers have been victims of sharpers, who managed to get the name of some party that had left a valuable watch for repairs, and then sent a forged order for the same. The latest sufferer was F. Courvoisier, 7109 South Broadway.

The only change of note at the first of the year was that of J. W. Cary, who has admitted Messrs. Julius Steideman and Ed. Lang to partnership, under the firm name of J. W. Cary & Co. The two gentlemen have been connected with the house for many years, and have a host of friends, who are greatly pleased with the change.

The factory of the M. Eisenstadt Jewelry Co. is now completed. Mr. Louis Gutfreund, manager of the factory, returned from New York a few days ago, having gone there to purchase the necessary tools and machinery. Mr. Sam. Eisenstadt is at present in New York, selecting stock for the spring trade. Mr. W. E. Chilton, formerly in business on Olive Street, is now with this firm.



Prices furnished, and selection packages sent to responsible Retailers.

EVERY RETAILER SHOULD BUY

The "Bryant" Rings.



800 Louis XIV. Bow Knot. Turquoise and Pearls, \$3.00.



763 Two-Stone Tiffany Large Pearl, with Cape Ruby or Emerald Crystal, \$9.75.



823 Louis XIV. Bow Knot. 2 Diamonds. \$3.00.



618 Serpent, 2 doublets, any color, \$7.50. Diamond and Doublet, \$13.50.

M. B. BRYANT & CO.
10 MAIDEN LANE NEW YORK.
OLDEST RING MAKERS IN AMERICA.

Our advertisements in the leading monthly and weekly journals, in which we show these few leading patterns and quote their retail prices, are creating a demand for The "Bryant" Rings which every Retailer should profit by.

Eugene Deimel,

Wholesale Jeweler,

157 Jefferson Ave., Detroit, Mich.



A full line of the following goods always in stock:

- WATCHES,
- CLOCKS,
- CHAINS,
- CHARMS,
- TOOLS AND MATERIAL.



Orders for Materials and Jewelers' Findings accurately filled on shortest notice.

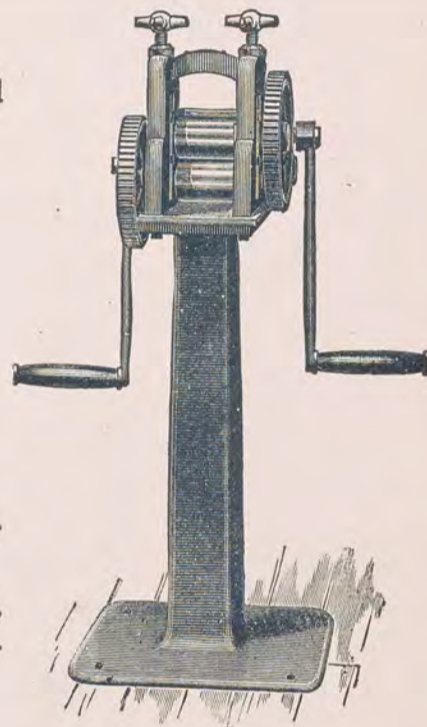
Orders for The Latest Novelties and **NEWEST STYLES** promptly filled.

YOUR PATRONAGE SOLICITED.

All enterprising **Jewelers** should have a complete outfit of

Rolling Mills, Lathes, etc.

If you are not fully equipped, write at once for our **Catalogue**.



WE HAVE THE LARGEST LINE.

W. W. OLIVER,

New Factory, 1483-1485 Niagara St.,

BUFFALO, N. Y.

MAX J. LISSAUER.
MAX S. KALLMAN.

Established 1866

D. H. LOWMAN.
ALEX. BOEHME.

Lissauer & Company

(Successors to LISSAUER & SONNHEIM.)



American Watches. Loose and Mounted Diamonds. Gold and Plated Jewelry.

SPECIALTY: Patent Interchangeable Initial Rings.

12 Maiden Lane, New York.



OPTICIANS

We Claim { **The most Scientific**
The most Practical
The most Complete
The most Thorough } **School for Opticians**
IN AMERICA. INCORPORATED, 1886.

OUR claim is based upon the number of successful students we have graduated during the **past seven years**, who are clearing from \$3000 to \$5000 per year. Our instructions in the use of **Prisms** (a new and **thoroughly practical method taught only by us**) is alone worth the **price** of tuition. We give more individual instruction to each student in one course than is given elsewhere in three courses, knowing from practical experience that **nothing but individual instruction qualifies** a man thoroughly as a practical optician.

THINK A MOMENT!

If you desired *further* and *useful* instructions in watchmaking, *would you* seek to procure **SUCH** by a mail course? Because *impossibilities* are promised can they be given? **NO**. We can and do *honestly guarantee* to all *earnest students of optics* to put them in *ten times* better shape in *ten times* less time than can be done by any correspondence course. *We continue* in consultation with our students after they leave *us*, upon any point not fully understood or in any difficult case. Having had the students under our personal supervision we know *just wherein* they may need light, and they do *get further light, fully* and gratuitously. This is the way to get in out of the rain. Not simply by having a diploma, *but* by doing work properly. In this way you drive in the nail that holds in the long run.

A NEW FEATURE.—Hereafter the Calcium Stereopticon, with its Microscopic Attachment, will be used, amply illustrating with lifelikeness, all the diseases of the eye and errors of refraction with prismatic projections. There will be two or three **cross-eye** and **cataract operations** done before each class. Twenty beds in the Hospital in **constant** use.

NOTICE.—*Positively*, we are the *originators* of teaching optics to opticians, and have graduated more successful students *than all* colleges combined. The use of the **OPHTHALMOSCOPE**, in reference to the detection and correction of optical defects, *thoroughly and practically taught*. March 7th, 1893, next class begins. See Chicago letter, this issue of THE KEYSTONE, for notice of the January class, etc.

SOMETHING NEW TO TELL ALL OPTICIANS.

WRITE FOR PARTICULARS AND CIRCULAR.

(MENTION THE KEYSTONE.)

H. M. Martin, M.D., Chicago Ophthalmic College and Hospital
607 VAN BUREN ST., CHICAGO.



[In order to insure an answer in the next issue, questions should reach us by the 1st of the preceding month.]

[We will take pains to carefully answer all questions of optical subjects, and give advice in the management of difficult cases, and our subscribers are cordially invited to invoke our assistance whenever they find themselves in need of counsel and advice. In addition to giving a careful history of the case, please always give information on the following points:

1. Visual acuteness of each eye.
2. Improvement in vision from glasses.
3. Range of accommodation (without and with glasses).
4. Evidence of astigmatism as shown by radiating lines.
5. Evidence of muscular insufficiency.]

"MUSCLE TEST, Indiana."—Will you kindly inform me through the "Optical Department" in regard to the following case, and you will greatly oblige me. Young man, aged twenty-one years. V. = $\frac{20}{20}$ with each eye. Complains of headache and eyes tire when reading. +.50 D. each eye, V. = $\frac{20}{20}$, but +.75 D. blurs. Examination the following day yields the same results. With Maddox muscle-test requires 10° prism, base in, to bring lights together. With muscle-test placed vertical, requires 2° base-up prism over left eye to bring lights to same level. I find by rotating the 10° prism so that the base is at the 10° mark on trial-frame that the lights are brought to a level and are together horizontally. The patient enjoys binocular vision, but has the habit of allowing the left eye to diverge in an outward and upward direction for a few moments at a time as if to rest the muscles.

I gave him the following: R. +.50 D. \odot 3° prism, base in at 10°. L. +.50 D. \odot 3° prism, base in at 10°. I find no astigmatism. Did I give him the correct glasses, or should I have given him a different prescription? Also please say if he should wear them all the time or only for near work.

This is a case of slight hypermetropia, complicated with muscular insufficiency, and it is in the correction of the latter trouble that we are the most interested. There is marked insufficiency of the internal recti muscles, with perhaps some involvement of the superior rectus and oblique muscles. The study of the action of the muscles of the eye is a most interesting and important one, but our space will not permit us to go into the subject very deeply at this time.

By referring to the chapter on the "Anatomy of the Eye" in the "Opticians' Manual" of THE KEYSTONE, it will be seen that the eyeball is moved in all directions by six muscles, and that these six muscles form three pairs of antagonistic muscles, each pair being composed of two muscles which turn the eye around the same axis but in opposite directions, and thus the ball is turned in and out, up and down, and rotated about its axis.

When the eye of our patient rotates outward and upward, the movement is due to a contraction of the inferior oblique (in part), and as the sets of muscles act in antagonism we infer from this that there is some weakness of the superior oblique muscle as well as of the internal rectus.

Our correspondent has fallen into an error in writing his prescription for both eyes with the base of the prism inward at 10°. If he will look at his trial-frame he will see that only the base of the prism over the right eye can be inward at 10°. On the left eye if the base of the prism was at 10° it would be outwards, but as the prescription calls for the prism with base in, it must be either at 170° or 190°, that is, 10° above or below the horizontal line.

In a case like this my advice would be not to divide the prism, but to place it all over one eye. By testing in different ways it can be determined in which eye is located most of the muscular weakness, and over which eye the prism should be

placed in order to get the best results. As a rule, these glasses should be worn constantly, but that is a point that can only be definitely settled by the amount of comfort and satisfaction afforded by the tentative wearing of the glasses.

"A KEYSTONE READER."—Here is a prescription left in my hands; what do you think of it? .75 + L. E. Pebble small double +. 0.50 \odot cyl., R. E. Pebble. I will say the glasses received did not suit the patient. I am no optician, and did not know anything about the case.

This prescription is something of a puzzler, and I really can't decipher it. Either the man who wrote it, or our correspondent in copying it, must have omitted something. The left eye seems to call for a .75 D., double convex spherical pebble lens of small size; but the lens required for the right eye seems to be greatly in doubt. I can't make out whether the .50 refers to a spherical lens to which a cylinder is to be added, in which case neither the number of the cylinder nor its axis is mentioned; or whether the .50 is the number of the cylinder, in which case neither the refraction (whether convex or concave) of the lens nor its axis is mentioned. The intention of the prescriber is so entirely in doubt that I don't see how anyone could fill the prescription, except by guesswork, and the guess is just as likely to be wrong as right; hence, there is no wonder that the glasses received did not suit the patient.

"SUBSCRIBER, Tenn."—A young man came into my store this morning to have his eyes examined. His left eye was not benefited by any glass, and the vision was nearly up to the normal. The right eye was very much affected; he could not make out anything on the chart for distant vision at the distance of twenty feet. At a distance of five or six feet he could see two of the three large letters which should be seen at fifty feet. Of three of these letters he could see the two on the outside, and there seemed to be a dark spot over the center one. His eyes were slightly inflamed, the right one more than the left. I cannot see anything growing on the eyeball. His age is twenty-one years. He had a bad case of sore eyes about five years ago, and his vision has been failing in that eye ever since.

This is one of those cases where it is difficult to express a definite opinion without the opportunity of a personal examination. It is quite possible that the previous inflammation of five years ago may have damaged the eye to such an extent as to cause this impairment of vision, but we can only surmise whether this is the case or not; and if so, we can only surmise as to what was the character of the inflammation. It might have been a keratitis, which would have impaired the transparency of the cornea; or it might have been an iritis, which had left an adherent iris or a plastic deposit on the surface of the lens; or it might have been an inflammation of the deep-seated membranes which impaired and partly destroyed their function.

We often meet with interruptions in the continuity of the field of vision, which appear in the form of dark, irregular clouds, or spots, before the patient's eyes. These "scotomata" (as they are called) may be situated in or near the center of the field or about its edges. In this case, the scotoma is central, and is situated in the axis of vision, and when so located it always produces great impairment of sight.

The vision of this bad eye is $\frac{5}{20}$ partly, but we are not told whether any improvement can be secured from glasses; sometimes, carefully-fitted spectacles are of great assistance. Neither have we information whether or not he is able to read with this eye without or with the assistance of glasses. I would advise our correspondent to test

the case again, in the hope that he may be able to afford some improvement either for distance or for reading, or for both; and if not, then he should advise his patient to seek medical advice and treatment, as perhaps the case may be amenable to treatment.

Are Opticians Frauds?

The following letter, received from one of our subscribers, explains itself:—

EDITOR KEYSTONE.

January 12, 1893.

DEAR SIR:—Candidly, is there anything in this optical instruction business advertised so extensively in THE KEYSTONE, or is it a new dodge to extort money from innocent jewelers, who, in turn, never tell, but play it on the purchaser, and laugh to see the next victim caught?

The optical experts who have been in our town look at the customer, guess the number of lens required, charge five dollars for a pair of fifty-cent spectacles (that is, fifty cents for the goods and four dollars and a half for the *scientific knowledge*), and send the victim home to sit in a dark room until the "doctor" gets of town.

Now if your answer should be in the affirmative, etc., etc., etc.

Yours truly,

W. B. J.

Yea, verily, there is everything in optical instruction. This is a good text on which to preach an optical sermon or write an elaborate argument in favor of the plea for a higher standard of optical education, and I believe the time is not far distant when the law will require the optician to be competent before he will be allowed to fit spectacles. And why not? Is not the eye one of the most valuable organs we possess, and is there any other more necessary to our welfare and happiness? The dentist and the horse-doctor are required by law to possess a diploma, and be registered before they can practice their professions. And does not a man's eye need as much protection as his teeth or his horse?

There has been a great advance along all lines of professional work, and the science of ophthalmology is keeping step with the rest. In years gone by, anyone could call himself a doctor and commence to practice medicine with the scantiest qualifications. Now the law steps in to protect the public health, and does not permit any one to practice medicine, except those who have received diplomas, and all the while there is still a cry for higher medical education, and the time of study is lengthened and the requirements for graduation made more rigorous each year. So it is with dentists; so it is with veterinary surgeons; and so it will be ere long with opticians.

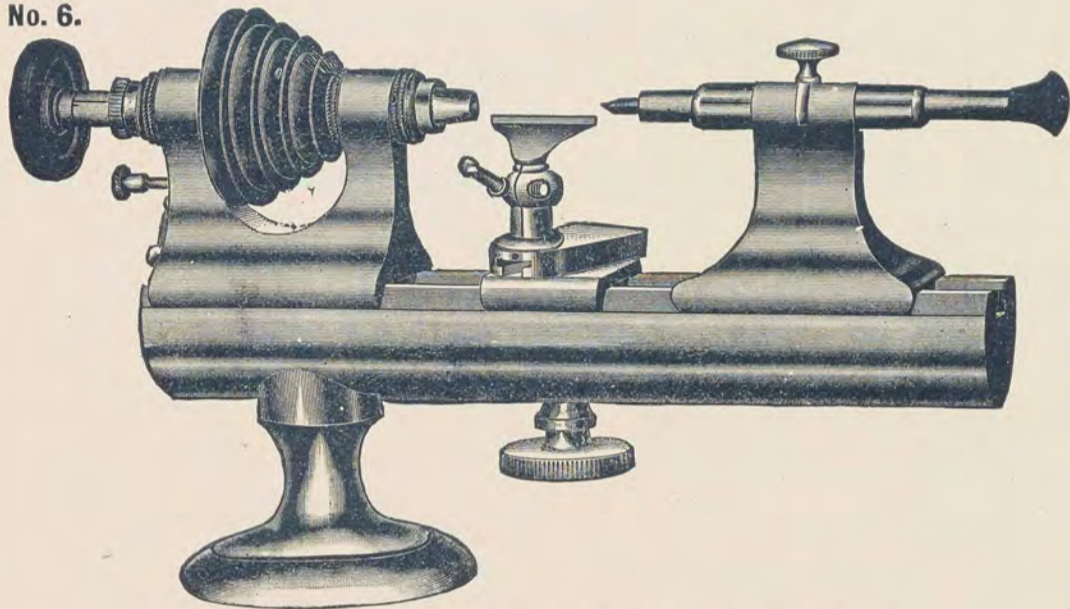
Because some optical quack and humbug visited our correspondent's town, and, under the guise of an educated optical expert, fleeced and wronged the people, he must not think all educated opticians are frauds and quacks. In the same way there are traveling quacks and charlatans and patent medicine men, whose sole business is to humbug the public. They are mostly uneducated men, although, occasionally, a graduated physician may stoop to disreputable practices; but still, in spite of this, we do not jump to the conclusion that physicians are all frauds, and that the practice of medicine is simply a deep-laid scheme to extort money from innocent sufferers. So it is in the church; sometimes a church member, or a church officer, or a Sunday-school superintendent, or even a minister, descends to wrong-doing and commits some flagrant crime; and yet for this reason we do not denounce all church members as hypocrites nor conclude that Christianity is only a sham or a fraud.

"Enclosed find check for One Dollar, for which please send me THE KEYSTONE one year. I would subscribe for THE KEYSTONE if the subscription was four times the amount."—H. L. UPTON, Upton, Ky.

C. H. KNIGHTS & CO.

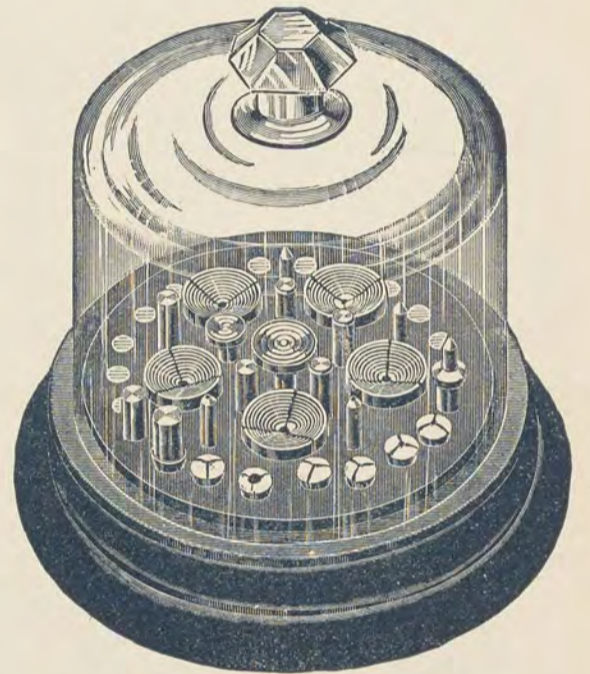
Having a few more in stock,
will continue the sale until sold.

No. 6.

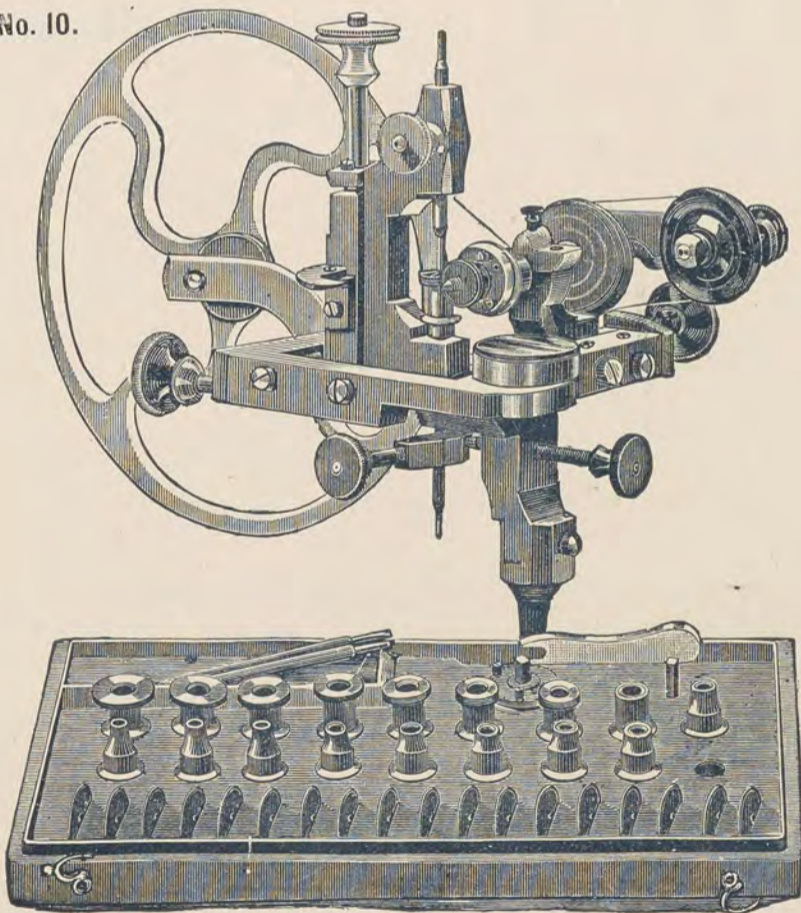


Imitation Webster-Whitcomb Lathe.

20 wire chucks, 5 wheel chucks, saw arbor, cement brasses, chuck block, belting, etc.
A very fine outfit. Price, **\$50.00.**



No. 10.



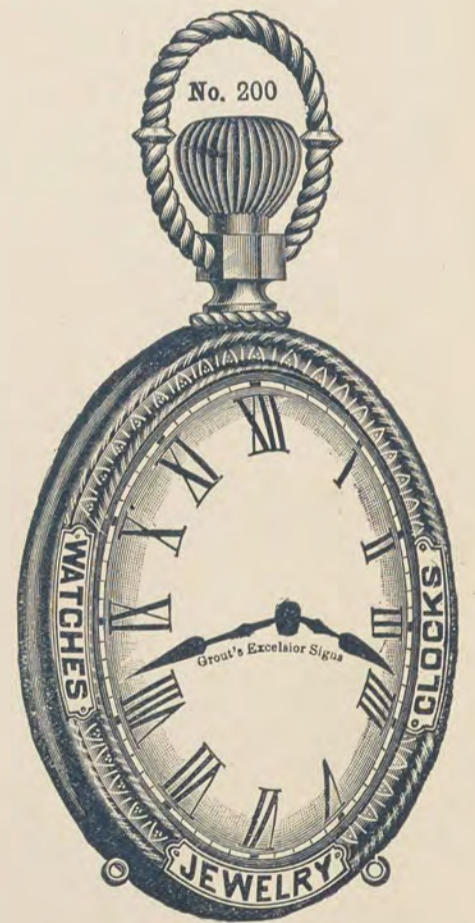
Swiss
Rounding-Up Tool.

18 Cutters.
Complete.
Price, **\$30.00.**



24-inch Carved
Iron Watch Sign.

With raised
cast letters on rim.
Name printed on dials.
\$16.50.



This Entire Lot for **\$78.50**, Net Cash.

125-127 State Street, Chicago, Ill.

Established in 1880.

Jewelers' Auctioneer

P. J. Burroughs,

104 State St.
Chicago, Ill.



Reference of a few sales made:

E. HALLETT, Lincoln, Nebr.	WORDEN & MORRIS, Fort Wayne, Ind.
JOSEPH & FISH, Chicago, Ill.	D. A. SHEPHERD, Brookfield, Mo.
M. J. BENJAMIN, Denver, Colo.	ROTHE IMPORTING CO., Denver, Colo.
A. PINOVER, New York.	W. A. PFISTER, Sheboygan, Wis.
J. H. BIHL, Fremont, Ohio.	GEO. BEEMER, Lead City, South Dakota.
M. B. WRIGHT & CO., Kansas City.	C. S. DURFEE, Davenport, Iowa.
CHAS. WICKLAND, Tiffin, O.	C. B. SCOTT'S SONS, Mayfield, Ky.
A. T. THREADGALE, Taylor, Tex.	PAUL HELFER, Saratoga, N. Y.
JOHN LEITH, Bay City, Mich.	O. L. ZIMMERMAN, Jeffersonville, Ind.
H. HAHN, Lansing, Mich.	W. B. TALIAFERRO, Jackson, Tenn.
AUSTIN & HUNTER, Belton, Tex.	D. DOMNAU & BRO., Waco, Tex.

Special reference also given of any wholesale jewelry or silverware house of Chicago.

All Correspondence Strictly Confidential.

WALTHAM HOROLOGICAL SCHOOL

PALMER & SWAIN,
PROPRIETORS.

WALTHAM, MASS.

The Oldest and Best Equipped Horological School on the Continent.

Thorough Instruction in Horology, Engraving and Ophthalmology.

Thorough Instruction

in

Engraving

in all its

Branches

Do You Know How to Fit Them?

If not, you are not doing justice either to your customer or yourself. If you do, you have "the other fellow" at **A BIG DISADVANTAGE.**

We have added this study to the curriculum of our School and have secured as Instructor a first-class Professor in Ophthalmology. No extra charge is made to regular students for instruction in this branch. We also give thorough instruction in

ENGRAVING IN ALL ITS BRANCHES.

Our reputation as instructors in

WATCHMAKING AND REPAIRING

is thoroughly established. The hundreds of pupils who have graduated from our School are the best possible testimony to the efficiency of the instruction.

A graduated pupil from this School can repair or construct a duplicate of any watch ever produced in Europe or this country.

We agree to pay any person's expenses home who may come to this school, if we do not show him right here more advantages for speedy and thorough learning in all branches taught than will be found in any other similar institute in this country.

We also furnish **Free** tools and material for pupils to use while here; also material for making small tools for themselves, which they own when finished.

Thorough Instruction

in

Watchmaking

and

Repairing

N. B.—Every pupil has the privilege of making a watch while here, and owning it when finished, without extra cost.

WRITE FOR OUR NEW PROSPECTUS. WHEN DOING SO, MENTION THE KEYSTONE.

THE JEWELERS' AUCTIONEER



J. H. HAVILL,
100 STATE STREET, CHICAGO,
PRACTICAL JEWELER.

Send for particulars. Reasonable charges.
 Can refer to many successful sales made.

An Exquisite Line

The best rings ever offered for the money. They are especially intended for a moderate-price ring, and they fill the bill exactly.



No. 104. 1/4 K. \$9.00



No. 105. 1/4 K. \$9.00



No. 106. 1/4 K. \$9.00



No. 117. 1/4 K. \$9.00



No. 116. \$7.20



No. 118. Cluster. Ruby, Emerald or Sapphire, and 8 Rose Diamonds. \$9.75

LET US SEND YOU AN ASSORTMENT.
 Write for prices. Write for prices.



No. 502. Fine Ruby, Emerald or Sapphire Doublet. \$1.35



No. 503. Three Fine Ruby Doublets. \$2.16



No. 504. Moonstone Center. Two Ruby, Emerald or Sapphire Doublets. \$1.80



No. 506. 8 Whole Pearls. Fine Ruby, Emerald or Sapphire Doublet. \$3.15



No. 518 1/2. 8 Rose Diamonds. Fine Opal Center. \$7.65
 NET CASH. No further discounts.



No. 505. Two Ruby Doublets. 3 Moonstones. \$2.25

Order early, before they are all gone.

PIKE, WILLSON & TERNENDT, 57 Washington St., Chicago, Ill.
 MANUFACTURING JEWELERS.

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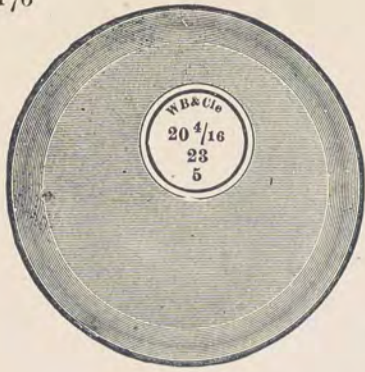
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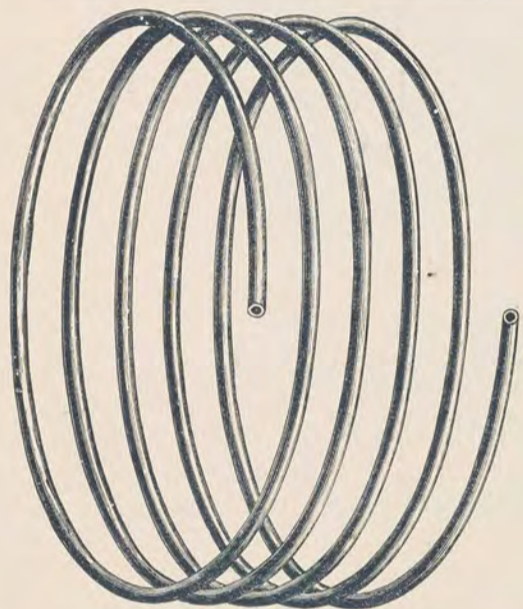


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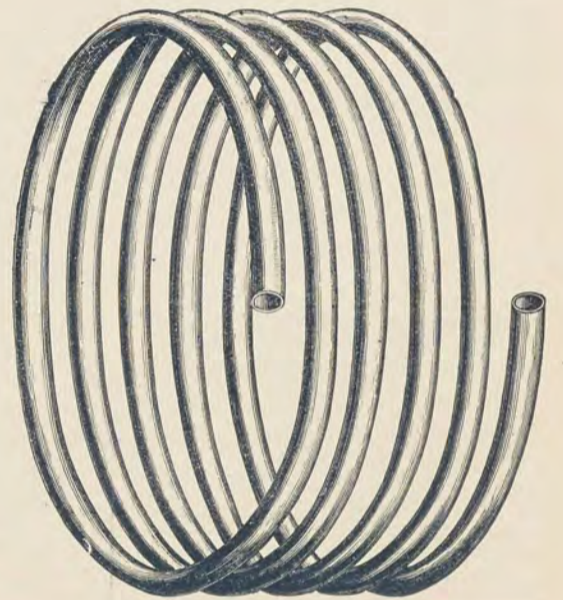
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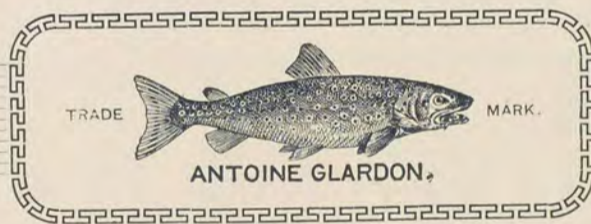
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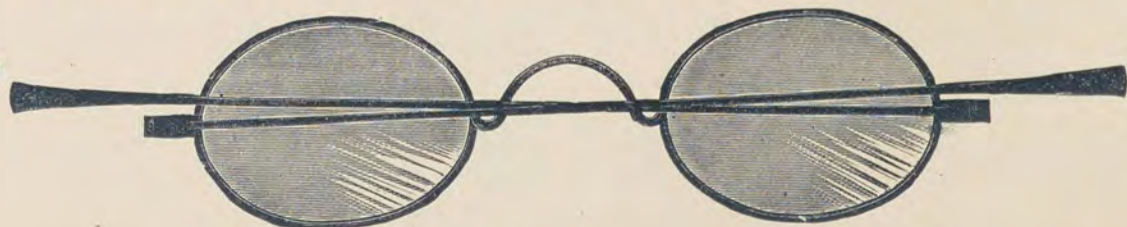
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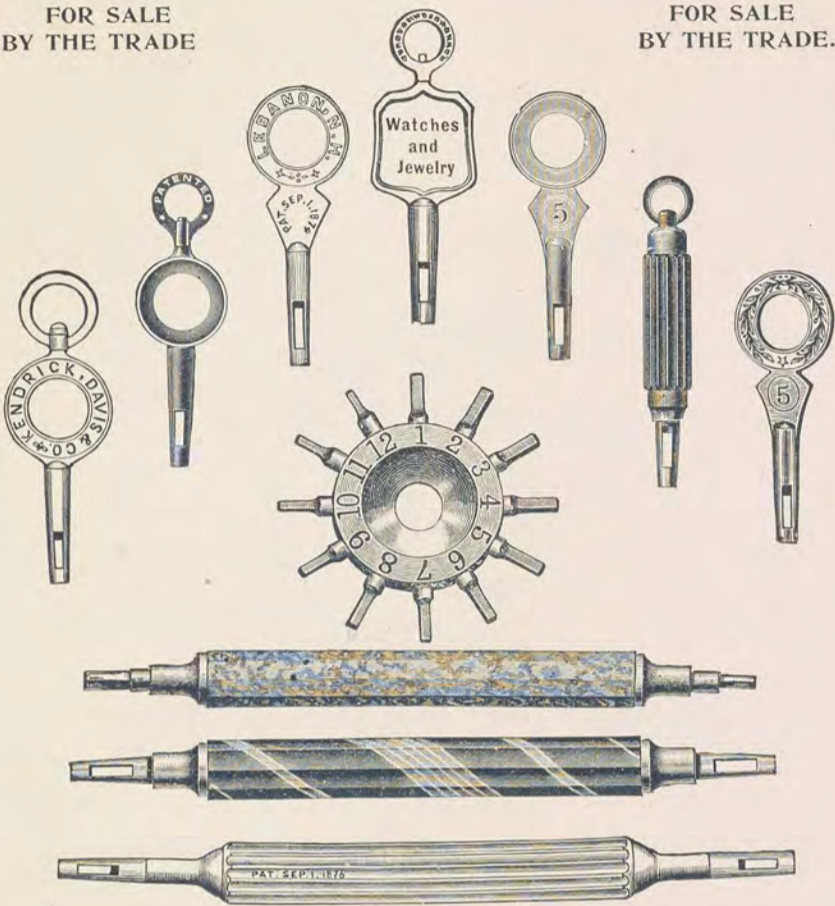
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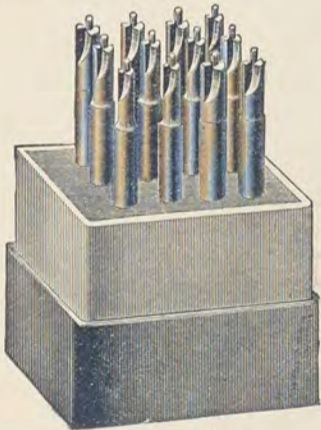


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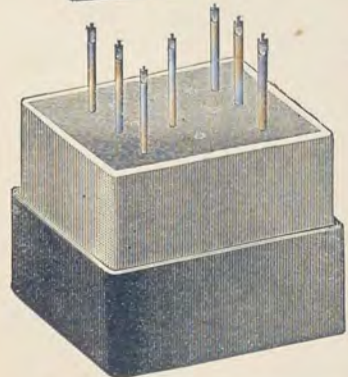
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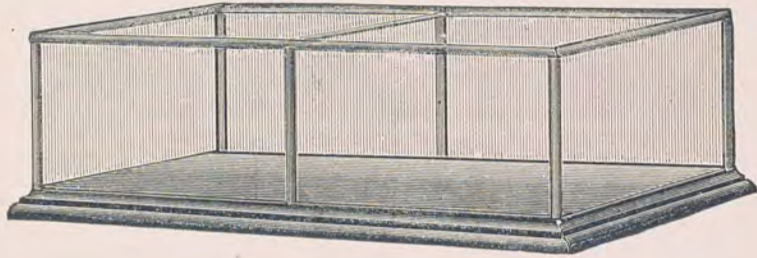
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A Watch Movement has been manufactured and sold by the Aurora Watch Co., of Aurora, Ill., and other similar movements are being

Important

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The trade is hereby notified of our rights under the said Letters Patent No. 10,631, and that in future we shall hold each person or firm dealing in infringing movements personally responsible.

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Chicago Watchmakers' Institute.
CHICAGO, Sept. 14, 1892.

GREENVILLE, S. C., Sept. 7, 1892.
IRA L. GREEN, Esq.
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Yours respectfully, H. P. COLLINS.

MR. IRA L. GREEN,
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Sincerely yours, GEO. D. PARSONS.

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The COLUMBUS POCKET MATCH-SAFE

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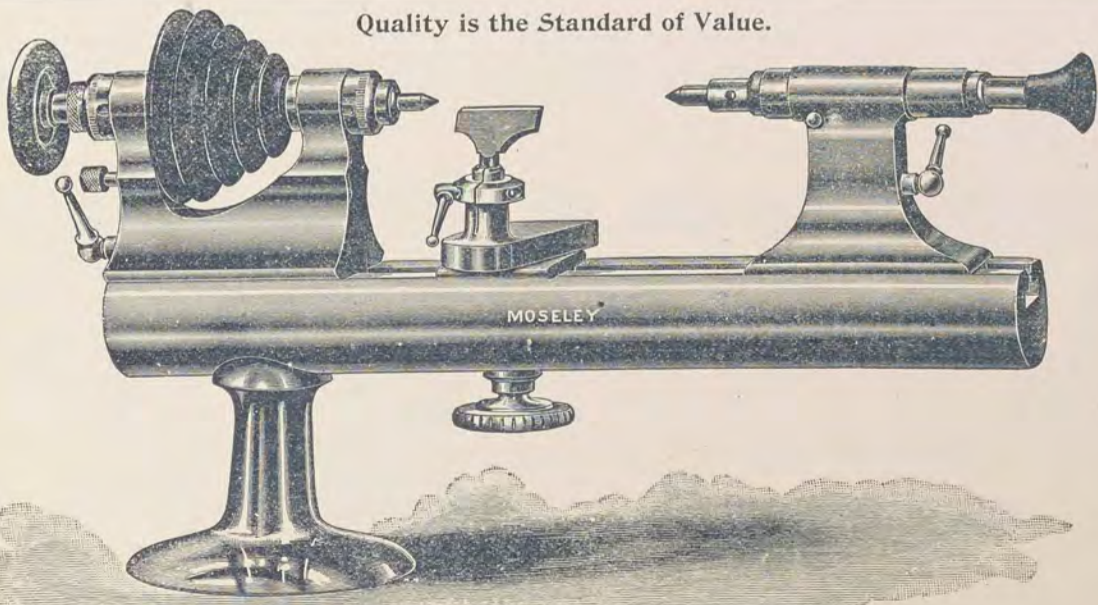
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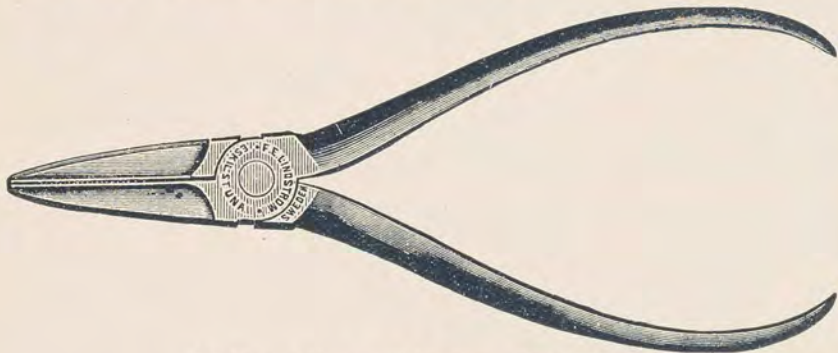
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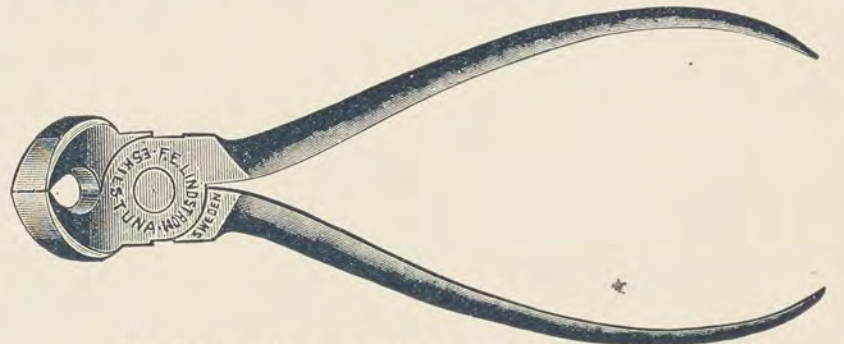
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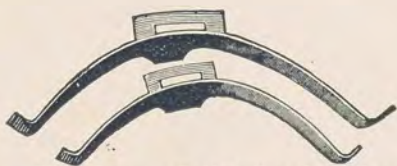


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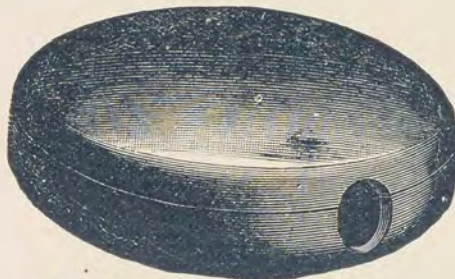
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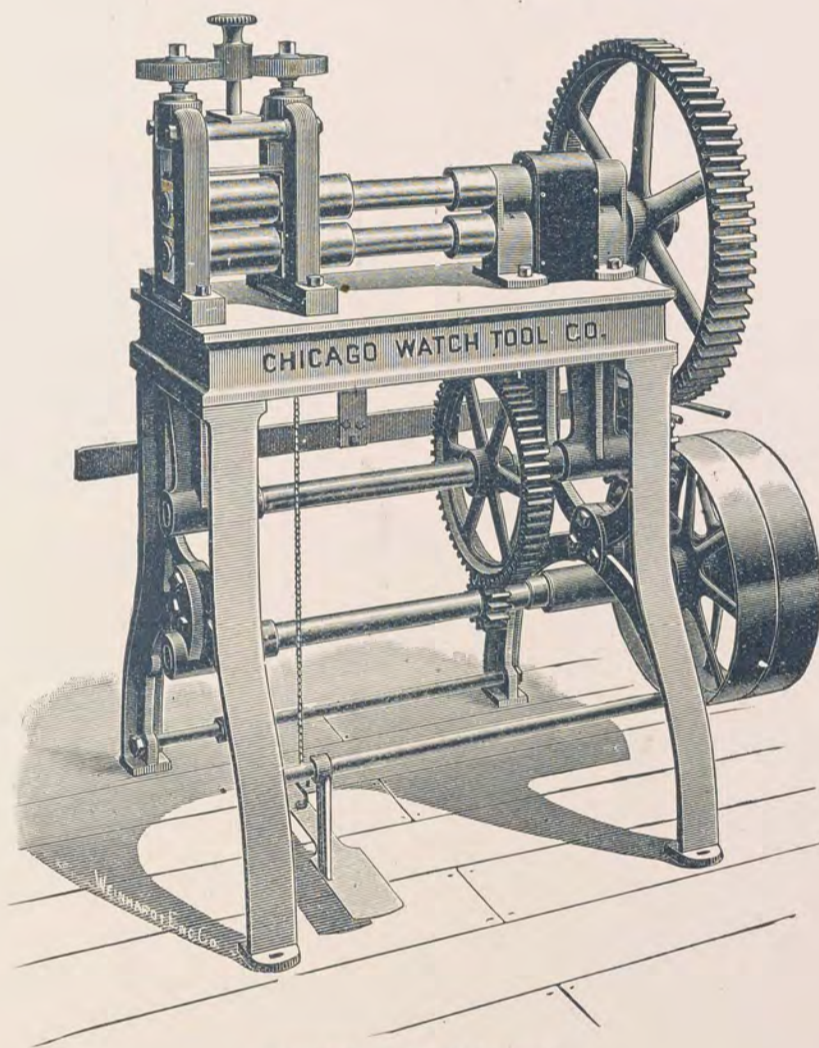
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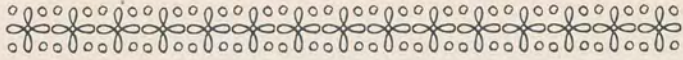
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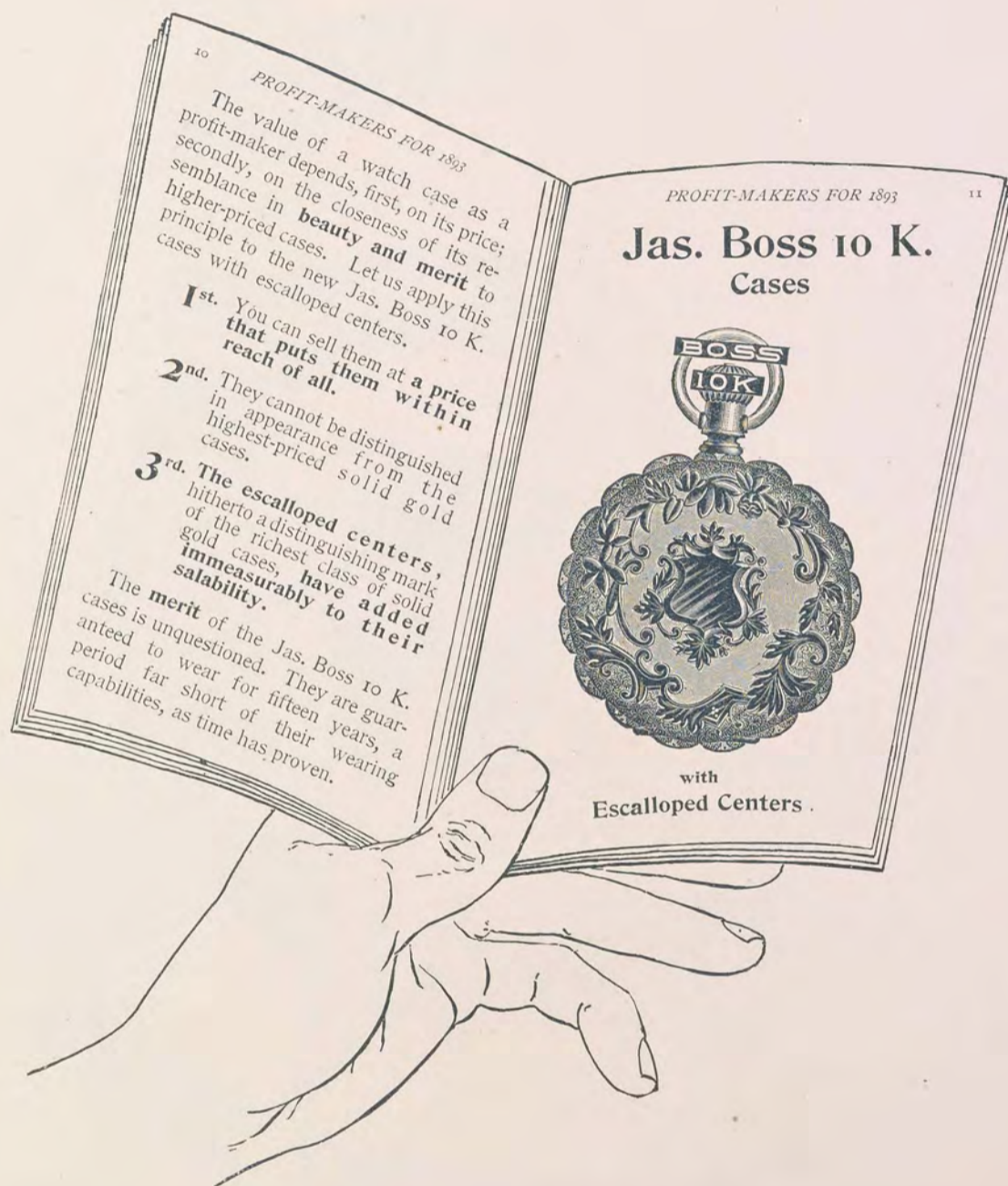
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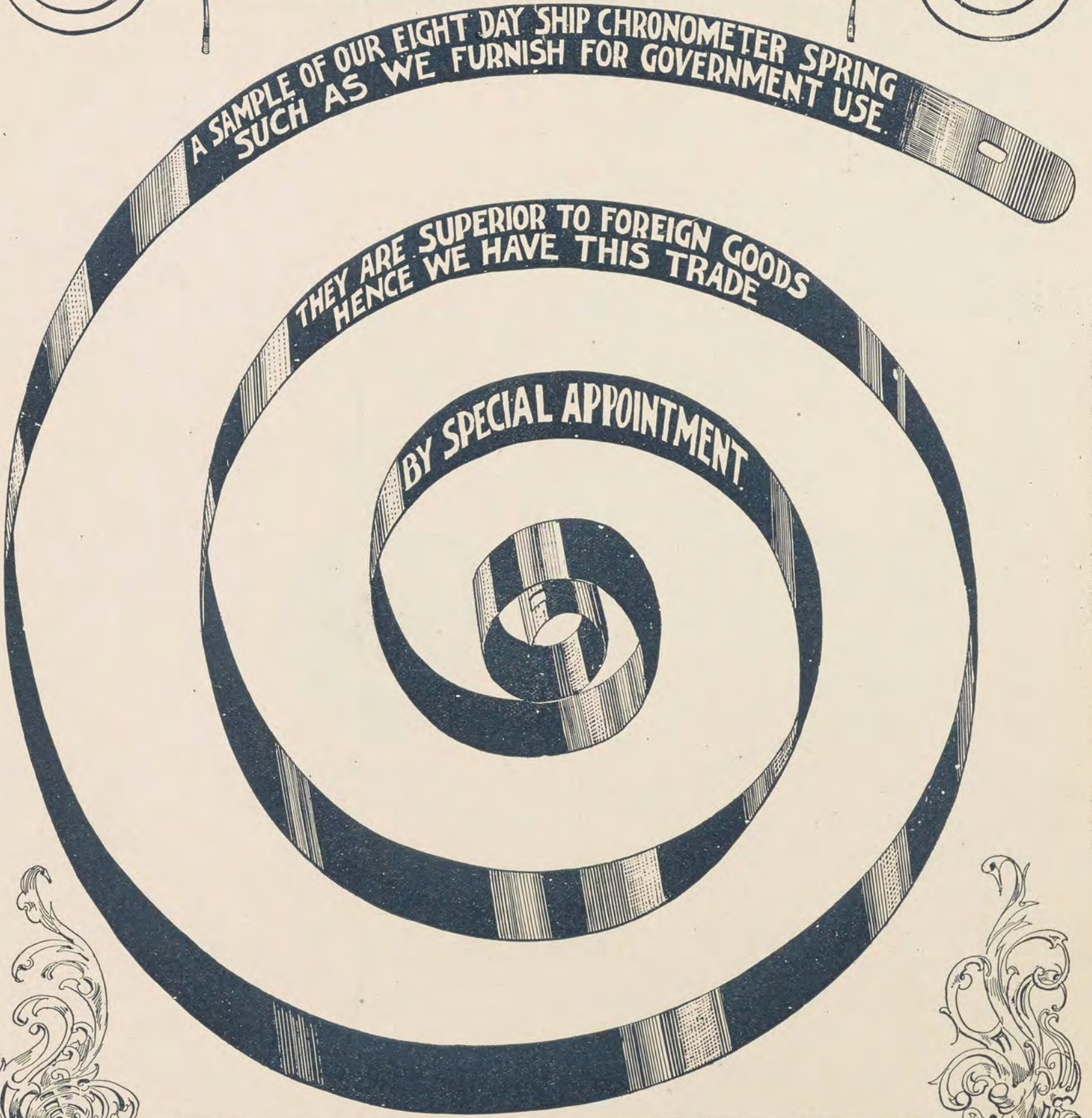
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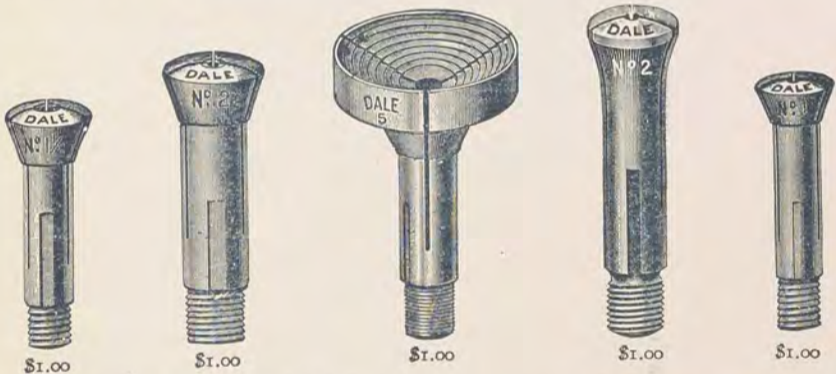
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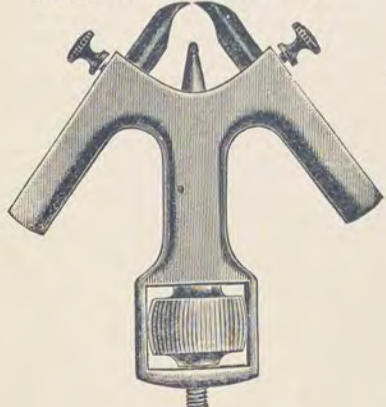
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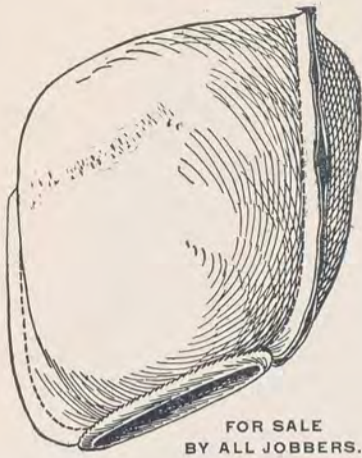
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JEWELERS' AND WATCHMAKERS' WORK A SPECIALTY.

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Carried in stock by all Wholesale Dealers.



Manufacturer of The Celebrated **LOOP WATCH KEY.** Never made better and never more popular than at present.

Numbers stamped on each key.

Send for price list of these and other goods.

Crosby's Jeweling Tools.



Clock Screw-Drivers. Length 7 1/2 in.



Rosewood Handles, Nickel-Plated Blades and Ferrules. Convenient for deep work.

The Peoria Horological School.

FOR THE PRACTICAL AND THEORETICAL TEACHING OF WATCHMAKING AND REPAIRING.

Rooms, Cor. Main and Elizabeth Sts., Peoria, Ill.

The object of this School will be to supply the demand for a higher grade of skilled artisans in this branch of industry.

The School is founded by and will be under the direction of Professor L. D. JONES, an expert of the highest order, both in theory and practice, and well-known to the watchmaking fraternity.

ADDRESS ALL COMMUNICATIONS TO

The Peoria Horological School,

Cor. Main and Elizabeth Sts., Peoria, Ill.

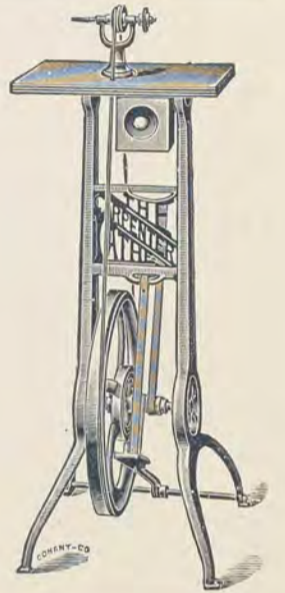
The Carpenter Lathes

ARE ALL THE GO.

They go swift; they go strong; they go instantly; and they go the right way always.

We say they will save half your work. You will say so after you get one.

They are chock-full of go, and if you expect your business to go you must send for our catalogue of Lathes, Foot-Wheels, etc. If your jobber don't sell them, write us—we do.



The Carpenter Lathe & Tool Co.,

165 Tremont St., Boston, Mass.



No. 9. LONG WOOD-HANDLE BENCH KEY. NICKEL-PLATED.



No. 41. LONG RUBBER-HANDLE BENCH KEY. NICKEL-PLATED.



No. 51. LONG NICKEL-PLATED BENCH KEY.



No. 53. TRIPLEX POCKET SCREW-DRIVER. PATENTED. Price 75 cts. Three blades in one handle. Blades, Nos. 44, 53 and 60.



No. 2. POCKET KEY. BRASS.



No. 60. POCKET. NICKEL-PLATED.

R. H. Franklin, Successor to John S. Birch & Co.

79 & 81 Washington St., Brooklyn, N. Y.

TOOLS AND SMALL METAL GOODS MADE ON CONTRACT. ESTIMATES FURNISHED.

The Original

Gold Crown



Manufactured for the Jobbing Trade only.

Every Ring has our Trade-Mark of the Crown stamped inside. None genuine without it.

FILLED RINGS.

Plain and Chased.



WE ALSO MANUFACTURE Solid Gold Rings.

W. E. McCALL,

SUCCESSOR TO McCALL & NEWMAN,

104 & 106 South Eighth St., Philadelphia, Pa.

JEWELRY REPAIRING IN ALL ITS BRANCHES A SPECIALTY.

Watchmakers' Tools

Do not read this, unless when buying watchmakers' tools you wish to know where to get the best.

Save yourself the trouble and expense that come from using an inferior tool of any description, that eventually has to be replaced by the best article in the market (for to buy a cheap tool once is a lesson a good watchmaker does not care to repeat).

But how are we to know which are the best?

By seeing that the J. G. Hall Mfg. Co. stamp is on each tool.

It is for the interest and success of every jobber and horological school to make a practical test of all tools made by the J. G. Hall Mfg. Co., that they may see their superiority over all others in the market.

I desire to call your particular attention to my **Staking-Tools, Yankee Roller-Removers, Gem Screw-Drivers, Jewel-Pin Setters, Collet Wrenches and Hairspring Collet-Removers.** All are goods of first-class quality and the very highest degree of mechanical perfection, and each is stamped with the J. G. Hall Mfg. Co.'s stamps.

Jobbers, please send in your orders at once; the first come, the first filled. January 1st I commenced the manufacture of the **Star Watch-Key and Combination Bench-Key** formerly manufactured by the Acme Watch-Key Co., of Montpelier, Vt.

Wishing the trade during the present year the most voluminous success, which all will have that use the J. G. Hall Mfg. Co.'s tool, I remain,

Yours respectfully,

F. L. HERRICK,
ROXBURY, VERMONT.



F. R. CLAYTON, Jewelers' Auctioneer,

**26 ST. JOHNS PLACE,
CHICAGO, ILL.**

For conducting sales, I make terms that will be satisfactory and assure profit. I can furnish the best of reference. All correspondence will be confidential.

WRITE FOR PARTICULARS.

(Continuation of page 97.)

The list of jobbers as given on first page of this issue was sent in the absence of the gentleman directly in charge of this department, and was taken from an old list. As the discovery was made too late to correct it (the form containing page 97 having been on press), the correction is made by the additional list given below. The name of Mr. W. T. Coffin, Chicago, in the list of tool and material jobbers on page 97, is an error, as he is a jobber in the general line of jewelry.

The Specialties named on page 97 are sold by the following jobbers at prices named:

Boston, Mass. H. Weber & Co., 424 Washington St.	Indianapolis, Ind. L. L. Norton, 24 Hubbard Block.
Buffalo, N. Y. King & Eisele, Washington and North Division Sts.	New York, N. Y. L. H. Keller & Co., 64 Nassau St. Sussfeld, Lorsch & Co., 13 Maiden Lane.
Cleveland, Ohio. Bowler & Burdick Co., 208 Superior St. Sigler Bros., 211 Superior St. Sumner Bros. & Co., 204 Superior St.	Philadelphia, Pa. Harry Litchfield, 702 Chestnut St. Louis A. Scherr & Co., 726 Chestnut St.
Columbus, Ohio. A. H. Bonnet, 24 East Spring St.	Pittsburg, Pa. Heckel, Bieler & Co., Wood St. & Fifth Ave.
Des Moines, Iowa. G. W. Marquardt & Sons, 410 & 412 Fifth St.	Portland, Oregon. Butterfield Bros., 162 1/2 First St.
Elmira, N. Y. Freudenheim Bros. & Lande, 402 E. Water St.	San Francisco, Cal. Jones & Davis, 3 Hardie Place. Wolf, Henry, 120 Sutter St.

ESTABLISHED 1865.

Better than Horological Schools

Twenty years' experience in taking pupils for instruction in watchmaking. Send for terms.

Watches or Parts Demagnetized,
and Guaranteed so.

Stem-winding parts, any form or description. Wheels and Pinions for French and Hall Clocks, or any other purpose, from the finest watch pinion to the largest clock wheel.

M. H. DOWNES,

Manufacturing and Jobbing Watchmaker,
22 CHAPMAN PLACE, BOSTON, MASS.
Cor. Bowdoin Street.

DIFFICULT WORK FOR THE TRADE.

Price-List by mail.

Scientific American
Agency for

PATENTS

CAVEATS,
TRADE MARKS,
DESIGN PATENTS,
COPYRIGHTS, etc.

For information and free Handbook write to
MUNN & CO., 361 BROADWAY, NEW YORK.
Oldest bureau for securing patents in America.
Every patent taken out by us is brought before
the public by a notice given free of charge in the

Scientific American

Largest circulation of any scientific paper in the
world. Splendidly illustrated. No intelligent
man should be without it. Weekly, \$3.00 a
year; \$1.50 six months. Address MUNN & CO.,
PUBLISHERS, 361 Broadway, New York City.

Opticians' Grindstone on stand,

\$8.50

Size of stone, 16 x 3 inches. Specially selected
for lens grinding.



Levy, Dreyfus & Co., 9 & 11 Maiden Lane,
NEW YORK.

**Send for Catalogue of Tools and Materials for Watchmakers,
Jewelers and Opticians.**

Instructions to Jewelers on the Fitting of Spectacles. Free of charge.
Correspondence solicited.

Lewis Horological School, 17 Maiden Lane, New York,

offers superior facilities to learn the trade in all its branches.
Write for terms.

PIVOTING Send **40 Cents** (in stamps) and a true and nice
pivot will be returned the same day job is received.

Fine Watch Repairing for the Trade.

Full Satisfaction Given, Write for Price-List.
Prices Moderate. Work Returned Promptly.

WHEN WRITING TO ADVERTISERS PLEASE MENTION THE KEYSTONE.

Fountain and Gold **PENS** Made and Repaired
CROWN PEN CO. 78 State St. Chicago



SIGNS! SIGNS! SIGNS!!!
Your attention is called to the largest and most perfect Jewelers' Watch Sign in the World. They are as perfect in proportion as a watch case, and also very beautifully and artistically designed. They are warranted in every particular. These signs can be placed on a post, and are so constructed as to revolve, or they can swing on a rod from a building. I make different sizes. Weight of Signs 12 to 80 lbs. Price-List and photos furnished on application. Address,
LON BARNHART,
908 West Madison Street, Chicago, Ill.

OPTICAL JOBBING
Quick Time, Careful Work, Low Prices.
COPYRIGHT. Steel Frames, 15 to 30 cts. each. Spherical Lenses, 25 cts. per pair. Cylinders, 35 cts. per pair. Sphero-Cylinders, 50 cts. per pair (all beveled). Catalogue FREE
QUEEN & CO., 1010 Chestnut St., Phila., Pa.

PATENTS
Crosby & Dorian,
621 Seventh Street, N. W.,
WASHINGTON, D. C.

Patents, Trade-Marks, Caveats and Copyrights secured. Interferences and Infringement Suits conducted. Send for Free Book on Patents and List of References.

Brickett's Patent French Clock Movement Holder.
\$1.75 each.
Sent, express paid, by
John Howland,
73 Hanover St. Boston, Mass.
First-class jobbers carry them.



No Watchmaker Could Afford to be Without One.
SHEEHAN'S WATCH ROLLER REMOVER
will fit any watch, remove and replace the roller without disturbing the hairspring, requires no adjusting, is not liable to get out of order. For sale by all jobbers, or sent postpaid on receipt of price, \$1.00. Address **M. L. SHEEHAN,** 785 8th Ave. New York City.
The tool is all he claims for it. **THEO. LESPERANCE,** Watchmaker, with Jules Racine, successor to Julien Gallet & Co., 1 Maiden Lane, N. Y. City.
It is worth its weight in gold. **SOPHUS STILHOFF,** V. L. FIGAROTTA, Watchmakers, with Hayden W. Wheeler, 2 Maiden Lane, N. Y. City.



Use it and get rid of your Chestnuts.
CHAMPION
ALWAYS READY FOR USE
SOLD IN 4 AND 8 OZ. BOTTLES, OR BY THE GALLON IN BULK.
UNSURPASSED FOR CLEANING DIAMONDS AND FINE GOLD JEWELRY. Warranted Not to Contain any Acid. For Sale by all Wholesale Dealers in Jewelry and Material.
FACTORY AT 344 WABASH AVE., CHICAGO, ILL.



Compare Quality Finish Price
Send \$5.58 cash and get one pair each, 10 K.
G. E. WALHIZER, Manufacturing Jeweler, Earrings a Specialty. 8 Maple Place, Newark, N. J.
NO. 62. \$2.00. NO. 482. \$2.00. NO. 712. \$2.00.

C. G. Braxmar, MANUFACTURING JEWELER
SOCIETY RINGS PINS AND CHARMS
BADGES & MEDALS
47 Cortlandt St. New York.
LARGEST MANUFACTURER OF THESE GOODS IN AMERICA.
SEND FOR NEW ILLUSTRATED CATALOGUE. MENTION THE KEYSTONE.

BOWS Best and Cheapest on the Market.
Gold, Filled, Silver and Nickel.
E. P. Ledos, MANUFACTURER OF WATCH CASE MATERIALS, Crowns, Pendants, etc. 118 Market St., Newark, N. J.
HANDLED BY LEADING JOBBERS. Prices sent on application.

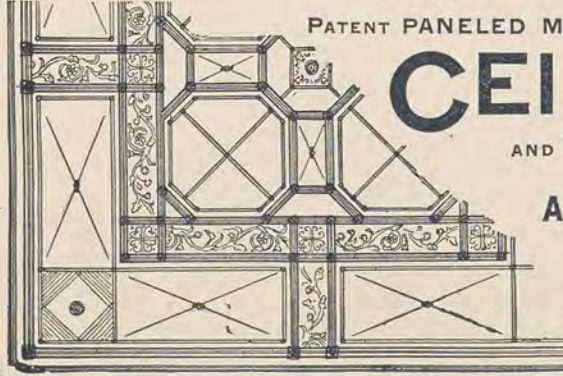
MARINE CHRONOMETERS, MANUFACTURED BY
John Bliss & Co., 128 Front St., New York.
We have on hand a number of Chronometers, by various good makers, not new, which have been in service for purposes of navigation, and are excellent instruments. They have been put in perfect repair, and will give satisfactory results as to performance. We will sell these Chronometers at low prices, either for cash, or on accommodating terms to suit special cases, or will hire them at moderate rates and allow the hire to apply on purchase.
SEND FOR CIRCULAR GIVING PRICES AND TERMS.



FOR THE HEAVIER WORK OF JEWELERS. BARNES' FOOT POWER LATHES.
Barnes' Foot Power Lathes, 16 different styles and sizes, suitable for all classes of work from the Blacksmith to the Jeweler. There is no application of foot power equal to the Patent Velocipede, used with these lathes. Thousands of them are in practical use in the shops of metal and wood workers.
L. G. Woolley, of Grand Rapids, Mich., says: "I wish to say that I have owned and used two of your No. 6 foot power lathes now about five years. The tools have been put to hard and continuous work in my laboratory, and it gives me pleasure to say that up to this time, no repairs of any kind whatever have been needed. Indeed the tools are all and more than what you claim for them. My time is devoted exclusively to invention and experimental work in electricity. In doing this it is necessary to have accuracy, and wide range of adaptation to different work. Your excellent lathes and superb foot power is all that could be desired by any one in need of a first-class tool."
Send for catalogue of wood and metal workers' outfits.
W. F. & JOHN BARNES CO., No. 660 Ruby St., Rockford, Ill.



PATENT paneled METAL CEILINGS AND SIDE WALLS
Manufactured by
A. NORTHROP & CO., Pittsburg, Pa.
Embossed Steel Molded Plates.
Send for illustrated circular and estimates on the Neatest Metal Finish, suitable for Church, Hall, Store, Office, School and Parlor. Easily put up in new buildings, or over old plaster.



Lindahl's Watch Case Opener.
Pat. July 12th, 1892.
BEST AND ONLY PERFECT OPENER EVER MADE.
The most tight-fitting case can be easily and quickly opened. Anyone can open a watch with this Opener without danger of injuring case or movement. Send for circular giving full description.
PRICE: No. 1 Opener, Steel Blade, Ebony Finished Handle, 25 cents each.
MANUFACTURED BY **F. E. LINDAHL,** 269 DEARBORN STREET, CHICAGO. FOR SALE BY ALL JOBBERS.
Sample mailed on receipt of 25 cents in postage stamps.



WALTHAM DIAL CO. D. OHARA WALTHAM, MASS.
TRUE excellence is acquired only by constant vigilance in specific directions, as no one man can be great in Science, Music and Literature. So cannot any one Company be the best case-maker, the best movement-maker and the best dial-maker. The most successful dealers appreciate this fact and by judicious assembling of the best varieties of the best producers of specific lines, are able to offer combinations of complete watches which dealers behind the age wonder why they cannot buy. There is not much "luck" attending the successful jeweler's career. What passes for luck is taste, judgment and ability. When you see such a jeweler's window you will observe he uses only our Dials.
PLAIN AND FANCY DIALS

WHEN WRITING TO ADVERTISERS PLEASE MENTION THE KEYSTONE.

WATCHMAKERS AND JEWELERS.

In reply to my advertisement in the December KEVSTONE, I received considerable out-of-town work, and desire hereby to acknowledge my thanks for such patronage, also, to state that I have further enlarged my repairing department.

Fine work only. Watch Repairs, Jewelry and Engraving. Also a good place for studying watchmaking. W. A. SCHROETER, 198 GRAND ST., NEW YORK CITY.

Musical-Box Repairers,

also Orchestions, Albums, Automats, Birds, Clocks, Sculptures, and all Fantasia, with Music, will receive our skillful attention. Twenty-five years experience as Manufacturers in Switzerland will be a guarantee to you of our thorough knowledge in the Musical Mechanical Art. Estimates given, and work called for when desired. Promptness and Moderate Prices. AUGUSTE JACCARD & SONS, 1016 Chestnut Street., Philadelphia, Pa.



H. H. Heinrich, 14 John St., N. Y. MARINE Chronometers

For Rent and Sale.

Large Stock on Hand.

Springing, Readjusting and Repairing for the Trade EASY TERMS. SEND FOR PRICE-LIST.



Houghton's Face Plate.

With hardened chuck and pump center, it is excellently finished and nickel-plated and warranted to run perfectly true. We fit them to all lathes. Ask your Jobber for one on approval.

J. Houghton Manchester, N. H.

The Warren Eye Protector.



Patented Jan. 12, 1892.

Absolute protection to the eye from flying particles, and everything annoying or hurtful. No glasses to break. Invaluable to workmen, horse-men, wheelmen and travelers on land and sea. You bid defiance to Dust, Snow, Rain, Hail, Sleet, Wind, and Sun. Particulars on application. Sample by mail, 50 cents.

THE NOUS VERRONS CO., 503 John Hancock Bldg., Boston, Mass

Easton School of Optics.

Office Course, \$30.00. Correspondence Course, 15.00.

NO CLASSES.

STUDENTS BEGIN AT ANY TIME.

For circulars, giving references, etc.,

Address M. S. SEIP, M. D., Easton, Pa.

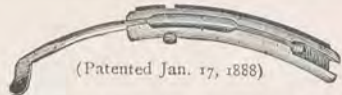
Advertisement for 'A POSITIVE CURE FOR THE FRANCO-GERMAN RHEUMATISM, NEURALGIA, SCIATICA AND ALL DISEASES THAT ARE SUCCESSFULLY TREATED BY MAGNETISM.' Includes details about the ring and a refund policy.

First-class Jewelers in every town and city wanted to act as exclusive agents.

To Prevent Bulk Windows from Sweating or Frosting USE SERRILL'S INVENTION.

For \$5.00 I will send you instructions how to prevent it. At a small expense, any carpenter can do it. I have used it four years, and my window has not had sweat or frost on it the coldest days in winter.

Address, JAMES SERRILL, Jeweler, 1806 S. Ninth St., Philadelphia, Pa.



(Patented Jan. 17, 1888)

C. G. HARSTROM, Peekskill, N. Y., will send sample of this all steel Adjustable Case Spring, any size, Swiss or American, for Ten Cent Stamps.



If you have your eye on riding a wheel, write to us.

We hammer prices down.

F. B. CATLIN, WINSTED, CONN.

THE REGULATOR.

The only book of the kind in existence containing 300 different causes that will stop a watch. Alphabetically arranged. A saving of time, labor and money to any repairer. Sent to any watchmaker on receipt of \$1.00, postage prepaid.

F. A. BRISTOL, PUBLISHER, AUBURN, NEB.

SHEPARD'S NEW \$60 SCREW-CUTTING FOOT-LATH.

Foot and Power Lathes, Drill Presses, Scroll-Saw Attachments, Mandrels, Chucks, Twist Drills, Dogs, Callipers, etc. Lathes on trial, Lathes on payment. Send for catalogue of Outfits for Amateurs or Artisans. Address H. L. SHEPARD, Agt., 141 W. Second St., Cincinnati, Ohio.

Advertisement for 'TIDD'S MAIN SPRINGS' with text: 'TRY A SAMPLE DOZEN OF TIDD'S MAIN SPRINGS WE REPLACE BROKEN ONES. \$1 Prdoz. TIDD & CO. COLUMBIANA, O. BY MAIL.'

DETROIT OPTICAL INSTITUTE.

A PRIVATE SCHOOL FOR OPTICIANS. Instruction on the Lenses; Anatomy, Physiology and Refraction of the Eye. Practical manipulations of Prisms, the Ophthalmoscope, etc., etc. A special course of instructions for students by mail. For particulars, address JOHN S. OWEN, M. D., 23 Adams Ave., E., Detroit, Mich.

DR. PETER HENRY, SPECIALIST IN WATCH CASE DISEASES EST. 1870.

Key-Winders changed to Stem-Winders. Hunting-Cases changed to O. F. English Cases changed to fit American movements. Can be cured at 53 Longworth St., Cincinnati, Ohio.



"Eclipse" Eye Glasses AND THEIR ADVANTAGES.



- 1. The guard remains perfectly rigid in the post. 2. The guard is made of two arms, one running at right angles to the frame and passing through a slot in the post which positively locks the guard. 3. It is easy to fit; for, while the angle of the "Eclipse" guards is fixed, the arms of the guards are thin and pliable, so that any desired shape can be given and almost any guard in the shortest possible space of time. 4. No other guard is so light, clean, and has so little metal. 5. It is a fashionable fitting. Send for Circular. Place your Orders NOW.

JOHN SCHEIDIG & CO., 43 Maiden Lane, New York. Sole Agents for the "Eclipse" Eye Glasses. We carry a complete line of all leading American Frames and Lenses and Optical Goods.

John G. Schanbacher, MANUFACTURER OF FINE JEWELRY

S. W. Cor. Marshall and Halsey Sts. Newark, N. J. Brooches, Lace-Pins, Scarf-Pins, Earrings, Rings, Lockets, Pendants. All sorts of Diamond Mountings. SELL TO JOBBERS ONLY.

J. J. Donnelly, 73 Nassau St., Room 6, New York. Gold and Silver Electro-Plater, Fire-Gilder and Colorer. All kinds of work neatly and promptly executed. Send for Price List.

SOUTHERN SCHOOL FOR WATCHMAKERS. Send for prospectus of above School. The only one in the South. Skilled instructors; latest machinery; cheap living; fine location; terms moderate. Watch repairing, badges, diamond-setting and general trade work at factory prices. Old gold and silver taken as cash at current rates. H. P. COLLINS & CO., Greenville, S. C.

To All Live Opticians

There is no better friend in the daily labors of a practical optician than the "HANDBOOK FOR OPTICIANS" OF W. BOHNE, 119 Canal Street, New Orleans. Price, \$2.50, postpaid.

No More Sweating of Show-Windows. Great attraction for your window—simple, clean, cheap. Success guaranteed. Send \$1.00 for instructions to F. W. A. KLEINAU, 811 Midland St., W. Bay City, Mich.

Indispensable to the Retail Jeweler.

Wells' Patent Ring Adjuster lets the ring pass over large joints with ease; is a perfect guard for the ring, besides holding the top of ring in desired position. It can be fitted to any ring in five minutes, without marring the ring, and may be removed instantly. It also makes the ring a perfect fit and often saves cutting. 1 doz., assorted sizes, solid 10 K. gold, \$3.00 net. 1 doz., metal, assorted sizes, 75 c. net. Ask your jobber for them, or I will send on receipt of above price (10 c. extra if registered). The retail price, fitted, is, gold, 50 to 75 c. each; metals 25 c. each. Address, CHESTER H. WELLS, Jeweler, Meshoppen, Pa. We cheerfully recommend Wells' Patent Attachment for Finger Ring, to the trade and think every retail jeweler should keep them; Heeren Bros. & Co., Cross & Bequelin, May & Stern, Etc.

ORPHEA MUSIC BOXES

Are the sweetest, most complete, tone-sustaining, durable, and perfect Musical Boxes made, and any number of tunes can be obtained for them. Delightful family, wedding, anniversary, and holiday gift. Buy direct of the makers, the oldest, most reliable, and responsible firm. No Music Box can be guaranteed without Gautschi's patented Safety Tune Change and Parachute. Manufacturer's Headquarters for Gem and Concert Roller Organs; also Symphonions and Polyphones, Lowest Prices. Factory estab. 1824.

OLD MUSIC BOXES CAREFULLY REPAIRED. GAUTSCHI & SONS 1030 CHESTNUT ST. PHILADELPHIA.

Ben. Franklin Electrical Co.

Why use a nasty, always out-of-order chemical battery for gilding and coloring, when you can get a hand-power dynamo for \$15.00, which is always ready, and no expense for chemicals, and good for a lifetime? Can be had of BEN. FRANKLIN ELECTRICAL CO., 1331 North Tenth Street, Philadelphia.

Opticians' Supplies

Complete Trial Cases; 150 lens set, \$32.50; 220 lens set, \$47.50. Loring Ophthalmoscope, \$9. Artificial Eyes, for selection, \$1 each. Artificial Eyes, best quality, \$50 per hundred. Ophthalmometers, \$60 to \$85. Queen's Standard Perimeter, \$20. Queen's Lens Grinding Outfit, \$35. Catalogue FREE.

QUEEN & CO., Oculists and Opticians, 1010 Chestnut St., Phila., Pa.

THE KEYSTONE

Classified advertisements under these headings, excepting "Situations Wanted," THREE CENTS per word, one insertion; 10 per cent. off for three insertions; 15 per cent. off for six insertions, and 25 per cent. off for twelve insertions. Name and address included.

To secure a place in the columns of this page, advertisers should forward copy so that it may reach us not later than the 25th of each month.

IF ANSWERS ARE TO BE FORWARDED, POSTAGE STAMPS MUST BE ENCLOSED.

No advertisement inserted for less than 25 cents, excepting "Situations Wanted," which cost 10 cents for a 3-line notice.

TO INSURE INSERTION, MONEY MUST ACCOMPANY ALL ORDERS FOR ADVERTISEMENTS.

Address all remittances to THE KEYSTONE, 19th & Brown Streets, Philadelphia, Pa.



Under this heading, advertisements of three lines (twenty-five words) will be inserted for TEN CENTS; extra words, three cents each. This offer refers to SITUATIONS WANTED only. Payable strictly in advance. If answers are to be forwarded, postage must be enclosed.

SITUATIONS WANTED.

PRACTICAL watch-repairer, expert. 21 years' exp.; capable of taking charge of store, bench work, or act as foreman. He is also a good salesman. No bad habits. All tools. Will not work for low wages. Only gentlemen need apply. "Wide-Awake," Box 197, Bastrop, Tex.

BY an American. Position as first-class watchmaker and salesman. At on fine and complicated work. 14 years' exp. Fine set of tools. Best of refs. Ad., "Watchmaker," care Keystone office.

YOUNG man of good address, good habits, good ref., a good salesman, good workman, good tools, wishes a position in Ohio or Mich. Will H. Sharp, Ironton, Ohio.

YOUNG man, 21. Have had 4 1/2 years' exp. at the bench. Good ref. Can do all kinds of jewelry and watch work, and am a graduate optician. Want a permanent situation at once, with a good house. Ad., "Geo. N.," Red Cloud, Neb.

WANTED—a permanent position, by first-class watchmaker, jeweler and script engraver. Complete set of tools. Married. At refs., if required. For particulars, ad., "American," care Keystone.

BY a watch-repairer—a situation in good town where there is a good band. I play cornet. Can furnish first-class ref. for both. J. A. Key, Bismarck, Mo.

AN optician who has had several years' practical exp. and who is also a practical watchmaker and jeweler, desires permanent position. Address, "W. and O.," care Keystone office.

WATCHMAKER of good habits and 7 years' exp. wants position. Has served apprenticeship with 5 to 8 workmen, and 6 months' instructions with expert. Am rapid at watch-work, and guarantee satisfaction or ask no pay. Have no tools; lost in fire. Ref. furnished. South or West preferred. Ad., Ned Smering, San Marcial, New Mexico.

BY young man, 22. Having finished a 6 months' course at horological institute, would like a position with man who is willing to help him if needed. Have good kit, and can furnish good ref. Will send sample of engraving. Position as assistant preferred. No elaborate wages expected to start with. Ad., "E.," 1223 Columbia Ave., Phila., Pa.

PRACTICAL watch-repairer and engraver; expert. 16 years' exp. Have thorough understanding of the jewelry business. I am the man you want. Refs. exchanged. Ad., "C.," care Keystone.

JEWELERS and watchmakers, after taking a course of instruction under Richard O. Kandler in practical engraving, at his school, 63 to 65 Washington St., Chicago, have no trouble in securing situations.

BY young man of good address; situation as assistant watchmaker or engraver. 4 years' exp. at watch-work, 2 years' at engraving. Have tools and refs. Ad., "M.," care Keystone office.

A COMPETENT optician, who has had several years' exp. in practical work, desires permanent situation. Ad., "Optician," care Keystone office.

OPTICIAN—a first-class optician and jewelry salesman in every respect. Will be at liberty to accept a situation by March 1st. L. Stanhope, 123-125 La Salle St., Room 82, Chicago, Ill.

PERMANENT situation wanted by first-class jeweler and engraver. Would prefer to engrave principally. Can take charge of repair department, 20 years' exp. "M. J.," care Keystone office.

BY an experienced optician and watchmaker. Wish to travel for an optical firm, or a steady employment in store. Thoroughly understand refraction and the most difficult compound prescription work. Have my own test-case, etc. Also capable of taking full charge of business. Ad., "Optician and Watchmaker," care Keystone office.

WATCHMAKER wants a job. Have set tools. Am married. At ref. Ad., "Watchmaker," Lock Box 82, Barnesville, Ga.

BY first-class workman and fair engraver. 6 years' exp. Married. No bad habits. Own good set tools. First-class refs. Ad., P. B. Smith, Washington, Iowa.

(Continued on page 190.)

THE KEYSTONE

TO INSURE INSERTION, MONEY MUST ACCOMPANY ALL ORDERS FOR ADVERTISEMENTS.

Address all remittances to

THE KEYSTONE,
19th & Brown Streets, Philadelphia, Pa.

(Continued from page 159.)

SITUATIONS WANTED.

BY young man, age 23. Can clean and repair watches, clocks and jewelry. Cannot engrave. Will work for \$5 per week and board. Iowa preferred. Correspondence solicited. Address, J. H. Bryans, Fertile, Iowa.

WATCHMAKER, 32 years of age. 17 years exp. Expert on fine and complicated Swiss and high-grade American watches. At repairer and adjuster. A clean workman; also good plain engraver, with fine set of tools. The best refs. as to character, etc. Ad., "Expert," care Keystone.

PRACTICAL watchmaker and jeweler of over 20 years' exp. wishes steady employment. Have tools and material. Ad., C. S. Graves, Bad Axe, Mich.

FIRST-CLASS watchmaker. 18 years' exp. on fine and complicated work, and good salesman. Want position. Ad., "Walham," care Keystone.

AN expert watch-repairer. 21 years' exp. Good tools. Rapid workman; good salesman; no bad habits. Like to work for a good house. Capable of taking charge of bench and store. Will not work for low wages. Only gentlemen need apply. "Expert," Box 197, Bastrop, Texas.

FIRST-CLASS engraver and watchmaker. Prefer to do only engraving. 15 years' exp. Will send printed copper-plate sample of engraving. "A. W. R.," care Keystone office.

FIRST-CLASS watchmaker would like a position to travel on road for some first-class jewelry house. Ad., "C. C.," care Keystone office.

BY experienced traveling salesman, either on the road or in retail store. Best of refs. given. Can speak Swedish. Ad., "Salesman," care Keystone.

BY young man of 19. 2 years' exp. Place to complete watchmakers' trade under skilled workman. Chicago or West preferred. Address, "G. E. E.," care Keystone office.

FIRST-CLASS watchmaker, jeweler and engraver, with good refs., would like to run the jewelry department of a combination store. Address, "Business," care Keystone office.

BY single man of 25 years, as jeweler, with reliable firm. Have my own tools. Sober, reliable in every respect. None but those needing a good man need reply. "W. B. P.," Lock Box 3, Bridgeport, Lawrence Co., Ill.

BY a practical watchmaker of 17 years' exp., in a wholesale material department. An American born, learned my trade in Germany, and can also speak the German language. Correspondence solicited. Ad., Wm. Engels, Highland Falls, N. Y.

YOUNG man. 5 years' exp. Can do all ordinary watch, clock and jewelry repairing. Wish to finish trade. Good ref. Ad., J. W. Buchanan, Elgin, Texas.

AGE 38, married. 16 years' exp. at bench. Can do plain engraving. Own tools. Ref. furnished. Ad., M. V. Latsch, Windsor, Mo.

BY young man, single. 12 years' exp. at general watch and jewelry repairing. At salesman. Best ref. "C. R. J.," care Keystone office.

BY a young man 25 years old—a position to learn the jewelry trade. Can do plain engraving. Salary no object. M. Harrison, White Pigeon, Mich.

BY graduate of the Jewelers' School of Letter and Monogram Engraving. 8 years' exp. as watchmaker and jewelry-repairer. First-class salesman. 24 years old, single. First-class ref. Ad., "R.," care Keystone office.

INDUSTRIOUS young man of 20 desires position in jewelry store. City preferred. 2 years' exp. at bench. Best refs. Capable of waiting on customers. Ad., E. D. Hinkle, Littlestown, Pa.

BY a young man, 4 years' exp., to finish trade under a good watchmaker. Can do all ordinary watch work, fine, complicated French clocks, and jobbing of all kinds. Ad., "X. C.," care Keystone.

BY a young man, 4 years' exp., to finish trade under a good watchmaker. Can do all ordinary watch work, plain engraving, and hard-soldering of any kind. Ad., "N.," care Keystone office.

A POSITION as assistant watchmaker, or to have charge of clock and jewelry-repairing department. Am good salesman. Good ref. given. Ad., "Single," care Keystone office.

BY watchmaker and engraver, by March 1st or 15th, with 12 years' exp. at the bench. Have tools. Good ref. Ad., "Key-Stone," care Keystone.

YOUNG man of 20 wishes to finish trade with good, reliable workman. 20 months' exp. Have some tools. Good refs. V. W. Eaton, Benson, Minn.

AT once, by watchmaker. 1 year at school; some practice since. Strictly honest, sober and industrious. Low wages on trial. Best of refs. Address, Lee Probst, Weston, W. Va.

BY first-class watchmaker, jeweler, engraver and scientific optician. 15 years' practice. Fully equipped. Good salesman. No bad habits. Best refs. Ad., "Good Wages," care Keystone office.

WATCHMAKER wants situation. Can do jewelry repairing and engraving. Refs. present employer. Ad., "J. A. C.," care Keystone office.

BY a first-class watch-repairer and engraver. Competent to take full control of repair work, and an experienced manager. Single, aged 30. Less than \$100 per month not accepted. Satisfactory refs. Ad., "H. E.," care Keystone office.

WATCHMAKER. Are you willing to have one who can do complicated work? I took a high-grade repeating and chronograph watch, and added thereto a perpetual calendar, without making the watch thicker, although it had been said by other watchmakers to be impossible to do such a job. This shows how much I know about complicated watches. You may be sure that I can make any part in a complicated watch, even if there is no sign of the old piece; also a stem-winding attachment to any watch. 21 years' exp. Best refs. that could be obtained. A. M. Felson, 86 Eldridge St., New York, N. Y.

WANTED.

LOCATION offered to young man who is good repairer, and has small capital. Ad., George Meredith, Bridgewater, S. Dak.

WATCHMAKER and engraver. Must be first-class in both branches. Will pay \$18 to start with. Steady employment, and no night work. Hours from 7:30 until 6. Do not answer this unless you are a first-class workman in both branches. Lake, Strobel & Co., Waterbury, Conn.

JEWELERS to know that I teach engraving to a limited number of pupils, in my new and elegant engraving room. Write for particulars. L. H. Ludwig, Masonic Temple, Chicago.

YOUNG man, good on plain watch work, clock and jewelry jobbing, and a fair salesman, of moral and sober habits. State age, exp. and wages wanted, with good refs. Address, C. Henry, Ironton, O.

YOUNG Baptist jeweler and watchmaker would do well at Mansfield, Ill. Write H. F. W. Spilver.

A PAIR of second-hand rolls, suitable for rolling gold for rings. State price. Chas. Bachman, Ottumwa, Iowa.

A FEW more students to learn practical engraving, at the Jewelers' School of Engraving. Richard O. Kandler, chief instructor and proprietor, 63 to 69 Washington Street, Chicago.

GENEVA Optical Co.'s Prisms. State price and condition. J. D. Daniels, Albion, N. Y.

A SWING or a slide-rest; a watch sign. Wesley T. Harrison, Williamstown, Ky.

A SECOND-HAND jewelers' roll, 2 inches, cheap. Ad., Hague & Beard, dentists, Delaware, Ohio.

AN active, intelligent watchmaker, also an engraver, to buy an interest in one of the best-paying horological schools in the country. Ad., "X.," care Keystone office.

JEWELRY business in live manufacturing town in New England. E. P. Morgan, 59 Wilder St., Lowell, Mass.

WE desire to purchase a fine second-hand regulator beating seconds. Must be first-class in every respect. Ad., "Precision Clock," care Keystone.

A RELIABLE jeweler; one who is a good engraver preferred. Permanent position to a competent man, who is accustomed to do job and new work. Best refs. required. Ad., "Official Railroad Watch Inspector," Grand Forks, N. Dak.

"I have used E. F. Bowman & Co.'s Recoiling Mainsprings, and NOT ONE of them has come back. I have worked at the bench eighteen years, and don't jump at conclusions without sufficient reason to do so."

JOHN F. BROCK, Philippi, W. Va.

PARTNER with small capital, either in goods or cash, in a live Texas city. Must furnish as good ref. as I can. Ad., "Texas," care Keystone office.

EVERY kind of gold and silverware, jewelry, watches, platinum. Market value paid. Send by express or registered mail. Price not satisfactory. I will return all articles. J. L. Clark, refiner and sweepmaster of gold and silver (established 1870), 823 Filbert St., Philadelphia, Pa.

WANTED—Experienced traveling salesman, to carry a leading and well-known line of spectacles and eyeglasses; samples easily carried; liberal commission. Address, "Optics," care Keystone office.

SPECTACLE and eye-glass workman for new work, also jobbers on repairing, making frames to dimensions, bridges, etc. Best wages and steady work. Apply to Queen & Co., 1010 Chestnut St., Philadelphia.

FOR SALE.

A NICE, clean stock of jewelry, sewing-machines and small musical goods. In good town. No opposition. Invoice about \$1500. This is a good location. Will sell for cash only. Best of refs. and reasons furnished on application. Address, J. C. Hamil, Farmington, Minn.

JEWELRY business in Chicago. Good location; old-established place; very cheap rent. Any reasonable arrangements made to suit buyer. Satisfactory reasons given for selling. "Chicago," care Keystone.

HELLO! are you looking for a snap? On or after January 1st, '95, I will sell my stock and fixtures (nearly new), about \$1600, in city of 3000. Surrounded by the most prosperous farmers in the world. Liberal discount. It will pay you to investigate. Geo. Weber, Minonk, Ill.

WILL sell tools and materials, give all work to purchaser and let him run stock on percentage. Address, A. L. Kellogg, Rocky Ford, Colo.

BAD health compels me to sell my business in a growing Western town of 3000 inhabitants. I have a small stock of goods, Whitcomb lathe, big regulator, 2 five-foot show-cases, work-bench, safe and usual fixtures. A superb chance for a live man with small capital. Ad., F. Lautermilch, Kirkwood, Missouri.

A FIRST-CLASS jewelry business in a county seat of one of the best counties in Kansas. Established 21 years, and the leader in the county of 30,000 people. Will invoice about \$5000. Will sell at a sacrifice in order to centralize our business. Part cash, and reasonable time for balance at 8 per cent. interest. Ad., Sigler Bros., Cleveland, Ohio.

JEWELRY store in Buda. Population 1000. Established 8 years. Inspector of watches for the C. B. & Q. R. R. and its branch centers here. Good run of bench work. No opposition to speak of. Invoice \$1800, more or less. Stock reduced, if necessary. Ad., H. T. Thompson, Buda, Ill.

SMALL stock in Western Indiana. A snap. For particulars, ad. Ben Overstreet, Newport, Ind.

BEST location in city of 40,000 inhabitants. Stock and fixtures, about \$10,000 to \$12,000. Reason for selling, going into another business. Chance of a lifetime. Ad., "A. B. C. D.," care Keystone.

FOR SALE.

A GOOD-PAYING jewelry business in the city of Cleveland. Stock and fixtures invoice about \$3000 (must be cash); or can reduce same. Good, steady bench-work for a good man. Store rent \$15 a month, including fuel. Reason for selling furnished on application. Ad., Geo. Kurz, Cleveland, Ohio.

ONE Francis engraving machine. Cost \$100 three years ago. As good as new. Sell half price. C. G. Alford & Co., 200 Broadway, N. Y.

JEWELRY and optical business in Cleveland. Good location. Street clock. Stock and fixtures about \$3000. Suitable arrangements can be made by parties meaning business. Ad., "Buckeye," care Keystone office.

\$10. C. CLARINET, nearly new. Cost \$16.50. A bargain. C. R. Steepers, Nappanee, Ind.

A NICELY-LOCATED jewelry store in booming Iowa town of 16,000. Price, \$5000. Can be reduced. A bargain, if taken at once. Good reason for selling. Ad., C. Henry, care Benj. Allen & Co., Chicago, Ill.

OFFER until April 1, 1893. (Note—This will appear but once). Building, and stock of watches, clocks, silverware, books, wall-paper, soda-fountain and jewelry-repair outfit. Only jeweler and stock of kind in town. Invoice \$1200. Located in N. W. Iowa. R. R. division. Ad., "Orange," care Keystone office.

AN established jewelry business in county-seat town of 900 inhabitants, in Minnesota. 10,000 population in county. Stock will invoice \$2000. A good chance for anyone. Will sell for part cash. Good reasons for selling. Correspondence cheerfully answered. Ad., "F. O. W.," care Keystone office.

IN Denver, Colo. Best location in the city. Stock of watches and diamonds, invoice about \$5000. Net profits \$400 to \$500 per month. Easy terms. Guaranteed as represented. Ad., "D 39," News Office, Denver, Colo.

WING to ill health, I wish to dispose of my old-established jewelry and optical business in Jersey City. Repairing pays more than expenses. Will pay you to investigate. Full particulars. Ad., "C. M.," care Keystone office.

JEWELRY store, established 4 years; stock and fixtures complete, good as new, will invoice about \$5000. City 20,000. Good country trade; good location; thriving business. Very best reasons for selling. For full particulars, ad. Cressman & Yeakel, Allentown, Pa.

ESTABLISHED jewelry business in Buffalo, N. Y. All the work one man can do. Only \$500 required. Ad., "E. B.," care Keystone office.

ONLY stock of jewelry in a lively manufacturing town. Population 2500. Will sell for \$1500 cash. Ad., E. S. Stone & Co., Rock Falls, Ill.

ONE Barnes foot-power screw-cutting lathe No. 5 and attachments, cheap. Ad., "M. R.," care Keystone office.

A FINE burglar and fire-proof safe; almost new. Cost \$475; will sell for \$300, cash. Has two 4-combination Yale locks. Address, Lock Box 22, Almont, Mich.

A GOOD jewelry store in northwestern Iowa for sale cheap. Size of town 2200. Stock, about \$3000. Ad., "Wholesalers," care Keystone office.

OLD-ESTABLISHED business in Deadwood, S. Dak. First-class location. Good reasons for selling. Don't miss this chance. Ad., "South Dakota," care Keystone office.

A SNAP—\$1300 buys new jewelry stock in Iowa town, 1000 people. Only store. Best location. On main line C. & N. W. Ry. Particulars, O. M. Campbell, Denison, Iowa.

MARINE chronometer, in perfect order. W. E. Morrow, Albany, Del. Co., Ind.

A GOOD jewelry, book and stationery business in one of the most pleasant, prosperous and healthy towns in Colorado. Established 13 years. But little competition. Jewelry stock and fixtures, about \$5800; books, stationery, etc., about \$2400. Am ready to retire from business. Will make reasonable terms. H. G. Bemis, Longmont, Colo.

\$4000. CASH only, will buy a complete jewelry and cigar stock in the best county-seat town of 2500 in Colorado. Bench-work runs from \$100 to \$125 every month. The sale must be made by March 1st. Stock can be reduced. Good reasons. Ad., "Colorado," care Keystone office.

IN Missouri—a stock of jewelry, including fixtures and safe. Invoice \$1000. Will sell fixtures separately, and rent store-room. Plate-glass front. On main street of city. Write for particulars. Address, "H. S.," care Keystone office.

A RARE chance for a watchmaker of small means. The stock and fixtures in one of the best sanitarium towns in central Illinois. 300 to 400 patients always present. \$200 to \$300 will buy the place. Sickness, only cause for selling. Ad., "Simpsons," care Keystone office.

IN OHIO—a good-paying jewelry business, established 18 years ago by present owner, in one of Ohio's best manufacturing towns of 23,000 population; with several good smaller towns near by to work. Excellent chance for a man of push and some working capital. Room to expand and build up. A healthy and pretty town; has more fine churches and school-buildings than any town of its size in Ohio. Location best in the city; nice, large room; plate-glass front; on paved street; street-car line passes the door, reaching two adjoining towns north and south. Have been debating for 2 years past about selling (hate to do it), but failing health and eyesight compel it. \$3000 to \$5000 cash, or equivalent, required. To those meaning business, any further information will be given straight, and good refs. exchanged. Ad., No. 4 N. Second St., Ironton, O.

FOR SALE.

CHEAP—King Optical Co. finest rest-case; perfect condition; not used half-dozen times. Write for particulars. E. S. Dukes, Quitman, Ga.

PATENT for watch pendants, crown-setting, entirely new. Number of issue 407,397, Nov. 15, 1892. Wesley T. Harrison, Williamstown, Ky.

DOOR health compels me to sell stock and business. Established 5 years, and doing well, in a cash-paying city of 3800 inhabitants. Ad., W. F. Foster, 305 High St., Holyoke, Mass.

BEST snap offered, as partner or exclusive owner. Box 518, Rockland, Me.

COMPLETE outfit of watchmakers' tools, E. Stark lathe with all attachments. Will sell cheap. Address, "C. M. B.," care Keystone office.

LEADING jewelry business, established over 14 years. Centrally located in a lively central Illinois town. Population, including vicinity, about 7000. Stock and fixtures \$7000; reduced to suit purchaser. Ad., "Bargain," care Keystone office.

JEWELER'S burglar and fire-proof Diebold safe. Dimensions, outside, 48 h. 35 w. 30 d.; inside, 31 h. 23 w. 15 d. Address, F. H. Hunter, Eldora, Iowa.

RARE business opportunity for sale in the prosperous growing city of Portland, Maine. Stock, fixtures and good-will of the best and most centrally located jewelry store in the city. Everything new and fresh. Will invoice about \$4000. Address, P. O. Box 894, Portland, Me.

JEWELRY store in Rochester, Pa. Population 5000. Center of 15 towns, electric car connections. \$25,000 stock, fixtures invoice \$2,000, can reduce. Address, Wm. Brehm, Rochester, Pa.

WISH to sell a valuable watchmakers' tool or lathe attachment; patent granted January 10, 1893. Tool companies ad. E. H. Lemley, Ravenswood, W. Va.

TEND for 60 new and elegant designs of monograms and letters. Price, 25 cents. L. H. Ludwig, general engraver, Masonic Temple, Chicago.

WANT to sell a nice, clean stock of jewelry. Business established over 10 years. Bench-work will run \$125.00 a month. Stock will invoice \$6000. Growing city of 16,000 population. A good chance for a live man. Address, Lock Box 1025, Joplin, Mo.

\$800 WILL buy a good-paying jewelry store, in a suburb of Cincinnati, containing 40,000 inhabitants. Established 15 years. No opposition. Ill health, reason for selling. Address, "T. H.," Box 21, Station D, Cincinnati, Ohio.

JEWELRY business; well-established. Good chance. No opposition. Can reduce stock and fixtures to \$600. Will rent fine storeroom, with five dwelling-rooms in rear of store. We mean business. For particulars, ad. "Jeweler," North Clarendon, Pa.

JEWELRY business on easy terms. Good location. 3000 population. Railroad center. Plenty of bench-work. Stock and fixtures, \$3200; can reduce. Store and residence combined. Will sell or rent building very cheap. Only one jeweler in 20 miles. Address, "Easy Terms," care Keystone office.

A GOOD-paying jewelry store in a nice Missouri town, 3800 population, will be sold at a liberal discount for cash only. Rent low. Two railroads. Stock about \$800. Plenty of work. Bad health and eyes, reason for selling. Ad. "Hoy," care Keystone.

NO. 1 1/2 Whitcomb lathe, good as new; Stephens pat. vise with swivel and anvil, nickel-plated; also pliers, tweezers, hammers, screwplate, handtongs, bench sign, etc. Have two sets, need but one. H. H. Kingsbury, Covington, Pa.

GREAT Snap—Jewelry, musical, optical store, western Iowa. Only store in city of 1,000. Good repair trade. No opposition. Stock, \$3,000. Will reduce to suit. Best of reasons for selling before March 1st. "Hawkeye," care Keystone office.

FOR SALE OR EXCHANGE.

HOUSE and lot in Springfield, Mo., to trade for stock of watches and jewelry. G. W. Tallman, Box 562, Lanark, Ill.

\$75 MARINE chronometer to exchange for cash—ion-tire safety. Offers wanted. Rowe, Rockland, Mass.

ONE Yale time-lock, 1 safety bicycle, one 12-inch watch-sign, 1 electric motor, and 1 electro-engraving-machine. Ad., B. W. Richardson, Clayton, Illinois.

\$50 MAGIC lantern for No. 2 Moseley attachments. Ad., K. Carson, Temple, Texas.

WE want a jewelry store. If you want to get out, write us quick. We have some good, salable property left with us to trade for a good store. Chas. A. Dale & Co., 86 Circle St., Indianapolis, Ind.

WINCHESTER rifle, 40-65, new, single-shot, Lyman sights, full outfit, cost \$25; Merwin Hulbert Junior, 22 cal., cost \$7.50; 1 Winchester, 45-75, repeater. Will exchange for stock, tools or watch material. J. W. Babbitt, jeweler, Danvers, Mass.

JEWELRY business in a growing town in Indiana, 90 miles from Chicago. Or will exchange for good, clear real estate. Value of stock \$3000. Ad., "K.," care Keystone office.

FORTY acres of nice farming land, well situated in Colorado, for jewelry stock. Ad., "Egginon," Sandy, Utah.

ONE Spencer's ophthalmoscopic test-lens, by Bucklin, good as new, at a bargain; or will exchange for universal face-plate and staking-tool. Ad., C. Henry, Ironton, Ohio.

SPECIAL NOTICES.

MOSELEY & CO., Elgin, Ill., manufacturers of the "Moseley Lathe," with full line of fixtures and attachments. Designed especially for watchmakers and repairers. Combining accuracy, durability, convenience and style. Honest tools at fair prices. Send for new price-lists. Agencies with most of the jobbers.

JEWELERS—make your own anti-oxidizer for hard-soldering. Send 50-cent postal note for best recipe on earth. Guaranteed to give satisfaction, or money refunded. C. W. Tyler, New Carlisle, Ind.

GOOD gold solder; can be used on work from 6 K. to 16, and make good job. By mail, 40 cents dwt. M. C. Williams, 346 Center St., Trenton, N. J.

If YOU WANT A POSITION YOU WANT A PARTNER YOU NEED A WORKMAN YOU WISH TO SELL OUT YOU NEED A SALESMAN YOU HAVE TOOLS TO SELL YOU HAVE A PLACE TO LET YOU DESIRE TO EXCHANGE YOU WANT TO SELL FIXTURES YOU WANT ANYTHING

ADVERTISE THE SAME IN

The Keystone

TO INSURE INSERTION, MONEY MUST ACCOMPANY ALL ORDERS FOR ADVERTISEMENTS.

SPECIAL NOTICES.

GOOD ornamental and letter-engraver. Rentz Bros., 319 Nicollet Ave., Minneapolis, Minn.

SEND 20 cents for Japanese puzzle-purse. Janssen, jeweler, Germantown, Philadelphia, Pa.

ATHE. Bargain. One 1772 Moseley with 25 L chucks; jeweling-caliper, with lateral screw; face-plate. All entirely new. Only \$85 takes the lot. Ad., T. S. Miller, Burlington, Iowa.

THE best on earth. Frear's Gold and Silver Solders. They have no equal. Send 25 cents for samples, and you will use no others. W. S. L. Frear, Union Springs, N. Y.

FOR Sale—An \$8000 stock of jewelry in good location in Chicago. Stock and fixtures entirely new. A whole or part of stock, to suit purchaser. Fixtures must go with stock taken. Rent, \$60 per month. Ad., "Jeweler," 104 State St., Room 9, Chicago, Ill.

FOR Sale—for \$1500—a jewelry stock in a town of 3500 inhabitants in Illinois. Fixtures and store can be rented. Must be a good watchmaker, to take charge as watch inspector for the Chicago & Alton R. R., St. Louis to Roadhouse. 300 watches to inspect monthly. Ad., W. W. Hunter, Bloomington, Ill.

CRANKS. We are not referring to the long-haired, wild-eyed variety, but to the fellows who are dubbed cranks by the watch tool manufacturers. But we do refer to those who will not take anything for granted, but insist upon testing a tool before they pronounce their verdict. And if it is not right, they are not accommodating enough to say it is, and hence are dubbed cranks. These are the men we are after. If you appreciate the value of a wire chuck, and cannot get true ones, write to us. We will give them to you, and guarantee them true. Horological Tool Co., 86 N. Clark St., Chicago. See advertisement, page 185.

BUSINESS NOTICES.

THE best and cheapest place in America to have your watch cases repaired, is where they employ none but the best workmen. If you have work in that line, send it to G. F. Wadsworth, 182 State St., Chicago.

EVERYONE to send watchwork to Parsons' Horological Institute, Peoria, Ill. The first, the oldest and the best school in this country.

WE are headquarters for trade work. Watch cases, watch movements, and jewelry repairing. We have the best-equipped establishment in the country. Only skilled workmen employed. Lowest prices. M. Hartung & Co., 182 State St., Chicago, Ill.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

DO you wish to become a watchmaker? If so, correspond with us. Our terms are moderate. Satisfaction guaranteed. Our instructors are the best—having had years of experience. St. Louis Watchmaking School, St. Louis, Mo.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

THE year 1892 closed and 1893 opened on W. F. A. Woodcock's Watchmakers' School in Winona, Minn., with a very fine class of pupils, who are doing splendid work. He is in receipt every few days from his graduates, who are scattered all over the U. S. and Canada and Mexico, etc., letters of the most gratifying character as to their splendid success, both as masters of their own business, and as journeymen, etc.

TO watchmakers and jewelers: A handsomely-engraved silver plate 4 x 6, showing 22 correct designs and styles of cutting monograms and letters. Can be used as sample-plate. Price \$2. L. H. Ludwig, general engraver, Masonic Temple, Chicago.

WANTED.—Everybody to send for our new prospectus, showing advantages over other institutions of the kind. We know no fancy prices. Fullest instructions given in horology. Let us hear from you. St. Louis Watchmaking School, St. Louis, Mo.

ALL kinds of watch and jewelry repairing done at reasonable prices. Work returned without delay. Stem-wind wheels cut to order. Send for price-list. M. Hartung & Co., 182 State St., Chicago, Ill.

IT is a fact that our method of teaching watchmaking is endorsed by the best class of merchants. We instruct you in all its branches, also in engraving. Our terms are moderate. Write for prospectus. St. Louis Watchmaking School, St. Louis, Mo.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

EVERYONE to know that Parsons' Horological Institute, Peoria, Ill., has all the latest improved, the largest assortment of tools and the best equipped school in this country.

THE finest watch repairing at the lowest prices. Key-wind changed to stem-wind. All kinds of wheels cut to order. M. Hartung & Co., 182 State Street, Chicago, Ill.

BUSINESS NOTICES.

WATCHMAKERS TO THE TRADE: We are equipped to give first-class service in this department, with the greatest promptness consistent with good work. All kinds of wheels and pinions cut to order; also jewelry repairing and engraving in all their branches. Ezra F. Bowman & Co., Lancaster, Pa.

HAVE you an old watch case you desire repaired? We can make it look like new at a surprisingly low figure. No delay in returning work. Write us. M. Hartung & Co., 182 State St., Chicago, Ill.

WATCH case repairing, also gold and silver plating, satin finish, etc. G. F. Wadsworth, 182 State St., Chicago, Ill.

WATCH cases repaired at shortest notice. Best workmanship guaranteed. No delay. M. Hartung & Co., 182 State St., Chicago, Ill.

WANTED.—Ladies to learn the art of watchmaking. They have every advantage, and all the comforts of home. Write for prospectus. St. Louis Watchmaking School, St. Louis, Mo.

WHY not send us your watch repairs? We return them without delay. Moderate prices. M. Hartung & Co., 182 State St., Chicago, Ill.

EVERYONE to know that Parsons' Horological Institute, Peoria, Ill., is the oldest and best in this country.

WHY not send me your watch cases that need repairing? Can replace any part of a watch case. No delay. G. F. Wadsworth, 182 State St., Chicago.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

WATCHMAKERS, send all broken work to E. H. Lewis, lathe-turner and escapement-fitter, 720 Sansom St., Philadelphia, Pa.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

WATCH cases repaired at short notice. None but experienced workmen employed. Send me your next lot. G. F. Wadsworth, 182 State St., Chicago.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

OLD, battered watch cases made to look as good as new at moderate price. Can replace any part of the watch case. Terms moderate. M. Hartung & Co., 182 State St., Chicago, Ill.

WATCH MATERIALS: If your material house is not perfectly satisfactory to you in matching odd pieces, filling orders promptly or accurately, try us. Many of our customers tell us that we are quite ahead in this department. We employ only the highest skill attainable, as we know by our own former experience the annoyance to the workman on finding, after getting materials, that "they don't fit." Send us a trial order. Ezra F. Bowman & Co., Lancaster, Pa.

OLD and silver plating, satin finish, engraving, engine turning, and everything in the line of watch case repairing. G. F. Wadsworth, 182 State St., Chicago, Ill.

WATCHWORK for the trade done at shortest notice by experienced workman. Cut this out. Send for price-list. M. Hartung & Co., 182 State Street, Chicago, Ill.

LARGEST engraving shop in the West. Come here if you wish to learn the art. No school; but it's the place to learn. W. H. White, 125 State St. Chicago, Ill.

A RARE opportunity to learn watchmaking at a moderate price. Full instruction in engraving as taught by experienced artists. Send for prospectus. St. Louis Watchmaking School, St. Louis, Mo.

EVERYBODY to know that we want your watch case repairs. Write us for prices. No delay. Reasonable charges. Cut this out for future reference. G. F. Wadsworth, 182 State St., Chicago.

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EZRA F. BOWMAN & CO. announce that their Jewelry Findings Department is complete. See what they say on page 1, August KEYSTONE.

S. lever-set changed to pendant-set; also 16 and 18-size. G. F. Wadsworth, 182 State St., Chicago.

AND still they come, from far and near, to the best watchmakers' school, viz., W. F. A. Woodcock's, Winona, Minn. The very best of everything, and at very low prices. Good board and room, \$12 per month. The very best facilities; the very best instruction. A very fine building, completely equipped. Fine tools, machinery and power. If your desire is to be a first-class watchmaker, and to go in business for yourself, or wish a situation and to be fitted to hold it in good shape, and in a short time and for a very little money, and to have a fine set of special tools to do the most difficult work, and to own them when you finish, and to be taught how to make them, etc., the place you are looking for is W. F. A. Woodcock's practical, first-class Watchmakers' School, Winona, Minn.

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Mr. Asquith now has entire charge of his work. Three were there before to do it. That speaks volumes for W. F. A. W., as Mr. Asquith was a farmer's son when he came to me, and he can make or repair any watch now.

P. S.—Those three watchmakers were from another school; but I do not care to try to build up by trying to tear somebody else down. I am busy all the time—and what's more, what I did for Asquith I can do for others. W. F. A. W.

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A. W. GILBERT & CO. Special Cash Wholesale Jewelers. Canandaigua, N. Y.

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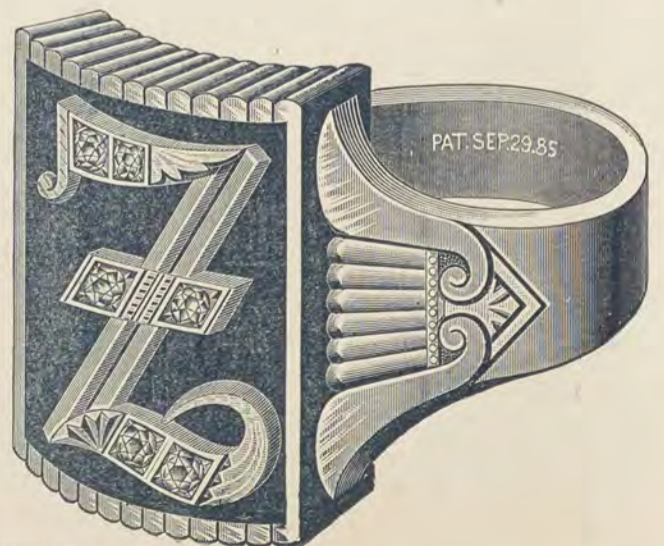
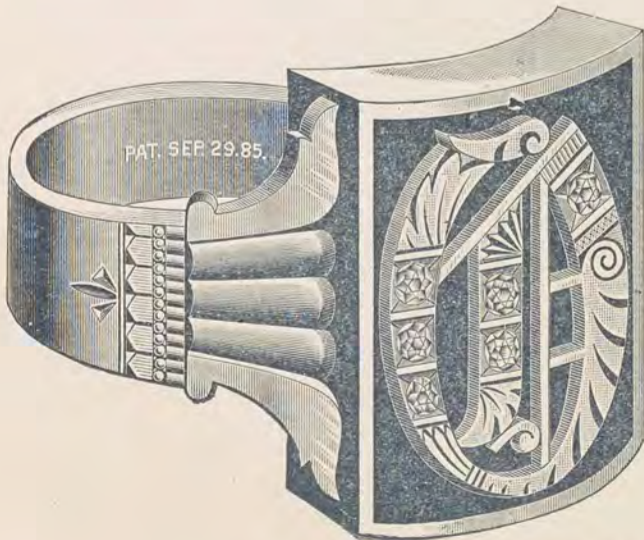
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18

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93

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NEW YORK

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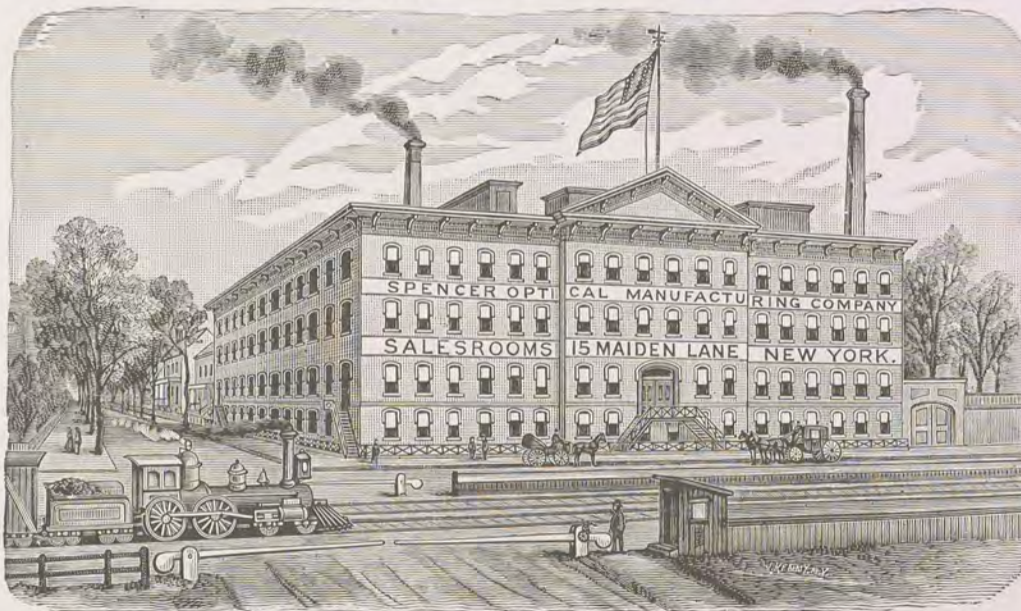
Be it known that *William C. Kauter* having been examined in *Theoretical and Applied Optics* and found duly qualified, is therefore entitled to this *DIPLOMA* of graduation in testimony whereof we have affixed our names and corporate seal this *fifteenth* day of *July*, *A.D. 1892*.

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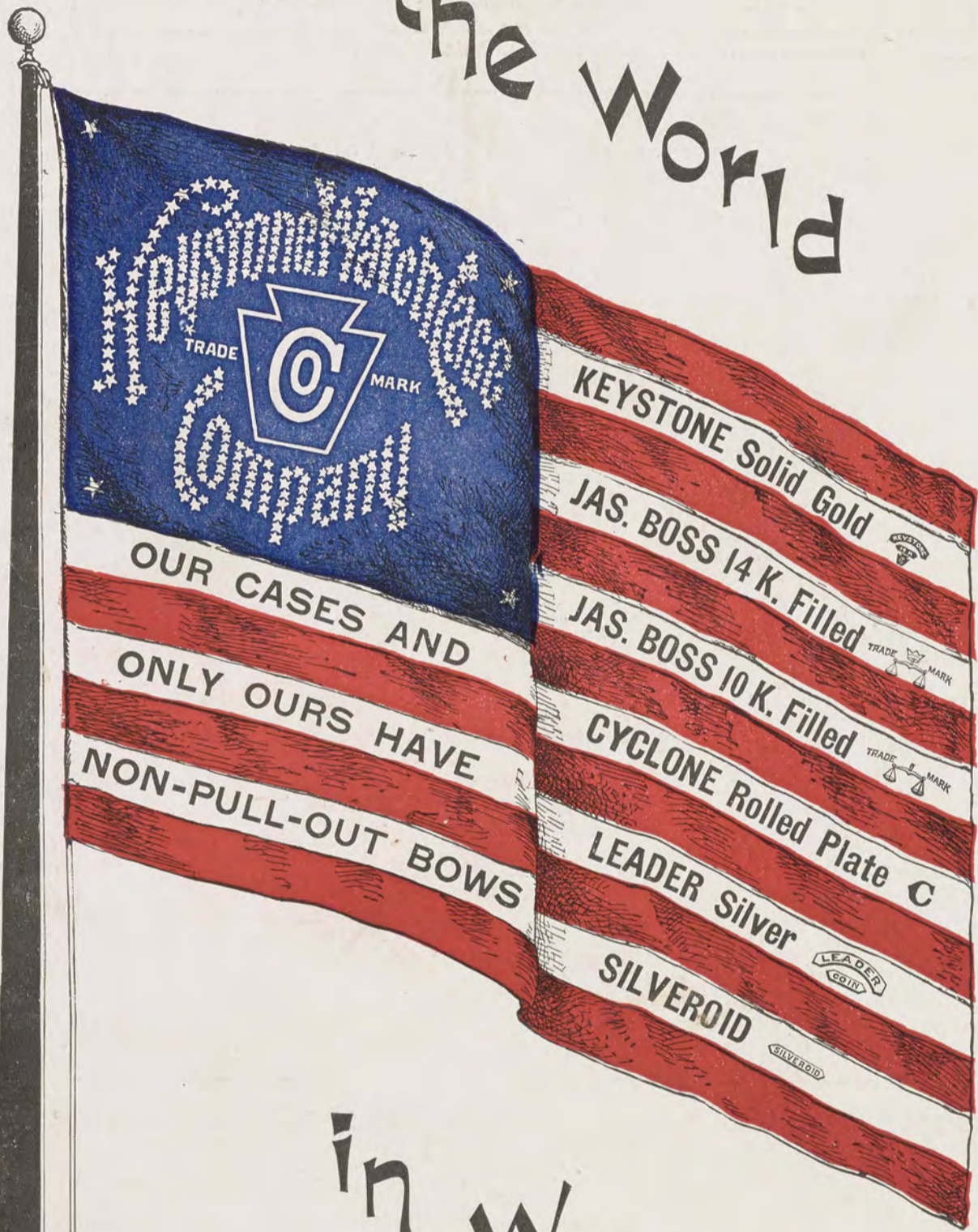
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