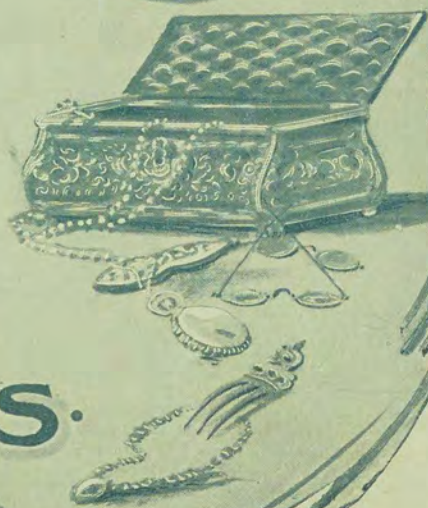


The Keystone

THE ORGAN OF
THE JEWELRY
& OPTICAL
TRADES.



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Volume 19

Number 2

February, 1898

New (1898) Model, 12 Size Movements

NAMELESS—ENGRAVED ELGIN NATL. WATCH CO.
THREE-QUARTER PLATE, HUNTING AND OPEN-FACE,
PENDANT SETTING



No. 190, Hunting. No. 194, Open-Face.

Nickel.

23 extra fine red ruby jewels, escapement cap jeweled, raised gold settings, upper and lower jewels screwed in, adjusted to temperature, isochronism and positions, compensation balance, Breguet hairspring, steel escape wheel, exposed pallets, micrometer regulator, gold train wheels, patent safety barrel with spring box mounted rigidly on bridge, barrel arbor pivots running in jewels, display winding work, patent recoiling click, patent self-locking setting device, glass enamel dial, dust ring, plates beautifully damaskeened, and parts finely finished throughout.



No. 189, Hunting. No. 193, Open-Face.

Nickel.

19 fine ruby jewels, raised gold settings, adjusted to temperature, isochronism and position, compensation balance, Breguet hairspring, steel escape wheel, exposed pallets, micrometer regulator, gold train wheels, patent safety barrel with spring box rigidly mounted on bridge, barrel arbor pivots running in jewels, display winding work, patent recoiling click, patent self-locking setting device, glass enamel dial, dust ring, plates beautifully damaskeened, engraving inlaid with gold.



No. 188, Hunting. No. 192, Open-Face.

Nickel.

17 jewels, raised gilded settings, adjusted, compensation balance, Breguet hairspring, exposed pallets, micrometer regulator, gold center wheel, patent safety barrel with spring box rigidly mounted on bridge, display winding work, patent recoiling click, patent self-locking setting device, glass enamel dial, dust ring, damaskeened plate.

The above 12 size stem-winders have quick trains and straight line escapements.

Our initial delivery is limited to Hunting Movements *only*. Open-Face Movements are in process of manufacture, but will not be ready for the market under ninety days.

Manufactured and Guaranteed by the

ELGIN NATIONAL WATCH CO.

GENERAL OFFICES,
76 Monroe Street, CHICAGO, ILL.

NEW YORK OFFICE,
11 John Street.

Factories, ELGIN, ILLINOIS, U. S. A.

SEE JOBBERS' LIST FOR PRICES, OR WRITE THE COMPANY.

Have you one of our
1898 CALENDARS?

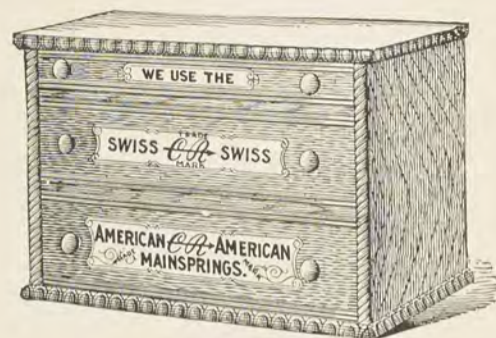
ADOLPH KELLER, HUGO P. KELLER,
AGENTS FOR UNION OUVRIÈRE
AGENTS FOR MAIN SPRINGS FOR AMERICAN AND SWISS WATCHES.
ESTABLISHED 1853
L. H. KELLER & CO.
IMPORTERS & MANUFACTURERS
OF FINE WATCH MATERIALS, TOOLS, FILES AND SUPPLIES.
64 NASSAU ST. NEW YORK

1853 Our 45th Anniversary 1898

As Sole Agents for The Celebrated **CR** Mainsprings.

Free of Charge

This Handsome Cabinet



with three drawers and a series of twenty-six handsomely decorated tin boxes, marked with sizes, grades, class, number, width and strength by Dennison's gauge. These boxes are fitted to the Cabinet, and are specially intended for the loose mainsprings which naturally accumulate in every watchmaker's stock. We will send one of these Cabinets free with an order for one gross of **CR** American or Swiss Mainsprings.

Size, 15 inches long, 10 inches high, and 9 1/4 inches deep. Capacity, 10 Gross American and Swiss **CR** Springs.

List of Styles, Sizes, Widths and Strengths of **CR** Springs by Dennison's Gauge.

If you have not received our 1898 Calendar, with Mainspring Chart, width and strength of Springs for all makes of American Watches by the Dennison Gauge, write us. It is FREE for the asking (to the Trade only).

STYLE	Co.'s No.	Size	DESCRIPTION	Width	Strength	STYLE	Co.'s No.	Size	DESCRIPTION	Width	Strength
	2201	18	Waltham, F. P., O. M., Old Style . . .	19	2		812	18	Elgin, Double Braced, Class 1, 20	20	3
	2202	18	" F. P., O. M., N. S.	19	2		812	18	" " " " " 2, 20	20	2
	2203	18	" F. P., N. M., wide barrel .	20	2		812	18	" " " " " 3, 20	20	1 1/2
	2204	18	" F. P., N. M., O. F.	16	2		812	18	" " " " " 4, 20	20	1
	2205	18	" F. P., N. M., P. S.	21	1 to 2		813	18	" O.S., Single Brace, Class 1, 20	20	3
	2206	18	" F. P., C. S., narrow barrel	14	1 1/2		813	18	" " " " " 2, 20	20	2
	2207	18	" F. P., C. S., wide barrel . .	16	1 1/2		813	18	" " " " " 3, 20	20	1 1/2
	2208	16	" 3/4-plate Htg. and O. F. . .	14	2		813	18	" " " " " 4, 20	20	1
	2210	14	" 3/4-plate Htg., O.F., nar. bar.	12	2		817	16	" Double Braced, Class 1, 18	18	4
	2211	14	" 3/4-plate Htg., O.F., wide bar.	16	2		817	16	" " " " " 2, 18	18	3
	2215	8	" 3/4-plate Key and S. W. . .	10	2 to 3		817	16	" " " " " 3, 18	18	2
	2216	1	" S. W.	8	5 to 6		819	16	" Old Style Single Brace .	18	2 to 3
	2217	6	" S. W., Pend. Set	10	4 1/2 to 5		824	6	" Double Braced, Class 1, 10	10	5
	2218	16	" S. W., Pend. Set	19	4 to 5		824	6	" " " " " 2, 10	10	4 1/2
	2219	6	" S. W., Pend. Set, regular .	11	7		824	6	" " " " " 3, 10	10	4
	2220	0	" S. W., Pend. Set	7	6 to 7		824	6	" Old Style Single Brace .	10	4 1/2
	2221	00	" S. W., Pend. Set	7	7		825	0	" Double Braced, Class 1, 4	4	8
	2222	18	" Vanguard	23	3		825	0	" " " " " 2, 4	4	7 1/2
	56	18	Columbus, New Style	20	2 to 2 1/2		825	0	" " " " " 3, 4	4	7
	249	16	" " "	15	3		825	0	" Old Style	4	6
	441	6	" " "	10	4 1/2		812	18	" New Style, Tongued . .	20	1 1/2 to 2
	56	18	Illinois, " "	20	1 to 2		6		" " " " "	10	4 1/2
	454	16	" " "	17	1 1/2 to 2		18		Howard, N.	19	2
	342	4/6	" " "	8	4 1/2 to 5		16		" L.	19	3
	39	18	Hampden, " "	20	1 to 2		6		" G.	11	7
	153	16	" " "	20	3		18		Rockford, New Style	20	1 1/2
	258	6	" " "	9	4 1/2		6		" " "	11	5
	18		Trenton, " "	21	1		18		Lancaster,	18	2
	6		" " "	10	4		18		N. Y. Standard	20	1 1/2
	432		Hampden, 400	5	7 to 7 1/2		6		" "	10	4

The **CR** MAINSPRINGS, for all styles of American and Swiss Watches, are so well known to the expert and most critical watchmakers that further claims are unnecessary.

The "Dressy" Watch for Men.

The 12-SIZE Watch meets the exacting demands of a refined taste in dress and belongings, and completes the furnishings of the man of 1898 who wears the "proper clothes" prescribed by Dame Fashion.

The new 12-size Movements of the Elgin and Waltham Companies, ranging in price from \$25.00 to \$100 (according to KEYSTONE KEY), are the final achievements of horological art at the end of the century, in respect of the beautiful and the good in timekeeping machines.

These Movements, cased in the various styles of dainty Gold or Filled 12-size Cases with which our stock abounds, make complete watches which are irresistible to "dressy" men. The Cases present a wide variety of exquisite designs.

Our stock is always complete, in all the lines that we handle; and we sell "Right Goods, at Right Prices, in Right Ways."

The Non-Retailing Company,

Jobbers in
Watches, Chains and Spectacles,
Lancaster, Pa.

OUR

IMPORT LINES

IN THE CLOCK DEPARTMENT

are complete.

We would call to the attention of buyers, that we have also IN STOCK, for instant delivery, the finest assortment of SPRING and WEIGHT CHIMING MOVEMENTS; HOUR and HALF-HOUR STRIKE ENGLISH MOVEMENTS; QUARTER STRIKE AND CHIMING MANTEL CLOCKS; TRAVELING, CUCKOO, PORCELAIN AND ONYX CLOCKS; FRENCH CLOCK SETS, GILT REGULATORS AND J. J. ELLIOTT & CO.'S CHIMING MOVEMENTS.

We now control the celebrated "JUNG HANS" Quarter-Striking Clocks, and have a large assortment in Mahogany, Walnut and Oak Cases.

English Clock Materials.

BAWO & DOTTER,

26-32 Barclay Street, New York.



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*in Metal, Gilt, Enameled, Oxidized,
and Set with Stones.*

*These goods are very popular, and we
have a fine line at reasonable prices.*

Stone-Set **HAT-PINS** in Gilt.

Sterling Silver and Gold-Plated

BRACELETS and
LORNETTE CHAINS

SOUVENIR GOODS and
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Write for anything you want.

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New York Office: C. A. Vanderbilt, 178 Broadway.
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It Will Pay Busy Jewelers to Read This



WE have the busiest Repair and Manufacturing Shop in Chicago. We do all kinds of Jewelry Repairing, Silverware Repairing, Case Repairing, Pen Repairing, Spectacle Repairing, Engraving, and Gold and Silver Plating.

We give special attention to the manufacture of all kinds of Jewelry to order. Our aim is to send out all repairs the same day as received. We also aim to do our work so well and so reasonable that when you are once our customer you will always be. SEND US A TRIAL ORDER.

Ternendt & Co.

**Manufacturing
Jewelers and
Diamond Setters,**

57 Washington Street,
CHICAGO.



We are offering at a greatly reduced and actually very low price the **ONLY**

1/4 Second Timer

on the market, in

SILVER CASE at \$7.25 NICKEL CASE at \$5.50

ORDER SAMPLES.

Byron L. Strasburger & Co.

Importers of Watches, and
Makers of Diamond Jewelry.

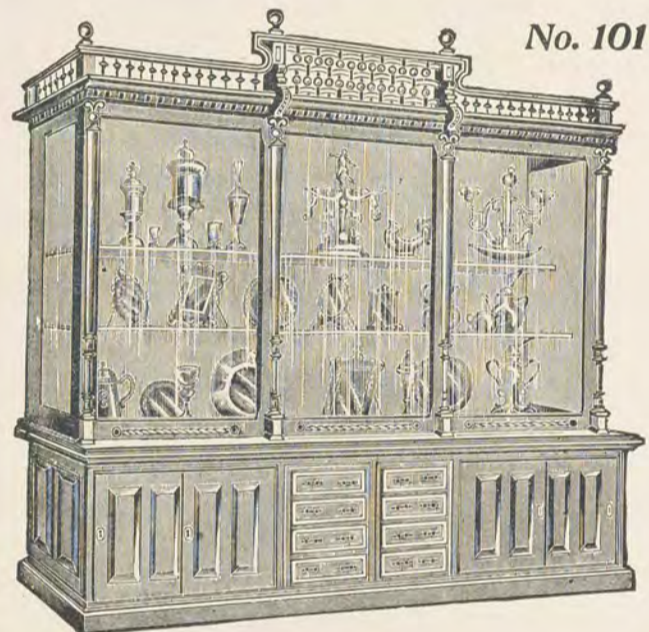
17 Maiden Lane, New York

American Show Case and Mirror Works

L. G. HANSEN,
PROPRIETOR.

27 Lake St., Chicago

BRANCH,
SEATTLE, WASH.



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Cases
are
the
finest
made
and
always
carried
in
stock

Wall Cases are made of Walnut, Cherry or Oak—in stock eight to ten feet, or made to order any length and height desired.

We make a specialty of

STORE FURNITURE

of best workmanship for the jewelry, silverware and kindred trades at reasonable figures
Complete Outfits made on shortest notice. Original Designs
furnished upon application.

Send for our New Catalogue. Mention The Keystone. Call and see us when in Chicago.



No. 130.

A Rare Luxury for the Workbench! Besides, Your Health is at Stake.

It is unpleasant to think of sitting all day long on a backless stool; in fact there is no longer any need for it.

SUPPORT YOUR BACK WITH A DAVIS SPRING-BACK CHAIR.

No matter what comfort-angle is desired, this wonderful Chair adjusts itself to your movements. The soft leather cushions do the rest. It is firm, and does not tilt.

WE PAY THE FREIGHT to all points east of the Mississippi and north of North Carolina. Beyond that on an equal basis.

No. 130 is built especially for the bench; for the workman's comfort. For benches 40 to 42 inches high; saddle seat (most comfortable made); can be adjusted at will; revolves on screw, raising or lowering seat to suit. **\$7.25 Net Cash.**

No. 30 same as No. 130, with the exception of lower base, which is on casters; extra long screw, permitting seat to be raised from 18 to 26 inches. **\$7.00 Net Cash.**

Our Chairs are not only handsome, but are well made and carefully finished.



No. 30.

10 DIFFERENT STYLES.

TRY THE DAVIS on the explicit guarantee that money will be refunded if the Chair is not satisfactory.

DAVIS CHAIR CO., MARYSVILLE, OHIO.
WRITE US.

ARE YOU ALIVE

to the fact that the Electric Clock as perfected by us is a success? That it is a distinct and unique advance in timekeeping mechanism? That it is certain to supersede the troublesome and unreliable spring or weight driven clocks, just as the stem-wind watch has taken the place of the once universal key-wind? That, if you are a progressive, wide-awake Jeweler, you can make money selling these goods, and at the same time more than please your customers?

?



No. 10
REGULATOR
\$25.00



No. 20
LOBBY
\$22.50



No. 1
JEWELERS'
REGULATOR
\$50.00

No windings—no springs—no weights—no unsightly key-holes. Our movement is so simple and well-made that repairs are rarely required. Battery used is cleanly, compact dry-cell, having no glass to break or acid to spill. Guaranteed to run clock one year. Renewals cost a mere trifle. For accuracy, no clocks on the market (even at three times the prices) can equal these. In every town there are stores, offices, factories and public buildings where they can be placed. Every Jeweler should have one of our Regulators (No. 1 or No. 10). Write for catalog and discounts.

New York Standard Watch Co.
11 John Street New York

V.T.F.

are used by more watchmakers than all others.

V.T.F.

are used by more casemakers than all others.

V.T.F.

for sale by all leading Jobbers.

V.T.F.

are made in larger quantities than all others.

V.T.F.

cost no more and are better than all others.

V.T.F.

for sale by all leading Jobbers.

**V.T.F.**

The success of the **V.T.F.** has induced others to copy the label, but not the quality. There is only one **Beaded Border Label with V.T.F.**, and that stands alone as the **perfect** watch glass.

V.T.F.

means everything that is first quality in a watch glass. Without **V.T.F.** on each and every label you are in danger of receiving inferior quality. Can you afford to?

Manufacturers of Beveled-Edged Clock Glasses, all manner of Round Beveled-Edged Glasses, as well as Lenses for Bicycle and other kinds of Lamps. For information, address J. W. Riglander, 35 Maiden Lane, New York.

ONE OF MANY

87



We receive from our customers is the letter we print below. It is our constant endeavor to merit the confidence and good will of every dealer that sends his orders to us, and we are more than ever alive to the advantage of being **prompt, energetic** and **fair** in the care of our patrons' wants.

OFFICE OF

W. E. HARRIS, WATCHMAKER AND JEWELER.

SHARON, TENN Dec..18..1897

Messrs E. & J. Swigart,
Cincinnati, O.,
Gentlemen:-

Every order that I have placed with you has been promptly, neatly and satisfactorily filled. I have had to make some very small orders, which were, I am sure, rather tedious to fill. I shall, too, have others similar, and if you care to fill them, I shall be pleased to continue business with you.

Respectfully,

W. E. Harris.

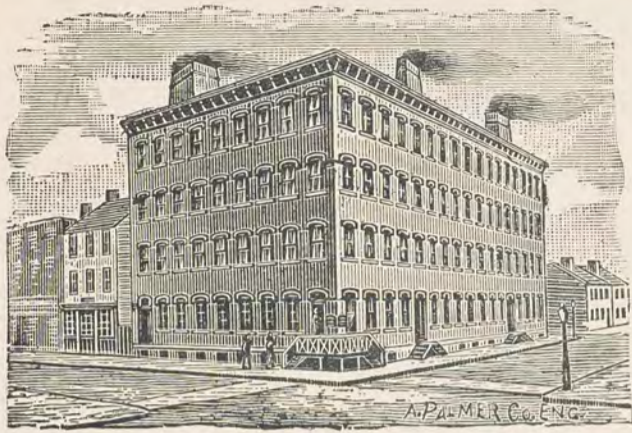
To the many dealers who have written us in the same tenor as the letter above, we take this opportunity to say that **all** orders, whether large or small, have careful and accurate attention. Our facilities for filling Tool and Material orders are so ample that we appreciate every order sent us, regardless of size, and not one is neglected.

Our "Book of Tools, Materials and Optical Goods"

is a complete catalogue in every respect. Its 525 pages are carefully arranged with a view to facilitating the finding of illustrations and prices of Tools, Materials, Boxes, Jewelers' Findings, Optical Goods, and Jewelers' Supplies in general, with but little loss of time. Send business card for copy and it will be forwarded free of charge.

E. & J. SWIGART

CINCINNATI OHIO



L. LELONG & BROTHER,

GOLD AND SILVER REFINERS, ASSAYERS AND
Sweep Smelters.

BULLION SOLICITED. **SMELTING FOR THE TRADE.**

Prompt attention given to Old Gold and Silver forwarded to us by mail or express.

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MARINE CHRONOMETERS,
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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.

14 K. "Diamond Point"
FOUNTAIN PENS. **\$1.00** Each.



Box and filler with every Pen. Send for Illustrated Price-List No. 5.

40 per cent. discount to the Trade.

All Fountain and Gold Pens repaired for the Trade for 30 cts. each.

DIAMOND POINT PEN CO.,
231 Broadway, New York.



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COMPILED AND ILLUSTRATED FOR ANY BUSINESS.

JEWELERS' AND WATCHMAKERS' WORK A SPECIALTY

WRITE FOR BOOK, CONTAINING INFORMATION RELATIVE TO AUCTION SALES, ALSO REFERENCES AS TO ABILITY FROM THE TRADE AND COMMENTS FROM THE PRESS.



ESTABLISHED 1879.

Herman G. Briggs,
Jewelry and Art Goods
AUCTIONEER,
Howell, Mich.

For Jewelers Established and Dealers in Art Goods.

I had the pleasure of making the leading sales of the country during the season of '96 and '97—among them the greatest sale ever made in Atlanta, Ga., Galveston, Texas, and Chicago, Ill., as well as a dozen more.

"The most gentlemanly auctioneer in the business."
Chicago Times-Herald, March 7, 1897.

ATLANTA, GA., November 9, 1897.
My sale was the fourth successful one held by Mr. Briggs in our city within two years. He drew immense audiences, and displayed wonderful ability as an art salesman. I take pleasure in commending him as a perfect gentleman and the most entertaining auctioneer I have ever known.
FORREST HIGH.

THE MOST FAMOUS AUCTIONEER IN THE UNITED STATES.

I REFER WITH PLEASURE TO THE TRADE AND ITS REPRESENTATIVES IN MOST PARTS OF THE COUNTRY.

ROSEMAN & LEVY, New York.
BOWLER & BURDICK Co., Cleveland, Ohio.
S. H. IVES, Detroit, Mich.
W. E. SMITH, Bellefontaine, Ohio.
A. T. WARD, Saginaw, Mich.
C. E. ETINGER, Cleveland, Ohio.
LANGE BROS., Dubuque, Iowa.
ROBBINS BROS. & Co., Fostoria, Ohio.
GEO. NICHOLS, St. Louis and Ithaca, 2 sales.
CHARLES TAYLOR, Steubenville, Ohio.
CHARLES YOUNGLOVE, Newberry, Mich.
SIPE & SIGLER, Cleveland, Ohio, 5 sales.

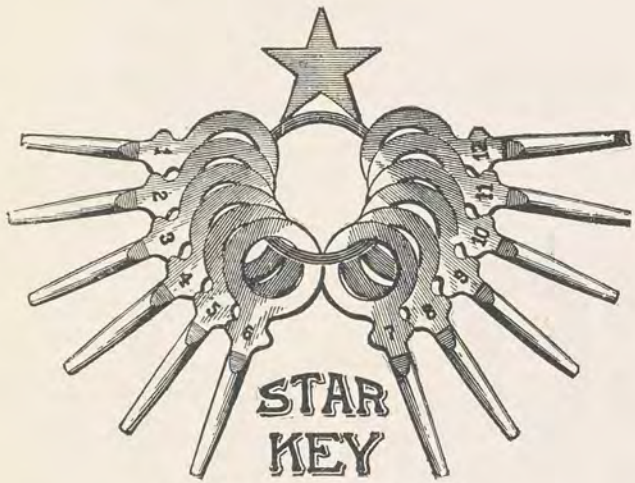
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C. E. BUHRE, Topeka, Kan.
J. C. SIPE, Indianapolis, Ind.
LEONARD KROWER & Co., New Orleans, La.
H. J. YOUNG, Joliet and Kankakee, Illinois.
C. E. SUMNER, Chicago, 3 sales.
WOODWORTH, SMITH & RANDALL, Colorado Springs, Colo.
KENNEDY & KOESTER, Detroit, Mich.
OSCAR HENIZE, Quincy, Ill.
HARRY HARRISON, Sault Ste. Marie, Mich.
GEO. CLARK, Lorain, Ohio.

C. D. GARDNER, Manistee, Mich., 4 sales.
F. B. LEWIS & Co., Cleveland, Ohio.
W. K. LIPPITT, Norwich, New York.
FRANK SUMNER, Cleveland, Ohio.
F. M. YOUNGLOVE, Alpena, Mich.
J. L. SIEVERT, Springfield, Mo.
FREEMAN JEWELRY Co., Atlanta, Ga., 2 sales.
ALFRED BOURGEOIS, Jackson, Miss.
GEO. CHANTLER, Manistique, Mich.
LION & KYLLING, Danville, Ill.
C. W. ERNSTING, Gallipolis, Ohio.
J. BOLLAND JEWELRY Co., St. Louis, Mo.

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A. W. FORD, Freeport, Ill.
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WM. J. KELLEY, Oshkosh, Wis.

STOP! It's Our Clearing-Out Time

We do not believe in letting stock accumulate on the shelves. While others are **ADVANCING PRICES**, owing to the new increased tariff, we are offering you Bargains in staple goods.



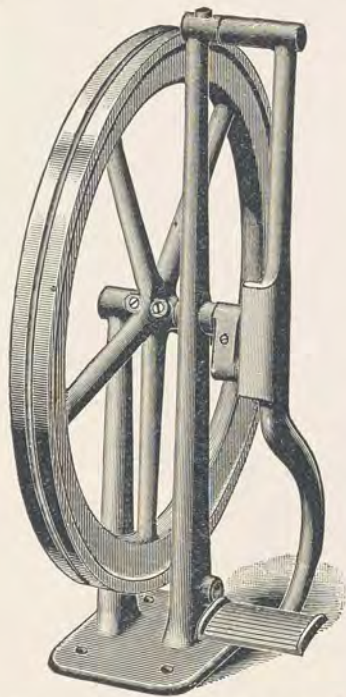
Sizes 1 to 9. Quantity limited.
Regular price, \$2.00 per gross. Our price, **98 cents**.



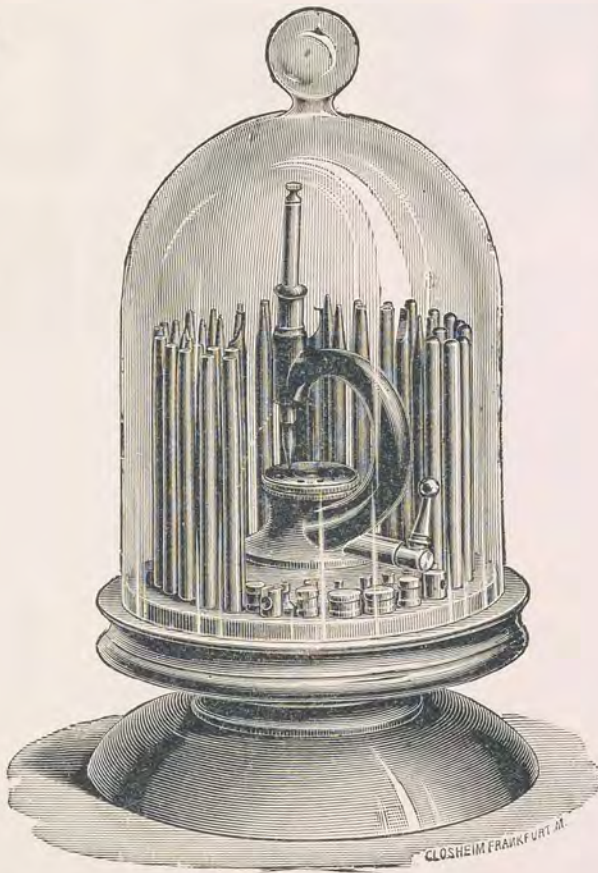
Genuine Leather Vest Chains.
Worth 75 cents. **38 cents** per dozen.



Assorted in dozens. All sizes.
Regular price, \$1.75. **98 cents** per dozen.



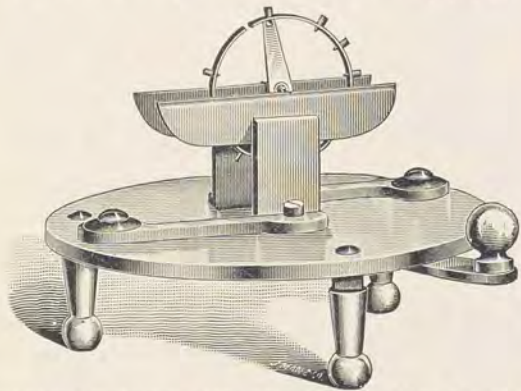
65 lbs. Regular price, \$8.00. Our price, **\$4.97**.



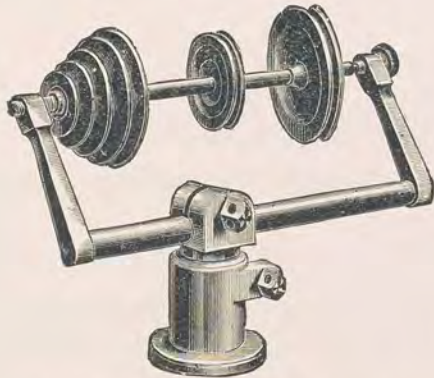
Genuine Boley, full nickel-plated, 50 punches, 14 stumps.
Worth \$8.50. **\$5.98**.



Adjustable Chuck Graver Handle.
Worth 50 cents. **29 cents**.



Full nickel-plate, fine steel, genuine Boley New Improved Poising Tool. **The best made.** You wouldn't take \$25 for it if you could not get another. For **98 cents**.



Full nickel-plate Adjustable Speed Countershaft. Worth \$6.00. **\$2.99**.

Read this column carefully.

CHAMOIS BAGS, made of the finest quality skins. Usually sold at \$3.00.
\$1.39 per gross. All sizes.

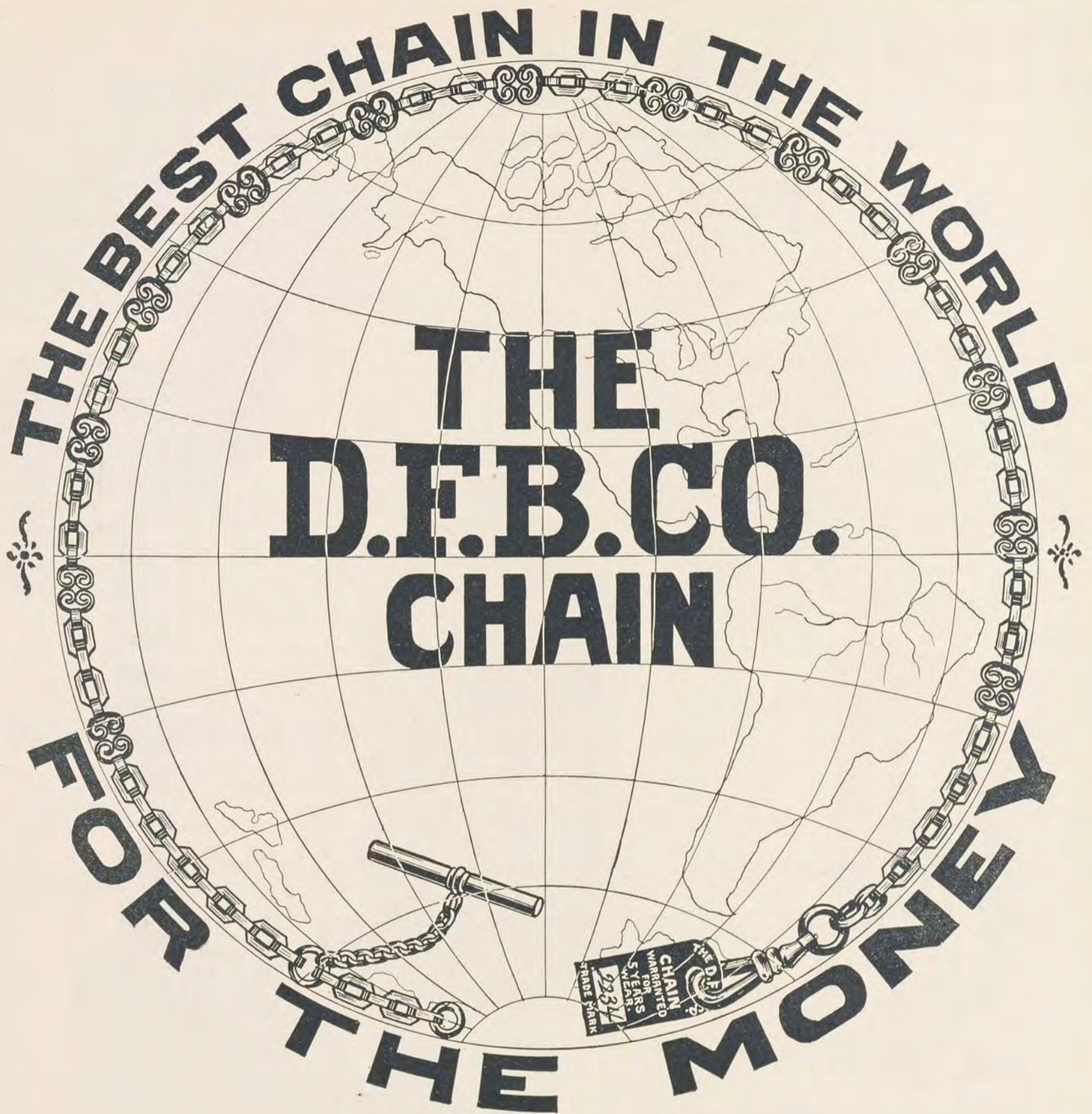
SET BALANCE JEWELS. Fine quality, for all makes and sizes of American Watches.
71 cents per dozen.

We overstocked before the new tariff bill to save money, and we now give you the benefit. 1000 gross good quality SWISS BALANCE HOLE JEWELS, **\$1.10** per gross.

REMEMBER! Orders filled in rotation. Prices are **NET CASH**. No orders filled unless accompanied by draft, money order or A1 references.

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618 Chestnut St., Philadelphia.

SEE OUR SILVER NOVELTIES BEFORE PURCHASING. YOU WILL SAVE MONEY.



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Our rolled-plate chain product is the largest and best in the United States.

WE MAKE EVERY KIND OF CHAIN— VEST CHAINS, VICTORIAS, GUARD CHAINS, Etc.

We have thousands of New Patterns. A rapid-selling sample of these is illustrated above.

You take no risk in selling OUR Chains. We guarantee to replace inside of five years any Chain that does not give satisfaction.

We make a full line of **GOLD FILLED RINGS** and **CURB CHAIN BRACELETS**, which are guaranteed in like manner.

We sell only to the First-class Jobbing Trade.

THE D. F. BRIGGS Co.

Factory, Attleboro, Mass.
New York Office, 200 Broadway.



Use the 

"Imperial" Mainsprings

They are the best, the most reliable, are COILED AND TAGGED, put up in the most convenient manner, and are "Guaranteed for One Year."

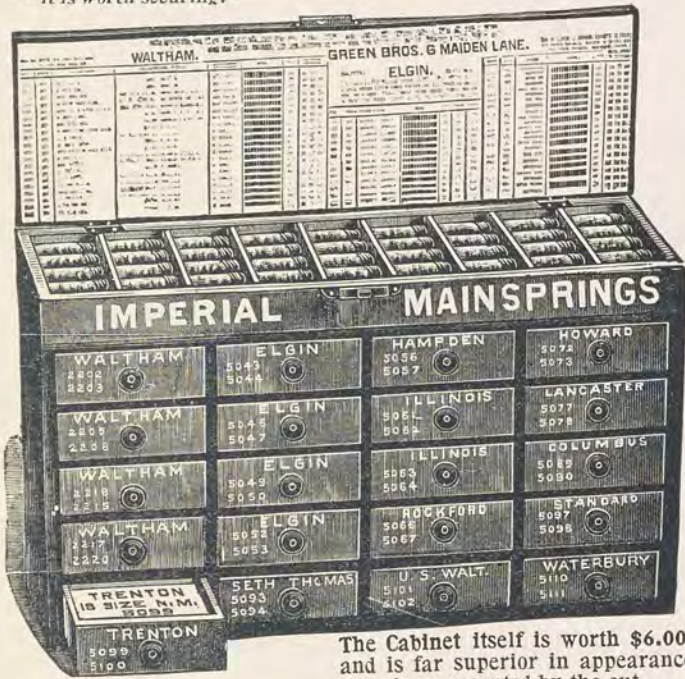
Beware of Imitation !!!



Price, **\$12.00** per Gross.
1.00 per Doz.

Cabinet Sent **GRATIS.**

"It is worth securing."

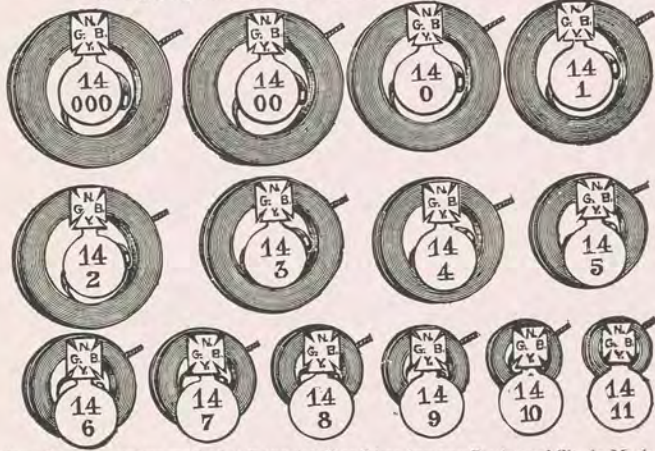


The Cabinet itself is worth \$6.00, and is far superior in appearance than is represented by the cut.

SPECIAL NOTICE.

With a first order of one gross of the "Imperial" American or Swiss Mainsprings, we send gratis our Improved handsome polished Solid Black Walnut, Oak or Cherry Mainspring Cabinet, as shown in cut. It is well made, cabinet finished and dovetailed throughout, and the cover closes with a patent snap lock, nickel-plated. It is the only cabinet made that will properly systematize and keep in thorough order the many American and Swiss mainsprings necessary at the present time, and will be greatly appreciated by all watchmakers. Besides being very useful, it makes a very handsome appearance. It has twenty drawers, with fancy knobs, brass trimmed, and the top is arranged in grooves for thirty-six screw-top glass bottles for watch and jobbing materials. It will hold 6 GROSS Imperial American or Swiss Springs. We also include two sets of perforated gummed labels, with name, number and size of the springs, so the drawers can be numbered as desired. These numbers correspond to a directory of all American springs which is printed on the inside cover, showing the correct style, width and strength by Dennison's Standard Mainspring Gauge, and the proper numbers and names for ordering.

Fac-simile of an assortment of "IMPERIAL" Swiss Mainsprings, coiled and tagged, showing width 14 and strengths 000 to 11.



None Genuine unless marked "Imperial" and bearing our Registered Trade-Mark, as shown in cut.

Fac-Simile of No. 2203 Imperial American Springs, Coiled and Tagged.



None Genuine unless marked "Imperial" and bearing our Registered Trade-Mark.

A Demagnetizer is now absolutely necessary for a Watchmaker's outfit, and at this low price no Jeweler can afford to be without one. With this instrument a watch is thoroughly demagnetized in just sixty seconds. We guarantee that it will do the work, so do not hesitate to place your order.

The "Pederson"
Guaranteed
Demagnetizer



Price, only
\$3.50

Orders accurately filled from any Catalogue at lowest market prices, less a cash discount of 10 per cent.

A trial is all that is necessary to prove the merit of the "IMPERIAL" GOLD-PLATING SOLUTION. In large ten-ounce bottles, with brush, zincs, etc.

Price, **\$1.50** net.

IMPERIAL

Gold  Plating

SOLUTION.

"WARRANTED PURE GOLD."

GREEN BROS.

Jewelers General Supplies,
No. 6 MAIDEN LANE,
NEW YORK.

Being the only exclusive material house in New York, we have the greatest facilities for filling orders quickly.

To demagnetize a watch with this Demagnetizer, it is only necessary to remove an electric lamp from the socket and screw the Demagnetizer in its place with the current turned off; then place the watch in or close to the hollow of the Demagnetizer, turn on the current, and after ten seconds slowly withdraw the watch to a distance of six feet, then turn off the current and apply the compass and the needle will point north, showing that the magnetism has been removed. Some watches may need two or more attempts.

NOTICE.—Leave movement in case, and have stem point into hollow of the Demagnetizer when removing magnetism.

CAUTION.—Turn off the current when not in actual use, or the Demagnetizer will be injured from overheating.

NOTE.—Can be used any place where alternating current incandescent lights are used. Full directions with each instrument. In ordering, be sure to state the exact voltage and the make of incandescent lamp used.

From analytical tests made, it is guaranteed to contain double and triple the amount of gold as similar solutions now on the market.

This standard of quality will be rigidly maintained. For regilding soiled ornaments and parts of gilt or onyx clock-cases, jewelry, and gilding repairs and watch movements, this solution is perfect.

It is a strong gold solution, that will gild gold or silver, also brass, nickel, etc., by immersion, in two or three minutes.

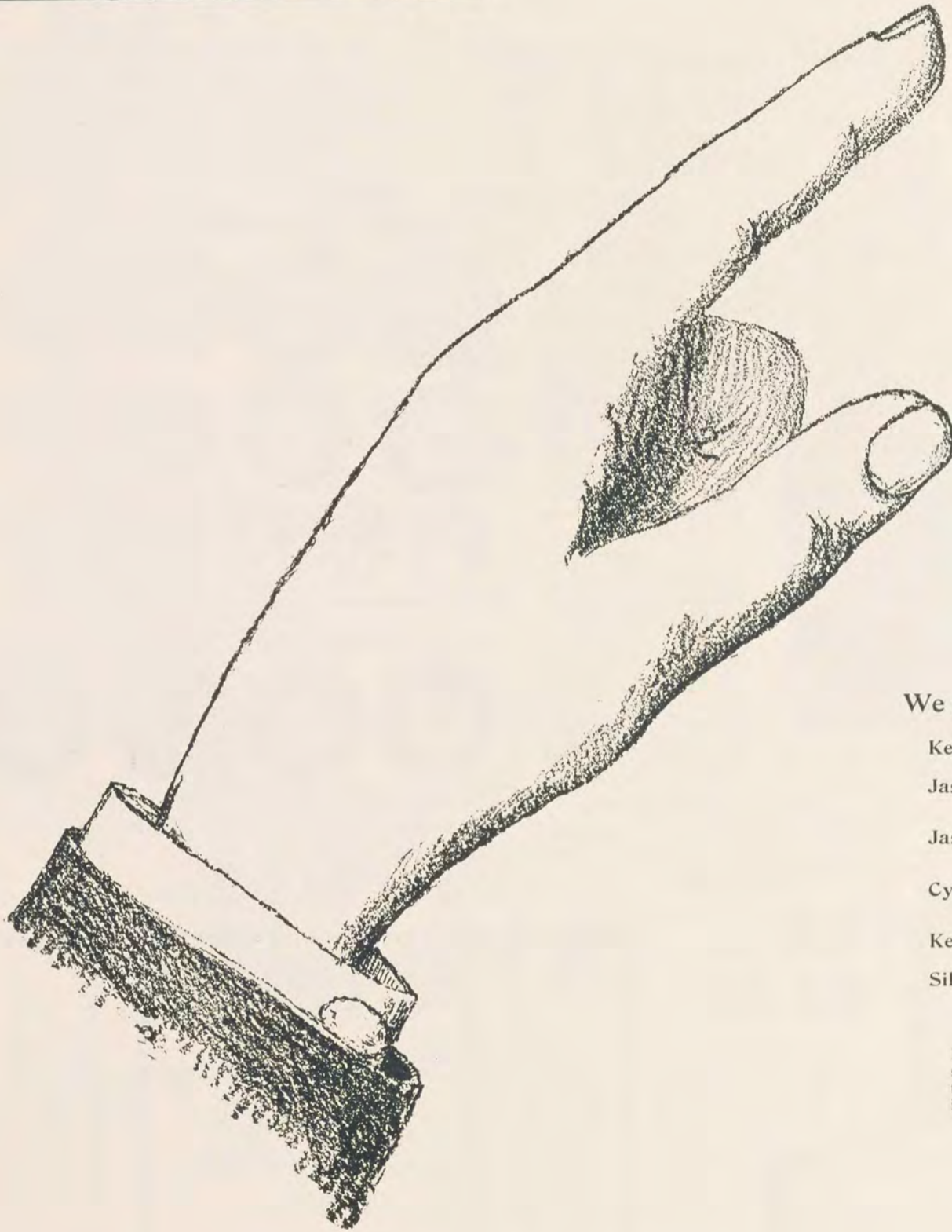
If once used no jeweler will be without it. Put up in ten-ounce bottles, with full directions for using. Try it. Its perfect action will be surprising. It is used without a battery.

We guarantee it will do the work as described above, so do not hesitate to place your order.

GREEN BROS. 6 Maiden Lane, NEW YORK.

Importers, Manufacturers and Jobbers of { Fine Grade Watch Materials, Tools and Jewelers' General Supplies.

Read, Cut Out And Preserve




The Keystone Watch Case Company makes all kinds of cases—and makes cases only, having nothing to do with movements, and having no connection whatever with any other concern in Philadelphia or elsewhere, a fact which the trade should remember, as there are other concerns connected with the watch business that use the word “Keystone.” Remember our full title

Keystone Watch Case Company,
and the Philadelphia address
19th and Brown Streets.

We make

- | | |
|---|--|
| Keystone Solid Gold, | TRADE  MARK |
| Jas. Boss 14 K. Filled,
now guaranteed for 25 years. | TRADE  MARK |
| Jas. Boss 10 K. Filled,
now guaranteed for 20 years. | TRADE  MARK |
| Cyclone Rolled-Plate,
now guaranteed for 10 years. | TRADE  MARK |
| Keystone Silver, | TRADE  MARK |
| Silveroid, | TRADE  MARK |

In addition to the special grade trade-marks shown above, **all** these cases have our general trade-mark—a keystone like this —stamped in them.

Note the extension in the guarantees as announced on opposite page and on back cover of Keystone.

ADD **5** YEARS TO YOUR GUARANTEES

93

of **JAS. BOSS 14 K.**,
JAS. BOSS 10 K.
and **CYCLONE** Cases.

We now guarantee {
JAS. BOSS 14 K. Cases for **25** Years.
JAS. BOSS 10 K. Cases for **20** Years.
CYCLONE Rolled-Plate Cases for **10** Years.

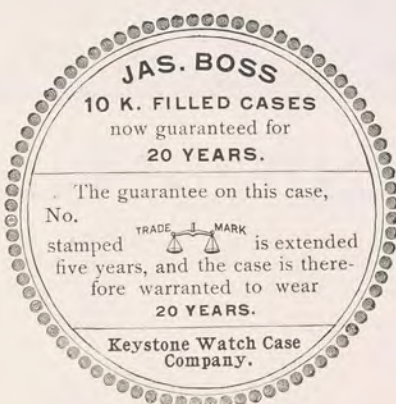
We and our immediate predecessors have been making **BOSS** Cases for considerably over twenty years, and now know by actual experience that we can guarantee them for a longer period than heretofore.

The above guarantee extension is consequently founded on the actual proved merit of the cases, time and wear having conclusively demonstrated their capability to wear for the extended periods.

There being no change in quality, the extension applies as well to those cases in the above grades which you have now in stock as to those which you may procure hereafter.

We are, consequently, issuing special certificates covering the five years' extension, for use in such of the cases as you have now in stock.

We here show fac-similes of these certificates:



We will send you the extension certificates for your stock upon receipt of a list of the cases, giving size, kind (that is, whether **JAS. BOSS 14 K.**, **JAS. BOSS 10 K.** or **CYCLONE**), and the number which is stamped in the case.

Place the new extension guarantees inside the bezel underneath the glass.

Keystone Watch Case Company,

19th & Brown Streets, Philadelphia, Pa.

SWARTCHILD & CO.

MASONIC TEMPLE,

CHICAGO, ILL.

Send for our 1897 and 1898 664-page Catalogue, if you have not received same.



INDISPENSABLE WATCH MATERIAL CABINET.

Swartchild & Co.'s Combination Watch Material Outfit.

A complete outfit of **Genuine American Watch Material**, consisting of 76 bottles filled with the most necessary material used daily by all watch-repairers, and put up in a highly polished solid oak cabinet, size 12 x 8 1/2. Each bottle is numbered to correspond with the accompanying list, by which any missing material can be reordered, thus always having a complete assortment on hand; since each article is in its proper place, it enables one to select such material as is required.

No. of Bottle	No. of Material	Dozen	Size	Description	No. of Bottle	No. of Material	Dozen	Size	Description	No. of Bottle	No. of Material	Dozen	Size	Description
1	39	1/4	18	Elgin S.W. Ratchet Wheels.	26	83	1/4	18	Hampden S. W. Ratchet Wheels.	51	12	1/4	18	Columbus Balance Staffs.
2	139	1/4	16	" " " "	27	242	1/4	6	" " " "	52	443	1/4	18	Elgin C. & F. Jewels.
3	108	1/4	6	" " " "	28	67	1/4	18	" " Winding "	53	447	1/4	16	" " " "
4	1069	1/4	0	" " " "	29	642	1/4	18	New York Standard Setting Levers.	54	454	1/4	6	" " " "
5	10	1/4	18	" K.W. " "	30	671	1/4	18	" " Ratchet Wheels.	55	455	1/4	0	" " " "
6	65	1/4	18	" S.W. Main Wheels.	31	632	1/4	18	" " Winding Pinions.	56	18	1/2	18	Waltham C. & F. Jewels.
7	175	1/4	18	" " " " O. F.	32	112	1/2	18	Elgin S. W. Click Springs.	57	18	1/2	6	" " " "
8	154	1/4	6	" " " " "	33	767	1/2	18	" K. W. " "	58	18	1/4	18	Hampden " " " "
9	173	1/4	18	" Cam Springs.	34	103	1/2	6	" " " "	59	18	1/4	18	Ill. Springfield C. & F. Jewels.
10		1/4	18	" P. S. Sleeves and Stems.	35	35	1/2	6	" P. S. Setting "	60	18	1/2	18	Elgin Case Screws.
11		1/4	18	" " " " "	36	336	1/4	18	" K. W. Clicks.	61	18	1/2	16	" " " "
12		1/4	6	" " " " "	37	37	1/4	0	" P. S. Setting "	62	18	1/2	6	" " " "
13		1/4	0	" " " " "	38	734	1/4	18	Waltham Setting Wheel Springs.	63	18	1/2	18	Waltham Case Screws.
14	537	1/4	18	Waltham Winding Wheels.	39	71	1/4	18	Hampden Yoke Springs.	64	18	1/2	18	Hampden " " " "
15	538	1/4	18	" Intermediate "	40	56	1/4	18	" Shipper "	65	18	1/2	18	Ill. Springfield Case Screws.
16	535	1/4	18	" Crown " "	41	11	1/4	18	" Click "	66	18	1/2	18	Elgin Roller or Jewel Pins.
17	722	1/4	18	" Winding " O. F.	42	857	1/4	18	Elgin Balance Staffs.	67	18	1/2	16	" " " " "
18	221	1/4	18	" Crown " "	43	863	1/4	16	" " " "	68	18	1/2	6	" " " " "
19	733	1/4	18	" Yoke Springs P. S.	44	868	1/4	6	" " " "	69	18	1/2	0	" " " " "
20	735	1/4	18	" Winding Bars	45	869	1/4	0	" " " "	70	18	1/2	18	Waltham " " " "
21	736	1/4	18	" Case Sleeves.	46	767	1/4	18	Waltham " " " "	71	18	1/2	6	" " " " "
22	83	1/4	18	Ill. Springfield S.W. RatchetWheels	47	12318	1/4	6&8	" " " "	72	18	1/2	18	Ill. Springfield Roller or Jewel Pins.
23	106	1/4	18	" " Compound "	48	54	1/4	18	Hampden " " " "	73	18	1/2	18	Hampden " " " "
24	109	1/4	18	" " Yoke and Click Springs.	49	246	1/4	6	" " " "	74	1	1	1	Gross Swiss Jewels, Assorted.
25		1/4	18	" " P. S. Setting Springs.	50		1/4		Ill. Springfield Balance Staffs.	75	1	1	1	" Swiss Cap Jewels, Assorted.
										76	1	1	1	" Roller " "

No. 6094. Price, complete, including Material and Cabinet as above, \$27.50
 No. 6095. Price, Cabinet with Bottles, 2.50

The Greatest Watch Factory:

Not alone in the quantity of watches it has made.

The American Waltham Watch Company has produced more pocket timepieces than any other factory in the world.

Not alone in the present volume of its output.

That of the American Waltham Watch Company is the largest in either this country or Europe.

Not alone in its equipment.

The most modern, automatic machinery, and the highest class artisans are employed by the American Waltham Watch Company.

Not alone in the superiority of its products.

For more than forty years the best watches have been made by the American Waltham Watch Company.

Not alone in the testimonials it has won.

Waltham watches have received the highest awards at all international expositions wherever exhibited.

Not alone in the price.

Waltham watches cost less than foreign watches of inferior quality.

But in the combination of these advantages.

In accuracy, durability and price, Waltham watches are the most desirable that can be had.

American Waltham Watch Company,
Waltham, Mass.

THE KEYSTONE

VOLUME XIX.

PHILADELPHIA, FEBRUARY, 1898.

NUMBER 2

THE KEYSTONE

A MONTHLY JOURNAL DEVOTED TO THE INTERESTS OF THE JEWELRY AND OPTICAL TRADES.

B. THORPE, PUBLISHER.

Subscription—One Dollar per year, postpaid, to all parts of the United States and Canada: single copies, 15 cents. To Foreign Countries 10 Shillings (\$2.44) per year; single copies, 1 Shilling (25 cents).

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Advertisements—Advertising rates furnished on application. No advertisements but those of a reputable character will be inserted.

To Advertisers—Copy for advertisements must reach us by the 25th of each month to insure insertion in the issue of the following month. Notices of changes in advertisements should reach us not later than the 20th 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,
19TH & BROWN STREETS,
PHILADELPHIA, PA.

CHICAGO OFFICE, 108 STATE ST.

AGENTS FOR AUSTRALIA, S. MAYER & CO., 279 GEORGE ST., SYDNEY, N. S. W.

AGENT FOR GREAT BRITAIN, THE ANGLO-AMERICAN OPTICAL CO., 94 MATTON GARDEN, LONDON, E. C.

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TO UNWRAP YOUR KEYSTONE, SIMPLY PULL THE STRING

THE confidence of the manufacturing and wholesale branches of the trade in a prosperous and unusually early spring business is evidenced in the number and importance of the advertising announcements in this issue of THE KEYSTONE. As those, in not a few cases, are introductory to the year's series of advertisements, they merit the special attention of our readers.

Reassuring Business Situation and Prospects.

A CAREFUL analysis of business prospects at this time is well calculated to force the conviction, even on the most pessimistic, that we are nearing the springtide of a year of unusual prosperity. Those who are determined to discover a cloud on the horizon will, no doubt, point ominously to the strike in the New England cotton mills; but this is really at present the only shadow that mars the brilliancy of the outlook. The prolonged depression has discredited the commercial prophet, and the fabric of restored prosperity is, of course, a thing of the future, but it is reassuring to know that a strong and safe foundation has already been laid; that a beneficent Providence has provided the structural material, and that an eager and chastened nation has settled down to the work of rebuilding with vigor and confidence.

The last three months of 1897 did much to reassure our people. In fact, the past year, as a whole, was, in many respects, a remarkable year. We find, for instance, that the total volume of last year's foreign commerce exceeds all precedent, the imports and exports combined amounting to \$1,841,000,000. The years next in order of magnitude were 1891, 1892, 1896 and 1890. The exports for the year were \$1,099,129,519, or \$94,000,000 above the highest previous record, which was in 1896, and \$129,000,000 above the next highest year, 1891. The imports were \$61,000,000 more than in 1866, but were much below those of 1895, 1892, 1891 and 1890, and compared with ten years ago they show an increase of only \$17,000,000. Whatever fault as individuals we have to find with 1897, these statistics show very material national progress.

Big Falling Off in Failures.

A GAIN, in the matter of failures, the past year has made a significant showing. *Dunn's Review* informs us that "in failures, 1897 was not only the best year since 1892, but, on the whole, the best ever definitely known." Compared with 1896, the failures for 1897 were in number 11.5 per cent. less, and in defaulted liabilities 34 per cent. less. Moreover, comparing the second half with the first half, the year itself showed a remarkable decrease in the number and character of these commercial casualties. The *Review* comments as follows upon this showing: "This remarkably heavy decrease in all branches, with the extremely low average of liabilities, was due to an improvement during the last half year, which has not been equaled in the twenty-three years covered by the quarterly record. The average of liabilities for failures in the last half of 1897 was only \$9,593, which has never been equaled in any other half year." The improvement indicated by these figures may not have been apparent to individuals, yet they prove conclusively that the turn of the tide and our start on placid waters must be credited to 1897.

An Encouraging January.

RETURNING to the present year, we find that the improvement in trade was well sustained in January. There is depression in the cotton trade, but against this may be placed the activity in the iron trade. The three great trades in this country are cotton, wheat and iron. Cotton, both raw and manufactured, is depressed by the enormous production to a point almost unprecedented in the history of the trade. The other two are enjoying unexampled prosperity. Wheat continues in immense foreign demand, and the price last month again crossed the dollar mark. The iron mills are said to be unable to fill the orders that have rolled in upon them. Merchants, too, report gratifying profits in recent months, and banks say that these profits have, as a rule, been put into the business, and to this is due the fact that the merchants require so few loans to conduct their business. The size of the bank clearances is another indication that there is a notable degree of business activity.

The Latest Returns.

BRADSTREET'S report for the last week of January describes a most promising condition of affairs. Says this authority: "The last week of the month closed with increased activity in many lines; a number of price advances; heavily increased bank clearings, as compared with one year ago, at nearly all cities, another considerable drop in the number of failures reported; large exports of cereals, particularly wheat, corn and flour; and perceptible confidence in nearly all branches of trade as regards the outlook for spring business. Another favorable feature of the week was the slight but distinct improvement in the cotton goods situation."

Business failures for the last week of the month were the smallest reported in the fourth week of January for five years past, numbering only 288, against 309 the previous week, 326 in the corresponding week of last year, 393 in 1896, 312 in 1895, and 340 in 1894. Of the failures reported, 251, or 87 per cent., were of concerns having \$5,000 capital or less, and 95 per cent. in all were of concerns having less than \$20,000 capital.

Bank clearings for the same week aggregated \$1,283,000,000, which was 34 per cent. larger than last year, 44 per cent. larger than 1896, and 67 per cent. larger than 1894. A total is indicated for the month of January of not far from \$5,900,000,000, which is only slightly below December's immense total, and has only been exceeded three times in the history of the country.

Cereal exports for the last week of January were also heavy, total shipments of wheat, including flour, for the week amounting to 5,026,024 bushels, against 3,926,000 bushels the previous week, 2,515,000 in the same week a year ago, 2,550,000 bushels in 1896, and 2,083,000 bushels

in 1894. Corn exports also heavily increased, amounting for the week to 4,962,000 bushels, against 3,486,000 bushels the previous week, 3,011,000 bushels last year, 3,197,000 bushels in 1896, and 942,000 bushels in 1895.

The National Association of Manufacturers.

THE meeting of the National Association of Manufacturers, in New York last month, rivets attention on a most promising feature of the industrial situation, viz., the increased and rapidly increasing volume of our exports of manufactures. The Association has planned an aggressive invasion of foreign markets, and its programme includes a careful investigation of possible new markets for American products, the study of trade conditions in various countries, and the ascertainment, as fully as possible, of the classes of American goods salable in different markets, with the conditions of competition which must be met. They will also establish warehouses for the display of American merchandise of every description under conditions that will secure the most favorable attention of the possible purchaser. There is a genuine business flavor about this programme, and, as it is being engineered by accomplished business men, we can await results with confidence. If a steady and voluminous foreign demand for our manufactures of iron, steel, copper, etc., were established, our country would be less dependent on agriculture, and the volume of business will be of a more uniform character, with a less liability to fluctuation than is the course of trading in the other great staples—wheat and cotton.

In fact, foreign manufacturers are already alarmed at the marvellous increase in our exports of manufactures of iron. The London *Economist* calls attention to "a new and alarming factor, which has made itself very manifest during the past twelve months, viz., the competition of American iron, both at home and abroad. Alabama pig," it says, "can be laid down in England at a price to compete with pig iron of British production, while steel rails have been shipped largely to Canada, Mexico, India, Australia and Japan, and have come into direct competition with British manufacturers." The *Economist* pathetically admits that the American manufacturer has acquired a controlling influence over the iron and steel trade of the world.

Increased Exports of Manufactures.

THE increase in the exports of a few manufactured products will give our readers an idea of the extent of the movement. An authority informs us "that the exports of locomotives in 1897 were three times as great as they were eight years ago, and probably twice as great as in any previous year. There are indications that the demand in 1898 will be still greater." The Baldwin Locomotive Works, in this city, are at present filling a foreign order for fifty-six engines. Our exports of bicycles and parts of bicycles, in 1897, were \$7,000,000, and our imports \$22,000. A few years ago the idea of sending heavy tools to England or Germany from America would have been ridiculed; but within the past year a single Western toolmaker is said to have sold in England and Germany more than half a million dollars' worth of heavy machine tools, such as lathes, planers, boring and turning mills, etc. Its Sheffield correspondent writes to the *British Trade Journal* as follows:

I saw the other day, in the warehouse of one of our establishments, a large number of files of all grades and sizes, beautifully packed in boxes, part of an extensive

order which had been sent to Philadelphia and executed with a smartness which left nothing to be desired. The precision with which the teeth were cut, and the finish put upon them, could not be denied by any unprejudiced person. One kind of file, perfectly round, was shown to me as an article which could not be made in England at all. The price was considerably under the home quotations.

So runs the story, and, with the organized aid of the National Association of Manufacturers, infinitely greater achievements in this direction will be recorded for the present year.

Increasing Foreign Demand for Corn.

A MOST promising feature of our exports of cereals in 1897, and one which should bring joy to the heart of the farmer, is the largely-increased foreign demand for Indian corn. The total exports last year amounted to 186,000,000 bushels, or over 69,000,000 more than ever before. In the six years preceding 1897 the average annual exports of corn were 66,000,000 bushels. This indicates a rapid extension in the use of maize as food in foreign countries, but only comparatively few Europeans have yet a just idea of its merit in this regard.

The Paris Exposition of 1900 will afford us an excellent opportunity to spread the fame of corn as a wholesome food, and we are pleased to learn that an extensive corn exhibit is to be made at the exposition. Corn lends itself readily to picturesque structures and displays of various kinds, and when intelligently employed in an exhibit always draws a crowd, as all who visited the World's Fair in Chicago well know. In this connection the St. Louis *Globe-Democrat* makes an excellent suggestion. "There should be," it says, "at the Paris exposition, in addition to the proposed colossal corn picture, 40 x 60 feet in size, a large corn kitchen in which articles of food prepared from maize can be tested by the multitude. A plate of corn cakes, baked to a golden brown, would be a revelation to nearly all Europeans. Corn bread of different kinds should be supplied to all who desire to taste it." As the *Globe-Democrat* aptly points out, what is needed to insure a general demand for corn in foreign countries is a knowledge of how to prepare it for the table.

The Lesson of the Depression.

IT is wise and customary, during the first month of the year, not only to find out exactly how we stand, but to examine critically conditions and prospects, with a view to an intelligent start on another year's operations. The preceding paragraphs may aid our readers in this critical examination, and, under present circumstances, we fail to see how even the most skeptical can take other than a most hopeful view.

Whatever may be the measure of prosperity in store for us, it is to be hoped our people will not forget the lesson of economy taught us by the depression. "Adversity hath its uses," saith the sage. Our country has lost much during the past few years, it is true, but it has at the same time gained an experience which is highly valuable. The habit of prudence and strict economy has been established by compulsion in hundreds of thousands of families where it was little known during the prosperous years preceding the depression. Men have had to learn the lesson of thrift and careful spending in order to tide over this period of comparative scarcity. The knowledge thus gained has been of material assistance in enabling people to get through the hard times. It will be equally valuable if they will retain it and act upon it during the more prosperous season that now seems to be assured.

New Jersey and Good Roads.

AT this time, when symptoms in the agricultural, industrial and commercial world are universally favorable, we regret that our national progress in road improvement is discouragingly slow. As this is the most needful, and would be the most valuable, of all the reforms now being agitated, persistent neglect of it is strangely at variance with our reputation for progressiveness. In the State of New Jersey only has any material progress been made, but that State has set an example in the matter that the remainder of the sisterhood would do well to follow. Within the past few years an astonishing number of highways in New Jersey have been converted from mere beds of sand into hard, smooth roads, and the movement has become so popular that the farmers, always the last, though they should be the first, persons to become interested in the subject, are beginning to clamor for macadamized roads throughout the State. In four years New Jersey has built 238 miles of excellent roads which are not affected by wet weather. About sixty-six miles of road were laid last year, and the plans for 1898 call for ninety-six. In fact, such is the enthusiasm in favor of good roads that in the not distant future New Jersey will be able to boast of as excellent highways as any of the European countries.

IN his annual report the New Jersey Road Commissioner has compiled a mass of useful information on the subject of good roads. A pertinent calculation taken from the report is the following: "It costs 9½ cents per bushel to ship wheat from Chicago to New York, a distance of 900 miles; it costs 3 cents a bushel to haul wheat on a level road a distance of five miles, and on a sandy road it would cost at least 9 cents to haul it. The saving on a bushel of wheat with good roads for a distance of five miles would be about equivalent to that of 600 miles of transportation by steamer or canal boat, or of 375 miles by railroad. One mile of good roads would make a saving equal to 75 miles of railroad transportation. Thus, every mile of good roads places the producer 75 miles by rail nearer to the markets. It is estimated that the cost of hauling 500,000,000 tons of farm produce to market is \$2 per ton, or just about \$1,000,000,000; it is also estimated that about 60 per cent. of this last amount, or about \$600,000,000, would be saved each year if farmers were able to do this hauling over good roads." It would be worth while for the jewelers to spread such information as this among their farmer friends.

New Jersey is not only building good roads, but is taking wise steps towards their preservation and the reduction of the expense of repair. The latest is a scheme for inducing the general use of broad tires on wagons. A bill has been introduced in the Legislature which proposes to give a rebate of \$1.50 in taxes for each wheel in habitual use whose tire is four inches or more in breadth. This is \$6 a year per wagon, an amount great enough to insure prompt consideration, if not acceptance, of the offer by every owner of such a vehicle. It is a remarkable admission of the value of broad tires on a highway, but statistics show that the saving of wear and tear on the roads will more than pay for the rebate.

Though little improvement has been made in the country at large, it is well that we have no longer to go to European countries for an object lesson on good-road construction and its value. Our congratulations to New Jersey.

The Keystone in Foreign Lands.

IT is the commendable custom of the trade in this country to keep THE KEYSTONE on file in order that, with the aid of the yearly indexes, they may be able to refer momentarily to any matter on which information, advice or suggestion may be desirable. This is as it should be, for there is no subject that can come up for consideration in business-doing from January 1st to December 31st, upon which valuable information may not be obtained by reference to the files of THE KEYSTONE. The care with which back numbers are preserved, and the excellent use that is made of them, not only in this but in foreign countries, is well revealed in the following extract from a communication just received from E. K. Spiegelhalter, of the well-known firm of M. Spiegelhalter & Son, Malton, England:

You will naturally wish to know how we liked THE KEYSTONE, though the ten shillings (\$2.50) enclosed for renewal of our subscription is proof enough of our opinion of it. To realize how much we appreciate it you will have to be, like the Mahatmas, "precipitated" in our office. Your attention would immediately be riveted upon nine imposing volumes bound in solid calf, with gold lines. A closer inspection will show you that they are KEYSTONES in half-yearly volumes. On opening them you will find the numbers are bound in—ads., covers and all. You will find the volumes blue-penciled in innumerable places throughout—all items of special interest or use to the writer. These again are indexed in special indexes to each volume. The volumes are all at hand always for reference and information. That is what we think of THE KEYSTONE.

There is nothing in this letter to indicate that it crossed 3,000 miles of ocean. It has the friendly and appreciative ring of the native product, and is typical of our pleasant correspondence with transatlantic as well as New World subscribers and of their appreciation of THE KEYSTONE.

On to the Klondike.

THE rush to the Alaska gold fields has begun, and every shipowner who is willing to risk his ships in the Northern waters is now assured of a crowded passenger list. Not a few of our own readers have made arrangements to proceed thither, and we sincerely hope that fortune will favor their enterprise, but we must confess that we contemplate migration in general with a feeling, at least, of misgiving. "Never venture, never win," is a true enough and rather inspiring maxim, but the trials of a trip to the gold fields are well calculated to intimidate even the most reckless.

The matter of expense alone is such as only sanguine prospects alone can justify. It will cost a man \$200 to get from east of the Alleghenies to the head of Lynn Canal, where begin the only three passes over the mountains that are used by prospectors. Then the more prudent adventurers will stop at Juneau to buy outfits, which will cost from \$180 to \$250 more. After one has got this outfit to Dyea, he must pack his goods across the pass, and last August the Indians were charging as high as \$20 for carrying a hundred pounds. On so light an outfit as 750 pounds, which would be a six months' supply, this would be \$150 more.

When the crowds reach the passes there will certainly be confusion. The throngs on the trail will cause delay, and the cold and storms will add suffering. When the pilgrims, discouraged and heartsick, reach the Canadian frontier they will encounter further trouble, delay and expense. The charge for duties is \$30 on articles valued at \$100, and duties are assessed on outfits intended for personal use as well as on merchandise. One object of this assessment is, no doubt, to compel prospectors to patronize British transportation lines and buy supplies on British territory. Then,

when the lakes are reached, a boat must be obtained. Last summer the price of the cheapest boat at Lake Bennett was \$300. He who does not care to pay the price may build his own scow, felling the trees and whipsawing the lumber. He will have abundance of time to do this, for if he goes over the pass on the snow, which he can do as late as March, he must wait at the lakes until May for navigation to open. By the time he arrives at Dawson City it is not unlikely that he will be short of both provisions and money; and what then? May he not find every claim pre-empted? May he not find every bit of known auriferous soil already the property of another? He must then, of necessity, become an employee, and labor in Alaska has terrors unknown to it in more favorable climes.

In view, then, of the length and trials of the journey, the necessary expense, estimated from \$600 to \$1,000, the rigors of the Alaskan climate, and the dread uncertainty of finding there the object of their quest, those afflicted with Klondikitis should do some hard thinking before giving up home, friends and future to pursue the elusive phantom of sudden wealth.

California's Semi-Centennial Celebration.

CALIFORNIA has just celebrated with appropriate pageants, ceremonies and festivities the fiftieth anniversary of the discovery of gold within her confines; and those of the "fortyniners" who were able to take part in the celebration were furnished with a vivid illustration of the lightning progress which has characterized the development of the Pacific Slope. The wild and trackless waste of half a century ago has become one of the garden spots of the world, rich in natural resources, fertile in soil and balmy of climate, with a large, prosperous and happy population. The value of the raw products of the State in 1897 is estimated as follows:

Cereals,	\$67,010,045
Minerals,	25,655,287
Fruits,	18,310,800
Miscellaneous farm produce,	20,950,925
Lumber,	10,875,000
Wines and brandies,	7,512,500
Salmon,	3,465,000
Total,	\$153,779,557

These figures cover only the production of raw materials, no attempt being made to include the facts as to manufactures, and the information regarding mineral product being confined to two or three of the leading articles. The total is equivalent to \$102.26 for each man, woman and child in the State, or \$511.30 for each family—a record that few of the other States can equal. Were the manufacturing interests included the figures would be much larger.

These statistics reveal a wonderful half century's progress, and the present year promises to be a record-breaker. A despatch from San Francisco, dated January 14th, announced that the steamer Alameda, from Australia, just arrived, carried in her strong box nearly 200,000 golden sovereigns, equal to almost \$1,000,000, consigned to the Anglo-California Bank, of that city. The remittance, added to previous ones, made the total gold received during the season from the same source amount to \$12,500,000, a much larger amount than has ever come from Australia as balance of trade in California's favor during the same period of time. The Golden State had excellent cause for her week's jubilation, and well deserves the congratulations that are being showered on her by her sister States.

Reprehensible Rivalry.

A VERY despicable variety of trade trickery recently came under our notice. A reputable wholesale firm received a letter, purporting to come from a member of the trade, asking information as to any lines on which the firm had special rates to offer. Investigation showed that there was no such jeweler in the town mentioned on the letterhead, and it afterward transpired that the would-be retailer was really an employee of a rival wholesale firm, and that the letterhead was specially prepared to elicit in this underhand and deceptive way information that would aid the rival firm in its business. We trust that there are few houses in the trade that would stoop to such dishonorable action. Honorable rivalry is the life of business, but such trickery is the very opposite of honorable. Its exposure would be a just penalty.

Suppression of Fraudulent Advertising.

ANOTHER attempt is being made in New York to pass a bill aimed at fraudulent advertising. The measure was introduced by Senator Guy, and is entitled "An act to regulate the sale of merchandise and to prevent misleading and dishonest representation in connection therewith." The bill has been referred to the judiciary committee, and its sponsor expresses the belief that it will become a law. For the benefit of those of our readers interested in furthering legislation of this kind in other States, we reprint the sections of the measure, which are as follows:

SECTION 1. Any firm, person or partnership of persons, or any employee of a firm, person or partnership of persons, who, either in the newspapers or other periodicals of this State, or in public advertisements, or in communications intended for a large number of persons, wilfully makes or disseminates any statements or assertions of facts with respect to his, her or their business affairs, especially concerning the quantity, the quality, the value, the price, the method of production or manufacture, or the fixing of the prices of his, her or their merchandise or professional work; or the manner or source of purchase of such merchandise, or the possession of awards, prizes or distinctions; or the motive or purpose of a sale, intended to have the appearance of a particularly advantageous offer, which are untrue or calculated to mislead, shall be guilty of a misdemeanor.

SEC. 2. Any firm, person or partnership of persons, or any employee of a firm, person or partnership of persons, who, either in the newspapers or other periodicals of this State, or in public advertisements, or in communications intended for a large number of persons, wilfully makes or disseminates any statements or assertions of facts with respect to the proprietor or proprietors, manager or managers, practitioner or practitioners of a business or profession; or with respect to the business affairs or professional work of such proprietor or proprietors, manager or managers, practitioner or practitioners, especially concerning the quantity, the quality, the value, the price, the method of production or manufacture, or the fixing of the prices of such merchandise or professional work; or the manner or source of purchase of such merchandise; or the possession by him, her or them of awards, prizes or distinctions; or the motive or purpose of sales, calculated to divert his, her or their trade, or to disturb the carrying on of said business or professional work, or to injure the credit and standing of the proprietor or proprietors, manager or managers, practitioner or practitioners of such business or professional work, which are untrue or calculated to mislead, shall be guilty of a misdemeanor.

SEC. 3. This act shall take effect immediately.

Department store and newspaper influence will, no doubt, be used against the measure, and the combination will form a formidable opposition. The passage of the bill would be a triumph for truth and honesty.

It is reported that a bill will also be introduced at Albany amending the sterling silver stamping law of that State. Other bills introduced relate to oppressive installment business-doing, fake auctions and bankruptcy. Whether any or all of these measures will reach the statute books cannot be conjectured at this writing, but all seem to be highly commendable in their provisions, especially that relating to the suppression of false advertising.

Waste.

"WASTE is the chiefest enemy of prosperity." So wrote an authority of the last century; but his pronouncement holds true, also, in this day and generation. That prosperity comes to nations and individuals who *avoid* wasting is shown in the proverbial success of some of the continental peoples, notably the French; and it has been asserted that a French family could comfortably live on the food that is wasted at an American table. The savings of the French peasantry, the increment of their salvage from waste, enabled that wonderfully thrifty people to pay off the tremendous indemnity to Germany, after the Franco-Prussian war, with an ease and speediness that was the marvel of these later times. It was the highest possible testimony by inversion to the truth of the dictum, "Waste is the chiefest enemy of prosperity."

Waste is going on in every direction, every day; and the merchant does his full share of it. There is waste of material things, in such inconsequential items as paper and materials; in more important items, as gas; in most important things of all, as time and opportunity. There is waste of money in advertising *that doesn't advertise*; in throwing away needlessly a margin of a profit on a sale; in failing to take advantage of the cash discounts. But principally, and above all, there is the criminal wasting of *time*; wasting of advantages of position; wasting of popular favor; wasting of the treasure of opportunity. It is of these major wastings that one needs to be solemnly impressed; for waste in *this* direction can never be made up. This *is* waste indeed—absolute, impoverishing waste.

"Waste," measured by consequences, sometimes justifies itself. A busy merchant will do wisely to throw away the knotted twine, rather than take the time to straighten and save it at an expense of time that could be better given to more important matters. The narrow-thinking observer criticises the throwing away of the twine as waste; but it is actually *saving*, since time is more valuable, in a busy day, than twine-saving. And even if trade is dull, it is extravagant in the merchant to spend time in unknitting twine, if his advertising lacks in any feature that might be improved by bestowing more time on its polishing; or if, by giving careful thought to ways and means, in the time necessary to "financier" his situation, he is able to save the cash discount on a bill, or to find a better value than he has been getting for a price.

But the one inexcusable waste that never can be justified by any ingenuity of sophistry is *waste of opportunity*. A man stands well in the estimation of his fellow-citizens, and he deliberately wastes that good reputation by careless doing, or by laziness, or thriftlessness; he has the best location on the street, and wastes his display-opportunities by not adequately dressing his window; he has this, that and the other advantage of social position, or means, or monopoly of favor, and squanders all his opportunities by inattention to business or indifference. He is young, say, and wastes time in not "taking hold"; or he is middle-aged and wastes time more recklessly, because it is then more precious than in his youth; or he is old, and wastes time still more extravagantly in failing to instruct his son in right business ways, and inspire him with right business principles.

For such criminal waste of time and circumstance and opportunity there is no palliation or excuse. It is monstrous and inconceivable, from any right point of view. See that you, for your-

self, in this beginning of a new trade-year, have no cause for future regret in wicked waste of the golden Present!

A Recent Instance—and the Moral of it.

THE New York papers lately recorded an incident that deserves to be "writ large" in the annals of trade.

Amos R. Eno is the son of Amos F. Eno, owner of the Fifth Avenue Hotel. In 1859 the son became the head of the firm of Eno, Bueren & Valentine, dealers in silks and dress goods, whose principal business was in the South. It was one of the heaviest traders in its line, in the days "befoh the wah."

The firing on Fort Sumter, in April, 1861, marked the beginning of a business smash, as well as the beginning of the war, with all Northern houses having large dealings with Southern merchants. The absolute impossibility of making collections in a hostile territory drove these Northern houses to the wall speedily. Eno, Bueren & Valentine held on for two weeks after the firing on Sumter, and then assigned. A small dividend was thankfully accepted by their creditors, and the members of the firm were released from lawful obligations. The release wiped out forever all the debts of the firm.

Mr. Eno went into the army. In 1865 he again went into business, and prospered from a small beginning. He is a rich man to-day. Thus far nothing is unusual in his history, but what follows *is*.

The firm of Eno, Bueren & Valentine failed thirty-six years ago. In November, 1897, its debts were forgotten, the firm itself was only a memory in old men's minds, nearly all the original creditors were dead, nearly all the creditor-firms were out of existence, or changed in name and line of business, or conducted by grandsons, nephews and remote relatives. Only one man seemed to have remembered the fact that Eno, Bueren & Valentine had ever been in business, and had failed—and that man was Amos R. Eno.

For a year past, Mr. Eno has been engaged in the difficult work of hunting up the names of the descendants of his creditors of 1860. In no case was there a man who remembered that such a debt existed. Old books had been destroyed, old records were not to be found. But he was determined in his purpose; and in November of 1897, thirty-six years after his failure, a large number of descendants of the individual and firm creditors of the old house of Eno, Bueren & Valentine were astonished to receive through the mail letters from Mr. Amos R. Eno, marked "strictly confidential," containing checks varying from small amounts to many thousands of dollars, and the additional information that as soon as the exact amount of interest at four per cent. could be computed, another check would be sent to cover his share of the balance of principal and interest for thirty-six years, in full to date. The amount necessary to thus pay the debt with interest to date is supposed to be over half a million dollars. The interest amounts to more than the original debt—at four per cent. the interest is \$144 on every \$100 of the principal.

The letters were marked "strictly confidential," but the astonishment of the fortunate recipients was so great that some one "leaked," and the facts came out. Mr. Eno was asked concerning it, but declined to talk about a "little matter of a few Southern credits," and said it wasn't a subject of general interest.

But it *is* "a subject of general interest," and such an instance of old-fashioned commercial honesty cannot be dismissed in the light way that the modest hero of the occasion would personally desire. The radiance of his act will shine into all the dark byways of trade in a manner that will make fraud doubly odious, and dishonor doubly hateful, for years to come.

BUT to the thoughtful man comes the gruesome question, "Why *should* the payment of an outlawed debt, with interest, be 'a subject of general interest'?" Why should virtue be such a conspicuous exception in the instance, and honor "caviare to the general?" Why shouldn't the fashion be the other way? *O tempora, O mores!* It is very disheartening to have to realize that a single instance of integrity causes a week's wonder, while examples of fraud or duplicity are taken as a matter of course. Honor to the brave man who breaks the monotony of men's thoughts on "the ways that are dark and the tricks that are plain"!

The Caster on the Shelf.

Oh! once I shone in royal state,
The cynosure of eyes;
The choicest piece of hall-marked plate
Was not a rarer prize.

The center of the snowy board
The place reserved for me,
While in my cut-glass zone was stored
A spiced variety.

Now banished to the topmost shelf
Of this most dingy place,
With grief I recognize myself
A Caster—in disgrace.

Along with Lady Soup Tureen
And Spoons de Souvenir,
Decanters tall—we exiles all
Are vegetating here.

For individual upstarts now
Hold condimental reign,
And bonillon cups have made their bow
And bourgeois sway maintain.

But fashions come and fashions go,
And time is on the wing;
Who knows? within a year or so
We may be "just the thing."

—What to Eat.

A February Window.

ALL the world is fond of well-expressed sentiment; and especially does sentiment appeal to the world of women. Therefore, when one considers the fact that women do ninety per cent. of the buying, it would seem to be excellent policy to seize all the opportunities for feeding this public demand for sentiment by sentimental window-displays on appropriate occasions.

The month of February presents such an occasion, on Washington's Birthday.

A "Washington's Birthday" Window.

Some preliminary work in gathering and making the materials for this display is necessary. If you can borrow a bust of Washington (plaster or terra cotta will answer) for a center piece, you will have the most important part of the furnishing. The larger the bust the better; but even a *small* figure-piece is preferable to a portrait. If you cannot get a bust, get a portrait of Washington. A large lithograph, chromo, or even woodcut will be better for the purpose than a small steel engraving. Have it framed—it is not necessary that you go to the expense of buying a frame specially for it (if the picture is a cheap one), as you can dispossess some picture at your home of its frame, temporarily, for the purpose, and cut down the portrait to fit it.

Now try to borrow all the Revolutionary relics possible—at least *two* swords, three old guns (they need *not* be flint locks—observers will not quarrel if some of your "relics" date *later* than the Revolutionary period)—drinking cups, powder-horns, etc; and especially and very particularly, a rusty old hatchet, nicked and battered.

Turn to an illustrated history, and see what the flag of the thirteen colonies looked like; then employ some deft fingers to make a dozen tiny ones like it, and several of larger size—say each a yard long.

Stand the bust, or the framed picture, in the center of the window, under a tripod formed by the three old guns. Lay the two swords, crossed, in front of it. In a circle around it, arrange the small relics. To introduce a bit of burlesque in the picture, get a stout branch of a tree, or a small tree itself, and stand it in the corner of the window, on a base of moss, to simulate a growing tree. At this time of year it will of course be impossible to get a leafy branch, or small tree, but the burlesque will be heightened in effect by trying on to the bare branches some artificial cherries, which you can get at any millinery store. Let the trunk of this imitation tree be nearly chopped through, and have the chips lying around the base; and at the foot of the tree lay the old hatchet. Drape the two large flags against the front of the window, where they will call to the observer on the pavement on the other side of the street to cross over and investigate the meaning of this display of out-of-date flags.

Now to focus attention upon a few of *your own* goods, and at the same time to emphasize the "Washington's Birthday" sentiment, portrayed by the window, proceed as follows: Around the circle of relics, if the window floor is large enough to permit it, arrange another circle of silverware pieces out of your stock. If the window is too small to so arrange them, place the larger pieces at the sides of the center piece; and around the circle of relics, make an outer circle of rings, pins and other small ware. The rings should have running through them three very narrow bands of "Daisy" ribbon—an eighth of an inch wide—red, white and blue, respectively; and into this continuous ribbon of color should be stuck the pins and entwined the other small articles. The effect will be that of a wreath around the inner circle of relics.

Now to *give point* to the exhibition of your own goods, put little placards on them, variously inscribed as follows (the relics will tell their own story and need not be placarded, and *your* goods will thus be the beneficiary of proper placarding, by contrast):

On a silver mug, or cut-glass tumbler:

Not used by G. W., in camp at Valley Forge.

On a silver tea-pot:

Made too late for use at Mount Vernon in 1776.

On a gold watch:

*Presented by G. W., to General Greene in 1774—*nit!**

On a filled case:

Warranted to wear out before the next war with England.

On two nickel alarm clocks tied together:

This pair of earrings should have been worn by Pocahontas, if she was a late sleeper and did the family cooking.

On any piece of jewelry:

"I cannot tell a lie, Martha—this piece is worth \$5.75, and Smith's price on it is just \$5.75—G. W."

On a ladies' diamond ring:

If only the bachelors of the Revolution could have lived until to-day!

The ingenuity of the jeweler will suggest a dozen other legends with which to inscribe placards for the various pieces, on the same general line of thought.

Distribute the *little* flags-of-the-Revolution among the goods. Use red, white and blue ribbon wherever it will be most effective—wound around the top of the tripod of guns and from thence hanging in loops to the corners of the window, etc.

Dress your little son in Continental uniform or hire and dress a youngster for the purpose, to open and close the door for visitors during the week in which this exhibition is "on."

Advertise in the newspaper:

G. Washington, Esquire, will be happy to see the great-great-grandsons of his friends at Smith's window during this week.

THE last February that had twenty-nine days was in 1896; the next will be in 1904. The fourth year from 1896 will *not* be a leap-year. All the years that begin the centuries are "fourth years"; but 1800 and 1700 were not leap-years, as 1900 will also not be one. The last century-beginning year which was a leap-year was 1600; the next will be the year 2000.

This curious fact arises from the provision made by Pope Gregory to adjust the calendar, so as to take up the loose ends of the fractured years. Among other provisions of the Gregorian Calendar is one which provides that "only the century-beginning years which are divisible by 400 shall be leap-year."

The merchant who would bring up this February to the average, in monthly sales and profits, must "hustle pretty lively" to do in twenty-eight days what in other months he may do in thirty or thirty-one days. But he must put a little *extra* effort in his doing, for he must also help up the average of the missing twenty-ninth day which *should* come along in 1900, but of which the merchant of 1900 will be deprived.

Look and Learn.

Applying Observation of Others' Methods to Your Own Conduct of Business.

A MERCHANT advances in prosperity from practice or knowledge gained in three several ways: First, the intuitive perception original in himself, and which is the outcome of individual mental force; second, the result of more or less costly experience in experiment and trial; third, observation and application (or avoidance) of other merchants' methods.

The first-named cannot be taught, since it springs from the fundamental force which lies in native genius—and "genius is a law unto itself," with concepts that are self-created, diverse in each instance, abnormal, unusual and incalculable. There is no explaining the genius. He is because he *is*; and, defying rule and line, his methods are unteachable to men of ordinary perceptions, since they succeed in spite of their defiance of the usual rule and practice.

The second is the nearly-universal practice—merchants grow in knowledge from their accumulated experiences in good and bad practices. It is a slow growth, and an expensive one; but its operation generally assures a reasonable success in the second half of the merchant's career. Its lessons *stick*. It is a hard school, under a hard master; but if the spirit of the pupil be not broken down through repeated failures, or if he does not grow over-timid through repeated disappointments, no other form of teaching is so *positive* in

its results for good, since these results are the outcome of actual personal trial.

The third-named source of success in the history of a merchant's experience is the one which has been most neglected in his studies—the observation of other merchants' methods; and we submit a consideration of the matter to the thoughtful attention of our readers.

We do not propose that he shall attempt to analyze the methods of the *geniuses* of trade, for such contemplation would likely be barren of results to him; since, as we have shown, the ways of genius are incalculable and inimitable. As foolish for a barnyard hen to imitate the flight of an eagle as for the average merchant to hope to enlarge his success by study of the history of a Stephen Girard or an A. T. Stewart.

But he *can* grow in merchandising stature by studying the methods of his successful neighbor who is *not* a genius, but only a fairly-endowed man like himself; he may confidently contemplate the success of traders in his own class, with confident hope that the study will be profitable to him.


The value of observation of the trade careers of others is in the *saving of time*, as against the expensive method of working out success through the trials of experience—expensive, not only in the money cost of the failures of theory and experiment, but in the larger cost of the *time* that was lost in these fruitless experiments. Let others do the experimenting, and do you watch the result and profit from it. In a restricted sense, nothing is more profitable than "sticking your nose"—and your ears and eyes, as well—"into other people's business." And the contemplation of the causes of other merchants' *failures* is quite as profitable as a study of successes. It is as well to observe what *not* to do as what to *do*.

To illustrate our contention: A young jeweler of Washington, D. C., recently informed the writer of this article that during his apprenticeship he minutely observed the effect of various tendencies in his first employer's methods. He noticed a certain indifference and inattention to details of customers' wishes; a bluntness of manner where special courtesy would have "counted"; a carelessness in noting the special peculiarities of this or that customer; and he realized that these various shortcomings were potential in the "drying-up" and eventual failure of his employer. Continuing his study of cause and effect, he waited through idle months (when he could have secured a position with another merchant of the same order, but with whom he felt he could not observe enough *new* bad methods to profitably instruct him) until he found a place with an aggressive and successful house; and here he again minutely noted the details of method which established *success*, just as before he had analyzed the causes of *failure*. At the age of twenty-six he went into business for himself; and, applying the knowledge which he had secured from observation of the examples, respectively, of success and failure, he saved to himself the time needed for experiment in methods, advanced at once on the right road, and is to-day conspicuously successful. He let the two other merchants do the experimenting; he simply *observed*, and applied the results of his methodical and accurate observation.

The lesson is for young men now in the employ of merchants, and for young merchants who are fledglings in trade. If they will make intelligent observation of others' methods; if they will not believe too confidently in their own notions, but will be guided by the history of others' success or failure; if they can be induced to measure their own original force modestly, and realize that the experience of others is a safer guide than any intuition outside of that of positive genius—they will save themselves many a set-back and will secure experience—the experience of others—at "a bargain price."

NINTH ANNUAL BANQUET

New York Jewelers Board of Trade



PRESENT greatness of the New York Jewelers' Board of Trade and the enthusiasm of its individual members were impressively evidenced at the ninth annual banquet of the organization, given at Delmonico's, in New York City, on January 13th. The mystic number 9 proved exceptionally favorable on this occasion, for the function excelled its predecessors not only as a physical and intellectual feast, but in the numbers in attendance and the regal richness and glamour of the scene. The banquet itself represented the art culinary in its most modern, complex and irresistible development, as associated with the name Delmonico; the elaborate decorations comprised the most beautiful plants, native and exotic; exquisite floral combinations, rich draperies and innumerable lights, all arranged with a deftness that gave to the atmosphere an oriental enchantment; while the banqueters, in festive raiment, with faces lighted by the spirit of conviviality and exuberant good fellowship, lent a superabundance of animation to the brilliant scene. The gastric apparatus of the members, aided occasionally by the extra lubricant of some tempting beverage, seemed to prove equal to the task imposed on it, and the delicious dishes were partaken of with a relish, irrespective of their component constituents or French nomenclature. The oratory was as delectable as the supper, and served in almost as many courses.

The banquet committee, to whose efforts the great success of the function was mainly due, consisted of

A. K. SLOAN, Chairman:

August Oppenheimer, Ira Barrows, Charles F. Wood, Wm. I. Rosenfeld, Leo Wormser, George E. Fahys, Samuel H. Levy, E. V. Clergue, Nathaniel B. Barton, J. A. Todd, C. G. Alford, Alfred Krower, Alfred H. Smith, Joseph B. Bowden, John C. Mount, Walter T. Thompson, James Hedges, M. DeH. Mason, Thomas K. Benton, David Untermeyer, David C. Townsend, Leopold Stern and O. G. Fessenden, and A. J. G. Hodenpyl, president of the Board, ex-officio.

The souvenirs presented to the banqueters in commemoration of the occasion were black seal-leather pocket-books, with sterling silver corners, and had the following inscription: "Ninth Annual Banquet, New York Jewelers' Board of Trade, January 13, 1898, Delmonico's." They were made by J. J. Cohn.

A pleasant parenthetic feature of the programme not mentioned on the menu card was the presentation of a solid silver dinner service by the Diamond Importers' and Cutters' Protective Association to H. H. Treadwell, of Tiffany & Co., for his efforts in having restored to our tariff law the provision placing the duty on cut stones at ten per cent. and admitting rough stones free.

The speaker's table was placed across the head of the room, the other tables running at right angles to it. At the center of the speaker's table was seated President A. J. G. Hodenpyl, and on his right were Charles T. Cook, Edmund Wetmore, C. Bulkeley Hubbell, Franklin Bartlett, Dutee Wilcox and George W. Shiebler; on his left, Rev. Wilton M. Smith, August Oppenheimer, Louis E. Bomeisler, Cornelius Van Cott, Leopold Stern and Frank L. Crawford.

The dinner over, President A. J. G. Hodenpyl rapped for order and proposed a health to "The President of the United States," which was drunk standing. He then delivered his address of welcome, which was as follows:

Members of the New York Jewelers' Board of Trade, Friends and Honored Guests:

My first pleasure and duty to-night is to welcome you all to this our ninth annual banquet. In the name of the New York Jewelers' Board of Trade I give you a most hearty and cordial welcome. And now I suppose you expect an intellectual entertainment; you will have it, but it will come later from our honored guests. My position here reminds me of the boy who was called up at a school exhibition by his teacher: "Johnny, stand up and tell the committee all you know; it won't take very long!" "I will tell them what we both know; it won't take any longer."

How fortunate that my life was spared to see this wonderful sight here to-night! Members and friends have come from all parts of the country and sit here as one band of brothers and comrades, to eat, drink and drive dull cares away, under one banner, with the inscription printed in indelible letters, "The New York Jewelers' Board of Trade."

And how happy you all seem to be, as if you already had seen the advance agent of prosperity. I see it now. Look up and see the signs of prosperity, away up in the air. I see rough free; cut, ten per cent. Ah, let us be thankful that the signs are before us, and not behind us. We have been sowing for years; the harvest is now in sight. You won't have to go to the Klondike this year. A little more patience and our book of ratings on your desk, and you will see the yellow nuggets fill your pockets. But for mercy's sake get new clothes. You have worn these long enough, and the last three years, remember, have made fearful holes in your pockets.

We enjoyed very much our night off at our last banquet, and here we are again for a good time. There is no stiffness nor formality in the intercourse of our members and friends. At some dinners it seems to be necessary for members and guests to be introduced to each other, but this is not needed at our Board of Trade banquets.

Our members have been elected because of their high standing and high character. Why, gentlemen, they are

the "salt of the earth." Do you doubt it? Look around you. Look at this grand assemblage. They are "La creme de la creme." I understand French when I speak it myself. Here are sitting the jewelers, the sterling silversmiths, the American watches and cases warranted for life, the importers of gems, the greatest and most influential, the wealthiest in this country, and we are proud of being in such good company to-night.

And where could a jeweler find a place where he can feel so much at home as under the influence of a jewelers' banquet. They have the ideal quality of good company, for since the days of the old barons there are none who can better fulfill the great essential when they sit down at a table where provisions and bottles are plenty than they can. There are none who can eat and drink better than they can, and there are none who can keep it up longer. Jewelers seem to have learned it from very early infancy, and they have kept it up ever since. They always have a good appetite when at home, and a tremendous appetite when away from home.

Therefore, I say to you, members, take the very best care of your guests. Make them comfortable, even if I am not; but don't worry about me, although, it is true, the head of this organization is not overburdened with wisdom. Does he know anything? Why, no, he does not even suspect anything, but he generally gets there, like the upright piano without legs—gets there just the same as the parlor grand with three legs.

This Association was born in New York. It was fostered by the money, care and brains of a few noble old men. These wise men said to us: "Follow us in our footsteps and you will be blessed," and I am blessed if we have not followed them at a 2.40 gait. They wanted some new young blood at the head; that's what was the matter.

Finally our members got hold of a bright idea. It takes some people a long time to get something bright in their heads, but they said it was not right that they should enjoy all the benefits and privileges alone; their neighbors ought to enjoy them also at their own expense and without having to borrow the book. Well, that bright idea has worked wonders. We grew from 112 to 300 members, and if there is one important firm left out in the cold I am sorry for them, for they must feel lonesome.

Why, gentlemen, we are getting to be so important, so useful to the country, that I have been astonished that they did not come to the Board of Trade to furnish a good police commissioner or a good mayor for Greater New York. We elect high officers to order without any trouble whatever. It is not even necessary to give a sworn statement of the expenses incurred for their own election. It did not cost me a dollar. I invite them every year to a banquet, at their own expense, and that is all.

And now, gentlemen, the New York Jewelers' Board of Trade has had a very prosperous year. For this year let me give you a motto, "What can make our Association stronger and better?" The officers, directors and members are inseparable under our system. We could not separate the one from the other, and we would not if we could. Our strength is our united work. I want you to love the New York Jewelers' Board of Trade. I want you to have a pride for its name and achievements. You are now one of the three hundred, and in a little while longer you will be one of the four hundred, the brightest honor bestowed upon any human soul in New York City. Show us, therefore, this year more of your responsible membership by direct participation in our entire work, and you will see still greater results in the future than in the past.

Gentlemen, I thank you for your patience, and we will now have the intellectual entertainment for which I know your hearts are aching. The programme is short. Give our honored guests four hours of your closest attention, and I will see you later.

(Continued on page 104 a.)



AUGUST OPPENHEIMER
First Vice-President and Chairman of Committee
on Invitation



A. J. G. HODENPYL
President



A. K. SLOAN
Second Vice-President and Chairman of
Banquet Committee



LEO WORMSER
Treasurer and Chairman of
Committee on Badges and Souvenirs

Toasts

THE PRESIDENT OF THE UNITED STATES
The President's Welcome

A. J. G. HODENPYL

EXTEMPORE REMARKS

OUR COUNTRY AND ITS GREATEST CITY HON. FRANKLIN BARTLETT
" 'Tis home, the spot of earth supremely blest,
A dearer, sweeter spot than all the rest."
Montgomery.

THE MAJESTY OF THE LAW LOUIS EDWIN BOMBISLER
" Our human laws are but the copies, more or less
imperfect, of the eternal laws, as far as we can read them."
Froude.

PAST AND PRESENT EDMUND WEIMORE
" Backward turn backward, Oh Turn in thy flight,
The present's my oyster, so open it right."

THE AMERICAN SCHOLAR HON. CHARLES BULKLEY HUBBELL
" Pour the full tide of eloquence along,
Serenely pure, and yet divinely strong."
Pope.

OUR COLLECTOR HON. GEO. R. BIDWELL
" On land and sea a rare good 'salt' was he."

THE PRICELESS JEWEL REV. WILTON MERLE SMITH, D.D.
" Of right and wrong he taught,
Truths as refined as ever Athens heard;
And (strange to tell) he practiced what he preached."
John Armstrong.

ART SIDE OF THE JEWELER'S CRAFT F. L. CRAWFORD
" To gild refined gold, to paint the lily,
To throw a perfume on the violet,
To smoothe the ice, or add another hue unto the rainbow."
Shakespeare (KING JOHN).

NINTH ANNUAL BANQUET
NEW YORK JEWELERS' BOARD OF TRADE
JANUARY 13, 1898



CHAS. F. WOOD
Chairman of Committee
on Printing



W. I. ROSENFELD
Secretary of Banquet Committee and
Member of Dinner Committee



C. G. ALFORD
Member of Banquet and Invitation Committees



E. V. CLERGUE
Member of Banquet Committee



J. C. MOUNT
Chairman Committee on Presentation



N. B. BARTON
Member of Banquet Committee

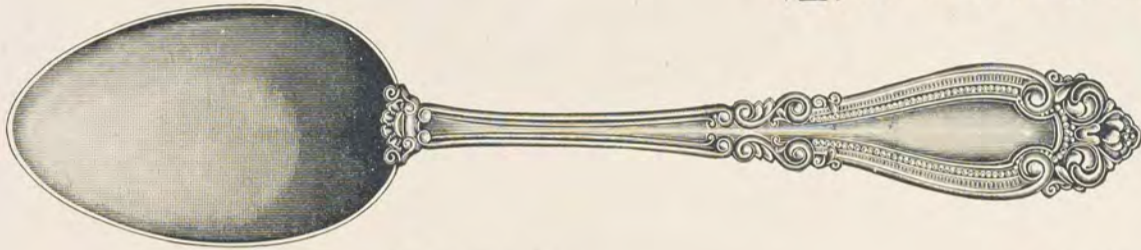
104 The LEADING PATTERN in Flatware for 1898 is

THE BLENHEIM

The latest and handsomest pattern on the market.

Made by **SIMPSON, HALL, MILLER & CO.**, Wallingford, Conn., U. S. A.
Manufacturers of the Celebrated **WM. ROGERS EAGLE BRAND** of
Spoons, Forks, Knives, Etc., bearing this Trade-Mark:

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BANNER MAIN SPRINGS.

Size..... \$1.25 per Dozen. Style.....

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For All American Watches.

Without exception the finest finish. Most accurate in sizes and strengths. Made specially for us in Switzerland.

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Sent to Jewelers only. Send in your application.

Everything Needed by Jewelers

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Precious Stones, and
All Wares in Gold, Silver and Plate.
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Optical Goods.

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AND GIVE YOU PROMPT AND RELIABLE SERVICE.

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CHICAGO

Banquet of the New York Jewelers' Board of Trade.

(Continued from page 102.)

Mr. Hodenpyl then called upon Mr. Leopold Stern, who, in the course of an interesting address, said:

We are living in a period when, by reason of keener competition, the trade would benefit by thorough organization, asserting itself in every possible direction. The mutual protection of merchants, manufacturers, and even professions, based on the broadest and most liberal principles, has come to be recognized as an indispensable factor, and in no branch of trade is the promotion of such principles more urgently needed than in ours. Many of our systems need reform, particularly, I may be permitted to state, the system of long credits, which have become a menace, and only by concerted action can they be eradicated or modified. I confidently hope that this important question will, in the near future, receive your most earnest consideration.

Mr. Stern then proceeded to make the presentation to Mr. Treadwell. After referring to the re-adjustment of the duty on diamonds in accordance with the views of the jewelers, and M. Treadwell's great services in securing it, he said:

Mr. Treadwell, the committee having charge of this matter has reached the undivided opinion that the accomplishment of our success is largely due to your untiring and painstaking efforts, to your ceaseless activity, to your zealous watchfulness, to your honest, logical and clear representation of the then existing depressed condition of our trade and its cause—the conditions of importation. We owe you very much. Your reasoning assisted our lawmakers in putting this law on the books. That our efforts have not benefited our trade alone, but also that they have largely increased the revenues of our Government, is evidenced by the following facts: I state, in order to demonstrate the benefits accruing from the efforts of Mr. Treadwell, that the revenue of the Government from the importations of cut diamonds and precious stones during the last five months, compared with the five months of the previous year, have been, from August 1, 1896, to January 1, 1897, \$690,000; whereas the importations in 1897, for the same five months, were \$4,659,000. The importations of rough diamonds during the five months of 1896 were \$770,000, whereas for the five months of the last year they were \$2,220,000.

We have incurred a debt of gratitude to you, Mr. Treadwell, which we feel we shall be unable to discharge in a manner commensurate with its magnitude. We shall always remember with profound appreciation the inflexible zeal characterizing the eminent services you have rendered. Without detaining you any longer, it now becomes my rare privilege to ask you, on behalf of my fellow-members, to accept this testimonial as a token of their esteem and high regard for you, and of our fervent hope that the great Giver of Life may keep you many years in possession of health and grant that you may enjoy the use of this dinner set on many pleasant occasions in your family and the entertainment of your friends. [Hearty applause.]

Mr. Treadwell, who was greatly moved by the handsome present and the spirit that inspired it, said in response:

You have taken me so completely by surprise that it is very difficult to find words to express my feelings in accepting this magnificent gift. I must say, however, that you have given me entirely too much credit in this matter. You know, Mr. President, that you, as chairman of that committee, and every member who was called upon—you know how untiring you were in your efforts to bring about success. I thank you for your kindness, and assure you this present will always be a reminder of this pleasant occasion. [Cheers.]

The president next proposed the toast, "Our Country and Its Greatest City," with which he coupled the name of Hon. Franklin Bartlett, who said in the course of an eloquent, if somewhat irrelevant, response:

I want to tell you about your art—what I think of it, what I think of your great applied art, the science of the jeweler. You will agree with me that the love of personal adornment is coeval with the existence of the human race,

for tradition tells us that even in the Garden of Eden, on gala occasions, Mother Eve was wont to adorn her only garment with the diamond and the ruby, and ever since the time when man emerged from the rude tribal state it was found that the first thing he desired was a gem. It is remarkable that the cultivation of that art has from time to time kept pace with the progress of civilization and the advance of the human race. There is no great dramatic epoch in history, no tale of tented fields, no story of a lady's bower, which has not been made more attractive by the gleam of a diadem or the flash of a jeweled sword.

Jewelry is a luxury because it makes life more precious. Why talk about the necessities of life? They are not to be compared with luxuries. Luxuries alone make life endurable and precious. It is not the crust of bread or the glass of water; for the peasant in his cot and the prisoner in his cell share those with us. It is luxury, greater or less, which adds a charm to existence. You will find that this love of that in which you deal daily comes home to every woman, man and child throughout the world.

Even our poets are dependent upon your art. You know that when we first meet the girl we tell her that her teeth are pearls, that her eyes are sapphire blue, and, when we know her better, that her lips are ruby. [Applause.] Gentlemen, the love of jewelry is a sign of civilization and of good breeding. Another thing I like about your profession or occupation is that it means prosperity. I like to associate with the prosperous and the wealthy, and you are all prosperous and all well-to-do.

no." Let a man first ask himself is he right, and if he is right we will make it lawful. But why talk morals to the Jewelers' Board of Trade? As well might I try to paint the lily, for you bear the badge of honor on your brows. (Applause.) You take your children on your knee and teach them to hug that honor to their bosoms and guard it with their lives. Let us stand for law for all time. Let the majesty of that law prevail. Let us be each true to each other. Let the bar be honest and the bench upright and the magistrates wise. Let the patriotism of our people rest upon the firm rock of the undissolvable union of indestructible States, welded together by the glorious constitution that knows no race, no color, and no creed; no east, no west, no north, no south. A common country for one common people. America for our own and God for us all. (Cheers and applause.)

The president next called upon Mr. Edmund Wetmore to respond to the toast, "Past and Present." In the course of his response he said:

We may carry the rise of your art as far back as the fall of man, or, at least, of woman, because it has been sagaciously observed of Eve that she ate the apple that she might dress, and the love of dress receives its impulse from the love of beauty, and art it is that elevates and refines. The hand that fashioned the first bracelet did for mankind what will outlast the work of the arm that forged the first sword blade. It is perfectly natural, then, that the products of your art should be associated with many of the most interesting events of our lives.

A boy never really appreciates the size of his own head until he has his first gold watch, or what he thinks is gold, but which you and I know to be only gold filled or rolled gold. And when he reaches the age of manhood and passes into the lover, matinee and engagement stage, and makes that promise, the keeping of which brings so much bliss, or ought to, you it is who enable him to express his trust in a future of double happiness by yourself trusting him for the solitaire that is the symbol of it. And in the most momentous event of his life, from you it is he gets the plain gold ring, the emblem of the home circle.

And to you, in his later years, it is his friends' turn to purchase for him the diamond or the service of plate to signalize his long tenure of office, and their admiration for the facility with which he got there, and the tenacity with which he held on. These are but a few of the occasions in our

experience, graced by your artists and workmen; but beyond all these, we have to call upon you to supply a thousand wants to our daily lives. By progress of civilization, what in times past were the luxuries of the few have become the necessities of the many. Where our ancestors were content with pewter we must have silver. Where they had silver, we must have gold.

Your art has had to seek the powerful aid of machinery—that power which has demolished the narrow workroom and caused the huge building, with its whirling shafts and flashing dies, guided by a thousand hands, transforming metal particles into things of beauty as water drops are transformed in Nature's workshop into delicate snowflakes. With the new order of things, new powers are demanded, greater abilities required, larger responsibilities involved. Steam and electricity have brought us from the suburbs to the center of the world of trade. The conduct of a great manufacturing business to-day requires the vigilance, foresight and wisdom that used to suffice to direct a government, and questions arise that cannot be solved without bringing the foreign world to its remotest quarters into calculation.

The full extent of prosperity anticipated may not have arrived, but it is coming, to bring profit in the place of unfruitfulness, just as the spring, whose approach is as yet marked only by the imperceptible lengthening of the days, when the trees, that are now stiff and bare, will put on a wealth of green leaves, and the waters, that are now frozen, will sparkle into dancing life-blue and the whole heavens and earth will smile in the glorious sunshine.

Rev. Wilton Merle Smith responded humorously to the toast, "The Priceless Jewel," and was followed by George W. Shiebler, president of the New York Jewelers' Association, who spoke as follows:

I want to thank you most heartily for having invited me to-night as a guest. I have not the gift of speech, but there are just a few words I would like to say. About thirty years ago one of the New York manufacturers was looking around for a salesman who could help to peddle his

(Continued on page 104 b).



O. G. FESSENDEN
Director and Chairman of Dinner
Committee

IRA BARROWS
Director and Member of Banquet
Committee

In introducing the next toast, "The Majesty of the Law," the president said: "Great is the law. From the time we come into the world until we leave it, when our customers fail, make bills of sale, put their property in their wives' names, the law sees us out, and sometimes very much out. But we have a gentleman with us to-night who can give us some points on law, and will not send us a bill for it. I take pleasure in introducing to you Louis Edwin Bomeisler." Mr. Bomeisler said in response:

It has been a popular conception that law was an expensive luxury. Careful research has developed the origin of this hallucination. When the mists of the morning touched the mountain tops adjacent to the Garden of Eden, there they tried the first ejection suit, and Eve was joined as a defendant with Adam, and a verdict was given for the plaintiff. That was a most expensive litigation. It cost a paradise, and we have been paying the disbursements ever since.

A French jurist has defined jurisprudence as a system of separating a man from his money. I always did consider that the French lacked humor. There are two kinds of law, gentlemen—laws divine and laws human. The former is a part of us; we have but to incline our ear to hear the voice that sang the evening hymn in childhood, the voice that pleaded for the right in boyhood, the voice that whispered from on high in manhood, and to that voice we all bow with humble reverence. That, my friends, is the voice of nature. It is the law of God. There are good and there are bad laws. The best way to repeal a bad law is to insist upon its strict enforcement. To prevent a bad law, attend your primaries and insist that no man shall be elected to make laws who is not like unto Caesar's wife, above suspicion. Let every man, woman and child stand equal before the law, without regard to race, color or previous condition of servitude. That is law, and that is a holy right. A client asked his lawyer, "This claim is outlawed; can I resist it?" The lawyer replied, "Lawfully, yes; rightfully,

Banquet of the New York Jewelers' Board of Trade.

(Continued from page 1034)

wares. About the same time, in Philadelphia, there was a young man dissatisfied with his work in a telegraph office, and hoping and yearning for Providence to turn up something for him wherein he might be more useful.

That was a great change, from a telegraph office to the selling of gold chains. We meet together as the representatives of the two organizations of the goldsmiths' and silversmiths' trades.

The toast, "The American Scholar," was responded to by Hon. Charles Bulkley Hubbell, and F. L. Crawford followed with an excellent address on "The Art Side of the Jewelers' Craft."

It is a commonplace of critics to say that the measure of a nation's art advancement is not so much its great paintings or sculpture as the degree with which beauty is impressed upon common things.

Now, judged by such a standard as this, it must be confessed that prior to the last twenty years art in this country was at a very low ebb.

But since 1876, the year of the Philadelphia Exhibition, there has been very rapid progress, and in no direction more than in the jeweler's art.

So long as manufacturers have to cope with the department store craze for bargains, just so long we shall have trash turned out. One thing is certain, if a high art standard is to prevail throughout the jewelry trade in this country the price must be made to fit the article, and not the article the price.

The injurious effect of bad art on the jeweler's product is particularly far-reaching. The materials with which he works—the gold, the silver and the gems—by their value and by their intrinsic loveliness, which no treatment can utterly spoil, seem to impart their own worth to the form into which they are moulded or to the setting in which they are placed.

Moreover, the work of other craftsmen has but a brief life. Its influence for good or for bad is transient. But the jeweler's product is all but imperishable. A piece of silver may be in constant use for a century, and ever be teaching lessons either of the ugly and false or of the true and beautiful.

In spite, then, of the low condition of public taste, in spite of the dictum that "art does not pay," I venture a plea for higher standards in all the products of your craft—a plea for the genuine as opposed to the sham; for simplicity as opposed to over-ornamentation; for the combination of beauty of form with perfect fitness for the purpose intended—in short, for the supremacy of the art ideal.

In the British Museum there is a collection of antique gems, carved as cameos and intaglios, so displayed upon an inclined surface that, by holding a thin board over them, the light from above is cut off, and the light from below is allowed to shine through.

Mr. Crawford's address was very interesting, admirably delivered, and generously applauded.

Following is a list of members of the Board and guests who attended the banquet:

- John A. Abel, C. G. Alford, J. Warren Alford, J. W. Appleton, Thos. F. Arnold, Stephen Avery, Chas. W. Bailey, J. H. Baldwin, C. M. Ballard, Ira Barrows, Hon. Franklin Bartlett, N. B. Barton, Jos. O. Bates, Morris Bannan, Geo. B. Belcherhase, W. J. Benn, Jas. M. Bennett, T. K. Benton, H. B. Billings, W. G. Blair, H. A. Bliss, Chas. L. Bleecker, Henry Bodenheimer, Louis E. Bomeister, Elmer F. Botsford, J. B. Bowden, M. L. Bowden, Fred. Bray, C. G. Braxmar, John Brower, W. H. Brown, D. V. P. Cadmus, R. L. Cannon, H. J. Carr, G. A. Carter, Jr., Irving H. Chase, C. B. Churchhill, James Clark, J. L. Clark, G. H. Clarke, E. V. Clergue, J. J. Cohn, L. D. Cole, Charles T. Cook, Henry F. Cook, W. V. Cranford, Frank L. Crawford, E. R. Crippen, J. M. Cutter, J. Davidson, Chas. Dayton, C. C. Depollier, James De Wolf, E. J. Dingee, Jr., W. P. Doremus, Louis F. Doyle, G. Eacret, W. G. Earle, Wm. Edwards, Benj. Eichberg, Frank Einstein, E. A. Eisle, Geo. U. Elliott, Newton B. Eltinge, Geo. H. England, S. Englander, Geo. E. Fahys, Joseph Fahys, G. W. Farrand, H. Fayen, Aug. Felix, R. S. Ferguson, O. G. Fessenden, S. H. Fink, E. C. Fitch, C. H. R. Fitz Gerald, Chas. M. Fogg, Gen. Geo. H. Ford, D. J. Frankel, S. Frankel, Robt. Gatter, E. M. Gattle, W. S. Ginnel, J. R. Gleason, G. E. Goddard, A. Goldsmith, J. R. Greason, Wm. Halls, R. S. Hamilton, Jr., W. P. Hanford, G. M. Hard, H. C. Hardy, C. Wesley Harman, R. Harris, Chas. Hartdegen, C. E. Hastings, Daniel P. Hays, Henry Hayes, A. O. Headley, James Hediges, J. Heilbron, A. J. G. Hodenpyl, Dr. Eugene Hodenpyl, Geo. H. Hodenpyl, Wm. Hoffman, Hon. Charles Bulkley Hubbell, F. B. Hurlburt, W. H. Hurlburt, Albert V. Huyler, Sam'l M. Hyneman, Chas. H. Ingersoll, Robt. H. Ingersoll, Thomas Jacob, H. A. Jacobson, Fred. A. Jeanne, A. O. Jennings, A. E. Johnston, W. J. Johnston, Oscar Jouassohn, Chas. R. Jung, Louis Kahn, Moses Kahn, David Kaiser, B. Karsch, John A. Keim, W. C. Kimball, Frank Kind, Walter G. King, Thos. Kirkpatrick, Robt. H. Klitz, B. Konijn, S. Konijn, Alfred Krower, H. Krym, Robt. Lambert, John Lamont, Jos. L. Lawson, Fred. C. Lawton, S. H. Lee, Sam'l H. Levy, F. M. Lewis, L. S. Lewis, S. Lindeborn, Otto Lion, Robt. Lissauer, W. H. Lyon, C. G. Malliet, Thomas Marler, E. P. Marum, M. de H. Mason, Joseph B. Mayer, J. W. Mayer, Col. J. McAnerney, W. J. McQuillin, W. J. Midden, Lloyd Milnor, E. Moody, George H. Morrell, F. J. Morrow, V. S. Mulford, W. B. Musser, E. L. Myers, Hon. Joseph E. Newburger, A. W. Newell, L. H. Nordlinger, P. R. Oliver, August Oppenheimer, J. S. Oppenheimer, Zach A. Oppenheimer, Geo. B. Owen, Jr., J. E. Parker, H. W. Patterson, S. C. Payson, Carl O. Peters, Thos. E. Platt, M. W. Platzek, Morris Prager, A. I. Pratt, E. H. Proudfoot, Fred. Pope, M. L. Powers, C. H. Randall, B. F. Rees, D. Solis Ritterland, F. A. Robbins, A. Roseman, Wm. I. Rosenfeld, Chas. L. Roos, P. S. Ross, Henry Rowlands, R. W. Ryer, D. L. Safford, W. P. Sackett, E. E. Sanborn, P. H. Savory, Wm. Scheer, S. W. Schiele, H. Schompp, R. F. Schompp, Theo. Schulz, Adolphe Schwab, J. T. Scott, E. F. Sharp, W. F. Sheehan, John E. Shepard, Col. John L. Shepard, Francis S. Sherry, Geo. W. Shiebler, Simon Sichel, E. Sickle, Louis Sickle, Bert. Sinauer, A. K. Sloan, F. H. Sloan, Alfred H. Smith, Ch. A. Smith, C. W. Smith, D. N. Smith, Fred. L. Smith, G. W. Smith, H. B. Smith, Irving Smith, M. N. Smith, W. Smith, Rev. Wilton Melre Smith, D.D., E. J. Spall, James E. Spencer, John E. Spencer, A. L. Stearns, Isidor Stern, Leopold Stern, Geo. T. Strebbins, Horace W. Steere, J. W. Stiles, Jr., O. O. Stillman, W. H. Strawn, C. Strobel, Fred Sulzberger, Edm. Sussfeld, W. T. Thompson, H. B. Thornbury, Geo. A. Thorne, B. Thorpe, S. Tickell, James A. Todd, D. C. Townsend, Geo. B. Townsend, J. I. Townsend, T. Y. Traudly, H. H. Treadwell, David Untermeyer, E. Untermeyer, H. Untermeyer, W. D. Upson, Hon. Cornelius VanCott, Geo. M. Van Deventer, M. Van Wezel, J. A. Van Wezel, Gus. F. Veith, Henry F. Veith, J. Warren Vreeland, Wm. H. Vogel, A. Walter, Jr., W. N. Walker, Edwin D. Washburn, A. A. Webster, George Weidig, Frank M. Welch, Maurice Wendell, Edmund Wetmore, C. L. White, S. T. White, Dutee Wilcox, Louis Witmauer, Ch. F. Wood, E. E. Wood, J. B. Wood, A. W. Woodhull, Geo. T. Woodhull, Leo Wormser, Fred. Worth, Aug. Wouters, A. M. Young

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

The annual meeting of the New York Jewelers' Board of Trade was held at its rooms, 54 Maiden Lane, New York City, on January 27, 1898.

The following were elected directors for the ensuing year:

- Ira Barrows, John C. Day, Geo. E. Fahys, O. G. Fessenden, A. J. G. Hodenpyl, Alfred Krower, S. H. Levy, E. V. Clergue, August Oppenheimer, G. H. Robinson, A. K. Sloan, C. F. Wood, Leo Wormser, Grove Sackett, J. F. Faber, J. A. Todd, N. B. Barton, Wm. A. Copeland, Geo. K. Webster, Of H. F. Barrows & Co., New York, Day, Clark & Co., New York, Jos. Fahys & Co., New York, H. W. Wheeler & Co., New York, Hodenpyl & Sons, New York, Albert Lorsch & Co., New York, L. & M. Kahn & Co., New York, E. Howard Watch & Clock Co., New York, Oppenheimer Bros. & Veith, New York, Gorham Mfg. Co., New York, Sloan & Co., New York, Chas. F. Wood & Co., New York, Julius King Optical Co., New York, W. L. Gilbert Clock Co., Chicago, Dennison Mfg. Co., Chicago, Towle Mfg. Co., Chicago, Ostby & Barton Co., Providence, R. I., Marrin, Copeland & Co., Providence, R. I., Webster & Co., North Attleboro, Mass.

From the directors the following were elected as officers:

- A. J. G. Hodenpyl, President, August Oppenheimer, First Vice-President, A. K. Sloan, Second Vice-President, Leo Wormser, Treasurer.

President Hodenpyl made a long address eulogistic of the work done by the organization, and indicating the expansion in its field of usefulness. Referring to the book of ratings and collection bureau he said:

Very few of our members have any idea of the cost or how much time it takes or how many persons are required to keep such a book up to date. Whether business is good or bad we must go over the same ground every year, for jewelers will die, retire, change location, be entitled to higher or lower ratings, etc., etc.

Our collection bureau was established for the benefit of our members. In the past it may not have been what it ought to have been, but for the last two years we know it has been good, yes, the best in New York City. Many of our members have complimented us very highly.

The annual report of Secretary D. L. Safford was of a most gratifying character. The most important portion of it was as follows:

On January 1, 1897, our membership was 216. During the year 100 members have been admitted, nineteen have resigned and three have been dropped from the roll, leaving our total membership to date 294, making a net increase for the year of seventy-eight members.

In our reporting department much has been done toward completing our records. Thousands of new reports and revisions of old reports have been added; the results of which are shown by the fact that 12,523 changes were made in our reference book during the year.

Over 40,000 reports have been issued to members in answer to their inquiries, not counting the weekly sheet of changes and the special notices in cases of failures etc.

Our collection department shows an increased efficiency and usefulness to members, the number and amount of claims handled and collected showing over twenty-five per cent. increase over the previous year. We have handled 3,045 claims, of which we have collected 1,175, amounting to \$71,247.51; 862 claims have been either investigated and returned as not collectible, or put into judgment, leaving 1,008 claims in our hands for attention.

In cases of failures our Board should be the clearing house through which settlements are made. Where members divide the claims among a dozen or more attorneys it leaves our Board without the power it should exercise, and causes unnecessary delay, annoyance and expense to all.



14 KARAT



ROLLED GOLD PLATE

TOILET WARE

SOMETHING NEW FOR 1898

For beauty of design are simply regal.
All hand chased or engraved.
Guaranteed to wear ten (10) years.
Will not tarnish.

**AT ABOUT SAME PRICE AS
STERLING SILVER.**

Also made with Solid Gold Shields.

As in the Sterling Toilet Ware,
we are
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A full line now on exhibition at our New
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If you do business you cannot afford to be
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Manufactured and sold direct to the trade.

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Silversmiths,

111 Fifth Avenue,

NEW YORK.

Works, Providence, R. I.

104 c

14 K. Tiffany, Belcher and Wire Ring
Mountings, 85c. per dwt., always in stock.

10 K., at 70c.

Carved and Engraved Patterns,
15c. per dwt. additional.

Sole Manufacturers



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Importers DIAMONDS and PRECIOUS STONES.

Makers FINE DIAMOND MOUNTINGS
of 20-Year Standard Quality and Make.

Pat. Pivot Earrings.

DESIGNS AND ESTIMATES FOR SPECIAL ORDER WORK WITHOUT CHARGE.



No. 140. \$22.50 dozen.



No. 137. \$8.75 dozen.



No. 144. \$11.25 dozen.



No. 138. \$24.00 dozen.



No. 141. \$22.50 dozen.

Opal Ring Investment

What we are offering with a great stock
of the latest designs in OPAL GOODS.

CHOICE OPALS selected in all our rings.

Prices subject to 6 per cent. 10 days only.



No. 142. \$10.00 dozen.



No. 145. \$36.00 dozen.

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54 Maiden Lane, NEW YORK.



No. 143. \$30.00 dozen.



No. 136. \$45.00 dozen.



No. 147. \$49.00 dozen.



No. 146. \$45.00 dozen.



No. 139. \$24.00 dozen.

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BROOCHES,
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For Single Head
or Group.

Send for Circular.

The Goldstein Engraving Co., 45 Maiden Lane, New York.

We do SOUVENIR SPOON Engraving and Etching.

Philadelphia Notes.

Here, as in other cities, there has been an after-holiday lull, but prospects are exceptionally bright. The industrial outlook is more promising than for five years past. The local locomotive works, the ship-building works and most of the other big manufacturing interests are quite busy. The money thus put in circulation will help the retail jewelry trade, who have great hopes for the present year. The local wholesalers were well pleased with holiday business, and report that the activity was very well sustained during January.

The many friends of G. Kunz, of the American Cuckoo Clock Co., will be pleased to learn that he has recovered from his recent illness, and is attending to business as usual.

Blair & Crawford, the Chestnut Street jewelers, issued a handsome calendar, which will serve to keep their business before the attention of their patrons.

Queen & Co., who sold their entire stock of lamps and silverware, to make space for their increasing optical business, have much improved their establishment. A prominent portion of the store, near the entrance, is now devoted to the photographic, lens and X ray branch of their business, which developed rapidly during the past year. Their list of manufactures is now more extensive than ever, comprising, in addition to spectacles and microscopes, all manner of ophthalmological apparatus, projection lanterns, photographic apparatus, philosophical and electrical instruments, chemical apparatus, meteorological instruments, and civil engineering instruments.

Thomas B. Hagstoz has started a smelting and refining business at 709 Sansom Street. He has erected a regular smelting works, and will handle all sorts of sweepings and refittings, making a specialty of buying old gold and silver.

Beitel & Kinsler, of 1018 Chestnut Street, have dissolved partnership, Mr. Beitel retiring. The business is being continued by Mr. Kinsler.

Pfaelzer Bros. & Co., wholesale and manufacturing jewelers, formerly at 819-821 Market Street, are receiving congratulations on the elegance and general excellence of their new store at 932-934 Market Street. The firm, which is composed of the two brothers, Simon and Morris, dates the origin of the business back to 1866, and after a prosperous existence of thirty-one years it is pleasant to chronicle this new evidence of redoubled enterprise and progress. Both brothers are deservedly popular, have an enviable reputation for honest dealing, and are held in high esteem by all with whom they have social or business relations. The removal has added greatly to the facilities, and they are now able to supply the wants of the trade more promptly and satisfactorily than ever.

The Dennison Mfg. Co. will, about February 15th, move their quarters in this city to 1007 and 1009 Chestnut Street, where they will have more space, a better location, and more extensive facilities for transacting their growing business. They will occupy the first floor and basement, and the store will be handsomely and elaborately fixtured. Philadelphia can then boast of one of the handsomest branches of the Dennison Co.

On the complaint of a jewelry salesman that he was being followed by a quartette of evil-designed men, the local police recently arrested after a violent struggle James Sullivan, of Reading, Pa., William Develin, of New York, James Riley, of St. Paul, Minn., and Charles Hoyt, of Little York, Pa. It is believed that they have burglarized many jewelry stores. An ingenious portion of the outfit found in their possession was a cane with a hook in the end, believed to have been used in stealing small articles from shelves, show cases and windows. The hook was operated by a lever at the opposite end of the cane.

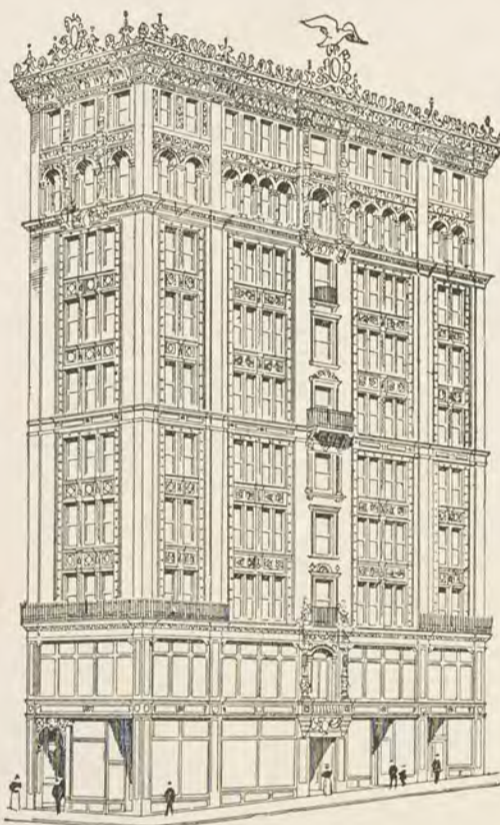
The traveling staff of M. Sickles & Sons are traveling in their respective territories, and report excellent prospects for a big spring trade. Abe Sickles is in the South, and Sol is in Pennsylvania, while Ed. is taking orders in Philadelphia and vicinity. Walter Davis, another representative, travels for the firm in Maryland and Virginia.

"THE KEYSTONE is a wonder," remarked S. C. Levy, the enterprising Ridge Avenue jeweler. "I got a suggestion from the January issue that paid for the year's subscription within a few hours after I put it into use. Acting on the suggestion in THE KEYSTONE, I placed a lot of novelties that I had left over from the holidays, in the window. In one end of the window I placed a new broom and a card, announcing a clean sweep of all the holiday goods left over, at cut prices. The card and broom attracted considerable attention, and within a week, I had the whole stock cleaned out."

William Fitzsimmons, formerly with Cady & Olmstead, Kansas City, Mo., has taken charge of the engraving department of Mead & Robbins Co., succeeding Louis Scherr.

D. V. Brown, 738-740 Sansom Street, issued a handsome calendar, which he distributed among his patrons. Its chief feature was a well-executed steel engraving, a sort of composite picture of his business, showing eye-glasses and case, opera-glasses, ophthalmometer, etc. Between every two monthly pages of the calendar proper was a monthly order blank for the convenience of the trade. He has just placed on the market the new "Monitor" eye-glass case, 1898 model. It is made of steel, covered with black leather, and is strong, light and handsome.

Bernard Levy the watch case manufacturer at 130 South Ninth Street, died January 7th. Mr. Levy was born in France in 1827. When about eighteen years old he came to New York, and worked at watch case engraving one year. He then went to Philadelphia, where he formed a copartnership with D. Lechty, as engine-turners and engravers, at the corner of Fifth and Walnut Streets. This connection lasted until 1876, when the firm dissolved, and Mr. Levy engaged in the manufacture of watch cases, at



New Jewelers' Building, Boston.

Fourth and Library Streets. In 1886 the business was removed to its present location. Mr. Levy was one of the best engravers of his day. The business will hereafter be managed by his sons, who have purchased the concern.

The miscreants who burglarized the store of Albert Abraham, the North Ninth Street optician, as told in last month's KEYSTONE, have been placed behind the bars. The same fate has befallen the individual who swindled Jeweler Maree, of Manayunk, out of a watch.

Rochester, N. Y., Optical Club.

The regular monthly meeting of the Rochester Optical Club was held in the reception room of the Genesee Optical Co., on January 25th. The important features of the meeting were the report of the lecture committee, which announced that the series of lectures would begin in the near future, and the amendment to the constitution, Act IV. Sec. 2, offered by Mr. Bissell.

The papers read were "Muscular Insufficiencies or Errors," by B. B. Clark; "Glass," by Chas. Beckwith; and "Reflection," by W. W. Bissell. Each paper was followed by a general discussion, and the meeting was one of great interest. The club is full of enthusiasm, and the membership is rapidly increasing.

The State of New York seems to be going ahead in the matter of optical science and in the mutual improvement of opticians. It has no less than four optical organizations—the New York State Optical Society, the New York State Association of Opticians, the Optical Society of New York City, and the Rochester Optical Club, all working in perfect harmony.

The Jewelers' Building, Boston.

In New York and Chicago in recent years great progress has been made in the work of centralizing the wholesale jewelry trade in monster many-storied structures, specially designed and equipped for the purpose. Maiden Lane and State Street are rich in such edifices, and now Boston follows in the wake of her bigger sisters on the Hudson and Lake Michigan. "The Jewelers' Building" is the appropriate name of the monster new structure just completed at the corner of Washington and Bromfield Streets, right in the center of the jewelry district. In beauty of design and external ornamentation this structure surpasses many of those in the larger cities, and the internal arrangement and commodiousness of the rooms and offices make them specially desirable for the purposes of the jewelry trade.

In the internal finish of the building money has been lavishly expended, only the very richest and most decorative material being used. Then the special requirements of the jewelry trade have been excellently attended to. On the first floor there are large vaults for the safe storage of goods, easily accessible to the floors above. There are most commodious passenger elevators of large capacity and also freight elevator accommodation. There is every convenience of communication by telephone or telegraph; in fact, nothing has been neglected that would facilitate business-doing within the building, which was constructed exceptionally strong throughout on account of the massive safes of great tonnage that will occupy the floors.

Among the tenants who have secured quarters in the building are D. C. Percival & Co., Tiffany & Wales, M. Myers, the Woodman-Cook Co., E. A. Whitney Co. and William A. Thompson. Percival & Co. occupy the entire second floor, and their quarters, in extent, stock, excellence of arrangements and beauty of fixtures, will compare favorably with those of any jobbing firm in the country. Never before had this popular firm such facilities for transacting their business, and their removal to their new location is timely coincident with the return of a period of assured prosperity.

M. Myers, the well-known material house, formerly at 367 Washington Street, is now located in rooms 37 and 38 on the fourth floor. This concern has been in the material business for nearly fifty years, the original M. Myers having started in 1843. They carry a complete line of watch-makers' and jewelers' materials, and a full line of tools, chains, charms, silk guards, etc. The facilities now are such that they can give greater satisfaction than ever to their patrons.

Excellent quarters in the new building are also occupied by Tiffany & Wales. They are now in a position to further widen their business and attend to the wants of the trade with all possible promptness and satisfaction.

The Jewelers' Building is now rapidly filling up, and promises in the near future to be the center of business-doing for the jewelry trade of the city of culture and a stimulus to the jewelry business of New England.

Ithaca Calendar Clocks.

MT. CARROLL, ILL., January 24, 1898.

EDITOR KEYSTONE.

In your January number I find some one asking for a remedy for irregular running of Ithaca calendar clocks. Ten years ago I had my first experience with Ithaca calendar clocks, and have made a success with several since that time. In fact, have had no failures. You simply dispense with the combination dead beat escapement, use the same verge, insert a post in the frame below the center to receive the end of the pendulum rod as in any ordinary clock, and you have it. You may have to lower the calendar and raise the movement to get sufficient length of pendulum rod to make the clock run slow enough. The above remedy gives a fine escapement. Yours truly, H. E. COLE.

The Keystone an Essential.

GENTLEMEN.

WYOMING, ILL., January 7, 1898.

Please find enclosed one dollar to renew my subscription to THE KEYSTONE. Could not do without it. It is the only magazine or trade journal I get the time to read, but I must read it to keep up to the times; and since I have made it my business to read it every month I find I am posted on everything new that comes up, and when customers come in for something new I am ready for them. I get along with my business much easier than before I was a thorough reader of THE KEYSTONE. Yours truly,

T. B. SHAFFER.



A Postal Will Do

WE have just issued our **New 1898 Catalogue** of **TOOLS AND MATERIAL**. It is a book of 720 pages, profusely illustrated. It contains a valuable lot of information for Watchmakers and Jewelers, who will find it a useful and interesting book to have. It will be sent free of charge to any Watchmaker or Jeweler, who is engaged in business or who contemplates embarking in same, who will write us for it.

Otto Young & Co.

Importers and } DIAMONDS, WATCHES, JEWELRY
 Jobbers of } SILVER-PLATED WARE
 } TOOLS AND MATERIALS AND
 } OPTICAL GOODS

Nos. 149, 151 & 153 State Street

Chicago

SPECIAL ATTENTION GIVEN TO ORDERS

New Goods and Inventions.

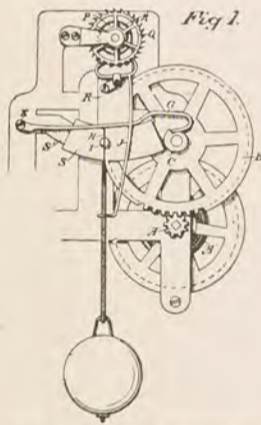
[The illustration and description of new goods and inventions as hereunder is a permanent feature of THE KEYSTONE, our twofold object being to keep the merchant jeweler thoroughly posted on the very latest and most salable goods, and the practical jeweler equally well posted on the newest inventions and improvements in tools and appliances used at the bench. For the benefit of the optician, we also illustrate and describe new optical goods and instruments in this department.]

An Economic Incandescent Gas Burner.



Much inventive genius has been expended in the effort to so improve the gas burner as to combine the greatest economy of consumption with a maximum of illumination. This desirable combination would seem to be embodied in the Elmore incandescent gas burner, controlled and manufactured by the Elmore Company, Chicago. This burner has been thoroughly tried and is said to have given great satisfaction. The makers claim that the light from this burner will not fade or injure the most delicate colors or fabrics, which would make it peculiarly adapted for store or show window illumination. It is also claimed that it gives a perfectly white light, same quality as daylight. For this reason it is said to show colors in their natural shades, just as sunlight does, and there is no difficulty in distinguishing one color or shade from another. From the economical standpoint, too, the manufacturers claim as much for the Elmore burner as can be claimed for any others. They guarantee a saving of fifty per cent. in the expense of lighting a store or any room, and claim that double the light of an ordinary burner will be given.

An Improvement in Clocks.



Ever since the introduction of the spring as a motive power for clocks and watches, it has been a puzzle to the horologist to equalize the force exerted on the train. One of, if not quite, the first attempts in this direction was the "Stackfreed," a device which retarded the train when the spring was first wound, and accelerated it when nearly run down. The fusee, a great improvement on the Stackfreed, soon followed, and has held its place for marine chronometers of the highest type to the present time. The acceleration of eight-day clocks of the cheaper kinds, when first wound, has always been a great drawback to their usefulness, and many plans have been devised to remedy this defect. The most successful plan so far has been to employ a sort of combination escapement, which embodies the principles of both the recoiling and dead-beat escapements. But by far the most practical remedy for acceleration of a spring clock when first wound is embodied in the patent issued on November 30th, 1897, to Joseph Schulte, Monterey, Cal., an illustration of which we reproduce. The idea of the device is evident at a glance. A lever *G* is pivoted at *E*, and extends horizontally across the movement, where the free end rests on a cam, shown at *C*. Said cam is attached to the arbor of a wheel which gears into the pinion *A*, placed on the arbor of the main wheel. It is evident at a glance that when the mainspring is fully wound the free end of the lever *G* will rest on the lowest part (nearest the center) of the cam *C*. The suspension spring *H* of the pendulum rod, after passing through a slot in the stud *I*, is attached to the lever *G*. No proficient in horological matters need to be told how the device works.

A New Pattern of Flatware.

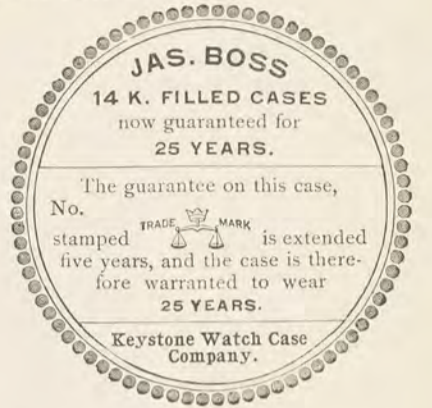
Our illustration shows an entirely new pattern of silver-plated flatware, and while the cut does but partial justice to the original, it will at once impress the trade as one of the most exquisite designs yet shown. The "Blenheim" is the product of Simpson, Hall, Miller & Co., Wallingford, Conn., and their reputation as makers of the standard plated flatware, added to the great beauty of this pattern, should make it one of the great sellers of the season. The design is artistic in conception and admirably executed.



favorites nowadays. The same firm has placed at the disposal of the trade quite a number of other patterns, the variety of which indicates a wonderful wealth and versatility of designing talent. As a prosperous spring is now pretty much of a certainty, a good flatware season is likewise assured, and it will pay the trade to give early attention to these most salable goods. Even in the dulllest part of the recent depression flatware gave a good account of itself.

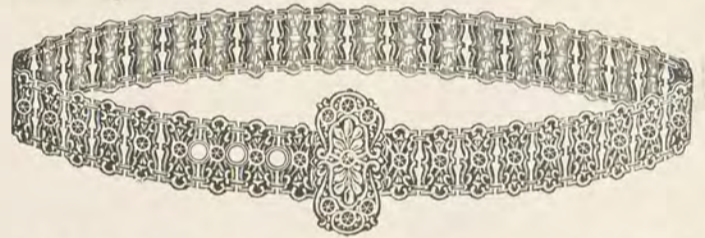
Watch Case Guarantee Extension.

A matter of general interest to the trade is the announcement of a five years' extension of their guarantees by the Keystone Watch Case Co., Philadelphia, who will hereafter guarantee Jas. Boss 14 K. cases for twenty-five years, Jas. Boss 10 K. cases for twenty years, and Cyclone cases for ten years. As over twenty years have elapsed since the Jas. Boss cases were first placed on the market, the makers have the knowledge of experience as to their wearing qualities, and the fact that actual wear has justified a five years' extension is a compliment to the original and sustained honesty of the goods. The company announces that the extension applies to the Boss and Cyclone cases which the retailers have now in stock, and our illustration is a facsimile of one of the special certificates, covering the extension, which the jewelers can procure from the company and place in the cases now in their hands. As the identity of the case must be known before the certificate is sent, the trade must, of course, send with their request the number, grade and size of the case in question.



Fashionable Metal Girdles.

It is announced by the avant-couriers of fashion that the metal girdle will again be the stylish waist cincture this spring, and there are already indications of quite an array of tasteful designs. Our illustration shows one of an excellently assorted selection package of newly designed metal girdles which can be had from J. Floersheim, Kunstadter & Co.,



Jackson and Market Streets, Chicago. This firm is showing over one hundred styles, no two alike, some imported and some domestic manufacture. Some are plain and others are beautifully enameled, and they can be had with or without jewels. New styles are also added just as soon as they come in the market. The selection package is an excellent idea, and will, no doubt, be largely availed of by the trade.

A New Jeweler's Clamp.

The cut shown herewith illustrates a new jeweler's clamp invented and patented by Fred J. Thomas, of 225 Eighth Street, Cairo, Ill., which is now sold by him to the trade. The clamping tweezers of this device are made in such a shape that it will accommodate any article of jewelry to be soldered, and can be adjusted for work where pinning the object is impossible. It will hold for repairs any break in a spectacle. When the article to be repaired is placed in the clamps, the latter can be raised, lowered, brought closer together, or can be adjusted in any way the operator desires. One of its great advantages is, when any article of jewelry to be repaired is placed in the clamps, the arrangement can be turned to bring the work at such an angle that the solder will flow in the broken parts of articles as desired, the same purpose being served as by turning the work with the hand. The clamp is well spoken of by watchmakers, jewelers and opticians, who find it a time-saving and effective tool.



A Handsome Flatware Pattern.

Our illustration shows one of the most popular of the many new patterns in sterling silver flatware just placed on the market by Reed & Barton. It bears the dignified title of "La Comtesse," though it has a nun-like demureness and simple beauty that easily account for its popularity. The growing predilection for the simple and chaste in art is significant of the development of popular taste, and such modestly beautiful designs as "La Comtesse" are great

The Hub of the New England Jewelry Trade

and Leaders in the lines we handle.

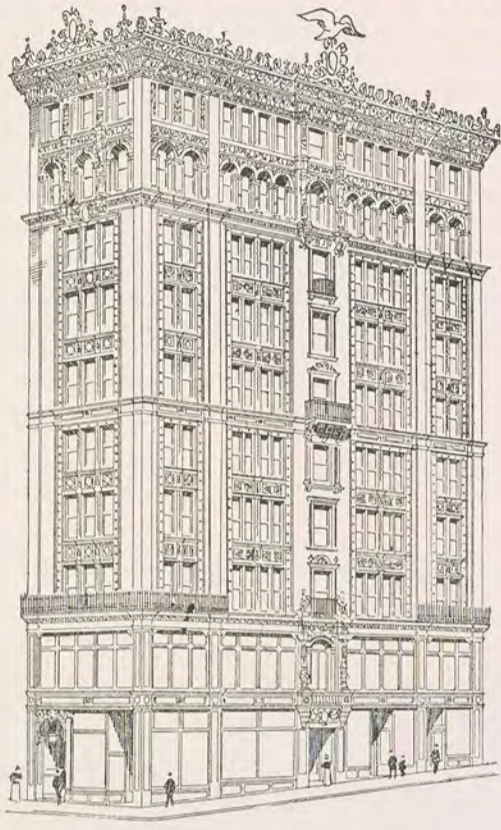
We beg to announce that, in addition to our lines, comprising WATERBURY WATCHES, KEYSTONE CASES, GOLD JEWELRY and SEAMLESS GOLD FILLED CHAINS, we represent one of the Leading Manufacturers of STERLING SILVER GOODS, including TOILET ARTICLES, FLATWARE and NOVELTIES, The A. L. BLACKMER CO., Manufacturers of RICH CUT GLASS, and ROGERS & HAMILTON'S PLATED FLATWARE. Having made connections with CHAS. E. GUILD, Importer of DIAMONDS and other PRECIOUS STONES, we shall be able to furnish the trade at the lowest possible prices.

Tiffany & Wales,

Rooms 41, 42 and 43

JEWELERS' BUILDING,
Boston, Mass.

New Jewelers' Building, Boston



M. MYERS



REMOVAL

I take great pleasure in announcing that I have secured new and commodious quarters in the

JEWELERS' BUILDING,

Cor. Washington and Bromfield Sts.,

and expect to occupy the same on or about **March 1, 1898.**

With **increased** facilities for carrying a more complete stock of

Watchmakers' and Jewelers' Supplies,

I take this opportunity to thank my many friends for their valued patronage in the past, and solicit a continuance of their favor in my new quarters.

Very truly yours,

M. MYERS.

IS TRADE A LITTLE QUIET WITH YOU?



Height, 1 1/4 inches.

PUT OUR

THIMBLE DISPLAY CARD

ON YOUR COUNTER AND SEE YOUR SALES OF

SILVER THIMBLES

DOUBLED,
TREBLED,
QUADRUPLED

A DISPLAY CARD WITH EACH GROSS OF OUR

STERLING SILVER THIMBLES

ORDER FROM YOUR NEAREST JOBBER

Simons, Bro. & Co.

Silversmiths and Manufacturing Jewelers

616 CHESTNUT ST., PHILADELPHIA
19 MAIDEN LANE, NEW YORK
601 COLUMBUS BLDG., CHICAGO

New York
16 & 18 Maiden Lane
Averbeck & Averbeck

WRITE

Get our advertising offer for one jeweler in each city. Our Way to boom business in dull season. Competition of dry goods stores successfully met. Price is moderate. Judicious use will benefit any store, large or small.

TO THE UNITED STATES.

Prosperity Has Come!

Paris Jewelers and Jewelry Stores.

BY THE SPECIAL REPRESENTATIVE OF THE KEYSTONE.

PARIS, January 1, 1898.

Again Paris is sparkling with the holiday brilliancy which is so distinctively its own, and the boulevards are filled with the throngs which endlessly, and apparently aimlessly, hurry to and fro upon the sidewalks of these splendid streets.

The principal stores made elaborate displays of their most tempting wares, and if one may judge of the business done by the number of apparent customers, their efforts were not unrewarded, in spite of the weather, which has been both damp and chilly, with that kind of chilliness against which no overcoat is an adequate protection.

Among all the stores none are more distinctive of the French capital, or show their goods to more advantage, than those where silverware and jewelry are the principal articles sold, and from Boudet's down to the poorest of the hundreds of sheds which obstruct the boulevard sidewalks, jewelry of every description is displayed. There has been gathered everything which would be likely to please the fancy of this throng of rich and poor, given to money-spending and money-saving, and in which the French themselves are only the dominant among many factors.

It is a very much mistaken idea to suppose that the French are much, if any, in the lead in so far as the ability to produce beautiful silverware and jewelry is concerned. There are no designers or workmen anywhere who can surpass those employed by some of the larger concerns in the United States when special work is concerned, but in the more general demand for good lines and refined ornamentation the superiority of French taste becomes immediately apparent. They are the leaders who point out the way of things artistic to the army of purchasing strangers, and they seem always able to keep just enough ahead to do it successfully.

French gray has become the name of a finish which, in silverware, is daily and deservedly becoming more popular. Wherever there is ornament no other finish can show it to equal advantage, and the French, recognizing this fact, reserve their bright polishing almost entirely for articles which present only plain, smooth surfaces to the eye. The style in jewelry has changed too, and in place of wonderful combinations of bars and pendants, covered with bright-cut engraving and promiscuously scattered stones, we now find delicate wreaths and floral designs, often combined with figures, and having the stones set where they are truly in relation to the ornament. The stores of Paris are filled with work of this description, tastefully displayed, and any one with an interest for industrial art could profitably spend many hours examining what is really a great exposition.

Among other things in this collection of numberless novelties are salt jars, the covers of which have first been engine-turned on the top and sides and afterwards coated with transparent enamel, through which the engraving throws a very pretty play of light. Sometimes they are made with a stone set in the center, and occasionally one is elaborately, but delicately, decorated under the glaze of the enamel—a veritable "joy forever" for some purchaser whose purse is both long and well-filled. In sharp contrast to these bits of brilliant color are steel match boxes, cigarette cases, writing tablets and the like, which, while perhaps a little suggestive of stove polish, make, when set with stones, a sombre note, which by way of contrast is not displeasing. They may not dent, as the silver ones are so apt to do, but even if they keep their finish it is at least a matter of doubt whether they will be a great success. Such articles are shown, however, in considerable numbers. Among articles of regular service are most dainty and beautiful liquor sets, consisting of a small pitcher or decanter, usually of glass mounted with silver or silver gilt, and a half dozen tiny drinking glasses to match. Here, where the use of liquor

is so universal, these sets are not only a beautiful ornament for the reception room, but are at the same time an article of much usefulness, as they serve in place of, or in addition to, the kettle for five o'clock tea and its array of fancy china. Bon-bon dishes to match these sets are made of plain glass in odd shapes, with cupids and festoons of flowers engraved on the bottom, the edges being mounted in silver gilt, with all the daintiness of which the French are masters. In jewelry, little bicycle lanterns, with garnets set in place of the lenses, make a novelty in the way of stick pins, which should appeal to one of wheeling proclivities, and miniature masks of comedy and tragedy are not bad scarfpins when well executed. Too much stress cannot be placed upon this last remark, for it is to the finish and execution that the French work owes more than half its charm.

The city is at present in a ferment over the alleged betrayal of army plans to the Germans by Captain Dreyfus, who is now in prison, though his friends proclaim his innocence. Zola's vigorous espousal of the cause of Dreyfus, whom he considers a victim of military tyranny, has resulted in turbulent anti-Semite demonstrations and street riots. The central scene of these demonstrations is shown in our illustration. France is much troubled as to the ultimate outcome of these present ominous complications.



A THOROUGHFARE IN PARIS—SCENE OF THE RECENT DREYFUS RIOTS.

Bits of Wisdom.

The following bits of wisdom are dished up to the hardware trade in a book sent out by the Simmons Hardware Company to their customers. We believe it will be good reading for the jewelers.

Short accounts make long friends.

Always get your money before you spend it.

Avoid promises—they are thin ice and dangerous.

Energy is an absolute requisite for business success.

Violation of trust to-day, lack of standing to-morrow.

Go after trade, and don't wait for it to come after you.

Buy what you need and nothing else, and in quantities to suit.

When you order an extra large quantity, underscore the quantity.

To live within your income means happiness; otherwise, misery.

Will the profit I lost on goods I was "out of" ever come back?

A grasp of the hand and a pleasant smile often sell a bill of goods.

Don't kick first. Ask questions. Your impression may be wrong.

"Slow collections" is the usual obituary notice of a failure in business.

Politeness is the cheapest capital in the world, and pays the longest dividends.

He who is most slow in making a promise is most faithful in keeping it.

Don't keep your good nature down in your boots. Hang it outside where people can see it and be happy for it.

Would it not pay me better to be in the front part of my store and mingle with my customers, instead of shutting myself up in the back office among my books?

Ninety per cent of all the failures in this country are caused by "credit," particularly indefinite credit.

Columbus, Ohio, and Vicinity.

A bill has been introduced in the Ohio Legislature for the reduction of railroad fare to two cents per mile and for the transfer of mileage books. This bill, if it passes, will prove of great benefit to commercial travelers, especially the feature relating to the transfer of mileage, as it should make no difference who uses the books so long as the railroad companies are paid for them.

A rather curious question came up in Probate Court at Portsmouth, Ohio, a few weeks ago. The plaintiff sought to attach a watch, but the defense put up the plea that a watch is wearing apparel, and as such was exempted by the statute from execution, and the court sustained the defense. Cases in Tennessee and Minnesota were cited to sustain the decision.

Mrs. J. C. Johnston, of this city, has made an assignment to E. P. Severcool. Mrs. Johnson resides at Fostoria, and her husband has been in charge of the store. Poor holiday trade and the pressure of creditors are given as the cause of the trouble. The assets are said to be \$5,000, while the liabilities will not exceed \$700. It is probable that the owner will be able to adjust the matter satisfactorily in a short time.

A. H. Bonnet, wholesale jeweler of this city, has completed the inventory of his stock, and says that his last year's business was far ahead of any one of the last five or six years. The increased demand for holiday goods brought up the average in a very satisfactory manner.

Creditors holding mortgages to the amount of \$10,000 on the stock of Walter G. Smith, at Youngstown, have taken possession of the store and placed F. B. Turner in charge. He will dispose of the goods.

A sharper attempted to work a clerk at Dufen's store at Chillicothe, on the 22d instant, but failed. He left a broken ring to be fixed, and later came in and handed the jeweler fifty cents for the work. As it was not finished he went away. The clerk afterward discovered that the envelope containing the ring had disappeared. The next day the young man returned for the ring, and on being told it had disappeared, he demanded another. A gentleman by the name of Smith happened to see the young man slip the envelope from the table when he paid for the repairs, and he found himself neatly trapped in the game. The jeweler refused to prosecute.

Two smooth strangers fleeced Anton Wahrab, of Dayton, by selling him a vial of what they represented to be Klondike gold. He paid \$5.50 for it, but when he applied the tests it proved to be only a lot of brass filings. The officers failed to locate the sharpers.

Andrew Jackson Henderson, of Zanesville, who was known as the human timepiece, is dead. It is said he could tell the time of day to the minute without looking at a watch or clock.

A. W. Talbot, the Zanesville jeweler, who recently went to England, has written a friend, saying that though an Englishman, he has become so thoroughly Americanized that he will probably return to this country in a short time.

Fred. Clark has taken charge of his father's jewelry store at Zanesville.

The firm of Bourquin & Co., of this city, has been dissolved. James Bourquin has gone to New York, and his partner, Henry Ziplinsky, is studying medicine.

Some Pertinent Questions.

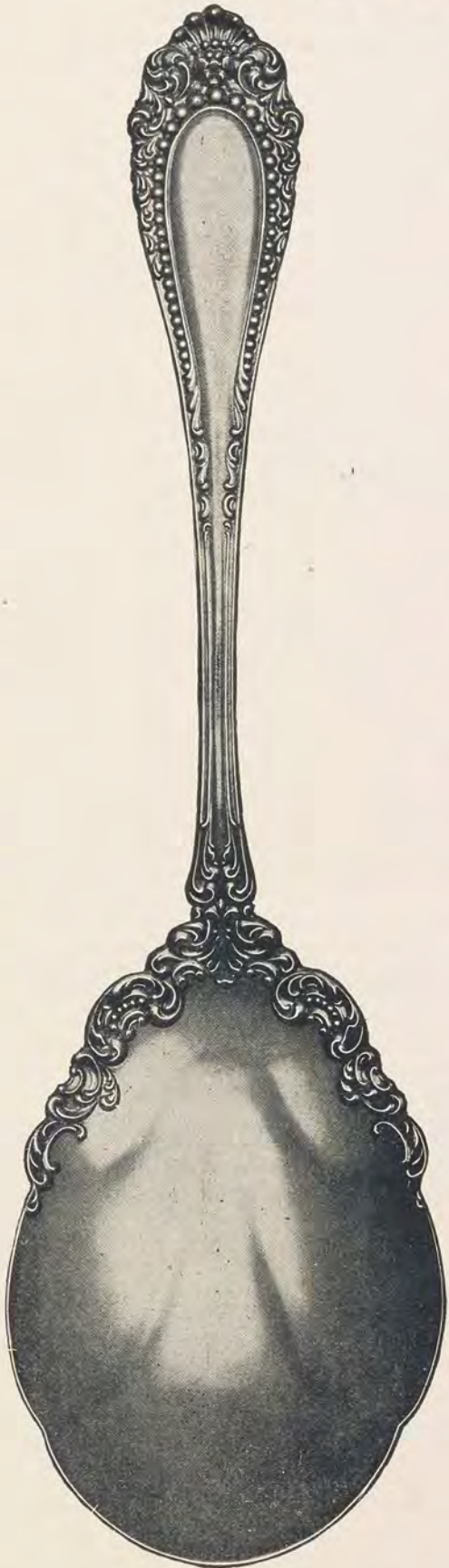
Is not quality remembered long after price is forgotten?

Can I continue to pay my bills promptly unless I require prompt payment from my customers?

Wouldn't it be a good idea for me to put in goods to sell at every season of the year, so I will have no dull periods?

Was it christian in me to keep a "drummer" waiting around all day when I could have disposed of him in fifteen minutes?

The "Virginia"



BERRY SPOON.

Our Leader for the Spring of 1898.

This pattern will be made in the following pieces only:

Berry Spoon,	Cucumber Server,
Salad Spoon,	Sugar Shell,
Salad Fork,	Butter Knife,
Preserve Spoon,	Ice Cream Server,
Fish Knife,	Ice Cream Spoon,
Fish Fork,	Ice Cream Fork,
Pie Knife,	Oyster Fork.

Put up in Satin-Lined Boxes.

The Berry Spoon, Salad Spoon and Fork are now ready for delivery. The balance of the pieces will be ready April 1st.

This pattern will be furnished both in Standard and Triple Plate.

TRADE-MARK:

1835—R. WALLACE—A1.

R. Wallace & Sons Mfg. Co.

Factories:

WALLINGFORD, CONN.

NEW YORK, 226 Fifth Avenue.

CHICAGO, 109 Wabash Avenue.

SAN FRANCISCO, 120 Sutter Street.

Branches:



A fairly well-sustained post-holiday business is interpreted by the jobbing trade as a certain indication of a busy year. Not for many years, in fact, have the elements of business activity been so much in evidence. The excellent holiday trade depleted retailers' stock to an unusual extent, and immediate replenishing is justified by the improved condition of the country. There has also been a great improvement in collections, and there is a noticeable desire among buyers to take advantage of the cash discount. Plans are being laid for the biggest trade since '92, and the probabilities are that expectations will be fulfilled.

Martin Sachs recently withdrew from the firm of Henry Froehlich & Co. The business is being continued by Henry Froehlich, Henry Froehlichstein and H. W. Froehlichstein under the old firm name.

George F. Kunz, of Tiffany & Co., read a paper on the "Fresh Water Pearl Fisheries of the United States," before the International Fisheries Congress, in Tampa, Fla., on January 19th.

The annual meeting of the stockholders of the New York Standard Watch Company, held last month, resulted in the re-election of the officers and directors of the past year.

S. O. Bigney & Co. have opened a New York office at 3 Maiden Lane.

C. H. Allen & Co., of Attleboro, Mass., have opened an office at 41 Maiden Lane.

The firm of Heilbroner, Brandt & Stern was dissolved January 1st. Mr. Heilbroner retired from the business, and Mr. Stern became a member of the firm of Stern, Cohn & Co. Mr. Brandt will continue in business under the name of J. W. Brandt & Co., at the firm's old address, 523 Broadway.

Monroe B. Bryant, of M. B. Bryant & Co., is one of the committee on ways and means of the Republicans of the county of New York, the new anti-Platt organization.

C. L. White has entered upon his thirtieth year's service with Randel, Baremore & Billings and their successors, Chester Billings & Son. Heretofore he represented this house in the South and West, but he will henceforth assist in the management of the business at headquarters in this city.

Goldsmith & Weil, diamond dealers, of 37 Maiden Lane, have dissolved partnership.

The What Cheer Pencil Case Co., formerly of Providence, has moved to 174 North Fourth Street, Brooklyn.

A. Wittnauer has opened an office in Geneva, Switzerland.

The Cushman Building, at the corner of Maiden Lane and Broadway, will soon be completed. It is twelve stories high and constructed of fire-proof material. Owing to the weight of the monster safes that will be located in the building, the frame is extraordinarily strong. The store on the ground floor at the corner of Broadway and Maiden Lane will be occupied by William Barthman, retail jeweler, and that at 1 Maiden Lane by H. N. Squire's Son, retailer. The upper floors will be divided into offices.

Ludwig Nissen, of Ludwig Nissen & Co., was a member of the executive, entertainment and reception committees for the third annual convention of the National Association of Manufacturers, held here recently.

The many friends of Harry Thomas, of the Jewelers' Mercantile Agency, will be glad to learn that he is recovering from the painful and somewhat serious accident that happened to him about a month ago, when he was thrown from a trolley car and sustained severe injuries about the head. It has been impossible to keep Mr. Thomas out of the harness, as he insisted upon spending several hours at his desk during the past two weeks. Fortunately his labors in compiling the January issue of the Board of Trade Directory were just completed when the accident occurred, as the clerical force would have been greatly handicapped by his absence.

Lazarus Straus, the senior member of the house of L. Straus & Sons, importers of china, pottery, clocks, glassware, statuary, marbles, art goods, etc., 42-48 Warren Street, and father of the Hon. Oscar S. Straus, ex-Minister to Turkey, Hon. Nathan Straus, president of the Board of Health, and Isidor Straus, died January 14th. The deceased was one of New York's most prominent and successful merchants, and was a generous giver to the cause of literature and education.

On February 1st, John W. Sherwood, of 3 Maiden Lane, admitted to a partnership Theodore Sherwood Hope, who has been long identified with the business. The firm name has been changed to John W. Sherwood & Co. Mr. Sherwood recently distributed to his customers several calendars, one of which is a perpetual calendar.

Max J. Lissauer was recently re-elected a director of the Columbia Bank.

Marcel M. Mirabeau was admitted to a partnership in the firm of Lissauer & Co., on January 1st. The new partner is a nephew of Max J. Lissauer.

The fifteen-story office building under construction at 9, 11 and 13 Maiden Lane, and to be known as the Gill Building, will be one of the finest structures in the Lane. It will be exceptionally well lighted, and the building has been so constructed as to allow a large court, faced with clear white brick, in the rear, for the purpose of securing a soft north light for jewelers and diamond merchants. The entire second floor is to be occupied by the Jewelers' Exchange and Safe Deposit Company.

A. E. Ziehme & Co., of Chicago; Ludwig Lehmann, of this city; and H. O. Hurlburt & Sons, Philadelphia, Pa., have applied for membership in the New York Jewelers' Board of Trade.

Sidney T. Lee, of the T. H. Lee & Son Company, Toronto, Ont., has been in this city. He made his headquarters at the office of Hamilton & Hamilton, Jr.

Joseph B. Bowden was recently elected a director of the Chatham National Bank to succeed Alfred F. Cross. Henry Randel was also re-elected a director.

The firm of Kraus, Kragel & Co., manufacturers of leather goods, has been dissolved. The business will be continued by Sigmund Kraus and Joseph S. Jantzen, under the name of Kraus & Jantzen.

It is now doubtful whether an effort will be made at Albany this session to amend the silver stamping law. It was expected a bill would be introduced which would tell explicitly how to assay goods and protect the seller in case he should purchase goods manufactured by a dishonest maker which were not up to the required standard, but no move has yet been made in this direction.

Samuel Sondheim has moved into the Prescott Building, at 65 Nassau Street.

The annual banquet of the New York Jewelers' Association will be held on February 10th. Among the recently elected to membership in the Association were J. F. Fradley & Co., of this city, and Ehrlich & Simnock, Newark, N. J.

Aiken, Lambert & Co., of 19 Maiden Lane, have issued a very handsome monthly desk calendar mounted on morocco leather back, with a support. The calendar for each month is printed on a separate card, which may be slipped out and placed behind the others at the end of the month. It is handy and ornamental for desk use.

By way of retaliation on France for its attempt to place prohibitory duties on American lard and other hog products, a bill has been introduced in the House, authorizing the President to proclaim an additional fifty per cent. tax on statuary, works of art, jewelry, etc., imported from France. The bill has been referred to the Ways and Means Committee, and the importers here are watching its progress with much interest.

Judge Townsend, of the United States Circuit Court, in this city, handed down an opinion in the suit of the Regina Music Box Company, Rahway, N. J., against Alfred E. Paillard, New York, charging infringements of four patents held by the former company. The complainants, who are the manufacturers of the "Regina" music boxes, won the suit.

The work done by the Merchants' Association of New York, which enabled many jewelers to visit New York last fall at cheap rates, during its first season of active operation, as shown in its annual reports, was quite unprecedented in amount and seems to have been entirely satisfactory in quality to all parties concerned, even to the railroads, who had yielded the excursion rates with some misgivings as to the way in which their concessions would be handled. The plans of William F. King, the president and animating spirit of this institution, are, as set forth in his report, of a far-reaching character, and look toward the improvement not merely of the city's distributing trade with the interior, but of its facilities as a port, and of the export trade of the metropolis and the country. All that is needed to make the Merchants' Association a beneficent factor in the trade, not merely of the current year, but of many years to come, is that it shall be supplied with the sinews of war by the business men of Greater New York. For such aid and support the officers of the Association appeal, and we hope that they will be forthcoming in generous measure.

Chas. S. Isabel, formerly a traveler for Louis Strasburger's Son & Co., has started in business as a dealer in diamonds and precious stones, with a temporary office at 18 Maiden Lane.

Albert M. Leibman and Paul F. Reichhelm were recently admitted as partners in the firm of E. P. Reichhelm & Co.

P. D. Collins has moved from 17 John Street to 45 John Street.

W. B. King recently returned from a visit to the Chicago office of the Julius King Optical Co., where he assisted Manager Brayton in making the annual inventory. He brings back word that the Western business has been very satisfactory and steadily increasing. It was found necessary to increase the space in the workroom, and a room three times as large as the old workshop has been secured, in which were placed five new grindstones, three lathes and six new workbenches. The increase in the prescription department was reported as the most noticeable.

E. J. Skinner, formerly connected with the Illinois Watch Co., will hereafter represent Henry Ginnel & Co. in the Middle and Western States. He will confine his labors principally to the larger cities. Henry Ginnel & Co., who have always been rated as one of the largest dealers in movements in this country, propose to now establish a like reputation for cases as well, and push for business in new country. Their resources will enable them to do this very efficiently.

The annual meeting of the Jewelers' Safety Fund Society was held last month and the following board of directors was elected: Henry Randel; Henry Hayes, of the Brooklyn Watch Case Company; W. R. Alling, of Alling & Co.; Ira Goddard; James C. Aikin, of Aikin, Lambert & Co.; S. C. Scott, of J. T. Scott & Co.; Charles G. Alford, of C. G. Alford & Co.; F. S. Douglas, of Shafer & Douglas; James P. Snow, of Snow & Westcott; Louis Kahn, of L. & M. Kahn & Co.; and C. E. Hastings, of Carter, Hastings & Howe. The directors met subsequently and elected the following officers for the ensuing year: Henry Hayes, president, J. C. Aikin, vice-president, and Ira Goddard, secretary and treasurer. The executive committee then elected consists of Henry Randel, Wm. R. Alling, S. C. Scott, Louis Kahn and C. E. Hastings.

Assistant Secretary Howell of the Treasury Department has sent the following circular to customs officials, regarding the classification of watch movements: "For the purpose of securing uniformity at the several ports in the classification of watch movements under the following provision in paragraph 191 of the act of July 24, 1897, viz: '191. Watch movements, whether imported in cases or not, if having not more than seven jewels, thirty-five cents each; if having more than seven jewels and not more than eleven jewels, fifty cents each; if having more than eleven and not more than fifteen jewels, seventy-five cents each; if having more than fifteen jewels and not more than seventeen jewels, \$1.25 each; if having more than seventeen jewels, \$3.00 each, and in addition thereto, on all the foregoing, twenty-five per centum ad valorem.' You are hereby instructed to classify as watch movements all complete movements and all movements from which parts are found to be missing, and in computing the number of jewels in order to ascertain the proper specific rate, to include such jewels as have been inserted in the plates and afterwards removed. The Department holds that the presence of jewels and the evidence of 'recessing' and 'broaching' afford the only satisfactory and conclusive tests of the identity of the articles as 'watch movements intended to contain seven or more jewels,' and that these tests can be applied only to the plates. There is a certain stage in the manufacture of the various parts constituting watch movements at which certain of such parts must be associated and assembled for the purpose of adjustment, and such adjustment is regulated by the special conditions of each instance, so that such adjusted parts thereafter represent a unit and cannot be alienated for indiscriminate use. These parts comprise the balance, the pallet, the escape wheel, the third-wheel and pinion, the fourth-wheel and pinion, and the center-wheel and pinion; i. e., the six essential parts constituting the motion works or train. The commercial definition of 'movement' includes these six parts with the two plates adjusted and assembled together. The term 'parts of watches' is properly applied to watch materials which have never been assembled and adjusted so as to represent the parts of one particular watch movement. The attention of examining officers is therefore called to the necessity of a careful discrimination in their returns between such 'parts of watches' as have never been prepared for use as units and such as bear evidence of previous adjustment and preparation for use as complete watch movements."

(Continued on page 108.)

To The Trade:

The method of selling Sterling Silver Spoons and Forks by the dozen instead of by the ounce, of which the Gorham Mfg. Co. are the originators, has met with universal commendation from the legitimate jewelry trade in all sections of the country, who are convinced that selling goods by weight without regard to other conditions is injurious both to the manufacturer and the dealer.

The use of the terms, LIGHT, MEDIUM and HEAVY, having been applied to a class of spoon work much below the weights for which the Trade have usually applied them, the GORHAM MFG. CO. have discontinued their use, substituting more descriptive terms in their place, viz.:

FULL SIZE, TRADE STANDARD,
FULL SIZE, EXTRA STANDARD,
FULL SIZE, HEAVY STANDARD,
FULL SIZE, MASSIVE STANDARD.

The "TRADE STANDARD" signifies light weight, full size. This grade on teaspoons will usually weigh about eight ounces to the dozen, the other terms signifying heavier weights in the order as above named.

The craving for variety and novelty is a powerful impulse of the human mind, and makes itself especially apparent in the appreciation of new and artistic things in silver. The designers and artisans of the Gorham Mfg. Co. are continually producing new goods which embrace in unparalleled multiplicity of design and detail every article for which silver is utilized.

In Spoon and Fork patterns the Gorham Mfg. Co. have produced and placed upon the market, within one year, THE OLD COLONY, LENOX, LANCASTER, STRASBOURG and MEADOW, representing a variety of designs from the plainest and simplest pattern to the most elaborate that has ever been produced.

THE LANCASTER pattern has been received most favorably. The floral ornamentation at the top of the handle is in perfect harmony with the bead decoration, giving to the pattern an effect of richness and simplicity.

THE STRASBOURG pattern, which has just been introduced, is meeting with universal favor. The outline is graceful and pleasing. The character of the ornamentation is bold and attractive, and is continued upon the bowls and tines of the fancy pieces, producing an effect of finish not otherwise obtainable.

Nature has given the inspiration for the design of THE MEADOW pattern. The decoration of each handle varies according to size, and consists of a beautiful gathering of interwoven grasses, arranged so tastefully and artistically as to commend the pattern to all lovers of the unique and beautiful in silver. The workmanship of the details of this pattern is perfect, the dies from which it is made being pronounced most superb and artistic examples of the Silversmith's Art. THE MEADOW is unquestionably one of the most beautiful patterns ever produced.

All of the above patterns are now ready for delivery, and orders will be given prompt attention.

Dealers addressing the New York house should send all orders and correspondence to the headquarters, Broadway and 19th Street.

GORHAM GOODS are not sold to DRY GOODS AND DEPARTMENT STORES.



NEW YORK:
Broadway & 19th Street.
23 Maiden Lane.

GORHAM MFG. CO.,

Silversmiths,

CHICAGO:
131-137 Wabash Avenue.

SAN FRANCISCO:
118-120 Sutter Street.

WORKS: PROVIDENCE, R. I.

"Busiest Jewelry Plant in 45 States."

ESTABLISHED 1870.

Hamilton & Hamilton, Jr.

Makers of the

★ H. & H. Chains

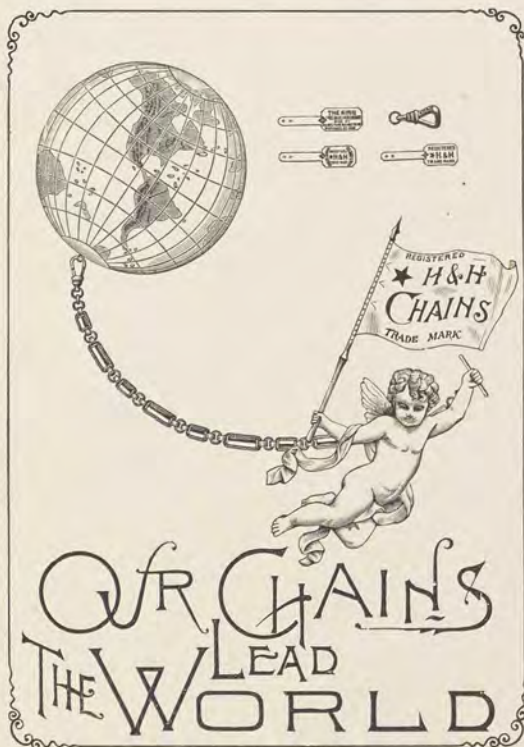
and

Silver Novelties

PROVIDENCE, R. I.

Our goods SELL.

Do not need to be put out on consignment.



ASK YOUR JOBBER FOR ★ H. & H.



The twenty-first annual meeting of the Jewelers' League was held in New York City on January 18th. The reports showed that the organization has reached its maturity in an excellent condition.

President Henry Hayes occupied the chair, and in his opening address made the following most gratifying announcement:

We celebrate this evening our arrival at manhood. We can congratulate ourselves upon reaching the twenty-first anniversary of our birth. The weakness of infancy has become the robustness of maturity. The good work, commenced in a feeble way, has increased with increasing years, and continued without halting on the road to prosperity. To-day we have greater inherent strength, a more stable constituency and larger financial reserve. The past year has been one of a slightly increased mortality, which is a condition naturally to be looked for, and yet, with the use of a portion of our reserve, we show increased assets. [Applause.]

The president then proceeded to trace the history of the organization, and, coming down to the present, he said: "Where is there a company whose business has been conducted at a cost of 4½ per cent., as has ours for the last year? Whatever one's ability to carry insurance, he certainly can obtain more from the League than from any other source, even at the proposed increased rates, for we do business at a far lower expense than is involved in any other association." He paid the following well-earned tribute to the members of the executive committee:

To the unblemished record of our executive committees in all past years must be added that of our committee for the expired year, and, while it may seem a repetition, yet I would be totally unjust were I to fail to bear testimony to the care, earnest devotion and admirable judgment displayed by the men who have for the past twelve months given us their time and most careful attention. So long as you elect your board of management with the care and judgment of all former years, so long may you expect to receive assurance of benefits greater than you can obtain elsewhere. [Applause.]

The executive committee's report told that since its organization the League paid out to deceased members the munificent sum of \$1,894,423.10, having paid out during the year 1897 \$185,665. The reserve fund is now \$170,320.11. A year ago it was \$166,753.55, a gain of \$3,566,56, although four death losses were paid out in 1897 out of the reserve. The roll of membership to-day contains 2,297 names.

Several amendments to the constitution were proposed and adopted, that which elicited most discussion being the following amendment to Section 2 of Article V.

SECTION 2. On and after February 1, 1898, in addition to the dues on all members provided in Article VI, Section 3, and Article XII, Section 3, the amount of each assessment upon all members for the payment of death losses shall be according to the following table, each member being graded according to the age at which he joined the League.

For the death of members of Section A:		
Between the ages of—	Sec. A.	Sec. B.
21 and 29 years, inclusive,	\$2.00	\$1.00
30 and 34 " "	2.50	1.25
35 and 39 " "	3.00	1.50
40 and 44 " "	4.00	2.00
For the death of members of Section B:		
Between the ages of—	Sec. A.	Sec. B.
21 and 29 years, inclusive,	\$1.00	\$0.50
30 and 34 " "	1.25	.63
35 and 39 " "	1.50	.75
40 and 44 " "	2.00	1.00

When the election was taken up Henry Hayes was unanimously re-elected president of the League; John R. Greason was chosen third vice-president; J. W. Beacham was elected fourth vice-president; O. G. Fessenden, D. M. Smith and Bernard Karsch were unanimously chosen members of the executive committee.

A meeting of the executive committee for 1898 was held at the League office on Friday, January 21st. There were present President Hayes, Vice-Presidents Bardel, Greason, Beacham and Bowden, Messrs. Van Deventer, Street, Smith, Lissauer, Karsch and L. Stevens, Jr., secretary. G. M. Van Deventer was unanimously chosen chairman of the executive committee for 1898, and the following applicants were admitted to membership: Herman Bloch, New York City, recommended by A. Roseman and L. F. Bloch; Thomas J. Sheftall, Savannah, Ga., by M. Sternberg and J. Cohen.

New York Letter.

(Continued from page 106.)

The Bawo & Dotter Co. are now showing their full line of spring importations, selected by their Charles. Jacques, while in Europe some two months ago. The new line is unusually complete, and includes the latest novelties in the European markets.

At the annual meeting of the New York Jewellers' Board of Trade, held on January 27th, the following were elected directors: Ira Barrows, of H. F. Barrows & Co.; Geo. E. Fahys, of Jos. Fahys & Co.; John C. Day, of Day, Clark & Co.; O. G. Fessenden, of H. W. Wheeler & Co.; A. J. G. Hodenpyl, of Hodenpyl & Sons; Alfred Krower, of Albert Lorsch & Co.; S. H. Levy, of L. & M. Kahn & Co.; M. De H. Mason, of N. H. White & Co.; August Oppenheimer, of Oppenheimer Bros. & Veith; Geo. H. Robinson, of Gorham Mfg. Co.; A. K. Sloan, of Sloan & Co.; C. F. Wood, of Chas. F. Wood & Co.; and Leo Wormser, of Julius King Optical Co., New York; Grove Sackett, of W. L. Gilbert Clock Co.; J. F. Talbot, of Dennison Mfg. Co., and J. A. Todd, of Towle Mfg. Co., Chicago; N. B. Barton, of Ostby & Barton Co., Providence; Wm. A. Copeland, of Martin, Copeland & Co., Providence, and G. K. Webster, of Webster & Co., North Attleboro, Mass.

J. Lippman, of Rothstein & Lippman Bros., Johnstown, Pa., spent several days in this city last month, buying spring goods. Mr. Lippmann reported that the firm had splendid holiday trade, and the outlook is very favorable for good spring trade in his section.

The firm of Bawo & Dotter, importers and manufacturers of china and glassware, 26 Barclay Street, has been incorporated under the laws of New Jersey, with the principal office at East Orange. The directors named are Francis H. Bawo, president; Henry Witte, vice-president and treasurer; Gustav Otto, secretary; Carl F. W. Bawo, assistant secretary; and George S. Lemcke. The certificate states that their central European office is at Dresden, Germany; that their factories are at Limoges, Steinschonau, and Carlsbad, in Bohemia, with saleshouses in Paris, Berlin, London and Hamburg. The name of the new corporation is the Bawo & Dotter Co.

"Please find enclosed one dollar for renewal to *The Keystone*; could not be without it if it cost ten times the subscription price."—M. H. Loser, jeweler, Jonestown, Pa.

A Wail from Texas.

ED. KEYSTONE: LLANO, TEXAS, January 10, 1898.

If you will allow me space in your next issue, I wish to refer briefly to the jewelry trade. We are greatly prompted to write about that which comes under our observation most frequently. The jewelry trade seems to be abused and oppressed more than any other business, a fact worthy of the consideration of every thinking jeweler. It is allowed to be treated as no other business is, and the jewelers of the United States should, by some legitimate method, call a halt. There are manufacturers who make goods claiming for them anything but the truth, and I regret to say that reputable dealers are allowing themselves to fall into the habit of handling these goods. This is a great mistake, because when goods sold are represented as one thing and prove another, the customer's confidence is shaken even if indemnified against loss. Furthermore, the drygoods stores are allowed to prey upon the jewelry business with their inferior quality of goods to such an extent that jewelers have hardly any legitimate competition. I will ask whether there cannot be a method devised by which something can be accomplished? It is time some steps to suppress these department stores were taken. Respectfully yours,

A. L. JONES.

Cincinnati Letter.

It is evident that in many sections of Cincinnati's territory the year's business has opened with promise, most of our travelers who are now out reporting an early and more active business than at this time last year. There is also a more hopeful tone among the dealers, a majority of whom report a fine holiday business—much better than they enjoyed a year ago. So that our jobbers are counting on a fairly good business for the spring of 1898.

E. & J. Swigart are nothing if not pushing and progressive. They report 1897 as being the banner year of their history for business, and the outlook for the new year is most encouraging with them.

H. C. Klein, of Muncie, Ind., was a late trade visitor. Bitterman Bros., of Evansville, Ind., were buyers in this market recently.

A. C. Schoen, of Chattanooga, Tenn., was in the city last month on a purchasing trip.

Albert Bros. sent out to the trade early in January a very handsome embossed calendars for the new year. They are gems, prettier than most pictures, and doubtless will be fully appreciated by the jewelers. If you have not received one as yet, you are welcome for the asking.

A. G. Schwab, of A. G. Schwab & Bro., has recently been elected a member of the executive committee of the Manufacturers' Association. This is one of the largest and most progressive organizations in Cincinnati for the building up of the manufacturing and mercantile interests of the city, and the selection of Mr. Schwab to represent the jewelry trade was a worthy compliment well bestowed.

A. J. Thoma has been engaged by A. G. Schwab & Bro. to represent them on the road this year.

Wm. Strauss, formerly in the jewelry business in St. Louis, will travel for D. Jacobs & Co. this year.

Herman Remke and Charles Haas have begun business as platers as H. Remke & Co., at 418 Race Street.

H. Seligman, formerly traveling salesman for A. G. Schwab & Bro., has opened up at 416 Race Street, and will travel for himself this year. The firm name is H. Seligman & Co.

Charles Swigart is a new man on the traveling force of E. & J. Swigart. He is a brother to the members of the firm, and last year was on the road for Albert Brothers. He will cover parts of Ohio, Indiana and Michigan, and goes out on his territory early in the present month.

L. Gutmann reports trade opening up nicely for the new year, with his travelers already out in their respective territories and doing well.

F. W. Birchard, of Tiffin, O., was a recent trade visitor in Cincinnati.

J. B. Osthoff and William Pflueger will again represent Joseph Noterman & Co. on the road for another year. They are a great team and are welcome wherever they go.

R. E. Kramig, for a number of years past representative of the Herman Keck Manufacturing Company in the South and the Northwest, has resigned, and will retire from the service of the above firm during the present month. He will be succeeded by O. A. Smoots, who has been connected with the retail trade of Dayton, Ohio, for several years past.

Sig. Strauss, of Sig. Strauss & Co., is now out on his early spring trip, and already reports trade as much better on the road than it was at this time last year.

Frank Emmerling, of Hillsboro, Ohio, was a recent caller at our wholesale houses. Mr. Emmerling reports a prosperous holiday business and bright prospects for the new year.

Edward Lee Feyler, of Portsmouth, Ohio, well and favorably known in this market, was a welcome trade visitor here last month. He reported a satisfactory Christmas trade—much better than he had enjoyed for several years past.

G. A. McCarthy, of Maysville Ky., was a recent trade visitor here. Mr. McCarthy said he had a fine December business—one of the best he ever enjoyed.

Herman Rohs, of Cynthiana, Ky., a young and progressive jeweler, was calling on his friends in the trade here soon after New Year's. He spoke as being much pleased over his holiday business, the best he had ever enjoyed.

At the annual meeting of the Wholesale Jewelers' and Manufacturers' Association of this city, held January 4th, the following officers were elected: President, C. A. Sanders, manager of the Dennison Manufacturing Company; vice-president, Edward H. Croninger; secretary and treasurer, Joseph Becker; and trustees, L. Gutman and Joseph Plaut. Election over, the members sat down to an appetizing repast, after which speeches were delivered by Aaron Herman, of D. Schroeder & Co., who acted as toastmaster; Harry Walton, A. G. Schwab, L. Gutman, W. H. Goldberg and others.

Watchmakers, Attention!!!



To those who have received one of our Mainspring Cabinets, we will send, without charge, 60 METAL SCREW-CAP MATERIAL VIALS with their order for One Gross REGENT MAINSPRINGS.

“REGENT” MAINSPRINGS, \$10.50 per Gross; \$1.00 per Dozen.

Contents of Bottles		Description of Main Springs	
1	2	1	2
3	4	3	4
5	6	5	6
7	8	7	8
9	10	9	10
11	12	11	12
13	14	13	14
15	16	15	16
17	18	17	18
19	20	19	20
21	22	21	22
23	24	23	24
25	26	25	26
27	28	27	28
29	30	29	30
31	32	31	32
33	34	33	34
35	36	35	36
37	38	37	38
39	40	39	40
41	42	41	42
43	44	43	44
45	46	45	46
47	48	47	48
49	50	49	50
51	52	51	52
53	54	53	54
55	56	55	56
57	58	57	58
59	60	59	60



ARE THE BEST.

For All American Watches.

This Engraved Label, size 13x8 inches, will be sent to you upon receipt of postal card.

60 METAL-TOP VIALS, \$1.50 EXTRA.

SECURE ONE OF OUR HANDSOME SOLID OAK CABINETS WHILE THEY LAST.

	Per Gross.	Per Dozen.		Per Gross.	Per Dozen.
“REGENT” Brand Balance Staffs for American Watches,	\$7.50	\$.75	“REGENT” Brand Hour and Minute Hands for American Watches,	\$2.00	\$.20
“ ” Balance Jewels “ ” “	7.50	.75	“ ” Second Hands	1.00	.10
“ ” Roller Jewels “ ” “	1.50	.15			

Discount, 6 per cent. off for cash.

Send us your address and we will mail you our 1898 Pocket Price-List of Tools and Materials.

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STERLING SILVER NOVELTIES SELL!

WE ARE LEADERS IN OUR LINE.

IT WILL PAY YOU TO TRADE WITH US.

DISCOUNT 1/3 OR 33 1/3 PER CENT.

STERLING SILVER NOVELTIES GUARANTEED FINE. ARTICLES ARE THREE TIMES AS LONG AND THREE TIMES AS WIDE AS ILLUSTRATED

A. & A.

1397 Bag Tag, \$6.75 doz.
1570 Whisk, \$15.00 doz.
1569 Hair Whisk, \$18.00 doz.
6731 Tea Bell, \$9.00 doz.
8900 Pin-Back Stone, \$12.00 doz.
1700 Gents Comb, \$6.75 doz. 6 1/2 in. long.
1002 Gents Comb, \$5.25 doz.
5050 Bannet, \$13.50 doz.
1483 Hair Whisk, \$13.50 doz.
1485 Shav. Brush, \$13.50 doz.
1726-18.00 doz.
305-13.50 doz.
806-11.25 doz.
1974 Infants Comb, \$7.63 doz.
1663 Blotter, \$8.25 doz.
1695 Mint Box, \$15.50 doz.
5049 Stamp, \$9.00 doz.
534f Stamp, \$13.50 doz.
11-92Y Match, \$4.50 ea.
1694 Match, \$18.00 doz.
1724 Match, \$13.50 doz.
323 "Goldline" Pat. Metal \$9.00 doz. Sterling, 18.00
11-88Y Match, \$4.00 ea.
98 Seal Jewel Top, \$20.25 doz.
1971 Seal, \$6.00 doz.
185 Seal, \$11.25 doz.
1890f Blotter, \$10.13 doz.

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Workshop Notes.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

"*Ellipse.*"—How to cut elliptic openings in sheet-brass $\frac{3}{8}$ " thick? I wish to cut a large number from $1\frac{1}{2}$ " by $2\frac{1}{2}$ " to 3 " by 5 ". I understand how to get the form, but how to cut them is the trouble.

The quickest method would be a punching press and the proper dies; the next best plan would probably be a jig saw, drilling a hole for starting the saw. If the brass plates are small, a jeweler's saw with a wide frame would answer.

"*Tandragees.*"—(1) I have two mercurial barometers with dials and hands, but the tubes of both are gone. Where can I get ready-filled tubes, or where can I buy the proper tubes and fill them myself? (2) At the top of both these barometers is a small brass dial, having the words "damp" and "dry" engraved upon them, with degree spaces each side of a zero mark at the bottom. The hands to these dials are gone. Can you give any information as to what the dials were to indicate?

(1) You can get such tubes ready filled of Franz Brandt, 26 North Seventh Street, Philadelphia. You can buy glass tube for barometers of Bullock & Crenshaw, 528 Arch Street, same city. The manufacture of barometers is a trade by itself, and filling the tubes requires a good deal of special technical training, a description of which would be too long to give here; and with the best instructions we could give you would probably make many failures before you achieved a success. (2) The little dials you speak of were probably for hygrometers—instruments for measuring the amount of moisture held in the air. This form of hygrometer usually consists of a strip of raw (untanned) hide—calf skin by choice—coiled up like a spiral spring. Moisture in the air causes such coil to relax, unwinding the spiral and moving the hand in one direction; while an unusually dry condition would close up on the coils, causing the hand to turn in the opposite direction. The coil of hide is attached to the arbor which carries the hand, in a manner very similar to the way in which a cylindrical hairspring is applied to the balance-staff of a marine chronometer.

"*Blowholes.*"—I melted nine ounces of silver about .750 fine in a crucible, with saltpeter as a flux and coke as a fuel, in my fire-place. Instead of leaving it in the crucible to cool, I poured it into an ingot mould set to 5 " deep, $1\frac{1}{2}$ " wide and $\frac{3}{8}$ " thick. On removing the ingot I found it full of blowholes. I melted the silver again and allowed it to cool in the crucible, then melted again with borax as a flux, and poured into the ingot mould. I found it as full of holes as before, and covered with a red flux which hammering would not remove. Under the hammer the ingot is soft but brittle, and when broken has a decided red tint. To what can I attribute my failures?

It is extremely difficult to say where your trouble lies, as there are many causes which might produce the results you describe. For melting silver you need no flux except to keep the melted metal from oxidizing, which is best done by keeping the surface covered with charcoal powder, prepared by rubbing a lump of this substance on a grater such as is used for nutmegs. It does no harm to mix a little pulverized sal ammoniac with the charcoal powder, as it serves to purify the metal as it burns out. The ingot mould should be heated as hot as the hand can bear, and should also be oiled. In pouring, the melted metal should be no hotter than to just maintain its fluidity. Painting the ingot mould over on the inside with a thin coat of fire-clay mixed with water to the consistency of thin whitewash, and allowing it to dry, also tends to avoid blowholes. Of course the mould is heated as before, previous to pouring in the melted metal. Pouring the melted metal when too hot, pouring into a cold ingot mould or too hot an ingot mould will produce unsound ingots.

"*Photograph II.*"—How are photographs attached on the back of glass to make medallions? How is the entire process conducted?

The facts are, there are several processes extant for doing this sort of work, but they all amount to about the same thing or produce the same average result. The glass on which such medallions are mounted is usually convex, taking the shape of a very large watch glass or crystal. The photograph to be transferred should be printed rather in excess, then toned and fixed. Now we come to a part of the operation where we find different methods adopted to secure the face of the paper photograph to the back of the glass, which, in the present instance, would be the concave side. For doing this some adhesive coating must be applied to the glass to which the photograph is applied. Canada balsam diluted with turpentine is used. Gum mastic dissolved in turpentine is probably as good as anything. An even coating of such solution, of the consistency of very thin varnish, is applied to the glass and allowed to dry free from dust. Exactly how far to let the drying process proceed is a matter only determined by experience, but mastic

dissolved in turpentine will stay "tacky" (that is, present an adhesive surface) much longer than almost any other mixture employed for transferring. The paper print is next soaked in water for twenty minutes, to soften it. After drying between blotting sheets, the face of the photo. print is applied to the varnished surface and pressed into perfect contact by means of the ends of the fingers, taking great care that no air blisters exist between the print and the varnish. The glass is set aside, for the little water in the paper to dry out and also to let the mastic varnish further harden. The paper of the print is next to be removed. For this purpose fine glass-paper can be employed. Glass-paper is like sandpaper, except that pulverized glass is employed instead of pulverized flintstone. Pulverized pumice-stone rubbed on the paper with the ends of the fingers is the best, but where one has much of this kind of work to do the fingers will soon wear sore. The gist of the operation now in hand is, to remove as much as possible of the paper, leaving only the transparent gelatin film containing the photographic print on the transfer varnish. In some portions of the picture it may be policy to leave a greater thickness of paper than at others. Some operators in such transfer prints leave a considerable thickness of paper, and render it transparent by the application of castor oil or a solution of white wax in turpentine or benzine. Castor oil seems about the best substance, however. In some instances the effect may be improved by leaving a thin film of paper, letting the color which is placed on the back to shine through. The instructions for this sort of work usually say the colors to be employed should be transparent. This is not necessary, as we do not see through the colors; we only see through the photo. film. A little knowledge of coloring will soon suggest the colors to employ and how to apply them to the back of the transfer.

"*Ebony.*"—Where can I procure a book giving processes for treating wood to imitate marble, ebony, etc.?

We know of no book which treats especially on such matters. We can give you some brief instructions on the matter which may be of service to you. A very good imitation of black marble with veins in it can be made by painting the wood with rather a creamy white, and rubbing down between each coat with fine sandpaper, taking especial care to make the last coat extremely smooth. On this is applied a coating of carriage-painters' drop black. While this color (black) is soft, cut a piece of cork with sharp angles to it, so as to wipe off the black into streaks and veins as we see in marble. After the color (black) is dry, these veins can be touched with color. A final coat of carriage-painters' varnish gives a gloss like marble. The white paint employed is ordinary white lead ground in oil, to which a little Japan drier is added. Usually the ready prepared white lead contains too much oil for our purpose. To remedy this, put say a gill of turpentine on half a pound of ground white in a dish of some kind, stir up to mix and allow to settle, then pour off most of the turpentine, allowing only enough to remain to give the paint a rather thin consistency when stirred up. The Japan drier gives a pale yellow cast to the white lead, and when ground white lead is treated with turpentine, as described, it dries extremely hard and free of gloss. To imitate ebony, apply a hot decoction of extract of logwood, allowing it to sink well into the wood. After such application is dry, go over the surface with some sulphate of copper dissolved in hot water. When dry, varnish with shellac dissolved in alcohol.

"*Stationer.*"—(1) How to prepare snake-skins for novelty work, such as card cases? (2) How to grind and polish clam shells? (3) How to grind down watch crystals where they are a trifle too large in diameter? (4) How to solder steel spectacles which are nickel-plated?

(1) We are unable to give any specific instruction for the art of preparing serpent skins for covering fancy articles. The natural presumption would be that any of the usual processes for converting skins into leather would answer. Of course it is to be understood that such processes of tanning as impart a color, as with oak bark and catechu, cannot be employed. We doubt very much if the skins usually employed have any process of tanning employed with them, but are simply removed from the reptile and dried. Afterward, perhaps, they may be rubbed with tallow or a mixture of some grease and soap. Those who practise taxidermy use a soap containing arsenic. The following is a favorite formula for arsenious soap: White castile soap one ounce, arsenic one ounce, carbonate of potash one dram, distilled water six drams, gum camphor two drams. These ingredients are incorporated in a druggist's porcelain mortar heated to about 180° F., and applied to the flesh side of the skin while moist. The mere application of soap to skin serves to tan it to a certain degree. Probably the most satisfactory and serviceable kind of tanning which could be applied to preparing serpent skins for the purposes to which they are usually applied would be a modification of the so-called "towing" process, which consists in applying a mixture of alum and common salt in equal proportions. The salt and alum are dusted on the moist flesh side of the skin, after which it is rolled up and allowed to stand for three or four hours, at the expiration of which time the flesh side has a paste applied, composed of a mixture of the yolks of twelve eggs and three pounds of rye flour thoroughly worked together. The skin has this mixture well rubbed in, then is rolled up and allowed to stay so for twenty-four hours, after which it is shaken out and hung up to let the air act on it for from six to twelve days. The skin is now rinsed and washed in tepid water, to remove all such foreign matter as is not incorporated in the skin.

The skin, after becoming nearly dry, is soaked in pure water containing one to two per cent. of glycerine, and again partially dried and then worked on a board with the rounded edge of a piece of plate-glass set in a wooden handle, to soften it. The effect of the mixture of flour and yolk of an egg is not (chemically) well understood, but probably the mixture of oil and sulphur which exists in the yolk of an egg has much to do with the success of the operation. This method of treatment can be applied to any skin, and is essentially the process by which all soft white skins with the hair or wool left on them are tanned. (2) A common grindstone will serve for such purpose. A belt made of strong cotton or linen webbing—in fact, the common emery belt of the artisan—answers admirably. Such belts are used dry, but the dust thrown off is pernicious to health and the operation of grinding should only be conducted in a strong current of air. Polishing is effected by rotary brushes made of manilla fiber, employing finely pulverized pumice-stone and water. For the final high polish tripoli with water is used. Usually, to save the labor of polishing, the shells are merely varnished, after grinding, with hard spirit varnish, which gives a gloss and shows the color of the shell. (3) See our answer to "Watch Glasses" in another column. (4) It is not an easy matter to hard-solder nickel-plated steel spectacle-frames without destroying the nickel-plating at the point where the soldering is done. Another disagreeable feature attending such jobs is the fact that it is nearly impossible to patch up nickel-plating, as nickel electrically deposited on nickel readily sloughs off. It is claimed that a cobalt deposit can be made on the steel and also on the nickel surface, which will hold. Cobalt is almost identical with nickel in appearance and wearing qualities. This improved cobalt process has not been made public yet; but if it proves all that is claimed for it, it will be a boon to those who are called upon to repair nickel goods.

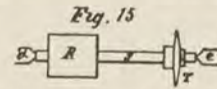
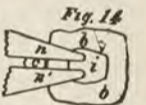
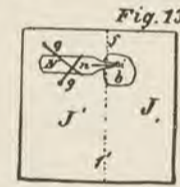
"*Repointing Gold Pens.*"—Please inform me how gold pens are repointed.

The points of gold pens are made of iridium, an intensely hard, white metal. This metal comes in small grains, and is attached to the point of the pen with gold solder. The pointing of gold pens is a trade by itself; still it is not a very difficult one to "pick up," as the phrase goes. The iridium comes in small bits, and in very good shape for attaching to pen-points. The pen to be repointed has first the points of the nibs fitted to receive a new tip of iridium; we say tip, because only a single piece is attached to both points, after which it is split to separate the nibs. The process in detail can be set down as follows: An asbestos pad is provided, as shown at *f*, Fig. 13.

One-half of the face is sunk or cut back a little so there will be a little step on the line *ff'*, with a very slight rise at *f*, and more at *f'*. This is to accommodate for height in the different sizes of gold pens. We will suppose we have a medium-sized gold pen to repoint; we first fit the point of the nibs to the bit of iridium we intend to attach. For this fitting good judgment and experience will alone serve as guide. We pin the pen to the asbestos soldering-pad as shown at *A*, Fig. 13; selecting a position where the nibs will just rest on the step on the line *f*. Underneath the points of the nibs we place a small scale of thin mica, as shown at *b*, Fig. 14, which view is enlarged from Fig. 13. The convex side of the pen is supposed to be uppermost. The spring of the nibs will hold the mica *b* down, and also the iridium bit in place. It will be seen this pressure separates the nibs *n n*. This is as it should be, as we require the nibs to be separated; to add to the certainty of the nibs remaining separate we place a small bit of mica at *c*. Borax and the proper gold solder is applied at *i*, Fig. 14, and with a blowpipe fuse the solder to join the two nibs *n n* and iridium bit *i*. One care is indispensable, which is to never touch one of the iridium bits with the fingers, or it will never solder securely. We next have to split the iridium point *i*. It will now be understood why we separated the nibs *n n*; first, so they would not solder together; second, to allow room for our splitting device to act. For splitting and grinding we need a rapid-running lathe. It is usual to employ a spindle carrying a copper cylinder and disk; the cylinder is about $1\frac{1}{2}$ " in diameter and $2\frac{1}{2}$ " long; the disk about $2\frac{1}{2}$ " in diameter and turned to a knife-edge.

Such a set is shown at Fig. 15, where *S* shows the spindle, *R* the copper cylinder, and *T* the knife-edge lap. On these laps *R T* fine emery and water are employed.

The ordinary flour-of-emery is too coarse and irregular in its grit. To prepare ordinary flour-of-emery for use, place one-quarter of a pound in a vessel and add one quart of benzine and stir well; strain through coarse cheese-cloth; let the strained mixture stand for fifteen seconds and pour into a second vessel. The fine particles of emery suspended in the benzine, when poured into the second vessel, is the material to use for grinding. After this fine dust is settled, pour off the benzine and dry the emery. Mix some of this with a little water and apply to the edge of the splitter, and after a few trials, you will be able to split an iridium point and hardly touch the nibs. Sometimes the iridium point can well be flattened on the cylindrical lap *R* before splitting. Good sense will dictate the proper shape to grind the points, especially if you carefully inspect (with an eye-glass) other pen-points. Iridium grains are worth about three dollars per pennyweight. How to bend and manipulate the nibs to restore the form and elasticity will come by practice.



HIGH IN • QUALITY
 NEVER • LEFT
 RIGHT IN • DESIGN
 LOW IN • PRICE
Four Cardinal Virtues of Our Rings
Ring Makers

*Which shall it be
 a visit from one of our five travelers
 or
 a selection package?
 We await your pleasure.*

LOUIS KAUFMAN & Co.
 54 MAIDEN LANE (FAHYS BUILDING)
 NEW YORK
 FACTORY—BROOKLYN, N. Y.

EISENSTADT MANUFACTURING COMPANY
 MAKERS OF FINE JEWELRY
 DIAMOND MOUNTINGS AND SPECIAL ORDER WORK

POPULAR APPROVAL
 Goes far toward establishing the standing of a business house, and the goodwill and favor we have been shown indicate that those who have dealt with us have been eminently satisfied with their transactions.
 Our aim has always been to have the goods and repair work that come from our factory as perfect as human skill and knowledge can make them, both in quality and manufacture, and from the popular approval of a large number of customers we feel that we have succeeded already beyond our expectations.
 Taking care of your special order work and repairs is a prime feature of our business, and the daily needs of your store in this line can be supplied through the most up-to-date and modern factory in America. Personal supervision insures promptness, efficiency and intelligent service. We are not here to serve the trade in any half-hearted way.

TRADE REPAIRING A SPECIALTY
HOLLAND BUILDING ST LOUIS MO.

GROSS & WINTERS, CHICAGO

Among the Trade.

The trade are invited to send us reliable items of news for this department.

California.

T. M. Beeson, lately of San Diego, this State, has begun business in Yuma, Ariz.

J. Reuben has succeeded Reuben & Casner, of 9 Ninth Street, San Francisco.

W. E. Robins has succeeded Jones & Robins, of 1322 Market Street, San Francisco.

F. A. Ward has opened a store in Fort Bragg.

Albert Taska has opened a jewelry store in Mokelumne Hill.

R. A. Bay, of Madera, has moved into a larger store.

Frank Pequignot has opened a store in Riverside.

Cohn Brothers, proprietors of the American Clock Depot, at 44 Sixth Street, San Francisco, have enlarged their departments of silver novelties and leather goods.

Colorado.

J. E. Goodman has opened a store in Buena Vista.

Le Roy Garton, formerly of Kansas City, Mo., has opened a retail store at 525 North Weber Street, Colorado Springs, this State.

Jeweler Crosby, of Hooper, is building a new store, where he will have much better facilities and more space.

Connecticut.

J. D. Capron, New Milford, has sold his jewelry business to M. W. Hill.

The authorities in New Haven have notified all conducting watch clubs that unless the business is discontinued they will be prosecuted. The New Haven merchants are doing much for the protection of legitimate trade in their town.

F. G. Story, formerly with Ryan, Barrows & Parker, Middletown, has started in business for himself in the same town.

F. H. Hill, Danbury, has purchased a half interest in the jewelry store of M. L. Carter & Co., of that place. The firm name will be unchanged.

Florida.

The following goods were stolen some weeks ago from E. Neve, Tampa: About eighty plain 18 karat gold rings; one 18 size, 14 karat hunting case, engine-turned, No. 743-773, Waltham movement; one ladies', gold filled, o size Crescent case, No. 330,370, case engraved all over and with bright stars on it, hunting; one Swiss watch, about 16 size, solid gold case, No. 154,724, key-wind, hunting; one ladies' o size, solid 14 karat gold, stem-wind, hunting case, No. 711,375, Elgin movement; one gold filled, 18 size case, hunting, with raised ornaments, Wheeler movement, stem wind; one Crescent, gold filled, 18 size, open-face, screw case, engine-turned, Waltham movement, seven jewels, pendant set; one 16 size Crescent case, Royal movement, Waltham, hunting case engraved all over; and four or five Tiffany skeleton mountings for diamond rings, but without stones.

Cooke & Martin, Jacksonville, are selling out their stock. Mrs. A. E. Martin will retire from the business because of ill health. When the sale shall have been completed, Mr. Cook will continue business on his own account.

Georgia.

A. F. Flint, of Savannah, has moved to 307 Bull Street.

Illinois.

F. K. Okerberg, of Sherrard, has begun business in Kewanee.

Frank Witt, of Kingston, has opened a store in Kirkland.

E. E. Barber, of Sullivan, has moved into more desirable quarters.

C. C. Farr, formerly of Astoria, has opened a store in Smithfield, under the management of O. L. Vail.

Idaho.

J. F. Kenly has moved from Shoshone, to Caldwell.

Indiana.

O. S. Judd, Anderson, has arranged to go to the Klondike. He is an experienced miner and accomplished mineralogist.

J. C. Kratzer, Peru, a prominent and highly respected citizen, died a few weeks ago.

J. F. Harding has opened a jewelry business in Royalton.

A. F. Hermann, of Tell City, has moved into a much larger store.

Cole & Campbell, of Bedford, have moved into improved quarters.

Charles F. Smith, of Rockville, has been appointed postmaster at Kingman.

Isaac Booth, of Tipton, has admitted Joseph Booth, his son, to a partnership, and the name of the firm has been changed to Booth & Son.

Iowa.

Frank Newham, of Nevada, has opened a branch store in Story City.

Joseph Dirkson has opened a repair shop in Breda.

G. M. West has removed his business from Randolph to Carson.

The T. K. Smith Jewelry House of Oskaloosa recently purchased the fixtures of H. O. Bailey, of Ottumwa, and removed them to Oskaloosa.

Mrs. T. Kircher, Davenport, has secured a lease upon the corner of Second and Brady Streets, and will move her jewelry business thereto at an early date.

Kansas.

B. O. Hagan, of Newton, has moved into better quarters.

R. V. Kumm, of Pittsburg, has moved into more desirable quarters.

Kentucky.

O. R. King, formerly with William Day, of Lexington, has begun business as an optician and repairer in the quarters formerly occupied by Mr. Day.

J. W. Jones, Mt. Sterling, offered \$10 reward for a watch stolen from his bench—Hampden movement, No. 755,924—silver case, screw bezel and back, No. 206,717. Mr. Jones says there is a watch in his town which he believes was stolen—Crescent Street movement No. 5,713,229, in Fahys 14 K. filled case, No. 744,108.

Graves & Condy, Hopkinsville, are now located in the store next to the Bank of Hopkinsville.

Maine.

O. E. Davies, who recently purchased the business of M. M. Genthner, of Rockland, has greatly improved his store.

Howard D. Spencer, of Lancaster, N. H., has purchased a store in Caribou, this State.

R. D. Pratt has opened a repair shop in Athens.

Maryland.

William H. Hennegen, of Hennegen, Bates & Co., Baltimore, is mourning the loss of his wife, who died a few weeks ago after a prolonged illness. Mr. Hennegen is soothed in his bereavement by the sympathy of a host of friends.

Massachusetts.

A. W. Gunnison, of Hudson, will soon move into improved quarters.

George H. Parris has begun business as a repairer in Charlemont.

Frank Stowell, formerly with E. A. Cowan & Co., Boston, has opened a retail store in Bellows Block, Beachmont.

Harry A. Squire has begun business as a diamond setter and jewelry repairer in Gill's Block, Springfield.

J. Edward Wilson, senior member of the firm of Wilson Bros., Boston, recently met with a serious accident. He left home at Winthrop at the usual time and boarded the eight o'clock train, and while going from the B., R. B. & L. R. R. station slipped and fell, breaking his leg in two places.

W. H. Eldridge, Dalton, who has sold out his dry goods interests, will continue his jewelry business.

J. F. Cook, of Gardner, has moved into larger quarters. Kerr & Co., of Malden, have moved into larger quarters.

W. L. Kelley, of New Bedford, has moved into larger quarters.

Henry E. Bellows has opened a repair shop in Haverhill.

M. E. Andrews has begun business in Westfield.

Eugene R. Mullen has opened a repair shop in Athol.

John L. Sanderson has opened a repair shop in Somerville.

The jewelry store of Everett Lane, Rockport, is closed up, and mail matter should not be addressed there. Mr. Lane has only one store, that at Gloucester.

Michigan.

C. R. Hollis, of C. R. Hollis & Son, Benton Harbor, died recently, at the age of sixty years. He had been engaged in the jewelry business since boyhood.

William Pratt, of Lake City, has opened a store in Boyne.

O. L. Altenbury, formerly of Alma, has begun business in Elsie.

Harvey Hill has opened a repair shop in Woodland.

William Keck, of Muskegon, has removed his store from 4 Western Avenue into the Holt Block.

Austin & Vivian, Carsonville, have dissolved partnership. W. C. Vivian succeeds.

Alfred H. Kent, Mt. Clemens, was married recently to Miss Lou A. Atwood, a most estimable young lady. THE KEYSTONE extends congratulations.

Hugh Connolly, Detroit, is now located in his new store at 318 Woodward Avenue.

Wright, Kay & Co., of Detroit, furnished the menu cards for the banquet of the Sons of the Revolution held January 17th, and also for the Cornell University dinner held in Ithaca, N. Y., February 2d.

Minnesota.

C. G. Sutherland, a graduate of the Winona Horological School, Winona, has opened a store in Elysian, this State.

O. H. Arosin, retail jeweler, of St. Paul, has been appointed a member of the fire board of that city.

D. Bryan, formerly of Graceville, has opened in the jewelry business in Sandstone.

Mississippi.

Harry L. Dix, Holly Springs, has disposed of one-half interest in his jewelry business to George Bewig, who has been in the employ of Mr. Dix. The title of the new firm will be Dix & Bewig.

Wallace Arnold, Greenville, has sold out to Leonard Krower, New Orleans, La.

Missouri.

O. N. Allen, of Norborne, is now employed as watchmaker with the Tower Jewelry Company, Moberly.

J. H. Baker, of Moberly, has discontinued business and is now traveling for an optical house at Kansas City.

J. H. McCoy has opened a repair shop at Moberly, in the store formerly occupied by J. H. Baker.

W. E. Tower, of the Tower Jewelry Company, Moberly, has been appointed watch inspector for the Wabash Railroad at Moberly. More men have to report at the Moberly division than any other division on the system. Mr. Tower is a good watchmaker and will serve the Wabash well.

Charles T. Anderson, of Springfield, has moved into better quarters at the southwest corner of the Public Square.

F. W. Gieselmann, Macon, has sold a controlling interest in his jewelry store to his brother, C. L. Gieselmann, who is now in complete control.

A. L. Harward, formerly of Eldon, Iowa, has opened a retail store in the postoffice in Trenton, this State.

Montana.

John Fredreck, Elkhorn, contemplates a trip to the Klondike, whither he will take some stock and tools.

Eugene B. Braden, assayer in charge of the United States Assay Office in Helena, places Montana's mineral production for 1897 at \$52,750,000.

J. A. Robinson, Kalispel, has advertised his jewelry store for sale. He intends journeying to the Klondike.

F. W. Stein & Co. have purchased the jewelry and drug business of Stein & Orschel, of Miles City.

Nebraska.

The Webster Manufacturing Company have been incorporated in Wymore, this State, for the purpose of manufacturing jewelers' tools, etc.

New Hampshire.

E. S. Sanborn, of North Woodstock, has added watches, jewelry and silverware to his photographic business.

New Jersey.

The Wheeler & Mayo Manufacturing Company has been incorporated to conduct a silver-plating business in Newark. The stockholders are Joseph B. Mayo, John C. Wheeler and Ely M. Odan.

Friedmann & Elbow, of 196 Market Street, Paterson, dissolved partnership. Mr. Friedmann will continue the business.

(Continued on page 114.)

Superior Silver-Plated Ware

is better than **Inferior**, "Sterling" so-called.

The Middletown Plate Co. invites the attention of the Trade to the finest line of **Silver-Plated Hollow-Ware** they have ever produced, also to an equally fine line of **STERLING WARES**.



No. 4000. FLUTED TEA SET, WITH EBONY HANDLES.

The **BEST** is the cheapest.

Especial attention is called to Gold Plate mounted with Miniatures or Colored Stones, in Toilet Wares, Cigar Jars, Puff and Cream Boxes, Jewels, Etc.

The Middletown Plate Co.

MIDDLETOWN, CONN.

SALESROOMS

502 Masonic Temple, CHICAGO, ILL.

22 John Street, NEW YORK.

120 Sutter Street, SAN FRANCISCO, CAL.

Among the Trade.

New Jersey.

(Continued from page 112.)

Link & Angell have succeeded Link, Angell & Weiss, Newark.

Theodore Fischlein, of Jersey City, has been appointed inspector of watches for the Erie and New Jersey Central Railroads.

New York.

Smith Chittenden, of Hartwick, has moved into more desirable quarters.

C. E. Eager, Syracuse, has moved to his new location in The Jefferson, Salina Street.

At the annual meeting of the stockholders of the Oneida Silverware Manufacturing Company, of Oneida, held last month, C. A. Stringer, I. D. Wilkin and S. W. Moore were chosen directors. The board of directors afterward elected Mr. Moore as president, Mr. Wilkin as vice-president, and Mr. Stringer as secretary and treasurer.

W. B. Hood, 71 South Pearl Street, Albany, has renovated his store and put in new show windows.

Charles R. Kempter, Plattsburg, died a few weeks ago from apoplexy. He was eighty years old, and was born in Germany. He came to Plattsburg in 1863, and had been one of the most esteemed citizens of the town.

Joseph Hoffman has opened a repair shop in New Haven.

Clyde has lost one of the most prominent and highly respected citizens of that town in the death of Sylvester J. Child, which took place a few weeks ago. Mr. Child was an exemplary citizen, and his sterling integrity won for him a high standing among those with whom he had business associations. Always diligent in business and faithful to the duties which each day brought to him, the announcement of his death was received with universal regret in this community. He was a great admirer of THE KEYSTONE, of which he had carefully preserved every number. The business will be continued by his son, Harold E. Child, who has been associated with him for several years.

Louis O. Sweet, Afton, has moved from the Briggs Block into his new store on Railroad Avenue.

C. F. Hornbeck, of Cortland, will soon move into a new store on North Main Street.

Hamilton Brothers have opened a repair shop in Branchport.

William Dudley has opened a jewelry store in Perry.

North Dakota.

A. L. Porter has opened a store in Enderlin.

E. Winhold, of Oakes, has moved into new quarters.

Ohio.

W. G. Crook, of Nelsonville, has moved into more desirable quarters.

H. A. Harman, Jr., lately of Madisonville, a suburb of Cincinnati, has removed his business to Lynchburg, this State.

The first annual Southeastern Crawford County Farmers' Institute was held January 5th and 6th, in Galion. It was a great success. C. W. Bechtol, the local jeweler, was on the executive committee, who are credited with the success of the convention.

F. L. Wirschinger, Columbus, has moved to 151 South High Street, where he has new fixtures, new stock and a beautiful up-to-date store in every respect.

Hall & Needham, Gallipolis, distributed handsome calendars as an advertisement of their business.

J. T. Roberts, of East Liverpool, has purchased a building into which he will remove his store.

Oregon.

O. H. Rieger, successor to Gibbs & Rieger, Portland, reports a revival of business in his section, and says that the outlook for the present year is very promising.

Pennsylvania.

Claude Guthrie has begun business as a repairer in Alba.

Charles Fry has begun business as a retailer in Jamestown.

Oliver Barclay has opened a repair shop in Laurelville.

Frank Kline, of Spring City, recently won two valuable prizes for poultry exhibits at a bird show in Kansas City, Mo.

Mather Bros., of New Castle, are making preparations to remove into handsome quarters on April 1st.

William P. Denehey, of Harrisburg, was nominated by the Democrats for membership in the school board.

John T. Matthews, of Matthews & Lancy, Bradford, has been appointed official watch inspector for the B. R. & P. Railroad.

Philip Geritz, of Freeland, will resume business as a retail jeweler.

A. G. Rugh has opened a store in New Alexandria, in a new building erected for the purpose.

It is reported that A. Kruger, jeweler, Phoenixville, will close out his business and go to South Africa to his uncle, Paul Kruger, President of the Transvaal Republic. President Kruger has invited his nephew to pay him a visit at Pretoria. The President and Mr. Kruger's grandfather were brothers.

J. C. Schmidt, of Lebanon, will soon move into much larger quarters.

E. D. Sowers, of Newport, has purchased the business of D. F. Rosen, of Bellwood.

Albert Oshorn has greatly improved his store in Draper.

E. N. Shewell & Co. have opened a store in Glen Rock.

M. E. Fleming, who for many years has had charge of the watch-repairing department of J. D. McAulis, Beaver Falls, will soon start for the Klondike.

Rhode Island.

J. F. McCaffrey, Pawtucket, manufacturer of the Savoie repair kit for repairing single tube bicycle tires, is finding his kit in such demand that the manufacture of it threatens to monopolize his entire time and attention. No better testimonial to its merit could be desired.

South Dakota.

A. F. Snyder, of Victor, Colo., has bought the business of A. F. Mochon, of Deadwood, this State.

Texas.

The Flagler-Whittenberg Co., have succeeded to the jewelry and drug business of Flagler & Whittenberg, Georgetown.

L. M. Bowman has moved from Lufkin to Commerce.

I. Stein & Co., of Austin, have decided to discontinue business.

A. Cordill has purchased the stock and fixtures of O. Pearson, of Ballinger.

W. D. Armstrong & Bro., of Brownwood, have been succeeded by the Armstrong Jewelry Company.

Cooper Claypool, of Marble Falls, accidentally shot off two of the toes of his right foot while hunting.

S. J. Berrier, of Ennis, has moved into the store of J. W. Brixson, druggist.

Morris Stern, Dallas, has moved his establishment to Fort Worth.

Dallas is to have a thoroughly up-to-date big commercial building, with all the latest improvements and conveniences. It will be built by the jewelry firm of Jos. Linz & Bro., at an outlay of \$100,000. It will be a five-story building, having a basement, the commercial or street floor, four floors of offices, after which comes the roof garden, 70 x 100 feet, with kitchen, toilets, etc., conveniently arranged. All of the floors in the stores will be marble, as well as the sidewalk in front. The steps all the way to the top will be of marble; also, the floors in all the halls and corridors, all of which will be wainscoted with polished marble. The large display windows will be of polished plate-glass. The front doors, fixtures, etc., will be of polished oak. Linz & Bro. are to be congratulated on their enterprise.

Vermont.

C. H. Place, St. Albans, furnished the class pins for the class of '98, St. Albans High School. The pins are of solid gold, in the shape of a diamond, with the center of garnet enamel, the High School color, and the inscription "St. A. H. S." engraved on the borders.

F. W. Hill, formerly with Charles Wyman & Son, of St. Albans, has started in business for himself in the same town.

Washington.

Julius Jaskulek, a graduate of the Hutchinson School for Watchmakers, of La Porte, Ind., has taken a position with his father, J. Jaskulek, Nelson, this State.

Elwell Bros., Castle Rock, have leased the old bank building and fitted it up for a jewelry store.

The *Spokane Chronicle* recently told of a species of advertisement that is not likely to become popular with the trade. "A surging crowd blocked the sidewalk in front of Roger's jewelry store this morning and peered through the big windows at a ghastly spectacle within. Stretched out in an elegant casket lay what seemed to be the corpse of a

young man, with closed eyes and hands folded across his breast. Only the closest inspection showed that he still breathed, and the crowd was informed that he had been hypnotized by Professor Davis, and would not be awakened until to-morrow evening. Vigorous protests being made against such an exhibition, Police Chief Warren ordered the man removed to a private room, and the crowd dispersed."

Wisconsin.

Anton Verklyn, of Kaukauna, has removed into more desirable quarters.

M. T. Nelson & Co. have succeeded M. T. Nelson, in Etrick.

The Drummond Jewelry Company, of La Crosse, will occupy new quarters at 370 Main street.

The jewelers of Beloit have agreed to close their stores at 8 P. M. every evening except Saturday from January until April.

Julius Liebnow, of Green Bay, has greatly improved his store.

E. A. Jones, of Elroy, has been appointed watch inspector of the Chicago and Northwestern Railway Company.

"Enclosed find my dollar for The Keystone. No retailer can be without it and be up to date."—O. E. Williams, jeweler, Pittsford, Mich.

Philadelphia Horological Society.

The regular monthly meeting of the Philadelphia Horological Society was held on January 6th, at Bank Hall, Broad Street and Columbia Avenue.

After the usual routine business had been transacted, President Lewis stated that H. R. Playtner, principal of the Canadian Horological Institute, of Toronto, Canada, and a member of the Society, had forwarded ten dollars, to be given as a prize to any person in any part of the world for the best design or drawing of any tool used in watchwork, or a watch, or any part thereof; drawings and description to be submitted in a prize competition. This offer is made in the interest and furtherance of horology, and with the request that the Philadelphia Horological Society act as the judge. The competition to be held annually. Mr. Playtner's generous offer was accepted with thanks, and a committee was appointed, consisting of F. C. Dwyer and Charles Murset, to draw up the necessary rules governing the competition. John H. Townsend was unable to complete his lecture on "Punches and Dies," but will do so at some future date.

The rest of the evening was profitably spent in the discussion of numerous queries from the "Question Box."

Chas. L. Conrad presented to the Society an antique drum alarm clock. The thanks of the Society were tendered to Mr. Conrad for his gift.

Breaking Mainsprings.

CLOVERDALE, CAL., January 11th, 1898.

EDITOR KEYSTONE:

THE KEYSTONE has come to hand full of useful information. I have been working more or less at the bench for fifty-two years. Of this I spent nine years in Switzerland, on new watches, and have been since 1855 in this country. It is with great pleasure and satisfaction that I watch the progress made since that time in the construction of movements and cases in the United States. The movement have with a very few exceptions lever escapements, which is as it ought to be for a general purpose watch.

Now allow me to make some remarks about the breaking of the mainsprings in all American watches. All watchmakers will agree with me, that forty-nine out of fifty break near the center, from the first to the third and fourth coil. Why is this? We do not find this the case in either Swiss or English watches. I find the main cause is twofold: The first trouble is, the drum in the barrel on which the spring is wound has too small a diameter. In making new Swiss watches that drum has a diameter that is just one third of the inside diameter of the barrel. If it is less, no matter how good the springs, they will break, and are uncertain. The second trouble is in the center of the mainspring being a little too hard. If the first two coils have the temper drawn a little it will help some. Have for this purpose a piece of asbestos with different sizes of holes, put the spring on the asbestos so the first two coils are over the hole. Now hold a small alcohol flame right under it, and watch the change of the color of the center of the spring and withdraw before the blue color appears. This, if done right, is some help.

Very respectfully, G. HUNZIKER.

THE G.W. 14 K. SEAMLESS FILLED CHAIN¹¹⁵

Warranted 20 Years

The remarkable success with which our LEADER Chains have met, as well as at the request of many of our old customers for a high-grade chain that we can sell under our personal guarantee, we have had made for us, under special contract, a line of Seamless Filled Chains, by one of the best-known chainmakers in the country—a chain which we feel confident will give perfect satisfaction. The first lot has just been received and comprises both Ladies' and Gents' Chains, and they are beauties, in all the latest, up-to-date patterns. The prices will range from \$24.00 to \$48.00 per dozen, less 6 per cent.

Our **LEADER** Chains are without doubt The Best Chain in the World for the Money. \$10.50 per dozen, less 6 per cent.

GEO. WETTSTEIN, CEDAR RAPIDS, IOWA Wholesale Jeweler

THE
QUEEN
QUEEN CITY
QUEEN CITY SILVER
QUEEN CITY SILVER CO.
QUEEN CITY SILVER
QUEEN CITY
QUEEN
THE

A gem of rare value
to every dealer in

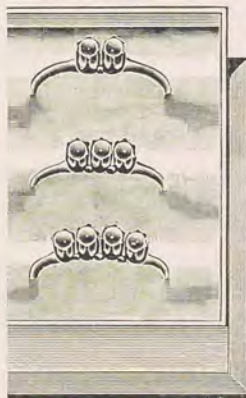
SILVER-PLATED HOLLOW-WARE

on account of its constant association
with designs and prices distinctively
attractive to the consumer.

The many complimentary expressions received since mailing our Vest-Pocket
Daily Reminder for '98 convince us of its full appreciation by the Trade.

Factories, 933 to 941 Fillmore St., CINCINNATI.

\$10.50 per Dozen.



Two, three and four
stone, assorted.

Fine quality
OPAL RINGS,
10 K.,

well mounted.
In box.

Sent CHARGES PAID, sub-
ject to your return if not en-
tirely satisfactory.

(State New York
references or remit
by draft or money
order.)

Factory—Newark, N. J.

Clover Charms.



Sterling or Plate.

\$3.00 Dozen.

L. Witsenhausen
37-39 Maiden Lane,
N.Y.

L. COMBREMONT,

IMPORTER AND JOBBER OF

WATCHES, MATERIALS, TOOLS
AND OPTICAL GOODS,

45 MAIDEN LANE,
NEW YORK.

TRY OUR CELEBRATED

JEAN RICHARD Mainsprings,

\$12.00 PER GROSS.

WITH EACH GROSS, ASSORTED,

A HANDSOME CABINET, FREE.

ESTABLISHED IN 1858.

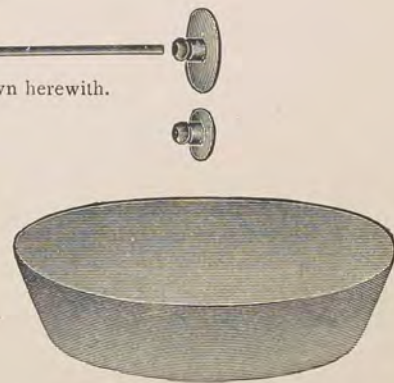
FORTY YEARS' experience in manufacturing ALL KINDS OF JOBBING MATERIALS is a good record to offer, and, with unparalleled facilities, places our firm, unquestionably, at the head of this line of business.

Illustration showing Steel Hat-Pin, Gold-Plated, for hard-soldering without pad and soft-soldering with pads, as shown herewith.



We make ALL KINDS OF SOLDERS, too—have made them since 1858. If you want a good article in that line, order the F 1858 Solder, from low karat to 22 karat fine, and you will pay no more for it than you would for a worthless article. Retail jewelers can get all the above articles shown of the jobbers; the jobbers and manufacturers, from us.

GEO. H. Fuller & Son, Factory, PAWTUCKET, RHODE ISLAND.
CHICAGO OFFICE, 103 State St., Columbus Memorial Building.



Polishing Compound.

Used in place of tripoli. Manufacturers
are specially requested to try it.

Kansas City and the Great South-West.

The wholesale jewelry trade in Kansas City, without exception are feeling exceeding happy over last year's business. Already the indications are of an early opening of spring business and a continuance of the excellent showing made during '97. All lines report that the general conditions promise far better returns than last year, which is most encouraging. One of our well-known jobbing firms informs us that they have just finished their invoice and size up the situation with them as follows: Less goods in stock, less open accounts on the books, and less owing to creditors in the East. This all goes to show that the demand has been great for goods, and that there is plenty of money in circulation in this part of the West. Travelers are all out, and if first reports are to be believed most of the jewelers have sold their stocks down very low.

The "Commercial Empire" of the Southwest, of which Kansas City is the capital, includes a country 200,000 square miles in extent, containing a population of nearly four million people, says the *Kansas City Star*, and is capable of producing almost every staple product used by the highly civilized man of to-day. Besides this vast territory which may properly be called Kansas City's, the lines of Kansas City's commerce reach out hundreds of miles further—to the Northwest into Idaho and Montana; to the West into Colorado and California; to the Southwest into New Mexico, Arizona and Old Mexico, to bring the products of those regions here for distribution, and to carry the products of Eastern manufactories to those outlying domains. It is a great country, this commercial empire of Kansas City, and greater far in its potentialities than in its actual possession.

The articles which are produced in this great territory in sufficient quantities to be commercially valuable, would make a long list. It is not necessary to repeat them. The greatest interest of all, of course, is live stock. The completed record for 1897 will show that almost six and a half millions animals have been marketed this year in Kansas City from the ranches and feed lots of the Southwest—122,000 carloads in all, worth considerably more than \$100,000,000. Next in importance is the wheat crop—70,000,000 bushels in Kansas City's territory, of which no less than 30,000,000 bushels will come to Kansas City. The rest will be used by home mills, sent directly South for export, or used for seeding the fields for a new crop. The entire product is worth over \$50,000,000, most of which is distributed from Kansas City and a large part of which comes back to Kansas City to buy necessities and luxuries obtainable in the big wholesale stores here. These are the great staple products of the Southwest. But there are scores of other articles produced which help to make the people rich, and assist in making Kansas City an important trade center. The corn crop is largely consumed in making cattle and hogs, but several million dollars' worth of corn comes to market every year. The oats raised in Kansas City's territory are worth \$6,000,000; potatoes, \$4,000,000; hay, \$10,000,000; Kaffir corn, sorghum, Milo maize and other similar forage crops all classed together are worth \$7,000,000; cheese, butter, milk, poultry and eggs, \$15,000,000; apples and other fruits \$5,000,000. While this is distinctly an agricultural country, there are some other products of great value which are adding to the possessions of the people every year—such as coal, lead, zinc, stone, lumber, cement and oil. There are two important facts about this part of the Union that are of special interest to Kansas City: one is that its resources are capable of almost incalculable development; another is that every year Kansas City merchants are able to control a larger proportion of the trade of the people than ever before. As the center for selling, the center for buying, the center for amusement and for information, of all this country, with its four millions of people, Kansas Citians have reason to be proud of the empire which surrounds them and gives them work to do.

Fred. C. Merry and wife have returned from New York, where they spent their honeymoon.

L. J. Baker, Muskogee, I. T., was a recent visitor in the city. He was on his way to St. Joe to visit relatives.

Harry William, watchmaker for J. B. Lowe, Independence, Mo., has a brother who is the inventor of a lamp, the patent for which he has recently sold to the Armour Packing Co. for \$10,000.

E. R. Moses, Great Bend, Kan., who is at the head of general stores conducted at Hoisington, Claffin and Great Bend, Kan., was in the city recently, attending a convention of implement dealers.

Lem. Flershem, of Lapp & Flershem, Chicago, was in the city on business a few days last month.

Among out-of-town jewelers attending C. L. Merry's optical lecture course are B. T. Rhodes, Minneapolis, Kan.; L. S. Grimm, Lebanon, Kan.

Henry Sutter, son of L. A. Sutter, Abilene, Kan., is in the city, purchasing a stock of musical merchandise, which will be added to their jewelry business.

C. B. Norton, of J. A. Norton & Son, celebrated his silver wedding last month.

John T. Fontron, formerly with H. S. Zinn, Hutchinson, Kan., passed through the city on his way to the horological institute at Peoria, to complete a course in watchmaking.

The Columbian Optical Co., formerly located in the new Ridge Building, have moved to the store on East Eleventh Street formerly occupied by the Michaels Loan and Jewelry Co.

W. H. Kinna, the polished missionary of the Elgin Watch Co., is in the city, showing their new output of twelve-size movements.

T. K. Smith Jewelry House, of Oskaloosa, Iowa, have purchased the elegant fixtures formerly owned by H. O. Bailey, Ottumwa, Iowa, who has quit business. This house has now the finest lot of furniture that adorns any jewelry store in Iowa.

G. O. Schneider, watch case repairer here, recently lost his wife, who died of blood-poisoning.

The Michaels Loan and Jewelry Co. have gone out of business.

W. S. Evans, Hiawatha, Kan., who had the Klondike fever and departed for that far-away frozen clime last summer, has returned, and advises that he is satisfied with Kansas, and that his interests here are worth more to him than the chances of striking gold in Alaska.

A. J. Wells, De Kalb, Mo., reports that burglars entered his store recently and blew open the safe and stole all his watches and rings.

Thorson & Brown, Northwood, Iowa, have recently remodeled their store, putting in new fixtures and a gas plant of their own.

The Hart Jewelry and Loan Co. have removed to 14 West Ninth Street, where they have fitted up a very pretty little store.

Recent buyers in this market were Charles Beasley, Rich Hill, Mo.; J. H. Whiteside, Liberty, Mo.; Otto Burklund, Osawatimie, Kan.; F. W. Benedict, Rich Hill, Mo.; Dick Kolstad, Pleasant Hill, Mo.; W. W. Whiteside, Liberty, Mo.; A. L. Liggett, Slater, Mo.; and Bert Zimmerman, Warrensburg, Mo.

"In regard to The Keystone, will say that I think it is as near perfect as it can be made, and, as for me, I will not be without it if it cost five times the amount of subscription per year."—H. F. Wright, jeweler, Milton, Ore.

Advice to Boys.

You are learning a trade. That is a good thing to have. It is better than gold. Brings always a premium. But to bring a premium, the trade must be perfect—no silver-plated affair. When you go to learn a trade, do so with determination to win. Make up your mind what you will be, and be it. Determine in your own mind to be a good workman.

Have pluck and patience. Look out for the interests of your employer—thus you will learn to look out for your own. Do not wait to be told everything. Remember. Act as though you wish to learn. If you have an errand to do, start off like a boy with some life. Look about you. See how the best workman in the shop does, and copy after him. Learn to do things well. Whatever is worth doing at all is worth doing well. Never slight your work. Every job you do is a sign. If you have done one in ten minutes, see if you cannot do the next in nine. Too many boys spoil a lifetime by not having patience. They work at a trade until they see about one-half of its mysteries and then strike for higher wages. Act as if your own interest and the interest of your employer were the same. Good mechanics are the props of society. They are those who stick to their trades until they learn them. People always speak well of a boy who minds his own business, who is willing to work, and who seems disposed to be somebody in time. Learn the whole of your trade.

—Ex.

Would Chase It.

She—"How would you punctuate the following: 'Bank of England notes of various values were blown along the street by the wind?'"

He—"I think I would make a dash after the notes."

Death of Eugene Deimel.

In our last issue we announced with regret the death of Eugene Deimel, the popular wholesale jeweler, of Detroit, Mich. The sad news reached us as the January KEYSTONE was going to press, which prevented any extended notice in that number of this worthy member of the trade.

Mr. Deimel was a German by birth, but arrived in this country with his parents when only six years old. His connection with the jewelry business began six years later, when he became an apprentice to his brother, Gustav Deimel, Hancock, Mich. The young apprentice proved exceptionally industrious and painstaking, and in a comparatively short time he became well versed in every branch of the trade, developing at the same time marked business capability. Later he was employed by Traub Bros., of Detroit, as a journeyman jeweler, and subsequently in a similar capacity by George Schuler, of the same city. In 1877 he started in business for himself at 157 Jefferson Ave., Detroit, where success attended him from the beginning, and where he built up one of the most prosperous wholesale jewelry businesses in that section of the country.

There were few better-poised merchants than Eugene Deimel. Judiciously enterprising, shrewdly conservative and rigorously honest, he built his business on a safe foundation, and watched its development with solicitude as well



EUGENE DEIMEL

as pride. He was held in highest regard by all with whom he had business relations. He was one of those with whom it was a pleasure to do business, and his passing away at the comparatively early age of forty-seven years is universally regretted.

The fatal malady was a peculiar and a painful one—stricture of the canals leading into and from the stomach. The stricture of the œsophagus prevented for a time the introduction of nourishment to the stomach, and the patient rapidly lost flesh and vitality. Later, however, he rallied, and improved so much that he was able to visit the store. This resulted, as his friends feared, in a relapse, and death was really due to starvation, owing to complete blocking of the entrance to the stomach.

A committee of the members of the Marshland Club, of which Mr. Deimel was treasurer, took charge of the funeral arrangements, and all did what they could to testify their respect. The employees at the store sent a handsome floral clock, the hands of which pointed to the hour of his death. THE KEYSTONE joins his many trade friends in extending sympathy to his family, to whom he was most devoted.

Good Things to Learn.

Learn to laugh. A good laugh is better than medicine.

Learn to keep your troubles to yourself. The world is too busy to care for your ills and sorrows.

Learn to stop croaking. If you cannot see any good in this world, keep the bad to yourself.

Learn to hide your aches and pains under a pleasant smile. No one cares whether you have the earache or headache.

Learn to attend strictly to your own business. Very important point.

Learn to greet your friends with a smile. They carry too many frowns in their own hearts to be bothered with any of yours.

KANSAS CITY, MO.

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Immediate attention to all Prescription Orders and Repair Work is our "long suit."

A TRIAL ORDER IS ALL WE ASK.

Yours truly,

C. L. MERRY OPTICAL CO.

Manufacturers and Jobbers,

1013 & 1015 Walnut St., Kansas City, Mo.

FULL VALUE GIVEN FOR OLD GOLD
AND SILVER.

YOU CAN NEVER MISS IT

BY SENDING YOUR

TRADE
REPAIRING

TO

EDWARDS & SLOANE JEWELRY CO.

KANSAS CITY, MO.

DO YOU

KEEP A RECORD OF YOUR WATCHES AND CASES?

The jeweler to whom we sold No. 6825987 Elgin movement No. 117, as advertised in January KEYSTONE, evidently does not read THE KEYSTONE; consequently he is \$5.00 short. We want before March 1st Elgin box No. 7034250, No. 172. Will send new movement if box is received before that time.

We have everything in ELGIN and WALTHAM MOVEMENTS, and our assortment of CASES is not excelled.

BRACELETS, CHAINS, RINGS and BROOCHES are attractive this season.

We have the sellers, and earnestly solicit your orders.

WOODSTOCK, HOEFER & CO.

KANSAS CITY, MO.



FIRST PRIZE, \$50.00.—Awarded to ALFRED THOMAS, with Carl Mayer, Austin, Texas.



SECOND PRIZE, \$25.00.—Awarded to HENRY WILLIAMS, Manager for J. B. Lowe, Independence, Mo.

THE ELGIN WATCH COMPANY'S

WINDOW DISPLAY COMPETITION

PRIZE-WINNERS

Herewith will be found reproductions of the window displays which the Judges have decided are entitled to the prizes we offered in our window-display contest, inaugurated in November. Photographs of displays were received from various sections of the country, but we have only space to reproduce on this page the four prize-winners.

- FIRST PRIZE, \$50.00.—Awarded to ALFRED THOMAS, with Carl Mayer, Austin, Texas.
- SECOND “ \$25.00.—Awarded to HENRY WILLIAMS, Manager at J. B. Lowe’s, Independence, Mo.
- THIRD “ \$15.00.—Awarded to GEORGE HAY, Attica, Ind.
- FOURTH “ \$10.00.—Awarded to E. B. BRUMM, Shenandoah, Pa.

To all jewelers who entered this competition and helped to make it a success, we extend our congratulations and most hearty thanks.

ELGIN NATIONAL WATCH COMPANY
CHICAGO



THIRD PRIZE, \$15.00.—Awarded to GEORGE HAY, Attica, Ind.



FOURTH PRIZE, \$10.00.—Awarded to E. B. BRUMM, Shenandoah, Pa.

**PIN YOUR FAITH
TO AN ELGIN WATCH**

as Old Father Time has been heard to remark.

'Twill serve you well—no matter who you are, or what your vocation—if you want **CORRECT TIME.**

**THE RUBY JWELED ELGIN
IS THE WATCH TO BUY.**

Beautiful in Appearance. Graceful in Outline.
Accurately Timed and Adjusted.

There is not one essential lacking that could make it more complete.
We carry in stock all grades and sizes, and shall be pleased to quote you prices.

ROVELSTAD BROS.,
Jewelers and Opticians, 161 Chicago Street.

FIRST PRIZE, \$50.00.—Awarded to A. A. BRUCKNER, with Rovelstad Bros., Elgin, Ill.

**For Me
To Say**

That this is an **ELGIN WATCH**, and made by the Elgin Watch Co., is a sufficient guarantee to the public that it is far superior to any other make of Watch in the world. Its reliability for **TIMEKEEPING QUALITIES** is beyond a doubt.

The Elgin Watch

is perfected in such manner that you can wind and set the Watch in **5 seconds.** For my personal use I wear the Elgin Watch, and I am a jeweler. It is the only ideal watch to own, for business men, railroad men, boys and girls. Its quick-wind and pendant-set will save the business man many minutes daily. The chronometer balance, fitted with its Breguet hairspring and adjusted to temperature, assures the railroad man that he be at his destination on the *second*, and the boys and girls are ready for school on the punctual hour with the Elgin. So you had better step in and let me show you the variety of designs in Ladies' Hunting Case, Dainty Chatelaines with decorated dials, and all sorts of sizes cased in 14 K. Gold, Silver and Nickel.

Sold by

G. FRANK,
THE JEWELER.

Established 1880.

SECOND PRIZE, \$25.00.—Awarded to G. FRANK, Danville, Va.

THE PRIZE-WINNERS IN THE
Elgin Watch Company's Advertising Competition No. 2

We give on this page the advertisements which the judges of our Advertising Competition No. 2 have decided, upon investigation and examination of the goodly number of "Ads." called out by this interesting contest, are entitled to the prizes we offered in the November number of THE KEYSTONE for the "four best published advertisements having for their theme Elgin Watches." The list is as follows:

- FIRST PRIZE, \$50.00.—Awarded to A. A. BRUCKNER, with Rovelstad Bros., Elgin, Ill.
- SECOND " \$25.00.—Awarded to G. FRANK, Danville, Va.
- THIRD " \$15.00.—Awarded to M. A. WORCESTER, Lidgerwood, N. Dak.
- FOURTH " \$10.00.—Awarded to F. W. MOORE, Austin, Ill.

Advertising is always a great and interesting problem among the jewelers, and these really excellent specimens of the jewelers ad. writers cannot help but stimulate the craft to better efforts and higher achievements along this line. We desire to thank the jewelers who have so cordially co-operated to make this competition successful.

ELGIN NATIONAL WATCH COMPANY, CHICAGO

When You Discuss

the merits of the famous **ELGIN** Watches there is one point to be noted—

that is, that there are over fifty styles of movements—and that all of them are good. The poor man can carry as accurate a timepiece at a cost of a few dollars as his richer brother, who pays up in the hundreds for his. Both may carry Elgins. If they do, you can be certain that they are on equal footing when it comes to timekeeping.

Consider the choice you have! And yet you can not make a mistake and get a poor timepiece. Your pocketbook regulates the cost of your watch—the name Elgin assures you of the value of your money. It is an advantage not to be overlooked.

Perhaps you think of getting a watch—of beginning the New Year on time. I would like to have a chat with you if you do. You see it's this way: I have sold Elgins for a good many years. I know they are good watches. I always have them in stock. If I did not think they were good I would not push their sale. I have satisfied many with the Elgin—I believe I can satisfy you.

M. A. WORCESTER,
Jeweler and Stationer, Lidgerwood, N. Dak.

THIRD PRIZE, \$15.00.—Awarded to M. A. WORCESTER, Lidgerwood, N. Dak.

Easy to repair, because simple.

Long-lived, because well made.

Good timers, because thoroughly adjusted.

Indispensable to any one wanting a good watch.

None better; competitors say.
"As good as the Elgin."

THAT IS WHY YOU SHOULD BUY AN

ELGIN WATCH.

F. W. MOORE, Jeweler,
107 North Park Ave., Austin, Ill.

FOURTH PRIZE, \$10.00.—Awarded to F. W. MOORE, Austin, Ill.

Workshop Notes.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

"Brass Horn."—How can I get brass horns, like cornets, apart, so as to solder them? I have tried boiling in water, but to no purpose.

Even experts experience bother in such jobs. The usual practice is to heat the outer parts, to expand them, and then employ some force, like pulling and gentle tapping with a wooden instrument to jar the adhering parts loose.

"Tower Clock."—Will you please give the best way to clean a Howard tower-clock?

Cleaning a tower-clock is not essentially a different operation from cleaning any other clock, except that the parts are larger and heavier. Cleaning, of course, means removing all gummy oil and rust spots. It is also essential that any and all repairs should be done prior to the ultimate cleaning. The wire cable which is usually employed for supporting the driving weights should also be carefully looked over. Tower-clocks are usually in a position to induce rust on all steel and iron parts, and for this reason vaseline should be liberally applied to all polished parts, and iron and steel parts not polished should be painted, by preference with asphaltum. The oil usually applied to such clocks is best winter-strained sperm oil. Those who have tried the heavy mineral oils for tower-clocks usually speak highly of them.

"Bikes."—What kind of steel, that is, the name of the grades, is used for bicycle axles and cones, and where can it be obtained and at what price?

Precisely the same kind of steel is seldom used by any two manufacturers. You might select three excellent mechanics, who could be called equally good, and probably no two would choose the same make of steel. Bicycle parts are usually made of machinery steel, which contains so little carbon that it will not harden except when it is subjected to the process of case-hardening. Such mild steels case-harden readily, and for many purposes are to be preferred to tool steel, as, for instance, for bicycle axles. An axle made of the highest grade of tool steel would spring and warp in hardening, and to bring it to correct form would have to be ground, a very slow and expensive process. On the other hand, an axle made of mild steel and case-hardened would retain its form and wear as well as if made of high-grade tool steel. Steels of all kinds can be had at any large hardware supply house. The price will vary some according to size of rods, bars, etc., and also quantity purchased.

"Gold."—When gold becomes brittle from melting, how is the best way to toughen it? Also, what is the best material in which to cast gold, and how to prepare it?

There are many things which would render gold brittle. The slightest trace of lead or tin will do it. Under ordinary circumstances remelting gold with a flux composed of fine charcoal-dust and sal ammoniac in equal proportions will do it. Gold should not be poured into the ingot mold until just before it commences to set. In other words, pour at the lowest temperature at which the gold is perfectly fluid. Where gold is brittle from the presence of tin or lead, which can be told by the fracture appearing close and pale, the remedy is bichloride of mercury and fine charcoal powder in the proportion of two parts (by weight) of charcoal powder to one of pulverized bichloride of mercury. This flux is added just at the time of melting, and after fusion takes place the gold is well stirred with a red-hot iron. The furnace is urged until a white heat is attained, when the crucible and contents are allowed to cool down to the proper temperature for pouring as above directed. Cuttlebone is usually held to be the best material for casting gold in. See our reply to "Casting," page 307, April, 1897, KEYSTONE.

"Dip-Plating."—How is the operation performed and what is the material employed in the process of plating spoons, forks, etc., with Russian white metal, where the articles to be plated are dipped in a bath of melted metal?

We are unacquainted with the details of any process bearing any specific name like Russian or Royal, but suppose it to be identical with a process known as "silver dip" and several other catchy appellations. The alloy employed is composed as follows: Tin ninety parts, lead nine parts, silver one part. Melt the tin, and when the bath shows a lustrous white color add the granulated lead, stirring well with a pine stick; then add the melted silver and stir again. Increase the heat of the bath until the surface of the metal assumes a light yellow color, then stir and cast into ingots for subsequent use. The bath for the so-called silvering is prepared by melting enough of the above alloy in a crucible to permit dipping the article to be plated. The article, for instance a knife-blade, is dipped in diluted hydrochloric or sulphuric acid, rinsed in pure water, dried, rubbed with a piece of soft leather or dry sponge, and then exposed in a muffle to a temperature of 158° F. for five minutes. The effect of this treatment is to render the surface of the iron or steel porous. With iron not very good and coarsely porous, the silvering process is difficult to execute. With steel, however, the article, heated to 140° F., is

dipped into the crucible of melted alloy. The bath must be kept perfectly liquid and stirred occasionally with a pine stick, and when ready for use must show a fine silver-white color. One or two minutes dipping suffices for a knife-blade. When taken from the bath the article is dipped into cold water. It is then rubbed dry and polished without heating.

"Aluminum."—Please give me the method of bright-cutting on aluminum.

For bright-cutting on aluminum, keep the graver wet with benzine. There is a certain technical skill required in bright-cutting on this metal which is different from all other metals. A favorite form of graver for this purpose is shown at Fig. 3 in transverse section, and at

Fig. 3

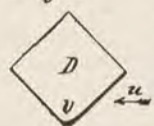


Fig. 4

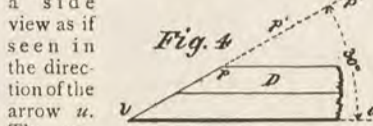
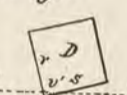


Fig. 4 is a side view as if seen in the direction of the arrow *u*. The peculiarity of this graver is, it is rounded on the lower or cutting angle. This rounding is not a simple curve, but is shaped as shown at the dotted line *v*, Fig. 5. It will be seen that there is but little curvature, and that very abrupt, on the side represented by the line *r*, while the curvature on the side represented by the line *s* is very gentle. The cutting angle *o v p* is very much reduced from the ordinary 45° angle—say to about 30° and giving the graver a sort of rocker bottom. The graver should be highly polished, and the polish renewed after a few strokes. The surface of aluminum on which bright-cutting is to be done should be matted with a fine wire scratch-brush. Sand-blast is said not to leave a good surface on this metal for bright-cutting. A beautiful dead white mat can be given to polished aluminum by chemical action conducted as follows: Dip first in a strong solution of caustic soda (washing soda, sal soda), then into undiluted nitric acid. Rinse in pure water and dry in hot boxwood sawdust.

Fig. 5



"Nero."—Please tell me how pastel paper or board is prepared. (2) How are pastels made and colored? (3) I have made plaster of Paris casts of several cuts I have, in order to duplicate them, and have met with but little success in casting. How is this work done? (4) Please explain how original cuts are made. (5) Would not vulcanized rubber answer for printing purposes?

(1) There are a great number of kinds of papers and boards employed for pastel work, some of which have a rough grain surface, resulting from the process of manufacture; other pastel papers and boards are prepared by coating the surface of the paper with gum water or parchment size dissolved in water, and while these adhesive substances are soft and moist marble-dust or fine pumice-stone powder is deposited. To properly coat pastel paper, it should be stretched on a stretcher like canvas for oil-painting, but in this instance the frame or stretcher need not be so expensively made, by having keys at the corners. A good form of stretcher for pastel paper can be made of strips of 1/2" board joined at the corners with a miter joint. The width of such strips will depend on the size of the paper to be stretched; for paper 18" by 24", strips 3" wide should be employed. The front surface of the strips, to which the paper is to be attached, has a flat surface 1/2" wide around the outer edge. Perhaps we had better explain this more fully. If we made a plain frame of strips of 1/2" board, 3" wide, laid flat and joined by a miter joint at the corners, we would find, on attaching the paper, that in some places the inner edge of the frame would touch the stretched paper and "show through" as it is often termed. To remedy this defect, we slightly thin the pieces for the frame on the inner edge, say to 1/8", leaving a flat face 1/2" wide on the outer edge of the frame, to which we secure the paper with glue. To attach paper to such frame we wet the paper to excess, blotting off excess of moisture with a clean towel. The damp paper is now to be attached to the frame with glue, applying hot strong glue to the flat surface 1/2" wide at the outer edge of said frame, and, if deemed desirable, a corresponding band of glue to the paper. The frame and paper are laid flat and weights applied, to keep the frame and paper in contact until the glue dries. It is well to cover the center of the frame and paper, to prevent drying before the edge glued to the frame becomes secure. On drying, paper so prepared will be as tense as a drumhead. To coat the surface of the paper for pastel work, we apply with a wide camel's-hair brush a coating composed of gum arabic ten parts, loaf sugar one part, with water enough to dissolve the gum and sugar to the consistency of ordinary mucilage reduced one-half with water. The paper and frame are laid flat, and fine marble dust is sifted over the surface from a special sieve. It used to be that hair sieves could be had from dealers in housekeepers' supplies, but of late years they have gone out of use and we must get up something else. Bolting cloth, such as millers use, makes the best sieve for our purpose. It should be chosen of such size of mesh as only to allow the marble dust to pass, holding back the sand employed by the marble-workers, to be cast aside after the marble-dust has passed through. The same sieve serves to evenly coat the surface of the paper with marble-dust. After drying, the surface is ready for working on with pastel crayons. Sometimes the surface of the paper prepared in this way will be too rough. This can be remedied by rub-

bing the surface with a small piece of paper prepared in the same way. Pulverized pumice-stone can be substituted for marble-dust. (2) Pastel crayons are composed of a mixture of china clay and carefully ground chalk, together with coloring matter of various kinds to give the desired tints. The grinding of the materials has much to do with the quality of the crayons. The mixture when imperfectly ground yields a very unsatisfactory crayon, while the same ingredients in the same proportions, when thoroughly ground, produce crayons of the highest quality. Gum water, prepared from gum arabic, dextrine, tragacanth or similar gums soluble in water, is also employed to give hardness and stability to such crayons. White soap is likewise used in some mixtures. The color employed also has much to do with the nature of the composition. We think no amateur could hope to produce colored pastel crayons which would be in any way satisfactory. (3) Stereotyping is an art requiring careful attention to many important details, to give which would extend beyond the space we can spare in this department. The use of plaster moulds has been in almost every instance abandoned for the paper matrix for stereotyping and the wax mould for electrotyping. (4) Original cuts for printing in the ordinary type press are either wood cuts or process cuts. Wood cuts are engraved on wood blocks cut across the grain of some hard wood like boxwood, and the so-called process cuts are produced by the process of photo-engraving. (5) Vulcanized rubber is now used to some extent for making cuts similar to electrotypes, the hard rubber plate being mounted on a block type high. The action of printers' ink is more or less destructive, even on vulcanized rubber. The advantage claimed for rubber is less weight when sent out by mail.

"Greenhorn."—(1) I have an eight-day clock run by a 3/4" spring, and would like to change it to a weight clock. How heavy should the weight be? (2) Is there a horological school in Philadelphia that teaches watchmaking by mail? (3) Can I change a seven-jewel movement (for my own use) to a fifteen-jeweled one, without a lathe, by using hand countersinks to cut the plate for jewels in settings? (4) Would it help a workman about repair work to make an escapement model?

(1) In substituting a weight for a spring for driving a clock, it is good policy to employ a weight exerting the same force as the spring when about half wound. To do

this, attach a lever to the key pipe as shown at Fig. 1, and hang on a weight of some kind to just balance the force of the spring. In explanation we refer to the details shown in the cut. The bar *B* can be made of metal or wood, and should be securely attached to the keypipe *x*. The bar *B* should be about 8" or 10" long, and when the plates of the movement of the clock are in a vertical plane the lever bar *B* should extend horizontally either to the right or left, according as the clock is made to be wound. As shown in the cut, the clock is to be wound in the direction of the arrow *w*. To determine how heavy a weight we require as a substitute for the spring, we make from a piece of wire a hook shaped as shown at *z y*, Fig. 2, and hang it on the lever bar *B*, as shown at Fig. 1. On the lower hook *y* we hang a bag containing bits of anything heavy, as shown at *C*. We next move the hook *z* back and forth on the bar *B* until it just matches the force of the mainspring. The next operation is to weigh the bag *C* and its contents very carefully. Then decide on the diameter of the spool on which winds the cord to the weight ultimately used, so as to calculate the weight required. Suppose, in illustration, that the spool on which the weight cord is to wind is 1" in diameter; that in testing the spring as shown we found that it required six ounces placed in the bag *C* to balance the force of the mainspring of the clock; and that we also found that the hook *z* had to stand at 8" from the center of the arbor *x* to poise the force of the mainspring. We have now a very simple question in proportion to work out, to give us the weight we require to drive the clock, because the ratio of the lever *B* will be maintained in ratio of weights. It will be seen that the bar *B* is in fact only a lever of the first order, with the fulcrum at *x*. To obtain the weight required to drive the clock, we multiply the weight *C* by the result obtained by dividing the length of the lever by the half diameter of the spool around which the cord suspending the driving weight is wound. Half the diameter of the driving spool is 1/2"; this into the length (8") of the lever *B* goes sixteen times. We now make a statement in proportion thus 1 : 16 :: 6, which, on working out, gives us ninety-six ounces, or six pounds, as the required weight to propel our clock with a force equal to the average force of the mainspring. (2) We think the Philadelphia College of Horology, whose advertisement you will find on another page, does this. (3) No doubt such a job could be done, but not in a satisfactory manner. In this day a watchmaker needs a lathe as much as he does cutting pliers. (4) Most decidedly; any mechanical principle worked out on a large scale, so that one can see it well, is very much better than any drawing or theoretical instruction.

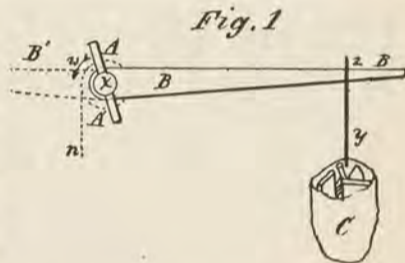
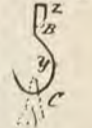


Fig. 2



Aikin-Lambert Jewelry Co.

19 Maiden Lane, New York,

ARE FULLY PREPARED TO FILL YOUR ORDERS
FOR

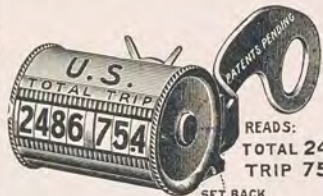
WATCHES DIAMONDS JEWELRY

Selection packages when requested.

We only ask for a trial.

Novelties in GOLD, SILVER and PLATE.

Two Cyclometers in One 120a



PRICE, \$1.25.

10,000 Miles, with Independent
Trip Register of 100 Miles.

POLISHED NICKEL OR ANTIQUE
COPPER FINISH.

Jobbers and Dealers, send for electrotypes and '98 proposition.

U. S. Manufacturing Co.,
FOND DU LAC, WIS.



INTRINSIC VALUE OF THE



HAS BEEN PROVEN BY THE MOST SEVERE TESTS OF YEARS,
AND ITS OUTER MERIT IMPRESSES ONE AT SIGHT.

MAKE SURE OF GETTING THE BEST, MOST TRUSTWORTHY
SILVER-PLATED WARE IN THE WORLD BY
BUYING THE **ROGERS ANCHOR BRAND**,
"THE ORIGINAL AND RELIABLE."

MADE ONLY BY U.S.

**WM. ROGERS
MFG. CO.
HARTFORD, CONN.**

FACTORIES

HARTFORD, CONN.
WALLINGFORD, CONN.
NORWICH, CONN.
TAUNTON, MASS.

The United States Government, in soliciting proposals for plated ware, states in the specifications that all goods shall be up to the quality of the Rogers anchor brand, made by the Wm. Rogers Mfg. Co., Hartford, Conn. No greater compliment could be paid to this popular and reliable ware than its adoption as the standard by the United States Government, which specially announces that it will not accept any silver-plated ware of a lower grade. Bids were recently invited for 12,000 knives, the same number of forks and dessert spoons, and 3,000 teaspoons for the National Soldiers' Home. The Wm. Rogers Mfg. Co. was the lowest bidder and was awarded the contract. Previous contracts of this kind were held by this company.—October Keystone.

STAR BRAND SPECIALTIES ★ ★ ★ ★ ★



\$1.00 PER DOZ.
\$10.50 PER GROSS, WITH CABINET.

★ "STAR" American Mainsprings, for Waltham, Elgin, Hampden, Rockford, Illinois, etc. The best quality and finest finished spring on the market. The tips are fitted perfectly. Should any break, send us the ends of springs and they will be replaced by new springs. None better in the market at any price. Our price, \$1.00 per dozen; \$10.50 per gross, fancy cabinet included.

★ "STAR" Brand American Cock and Foot Jewels (Set), extra quality, \$1.25 per dozen; \$12.00 per gross.

★ "STAR" Brand American Balance Staffs, all makes, extra quality, \$1.50 per dozen or \$15 per gross.

The above Staffs and Jewels are made at Waltham, Mass., by experts, on automatic machinery, and are guaranteed a perfect fit.

★ American Balance Staffs and Cock and Foot Jewels (Set), second quality, 75 cents per dozen; \$7.50 per gross.

All prices quoted are subject to 7 per cent. discount for cash.

H. B. PETERS & CO., 177 Broadway, NEW YORK.

Hardinge Bros., 1036 Lincoln Ave., CHICAGO.

MANUFACTURERS OF



Dale Chucks
for any lathe.
Wire or Wheel
Guaranteed.
\$1.00 each.



Fitted to any make of lathe for
\$25.00.



Hardinge Patent
Hand and Roller
Remover.
Price, \$2.50.

Watch for our New Wheel-Cutter.

Write for New Complete Catalogue.

News from the Northwest.

At our last writing the retail trade was in the midst of what turned out to be the best holiday season they have had for years; almost without exception, they have reported "better business than expected," and the best part of it was there was no especial run on any one article; it seemed to be a demand for a general line, and noticeably a better grade of goods than had been called for previously. THE KEYSTONE feels very much flattered in the result, as it was prophesied in its columns, and we wish right here to have the retailer put his finger on another prophesy—"1898 will be as far ahead of 1897 as 1897 was ahead of 1896." So brighten up stock and invite trade with a vim, and you will find yourself well repaid before the year is over. Prosperity is in the air, and why should we not put ourselves out a little and meet it half way?

The jobbing trade has not been pushed since Christmas, as there has been the work of invoicing and replenishing stocks on hand, and the travelers were at home spending a few days with their families and friends before going out again to make a new record. By the time this issue appears all the travelers will be out again, and, judging from their enthusiasm, they certainly expect "results."

Collections have come in nicely. A great many heretofore time-limit customers have adopted with the new year an idea that they want the cash discount, a very wise decision, as that is *all profit*. We hope their good resolutions will be kept up, as \$1.00 saved is \$2.00 earned.

George H. Lang, Mankato, Minn., was married December 22d to Miss Rose Rowe, a prominent young society lady of Chamberlain, S. D. Accept THE KEYSTONE'S congratulations, George. You deserve the best there is to be had.

Otto Brink, manufacturing jeweler, St. Paul, has removed from 179 to 195 East Seventh Street.

I. R. Bunker, of Sisco & Beard, left on his Northwestern trip last week.

E. H. Smith, formerly with Arnstine Bros. & Mier, will represent the Reed-Bennett Co., Minneapolis, on the road, taking the territory formerly covered by W. H. Creveling, who will remain in the house. Axel E. Madsen will continue with them, covering his old route.

U. F. Lemire, St. Paul, has removed to 776 Wabasha Street.

U. F. Alden, Sauk Center, Minn., has been elected second assistant chief of the fire department.

W. L. Pettit & Co., Minneapolis, have been compelled to move into larger quarters, and now are "at home" at 201, 202 and 203 Masonic Temple.

E. A. Luscher, Redwood Falls, Minn., has been elected director of the Redwood County Bank.

Otto Schulz, for the past year watchmaker for Wm. Plackner, Arlington, Minn., has left there and is now in Minneapolis.

Lewis Vehon is the latest acquisition to the force of L. Finkelstein, St. Paul. He will have charge of the city trade.

A. Watt has removed from Osseo to Arcadia, Wis.

I. M. Radabaugh is the new jeweler at Janesville, Minn.

Axel Hansen, De Smet, S. D., has quit business there.

O. Swenson & Son, Cresco, Ia., have been succeeded by Wesley O. Swenson, who has moved across the street from the old stand.

Henry Smith, manufacturing jeweler, St. Paul, has been appointed chief clerk in the building inspectors' office there.

I. R. Bunker, St. Paul, was called to Hudson, Wis., last month by the sudden death of an uncle.

A. E. Boyce, Little Falls, Minn., has removed to Bismarck, N. D.

C. J. Mealey, formerly at Howard Lake, Minn., is now at Melrose, Minn.

Tom Morris, Crookston, Minn., has been in the Twin Cities the past two weeks, taking his degrees as a Mystic Shriner.

Sneak thieves entered the store of Emil Wirsén, Minneapolis, last month, and secured several gold watches. No clue.

Harry Archer, Minneapolis, representing the A. F. Towle Co., left recently on his Southern trip through Iowa, Missouri, Nebraska and Texas.

Charles Winter, of S. H. Clausin & Co., Minneapolis, is laid up with rheumatism. He is anxious for warm weather to come to boil it out.

J. M. Sullivan, Wheatland, N. D., is now very comfortably settled in his new store.

Charles Wahlberg, lately with W. M. Stone, Minneapolis, has gone to Jefferson, Iowa, where he will work for L. H. Bucks.

Joe Aicher, Minneapolis, has gone east to make arrangements to represent several Eastern factories, with a branch office in Chicago.

The store of A. Hillesheim, Madelia, Minn., was robbed January 5th. The thief was caught two days later at Makato with over \$75 worth of goods on his person.

A. J. Metzger, trade watchmaker, St. Paul, who was confined at home with an attack of typhoid fever, is again able to be at the bench.

Leon E. Miner, Waterville, Minn., was married last month. THE KEYSTONE extends best wishes.

Charles W. Spickler has started in business at Wyoming, Minn.

Will Geist, St. Paul, has just completed a handsome hall clock, which is on exhibition at his father's store. He is as proud as a peacock over it. "Made it all myself."

Clyde B. Ayers, Osceola Mills, Wis., has given ample evidence of being a strong protectionist. He has just bought a large steel-lined safe.

Charles G. Sutherland has begun business at Elysian, Minn.

Ben. Marx, of D. Marx & Son, St. Paul, has just returned from a buying trip to the New England States. "Lots of new goods coming."

John Rentz, of Rentz Bros., Minneapolis, wore a smile during the holiday season that meant more than good business. Investigation proved it to be a son and heir at home. The first arrival. THE KEYSTONE wishes him long life and that he will be as popular as his father.

George H. Searl, Augusta, Wis., expects to remove to New London, Wis., shortly.

Harry E. Schloss, with L. Finkelstein, St. Paul, has returned from a two weeks' visit to friends in St. Louis, Mo.

Albert Mellin, with Fred. Scott, Stillwater, Minn., has gone to Elgin, Ill., where he will take a four months' course at the horological school.

John B. Erd, Duluth, Minn., spent the greater part of the past month at his old home in St. Paul.

E. M. Ackley, Mentor, Ohio, who has been on the road for the Tudor Optical Company, St. Paul, has returned to Ohio, being called home by sickness in his family.

Fred. H. Harm, St. Paul, has added a line of optical goods to his stock.

F. Z. Sherwood, Faribault, Minn., has made quite an improvement in his store by putting in a fine new line of show cases.

We are pleased to hear that Will R. Cooper, of S. H. Clausin & Co., Minneapolis, has recovered sufficiently from his recent illness to again attend to business.

Ernst A. Hummel, St. Paul, has returned from a trip East, where he was called regarding his new invention to transmit photographs by telegraph. He has made arrangements to furnish twelve machines to an Eastern newspaper, and will give up his position as watchmaker and work the next year on them. Success, Ernst; you deserve it.

A. L. Porter has begun business at Enderlin, N. D.

Wm. Grinnell, Janesville, Minn., has moved to Kasson, Minn.

Otto H. Arosin, St. Paul, has resigned his position as president of the assembly (City Council) there and has accepted an appointment as member of the Board of Fire Commissioners, of which he was elected president at its first meeting. Promotion is in order for the popular jeweler.

M. L. Finkelstein, St. Paul, is wearing an extensive smile these days, all owing to a young pawnbroker at home (his first). "May he be as good a man as his father," says THE KEYSTONE.

Frank L. Grace, Stillwater, to emphasize his good new year's resolutions, appeared to his friends minus his mustache. Let it come again, Frank; it looks better.

Lewis Finkelstein, St. Paul, is East on a buying trip. "Must have goods, you know."

Luke R. Keating, Tom Marshall and Jake Marx will represent D. Marx & Son, St. Paul, on the road this year. Three good hustlers are bound to win.

Louis Gans, of H. E. Murdock, Minneapolis, is out on his Northwestern trip.

The following trade visitors were noticed in the Twin Cities lately: T. J. Thompson, Amery, Wis.; C. C. Smith, Hastings, Minn.; Albert Asleson, Dawson, Minn.; A. J. Lee, Hudson, Wis.; S. B. Millard, Litchfield, Minn.; Clyde B. Ayers, Osceola, Wis.; Fred. Willman, Stillwater, Minn.; John B. Erd, Duluth, Minn.; Hugo O. Schlender, Springfield, Minn.; E. M. Ackley, Mentor, Ohio; Albert Mellin, Stillwater, Minn.; Herman Fredell, Center City, Minn.; Fred. H. Eickmeir, North Branch, Minn.; Louis Hanson,

River Falls, Wis.; J. Romdenne, Elk River, Minn.; G. H. Emery, Northwood, Iowa; Lucien Diacon, Chaska, Minn.; F. Z. Sherwood, Faribault, Minn.; E. C. Bennett, Zumbrota, Minn.; F. W. C. Foulkers, West Superior, Wis.; A. L. Mealey, Delano, Minn.; F. R. Levy, Stillwater, Minn.; A. J. Arneson, Wegdahl, Minn.; Wm. Krohn, Annandale, Minn.; F. H. Kahle, Belle Plaine, Minn.; A. Hammerstein, Cockato, Minn.; John Fredell, Center City, Minn.

"Enclosed find check for one dollar to pay my subscription for the best magazine (of the jewelry trade) published. It is no use of a jeweler saying: 'Oh, I can get along without The Keystone.' He might as well say that he could get along without any brains, as one is as important as the other to make a success of whatever trade a person may engage in."—J. F. Walden, jeweler, Highlands, North Carolina.

Be Careful of Appearances.

The appearance of a merchant's store has much to do with his success. A neatly dressed window, carefully cleaned sidewalk, and a generally cheerful and cleanly air will often attract people who would otherwise pass you by. It always pays to make your store inviting in every possible way. People are impressed by appearances, and if in addition they find courteous treatment, fair dealing and reliable goods, you may rest assured they will come back again.

Keep Your Old Customers.

It is far better to retain one old customer than to take chances of getting two new ones. Every steady customer lost is of course a backward step, unless another equally valuable takes his place, and this is only problematical. Besides you would very likely have secured the new one at any rate. Hold on to your old customers, and if you lose one make it your business to regain his trade. To bring back old customers is often better than gaining new ones, as you are acquainted with their tastes and needs and consequently have a better chance of suiting them. —Ex.

Literary Notice.

The Youth's Companion contains the most carefully selected, instructive and interesting miscellany printed in any American periodical. The New Year's number was rich in this department. The principal feature of the number was Mr. Gladstone's recollections of Arthur Henry Hallam—a paper of extraordinary interest and charm. The article was illustrated with fine portraits of Mr. Gladstone and the subject of his sketch. A number of excellent short stories, editorial articles touching on various current topics, and notes on science and affairs filled out this most attractive number of the great family weekly. The succeeding issues thus far are equally interesting, showing that the high standard of the New Year number will be maintained throughout the year. *The Youth's Companion* is published weekly by Perry Mason & Co., Boston, Mass., and the subscription price is \$1.75 per year.

Code of Commercial Nomenclature of the American Republics.

One of the most serviceable of the many excellent publications of the Bureau of American Republics, in Washington, D. C., is a comprehensive compendium or code of commercial nomenclature, giving some 28,000 modern commercial terms and names of marketable commodities in English, Spanish and Portuguese, the three languages used in this western hemisphere. The work is in three large cloth-bound volumes, each containing 700 pages. Each of the three volumes contains a complete collection of terms in all three languages, but the arrangement is different. The terms are arranged on the pages in three parallel columns. In one volume the English terms, alphabetically arranged, occupy the first column, the Spanish and Portuguese being in parallel columns. In another volume the Spanish terms, alphabetically arranged, occupy the first column, and in the third volume the first column is occupied by the Portuguese terms similarly arranged. The work is thus equally serviceable for reference purposes to English, Spanish and Portuguese-speaking people, who can find any term in any of the languages in a moment. The compilation must have entailed an enormous amount of labor and research, and it gives an idea of the valuable work being done by the efficiently-managed Bureau of American Republics. The Pan-American Congress directed that the volumes be prepared in 1890, and six years were spent in compiling them.

Experts who have examined the work critically predict that it will soon be accepted as the authority of the world as to the meaning of Latin-American technical terms, and say that it will be found indispensable to the counting-house, factory and shipping office, as well as to customs officials, courts, economists, statisticians, and all others directly interested in the business relations of the governments of the Western Hemisphere. From an educational standpoint alone, the publication will prove of inestimable value, and be very useful to editors, professors, lecturers, etc. *

Reed-Bennett Co.

Minneapolis, Minn.

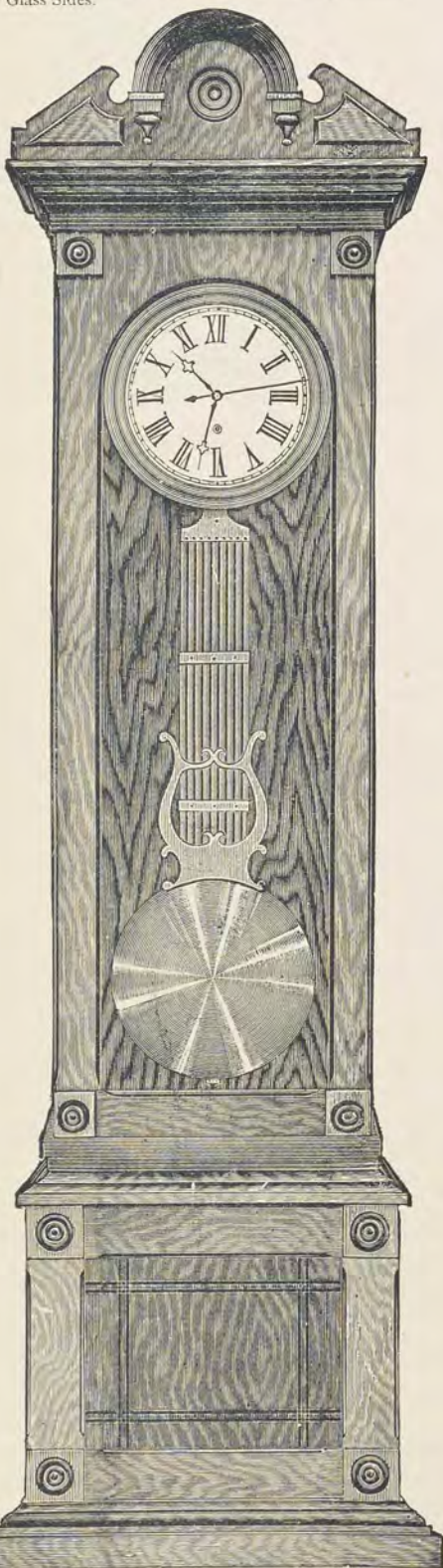
The Leading
Wholesale
Jewelers'
Supply
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Northwest

Tools, Material, Jewelers' Findings,

Watches, Clocks, Silverware,
Jewelry, Etc.

REGULATOR No. 52.

Walnut or Cherry. Piano Finish. Highly Polished.
Glass Sides.



Eight-Day, Weight, Time. No. 100 Movement.
Brass Weight.

Finely Finished Movement of Best Quality, Encased in Iron Box. Dead-Beat Pin Escapement, Sweep Second, Retaining Power. Porcelain Dial, 12 inches. Height, 102 inches. With Gridiron Pendulum, Oval Rods.

Clock Company's Price, . . . \$95.00
OUR NET PRICE, . . . \$35.00

Never before in the history of the jewelry business has a Regulator fitted with the No. 100 Waterbury Movement been sold at this price. The Case is hand-polished cherry or walnut.

WATCH and JEWELRY REPAIRING.



*We call the special Attention
of the Trade throughout the
Northwest.*

When in need of anything,
**order from us and save
time, MONEY, freight
and express.**

When in the city, call and
get acquainted.

When at home, consult our
Catalogues and you will be well
posted.



We illustrate here
A Few Necessary Articles
For new beginners, at
Astonishingly low prices.



*Located, as we are, in
the Jobbing Center of
the Northwest, we call
attention to Our Fa-
cilities for supplying
watchmakers and jew-
elers in that section.*

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elry Catalogues for
Low Prices. We be-
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profit with our cus-
tomers.*



If you handle SPECTACLES,

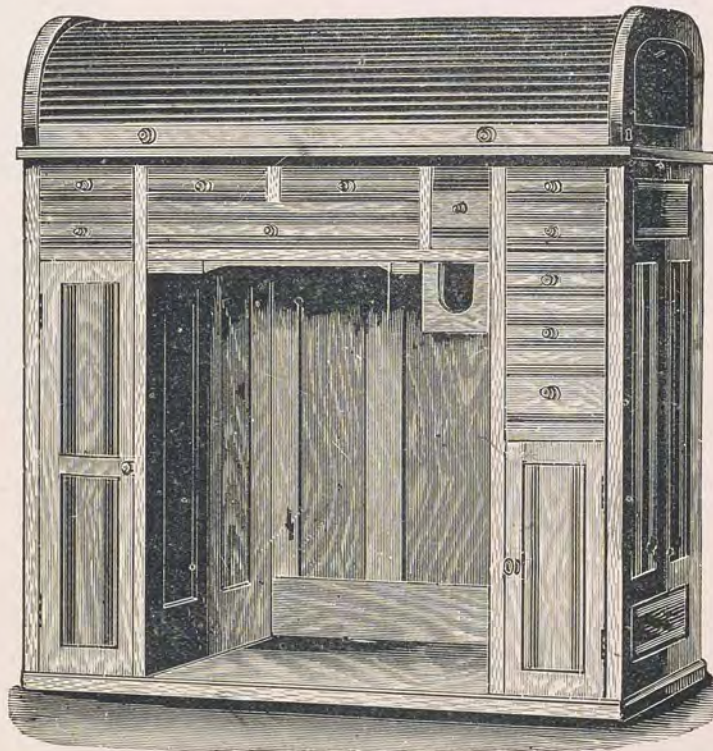
see our Catalogue for goods
with a reputation. We han-
dle the American Optical
Co. product. See the prices
we quote, and you will be
convinced that we are the
fellows to buy from.

Watch Glass and Material Cabinet 120¢ Combined.



CUT SHOWING IMPROVED PARTITION.

Made in solid oak, with 480 spaces for glasses, and 63 holes for material bottles in top drawer. Every jeweler will appreciate this Cabinet. Regular price without the material space, \$7.50; **our price**, including material space, **\$5.00** net cash, F. O. B. Minneapolis.



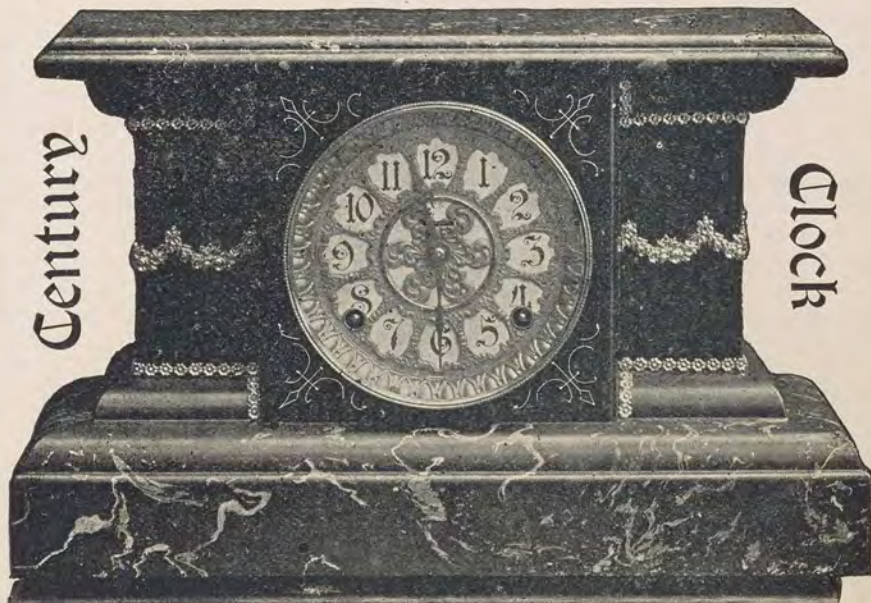
WATCHMAKER'S ROLL-TOP WORKBENCH.

This Workbench is made of the best quality of well-seasoned oak, and we guarantee the workmanship to be A1. It stands on castors, has apron-drawer, chuck-holder, vise-rest and curtain cover, which, with drawers, are locked simultaneously. Both ends lap down. Length, 3 feet 8 inches; width, 2 feet 3 inches; height to table, 3 feet 3 inches; total height, 4 feet.

In Solid Oak,	net cash, \$15.00
Solid Oak Bench without Roll-Top,	8.00
" Elm " " " "	7.75

**We are unquestionably the CLOCK house of the country.
Our prices have done it.**

When you sell a **CENTURY CLOCK** you place in your customer's home a monument that will tick for your interest. **Here is one of them.**



EMPRESS—Polished Wood, Brown Marbleized Base and Top, 16 inches long, 10½ inches high. 8-day, ½-hour Strike Gong, Gilt Ornaments. **Price, \$3.60 net.**

Points About Traveling Men.

The annual meeting of the Brotherhood of Traveling Jewelers was held at the Astor House, New York, January 3d. President Cadmus delivered his annual address, which was loudly applauded, and the chairman of the executive committee, E. L. Brown, and the treasurer, C. A. Boynton, presented most gratifying reports. The following were elected officers for the ensuing year: D. V. P. Cadmus, president; E. L. Brown, vice-president; C. A. Boynton, secretary and treasurer; executive committee, W. W. Hayden, chairman; S. B. Kent, W. C. Parks, C. E. Settle and W. A. Wightman.

W. H. Squires, formerly in the retail jewelry business in Michigan, has accepted a position as traveling representative for the Hamilton Watch Co., Lancaster, Pa. He has been assigned to the Southwest.

Charles L. Trout, Wm. G. Anderson and G. J. Crawford, representing Leys, Trout & Co., New York, have left for their respective territories.

James F. Barclay, representative of the Mauser Manufacturing Co., 14 East Fifteenth Street, New York, left recently to visit the trade in Pittsburg, Cleveland, Cincinnati and the largest towns in New York State.

Maurice Stein will hereafter carry the well-known line of the Howard Sterling Co. in the Western States. Mr. Stein is well known throughout the trade, and will no doubt make a success with the new line. He has been engaged with the Wendell Manufacturing Co. for the past ten years.



C. W. Thomas.

C. W. Thomas, an experienced and popular traveling man, is a recent addition to the staff of representatives of Bryant & Co., New York City, the well-known ring manufacturers. Mr. Thomas was born in Rochester, but learned the jewelry business in the employ of J. T. Scott & Co., New York. He subsequently represented on the road Averbeck & Averbeck, of New York, H. O. Hurlburt & Sons, of Philadelphia, again J. T. Scott & Co., and this year he will show to his many friends in the trade the latest designs and samples of the Bryant ring product. Mr. Thomas enjoys an extensive acquaintanceship with the trade, with whom he is very popular. In fact he has all the qualifications that go to make a good salesman—experience, tact, amiability and push, and a successful year's operations are, no doubt, in store for him.

W. F. Hayes, formerly of Zanesville, Wis., has been engaged by the Julius King Optical Co. to represent them in the Northwest. Mr. Hayes will travel from and be under the supervision of the Julius King Co.'s Western office. Dr. S. T. Parsons, of Chicago, will likewise travel from the Western office in the Western States for this company.

John E. Valk, who, for the past fifteen years, represented Hennegen, Bates & Co. Baltimore, Md., is now representing N. H. White & Co., of New York.

T. A. Brennan, representing L. Witsenhausen, of New York, in the Eastern States, was married recently to Miss Alvina Giroux, of West Hoboken, N. J. THE KEYSTONE extends congratulations.

It was decided by a jury in the court of common pleas of Baltimore, November 12th, that the proprietor of a hotel is financially responsible for the loss of a watch stolen from the room of a guest. The question came up in the suit of Col. J. R. Branch against a Baltimore hotel. While he was a guest at the hotel his room was entered by a thief, and his watch, valued at \$450, as well as other jewelry, was stolen. The defence claimed that the jewelry, under the rules of the hotel, should have been left with the clerk for safe keeping. It was claimed by the attorney for Col. Branch, that a watch could not be included in the list of articles that must be left in the safe at a hotel, and the jury took that view of the case.

Traveling men will be interested to know that beginning January 1st the National Hotelkeepers' Association began to issue letters of credit and identification to reputable travelers. This insures the hotel man against loss incurred by cashing worthless checks, and makes it possible for traveling men to have their checks cashed without question at any of the hotels whose proprietors belong to the association. This is a convenience, and will be highly appreciated by traveling men in the jewelry trade and other lines. Furthermore, the hotel men propose to issue for a dollar identifica-

tion cards to traveling men whose reputation has been investigated. This scheme will work all right, provided the employers do their part by keeping the hotel men posted as to the names and record of the men in their employ and by notifying them in case of a man's being discharged or making a change.

The traveling staff of Louis Kaufman & Co., New York, have started for their respective territories—Mark Franklin for the Northwest; Lee Hirsch for the South; Norman Straus for the West and Southwest; Joseph L. Herzog for the Middle States; and J. M. D. Black, formerly with Charles Knapp, for Pennsylvania and Ohio.

The Pacific Coast Commercial Travelers' Association is in a flourishing condition. At the annual meeting the condition of the Society's finances showed an increase of \$2,000 for the year 1897; expenditures \$924, and balance on hand \$11,400. For 1898 the following officers and directors were elected: President, W. F. Peterson; vice-president, Thomas Dunn; secretary, A. C. Boldermann; treasurer, B. B. Galland; directors—J. H. Frost, J. C. Eubanks, H. Morgenthau, C. B. Thomson, A. Hampel, J. Finnigan and Alexander Well.

W. E. Nuss is a new traveler for the American Spectacle Co., of New York. He will cover his old trade in Pennsylvania, Delaware, Maryland, New Jersey, West Virginia and Virginia.

J. Segal will again represent L. Black & Co., Detroit, Mich., for the coming season in Michigan, Ohio and Indiana. He recently completed a special course in optics to fit him better for his mission among the opticians. "Shake" Stellwagon will represent L. Black & Co. in Northern Michigan and Wisconsin.

Responsible for Excess Baggage.

At last it is decided, if it hasn't been before, that a railroad company is responsible for the safe carriage of sample trunks and contents. John E. Mercer, representing two firms of Columbus, Ohio, away back in March, 1893, shipped four trunks on the line of the Toledo & Ohio Central Railway, paying excess baggage for each trunk. They were destroyed by fire in a wreck, and the company refused to pay for them, claiming it was only responsible for the passenger's own wearing apparel.

The case was tried in a district court, and the court held that by accepting the payment for the baggage that was in excess of the passenger's ordinary allotment the company incurred liability for loss and damage. The Supreme Court of Ohio has confirmed this ruling. The amount of judgment is \$959, which the company must pay.

Thus, all the bluffing by means of releases that don't release the passenger from paying for excess baggage comes to naught, as it should. It has taken justice four and a half years to settle this simple question, but it is undoubtedly settled right at last. Paste this decision in your note-book, boys, for the information of other railroad officials. They, poor innocents, will never know of it if you don't. —Ex.

Drummer in Knee Breeches.

Arkansas has the youngest commercial traveler in the world. His name is Walter B. Hopkins, Jr. He lives at De Valle Bluff. He is just twelve years old and wears knee trousers, long stockings and a wide turn-down collar like other boys of his age. Walter may be said to be a born drummer. He has been making money since he was eight years old, when he embarked in the business of selling illustrated papers and periodicals. Walter recently sent to a rubber goods house for samples and started out on the road. His success did not meet his expectations, and he sent to Chicago for samples of soaps and flavoring extracts. With these he made a success from the start. The merchants of his own town, struck by his enterprise, patronized him, and, thus encouraged, he extended his field, visiting other towns in the vicinity. His sales increased, and he further enlarged his territory. He got a neat sample case, bought a 1000-mile ticket and began making regular trips of a week's length, taking towns on the Memphis and Little Rock Railroad lines, and also making the towns and villages off the railroad, reaching them by stage or hired conveyances, and in every respect is a full-fledged drummer. The boy carries a dozen different kinds of soap, and flavoring extracts in variety, and he rattles off their merits and prices like any veteran of the road. His contact with the world has not spoiled him. He does not smoke cigarettes, his manner is quiet and gentlemanly, and he is not given to profanity. He is strictly business, and is a great favorite wherever he goes.

San Francisco Letter.

Carran & Green, the enterprising jobbers, have enlarged their former quarters by adding another room. They have refitted with new fixtures, and their present office equals in appearance any on the coast.

W. E. Cobb, the genial representative of the well-known firm of Daggett & Clap, was one of the first Eastern jewelry men to reach this town with his spring line. Mr. Cobb is one of the most popular men on the road, and is always gladly welcomed by his many friends here.

O-size Lowenthal, probably the most popular and well-known knight of the grip on this coast, who has represented A. Eisenberg & Co. for a number of years, has withdrawn from Mr. Eisenberg's employ to accept a better position as representative for the well-known jobbing house of Alphonse Judis. His future trips would seem to be an assured success, and his many friends should make his initial trip a memorable one by the size of their orders.

Harry Hall, of the widely-known concern A. I. Hall & Son, has gone south to one of the California resorts on a pleasure trip. His health lately has not been of the best, and this vacation will probably do him a world of good.

Arthur Judis, who for the past year has been the Coast representative for several Eastern jewelry manufacturers, has given up his agencies and connected himself with the business of his brother, Alphonse Judis.

Richard Vaeth, the leading jeweler of Tacoma, passed through this city recently on his way to San Diego. His trip was one of pleasure.

Alphonse Judis, accompanied by his wife and son, left for the East last month. Mr. Judis' trip is for the purpose of looking over the Eastern market and to purchase goods for his spring trade. His trip will be of short duration.

E. F. Winkler, of Healdsburg, has announced that his business is for sale. He intends to retire.

A. J. Rhein, who for several years retired from the jewelry business, has opened up at San Jose.

Armer & Weinschenk have made a number of improvements in their place. The building in which they are located is to be extensively altered.

German & Wiard, formerly the leading jewelers of San Diego, have taken the store of S. Lathrop, in Oakland.

H. W. Tuckey, manufacturing jeweler, 126 Kearny Street, has been very ill for several weeks past. He is now improving, but it will be several weeks before he will be able to attend to business again.

Mr. Richmond, of Arcata, has announced his retirement from business, and offers his business for sale.

Harry Zimmer, a well-known importer of Maiden Lane, New York, visited this city recently on a pleasure trip.

Mr. Loudan, formerly connected with Geo. Greenzweig & Co., has accepted a position as traveler with A. Eisenberg.

Z. F. Vaughn, formerly in business at Lakeport, has opened up a store, with a partner, at Tulare under the name of Vaughn & Campbell.

Fred Levy, of M. Schussler & Co., is now in the East, purchasing spring goods.

Following jewelers in town last month: Peter Hoey, Jamestown, Cal.; M. Freeberger, Stockton, Cal.; A. Goldman, Bakersfield, Cal.; Arthur Rhodes, Santa Rosa, Cal.; Mr. Bemer, Santa Rosa, Cal.

Following travelers in or soon to arrive: Ernest Block, representing W. & S. Blackinton; L. Stern, representing L. Stern & Co.; J. A. Limbach, representing Foster & Bailey; F. D. Heffron, representing Riley, French & Heffron; Charles Wilkins, representing Ostby & Barton; Mr. Metcalf, representing R. Blackinton; Wm. Whiting, representing Whiting & Davis; George Paine, representing E. I. Franklin; D. Untermeyer, representing Chas. Keller & Co.; George Park, representing Park Bros. & Rogers.

A Perfect Jeweler's Journal.

THE KEYSTONE. LOUISA, VA., January 17, 1898.
I enclose check for one dollar to renew my subscription to January, '99. You ask if I can suggest any improvement in THE KEYSTONE, and I am forced to confess that it is about as near perfection as possible already. But if you do make it any more desirable, I fear that we poor jewelers will be ashamed to send you only a dollar for so valuable a help as THE KEYSTONE. If it was a dollar a number I would feel that I must have it if I had to go without an occasional breakfast. Wishing you the success you so eminently deserve, I remain,
Yours truly,

WM. E. CUNNINGHAM.

ALEXANDER H. REVELL & CO. ^{120 c}



THE ABOVE PICTURE GIVES A GENERAL FRONT VIEW OF THE STORE OF W. R. ABBOTT & CO., DECATUR, ILL. IT WAS FITTED UP COMPLETE BY US.

Manufacturers of

STRICTLY HIGH-GRADE

Jewelry *Fixtures*

431, 433, 435 & 437 Fifth Avenue,
CHICAGO.

WE SOLICIT CORRESPONDENCE.

The accompanying cut gives a full front view of the handsome jewelry establishment of W. R. Abbott & Co., at Decatur, Ill. The fixtures were designed and manufactured by us, and we take pleasure in referring you to them regarding our workmanship and the materials we put into the fixtures turned out at our factory. This firm will be pleased to give prospective purchasers any information they may desire as to the character of our work.

How would you like to know

ALL ABOUT



WATCHMAKING,
AND KNOW IT RIGHT?

You Can!

Anyhow, write for our New Prospectus.

That will give you a correct idea of our sure methods. Successful Graduates are living evidence of what we have done for them. Will tell you their names if you want to know who they are.

We teach Watchmaking, Engraving and Optics, in fact all branches of the jewelry business.

F. W. SCHULER, Principal,

gives each student his personal attention, and that is a safeguard of your success.

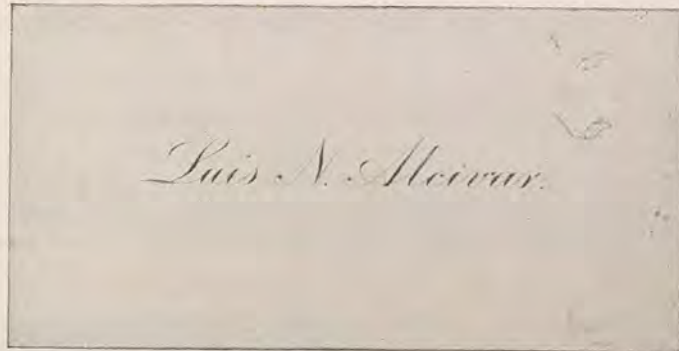
The Philadelphia College of Horology

1213 Filbert Street, Philadelphia

Why Not?

Aluminum Visiting Cards

are an "untried quantity."
Why not try them?



Satin-Finish Aluminum Visiting Card.

They're light as paper, as beautiful as silver, and more profitable to the jeweler than either paper or celluloid cards. **SEND 60 CENTS IN STAMPS FOR ONE DOZEN SAMPLE CARDS** engraved with any name you wish.

THE ALUMINUM-COVERED MEMORANDUM BOOK FOR THE POCKET,

advertised in the January Keystone, is a "winner." The large number of orders that are coming in for them prove conclusively that

Jewelers are Quick to Appreciate a Good Thing.

If you have not already sent for a sample, send at once and enclose 25 cents in stamps, and one will be sent you with your name beautifully engraved thereon.

Don't forget to ask at the same time for catalogue of the ONLY Engraving Machine, the **EATON-ENGLE.**

EATON & GLOVER, 111 Nassau St., New York



ASSAYING DEPARTMENT.

GOLDSMITH BROS.

Immense Refining and Assaying Plant. Where the Precious Refuse of Jewelry Stores and Factories is Smelted and Purified.

"Matter is indestructible," scientists tell us. Mindful of this fact, we, who are engaged in the jewelry business, have all thought, at some time or other, of the ultimate destination of the millions of dollars' worth of goods, composed in whole or in part of the precious metals, which are manufactured and disposed of daily all over the country. Hundreds of factories are turning out these goods day after day and year after year; thousands of retailers are disposing of them. Where do they go? What becomes of all the gold watch cases, all the silver spoons, all the old jewelry? This question will be impressively answered by a visit to the big refining and assaying works of Goldsmith Bros., at 63-65 Washington Street, Chicago. These works, which have a unique interest for the jewelry trade, now occupy a large five-story building, and are a live and throbbing monument to the firm's many years of untiring industry, invigorated by a spirit of enterprise and guided by cumulative business capability.

The present firm of Goldsmith Bros., refiners and assayers, dates its origin back to 1867, when the industry was started in an unpretentious way in Lexington, Ky., by M. Goldsmith, the father of the present enterprising proprietors. Hence the brothers may be said to have grown up with the business, and indeed at a comparatively early age had actually mastered all the details, in theory and practice, of the twin arts of refining and assaying.



MOSES GOLDSMITH.



SMELTING DEPARTMENT.



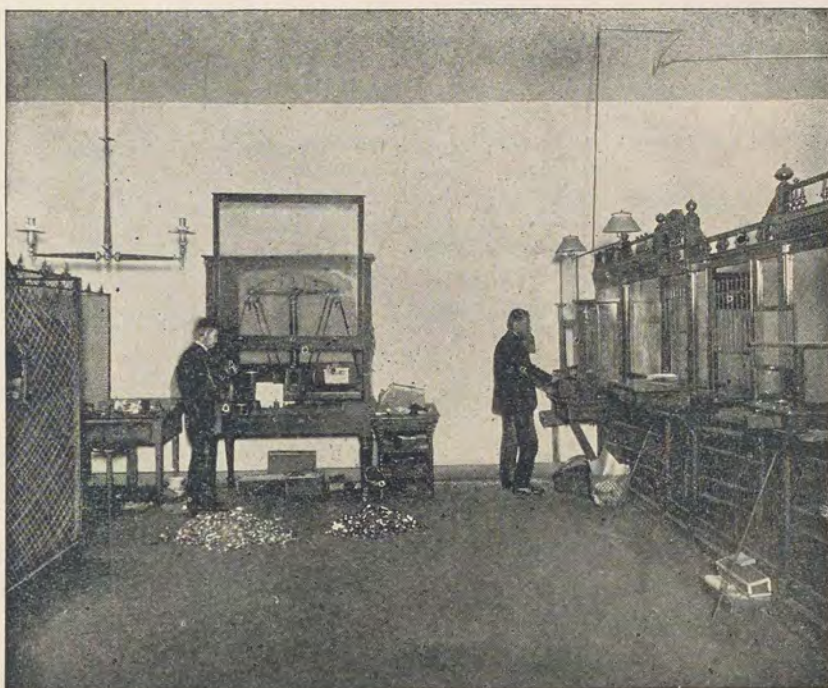
ACCOUNTING AND CORRESPONDENCE DEPARTMENT.



SIMON GOLDSMITH.

Moses, the elder of the two, was born in Cincinnati, Ohio, in 1860. In 1869 the family moved to Lexington, Ky., where he was initiated into the mysteries of his father's business in the intervals of leisure from school studies. His progress at school and refining was rapid, and in 1876 he attended the Agricultural Mechanical College at Lexington, where he took a graduate course in chemistry. After the college course, Mr. Goldsmith traveled for the firm in eastern and southern territory, continuing on the road for several years. Simon Goldsmith is two years younger than his brother, but his educational and business training was similar. He was familiar with the business while yet a school boy, and afterward perfected his knowledge by actual experience at the work, by a college course and on the road. In 1882, when the business was already prosperous and progressing, Goldsmith *pere* died, and was succeeded by the sons under the firm name of Goldsmith Bros.

In 1884 the firm moved to Chicago and located at 13 S. Canal Street; but within four years they had outgrown their quarters and moved to larger rooms at 63-65 Washington Street, the change being prompted not only by the increased facilities of the building, but also by its convenience to the jewelry trade, with whom the firm had already established close, profitable and mutually satisfactory business relations. These relations have since been extended to embrace the jewelers of the entire country, to whom the methods of Goldsmith Bros. have been eminently satisfactory. The refining and assaying plant has proved, indeed, a great boon to the trade generally, and the promptness and honesty of the management are universally appreciated, as evidenced in thousands of communications expressing satisfaction.



RECEIVING DEPARTMENT.



The past month's experience has proved unmistakably that the business revival is permanent, and that a steady, bettering trade, as spring approaches, is assured. The factories are fairly busy even now, and both manufacturers and employees are well pleased with the promising situation. Collections are remarkably good, considering the fact that the trade but recently emerged from the depression, but an excellent Christmas business, no doubt, accounts for the liberal payments. That the holidays cleared out, to a large extent, last fall's purchases is evidenced in well-sustained post-holiday ordering, and altogether a good foundation for a bulky future business seems to have been laid. January failures have not been so numerous after all, as might have been expected, nor has any other damper on the spirit of hopefulness for 1898 materialized thus far.

Last month Horace Remington and Edwin Lowe were seated as members of the board of aldermen of Providence, and William Blakely, William N. Otis and Henry Fletcher as members of the Common Council.

F. L. Torrey, of the Torrey Jewelry Company, Attleboro, has taken in a partner, Thomas Halliday, for eight years the toolmaker and designer for F. W. Weaver & Co., of Attleboro. The firm name will remain unchanged.

Albert A. Bushee, of A. Bushee & Co., Attleboro, and Herbert A. Clark, of Horton, Angell & Co., Attleboro, were recently elected president and vice-president of the Men's Sunday Evening Club.

L. C. Porter and W. C. Fisher, of Attleboro, recently formed a partnership and started jointly in the business of designing and die-cutting.

The Waite-Thresher Co., Providence, have absorbed the business of the Barker Manufacturing Co., manufacturers of thimbles.

H. J. Hildebrand has been admitted to copartnership of H. C. Lindol & Co. He was formerly traveling salesman for this concern.

Albert A. Remington, of Horace Remington & Son, was recently elected a director of the National Bank of North America, and William O. Cornell, of Cornell & Andrews, refiners, and Frederick A. Ballou, of B. A. Ballou & Co., were elected directors of the Weybosset National Bank.

J. M. Chandler & Co., Providence, have made extensive improvements in their factory. Charles Beut, formerly foreman for the Kent & Stanley Co., Ltd., is now with this firm.

Fulford & Hobart have removed from Sabin Street to 59 Page Street.

J. E. Blake & Co. have enlarged their shop and have installed considerable new machinery.

David E. Makepeace has been elected a director of the Attleboro Base Ball Association.

The Chapin-Hollister Company, Providence, recently incorporated, has purchased the plant of George E. Luther & Co. Mr. Hollister was the New England representative of the old firm.

Nathan B. Barton, of the Ostby & Barton Co., Providence, was recently elected senior warden of Adelphi Lodge, No. 23, F. and A. M.

Claffin & Co., Providence, have moved from 178 Eddy Street into a larger factory at 158 Pine Street.

Charles Briggs, of the J. Briggs & Sons Co., was recently elected a director of the Phenix National Bank.

Everett S. Horton, of Horton, Angell & Co., Attleboro, has been elected a director of the Old Colony Historical Society.

At the fourteenth annual meeting of the Manufacturing Jewelers' Board of Trade, the following were elected directors: Dutee Wilcox, William R. Duteple, Charles E. Hancock, Nathan B. Barton, William L. Mauran, George H. Holmes, Robert E. Budlong, George W. Parks, Henry G. Thresher, R. Mason, Jr., Henry Fletcher, E. A. Potter, E. W. Martin, of Providence; J. J. Horton, E. S. Horton, C. H. Tappan and E. A. Sweeney, of Attleboro; G. K. Webster, G. H. Niles and W. W. Sherman, of North Attleboro; and W. S. Metcalf, of Plainville. The directors met subsequently and elected the following officers: President, Dutee Wilcox; vice-presidents, William R. Duteple and Major Everett S. Horton; secretary and treasurer, Marcus W. Morton; finance committee, Robert E. Budlong, Hon. Henry G. Thresher and Henry Fletcher.

Arthur E. Codding, Jr., with Codding & Heilborn Co., North Attleboro, and the son of the town treasurer, was married recently to Miss Susan M. Fisher.

R. M. Derrick & Co., composed of R. M. Derrick and Thomas C. Heywood, have dissolved partnership. The business will be continued under the old name by Mr. Heywood.

J. Shepard Richards and James G. Trafton have dissolved the partnership under the firm name of Wheaton, Richards & Co., Attleboro, Mr. Trafton withdrawing. Mr. Richards will take as a partner his son, Herbert L. Richards, and continue the business.

Walter B. Marble, son of Mr. Marble, of Marble, Smith & Forrester, Attleboro, is a new addition to the traveling staff of the firm.

H. O. Hutchins & Co., Providence, have sent to their patrons a circular introducing them, through the medium of a handsome little pocket mirror, to a friend for whom they have much respect, and inviting the mirror reflections to become customers of the firm. That combined mirror and shrewdly-worded circular are a unique and effective way of communicating with the trade.

The New England Manufacturing Jewelers' Association will hold its annual midwinter reunion and banquet on February 4th, in the Flagstaff Club parlors at 395 Westminster Street, Providence, and a rarely enjoyable entertainment is promised. Addresses will be delivered by Congressman Capron, of Rhode Island; State Representative Porter, of Massachusetts; Prof. Geo. F. Weston, of the Rhode Island State Manual School; and Prof. Warren S. Locke, of the Rhode Island School of Design. There will also be a musical entertainment.

Sylvester G. Martin, of Martin, Copeland & Co., manufacturing jewelers, of 100 Richmond Street, Providence, was found dead in bed at his residence, 355 Broadway, on the morning of January 15th. Mr. Martin came to Providence when a mere boy. He was first in the flour and oil business as a member of the firm of Martin & Wolcott. Later he was with Daniels & Cornell, and eighteen years ago he engaged in the manufacture of jewelry as a partner in the firm of Martin, Copeland & Co.

William H. Thurber, of the Tilden-Thurber Company, and Edwin A. Smith, of Albro & Co., were elected directors of the Providence Board of Trade, and George W. Parks, of Parks Brothers & Rogers, was chosen a member of the arbitration committee of the same organization.

Among the newly-elected directors of the First National Bank of Attleboro, are the following prominent jewelers: J. M. Bates, C. L. Watson, J. E. Blake, A. A. Bushee, J. J. Horton and G. A. Dean.

The new board of directors of the North Attleboro National Bank consists of Henry F. Barrows, James A. Lincoln, Roswell Blackinton, Walter G. Clark, Henry F. Barrows, Jr., Edwin Whitney, Joseph L. Sweet, and Edward R. Price. Henry F. Barrows was elected president and Walter Clark clerk.

W. G. Clark & Co., Attleboro, have moved into the Totten building.

"Business is very good for this time of the year," is what we are told by Codding & Heilborn Co., North Attleboro.

B. A. Ballou & Co., Providence, are experiencing the revival in business, in a brisker demand for their eye-glass chains which stand so well in the trade favor. This year they are making a number of new patterns in 10 K. and 14 K., seamless rolled plate and sterling silver.

The excellence of the management of various banks in Providence and vicinity is a compliment to the financial ability of the manufacturing jewelers, who largely compose the directors. On the list of recently elected directors of various local banks we notice the following familiar names: Dutee Wilcox, of the National Bank of Commerce; John M. Buffinton and Charles Sidney Smith, of the Roger Williams National Bank; Isaac M. Potter, of the Commercial National Bank; William T. Barton and Julius Palmer, of the Old National Bank; Robert B. Chambers, John S. Palmer, Beriah Wall and Sylvester G. Martin, of the National Eagle Bank; John Austin, Edwin Lowe, Arthur E. Austin, Charles F. Irons and Englehart C. Ostby, of the Citizens' Savings Bank; Albert A. Remington and John Shepard, Jr., of the National Bank of North America; Isaac M. Potter, of the Rhode Island Safe Deposit Co.; Walter Callender, of the Manufacturers' Bank; Silvanus M. Lewis and Stephen M. Knowles, of the Fifth National Bank; Charles S. Bush, of the Globe National Bank; John Shepard Jr., of the Second National Bank; Arthur W. Claffin, of the Fourth National Bank; Lucien Sharpe, Jr., of the Merchants' National Bank; and Frederick A. Chase, of the Rhode Island National Bank.

At a meeting of the creditors of the Kent & Stanley Company, held on January 15th before the registrar in insolvency, Stephen O. Edwards was unanimously chosen assignee and was appointed by the registrar, who fixed the bond to be given at \$10,000.

C. H. Allen & Co., Attleboro, began the year's operation with a large addition of new machinery to their plant.

Hon. Henry G. Thresher, of the Waite-Thresher Co., was installed January 3d as Mayor of Central Falls. His inaugural message was an able document and dealt most intelligently with the affairs of the municipality.

"Enclosed find food for a year, and kindly make your appearance as soon as possible. You have been a good companion for many years here, later in Danville, Ill., and Los Angeles, Cal., and on our return here we find we cannot keep store or house without The Keystone."—F. Lion & Son, jewelers, Evanston, Ill.

Show-Case Locks.

NEW HAVEN, CONN., January 17, 1898.

EDITOR KEYSTONE.

In reply to the many letters of inquiry received since you published a description in the December number of THE KEYSTONE, would say that our show-case lock can be used on all show-cases where the doors slide sideways, and not on doors that open on hinges or push downward. We have received many letters asking if a lock and key would not answer, but no jeweler wants his show-case doors locked with a key. What he wishes is some kind of a lock that the customer cannot open while in front of the counter by reaching over the top of the show-case, but the jeweler must be able to touch a spring and open the show-case without taking his eyes off the customer. Such a lock we have made, and there are none for sale in this country. All jewelers should at once protect their show-cases. Even if a sneak thief knew that these locks were on a case it would take him a long time to find them, and as time is the most important factor, it may cause him to give up the attempt or get caught in the act. Our lock can be placed in any position on the part of the door near the track. Sliding show-case doors are the easiest for a sneak thief to open until they are protected with a lock.

Only last week Henry Deming, a jeweler in Hartford, Conn., lost a valuable tray of diamond rings by a sneak reaching over, and in Connecticut alone, during the past year, \$8000 worth of goods have been lost in this manner. We would be pleased to hear from any jeweler who is interested on the subject of show-case locks, as we may help him make one same as ours. Yours truly,
S. SILVERTHAU & SONS.

GORDONVILLE, TEXAS, January 3, 1898.

ED. KEYSTONE.

I enjoy very much reading THE KEYSTONE. The "Workshop Notes" department is very instructive. Some of the questions asked are very difficult and some are ridiculously simple. In regard to the recent inquiry as to show-case locks, would say that they can be obtained in any large hardware store—small spring locks which, with very little trouble, can be adjusted to any show-case. I obtained and use several, which work very satisfactorily. Besides, with a little ingenuity the watchmaker could put a simple combination of his own on any sliding or drop door which it would be difficult for any stranger to undo. I can furnish the address of a firm from which show-case locks can be obtained for from five to six cents each.

There have been many questions asked about the letter-copying process. I do not like your answer. Gelatine pads are no good, at least in the way you describe. The only true and reliable process that ever came to my observation (and, by the way, I use it myself) by which any one, even a child, can copy 1000 or more letters, is done with a very inexpensive apparatus called the nostyle. It can be obtained in any large city. I got mine from Messrs. Merchant & Manning, of Dallas, Texas. I have been using it for four years now with every satisfaction. From 1,000 to 2,000 copies can be obtained from one writing, all alike, and at the rate of 500 copies per hour easy.

Very truly,
W. A. FRANC.

Typical Hibernianisms.

An Irish lover remarks that it is a great comfort to be alone, "especially when yer swateheart is wid ye."

An eminent spirit merchant in Dublin announced in one of the Irish papers that he had still a small quantity of the whiskey on sale which was drunk by his late Majesty while in Dublin.

Non-Magnetic Watch Movements

Two new grades now ready for delivery at rock bottom prices.

These MOVEMENTS come with our new Non-Magnetic Fork and Pallet.

Order sample subject to approval.



"I" Hunting and Open-Face.

NICKEL. 15 Jewels, Compensation Balance, Patent Regulator, Breguet Hairspring, Double Sunk Dial.



"K" Hunting and Open-Face.

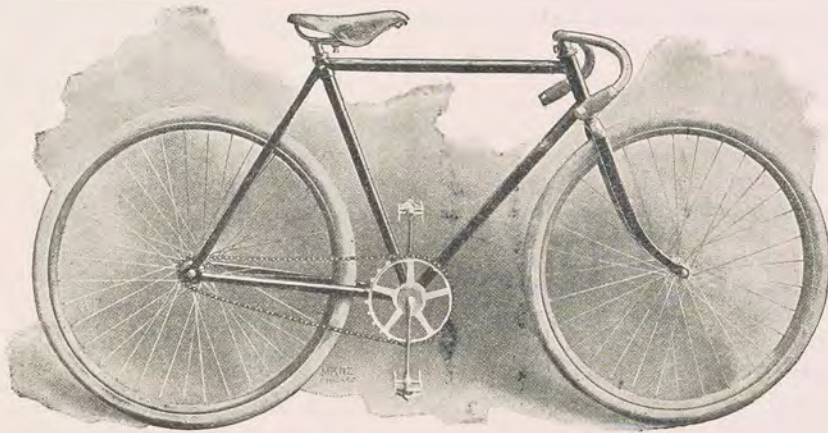
GILDED. 15 Jewels, Compensation Balance, Patent Regulator, Breguet Hairspring, Double Sunk Dial.

Descriptive confidential Price-List, with full information, mailed on request of any regular jeweler.

BELMOUNT BICYCLES

As good as money can buy.

Take no chances and stick to a Belmont Wheel. Strictly high-grade 1898 model. Well built and stylish; made by a responsible concern. The favorite wheel of the season.



BELMOUNT No. 1.

- Frame: . . . Flush joint; Shelby seamless tubing, 1 3/8 inch head, 1 1/8 inch in diamond; lower rear forks 1 1/8 D shape, tapered to 3/4 round; upper stays 3/4 D. Seat-post expander, drop-forged arched crown. Bottom bracket dropped 2 1/2 inches, and short heads. Men's frames, regular, 22 and 24 inch heights; ladies', 20 and 22 inch; 26 inch if desired.
- Wheel-Base: . . . 43 1/2 inches.
- Tread: . . . 5 inches.
- Handle-Bars: . . . Four styles; steel bars or adjustable wood.
- Wheels: . . . 28-inch rock elm rims. Spokes, Washburn & Moen best quality piano-wire swaged tangent butted ends, full nicked, thirty-two in front, thirty-six in rear wheels.
- Crank Hanger: . . . Fauber one-piece drop-forged cranks, round or diamond shape, 6 1/2 inch throw. Sprockets: Choice of five-arm as shown in cut of mens' wheel, or star-shape. Detachable sprocket, twenty to twenty-six tooth. Cups and cones turned from special cone steel, ground and polished.
- Hubs: . . . Barrel shape. Shell turned from solid bar steel. Cups and cones turned from tool steel, ground and polished. Sartus ball-retainers, separating the balls and reducing the friction fifty per cent., making it the lightest-running hub ever used.
- Chain: . . . Indianapolis hardened centers and rivets. Centers straw-colored and side plates blued.
- Gear: . . . On men's wheels, 70, 73 1/2, 77, 80 1/2, or 84. On ladies', 66 1/2 or 70.
- Tires: . . . Morgan & Wright single or double tube. Vim or Chace Special.
- Pedals: . . . Record style rat-trap or combination.
- Saddle: . . . Gilliam padded or Hygienic, Hunt, Garford or Mueller.
- Finish: . . . Royal blue, Brewster green or black, four-coat work, with double panel, striping or ornamented; all bright parts heavily nicked on copper.
- Tool-Bag: . . . Finest leather, with complete set of tools, oil-can, pump and repair outfit.

LADIES' BELMOUNT No. 2.

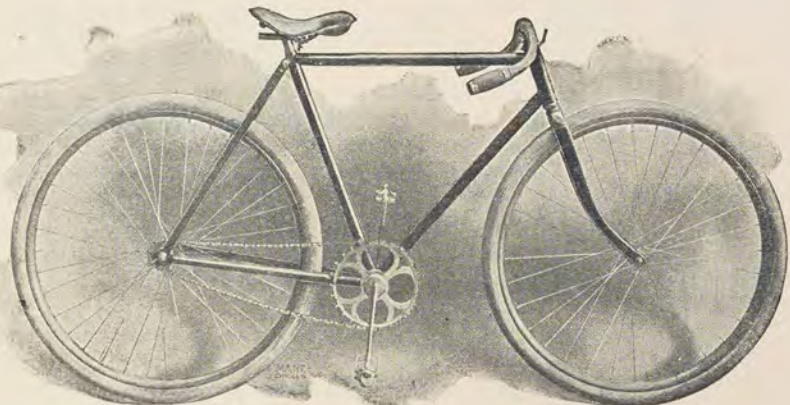
Height of frame, 22 inches; otherwise the same as gents' above.

BELMOUNT No. 1—Cents', . . . \$78.72
BELMOUNT No. 2—Ladies', . . . 78.72
(Catalogue List Prices.)

OUR MEDIUM-GRADE BELMOUNT

A WORLD-BEATER IN PRICE AND QUALITY.

With its many new and original features. Equipped with all that goes to make an attractive, durable wheel.



BELMOUNT No. 3—Cents', \$56.46
BELMOUNT No. 4—Ladies', 56.46
(Catalogue List Prices.)

BELMOUNT No. 3.

- Weight: . . . Twenty-four to twenty-five pounds.
- Frame: . . . Flush joints, except head; Shelby tubing, 1 1/4 inch head, 1 1/8 inch in diamond. Rear forks and upper stays 3/4 round, arched crown. Bottom bracket dropped 2 1/2 inches, and short heads. Men's frames, regular 22 and 24 inch heights; ladies', 20 and 22 inch. Other heights of frames if desired.
- Wheel-Base: . . . 43 1/2 inches.
- Tread: . . . 5 inches.
- Handle-Bars: . . . Four styles; steel or adjustable wood.
- Wheels: . . . 28 inch rock elm rims. Spokes, best piano-wire swaged tangent butted ends, full nicked, thirty-two in front, thirty-six in rear wheel.
- Crank-Hanger: . . . Two piece without cotter pins. Cranks drop-forged, 6 1/2 inch throw, bayonet shape. Sprockets detachable, nineteen to twenty-four tooth. Ball-cups, provided with 3/8 balls with retainers. Cones turned from special cone steel, ground and polished.
- Hubs: . . . Barrel shape, turned from solid bar steel, cups and cones turned tool steel, ground and polished. Sartus ball-retainers.
- Chain: . . . Indianapolis hard centers and rivets.
- Gear: . . . Same option as on our high-grade wheel.
- Pedals: . . . Rat-trap or combination.
- Saddle: . . . Gilliam padded or Hygienic.
- Finish: . . . Royal blue, Brewster green or black, striped and ornamented as ordered; all bright parts heavily nicked on copper.
- Tool-Bag: . . . Complete with tools, oil-can, pump and repair outfit.

LADIES' BELMOUNT No. 4.

Height of frame, 22 inches; otherwise as model No. 3.

A. C. BECKEN,

Manufacturer of Paillard Non-Magnetic Watches,
103 State St., CHICAGO, ILL.



WESTERN BUREAU OF THE KEYSTONE,
ROOM 811,
COLUMBUS MEMORIAL BUILDING,
CHICAGO, Jan. 29, 1898.

Business is good for the time of year. The new year is starting out in a manner that is encouraging. Taking the month to date, trade among our jobbers and manufacturers shows conspicuous improvement over this time a year ago. Failures generally are few and unimportant. Most, if not all, of the traveling salesmen are out with their spring lines, and all indications point to a heavier volume of business than we had last spring. We have listened to jobbers complaining within the past few days that the fine order business they were having was interfering with their annual invoicing. There was no complaint of this kind to be heard at this time last year. While the immediate present is devoid of any specially interesting features, the future, however, appears bright with promise here in the West, and business men in all departments of trade are giving expression to flattering predictions as to the course of the spring trade.

Farmers still hold large quantities of grain on hand. Their live stock is in fine condition on account of mild weather and plenty of feed. Corn is gathered, green wheat is looking fine, and the ground is in splendid shape for spring plowing and seeding. Under these favorable conditions it is confidently expected that a large and increasing business will develop during the spring months.

The weather in the vicinity of Chicago, since the beginning of December, has been all that any one could wish it to be. There has not been a week of bad weather the last two months. The sleigh-makers, and the men who take pleasure in speeding their fast horses on the snow roads, and the clothing and fur people are not well pleased with this, but humanity in general has had no fault to find with the way the weather man has treated them.

Chas. A. Garlick, Western traveler for C. H. Knights & Co., came in the other day from a fifteen-days' trip among his customers. He tells us that the holiday season just passed seemed to be pleasantly remembered by the retailers he met, for they all said it had been distinctly good. He found towns dependent upon the farming community, reporting a very satisfactory business. "Best we ever had," or, "The best since '92," was the general tenor of the reports, with the statement that the farmers have plenty of money and spend it freely. Mr. Garlick further said that the good holiday trade the jewelers had enjoyed had imparted a feeling of hopefulness, a sense that business had returned to normal conditions, which must affect the spring trade for the better.

The iron and steel market is commonly spoken of as the most certain trade barometer. Good business in this industry is argued to show a like condition elsewhere. We have in previous reports made mention of this fact. We desire to do so again. The iron and steel industry is fairly booming. No other word will adequately indicate the great change in present conditions from those ruling twelve months ago. The increase in the demand is far in excess of the most sanguine expectations. Manufacturers had been so often disappointed at the failure in the expected demand, inquiries had so surely failed to be followed by orders, that iron and steel makers can hardly believe that the present rate of business can continue. Encouraged by their liberal earnings, the railroads are free buyers of rails; large contracts for iron for building purposes are being placed; the firm implement makers are in the market with large orders. The actual increase in the consumption of iron, judging from the known output of the blast furnaces and the stocks reported on hand, is 55 per cent. over a year ago.

Personal Mention.

Frank L. Murray is a new member on the traveling force of Benj. Allen & Co., who leaves this week for his territory—northern Iowa and Nebraska. Mr. Murray was on the road for the New Haven Clock Company a part of last year and the year before. He is genial, a hard worker, and knows his business thoroughly. The trade will find him a mighty pleasant gentleman to do business with.

Vern Cuthbert, Southwestern traveler for Otto Young & Co., who makes his headquarters at Kansas City, has been in town the past two weeks, getting ready for his early spring trip. Mr. Cuthbert thought prospects were bright

for spring trade in the Missouri and Kansas territory. "I am feeling just fine, never better," he said, "and I think and feel that 1898 has good things in store for the jewelers in my territory."

C. H. Knights and family will leave for their usual Southern winter trip about February 15th.

R. N. Blair, well and favorably known in the trade here from his connection with several of our wholesale houses, has made an engagement with Benj. Allen & Co. to travel in central and southern Iowa, southern Nebraska and Colorado. The above firm are to be congratulated upon securing so favorably known and efficient salesman as Mr. Blair, and the trade will find him a pleasant and worthy gentleman. All of his friends unite in wishing him success in his new field of labor.

M. A. Lumbard, jobber, of Des Moines, Iowa, was in the city the early part of the month, looking over the lines of the large number of Eastern manufacturers' agents and making his selection of new goods for the spring trade. Mr. Lumbard was a welcome caller at THE KEYSTONE'S Chicago office during his stay in town, and expressed himself as well pleased with the outlook in his section for spring business.

K. H. Clark, formerly a well-known jeweler of St. Joseph, Mo., has resumed his old position as traveling salesman with the Meriden Britannia Company. He will travel from the company's Chicago office, covering Western territory. Mr. Clark is a clever gentleman, and eighteen years ago was one of the noted silverware salesmen of the Western country. We bespeak for our old friend and neighbor a cordial reception from the trade, especially that part of it which has come upon the scene since Mr. Clark's traveling days—the old-timers, who were acquainted with him, will be sure to welcome him, for he was well liked in the old days.

Joseph Ayres, of T. R. J. Ayres & Sons, the well-known wholesale firm of Keokuk, Iowa, was among the number of interior jobbers in this city the early part of the month, looking over the lines of the large number of Eastern manufacturers' agents that swarmed about the Palmer House right after New Year's. This gathering of Western interior jobbers, the first of each recurring season, is becoming a popular feature with the trade, for the reason that it saves time and expense and is most convenient all around. The heavy orders of the season from this class of jobbers are mostly given at this time, and the manufacturers' representatives tell us that they have done a better business than usual with the wholesale men from the interior points.

E. A. Dayton, of E. A. Dayton & Co., jobbers, Omaha, was in town for a week early in the month, buying goods from the agents of Eastern manufacturers.

Ben. Burgbacher, formerly city salesman with the Stein & Ellbogen Company, is now with the L. Seligman Jewelry Company in a similar position.

G. Sale, formerly bookkeeper for G. W. Marquardt & Sons, is now located at Peoria, Ill., engaged in the printing business.

J. W. Armbruster, with the Illinois Watch Company, Springfield, has been in town this week, calling on the trade.

George W. Scribner, of Cleveland, Ohio, well known to the trade from his long connection with the wholesale house of Bowler & Burdick, of that city, was in town for several days the early part of January, making his headquarters at the Palmer House. Beginning with the first of the year, Mr. Scribner severed his old connections and has embarked in the wholesale business for himself, the firm name being Scribner & Loehr, Mr. Loehr having also graduated from the old firm above mentioned. Mr. Scribner spent most of his time here looking over the sample lines of Eastern manufacturers' agents and placing orders for goods for the new firm.

Louis Reichel, of Sturgeon Bay, Wis., was in the city recently, buying goods.

J. H. Melhuish, of Melhuish & Symons, Monon, Ill., was in the city last week calling on our wholesalers.

George W. Shepardson, well known in the silver trade as a traveling salesman, has made an engagement with the Towle Manufacturing Company for 1898, and will cover Indiana, Illinois and Missouri in the same territory heretofore made by Mr. Patterson.

The spring meetings of the Merchants' and Travelers' Association will be held on February 23d and March 30th. Each session will last one week. Lower rates than those of the last seasons are given. The fares then were one and a third rates for the round trip. This was a deduction of 33½ per cent. from the regular rates. The new fare will be one and one-fifth rates for the round trip. This is a reduction of 40 per cent. from regular rates.

The late John E. Ford, the well-known traveling salesman, was a member of the Jewelers' League. His family will receive \$5,000 from his death.

Arthur Smith, president of the Reichenberg-Smith Company, the Omaha wholesale firm, was in town the early part of the month, along with a number of other interior jobbers, looking over the new spring lines. Mr. Smith says Omaha and Nebraska are enjoying a good, honest increase in trade over last year at this time; that their spring and summer promises to be right lively on account of the Trans-Mississippi and International Exposition, which will be inaugurated at Omaha, June 1st. "For five months thereafter," said Mr. Smith, "the gates will open upon a magnificent display of the products, arts, industries and resources of the Greater West. This exposition is planned chiefly for the aggrandizement of the great West, and nothing that can contribute to the advancement of this section of the Union, industrially, commercially, politically, socially or otherwise, will be neglected. And as the great West is benefited, so is Omaha, its central metropolis. We expect at least 2,000,000 visitors before our exposition closes."

C. G. Marquardt, of G. W. Marquardt & Sons, has been confined to his home for ten days past on account of sickness—something like the prevailing la grippe. Soon after he took his bed his physician declared that his was a case of typhoid fever, but happily it has proved otherwise, and at last accounts Mr. Marquardt was improving. However, Mr. Marquardt has been a very sick man and is not out of bed yet.

Jack Adler, the well-known clock salesman, for a number of years a traveling representative of the Seth Thomas Company, is no longer a "clock man," having accepted a position with David Marx, the New York jobber and manufacturer, and will cover the entire West. Mr. Adler will carry a general line and is now out on his first trip.

Edward Vail, of Wichita, Kan., one of the best-known jewelers of the Sunflower State, was in the city for several days last week, accompanied by his wife. Mr. and Mrs. Vail had been spending a short vacation at their old home in La Porte, Ind., where Mr. Vail was engaged in the jewelry business for a number of years previous to his removal to Wichita, and were en route to their Kansas home. Mr. Vail said trade in his section had hardly reached the volume of the palmy days of the great boom that struck their town ten years ago, but that business was mighty good, just the same, and that the outlook was splendid.

D. D. Chandler, formerly of the firm of Chandler & Shrader, and one of the best-known men in the Chicago trade, is now with Lapp & Flerishem. "Deck," as Mr. Chandler is best known, will fill the position of house salesman and special road man, making occasional trips. He has a large circle of friends, who will wish him well in his new field.

Fred. R. Sheridan, of Horton, Angell & Co., and Wade W. Williams, of Arnold & Steere, left Chicago last week for an extended Western trip. They will go through to the Pacific Coast, and do not expect to get back here much before the last of February.

A. H. Revell, head of the firm of Alexander H. Revell & Co., the well-known makers of store fixtures, was elected president of the Union League Club, Chicago's leading political club organization. What is called the "young blood" and a promise of a more progressive policy triumphed in Mr. Revell's election. The contest was a hot one, but friendly, Mr. Revell leading his opponent, W. E. Hale, twenty votes.

The fourth of this winter's series of German-American charity balls, which have made Chicago's poor richer by some \$15,000, was held on the evening of January 25th at the Auditorium. The grand march was a brilliant spectacle and perfectly executed, the two double columns entering from opposite sides and forming a dazzling pyramid at the center of the auditorium. William F. Juergens, of the Juergens & Andersen Company, is president of the German-American Charity Association, and he, with Miss Stella Leicht, led the right column and Arthur Woltersdorf, the first vice-president of the association, and Miss Clara Uihlein led the left column. The ball was a grand success and closes the series of charity events which the German-American Charity Association gives each winter. The receipts have gone far beyond the expectations of the young men who have had the affairs in charge, and at least \$15,000 will be distributed among the poor and deserving charities of the city as the result.

The M. S. Benedict Manufacturing Company, makers of silver-plated ware, have removed their Chicago salesroom to 109 and 111 Wabash Avenue, where they have larger and more convenient quarters than heretofore.

(Continued on page 1201)

Out of 16,000 Jewelers in the United States

One-half of them at least are up-to-date merchants.

If you are one of them, You will lose no time, after reading this, in ordering



A Selection Package of METAL GIRDLES

We carry at this time **148 STYLES**, no two alike, and new styles are added as fast as they come in the market. Many of them we control exclusively.

They come in Imported and Domestic Makes—some plain and some beautifully enameled, with and without jewels, at prices ranging from \$2.00 a dozen up to \$15.00 each.

In ordering, state as near as possible the quantity and quality desired, as well as prices you wish to pay. Anything we send you, not desired, may be returned.

WE PLUNGE ON ALL THE LATEST FADS, and you can make money by calling on us when visiting our city.

We always have Something New.

J. FLOERSHEIM, KUNSTADTER & CO.

Importers and Manufacturers of Jewelry, Novelties in Belts, Girdles, Etc.

S. W. COR. JACKSON & MARKET STS., CHICAGO

Established 1872—26 years of uninterrupted business

When ordering, please mention THE KEYSTONE.

We Are Out for Business

Our LORNETTES are the best on earth—sell the best, wear the best, and look the best. Buy them and increase your business.

To the Jobbing Trade.

Once more we take pleasure in heartily thanking you for your liberal patronage during the year 1897.

May the year of 1898 be one of peace, prosperity and happiness.

Yours very truly,

S.O. BIGNEY & Co.
Attleboro, Mass.

THE BEST-KNOWN



Eternal Hustle

is the Price of Success

Our GENTS' CHAINS are up to date and equal solid gold goods in style, finish and general appearance. Handle them and boom your business.

We will show the jobbing trade this season one of the most beautiful lines ever offered by any house. Beautiful in originality and design. Beautiful in finish and workmanship. In fact, every chain is guaranteed by the manufacturers to give entire satisfaction.

S.O. BIGNEY & Co.
Attleboro, Mass.

TRADE-MARK ON EARTH.

Chicago News.

(Continued from page 120 j.)

The sympathy of the trade is extended to Herbert W. Allen, of the Rich & Allen Co.; Fred. H. Allen, Chicago representative of Barstow & Williams; and Harlan H. Allan, with his brother Fred, in the loss of their father, Omar H. Allen, one of Chicago's pioneers, having resided in this city about forty-three years. His death occurred Sunday, January 16th, from an attack of apoplexy. He was sixty-four years old, and leaves a widow and six children—Mrs. George McLinden, Mrs. Jennie C. Ferris, wife of George Ferris, with Lapp & Flershem, Willard O., and the three brothers above mentioned. The funeral services were held on the 18th inst., from the family residence, 913 Jackson Boulevard. They were conducted by Dr. J. L. Withrow, of the Third Presbyterian Church. A profusion of floral offerings was scattered about the rooms, completely covering the casket. Two hundred friends of the deceased viewed the remains. The Western Association of California attended in a body. Interment was at Rose Hill.

"The Annex Catalogue" of Swartchild & Co., Chicago's widely-known exclusive tool and material house, illustrates and prices all the new things in tools, materials, jewelers' findings and supplies. The book is issued in conjunction with the firm's regular standard catalogue and will be sent out to the trade about March 1st.

The Joliet Electrical Manufacturing Company will soon erect a handsome electric street clock for Keil & Hettich, retail, in the Stewart Building.

George Wettstein, the well-known Cedar Rapids, Iowa, wholesale jeweler, was in Chicago the early part of January, purchasing his line of new spring goods from Eastern manufacturers' agents. There were few if any Eastern factories of note that were not represented at the Palmer House during the visits of the interior jobbers. Mr. Wettstein is enthusiastic over the prospects for spring trade, and bought accordingly. He tells us he has bought the largest spring line since engaging in the wholesale business. He will extend his trade this year, putting two new travelers on and covering the whole West, including the Pacific Coast.

W. H. Vogell, Chicago manager for Alfred H. Smith & Co., has returned from a trip to New York.

The Geneva Optical Company are now hard at work at their 1898 catalogue, which they expect to have ready to send out to the trade about March 1st. It will be a large, handsomely printed and well illustrated book, full of interesting matter for the jeweler-optician, and will be the most complete and elaborate catalogue ever issued by this firm.

W. E. Shuttles, of the Shuttles-Ray Jewelry Company, wholesale, Dallas, Texas, was in the city for several days during the early part of the month, looking over the new spring lines of Eastern jewelry manufacturers' agents, who swarmed the Palmer House for two weeks after New Year's like bees in clover time. Mr. Shuttles thought that business prospects in the Lone Star State were fair and that the outlook for spring business was encouraging.

R. H. Stevenson, Chicago manager for E. G. Webster & Son, is on a visit to his firm's factory and his old home in Brooklyn, N. Y. He is expected home about the middle of February.

Chas. H. Fuller, of the manufacturing firm of George H. Fuller & Son, Pawtucket, R. I., is in the city on a visit to their Chicago branch. Mr. Fuller is looking well and says he always enjoys his trips West.

H. G. Schram, Western representative of Theo. Schrader & Co., leaves Monday for his first trip this season. He will be absent a month.

Max Green, of Max R. Green & Co., has returned from a flying trip among the larger towns of the West, and reports trade opening up nicely for the new year.

The 1898 tool and material catalogue of Otto Young & Co. has been issued and is now being sent to the trade. It is a well-prepared, well-printed work of 720 pages, replete with interesting information for the watchmaker and jeweler about tools, material, jewelers' findings and supplies. It will prove a useful book—the kind that every dealer will like to have on a handy shelf. The book is profusely illustrated, the cuts and descriptive matter throughout are most excellent, and the catalogue is in every way worthy of attention. This new catalogue is the largest ever issued by the firm; their last book of tools and material had only 588 pages. Mr. Baker, who compiled it and who has charge of this department, says it is the most complete work of its class that has ever been offered to the trade, and he is an authority on such matters. If you have not already received the book, write for it.

Fat and jolly Harry Jehliger, in charge of the sterling silver department at B. F. Norris, Alister & Co.'s, leaves the middle of February for an extended Western trip in the interests of his house. Mr. Jehliger will take in Montana, Idaho and the Pacific Northwest ere he returns. He expects to be absent about two months.

Will A. Schlossman, formerly with C. H. Knights & Co., and latterly traveling salesman for M. S. Fleishman & Co., has become a member of the traveling force of H. F. Hahn & Co. He will cover Western territory.

F. E. Behrendt, the past six years salesman for B. F. Norris, Alister & Co., has been promoted. He is now buyer and manager of the tool and material department of this firm, succeeding George W. Clark, who has been connected with the above firm for twelve years past. Mr. Clark expects to join his brother in a business enterprise at an early date.

There are funny things happening every day. In this particular our postal service is no exception. On January 15, 1887, a letter addressed to a jeweler in New Albany, Ind., was mailed by the New York office of the Waltham Watch Company. The envelope had the return card of the Chicago office of the same company printed on its upper left-hand corner. The letter, for some reason or other, was forwarded from New Albany to Georgetown, Ind. Here it seems to have remained until a few weeks ago, when the post-office at Georgetown had a change of postmasters. The old incumbent had held the office for twelve years. His successor found a carload or two of uncalled-for mail in a room over the office. Since taking charge of the office the new postmaster has been putting in his spare time sorting out and returning this mail. The sequel of the above letter: On January 11, 1898, ten years afterwards, this same letter was received at the Chicago office of the Waltham Company. Upon opening the letter it was found to contain the company's relate circular No. 4, announcing the reduction in prices of Crescent Street, Appleton, Tracy & Co. and No. 3 movements.

The sensation of the week in jewelry circles has been the failure of the wholesale jewelry firm of M. S. Fleishman & Co., in the Masonic Temple. They gave chattel mortgages to the Bank of Commerce and others on last Saturday for \$23,500. On Monday morning the mortgagees were in charge of the stock. A meeting of the creditors was called for this morning at 11 o'clock. There was a large attendance. The liabilities were given out as follows: Unsecured creditors, \$84,634.50; chattel mortgages, \$23,500; total indebtedness, \$108,134.50. Assets: Book accounts and bills receivable, \$30,811.66; estimated stock, \$50,000; total assets, \$80,811.66. The attorney's estimate and offer was: Estimated net value of stock, \$26,000; estimated net value of book accounts, \$10,200; total, \$36,200. The attorneys next made an offer of a settlement at 25 cents on the dollar—one-fourth cash, one-fourth in three months, and one-fourth in nine months in secured notes. The offer was discussed but not accepted at the meeting. A committee of three from the largest creditors was appointed to look into the estimated value of the stock, and included W. S. Sparrow, W. A. Moore and Sam. Levy. Mr. Diggs, of the New York Jewelers' Board of Trade, was appointed to examine the book accounts. These gentlemen were instructed to report at another meeting of the creditors to be held at an early date.

In the last holiday issue of THE KEYSTONE (November number) the Elgin Watch Company announced to the trade four prizes for the best window displays of Elgin watches, the competition to close the first week in January. The contest was a national one and open to any one connected with a jewelry establishment. It was a spirited competition; photographs of displays were received from all parts of the country, which shows that the jewelers are taking advantage of every possible opportunity or device to advertise by dressing their windows attractively. This should be the aim of every well-conducted jewelry store, and to develop this idea the Elgin Company offered the prizes. That the contest proved mutually beneficial, there can be no doubt. The prizes were awarded by the following gentlemen, who acted as judges of the photographs: Irving G. McColl, editor of *Advertising Experience*; W. M. Shirley, advertising manager for the Palmer tire, and Loren L. Boyle, Western manager for THE KEYSTONE. Half-tone illustrations, taken from the photographs of those selected for the prizes, will be found in the Elgin Company's double-page advertisement, elsewhere in this issue. The awards were as follows: First prize of \$50, Alfred Thomas, with Carl Mayer, Austin, Tex.; second prize of \$25, Henry Williams, manager for J. B. Lowe, Independence, Mo.; third prize of \$15, George Hay, Attica, Ind.; fourth prize of \$10, E. B. Brumm, Shenandoah, Pa.

Chicago was quite well represented at the annual banquet of the New York Jewelers' Board of Trade, which occurred on the evening of January 13th, at Delmonico's. The Chicago men speak highly of the occasion—the large attendance, the speeches, the menu, the decorations, and the spirit of good fellowship that pervaded the gathering. We note the following familiar names among the list of guests: Lloyd Milnor, manager of Spaulding & Co.; John M. Cutter, general manager of the Elgin Watch Company; Thomas Y. Midlen, Chicago manager for the Gorham Manufacturing Company; James A. Todd, Chicago manager for the Towle Manufacturing Company; Wm. H. Vogell, Chicago manager for Alfred H. Smith & Co.; George Weidig, of Joseph Fahys & Co.; E. P. Marum, of Montgomery Ward & Co.; and Maurice Wendell, of the Wendell Manufacturing Company.

Ed. A. Manheimer, representing the Elgin Cycle Company among the jobbing trade, leaves to-night for an extended trip through the middle and central States in the interests of the above firm.

J. W. Sutherland, for five years past connected with the watch department of Lapp & Flershem, has accepted a position with the Vive Camera Company to represent them on the road. He will travel in eastern territory.

J. M. Bennett, of the Reed-Bennett Company, Minneapolis, Minn., was among the number of interior jobbers who were in town the early part of the month, selecting new goods for the spring trade, from the sample lines of Eastern manufacturers. Mr. Bennett says the Northwest is prosperous; that Minnesota raised 60,000,000 bushels of wheat last year, all of which has been sold, or nearly so, at an average of above eighty cents; that this brings a profit of over forty cents a bushel, and with the good prices realized for other produce this has given an impetus to business that will last a long time; that the millions of dollars paid into the Northwest this year, when distributed among less than two millions of people, means something.

B. F. Simpson, who covers the northwest territory for Otto Young & Co., has been in the house the past two weeks, getting ready for the spring campaign. Mr. Simpson leaves the first of February for an extended trip, and goes out feeling much encouraged over the outlook for spring business.

The fact that novel and striking window attractions still catch the people is well illustrated by Almer Coe, the Central Music Hall optician, who has in his window a clock, the like of which he claims has never been seen in Chicago and only one other has been brought to this country. To be sure this clock attracts the people, and any bright day you can see a crowd in front of Mr. Coe's window. The time-piece is of French make, and was purchased by Mr. Coe during his visit to Paris last summer. It is what is known as a gravity clock, and is wound automatically by balls which fall at the rate of one a minute. These balls, after being released, are again pressed into service by means of a raising spring. The parts are made of highly finished brass, and the clock stands on a base of onyx. It is encased in glass. Its cost was \$400.

Swartchild & Co., the well-known material jobbers, of the Masonic Temple, will remove to the third floor of the Silversmiths' Building the latter part of next month, where they will have more room, and better facilities for conducting their increasing business. Mr. Swartchild tells us that they will have 3000 square feet of room, and that he expects to have, when they get thoroughly located in their new business home, one of the most complete and up-to-date material establishments in the country.

The Sercomb & Sperry Co. are making extensive improvements in their offices, and the decorative effects will be very beautiful. They are covering the ceilings and walls with embossed steel tiles, showing a variety of tints, the walls, wainscoting and ceiling being different in color. The office proper is handsomely fixtured with oak and plate-glass fixtures, and the ladies' reception room and private offices are models of luxurious comfort.

Out-of-Town Visitors.

E. H. Clopper, of Polo, Ill., was a recent trade visitor here.

George W. Flanders, of Marcellus, Mich., was a trade visitor in this market recently.

W. A. Huff, of Rensselaer, Ind., was buying goods in this market recently.

J. C. Hogan, of Sheldon, Ill., was a trade visitor here last week.

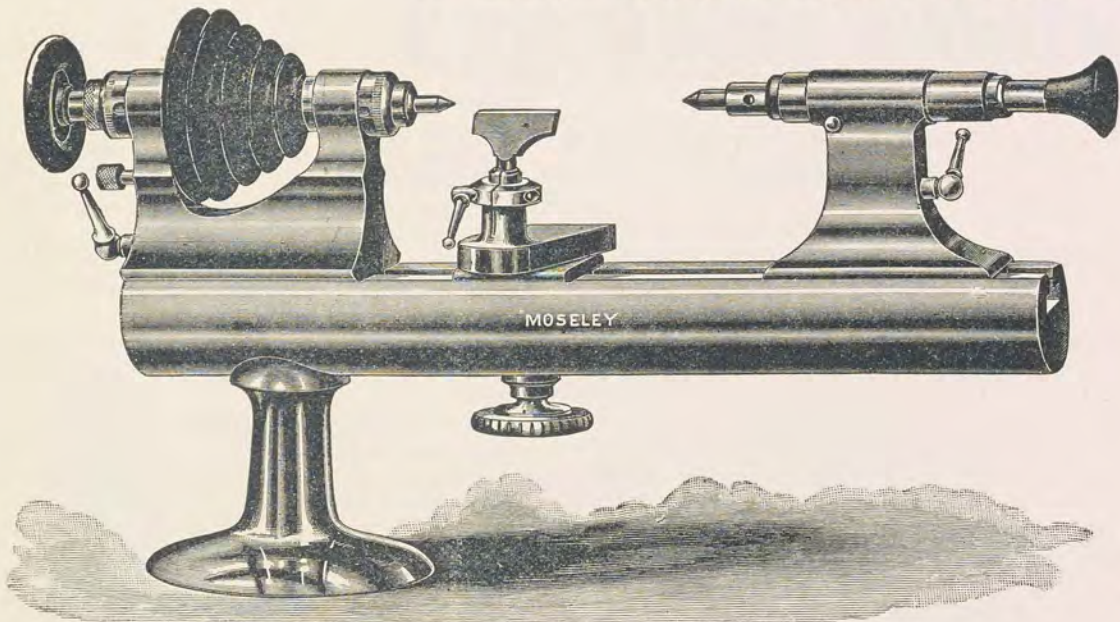
M. V. B. Elson, of Freeport, Ill., was one of the early out-of-town buyers in this market this month. Mr. Elson expressed himself as well pleased with his holiday business.

(Continued on page 120 n.)

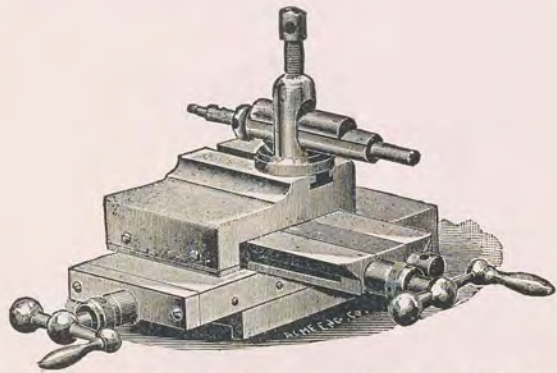
SPECIAL SNAP

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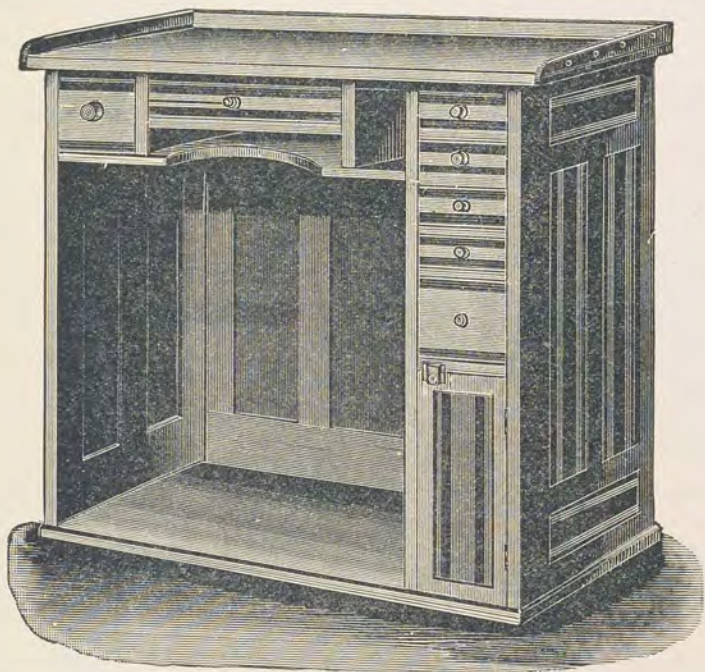
FOR THIS MONTH ONLY



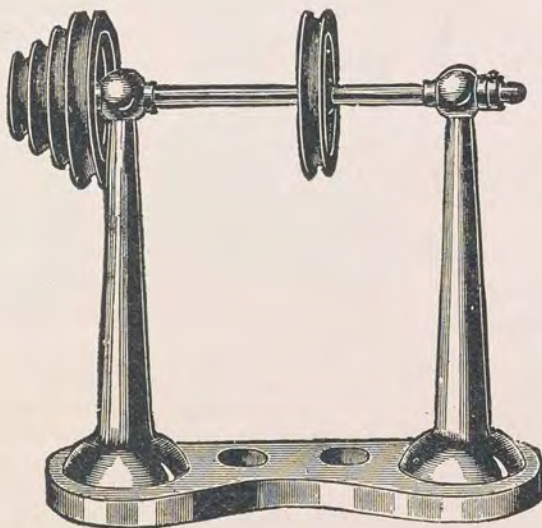
Genuine Moseley 1x2 Hard Lathe, with 12 chucks, including 8 wire chucks, 2 wheel chucks, 1 taper chuck, 1 screw chuck, and 6 cement chucks, chuck-box and belting.



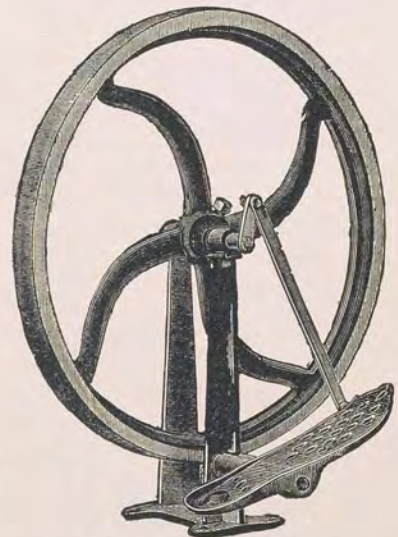
Imported 1x2 Moseley Slide-Rest. This is a well-made and very useful tool.



Oak-finish Bench, with but 4 drawers instead of 6. A good, substantial and well-made bench. 40 in. high, 40 in. long, 20 in. wide.



N. P. Countershaft with speed-wheel. Hard rubber pulleys. Speed-wheel not shown in cut.



20-lb. Grooved Foot-Wheel.

ENTIRE OUTFIT ON THIS PAGE, **\$58.²⁸** NET CASH.

REGULAR PRICE
OF THIS OUTFIT

Lathe and outfit, . . .	\$46.00
Slide-Rest, . . .	16.50
Bench, . . .	9.35
Foot-Wheel, . . .	2.50
Countershaft, . . .	1.25
Total, . . .	\$75.60



We have especial facilities for doing Watch Work for the trade—expert workmen and quick service. Send your surplus work to us. We guarantee satisfaction.

C. H. KNIGHTS & CO.

Diamond Merchants and Wholesale Jewelers,

Columbus Memorial Building,

CHICAGO.

New England Jewelry Travelers' Association.

The annual meeting of the Jewelry Travelers' Association of New England was held at the Quincy House, Boston, on January 4th, and the following officers were elected: President, Frank R. Hollister, of the Chapin-Hollister Co.; vice-president, Robert M. Hamilton, of Hamilton & Hamilton, Jr.; secretary and treasurer, W. C. Wales, of Tiffany & Wales. The executive committee is composed of J. C. Donnell, with the Ripley-Howland Manufacturing Co.; F. E. Buffum, with D. C. Percival & Co.; H. E. Pitcher, T. G. Frothingham, of T. G. Frothingham & Co.; and C. H. Buxton, with the Dennison Manufacturing Co. The auditing committee consists of C. W. Finley, with A. Paul & Co.; F. H. Elliott, with Smith & Patterson; and J. C. Donnell, with D. C. Percival & Co.



ROBERT M. HAMILTON
Vice-President

The meeting was followed by a banquet, which proved most enjoyable, and a postprandial treat was furnished in the shape of a variety performance by professionals. The following was the

Programme

HARRY RUSSELL	Piano Overture.	By special arrangement
MILLIE SHERMAN	Serio-Comic.	Henry Irving
PROFS. WM. BRODIN and WINGERTER	Musical Clown Act.	Kind permission of Wilson Bros.
LYONS and CROWLEY	Parodies and Imitations.	
MILLIE LOLA	First appearance in this country	Dances.
PROF. WILLIAM BRODIN	Formerly with Ringling Circus	Silence and Fun.
MARIE MOSBY	Special engagement for this performance	Serio-Comic.
LEW WELLS	By special Act of Congress	Tramp Musical Act.
MELL CRISTINNA WINGERTER	From Winter Garden Theatre, London	Skirt Dances.
BLANCHE FERANDEZ	Of Theatre Comique, Paris	Dances.

Members are requested to keep their seats and hold their breath during the performance.

All ladies appearing in this entertainment accompanied by a chaperone.

Married members of the Association are requested to destroy this programme before leaving for home.



W. C. WALES
Secretary and Treasurer

The thrilling character of the performance was reflected in the following injunctions printed on the programme, "Members are requested to keep their seats and hold their breath during the performance." "Married members of the Association are requested to destroy this programme before leaving for home." This request was obeyed by those of the married guests whose memory remained undimmed, and much domestic commotion was thus obviated.

The occasion was one of rare enjoyment, and did credit to the proverbial bonhomie, hilarity and aristocratic cussedness of the explosively convivial drummer. It is said

that while Rome was burning Nero pulled down his old fiddle and scratched off "There'll be a Hot Time in the Old Town To-night," and the "jolly travelers" were equally indifferent to what was going on in the outside world on the evening of January 4th. There was a gratifying absence of elongated and made-to-order speeches, the drummer's habit of all speaking and drinking at the same time being fatal to any such arrangement. The banqueters had a most delectable and exemplary time, the transgressions being such as a sympathetic Recording Angel is likely to drop a tear on, and blot out forever. The Association will hold its annual summer outing on July 9th.

Chicago News.

(Continued from page 1201.)

George M. Moore, of Piper City, Ill., has been in the city this week on a purchasing trip.

Gorton Rushmore, of the Rushmore Jewelry Company, Pueblo, Colo., is in the city to-day. Mr. Rushmore was met in one of our wholesale offices, and in reply to the inquiry as to how was business in Colorado, he said there was a marked improvement in comparison with now and this time one year ago. He further said as far as he knew the jewelers of the Centennial State were feeling good over a fine holiday trade, and that he did not see why they all would not enjoy a healthy and prosperous trade during '98—that the indications all pointed that way.

H. G. Goldschmidt, manager for T. Kircher, Davenport, Iowa, is in town to-day, looking around before placing an order for a complete outfit of fixtures for the new store that Mrs. Kircher will fit up this spring. Mr. Goldschmidt remarked to THE KEYSTONE representative that they had enjoyed a fine holiday trade during the season just past, and that the future was looking bright.

W. T. Allen, of Alexis, Ill., has been in town this week, buying a stock of tools and materials, with the intention of opening up a repair business at the above point.

Henry Nabstedt, of Davenport, Iowa, is in Chicago this month, pursuing a course of optics at the Chicago Ophthalmic College.

J. C. Johnson, of Mt. Sterling, Ill., was in Chicago recently, buying goods. Mr. Johnson reports that his holiday trade excelled his expectations.

C. K. Linden, of Kankakee, Ill., was a recent trade visitor in this market.

John H. Bullard, of Bullard Brothers, St. Paul, Minn., was a trade caller in Chicago recently. Mr. Bullard reports a fine December business and believes the outlook encouraging for an improved spring trade throughout the Northwest.

Will J. Gamm, of Smith & Gamm, Madison, Wis., was in this city recently on a business trip.

Charles E. Axt, of Odell, Ill., spent a few days in the city recently, replenishing his stock and seeing the sights of the Western metropolis.

Everett B. Lewis, of Dwight, Ill., was in town the early part of the month, buying a new stock for the store he has just opened in that town.

Jeweler Fonder Smith and wife, of Hoopetown, Ill., were in the city for a few days recently.

E. W. Fairbank, of Bassett & Fairbank, Jacksonville, was in Chicago recently on a business trip. Mrs. Fairbank accompanied him.

Joseph de Lorenzi, of Mishawaka, Ind., was met in one of our jobbing houses recently. Mr. Lorenzi tells us that his place is a great manufacturing town and that their factories are all busy. He is anticipating an improved spring business.

George M. Moore, of Piper City, Ill., was a recent visiting buyer in this market. He talked encouragingly over the outlook for trade and said he had a fine Christmas business.

S. C. J. Peterson, of Morris, Ill., was a welcome trade visitor in this market last week.

L. Kabis, of Colorado Springs, Colo., was in town last week, buying goods.

Jeweler Al. Cleever, of Boone, Iowa, has been in town this week on a purchasing trip.

J. M. Irmen, of Atlantic, Iowa, was in Chicago last week and called at KEYSTONE headquarters. Mr. Irmen has closed out his jewelry business at Atlantic, but will continue as a traveling optician.

D. H. Glenn, of Ruthven, Iowa, is spending this month in Chicago, attending a course of optics at the Chicago Ophthalmic College. Mr. Glenn is an enthusiast on optics as a side line for jewelers, and tells us that he has had good success with this line at his store.

R. W. Chamberlain, a well-known jeweler of Marshalltown, Iowa, was in town last week and dropped in at THE KEYSTONE's Chicago office for a pleasant call. Mr. Chamberlain is watch examiner for three railway lines and takes especial pride in his watch repair department and his optical department. He claims to have the largest watch rack in Iowa, and thinks his watch work will compare favorably in amount of business done with much more pretentious establishments of the large cities.

A. C. Campbell, jeweler and optician, at Topeka, Kan., has been in the city this month in attendance upon the January term of the Chicago Ophthalmic College. Mr. Campbell has been a congenial caller at KEYSTONE headquarters several times during his stay in town, and speaks encouragingly of business prospects in Kansas. He is in love with optics as a side line and thinks there can be no better-paying adjunct to the retail jewelers' business.

Jeweler S. M. Sloan, of Galva, Ill., has been in the city ten days this month, studying optics at the McCormick Optical College.

J. E. Fairchild, of Kasson, Minn., was in town last week, taking a course of optics at the McCormick Optical College.

T. W. Van Dorn, of Minonk, Ill., was in the city last week on a purchasing trip.

C. D. Strow, of Strow Brothers, Fort Dodge, Iowa, was buying in this market recently.

J. G. Ferry, of Eau Claire, Wis., was a recent trade visitor in this city.

S. W. Gray, jeweler and optician, Fort Dodge, Iowa, was in the city recently on a business trip.

E. R. Moses, of G. N. & E. R. Moses, Great Bend, Kan., who also have branch stores at Hoisington and Claflin, Kan., was among last week's welcome visitors to THE KEYSTONE's Chicago office. Mr. Moses is one of the most successful of the merchant jewelers of the Sunflower State, a brainy, public-spirited citizen and a loyal Kansan every time. He believes in Kansas, talks Kansas, and, as a matter of course, has done well since locating in Kansas. Mr. Moses says things are looking bright in Kansas.

Missouri Retail Jewelers' Association.

The tenth annual banquet of the Retail Jewelers' Association of Missouri was given in the Broadway Cafe, St. Louis, on January 19th. Before the banquet a meeting was held, at which officers were elected for the ensuing year. Following is the result of the election: O. H. Kortkamp, president; George Hess, vice-president; Frank H. Niehaus, second vice-president; Frank W. Baier, secretary; F. W. Bierbaum, treasurer; Herman Mauch, financial secretary; all re-elected. Directors: G. Eckhardt, Wm. F. Kemper, Geo. R. Stumpf, John Schmid, Chas. Derleth, Phil. Frech, Otto Steiner, A. L. Steinmeyer (E. Jaccard Jewelry Co.), F. W. Drosten.

The banquet was one of the most enjoyable given by the Association, and the merry feasters took little notice of the storm without until the breaking up of the entertainment in the small hours of the morning. The menu was of the tooth watering variety, and the beverages were of the kind that help "digestion to wait on appetite," and good humor on both. After summary justice was done to the good things, President Kortkamp proposed that Herman Mauch act as toastmaster, and the extempore task was admirably performed. President Kortkamp responded to the sentiment, "The Retail Jewelers' Association of Missouri," a congenial subject. The Association is the model organization of the retail trade, and has done gallant service for its members, truths which more than justified the president's modest eulogy. Charles F. Krone, a guest, responded to the toast, "The State of Missouri," and the excellent response made the banqueters prouder of their State than ever. He denounced municipal corruption in unmeasured terms, and called upon the jewelers' organization to help the cause of pure government. J. Reed Elliot delivered an eloquent address on "The Jewelers' Art," which he traced through all its developments from the earliest times to the present. Councilman Chas. F. Thuner made a brisk onslaught on the department store, and Warren H. Isenberg eulogized "The Newcomer to St. Louis."

There was some excellent instrumental music, Herman Mauch performing on the violin and the Messrs. Eisenstadt on the piano, while J. H. Steideman gave a sleight of hand exhibition which would have done credit to a professional juggler. The last and most amusing number on the programme was a cake walk, the prize being awarded to Messrs. Schoen and Isenberg.

THE RESULT of the painstaking and thorough instruction imparted to all students at

Hutchinson's School for Watchmakers, Engravers AND Opticians

IS SHOWN in the large number of very competent workmen that are provided with first-class positions in all departments of the jeweler's business.

CATALOGUES FREE.

J. L. HUTCHINSON, Supt.

LA PORTE WATCH SCHOOL, La Porte, Ind.



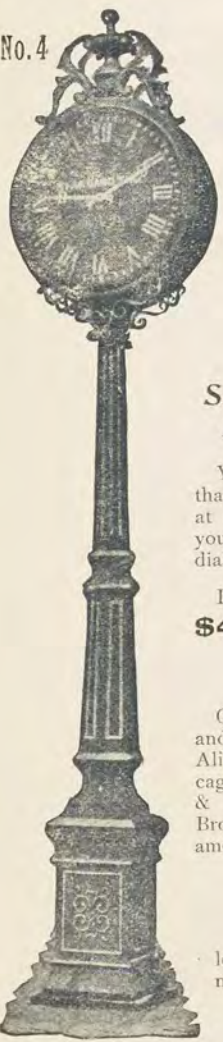
25^{c.}

A little cement is a mighty useful thing to have on the bench, provided it is good; and LIQUID AMBER is the best there is.

When buying material, ask for a bottle of it.

Time=Tried.

No. 4



Fully Guaranteed

Our clocks are on the market for over two years, and have earned their reputation for being handsome and accurate timekeeping signs.

Simple and Durable.

You want a sign that you can light up at night and show your name on both dials.

Prices range from \$40.00 up.

Otto Young & Co. and B. F. Norris, Alister & Co., of Chicago; L. H. Keller & Co. and Green Bros., New York, are among our jobbers.

Write us for catalogue and testimonials.

Joliet Electrical Mfg. Co.
JOLIET, ILL.

Chicago Office—Room 509, 126 State St.



LONG EXPERIENCE ENABLES US TO MAKE SUCCESSFUL SALES.

WE PAY OUR OWN EXPENSES

SEND FOR CIRCULAR AND REFERENCE.

A. G. HILL & CO.
79 SUDBURY STREET
BOSTON, MASS.



Foot-Power Lathes.

High grade tools { Correct in principle.
Elegant in design.
Superior in construction.

The Best Foot-Power Lathes Made.

This cut represents our No. 4 Lathe, which is admirably adapted for the heavier work of watchmakers and jewelers. Send for our Catalogue.

We also make a line of Screw-Cutting Lathes for Bicycle Repairing.

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



Progress Leads the Van.

Let Electricity Earn You Money.

Our Wonder Dynamo combines a powerful Bicycle Foot-Power Dynamo with the Ideal Polishing Lathe and Champion Demagnetizer. In this Triple Alliance the jeweler has exactly what progress demands. These dynamos are all tested to give 10 volts and 14 amperes electric current.

Our Eureka Hand-Power Dynamo, with machine-cut gear wheels, transforms the power of a strong man into electricity.

Our Gem Dynamo is a veritable electrical servitor. It gilds, nickel-plates, removes fire-coat, and is powerful enough to silver-plate either an ice pitcher or two dozen spoons.

Our Eclipse Dynamo works 100-gallon nickel solution or 500 of silver solution.

The cheapest practical dynamo on earth—THE BABY GIANT. Gilds, also silver and nickel-plates and removes fire-coat. Hand power with machine-cut gear wheels. Fully guaranteed. Price, \$7.50.

Ben. Franklin Electrical Co.
44 N. Seventh Street,
Philadelphia, Pa.

JEWELERS', PLATERS',
WATCH CASE MAKERS'
AND SPECIAL

BRUSHES

MANUFACTURED BY
EDWARD E. GNICHTEL,
15 TO 19 GREEN ST.,
NEWARK, N. J.



E. F. Wadsworth,
Watch Case
Manufacturer
and
Repairer.

Everything in the line of
Watch Case
Repairing,
Gold and Silver
Plating,
Satin Finish,
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and
Engine Turning

Changing Old English and Swiss Cases to take American S. W. Movements my specialty.
OLD CASES
MADE NEW.

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Ave., CHICAGO.

When writing to advertisers, kindly mention *The Keystone*.

TWO NEW SHAPES IN O-SIZE CASES

IN JAS. BOSS 14 K.

Fascinating Foretaste of Our Many Spring Novelties



A 9181
Htg., \$14.50

Price according to Keystone Key.

This new shape is not a mere modification of any existing one, being a complete new departure and strikingly different from any heretofore seen. It is small in diameter, close and compact, and has a peculiarly shaped, richly ornamented projecting edge which adds materially to its attractiveness and novelty.



A 9116
Htg., \$14.50

Price according to Keystone Key.

This new shape is also in response to the pronounced feminine predilection for very thin cases. It is very small in diameter, and so compact that it causes no unseemly bulging of the dress when worn. It appeals strongly to the feminine sense of neatness and daintiness, while it has unusual grace of outline and beauty of ornamentation.

These cases, which are conceded to be the prettiest O-size cases ever made, are now in the hands of jobbers. Make it your business to see them.

Keystone Watch Case Company

19th & Brown Sts., Philadelphia, Pa.

NOTICE! NOTICE! NOTICE!

"Save Money and You Will Make Money."

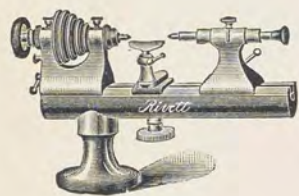
Price-List

STEM-WIND MOVEMENTS.			
Elgin and Waltham, 7 jeweled,	.	.	\$27.00 per dozen.
" " " 11 " . . .	.	.	36.00 " "
" " " 15 " . . .	.	.	45.00 " "
Other Makes, 7 " . . .	.	.	24.00 " "
" " 11 " . . .	.	.	30.00 " "
" " 15 " . . .	.	.	39.00 " "
KEY-WIND MOVEMENTS.			
7 jeweled,	.	.	\$1.25 apiece.
11 " . . .	.	.	1.50 "
15 " . . .	.	.	1.75 "

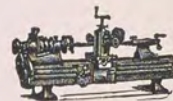
Note these prices on Second-Hand American Movements. If you wish to profit by them, send in your order at once, as I have only a limited quantity on hand. Movements will be sent C. O. D. only, subject to inspection. If not satisfactory, return at my expense. While these Movements are not new, they are in good condition and can be readily sold. These Movements are sold far below regular prices on a close margin. I have no book accounts, and therefore send C. O. D. only. Send me a trial order and I know you will be well satisfied.

"SAVE MONEY AND YOU WILL MAKE MONEY."

I. SPEYER, 67 Washington Street, CHICAGO, ILL.



1898



Catalogue of

RIVETT TOOLS

104 Pages.

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Most complete Catalogue ever got out for Watchmakers' Tools.
Every lover of fine tools should send for a copy.

FANEUIL WATCH TOOL CO.

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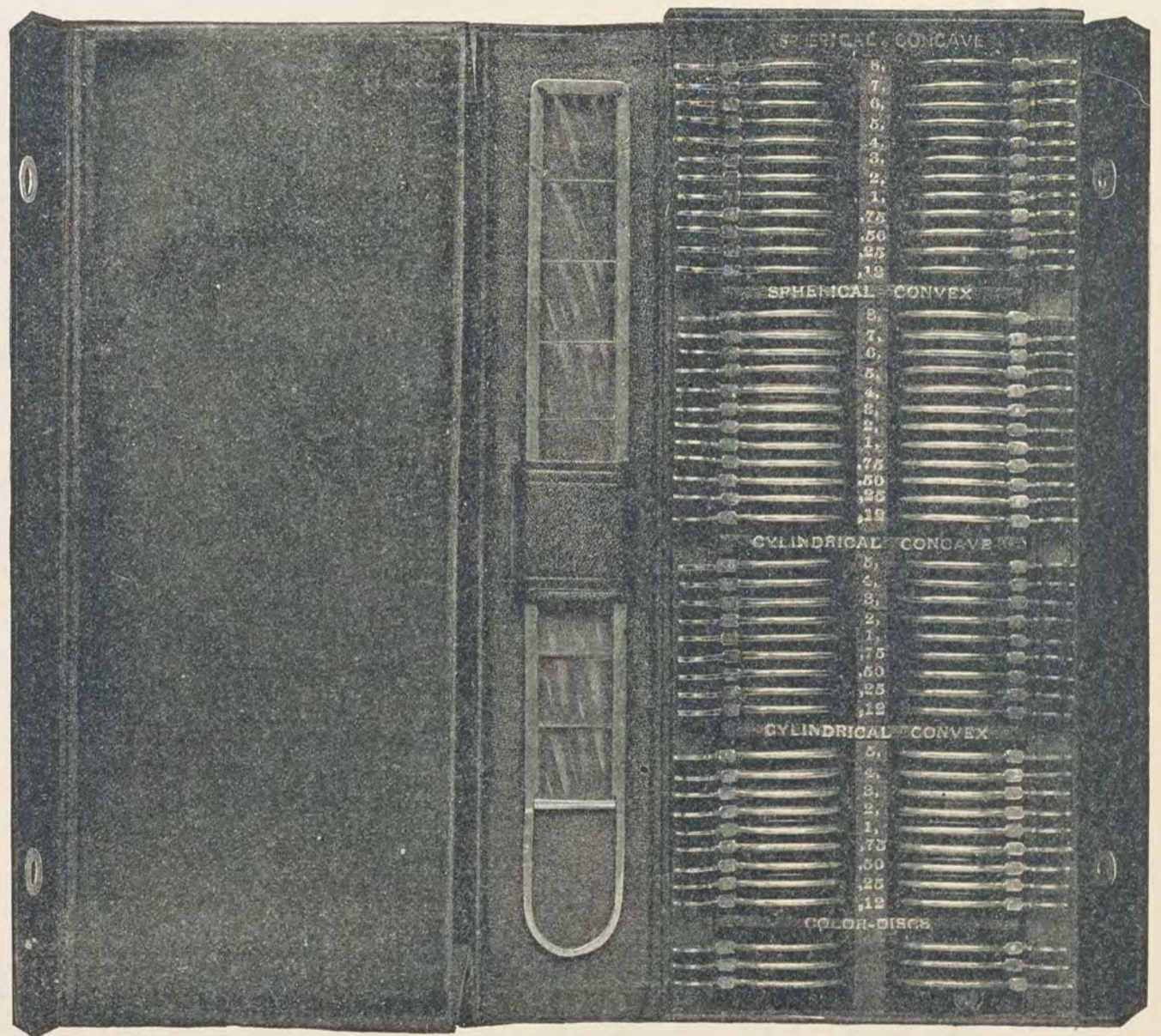
The Geneva Traveler's Little Brother Trial-Case

like its elder brother, is something new and right up to date. It is a COMPLETE POCKET TRIAL-CASE, and has come to fill a long-felt want and therefore will be just as popular. From its dimensions, which we give below, it will be easily seen that it is compact enough to slip with ease into any ordinary pocket. IT IS PRACTICAL, because it is handy, compact and useful. You can fit any case with it that you can by the use of a large, complete set. We make it in the following dimensions: $1\frac{1}{8}$ inches, $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches in diameter; the dimensions of the $1\frac{1}{8}$ -inch case are $8\frac{1}{2}$ inches long, $3\frac{3}{4}$ inches wide, and $1\frac{1}{4}$ inches thick. The contents of the case are as follows:

12 Prs. Sphericals—Concave and Convex: 0.12, 0.25, 0.50, 0.75, 1.00, 2.00, 3.00, 4.00, 5.00, 6.00, 7.00, 8.00.	9 Prs. Cylinders—Convex and Concave: 0.12, 0.25, 0.50, 0.75, 1.00, 2.00, 3.00, 4.00, 5.00.	1 Prism Bar, containing 10 Prisms, from $\frac{1}{2}$ to 8° , inclusive.
1 Ridgeway Muscle-Test. 1 Pinhole Disk.	1 Stenoptic Slit. 1 Solid Disk.	1 Plano Smoke. 1 Opaque Disk.
		1 No. 924 Three-Cell Trial-Frame.



CASE CLOSED.



CASE OPEN.

PATENT APPLIED FOR.

Price of The Geneva Traveler's Little Brother Trial-Case,

Complete with Lenses,
Trial-Frame and Test-Cards, **\$22.50** less 6 per cent for cash.

Our New Illustrated 1898 Catalogue will be sent out to the trade February 15th. LOOK FOR IT!

GENEVA OPTICAL COMPANY

67 & 69 Washington St., Chicago

OPTICAL DEPARTMENT



Reviews of Current American and English Ophthalmological Literature.

A Few Words About Curious Anomalies of the Human Eyes.

Our readers are all more or less acquainted with the anatomy of the human eyeball and with the conditions that underlie the different forms of refraction. But they hear less of queer anomalies of the eyes. It may therefore interest them to hear a few words about rare conditions that have been observed and reported from time to time in medical journals. Perhaps the most curious observation made in this regard was the complete absence of both eyes. Several cases have been reported. Kinney, in 1854, gives an account of a child born entirely without eyeballs, but otherwise healthy and well-formed. Wordsworth, in 1881, describes a baby of seven weeks, otherwise normal, which had congenital absence of both eyes and whose parents were in every respect healthy. Landes, in 1894, reports the case of an infant in which both eyes were wanting and which had six fingers on each hand and six toes on each foot. It died after a few weeks.—Quite rare are the cases in which there exists only one eye, in the center of the forehead, and which may have given origin to the mythical Cyclops of the old Greek. Such a case is reported by Vallentini, in 1884, but this male cyclopic infant lived for only seventy-three hours and showed many other deformities beside.

Old reports speak of a man in England who had four eyes, placed in pairs one above the other, but their authenticity is doubtful. Only a few years ago, however, the *American Medical Review* speaks of a child born in Paris with its eyes in the top of its head. At that time it seemed to be doing well, and crowds of people came to see it. Quite recently reports speak of a child born in Portland, Oregon, which had a poorly developed eye between two normal eyes.

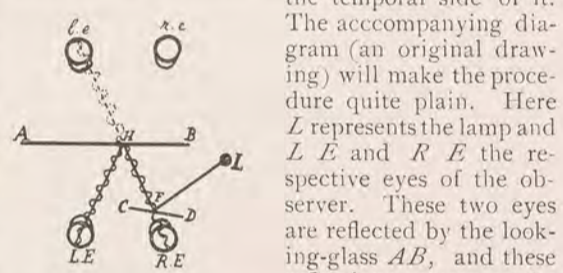
Cases in which there was no iris in both eyes have been seen now and then. Dixon, in 1858, reports such a case of total absence of the iris in each eye, with excellent sight; and Hentzschel, in 1830, speaks of a man with congenital absence of the iris who had five children, three of whom presented the same anomaly, while the other two were normal. Jefferson, in 1844, refers to a woman of forty, living in India, whose iris was completely ossified; it was immovable, and quite beautiful when seen through the clear cornea.

Eyes with more than one pupil have been observed quite frequently, as many as six pupils having been seen; and that the iris may show a different color in each eye has probably been observed by many of our readers. Several cases have been reported in which the crystalline lens in each eye was displaced. So Wordsworth, in 1878, presented to the Medical Society of London six members of one family, all of whom had a congenital dislocation of both crystalline lenses. The family consisted of a woman of fifty, two sons of thirty-five and thirty-seven, and three grandchildren of ten, seven and five. In each of these cases the iris trembled on movement of the eye. With regard to the ocular muscles, many abnormalities have been noted, the most peculiar one probably being a complete absence of one or more of them.

But we will not give further details. These strange occurrences would almost seem to bewilder one, if it was not for the fact that they can be understood and explained by referring to the development of the child before birth. Viewed in this light, such abnormalities become valuable guides in the science of embryology.

Auto-Skiascopy.

At a meeting of the Section of Ophthalmology of the College of Physicians of Philadelphia, Dr. E. Jackson lately read a paper on auto-skiascopy, or the art to practice skiascopy on the own person. All that is required for this purpose is the usual skiascopic mirror and a looking-glass. The observer faces the flame as usual, except that he allows the light to come a little more from the side, and with his skiascopic mirror held up in front of the right eye, he looks at the image of his left eye in the looking-glass. But it must be observed that it is the right eye that must look at the image of the left eye in the glass, which latter ought to be about half a meter away from the experimenter. To be sure that the observer really observes with his right eye (the eye behind the skiascope), he first may close the left eye and direct the light-reflex from his mirror to it. Then on opening the left eye he will see with his right eye the familiar red reflex in the left, and can now proceed as usual. It is somewhat puzzling at first that the two eyes have here a different function, the one eye being the observer while the other is being observed, "but when more familiar with the test the observed eye is of positive assistance in keeping the light properly directed, since it sees in the looking-glass the reflection of the mirror held before the observing eye." (*Ophthalmic Record*, December, 1897.) In this test the refraction is not measured at the fovea, but at a point somewhat to the temporal side of it.



The accompanying diagram (an original drawing) will make the procedure quite plain. Here *L* represents the lamp and *LE* and *RE* the respective eyes of the observer. These two eyes are reflected by the looking-glass *AB*, and these reflections appear as *le* and *re* in the drawing, their position, of course, being just as much behind *AB* as the real eyes are in front of it. *CD* is the skiascopic mirror held by the observer in front of his right eye, while he looks with the same eye at *le*, the image of his own left eye. The rays of light from the lamp *L* proceed now as follows: They first encounter the mirror *CD*, from which they are reflected as the light-bundle *FH* to the looking-glass *AB*, which again throws them back into the left eye of the observer as bundle *HLE*. Therefore, the drawn-out line *LFHLE* gives the way of the light emanating from the lamp *L* and entering the left eye of the observer, but the serpentine line *LEHFRE* represents the way of the light rays which, returning from the left eye *LE*, enter the right eye of the skiascopist through the hole of his mirror. Of course the observer sees the rays *LEH* as *leH*, that is, as if they came from his left eye *le* in the looking-glass. Thus it will be clear how the right eye of the student can use his own left eye like that of a patient. We would recommend this method to our progressive readers as a valuable means to get more familiar with the shadow-test.

Can We Prevent Color-Blindness by Education of the Color-Sense in Infancy?

Under this title, Dr. Culbertson, in the *American Journal of Ophthalmology* (December, 1897), offers some suggestions about the treatment of the color-sense in the children of color-blind parents. After referring to the work of Prof. E. L. Gates, director of the Laboratory of Psychology and Psychurgy, Washington, D. C., who experimented with the development of the color-sense in puppies, he gives his own views as follows:

"The above has opened a new field for thought and study, *i. e.*, as to whether color-blindness can not be overcome by education of the

color-sense. Authors state that five per cent. of the population are color-blind. What a boon to humanity if this could be reduced to even two per cent! Ophthalmologists see daily the disappointment of men who desire to follow a certain occupation, but are debarred from doing so because nature has given them a defective color-sense.

"Following Prof. Gates's line of thought, I would suggest that ophthalmologists experiment on cultivation of the color-sense of children of color-blind parents and endeavor to develop the color-perceiving brain centers. I would also suggest that parents be instructed by competent physicians or oculists in the use of Holmgren wools or other color-tests, and let them daily educate their children in matching and recognizing colors. A good method would be to have duplicates of the different shades, and, if the children are old enough to understand, tell them to find the mates and then tell them to name the shade. The name, through the association of ideas, will assist to fix the color in their memory. Further experiment will teach us the best method of educating the color-sense.

"The kindergarten would be an excellent place for instruction, or the primary grades of public schools. Probably difficulty will be encountered in color-blind children who will put confusion colors with certain shades.

"I would suggest an experiment that might teach us how to overcome this. Ascertain the color which confuses the child. Say it is green-blind. Then take blocks of wood and coat them with sand and glue or sand-paper. Let the sand be coarse. Then paint the various shades of green on the different blocks over the sand. Then have another set of blocks on which is a finer grade of sand. Paint these the various shades of drab. If the subject be red-green-blind—I mean if they call red, green—also have another set with still coarser sand thereon, painted the different shades of red. Then give the subject a green block and tell him to match it. He will put a drab with it. Then tell him to feel it and ascertain if it *feels* like the other color. He will say no. Then tell him to pick out from the other set one that *feels* like the one he has. He may not get the same shade but he will not confuse the color, as he is partly or wholly guided by the sense of touch. (The blind can tell colors by the sense of touch.) Now at the same time that the touch perceives that the green block feels coarser than the drab, the *neuron*, or nerve-cell for the sight-perception of green will have another cell (or idea) to guide and reason with it through the sense of touch, thus showing its color. In this manner a new cell will form or be developed which will be connected with the cell which perceives the green shade through touch and the cell which perceives the green shade through sight. The gray-perceiving cell will then respond to the different light-wave length of gray, and gray be perceived as gray. When the gray-perceiving cell has become fully developed it will not need the touch to assist it.

"Another assistance might be to have toy animals of different colors. Say we have cats painted different shades of green, and dogs different shades of gray, and, if red-green-blind, cows of different shades of red. Then mix all animals together and have them assort them. This would assist them through the form-sense, but would be of more benefit after the color had been acquired through the colored sand-block exercise.

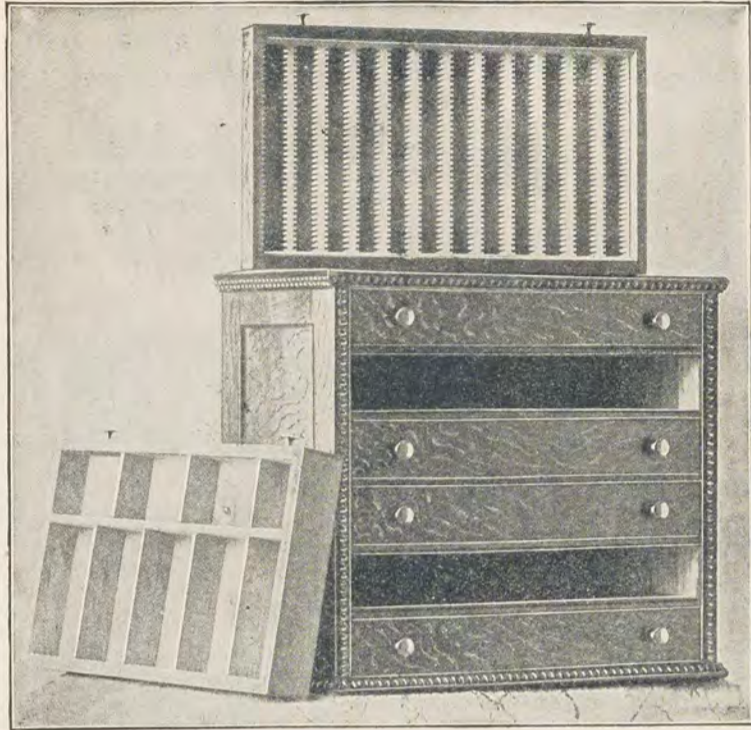
"I do not say that color-blind children can be taught colors by the above theory. I merely offer the above as a suggestion for experiment by some of our ophthalmologists and others.

"The question is one of the deepest interest to us as well as to suffering humanity. If it can be solved it will enable many a man or woman to attain eminence in a trade or profession from which they would be debarred if color-blind."

The reviewer would heartily recommend such experiments, but he is afraid that the hopes of the

(Continued on page 125.)

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
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**The South Bend
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ESTABLISHED 1893
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(Talk No. 22.)

**How Many People
Are Wearing Glasses?**

How many people ought to wear them? Just count the people who come into your jewelry store that are compelled to wear glasses. Think how many of them might have gotten glasses of you if you were an optician. A little time and a small amount of money spent at the South Bend College of Optics will make you an expert optician. You can then fit glasses to any eyes, and receive the fee for it. No matter how good your business is, you can add to your income by this pleasant and profitable profession. The amount of your tuition will prove the best investment you ever made. "How to Become a GOOD Optician" is the name of our catalogue. Ask us to send it to you.

Dr. H. A. THOMSON, President,
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Can We Prevent Color-Blindness by Education of the Color-Sense in Infancy?

(Continued from page 123.)

doctor will not be fulfilled. First, there have been and there still are a great number of scientists like Dr. Pole in England, and Dr. Brodhun and Dr. Hochecker, of Germany, who have given great attention to their defective color-perception, as they are all color-blind, and who undoubtedly developed it to the highest degree possible for them, but who, by no amount of color-education, could be made to distinguish between certain colors. And then it has been shown by certain cases in which only one eye was color-blind, while the other was perfectly normal, that congenital color-blindness is most probably due to some defect in the development of the retina, a want of color-sensitive material. It is evident that such deficiency can be as little remedied by education, and such eye can be as little made to recognize all the usual colors, as a hand without fingers can be made to play on the piano by the best teacher. But such experiments ought to be made, even if it is only to confirm or defeat the views just given.

Eye-Strain in Health and Disease.

With Special Reference to the Amelioration or Cure of Chronic Nervous Derangements Without the Aid of Drugs.

This volume of Dr. A. L. Ranney, published by the F. A. Davis Co., 1897, will be of the highest interest to our readers, not only on account of its contents, but also of its style, that makes the book read more like a novel than a dry book of medicine. The author undoubtedly is an enthusiast on his peculiar subject, which is rather new and undeveloped, and therefore requires such enthusiasts to induce others to follow him into this new field. Of course an enthusiast will often be too sanguine in his conclusions and expectations. He often will shoot beyond the mark; but this cannot deprive him of his merit of first having shown us the mark as worthy of being shot at. A book of such a character must be read with great care and caution; but even if it does not always meet with our approval, it will always be interesting and prove useful in stimulating to new trains of thought on a subject which is only a few years old. We intend therefore to give extracts from this book in our columns, of course confining ourselves to those portions which refer to the work of the optician and refractionist. Before, however, proceeding with these extracts it is only fair to quote from the author's preface the following passage:

"To the critics the author would say that three facts should not be lost sight of in this volume,—viz., that none of the cases here reported took any drugs while under his care, that they were chronic cases which had received no benefits from medication under skillful hands, and that many of them were made absolutely well by eye-treatment alone.

"To appreciate the fact that, within the past ten years, a remarkable change has occurred in reference to this important field, it is only necessary to contrast the later works with those of earlier date upon diseases of the eye and diseases of the nervous system. Few, if any, can be found to-day that have ignored entirely the relationship between eye-strain and functional neuroses, while in the past this field was neither hinted at nor discussed in any of the text-books. Moreover the medical journals to-day are constantly furnished with interesting articles relating to this subject, both in America and Europe. Frequent and long discussions in societies regarding eye-muscles, the new instruments being devised, and the growing sale of these instruments also point toward the rapidly increasing interest in this field of medical work.

"While the author does not expect that his critics will accept all of his conclusions, he has a right to ask that the work be read without prejudice prior to criticism and that the reviews be dispassionate. The time has passed when violent antagonism or ridicule can have much weight in opposing the progress of any method of treatment of disease that is scientific and positive rather than speculative or empirical."

In the following we shall give, without quotation marks, such passages from the book as we believe to be most interesting to our readers.

I desire, therefore, that the thoughtful reader of these pages shall see in them no affectation of science or pretence to superior knowledge, but an honest and earnest purpose to bring to their notice, in a manner that is simple and practical, a statement of clinical facts that are to-day receiving no small amount of attention from scientific medical men, and a theory that is based upon nature and common sense.

In endeavoring to present the view (now quite generally accepted) that the eyes themselves may (when defective in refraction or when imperfectly adjusted so that they fail to work in harmony with each other) constitute an *important and too commonly neglected factor*, both in *causing and perpetuating disease*, I believe and trust that I shall open to the minds of some of my readers a field worthy of serious thought and careful consideration.

The literature of medicine goes to prove conclusively that the duration of life is materially shortened by nervous debility and the diseases which it entails.

Any factor, therefore, in their causation ought not to be overlooked. This subject of inquiry has become invested with an importance which cannot well be ignored by searchers after truth.

If the view that *eye-strain is a frequent cause of functional nervous derangements* proves to be the correct one, beyond the possibility of a doubt or cavil, it is not difficult to see that a hope of marked relief or of ultimate recovery is practically extended to many hopeless sufferers upon whom drugs have exerted little or no benefit.

In anticipation of the general acceptance of such a view (which, I feel assured, must, in time, prevail), I have deemed it wise to first discuss, from a physiological standpoint, some of the points involved in this theory, and later, to illustrate by selected cases, the curative effects of eye-treatment upon the various types of nervous derangement.

In order that those of my readers (who have, possibly, not given much attention to the views which these cases are particularly selected to illustrate) may properly understand the train of reasoning that offered a solution, to my mind, of the symptoms recorded, I take the liberty of quoting a few paragraphs from a paper which I read before the International Medical Congress at Washington, entitled "Does a Relationship Exist between Anomalies of the Visual Apparatus and the So-called 'Neuropathic' Predisposition?"¹ This paper was based upon a carefully tabulated analysis of the records of one hundred consecutive cases of typical neuroses taken from my private case-book.

In this paper I say: "Until there is a uniformity in the methods employed for testing the eye-muscles, and of terms for the recording of anomalies so detected, the profession must unfortunately continue to be more or less embarrassed in this line of research. I do not feel justified in personally discussing this subject here, as it has only an indirect relationship with this paper; but I cannot refrain from saying, in this connection, that to defective methods of examination, made venerable chiefly by their antiquity, we owe to-day, in my opinion, much of our ignorance of anomalies of the ocular muscles."

Some time ago I was struck, on looking over a children's magazine, with an illustration designed to teach the reader the dependence of the various organs of the body upon the brain. It represented the brain as the head of a manufacturing establishment sitting at his desk, and around him were the various departments,—as, for example, the liver-department, the stomach-department, the eye-department, etc. These departments were connected with the head of the establishment (the brain) by telegraph-wires, through which each could make his wants known and receive information regarding them.

Probably the designer of this sketch (made

¹ An abstract of this paper was published in the Medical Register, November 19, 1897.

for the purpose of illustrating to the child the dependence of the organs upon the brain for their successful operation, as well as their actual support) built "better than he knew." He embodied in his drawing a graphic representation of certain fundamental principles of physiology which are not clearly understood, even by many adult minds, in their bearings upon the general health.

The lungs do not make us breathe, except in an indirect way,—by asking the brain to start the necessary muscles into action. The stomach does not perform its functions until after the brain has been requested by it to turn on the blood-supply in sufficient quantities to produce the requisite amount of gastric juice. The intestine performs its incessant, worm-like movements by no inherent power of its own. The heart keeps up its rhythmical beating only when permitted to do so by the great center of nerve-force.

Now, is it at all inconsistent with physiological principles to advance the view that *any excess of nervous expenditure to one organ over the normal amount which should be furnished is done at the expense of the others sooner or later?*

No one can draw incessantly upon his reserve-capital of nerve-force without incurring a risk of ultimately exhausting it. A *bankruptcy in the reserve-capital of nerve-force* entails untold ills to the individual.

The day of reckoning is postponed in any given case in direct proportion to the drafts made upon the reserve and the amount of the reserve. This may help us to explain why some escape it indefinitely while others are precipitated into indescribable distress when life is hardly begun.

In case the bearing of eye-strain upon the problem of nervous expenditure is not very clear to some of my readers, I deem it wise to call attention to some facts relating to the more common ocular defects that are capable of transmission from parents to their offspring.

Although something has been written within the past few years in relation to the deleterious effects of errors of refraction and accommodation of vision and the condition known as "*muscular insufficiency*" upon the functions of the *nervous system and the viscera*, the profession at large is not yet thoroughly awakened to the importance of the detection and correction of such errors.

Most men know that some persons can be made dizzy by looking from a height or inspecting a water-fall; they have doubtless seen people suffer pains in the head and be made "sick at the stomach" by trying on a pair of spectacles which gave relief to a friend. All physicians doubtless know that a "squint" in the eye is very often due to some defect in the refraction of the eye or a weakness of its muscles; but possibly some of them do not know that a squint will occasionally disappear at once, when the proper glasses are given to such a patient, without recourse to cutting the muscle. Perhaps it has never occurred to most of my readers that sight is the *only special sense which we use constantly*, except during the hours of sleep. There is not a moment of the day when we are not acquiring visual impressions of some kind.

A Fallacious Argument There is a prejudice among laymen and some medical men that glasses are an injury when they can be avoided, because, as they say, "a person becomes so dependent upon them when he once puts them on." This argument should be exactly reversed, and construed as follows: "*Because nature becomes dependent upon a glass which gives relief and corrects an existing strain upon the eye, no time should be lost in affording this relief.*"

Should a hip-splint be avoided (when the pain in the joint is arrested by it) because the patient feels his dependence upon the splint? Should a child be allowed to go through life with a deformed eye simply because the defect is not apparent to himself or his friends on account of unnaturally developed ciliary muscle, which for a time renders the eye capable of getting along tolerably well in spite of its deformity?

More harm is being done to-day to the community at large by this fallacious argument than is possible to compute. Thousands of sufferers

(Continued on page 129.)

The Optician's Manual.

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

The first ten chapters of "The Optician's Manual," as published in THE KEYSTONE from May, 1890, to November, 1896, in the order mentioned hereunder, have been republished in book form with additional matter, illustrations and colored plates. A copy of the book will be sent, prepaid, from this office on receipt of \$2.00.

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.—METHOD OF EXAMINATION.
CHAPTER X.—PRESBYOPIA.

Chapter XI. commenced in the December, 1896, issue.

CHAPTER XI. (Continued).

HYPERMETROPIA.

10. NERVOUS DERANGEMENTS.

The strain imposed upon the eyes by an uncorrected hypermetropia has a decided effect upon the nervous system by a leakage of nerve force, and may lead to a train of evils far more extended than we are accustomed to suppose. When the various organs of the body perform their functions harmoniously, each receives its normal supply of nerve force and there is no cause for irritation. But hypermetropia, by overtaxing the ciliary muscle and destroying the normal relation that should exist between accommodation and convergence, calls for an excessive supply of nervous energy and acts as an irritant to the central nervous system, with the final result of a breakdown and prostration of this important system, which not only causes misery and suffering, but statistics are not wanting to prove that the duration of life is materially shortened thereby.

Chorea. The clinical experience of hospital physicians has demonstrated most positively that there is a direct relationship between hypermetropia and chorea or St. Vitus's dance; the percentage of this defect in choreic cases being placed as high as seventy per cent. Therefore it follows that such cases are rapidly cured by eye treatment alone, the correcting glasses stopping a leakage of nervous force that may have been going on for years.

Epilepsy is one of the most terrible diseases that can befall any human being, and its treatment by drugs alone is very unsatisfactory. Of late years specialists on nervous diseases have found that errors of refraction, and especially hypermetropia, bear a direct causal relation to the attacks, and that properly adjusted glasses are an indispensable adjunct to the treatment, if they do not even supersede all other methods of treatment.

Nervous Prostration and Insanity are very closely related, the former leading to the latter, and it does not require any stretch of the imagination to see how an uncorrected hypermetropia, by causing a leakage and excessive expenditure of nerve force, may develop a nervous debility that leads to mental disturbance and ends in insanity.

TESTS FOR HYPERMETROPIA.

The outfit required by the optician for use in refraction tests has been described in the chapter devoted to that subject, and a repetition of the paraphernalia seems scarcely necessary at this place; but their use and the methods of making the practical tests will receive a detailed description.

The various tests for the detection and determination of hypermetropia may be enumerated as follows:

1. Trial Case.
2. Skiascopy.
3. Ophthalmoscopy.
4. Chromatic Test.
5. Scheiner's Test.
6. Amplitude of Accommodation.

THE TRIAL CASE.

The most reliable test for hypermetropia, and the most satisfactory on which to rely for the determination of the proper glasses, is by means of the

test lenses from the trial case. The improvement of distant vision by convex lenses, or in cases of normal acuteness of vision where such a lens is accepted for distance, is regarded as proof positive of the existence of hypermetropia. From this fact it does not follow that the acceptance of a concave lens disproves it, as frequently a spasm of accommodation is an accompaniment of hypermetropia, and in such a case a concave lens improves distant vision and makes the case apparently myopic, when in fact it is hypermetropic.

ACUTENESS OF VISION.

The first step in the examination is the determination of the acuteness of vision, which is ascertained by means of the test card hanging twenty feet away. This may equal the normal standard of $\frac{20}{20}$, or it may fall below it. The degree of acuteness of vision present does not throw much light on the existence or absence of hypermetropia.

If the visual acuteness is $\frac{20}{30}$, the only certain deduction that can be drawn is that the case is not one of myopia, but it does not afford any information as to the presence of hypermetropia, because a normal vision may mean either emmetropia or hypermetropia.

On the other hand, if the vision is $\frac{20}{40}$, or $\frac{20}{50}$, or $\frac{20}{60}$, the only undisputed inference that can be drawn is that the case is not one of emmetropia, but there is no knowledge afforded as to the existence of hypermetropia, because a lower visual acuteness may mean either hypermetropia, myopia, or astigmatism.

CONVEX LENSES THE TEST.

How then is the presence of hypermetropia to be determined? By the acceptance or rejection of convex lenses for distant vision. A weak convex lens (usually +.50 D.) is placed before the eye, the effect of which at once becomes apparent, one way or the other.

If the acuteness of vision is $\frac{20}{30}$ and this convex lens blurs it, it is fair to presume that the eye is emmetropic; but if the convex lens is accepted, that is, if the vision remains just as good with the lens as without it and if the No. 20 line can be just as clearly read, the case is proven to be one of hypermetropia. But the test does not end here, as the refraction has only been shown to be hypermetropic, the degree of which may be much greater than that represented by the +.50 D. lens. A +.75 D. lens is next placed in the trial frame, with which the No. 20 line is still clearly seen. But still the optician must not be satisfied, and he proceeds to use the next stronger and another stronger, continuing as long as the patient's vision remains $\frac{20}{30}$, and the letters on this line are distinctly visible.

Finally a lens is reached that causes the patient to shake his head and say the letters are not quite as plain as they were before. He may be able to name them, because he has probably learned them by heart by this time, but he is conscious of the fact that their sharpness of outline is less marked, and some of the letters he is doubtful of. What has been determined now? The amount of the manifest hypermetropia has been measured, by placing stronger and stronger convex lenses in front of the eye until the vision was made worse. In other words, the refraction of the eye was increased more and more by the addition of the convex lenses, until at last the focus of rays of light was formed in the vitreous humor in front of the retina, which simulated a condition of myopia, and distant vision was correspondingly impaired.

In that class of cases where the vision falls below $\frac{20}{30}$, the test is commenced with convex lenses, which are not only accepted but cause a marked improvement in vision. A +.50 D. lens is tried first, and at once the patient notices that the letters are clearer and blacker, and perhaps he is enabled to read a few letters on the next line below. Then a +.75 lens is tried, and a +1. D., with a noticeable improvement each time, and still stronger lenses until the acuteness of vision is raised to $\frac{20}{30}$. But even when this point is reached the test does not stop, but is continued by the addition of still stronger lenses until the No. 20 line begins to be dimmed. Perhaps a +.50 D. or a +.75 D. lens

stronger will be accepted than that which raises vision to normal; but as the amount of defect is not measured by the lens that first makes the No. 20 line readable, but by the strongest lens with which this line remains so, the test is not ended until this latter lens is reached.

NEVER TRY CONCAVE LENSES IN HYPERMETROPIA.

The optician should be cautioned always in cases of suspected hypermetropia to commence the test with convex lenses, and if they improve vision, or at least if they do not make it worse, the refraction is proven to be hypermetropic. Whereas if weak concave lenses are tried first, they will most likely be accepted on account of the spasm of accommodation which is generally present; and when once accepted they serve to stimulate the accommodation to still further contraction, and then if convex lenses are tried afterwards, they will be promptly rejected; for the detection of hypermetropia by means of convex lenses depends upon a relaxation of the accommodation to the extent of the strength of the convex lenses used. In either case (with or without convex spherical lenses) the rays of light are brought to a focus at the same place, and vision remains the same.

In the first case this was accomplished by the refractive power supplied by the crystalline lens of the eye, and in the second case by the convex lens in front of the eye. But when concave lenses are used first they excite the accommodation and cause convex lenses to be rejected, and in this way the diagnosis of the case becomes doubtful and the optician may be led into serious error.

CAUTION IN CHANGING THE LENSES.

As the optician changes the test-lenses in front of the eye for stronger ones, he should not make too much of a jump or increase their strength too rapidly, else the ciliary muscle contract spasmodically and he fail to discover the hypermetropia. But he should increase only .25 D. at a time, leaving each lens in front of the eye for a short space of time, thus giving the ciliary muscle an opportunity to relax and encouraging it to do so, and by thus changing the lenses slowly and increasing their strength gradually, the test lenses will be used to the greatest possible advantage in developing and detecting hypermetropia.

THE METHOD BY OVER-CORRECTION, OR THE FOGGING SYSTEM.

After ascertaining the acuteness of vision, a strong convex lens is at once placed before the eye, about +6. D. in ordinary cases, or even stronger if there is reason to suspect a marked degree of hypermetropia. This blurs the letters on the distance test card, and the patient involuntarily exclaims that he is unable to see with it. The optician encourages him to look quietly at the card for a moment or two without straining his eye, and after the eye recovers from the shock of suddenly placing such a strong lens before it, the vision may slightly improve.

The action of the convex lens is to induce a relaxation of the accommodation, as only in this way can the vision be made even slightly better. The natural tendency for the ciliary muscle is to contract, but a contraction of this muscle when a convex lens is before the eye instantly makes vision very much worse. The eye is not slow to appreciate this fact, and then, as the natural instinct of the eye is for clear vision, the effort is made in the other direction, that is, in a relaxation of this muscle, which at once tends to slightly clear the vision, and thus a further relaxation is encouraged.

Now a weak concave lens (— .50 D.) is placed over this convex one, and by diminishing its strength improves vision quite noticeably and encourages a still further lessening of accommodation. After this lens remains a brief moment, it is replaced by a —1. D. lens, which affords another improvement in vision and enables the patient to see more of the letters. Then —1.50 D. is tried, followed by —2. D., —2.50 D. and —3. D., with a melioration of vision each time until the normal standard is reached, and then the difference between the convex and the concave lens will be the measure of the hypermetropia.

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We take this opportunity to thank our many friends for their valued patronage in the past, and solicit a continuance of their favor in our new quarters.

GLOBE OPTICAL CO.

403 Washington Street,
BOSTON, MASS.

OPTICIANS



HAVING sold out our Lamp and Silverware stock, we are now enabled to give our entire space, time and attention to our **OPTICAL and SCIENTIFIC INSTRUMENT BUSINESS.**

This business is the growth and development of **FIFTY YEARS**, and in no year of that half century of growth has it made greater progress than in the past twelve months, during which our **NEW LENS-FACTORY** has become an important factor in the production of lenses of the highest grade for **TELESCOPES, MICROSCOPES,** and for **DEFECTIVE VISION.**

QUEEN & CO., 1010 Chestnut St.
Optical and Scientific Instruments. Philadelphia.



Koenen's Improved Shell Case
FOR OFFSET EYE-GLASSES.

Made in **STEEL** and **ALUMINUM**, being the *lightest, strongest and best* case made. Covered with the finest grade of leather. Manufactured and patented by

A. KOENEN & BRO.,

Sold by the jobbing trade. 81 Nassau St., NEW YORK.



EXTRA THIN.

IN TWO SIZES, THIN AND STRONG.



MUELLER'S ARTIFICIAL EYES.

Upon receipt of satisfactory references, an assortment of eyes will be sent to any dealer to enable him to make selection. We carry the largest stock in America, so we can furnish the very best eyes at the very lowest prices.

OCULISTS' PRESCRIPTIONS promptly and accurately filled.

Makers of the **Diamanta Spectacles and Eye-Glasses.**

M. ZINEMAN & BRO., 130 South Ninth St., PHILADELPHIA

Among the Opticians.

- D. McConnell has opened an optical store at Richford, Vermont.
- C. H. Greeley opened a branch optical store at Gardner, Mass.
- N. E. Bald will begin business as an optician in Laconia, N. H.
- Charles E. Hall has opened an optical store in Lawrence, Mass.
- J. P. Swanzy will begin business as an optician in Milford, Mass.
- John J. Perron has begun business as an optician in Hudson, Mass.
- F. P. Lothrop, of Brockton, Mass., has added an optical department.
- O. P. Crocker, of Richmond, Ind., is taking an optical course in Chicago.
- Frank L. Baker will begin business as an optician in South Yarmouth, Mass.
- Fred. W. Rohm, Patterson, Pa., is taking a course of optics in Harrisburg, Pa.
- Fred. Rohm, of Patterson, Pa., is studying optics with Dr. Egolf, of Harrisburg, Pa.
- N. A. Burrell, optician, has opened a store and office at 36 Columbia Street, Utica, N. Y.
- L. A. Faunce has begun business as an optician at 1314 North Third Street, Harrisburg, Pa.
- W. P. Saunders, of Kankakee, Ill., is studying optics in the McCormick Optical College.
- C. E. Monroe, late of the Monroe, Carter Co., Southbridge, Mass., will continue in the optical business.
- Ogden, the optician, of Marlboro, Mass., is an accomplished advertiser, and uses his talent with excellent effect.
- The A. S. Aloe Company, St. Louis, Mo., has become a member of the St. Louis Manufacturers' Association.
- F. A. Hardy, of F. A. Hardy & Co., Chicago, visited the optical factories in Southbridge, Mass., last month.
- Reed & Malcolm, opticians, of Portland, Ore., have dissolved partnership. W. Reed will continue the business.
- Clarence M. Parker, optician, New Haven, Conn., is taking an active part in the anti-trading stamp crusade in that city.
- O. N. Ridgeway, Sheridan, Ind., recently completed a course in optics at the McCormick Optical College, Chicago.
- Charles J. Rueffer, optician, has opened a jewelry store at 61 Northampton Street, Wilkesbarre, Pa., succeeding A. Voght.
- Dr. E. S. Roberts, of the optical department of D. C. Percival & Co., Boston, has fully recovered from his recent brief illness.
- E. B. Meyrowitz, optician, 104 East Twenty-third Street, New York, has opened a store at 125 West Forty-second Street.
- W. C. Jones, optician, San Francisco, Cal., has discontinued business and has entered the employ of Henry Kahn & Co., of that city.
- Samuel King, of Harrisburg, Pa., has sold his jewelry store, and has opened optical parlors at his former address, 14 North Third Street.
- A recent fire in the establishment of the St. Louis Optical Company, 723 Locust Street, St. Louis, Mo., caused a loss of about \$2000.
- Clarence Wilcox, formerly with C. H. Keeney, jeweler, in South Manchester, is now engaged by the Hartford Optical Company, Hartford, Conn.
- The Blanchard Optical Co., Southbridge, Mass., has installed the machinery in its new factory, preparatory to the immediate commencement of operations.
- C. E. Davis & Co., Boston, Mass., have decided to discontinue the wholesale optical business and henceforth will devote themselves wholly to retailing.

— Edward De Hardin, optician, St. Louis, Mo., was recently incapacitated for professional work by a fracture of a leg, due to a fall on an icy pavement.

— Miss Nellie Elliott, cashier of the Globe Optical Company, Boston, was married recently. She has been succeeded in the position of cashier by Miss Burgess.

— Frank M. Jenkins, optician, New Bedford, Mass., has recently moved from his rooms on Purchase Street to a store on the ground floor on Pleasant Street, opposite City Hall.

— The oculists will have to look to their laurels. It is reported that Schlatter, the "healer," has performed a remarkable cure in Zanesville, Ohio, restoring sight to a young girl who had been blind since her birth.

— Manager Wallace, of the Wallace Optical Co., 624 Penn Avenue, Pittsburg, Pa., in trying to board a moving street car recently, was dragged some distance and sustained serious injury, but has now recovered.

— An unsuccessful attempt was recently made to burglarize the store of the Syracuse Optical Co., Syracuse, N. Y. The bolt of the door was broken, the thieves being evidently frightened away before completing their job.

— B. I. Price, Denver, Colo., is one of the most aggressive advertising opticians of his section. He calls his business "The B. I. Price System of Removing Diseases of the Eye Without Medicine or Surgical Operations."

— The Globe Optical Company, of Boston, Mass., are now located in their handsome and elaborately equipped new quarters at 403 Washington Street. The new quarters permit of a great increase in manufacturing facilities and stock.

— The store of Miss F. Wilzinski, the enterprising optician, of Seattle, Wash., was burglarized some weeks ago, and optical goods valued at several hundred dollars were stolen. The manner of entering the establishment indicated that the burglars were familiar with the premises.

— W. W. Thompson, Coudersport, Pa., uses occasionally in his optical advertisements a cut of a De Zeng refractometer, which he describes as "one of the most reliable instruments for the detection of errors of refraction." The cut and eulogy of the instrument make an effective advertisement.

— The large plate-glass show window in the store of E. B. Meyrowitz, optician, of 104 East Twenty-third Street, New York, was smashed a few weeks ago, and a quantity of optical goods and surgical instruments taken. Though the locality is a thoroughfare, and brightly illuminated, the miscreants made their escape.

— The many friends of Mrs. E. M. Beckwith, who has the honor of being one of the very few lady opticians in the United States, and who has the inside management of the New York Mutual Optical Company, will be glad to learn that she has almost recovered from her severe illness, and will soon be able to resume her office duties. Her absence has been greatly felt, and has compelled Mr. Beckwith to postpone his first trip of the year and look after affairs at headquarters.

— The Julius King Optical Company have recently published and are now distributing to the trade a new prescription order book, which is claimed to be the best of its kind. The book is of a convenient size, and the form has been very carefully arranged. A new feature is a printed diagram, on the inside of the front cover, of a protractor to verify the action of the lens when it comes back to the retail dealer. The book is prefaced with a sheet of directions, giving needful suggestions in ordering prescription work. The order blanks are in duplicates, so that the copy is made to be retained in the book from the writing on the original blank, thus saving double labor. The books are sent free to the trade on application.

Among the Optical Travelers.

— W. A. Neff, Jr., who has represented the Julius King Optical Company in the City of Mexico for the past year or more, is just starting on a year's tour of South and Central America, where he goes in the interest of the company. He took with him a liberal supply of optical literature in the Spanish and Portuguese languages, and proposes to establish a good trade in this new field. Mr. Neff is well qualified for this work, speaking five languages and having a knowledge of the trade conditions existing in the countries he will visit. His trip illustrates the growing

spirit of American merchants to reach out for the trade of the world, and that the optical trade means to keep pace with other branches of industry.

— J. J. Baker has become a traveling salesman for the C. L. Merry Optical Company, Kansas City, Mo., and will visit the trade in Kansas.

— Hugo Berman recently started out on his initial trip on the road for the New York Mutual Optical Company. He will travel in Pennsylvania. His labors heretofore have been confined to canvassing the local trade and inside work, both of which have been good training for his new duties.

— A. I. Mayer, the star traveler of the American Spectacle Company's force, recently started out to visit his regular trade in the far West. Mr. Mayer's last trip in '97 covered almost 10,000 miles, and embraced the territory from Seattle, in the far Northwest, down along the coast into the Southwest, and back to New York. Mr. Mayer takes out several important additions to his line on this trip, and with the promised outlook for good trade in his territory, is confident of making this the best order-producing tour he has ever made for the American Spectacle Company.

Eye Strain in Health and Disease.

(Continued from page 125.)

from sick headache and neuralgia are to-day struggling along through life with an optical defect uncorrected, and, in many instances, after costly experimentation with drugs and doctors, are left in despair of cure.

I speak strongly upon this point, because I believe that the gastric symptoms which accompany typical attacks of sick headache are not to be explained (as they commonly are) on the ground that the "liver is inactive," or that "dyspepsia exists," or that the "gastric juice is weak," or that the "patient uses tobacco to excess," or that "he has been living too high." Every one who has suffered for years with these attacks knows that they often occur without explainable cause; that they are cured sometimes by eating, drinking, and smoking, and made worse at other times by similar indulgences or excesses; that every known remedy is apt, sooner or later, to prove inoperative, and that a sure specific for them is unknown among the drugs of our pharmacopœia. These subjects also know that life is rendered almost unendurable by the attacks at times. They are tractable patients, and will try anything, live in any way specified, and bear any privation without a murmur, if it will insure a cure.

I believe from a personal experience, and from some experience also in examining the eyes of this class of sufferers, that the symptoms of sick headache are reflex in character to a large extent, and are due, primarily, in almost every case to some optical defect. We can easily demonstrate that disturbed brain-action from eye-strain may produce in a healthy child and in some adults all of the symptoms of these attacks in a few minutes.

Why is it irrational, therefore, to affirm that a brain disturbed by the constant efforts made to use eyes, which are abnormal in respect to the refraction, accommodation, or the equilibrium which should exist between its various muscles, may manifest its disturbed state by nausea, headache, vomiting, dizziness, constipation and other evidences of imperfect performance of the functions of the viscera? Does not our central nervous system regulate and directly control those functions? Is it not as probable that the master, when upset, disturbs the servants under him, as to advance the argument that the servants themselves are the all-important factors in the causation?

"Eye Strain in Health and Disease," from which the above extracts are taken, can be had from THE KEYSTONE office on receipt of the publisher's price, \$2.00.

The Keystone Record Book of Optometric Examinations.

In the December number, 1897, of the *American Journal of Ophthalmology* we find the following comment on our "Record Book." It speaks for itself: "A very handy book for recording the results of examinations of the optical and muscular conditions of the eye. It is well arranged and gotten up nicely and substantially."

Muscle Troubles

cause opticians more uneasiness than all the rest of their work.
We explain their cause, and thus make the treatment simple and sure.

Send for our prospectus.

McCormick Optical College (Incorporated)

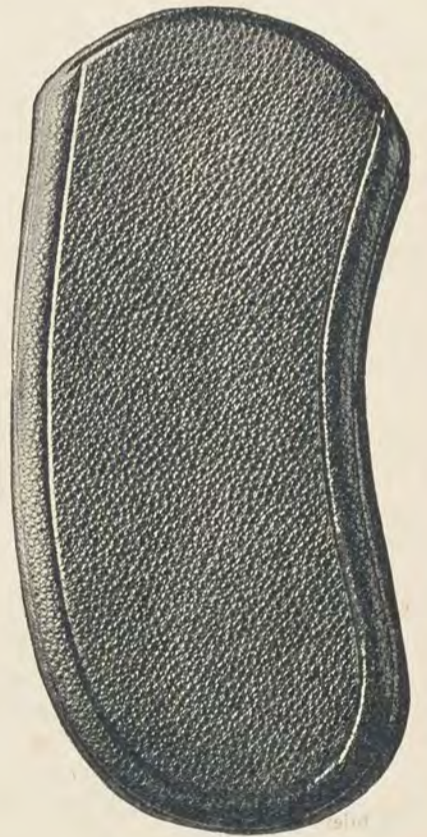
84 Adams Street, Chicago



Don't put your
Name on a Case
you will be ashamed to see
six months after delivery.

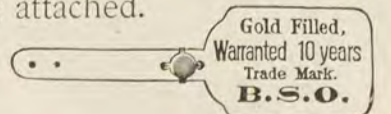
Send 30 cents in stamps
for three samples of **OUR**
Cases, that will please.
(See illustrations.)

E. Kirstein's Sons Co.
Rochester, N. Y.



OUR WORK IS OUR BEST REFERENCE

Our line is complete in every particular, and every article has this tag attached. Our lines of "SEPARABLE BALL JOINTS" Rimless Mountings, *Rex No. 268*, and Straight, Riding and Cable Temple Spectacle Frames, Eye-Glass Frames of all descriptions, are all warranted to give **PERFECT SATISFACTION TO THE WEARER**. These are **HONEST** goods, and our stamp will be found on every pair. **DON'T BE DECEIVED BY THE "JUST AS GOOD" STATEMENT**, for we **DOUBT** if that article exists. Time and the **INCREASING DEMAND** for these goods is **SUBSTANTIAL PROOF** of their **GROWING POPULARITY**.



BAY STATE OPTICAL CO., ATTLEBORO, MASS.



The "Anchor" or supplementary guard.

The main guard.

Good reason for popularity of

King's Anchor Guard

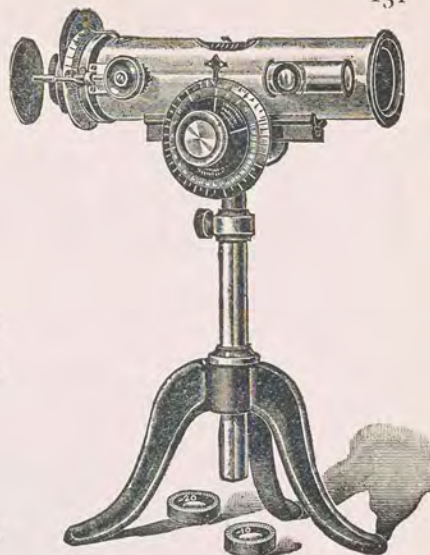
Julius King Optical Co.

NEW YORK—14 Maiden Lane.

CHICAGO—126 State St.

Refractometer

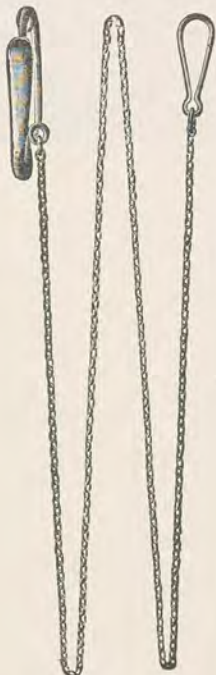
Write us for information



131

We make Eye-Glass Chains in many patterns of 10 and 14 K. gold, two qualities of Seamless Rolled Plate (lowest $\frac{1}{16}$), and Sterling Silver. All Chains soldered, each link separately.

We have made these Chains for over 25 years, and were the first concern to place them on the market; and as we are continually adding to and improving them, we have in many respects the finest line made.



EMBOSSSED ON ALL CARDS BEARING OUR CHAINS.

Ask your jobber for these goods and verify them by the trade-mark.

B. A. BALLOU & Co.

For 30 Days Only!

\$55.00 NET CASH with order or satisfactory reference.

CONTAINING

32 pairs Concave Sphericals in $1\frac{1}{2}$ -inch gilt rings.
 32 " Convex " " " " nickeled rings.
 20 " Concave " " " " gilt rings.
 20 " Convex " " " " nickeled rings.
 20 Prisms, Colors, Disks, etc., 1 Maddox Rod,
 1 Loring 19-Lens Ophthalmoscope, 1 Retinoscope,
 1 Adjustable Trial-Frame, 1 Set Assorted Cards (3).
 In silk plush lined morocco box with key. For mahogany, oak or cherry case or glass-panel lid, \$5.00 extra.



Children's Hook Spectacles.

326. N. P., 2, 3 and 4 Eye Frames, with showy S. S.,	\$1.75 per dozen.
348. N. P., " " " " " " " " " " " "	2.50 " " "
326. N. P., 2, 3 and 4 Eye, Coquille or Plano, wire S. S.,	2.00 " " "
348. N. P., " " " " " " " " " " " "	2.75 " " "
326. Bronze, 2 Eye, Wire S. S. Frames,	1.00 " " "
326. N. P., " " " " " " " " " " " "	1.25 " " "

GEO. MAYER & Co.

134 South Eighth Street,

Philadelphia, Pa.

Work a Specialty.

L. Manasse Company, Manufacturing Opticians and Importers, 88 Madison Street, CHICAGO, ILL., U. S. A.

Paris Office, 24 & 26 Rue des Petits Hotels.

London Office, 40 Hatton Garden.

German Office, Furth, Bavaria.

TO THE TRADE:

Owing to the great variety of goods which we handle it is impossible to fully enumerate them here, and therefore refer you to the catalogues hereinafter men-

tioned, covering the various departments. The articles enumerated below, selected from our Optical Catalogue, are of standard make and at very low prices. All other goods at proportionately low prices.



Gold, Gold Filled, Alumnico and German Silver Riding Frames, without Lenses.

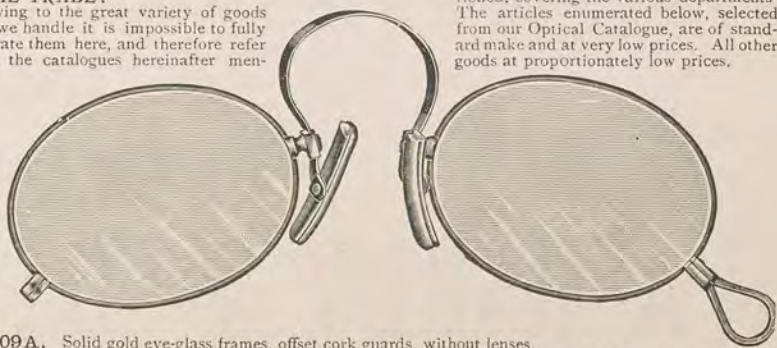
No. 1. Light weight frame, broad saddle bridge, 1 eye, per doz., 8 K., \$18.00 10 K., \$21.00 14 K., \$28.50
No. 3. Medium weight frame, with heavy saddle bridge, 1 and O eye, per doz., " " 23.00 " " 33.00
No. 34. 10 K. gold filled frame, saddle bridge, 1 and O eye, per dozen " " " " 6.50
No. 34A. Same as No. 34, but with cable temple, 1 and O eye, per dozen " " " " 8.00
No. 34B. Extra quality gold filled frame, saddle bridge, 10 K. seamless wire, 1 eye, per dozen " " " " 9.00
No. 23. German silver frames, saddle bridge, 1 and O eye, per dozen " " " " 2.00
No. 27. Alumnico frames, saddle bridge, 1 and O eye, per dozen " " " " 2.75

Gold, Gold Filled, Alumnico and German Silver Frames, Straight Temples, without Lenses.

No. 15. Medium weight frame, flat eye wire and temples, 1 and O eye, per dozen, 8 K., \$25.20 10 K., \$30.00 14 K., \$42.50
No. 32. 10 K. gold filled frame, 1 and O eye, per dozen " " " " 6.50
No. 32A. Extra quality gold filled frame, 10 K. seamless wire, 1 eye, per dozen " " " " 11.00
No. 21A. German silver frames, 1 and O eye, per dozen " " " " 1.80
No. 25. Alumnico frames, 1 and O eye, per dozen " " " " 2.40

We issue the following Catalogues: Catalogue No. 5, Opticians' and Jewelers' Trade List.
 Catalogue No. 3, Meteorological Instruments, with wholesale price-list
 Catalogue No. 2, Mathematical Instruments, " " "
 Catalogue No. 4, Magic Lanterns, " " "

Prescriptions Filled without delay.

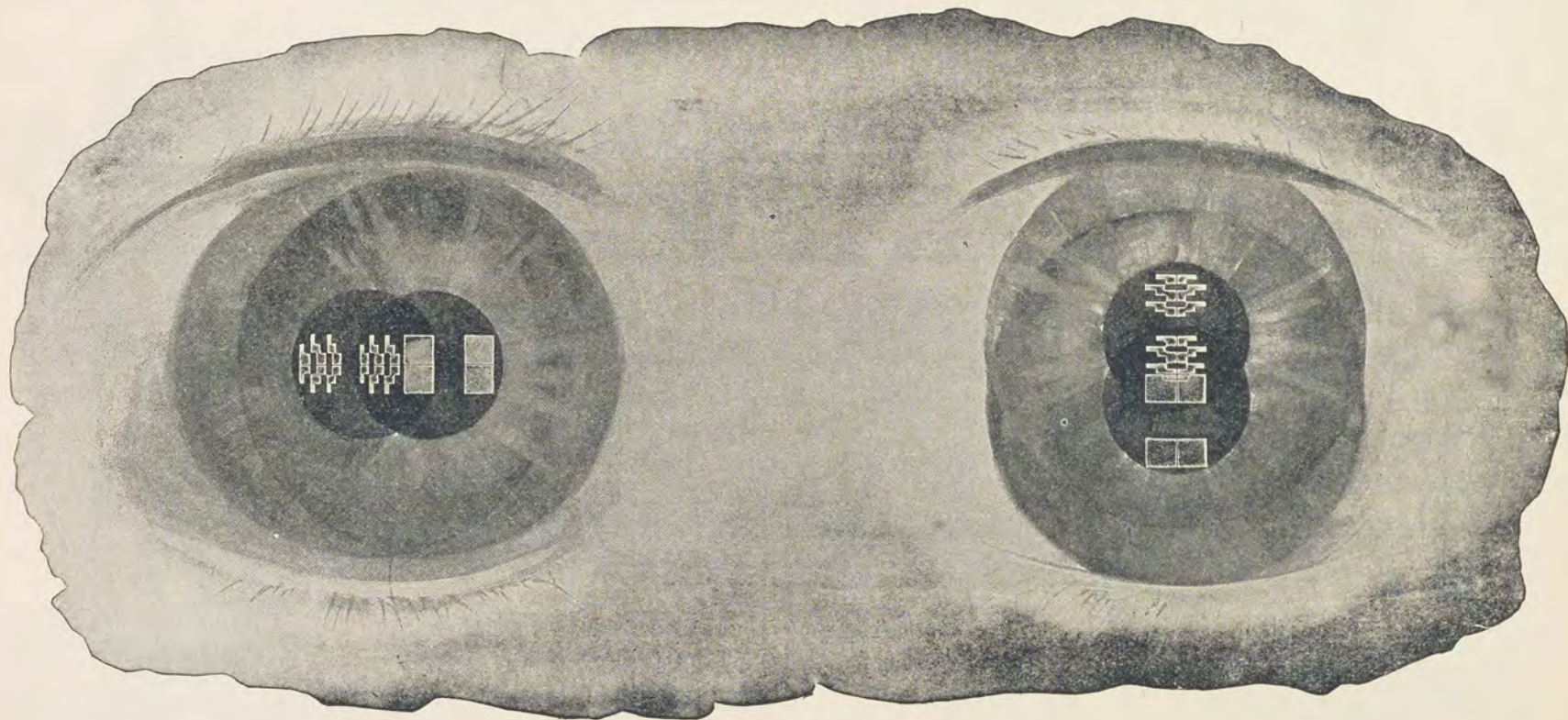


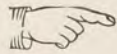
No. 109A. Solid gold eye-glass frames, offset cork guards, without lenses, 1 and O eye, per dozen " " " " 8 K., \$19.50 10 K., \$24.00
No. 119. Rimless eye-glasses, 10 K. mtgs., offset cork guards, No. H or C pcc. or pcc. lenses, per doz. 16.00
No. 120. Rimless eye-glasses, 10 K. mtgs., offset cork guards, with ring for cord, pcc. or pcc. lenses, per dozen " " " " 20.00
No. 129. 10 K. gold filled frame, offset cork guards, like cut, without lenses, per dozen " " " " 6.00

INTERCHANGEABLE LENSES.

First quality pcc. or pcc. lenses, 1 and O eye, polished edges " " " " " "	Per doz. pairs. \$1.00
First quality cement bifocal convex lenses, 1 and O eye " " " " " "	4.50
First quality perfection bifocal convex lenses, 1 and O eye " " " " " "	5.00

ENLARGED VIEW OF HUMAN CORNEA AS SEEN THROUGH F. A. HARDY & CO.'S OPHTHALMOMETER



Read the  testimony of an unbiased observer, which was printed without our knowledge or suggestion.

CANADIAN DRUGGIST.

Optical Department.
In charge of W. E. HAMILL, M.D., Toronto.



"T. A. C.—What instruments should an 'up to date' optician have to do correct and honest work?
Answer.—An ophthalmometer which is indispensable, and I have no hesitation in saying that Hardy's ophthalmometer is head and shoulders above any other—easily learned, beautiful in appearance, scientific in construction, useful in all cases of astigmatism, and a constantly increasing joy to its possessor. 4. An ophthalmometer which will also do... of which, wit

It measures astigmatism instantly and accurately. It insures accuracy. It increases your business.

Don't waste your money by buying cheap makes.

THE HARDY OPHTHALMOMETER IS THE BEST

Because it has the best definition. it is the simplest and the easiest to operate.

EVERY INSTRUMENT IS GUARANTEED.

F. A. HARDY & CO., Wholesale and Manufacturing Opticians.

Occupying the ENTIRE SEVENTH FLOOR of the **Silversmiths' Building,**
131, 133, 135 & 137 Wabash Ave., **CHICAGO.**

Optical Questions and Answers.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. Questions will be answered in the order in which they are received. No attention will be paid to anonymous communications.

To enable us to answer questions satisfactorily and give proper advice in the management of cases submitted to us, it is essential that we be furnished with a complete history of each case and accurate information on the following points:

1. Age. (If not possible to give exact age, always approximate.)
2. Have glasses been previously worn? How long and what number?
3. Visual acuteness of each eye, and what improvement glasses afford.
4. Range of accommodation (without glasses and with them).
5. Evidence of astigmatism (as shown by radiating lines).
6. Test for muscular insufficiency.

"P. A. W."—Patient about sixteen years old. Has worn glasses for about five or six years. R. E. V. $\frac{20}{80}$; with +1.75 \odot + 1.00 ax. 85 = $\frac{20}{30}$; L. E. V. $\frac{20}{80}$; with +1.75 \odot + 1.25 ax. 80 = $\frac{20}{30}$. These glasses I prescribed for him about October 6, 1897. They give him perfect vision, but sometimes, for an instant, he cannot see a thing; then everything clears again. He is very nervous, and after reading in the evening complains of pains about the temples. He has esophoria of $\frac{1}{4}^{\circ}$. Do you suppose that is the seat of the trouble and should I correct so small a degree?

Inasmuch as these sphero-cylinders raise the acuteness of vision to normal, it is fair to presume that they are a perfect correction of the defect; and yet it is possible that there is a still greater degree of hypermetropia and perhaps still stronger sphericals are needed. We hardly think such a small degree of muscular insufficiency is productive of trouble, nor do we think it necessary to correct it. Eyes like this cannot be regarded as strong eyes, and too much work should not be expected of them without some discomfort, and especially if the patient lacks tone of the nervous system. The only suggestion we would make is the possibility of some additional latent hypermetropia which may need further correction.

"P. H. S."—Boy, sixteen years old; has never worn glasses; health good; never been sick, except at age of seven years, fell on his forehead; family saw no change for the worse after. Has never seen well. He goes to school; holds book very close to eyes; they hurt him after reading, and blur; some pain above eyes. At twenty feet, best can make him see is sixty type, with 1 Diop. Sph. + lens left eye. Right eye quivers, and cannot distinguish largest letters; but +1 Diop. seems brightest. Cannot see objects with it by looking straight, but looks to right of it to see it. Used atropine. Best results, No. 60 type, with +6 Diop. Sph., but could not tell what largest letters were with right eye alone; and +6 Diop. Sph. made objects brightest. Cyl. did not help. Gave him +2.50 Diop. Sph. and told him to return in three weeks. Kindly give me advice on the case. Should I have begun with stronger lenses for his constant use? I advised constant use of glasses. Eyes look healthy; lids look all right.

This is a case of high hypermetropia, and, as is usual in such cases, more or less amblyopia. In addition there seems to be a condition of nystagmus in the right eye. The mistake that has been made is that this boy was not given glasses ten years ago, when he first began to use his eyes in looking at books and learning to read. The proper glasses at that time would most likely have saved his eyes and preserved his sight, which has been so greatly impaired by the want of them. Our correspondent did right in giving him the strongest glasses his eyes will bear, and advising their constant use, and it is reasonable to hope the eyes will improve, although it is scarcely possible they will ever attain normal vision.

"S. A. M."—After examination I found the patient reads O. D. +1.00 Cyl. ax. 105 \odot -2.00 Cyl. ax. 15; O. D. +1.50 Cyl. ax. 105 \odot -1.50 Cyl. ax. 15; but as the patient could not pay the price I was obliged to transpose it to O. D. +1.00 Sph. \odot -3.00 Cyl. ax. 15; O. D. +1.50 Sph. \odot -3.00 Cyl. ax. 15. Kindly answer whether the transposition is correct and if the lens will make any difference in the patient's vision.

This formula is correctly transposed, and our correspondent can console himself with the knowledge that this is a matter of frequent occurrence. The latter combination has the same optical value as the former.

"C. B."—Girl, age fifteen. Old spectacles, worn several years, are R. and L. +.50 ax. 180 \odot 2 $^{\circ}$ prism base in. These seemed to stop headache at first. V. $\frac{20}{80}$. We find following corrections: R. - .50 ax. 105, L. - .50 ax. 80 = $\frac{20}{30}$. It takes 8 $^{\circ}$ prism base in and 1 $^{\circ}$ prism base down to correct muscular defects. We think too strong prisms were used in old correction. Do you not think so? What degree prism would you advise, base in and down? We are trying just the refractive correction without prism at present, and she seems to take quite kindly to them, although we expected trouble after the strong prisms she had been using. Her eyes still pain her.

In cases where there is refractive error and muscular insufficiency combined, our advice is to correct the former first, and in many cases this will suffice to relieve all the symptoms complained of. If not, then attention must be given to the muscular weakness, which often exists partly

in a latent form. In this girl, after the first prismatic correction, some of the latent insufficiency becomes manifest and an increased prism is called for. We do not consider 2 $^{\circ}$ prisms as very strong; on the contrary, we would suggest 3 $^{\circ}$ prisms bases in over each eye, if the changed cylinders fail to relieve, and if the first prisms do not answer. We scarcely think a vertical prism is necessary.

"H. N."—I have a patient about forty-five years of age, over whom I am puzzled, and as I am anxious to fit her would like your advice. The defect lies in the left eye. When looking up she sees what is below, looking to the right she sees to the left, etc. She says she always sees a circle before her in the center of which is a black spot. No lens improves her vision; but with the pin-hole disk she is able to distinguish objects a few inches before her. Without the disk she cannot see straight lines before her. An oculist here prescribed the following: R. - .75 D., L. - .75 D. S. \odot - .75 D. C., axis 180 $^{\circ}$. She has been wearing these, but with no improvement to the sight. What would you call this defect of the eye? Do you think she can be fitted to give her better vision?

The condition of this left eye is such as to place it outside of the province of the optician, whose field is limited to refractive and muscular cases. The difficulty is not in the refracting media of the eye, nor can it be corrected by glasses, but it is an organic trouble, for which there is probably nothing that can be done. Our advice to our correspondent is not to attempt to do anything for this eye, but to confine himself to the other eye, which should be placed in the most favorable condition for performing the extra work which is thus imposed upon it; after which a glass that corresponds, or even a plane glass, can be prescribed for this defective eye.

Nervous Reflex from Eye-Strain.

The Republican, Danville, Ind., recently reported the following strange case:

Edgar Sears is the ten-year-old son of John Sears, living northeast of town. Along in August the little fellow began to show signs of nervousness, which involved his entire body. He would become unconscious, and remain so for quite a time. His mind became a blank as to what had occurred before and as to what he had learned. He was in the second reader at school, and he forgot all he knew. His condition was remarkable. Medicine did him no good and his parents were in despair. On the occasion of Dr. Swain's visit here some weeks ago his parents took the boy to him, to see if glasses would aid him. The doctor fitted him with glasses, being guided by the boy's mother's difficulty with her eyes, which was far-sightedness. Immediately the little fellow began to improve, and when Dr. Swain returned, last week, he found the boy improved in general health, but presenting some unusual features. When the glasses are removed, the boy becomes unconscious and drops to the floor. He does not droop down, but falls over like a board; and if his arms happen to fall out, they strike the floor or ground with a resounding crash. Seated in a chair, the little fellow will collapse when the glasses are removed, and a nervous twitching will set in. When the glasses are replaced his eyes will slowly open and in a few seconds he is himself again, with no bad effects from his experience. When he is unconscious for any time his eyes open very slowly unless the lids are raised by some one. He says his eyes do not hurt him and that he feels all right. When he goes to bed, his father says that he wears his glasses. Then the lamp is turned out before they are removed, or the lamp is shaded or a sheet is pulled over his eyes so he cannot see the light, or he would become unconscious. Some days ago, while out in the road, his glasses became disarranged and he fell unconscious, lying there with his face in the mud until he was found. His parents are anxious about him, and when he does not return to the house when he should, they institute a search for him, not infrequently finding him lying unconscious in the yard. The boy is now in school, his teacher being A. D. Wishard. He had to commence in the primary grade again this year, but is learning very rapidly, and by the end of this year will be where he was at the close of school last spring. Since putting on the glasses, the boy's weight has increased twenty-five pounds. Dr. Swain and Mr. Sears had the boy at this office on Monday and exhibited the effects of removing his glasses. It is hoped that with age and increasing strength the unfortunate condition will pass away. Dr. Swain says he never knew of anything of the kind in all his practice. It does undoubtedly show what effect the optic nerves have on the entire nervous system, and how glasses may correct many bodily ills.

This case, indeed, is most remarkable, but of course we cannot vouch for the accuracy of the statements. It is very probable that the reasoning about cause and effect has been somewhat too rash, and that the unstable condition of the boy's nervous system would bring on unconsciousness from many other causes beside the eye-strain. The whole description is not accurate and scientific enough to remove all the reasonable doubts about many points which must occur to a critical reader. But that similar severe nervous reflexes from eye-strain have been observed by careful ob-

servers there can be no doubt, and it is mainly to remind the reader of the important connection between eye-strain and other bodily ailments that we have given room to this report.

Ocular Reflexes.

EDITOR KEYSTONE:

I have read with pleasure your valuable journal, and have always found it true to the interests of the jeweler and optician. No true jeweler or optician can afford to be without it. It teaches us the "straight and narrow way" to success. I, for one, look for its coming, and enjoy reading the answers to correspondents; also, the different articles appearing under the head of optics.

For several years I have made a special study of ocular reflexes and their influence upon the human system. During the time I have witnessed some remarkable phenomena, which may seem a little far-reaching to those who have never gone beyond the simple point of the fitting of glasses. The subject of ocular reflex may be nothing new to some of us, yet it is very little known by the public in general, and a mention of it at this time may start the ball rolling.

First, I desire to say that we, as opticians (and I am sorry to say some of the oculists), are not careful enough in the minor details of our examinations. We may not study enough, or, if we study, we do not observe closely the cases coming before us. It has been my pleasure to examine a number of persons suffering from ocular reflex of direct and indirect nature. They come to me with the complaint, "I have been everywhere, to this man and that, paid out money for glasses and obtain no relief. I am nervous, sick, and have all sorts of trouble." Others have been to physicians, taken quantities of medicine, and have been fitted with glasses, and yet receive no relief.

In my experience the eyes have more to do with our general health than most people are aware, and we cannot be too careful in the minor details during our examinations. For illustration, I will quote two or three cases coming under my personal observation, which evidently had been overlooked by others equally as well posted as myself. I will state them as briefly as possible. We know that with a continued strain upon any muscle or nerve for a length of time, spasm is pretty sure to follow, and upon this basis I have worked in the following cases:

CASE 1. Man of forty-six years, watchmaker, continued work at the bench; very nervous, subject to very severe headaches, sometimes a stomach and slight kidney trouble; had been fitted by some of the best men in the profession. Examination called for +.75 in each eye, vision with glasses $\frac{2}{5}$. Reading distance R. E. + 3.00 D., L. E. + 3.50 D. Previously both eyes were fitted alike at near distance. Another person, perhaps, would never have noticed the slight change. After being fitted as above, and wearing the glasses (cement bifocal) for eight months, he tells me he has not been as well for years, and has no trouble with head, stomach or nerves, but if the glasses are taken off for a few hours the old trouble returns. A strain of the ciliary muscle in the left eye caused the reflex trouble.

We are aware that the eye is very closely connected with the nerve centers. Between the two is a strong sympathetic influence, and anything radically wrong in the delicate mechanism of the eye is soon shown in the nervous system. There may be no outward sign of trouble with the eye itself, especially to the inexperienced, yet to the expert the symptoms are unerring.

I have seen a spasm of the throat yield to properly-fitted glasses. This case had been under treatment of the family physician for some time with no improvement. The cause was undue strain of the recti muscles. I have seen a case of nystagmus, with marked symptoms of chorea (diagnosed by physicians as a clear case of chorea), give way to proper treatment with glasses. This was a child eight years of age. I have known a case of habitual constipation relieved by properly-fitted prisms. Physicians may smile at this statement, yet I am sure I can convince any fair-minded person that this is true, and that many

(Continued on page 136b.)

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Lens-Grinding for Prescription Work.

XXV.

Some Details About a Machine for Producing Laps for Lens-Grinding.

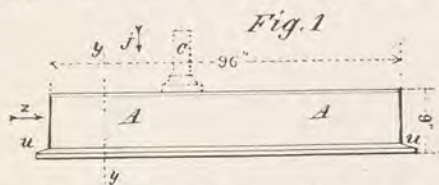


In getting up a machine to do a certain kind of work there are generally two lines of policy to pursue. The first, we may say, is to get it up as cheaply as possible and not have the work produced inferior. The second line of policy is to make such machine to look well and also to do good work. The first course can well be pursued if the machine is entirely for our own use. The second course should invariably be pursued if we are making machinery to sell, as the appearance of a machine has much to do with the price which purchasers are willing to pay for it.

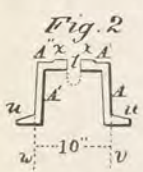
Valuable Hints About Getting Up Special Machinery

The all-important feature to be borne in mind in getting up machinery to accomplish a certain result is supreme accuracy; and in designing a machine for producing laps for grinding cylindrical lenses we shall rigidly and strictly adhere to such axiom. Another feature we shall fully maintain—stability and rigidity of structure. In all former descriptions and illustrations we have dealt with the problem of the production of laps for cylindrical lenses in a general way, paying more attention to principles than to specific and detail construction. We shall now describe in detail a machine for making cylindrical laps of a curvature from 80" to 12" radius, which embraces about all numbers ever demanded by the practical optician.

The main bed of the machine is 8' long and 9" deep. We show at Fig. 1 a side view of such



bed, with an end view of a vertical section of the same, on the line *y*, at Fig. 2. This bed is best



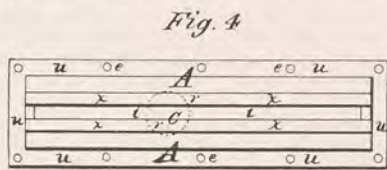
made of good, gray cast-iron. Of course such beds cannot be purchased ready-made, and consequently it will first be necessary to make a wooden pattern of the proper size. In making such patterns it is customary to make them larger than is actually required in the casting, to allow for shrinkage, as cast-iron will shrink, from the melting point to ordinary temperature, about $\frac{1}{8}$ " to every 16" in length of pattern. In the present instance the bed *A* is of more than sufficient length to produce the lowest curvature named above.

The best wood for making such patterns is well-seasoned white pine free of knots. The sides *A A'*, Fig. 2, should be about 1" thick. It will be seen that all the important sizes are shown on the drawing. The upper part *A''* of the bed is also 1" thick, but is thickened on the margin of the slot *t* by adding strips of $\frac{1}{2}$ " wood the entire length of the bed. At Fig. 3 we show an end view of the bed *A*, as if seen in the direction of the arrow *z*. It will be seen that the end is recessed at *t*, to allow the bed to be planed on the top of the pieces *x x* and also in the inner surfaces of the slot *t*.



Fitting Up a Machine for Planing Laps

Planing the surfaces *x x* and the inner faces of the slot *t* is about all the fitting up the bed *A* requires. Some bolt-holes will be subsequently drilled in the bed, but we will speak of those when we decide where to place the attachment for driving the planing device, which we shall first describe as hand-propelled, although power-driving can easily be added. In making the pattern for the bed *A* the sides must be set at a slight angle, to give the pattern draw, as iron-founders term it. In the present instance, if we make the top of *A*, as shown in Figs. 2 and 3, $\frac{1}{2}$ " narrower than at the base, it will answer nicely. It is evident that if we allow the sides *A A'*, Fig. 2, of the bed to be of equal thickness throughout, the inside will have the same freedom of draft as the outside.



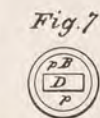
By planing the surfaces *x x* we insure that the stud which supports the oscillating arm shown at *G*, Fig. 3, page 51, January, 1898, KEYSTONE, will turn in a plane parallel with the planed surfaces *x x*. At Fig. 4 we show a plan view of Fig. 1, or as if seen in the direction



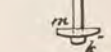
of the arrow *j*. The stud which carries the arm *G* is shown separate at Fig. 5. This cut is an enlarged view of the stud as shown in dotted outline at *C*, Fig. 1. In getting up such a stud we first make a wooden

pattern, shaped as shown, but larger than the dimensions given, to allow for turning and finishing. The arbor *C* of this stud is 3" in diameter and 10" high. The base *B* is 6" in diameter and 2" high, and shaped as shown. The guidepiece *D* is fitted to the slot *t*, Figs. 2 and 4.

At Fig. 6, we show a view of Fig. 5 seen in the direction of the arrow *i*. At Fig. 7 we show a view of the base *B*, Fig. 6, seen in the direction of the arrow *g*. The base *B* is concave on its lower surface, as indicated by the dotted curved line in Fig. 5. This form materially expedites fitting up the stud, as we have only to face off the lower side of *B*, from the line *p* outward. A hole is drilled axially through the center of the stud *C*, as indicated by the dotted lines *k*, Fig. 6. Through this hole, which is about $\frac{3}{4}$ " in diameter, passes a bolt provided with a lever nut, as shown at *n*. At the lower end of this bolt is placed a washer, which enables the stud *C B* to be securely clamped to the bed *A*. For a better understanding of the matter we refer to Fig. 8, where we show the bolt *k'*, lever nut *n* and washer *m* separate.



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"Enclosed we send you one dollar in payment for the best trade paper (to our mind) published. The articles in *The Keystone* are always up to date and reliable. May your usefulness continue."—E. H. Hopkins, jeweler and optician, Penn Yan, New York.

A Prosperous Optical Concern.

Our illustration will convey to our readers an idea of the present palatial optical establishment of W. E. Stieren, optical specialists, 544 Smithfield Street, Pittsburg, Pa. Only recently this firm celebrated the thirty-third year of its existence, the business being established in 1864 at 15 old St. Clair Street, by the late William E. Stieren. The beginning was unpretentious, but the founder's business capability and push produced the usual results, and in seven years the quarters proved too small, necessitating removal to (old) 175 Smithfield Street, the entire building being devoted to the business. It took just thirteen years to find this latter building too small, and then the present property at 544 Smithfield Street was purchased, and a new building erected and fitted to be equal to every demand of the business. This was in 1885, shortly after new blood and energy were fused into the firm by the admission of W. M. and F. G. Stieren, the present owners. Two years later Stieren, *ferè*, the founder of the business, died. It was then reorganized and continued by the sons under the old firm name. The subsequent history of the business has been one of constant growth, with the certainty of continued enlargement.

The business is thoroughly systematized, consisting of a photographic department, microscopic department, optical department, scientific and mathematical department, meteorological department and electrical department. Each of



STORE OF W. E. STIEREN, PITTSBURG, PA.

these is perfect in itself, but the optical department is so elaborate and complete both in stock and equipment that it deserves special mention. This department is in charge of W. M. Stieren, who has had fifteen years' experience, and can boast of an optical establishment that is perfect scientifically and commercially. The stock is all-embracing, and the equipment is the finest that can be procured.

We congratulate the firm of W. E. Stieren on its great success, confident in the belief that the guiding genius that already achieved so much can accomplish very much more.

Newspapers Denounce Spectacle Peddlers.

Local newspapers can do much to suppress the pernicious peddling spectacle-seller, and those opticians who use advertising space should be able to induce the editors to warn the community against these fake opticians. Such a warning in the Hightstown, N. J., *Gazette* read as follows:

THE TRAVELING OPTICIAN.—The itinerant optician is of no earthly use to a town. He gives nothing to churches or public expenses. He has nothing in common with the people in a town. He can swindle, and he often does, getting into the next town or State before his victims fully realize how badly they have been taken in. The home optician has a reputation to sustain. He bears his share of the expenses of the town. When a subscription is passed he is the first to be approached. He builds a house and makes other permanent improvements that enhance the value of our property. He helps pay for the churches in which we worship, and the schools to which we send our children. He cannot afford to misrepresent his goods or swindle his customers. Self interest alone prevents this. It is not difficult to decide which of the two classes of opticians should receive the patronage of the people.

This announcement was subsequently used with good effect by a local optician on his advertising circulars.

Formation of Images on the Retina.

THE KEYSTONE: MARIETTA, Ohio, January 12, 1898.

Dear Sirs: As the busy holiday season is now over and I have found time to digest the editor's comment on my article in the December issue, on Erect Vision, I am now prepared to give you an answer to the comment, and one that will demonstrate that the Le Conte experiment with the pin is not what it is represented to be, and that the optical editor, whom I know to be good authority, by his past record in your valuable publication, will discover the error himself, or any good optical student can do the same. No doubt, the editor, being busy at the time he looked it up, and having known it was O. K., did not take the time to experiment with it as I have done, but simply took it as Le Conte's book gave it, otherwise he would have discovered the error. The mistake he makes is one which we often make, that of being too ready to take things for granted, and this occurs too often in such a busy world as ours, the intelligent and learned not being proof against it.

Beginning with the comment, I find that he states that one can not neutralize the refractory power of the eye with a minus 20 D. or a 30 D. This may be possible; but since giving my statement I have doubled and tripled the number of minus lenses, and still see erect, but naturally very indistinct, but still enough to distinguish which is up and which is down. Just what *exact* number of lens it takes to neutralize the refracting power of the eye I am unable to determine, but can come close enough to it by putting it at minus 50 D., which I know is past the point of neutralization. This, then, leaves 50 D. more to go on, and from minus 50 to minus 100 D. the rays will diverge, which will cause the eye to see very indistinct, but will show position, as a *well-defined* image is not absolutely necessary to show which is up and which is down.

To those who wish to make the experiment I would have them take out of the trial case enough minus lenses to make minus 100 D., then stand with your back to the light.

Now hold the lenses uniformly together with the left hand, taking care not to get them sideways, or to have the fingers project over the outside lens. Now, look at a dark cream or manilla paper and place an ebony stick the size of a lead pencil (or a black lead pencil will do just as well) directly in front of your lens, with the point about half way up the glass, and you will see your pencil *still erect*. If you can get a minus 100 D. lens in one piece, it will be all the better, for so many lenses will make things more indistinct, as you all know the effect of placing half a dozen window panes together.

I first suggested going out in the dark of the night, where there are no lights to dazzle the eye, which is very good when it is a starlight night, as the lights overhead are too subdued to interfere with the eye; but I find in a room where the light is weak, we can get a large enough opening of the pupil to answer our purpose. A gloomy day is well adapted to the experiment; and, also, use pretty dark paper, but not so dark but that there will be a little contrast between pencil and paper. If you try this at night, you must be out in the dark at least fifteen minutes to get your eye used to the darkness, and then in a place where you have no lights around to dazzle you. All you need is a dark bank and the sky, or place your black pencil before the glass. I took it for granted that all who read my article would think that if the old theory was correct—"just the mind part of it"—we would see inverted images after the eye was neutralized. This I did not actually state, but the trend of the article showed it. An inversion could only occur theoretically in my way of it, as I still have vision after the eye is neutralized; *but no inversion occurs*, and, as the editor says, by the present way of seeing that we could get no image after the eye was neutralized, so an *inversion* could not be shown, as nothing can be seen.

Taking up the Le Conte pin experiment, I will explain what I and others now know about it, beginning where it states that you take an ordinary visiting card, put a pin hole through the center, and hold about three inches from the eye. The rays coming from point A will make diffusion circles at MN on the retina, *because point A is too near the eye to form a distinct point on the retina*. And farther on it states that a pin held before the eye (with special mention that it should almost touch the lens) would make its shadow fall on the retina without inverting the shadow, because there are no crossed rays in the path between the pin and the retina. And now upon looking through the pin hole we see an inverted pin, which is supposed to be inverted, because the mind is now seeing through a path where the rays are not crossed. Now this does not exactly harmonize with what our editor says. If the eye is neutralized we would get nothing but overlapping circles, and *never an image*. Now if you really have diffusion circles on the retina, how could you see the inverted pin? You might have diffusion circles on the retina, but if they are enough to neutralize the vision, why, then, you would never get an image of the pin, either erect or inverted, as by the present method of seeing you get vision only as long as the eye is not neutralized. Getting it at twenty inches it is not plain, as the effect is lost by the pin being too far from the shadow, which is in the hole, besides getting smaller.

The reader should now bear in mind that Le Conte states that the card should be held about three inches before the eye, so it will produce diffusion circles on the retina, and that the *reason* diffusion circles are formed is because *point A* is too near the eye. He should also notice that Le Conte says that the pin should *almost* touch the eyelashes. Let the experimenter do this just as he states, and then begin gradually pushing the card away, and what is the result? Simply this: That after getting thoroughly acquainted with the experiment, you succeed in

getting an inverted image at the extreme distance of twenty inches, and that you can see the inversion, whether the pin is almost touching the eyelashes, or within one inch of the card, or when it is fifteen inches away. In order to succeed in getting it twenty inches, you want the light at which you are looking to be well adapted to your purpose, and I find a frosted incandescent, sixteen-candle-power a fine thing for this purpose, or a mild shade to a lamp will do about as well.

After you have succeeded in getting an inverted image of the pin touching the lashes, and the card one-quarter inch in front of the pin, do not *omit seeing how* the pin *grows larger* in size, when you have the card about ten inches away, and you move the pin from the eye to the card, as near as you can get it to the hole. Now hold the card up to the eye, about five inches from the eye. Then place the pin *back* of the card about eight inches and gradually draw it near the hole A, and you can see again what happens to the opposite side, that it grows very large, especially when nearly touching the hole. Now this growing larger of the pin as it approaches the hole A from either side, will prove to you that the shadow of the pin is inverted by coming into an intense zone of crossed rays. You can see the shadow in front of a pin or nail when holding it between some dazzling spot of light, and can see it plainly in the dark. The shadow moves with the pin or nail, but when looking through crossed rays such as the pin hole makes, it naturally will be inverted. To get the above shadow, practise a little. Look at an arc light, but get a tree between you and it, so you cut off the light somewhat, as it is too strong. Try to catch a glint between forks of a tree and you will see shadows very plain. And the point where it turns over is where the head becomes the largest, and this is precisely what takes place.

If you hold up a pencil (a cream-colored one preferred) in front of a plus 20 D., pushing the pencil off, it becomes inverted; drawing it nearer, it gets *larger* and *larger*, and then *turns* over, and as it gets nearer the pencil again *becomes smaller*. Now hold a white pencil between you and the plus 20 D. lens, but you must hold lens in front of a dark piece of cloth, or shaded with something dark around and under it is better; and you will see two pencils moving up and down the glass, one against it, inverted, and the other with it, as lens has two surfaces to make two pencils. This you had better do in daylight, as it makes it plainer, but it can be seen at night, near a green shade of lamp. With the pin and card, you can hold pin horizontally, and as the pin goes down the shadow goes up.

I have a hole through the center of a +20 D. lens, and as the shadow is moving down on the other side you see the real pencil passing the hole.

With Le Conte's experiment you can simplify it by bending fore finger of left hand and with finger of the right held horizontally and moving it up and down, and you see the shadow in the hole formed by bending finger to leave small aperture. A piece of tubing one-eighth inch thick, with hole through, will produce the same. By using a small card and holding the pin a few inches from the eye, after some practice, you can see both the pin and the inversion. Stand in front of a window; look down on the sill, where you place a white card, simply fold center of pin across the hole, and as the pin goes down the shadow goes up, and *both* are seen.

The whole thing proves that Le Conte's idea is about the same as the lens experiment, and both produce inversion through the crossing of the rays. To make the experiment more unique, make a row of pin holes; the first one just let the point of pin through, the next a little larger, etc., until you have five or six holes, from the size of a pin point to a pin head, making the pin holes a good one-eighth inch apart. Now move pin sideways and you will see six inverted pin heads moving against your pin, which will make you think of a band going down street. Turn the card so the row of pin holes is vertical, and it gives you a pile-driver effect. Again, take a card with one hole in the center, holding the card and pin in front with one hand, and with the other hold a needle back of the card, then approach the hole, and you will see a fork made out of the needle, because the shadow of the head of the pin splits the point of needle in two. It will take some *practice* to keep pin in line of hole for the different distances. Fog is a good background; also snow. If the hole in the card is a little large it will hardly produce an inversion, as the crossing of the rays is weaker, and so it is with a convex lens, as it will not show the pencil inversion unless the lenses are of a high power that is suitable for this distance.

You can see by this experiment that it is not the mind, but an inversion brought on by crossing of rays. Now Le Conte says that point A of the pin hole, held about three inches from the eye, produces diffusion circles, because it is too near the eye. You can see the inversion not only three inches from the eye, but as far away as twenty. You simply look through the hole and you get inversion, whether near or far. And you also see, by holding card about seven inches from the eye, as they approach the hole from either side, and you see the *pin grows much larger* as it nears the hole. You also see the shadow move up when the pin goes down, and all these effects are done with the plus 20 D. lens. I drilled a hole the size of a pin through a plus 20 D. lens, but can get no true inversion, as the rays have spread through the lens. This same hole will do to look through at the pencil when it moves up and down on the other side of the lens, and when pencil in glass is still up you can see the real pencil passing the hole, and you get a similar effect of inversion and moving against the pencil by placing it between the lens and eye, only not very distinct, but after experimenting a little, you will, by holding the lens against something dark and using a white pencil, succeed in seeing the shadow or reflection moving on the glass.

Regarding my theory, you seemed to think that the present theory of vision is regarded as O. K. by many men; but such is not the case, as I have written to several, and they say in their letters that you must remember that this is only a theory, and one says no one can tell just how we do see. I spoke to a very scientific man to-day and asked him what he thought of the theory, and he said he knew it as you gave it, but does not believe in it. I did not explain mine, as I had not the time then, but you certainly will find there are others who do not believe in it. Proving the Le Conte experiment an error and returning to my theory, you must admit that a minus 100 D. lens will more than neutralize the eye, and that I get no inversion by holding point of pencil one-half inch in front of the lens, and have this very minute held the black handle of reading glass in front of the glass, and holding them up against the ceiling with only two incandescent lamps burning, with shades making a very subdued light, leaving pupil large, and I see no inversion. Taking off 30 D., leaving 70 D., I can see my finger very plain and use only one lamp. And, as I have stated before, if I could get a minus 100 D. in one piece, it would show better and plainer. Now with the eye neutralized, the retina is seeing the object, just as the wall, if it could see, gets the outline of your hand, and there is no convex lens to either make the shadow or invert it, as light, form, color and shade make objects. As it is necessary to have a subdued light to make the experiment, whether in your room by day or night, or out in the dark, so it is hard to see distinctly, but with atropine you could see it much plainer, as you would have better light, making greater contrasts. Closing with the above facts, I do not see anything in the way that goes to prove my theory untrue.

Many are the experiments that have been proven correct and later found to be an error by some latent proof, as theorizing and diagrams are very delusive and can be made to illustrate several ways, each being at variance with the other, and yet only one being correct, or they may all be wrong.

Returning to my theory, the retina *sees*, even though the refracting power is all gone, as *there must be a sense of vision*. But that would not do for our needs, so we have the dioptric system to make us see distinct, larger, for accommodating, for protecting the retina from injury, and the iris to regulate the light on the sensitive retina and other reasons; the optic nerves to convey to the brain that the retina sees and what it is seeing. The retina looks out through the lens, seeing the object, as it has the sense of sight, and what comes through the lens and crosses, equally goes out and crosses; but if you were looking through another convex lens in form of a window, why then the lens would cross your vision, and if you stood looking through that window for years your mind would *never turn* it, as the convex window or lens is producing a *physical effect*.

Nature is economical and my theory would be simpler than the present theory. This fact must not be omitted in judging this theory.

A photographer gets used to inversion in ground glass, but never sees it erect. Some few years back a photographer would have *declared it impossible* to get a picture without a convex lens, but he has learned differently, and I believe if he had a very slow-working plate he might get an outline of an object held very near the dry plate, but it would be almost impossible with present film to get it that way.

Very truly yours,
F. E. WITTLIG.

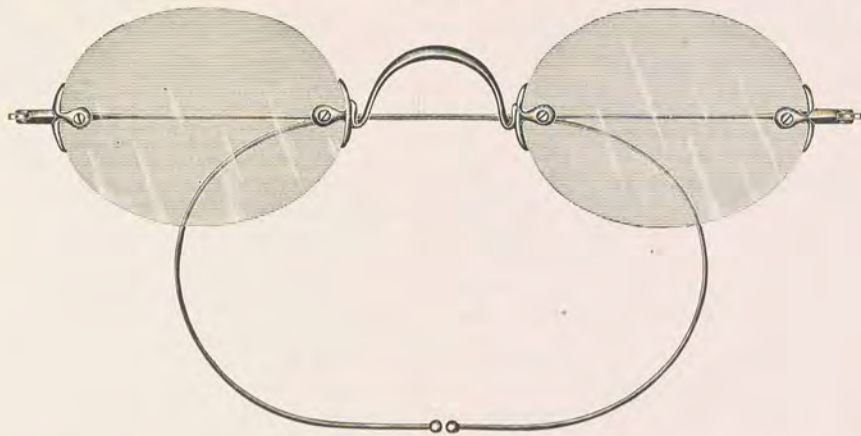
In replying to this statement of our correspondent we shall refrain from any personal remarks. Such *argumenta ad hominem* only stir up dust which clouds the true position of the antagonists and makes it impossible for us to recognize on which side the truth stands. We will therefore not waste our time with assuring our readers that the reviewer has practiced the experiment of Le Conte for fifteen years. Let us rather go right to the point. Our correspondent asserts that "the retina sees no inverted images" and that "it sees the real objects," and further that we see objects erect even then if "with the eye neutralized, the retina is seeing the object just as the wall, if it could see, gets the outline of your hand."

Now, first as to the neutralization of the eye. Our correspondent states that he is unable to determine just what exact number of lens it takes to neutralize the refracting power of the eye; but still he thinks, without giving any reason for it, that a minus 100 D. lens would be more than sufficient. This is wrong. The term neutralization signifies that the rays of light diverging from a point in the world go on as if there were no refracting media. Let us take the common case where the object is more than twenty or thirty feet away, and where, therefore, the rays from any point of this object, striking the eye, may be supposed to be parallel. To neutralize here the refracting power of the eye means that we shall put such a minus lens in front of our cornea, that the rays of light, parallel in the world, shall be again parallel in the vitreous. This can be only accomplished by taking such a high minus lens that its first

(Continued on page 136 b.)

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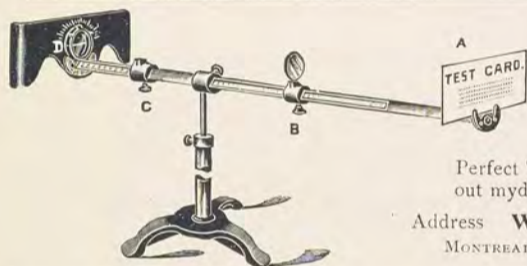
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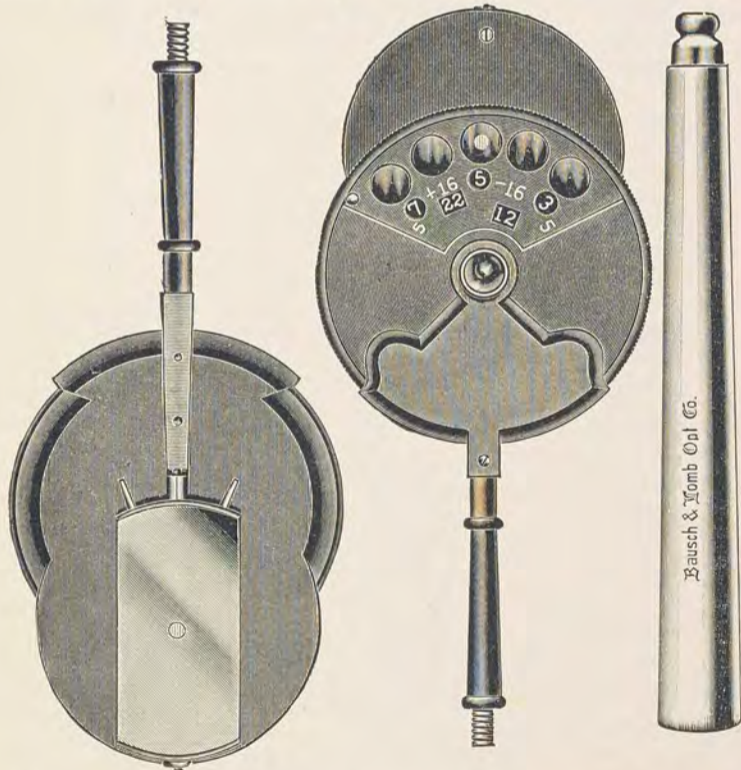
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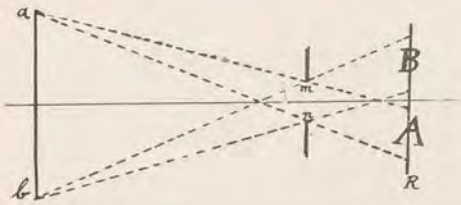
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Formation of Images on the Retina.

(Continued from page 136.)

principal focus coincides with the anterior focal point of the eye. As the anterior focal point of the eye lies about 14 mm. in front of the cornea, and the first principal focus of a minus lens lies always in front of it, that is, on the side towards the object, we must place our minus lens between the anterior focal point of the eye and the cornea.

If we now assume that the high minus lens has a thickness of only 4 mm., and that we put it two mm. from the cornea, it is evident that our minus lens must have a focal distance of 8 mm., or in other words, that we must have a minus 125 D. lens to neutralize the refraction of the eye. If the lens is placed a little farther, let us say 5 mm., away from the cornea, we want a minus 143 D. lens to fulfill our purpose; and we need still higher lenses the nearer we come to the anterior focal point of the eye, *e. g.*, a 1000 D. lens if it is placed only one millimeter away from this point. But observe we supposed only *one* thin lens *within* the anterior focal distance of the eye. We could not get the same result with a series of minus lenses, as used by our correspondent, because then the principal focal distance of this thick combination would fall beyond the anterior focal point of the eye. Under these circumstances we could not neutralize the refraction of the eye, and this is one reason why our correspondent still saw erect. (The second reason will be given later.) He does not neutralize the refracting power of the eye in his experiments, and this is quite fatal to the logic of his reasoning. If he had gone to the small trouble of refreshing his mind about the cardinal points of the eye, and making a few calculations about the strength of the minus lens required, he would have seen at once that he was wrong in the very foundation of his theory. The premises being entirely wrong,



the conclusions necessarily must be the same. So much then for the theory, as far as it rests on neutralization.

Now, a few words as to his remarks about Le Conte's experiment. The correspondent thinks that it is inconsistent to speak of the diffusion image of the point of light and the distinct image of the needle. He asks: "Now, if you really have diffusion circles on the retina, how could you see the inverted pin?" But here he forgets that the one is *an image*, caused by refraction, while the other is simply a *shadow*. Without having recourse to much theoretical reasoning one can see the difference at once by a simple experiment. Take a boxed 20 D. lens, such as Queen's little artificial eye (which, by the way, was made under the supervision and according to the scale of the reviewer), and having made it emmetropic hold the card with the pin-hole a few inches (three or four) from it. You will observe a large diffusion circle of this pin-hole on the ground-glass plate, if the hole is held against a good light. Now hold a pin, with its point down, from above near the lens, and there will appear a well defined shadow within the upper part of the light circle or the diffusion image, this shadow being directed the same way as the pin. This very thing happens in our eye; but we do not see the pin in the upper but in the lower part of the circle of light and reversed, that is, with its point up. This conclusively demonstrates that our eye projects the images outward in such a manner that the upper part of the retinal image is referred to the lower part of an external object. This experiment with the artificial eye will also prove how the shadow of the pin gets larger the farther you remove the pin from the lens towards the hole in the card, all in accordance with our diagram in the January number. Into the different modifications of the experiment of Le Conte, as indulged in by our correspondent, we cannot enter, because they have nothing to do with the point at issue. But

let us assume again that our correspondent had neutralized the refraction of our eye entirely in the way indicated by us. Would he then get an image on the retina like a shadow? By no means. Look at the diagram.

Here *m n* is the pupil which cannot be "neutralized" and is never greater than about 8 mm., and *a b* is the object and *R* the retina. Draw the two pencils of rays which can enter the pupil from the two points *a* and *b*, and you see how they form two large diffusion circles *A* and *B* on the retina. Still, they are arranged in the main inversely to the points *a* and *b*, or in other words, while the point *b* is below in the world, its diffusion circle is above on the retina. The mind, however, referring the upper retinal impression to a lower external object, it is evident, that we must see the pencil *a b* upright though very indistinct.

Our correspondent, therefore, is correct when he states that we would still see objects erect, if the refracting power of the eye was perfectly neutralized, although he is not justified in saying to from his experiments, and although such indistinct visual impressions do not deserve the name of sight. But he is incorrect when he states that by neutralizing the refraction of the eye and dilating the pupil he gets an upright image on the retina like a shadow, which we still see upright. Even under perfect neutralization the rays would still cross on account of the small width of the pupil (at most 8 mm. large), and it is this fact of crossing of the rays which, under those conditions, accounts for our seeing, or rather *guessing*, objects erect. If the indistinct image on the retina of the neutralized eye was upright like a shadow, as supposed by our correspondent, the object would appear reversed.

In the last paragraph we have summed up the quintessence of the whole discussion. We have given considerable space to it as the subject is interesting, and some points were brought up in it which will be instructive to our readers even if read by themselves. But now we must close the discussion, even at the risk that our correspondent should make some new discoveries in this field.

Ocular Reflexes.

(Continued from page 133.)

cases of stammering are due to an ocular reflex. Do not understand me that all bowel troubles can be relieved by glasses, for they are not all due to eye-strain. We do know that when a severe case of heterophoria is corrected by tenotomy, all the sphincter muscles of the body relax and many troubles, due to eye-strain, are relieved.

I could recall many similar cases coming under my own observation, and at some future day I may be able to say more upon this very important subject. I claim that many of our bodily ills are due, at times, to the eyes, and if the trouble is discovered and relieved in youth our children will be stronger and enjoy better health. Commence with the children. Look after them, and they will have better eyes in old age. I have not advanced a new theory to the up-to-date man in the profession. I would like to hear from others upon this subject of ocular reflex. It is a subject that will be of interest to oculists and opticians, and may result in much relief to suffering humanity.

ALPHA.

A Titled Oculist.

The brother of the Empress of Austria, traveling under the name of Count Eauz, was recently in Tunis, where he was regarded by the natives as a man of especial holiness from the fact that the fame of his marvelous cures of the diseases of the eye, and in many cases of blindness, had spread far and wide since his arrival in the northern portion of Africa. He accepts no remuneration for his services, but on the contrary, bestows generous alms upon some of his patients.

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Optical Notes.

D. L. Fassett is a new optician at 9 Temple Place, Boston, Mass.

Emery & Emery is the name of a new firm of opticians, who have recently opened up in business in the Syndicate Building, Rockland, Me.

W. H. Cowles, of the optical department of L. Black & Co., Detroit, Mich., has been presented with a bronze medal for serving six years as a member in the Detroit Light Infantry.

G. W. Smith, of Fowlerville, Mich., spent some weeks in Detroit with L. Black & Co., taking a special course in optics. Mr. Smith intends to open up a first-class optical establishment in connection with his jewelry business.

Hitchcock & Morse, Syracuse, N. Y., will open, this month, a school of optics, of which C. Williamson Crumb, M. D., will be instructor. The school is handsomely located in the new Dillaye Block, and instruction will be given on the anatomy and physiology of the eye and ocular muscles, the uses and practical demonstration of the trial case, ophthalmoscope, retinoscope and ophthalmometer.

Mr. Buchbinder, of Buchbinder & Schemff, 442 Penn Avenue, Pittsburg, spent ten days in New York City last month, in buying goods. He was accompanied by his wife and young son, and took in the sights of the metropolis, under the guiding eye of S. Lee Weaver, the popular representative of the Julius King Optical Co.

She Must Learn to See.

An interesting case of optical surgery was recently afforded by an operation performed by Dr. Duclot, a well-known oculist, of Paris, France. Julie Duplessis, a girl twenty years old, had been blind from birth because of a congenital double cataract. She could distinguish light from darkness, but that was all. At the same time she had an extraordinary sense of touch, even for a blind person, and could describe minutely anything she was permitted to run her hands over. The operation gave her sight, but it took some time to enable her to make use of it. And that is the singular part of it.

For an hour after the operation she could see nothing, but after that objects became visible to her and caused her exquisite pain. She said she felt as if they were hitting her eyes. She suffered severely from headache, and for the two or three ensuing days she was obliged to keep her eyes closed, opening them only at intervals. For a week all objects were very much blurred, but gradually they became distinct, and she could describe them from sight almost as well as she could from touch.

Later, an experiment was made with her in the naming of various objects. Depending only upon sight, she mistook a cat for a dog, a pencil for a key, and a feather duster for a bunch of chrysanthemums. Then one of the doctors held a canary upon his forefinger, and she was totally unable to tell what it was. He put the bird in a cage, and instantly she said it was a bird, although, of course, she did not know what kind of a bird. Finally, they blindfolded the girl and permitted her to touch all the objects she had misnamed. She designated them without an error.

Another curious point is that she seems to have no idea of distance. One of the doctors held his hand close to her face and told her to take hold of it. She reached out for it as though it were several feet away. Conversely, she tried to grasp a bottle that was placed upon a table at the other side of the room, thinking that it was within reach. While blind she had no difficulty in walking, her movements being similar to those of any person with sight. Now she steps out as if walking upstairs. She says the floor looks very steep to her, and she always feels as if she were going up hill.

Colors she does not comprehend. Some of them, bright red for instance, pain her eyes very much. It is curious, too, that color seems to cause her more surprise than form. In touching things she was always able to get some idea of what shape they were; and she could also distinguish the difference between substance. But color is entirely beyond her.

It is said that several months must elapse before the muscles of the girl's eyes will be trained even beyond the rudimentary stage. Never having had sight, she must begin just as if she were a baby, observing things and learning to know them without the aid of touch.

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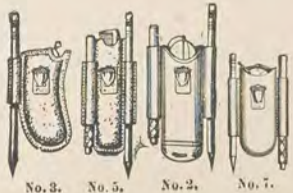
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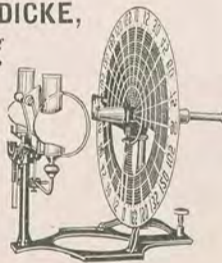
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Doings of the Optical Societies

New York City Optical Society.

At the annual meeting of the Optical Society of the City of New York, held early last month, the following officers were elected: L. L. Ferguson, president; H. W. Appleton first vice-president; J. H. Balmer, second vice-president; Paul Jerschky, recording secretary; F. A. Wolf, financial secretary; Leo Lewis, treasurer. The executive committee elected consists of J. G. Freeman, chairman; A. J. Cross, J. J. Mackeown, A. M. Dreher, and Arthur Rifenberg. The committee on entertainment and new membership consists of F. G. Burgess, chairman; G. E. Holmberg, S. Stanley, Wm. Robin, Michael Wolf, Phillip Apfel and E. C. Bull.

New members elected were Albert Kamp, George P. Smith and H. E. Kirstein. Jos. Friedlander and F. P. Tompkins were proposed for membership.

A paper on "Photometry" was read by H. W. Appleton.

The Society soon expects to secure the services of a professor, for whom a suitable lecture room will be provided.

L. L. Ferguson, the newly-elected president of the Society, was born in Virginia thirty-one years ago. After graduating from the public and normal schools of Washington, D. C., he attended medical college for not quite two years. Leaving this, he devoted his attention to photography, the pursuit of which brought him into intimate relations with optics, and finding the latter more congenial, he has for the last ten years devoted his time to that science exclusively. Following this pursuit, he has lived in Philadelphia, Pittsburg and Chicago respectively, in the order named. Two and a half years ago, after identifying himself with a well-known New York

optical house for the purpose of commercial optics, it was discovered that his knowledge of the science of optics, particularly in ophthalmoscopy and skiascopy, was such that he was made their optical instructor. Meeting with much success, he opened an office for refracting and teaching, not quite a year ago, which has been a very successful venture.

Mr. Ferguson has, during his optical career, addressed many colleges and societies, among which are, notably, The Chicago Post-Graduate College, The New York Central State Association of Opticians, the Optical Society of the State of New York, and the New England Association of Opticians, of Boston. He has been quite a prolific writer on scientific optics, and is also a member of the executive committee of the New York State Optical Society, and has always identified himself with that which tends to the material advancement of the optician's interests.

H. W. Appleton, who was elected first vice-president of the Society, was born and educated in England, but began his business career in this country in 1876 in the employ of Andrew C. Benedict, one of New York's oldest and most respected jewelers, then located on the Bowery. He remained with Mr. Benedict until 1879, when he started in the jewelry business for himself, dealing in spectacles and eye-glasses as a side line. Soon becoming convinced of the great possibilities of optics, he devoted himself with a will to the study of optometry, and subsequently deserted the jewelry business altogether to give his entire attention to the practice of optical science, in which he had become thoroughly proficient.

Mr. Appleton is an enthusiastic organization man, and has been secretary of the Optical Society of the State of New York for the past two years. "I am an optimistic believer in the future of the optician," he said to THE KEYSTONE, "and for several weighty reasons, feel that union and harmony among all opticians is much to be de-

sired for the good of the business at large, as well as for the good of its individual members."

Mr. Appleton has great hopes for the future of the city optical society, to the advancement of which he devotes much attention. His paper on "Photometry" recently read before the society was highly commended, and he will, no doubt, contribute other valuable papers in the near future.

This Society promises to develop into one of the great scientific organizations of the city. While its purposes are primarily the advancement of optical science and technical knowledge, and the promotion of social intercourse among opticians, employers and employees, the papers and discussions at the meetings are not limited to optics pure and simple, but include photography, microscopy and kindred branches; and all connected in any way with these sciences, scientifically or commercially, are eligible to membership. The membership of the Society has rapidly increased.

it was due to the tendency in Americans to overwork, over-study, especially to overreading, and our overleaping ambition as a nation, with a lack of proper exercise and hygiene. It is a vice of civilization. The lecturer referred humorously to the Boston fad of wearing glasses and the reputation of some of its doctors in ordering glasses for every patient that called on them, and perhaps, he said, there might be some such opticians. Referring to children's glasses the lecturer said he avoided ordering them as much as possible, especially for continual use, as he believed many glasses worn by children were not necessary, as the danger of accident was considerable and occasionally resulted seriously, citing several cases of this kind. He also spoke of the care needed in ordering bifocals, and related several accidents that followed the use of bifocals instead of separate glasses. The lecturer then took up the more common cases that presented themselves to opticians, and

of the almost general presence of astigmatism. He said in but few cases did he cease to look for or fail to find it, if not on first examination, then on subsequent ones. As a general rule, he stated, headaches would be cured by weak convex glasses. He then urged the use and importance of the ophthalmoscope, the first thing to learn in its use being to locate any trouble it may disclose, and whether it is retinal or otherwise. He cited the many foreign obstructions that may be encountered in an ophthalmoscopic examination, and told how to locate them, and how they affected vision, as with scars on the cornea the distance vision may be marred, while the near vision is not impaired. Also, that it was a general rule that in retinal diseases the vision would be far from perfect.

The following new members were elected: Ara G.

Besse, George W. Mansfield, Melvin J. Atherton and Everett W. Flint, all of Boston.



L. L. FERGUSON, President
Optical Society of the City of New York

H. W. APPLETON, First Vice-President
Optical Society of the City of New York

New England Association of Opticians.

The New England Association of Opticians held its regular monthly meeting at Young's Hotel, Boston, on January 18th. At this meeting Dr. Frederick A. Davis delivered the second of his course of six lectures to the society, the subject on this occasion being "Some Cases Which the Optician Should Not Treat." The discourse was highly instructive and listened to with much attention. The lecturer first took up the kindred diseases that affected vision, such as stomach disorders, diseases of the nerves, brain, optic nerve, spinal cord, circulation, symptoms of which were severe headaches, dizziness, blurring and watering of the eyes, etc., as in such cases the optician is not competent to raise vision as it might be. Glasses are often given in such cases where the trouble is due more to the disease than refractive error. In his practice he frequently took glasses off such patients and treated the disease instead. He said these cases were difficult to handle. As a rule, when the error found was large, it might be assumed that it was a refractive one, but when small it should arouse suspicion, although the rule cannot be strictly applied. He advised his hearers to go into the details of such cases, learn the patient's habits, work, methods of living, and strive to apply the information in the treatment of the case. The lecturer then referred to the many causes of eye trouble, and classified them under (1) General conditions, owing to habits, hereditary weaknesses, which is considerable; (2) The actual presence of refractive error, which is the rule; and (3) The exciting causes, which are many. Some patients may have more than one of these conditions, and the optician must study them and try and locate the trouble as near as possible. In most cases, relief is permanently afforded by the correction of the refractive error, in others only temporary. The Doctor then referred to the growing practice of wearing glasses, especially in this country, and answering the query for the causes, said

The Pennsylvania Optical Society Holds Its Second Examination.

The Pennsylvania Optical Society held its second examination of candidates for diplomas in Harrisburg, Pa., on February 1st. The examination, which was held in the Commonwealth Hotel, was written and oral. The written portion consisted of an admirably-selected set of questions covering the entire subject of practical optics, while the oral examination gave the candidates an opportunity to display their competency at actual eye-testing and their skill in using the various instruments. This system of examination eliminates even the possibility of unfairness or partiality, and it was highly commended by the candidates themselves. The questions in the aggregate were admirably calculated to correctly ascertain the extent of the candidates' optical knowledge, being neither catchy nor unnecessarily difficult. They were on broad lines, yet sufficiently searching. The names of the successful ones will be published in our next issue.

On the evening of the examination a meeting of the society was held in the hotel, and a number of addresses were delivered. All opticians were cordially invited, and many availed themselves of the invitation. One of the addresses, which dealt altogether with the business and money-making end of the profession, we print in full, as a matter of great interest to opticians. The subject was "Advertising," and it was intelligently treated by a good advertiser, W. M. Updegrave, Johnstown, Pa., who said:

The subject I have been asked to address you upon this evening is what every successful business man depends upon to enlarge his business—Advertising.

(Continued on page 136 f.)

AIKIN, LAMBERT & CO.,

136e

Manufacturers of Fine Gold Pens; Holders in Pearl, Silver, Gold, Shell, Agate, Ivory, Ebony and Gold Plate; Pencil Cases, Tooth and Ear Picks, Glove Buttoners, Match Boxes, Paper Cutters and Silver Novelties.



General Agents for the PAUL E. WIRT FOUNTAIN PEN.

MERCANTILE FOUNTAIN PENS, warranted satisfactory.

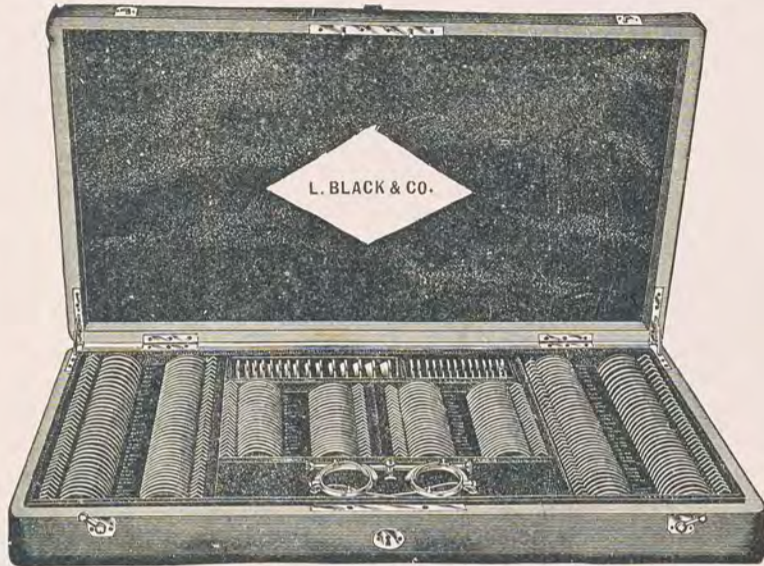
S. N. JENKINS, 103 State Street, Chicago Agent.

SALESROOM—19 MAIDEN LANE, NEW YORK.

Free Instructions on Refraction and Accommodation of the Eye

In compliance with the numerous requests from jewelers throughout the country in regard to **REFRACTION**, and at moderate rates, we have decided to open an Optical School, which shall be under the immediate supervision of an expert refractionist, and give a course of four weeks' (evenings) instructions **FREE**. During the day you have the benefit of being in our Retail Optical Department and receiving practical knowledge. In this time we guarantee you will be able to correct all errors of refraction.

We make the above offer to those purchasing from us one of our **COMPLETE TRIAL CASES** (which contains the following) at **\$70.00**, with which we issue a diploma.



- 33 pairs each Spherical Concave and Convex Lenses.
- 20 pairs each Cylindrical Concave and Convex Lenses.
- 16 Prisms and 12 Colors and Discs.
- 1 Patent Adjustable Extension Temple, Patent Revolving Two-Cell, Celluloid Scale Trial Frame.
- 1 Single-Cell Trial Frame.

In Seal Grain Leather-Covered, Velvet-Lined Case, with full line of Test Cards, Charts, etc.

Those wishing to take a Course had better write us at once for place, as class number will be limited. First Class opens February 21st.

L. BLACK & CO., DETROIT, MICH.



WE WILL ENGRAVE YOUR PORTRAIT,

building, etc., same style as this sample, any size, up to 2½x4 inches, for \$2.00; larger sizes at 20 cents per square inch. We make a specialty of **Jewelers' Cuts and Printing**, and give special attention to mail orders. WRITE US.

THE J. J. RYDER CO.
ENGRAVERS AND PRINTERS,
210 WESTMINSTER STREET, PROVIDENCE, R. I.



CHRONOMETERS FOR Show-Window Attractions.

A reliable Chronometer is one of the best. It keeps your name before the public and will bring you trade. We have a number for sale at very moderate prices, for cash. All in good order and guaranteed.

RIGGS & BROTHER,
Chronometer Manufacturers,
Established 1818. 221 Walnut St., Philadelphia, Pa.
It will pay you to write us before buying.



"AIR-TIGHT" WALL CASE.

SHOW CASES,
WALL CASES,
PARTITIONS,
SCREENS,
MIRRORS,
SETTEES,
TABLES,
COUNTERS,



CROSS PARTITION.

CLOCK
SHELVING,
BRIC-A-BRAC
SHELVING,
MANTELS,
STOOLS,
CHAIRS,
ETC., ETC.



CASE AND TABLE.

FINE JEWELRY FIXTURES AND FITTINGS

SEND US SIZE AND DIAGRAM OF YOUR ROOM.

CATALOGUE ON APPLICATION.

WE ARE HEADQUARTERS FOR ANYTHING IN THE WAY OF FIXTURES OR FITTINGS.

Write to

The M. Winter Lumber Co.

Established 1865,
by M. WINTER.

HIGH-GRADE BANK & STORE FIXTURES
Shelbygan Mis Uel

(Continued from page 136 d.)

This is the true lubricant for the wheels of business. It is an established fact that the greatest achievements of successful business careers have been accomplished by judicious advertising, backed by substantial knowledge. What made John Wanamaker's name a household word? Nothing more or less than printer's ink. I venture to say that many of the articles in his great store can be purchased elsewhere at the same, and in many instances for less, money. If you have anything to sell, whether knowledge or goods, it is necessary to let the ones in want of such know it. Those with whom business connection has been established and satisfaction given without a doubt will help to advertise your business. Fit a woman successfully with a pair of spectacles, and there is no power under heaven that can keep her from telling where the best spectacles are to be procured. If 1,000 persons know that you are a thorough optician, you will do a certain amount of business. If 10,000 know it, you should do ten times the amount of business. It's the new trade you are after in order to expand your business. All business is capable of greater expansion. He who sits still, awaiting for it to come to him, is the one always complaining of hard times. It is needless to say, all business should be advertised, and, speaking on this subject, I will divide it into the following parts: How to advertise, Where to advertise, and When to advertise.

Every one has different ideas and views of advertising. Therefore, I trust you will not criticise me too severely, as what I say is from my own personal experience and from observing the methods of other successful advertisers.

Your advertisement should be strong and striking, catching the eye by its prominence, by its unique features, bold readable type, coming before the people you wish to reach. In our profession, people who are likely to need our services have great need for their eyes, and will more likely notice an advertisement that can be read with ease than one that requires an exertion to see. An attractive cut or a neat border should be used to give it prominence. It is not necessary to change the cut or border when you change the reading matter. A space set off in this way may not be noticed the first time it makes its appearance, but eventually the reader will be curious enough to find out what it means. This way your border or cut becomes a trade-mark. Your reading matter should be changed often and should be as simple as possible, so that every one who reads it will understand it. What does the general public know of hypermetropia, myopia, presbyopia, or astigmatism? These words should not be used unless you give an explanation of their meaning. There are many ways to impress the public without going into detail of what might be the cause of their trouble. Make your ad. as short and get to the point with as few words as possible, and live up to it. By this I mean, if you advertise solid gold spectacles for five dollars complete, lenses guaranteed to suit, and you find your patient requires a compound lens, don't say, "This is an extraordinary case and the lenses will cost three dollars and a half extra, as they must be made special." You may make the sale at eight dollars and a half, but if your patient tells his or her friends and should they require the service of an optician, they will expect the same story and the chances are they will call on the other fellow. So it pays to be honest in your advertising. Another point. Never throw mud at your competitor in your advertisement; it may fly in the reader's eye, and thereby keep them from seeing what you want them to read. Never mention his name to a patient, as in so doing you are only advertising him. Your patient perhaps never heard of this other optician about whom you are talking. Attend to your own business as if you were the only optician in town.

Newspapers have always been considered the best medium for the advertiser, as they visit the office and home daily. The paper with the largest circulation is always better than the one with a smaller patronage. It is hard to estimate the value of a newspaper advertisement. Taking everything into consideration, I believe it is the best way to bring yourself before the public, as your ad. is seen oftener and by more possible patients or purchasers. We are all asked to take a space in some programme, a cook-book or church paper of some kind, and you simply take the space to accommodate the solicitor, thinking it will not benefit you. I don't think your money entirely wasted, yet I don't call it judicious advertising, and it is one of the many annoyances that all business men are subject to. "How much shall I spend for advertising my business?" This question is often asked, and it bothers many business men to know just what per cent. of their business they should put into advertising. This depends upon the amount of your business. I would suggest from two to five per cent. of your gross receipts. However, be on the safe side; a little too much will do better than not quite enough.

If you have adjoining towns that publish a weekly paper, put an ad. in it. If you get any trade from that neighborhood, give the paper credit for it. I advertise in four weekly journals published from fifteen to fifty miles away from my place of business, and my records will show it was seed sown in good ground. It is true, newspapers do not reach every possible purchaser. When you think the newspapers are not doing as much as they should, a neat circular or an attractive card can be used to good advantage. I put out about 3,000 cards every three or four months.

An optical illusion in two or three colors on one side and my little story on the other. I have the cards distributed from house to house, not by boys, but a man. Boys are too anxious to get through and get their quarter. A boy can put out 5,000 cards or circulars in less time than a man can distribute 1,000, but the 1,000 distributed by the man will bring better returns than the 5,000 put out by the boy. Some time ago I designed a card called the "baby puzzle." I had them distributed among the school children. On the back of the card was an ad. with a bold headline—Education. The following six weeks, I fitted more school children with spectacles than during the six months previous. Parents

think well of their children and will always look after their interests. So by interesting the children you may open the eyes of the parents.

I think your business should be advertised every day in the year. A system is as necessary in directing the advertising appropriation as controlling any other investment. If you take a plunge for a period, only to be pulled up with a round turn when you find you have expended all your business will afford, and you must stop dead until your advertising expenditure balances the appropriation, you'll never get on that way. Your advertising campaign should be planned and carried out relatively, at least, according to calculations. Incidental expenses, special fixtures for window or interior decorations, donations to various societies, etc., that offer no other return than possible advertising, should go into the advertising account. Some judgment must be used, as what I have said may not be the best for all localities.

I have noticed merchants during their busy seasons use a large space in the newspapers, and in dull times cut down their advertising expenses to save money. When your trade is dull, then is the time to do your most advertising. When you are sick, that is the time you need the service of a doctor, and when your trade is not doing nicely that is the time to put on steam.

An instructive discourse, entitled "Object Lessons With a Trial Case," was delivered by C. A. Longstreth, of Philadelphia, and H. E. Herman, Williamsport, Pa., told some highly interesting "Reminiscences of a Refracting Optician."

The holding of the examination in Harrisburg was commended by the opticians in that section of the State.

New York State Association of Opticians.

This Association met at Hotel St. Cloud, Syracuse, on January 18th, with President Swart in the chair. Three new members were received, and after a short business session the Society was entertained by an illustrated lecture on "Conjunctivitis."

It was an occasion of more than ordinary interest and the largest number present for a year. A number of guests were present, among them a lady optician, Miss Viola Russell, of Weedsport. After the lecture, practical work in retinoscopy was done by members present. A committee was appointed to arrange for the February meeting.

The issuing of books from the Society's library was commenced at this meeting, and with the several donated at the previous session the Society already has a nice collection, which will undoubtedly be of great assistance to members. Members are allowed to retain these books for one month.

The financial condition of the Society is excellent, and with new members joining at each meeting the year 1898 opens with a very bright outlook. The coming School of Instruction, to be opened in Syracuse, was discussed at length, and apparently met the approval of those present.

St. Louis Letter.

As the books are balanced for the year, it is found that the volume of business done by St. Louis jewelry houses during 1897 is fully up to expectations. At the beginning of this new year there is not a note of mistrust, but everything is hopeful. It is the universal opinion of our jobbers that 1898 is to be a year of activity; and this confidence in good times in the jewelry trade is not based on something that is hoped will happen in the future, but on actual conditions prevailing at the present time. The West and Southwest have been blessed with good crops, which are still selling at remunerative prices. Farmers have paid many debts, made large purchases, and still have money in bank. Everybody feels that the new year will prove a good one.

Eighteen hundred and ninety-seven has been a banner year in the financial and commercial affairs of St. Louis, and will furnish a new record by which the next year, or the one now on, must be measured. Clearing-house figures form a pretty reliable barometer by which to judge the financial and commercial atmosphere, and in this regard no previous year has touched the one just laid away in the archives of the past. The total for the year reached the enormous sum of \$1,366,703,956, or an increase of \$208,101,597 over 1896. This is a prosperity item which cannot be gainsaid. It is tangible and uncontrovertible. The record of the year has been glorious in all the wholesale lines in the city. Dry goods have been at the front, and the present year will mark an expansion in this regard, which is the direct and seasonable result of the experience of the past season. Watch St. Louis for big things.

Morris Bauman, of the L. Bauman Co., spent the first half of last month in New York. He was among the out-of-town guests at the banquet of the New York Jewelers'

Board of Trade, on the evening of January 13th. He says it was the finest thing of the kind he ever attended.

"Our business for 1897 was quite satisfactory," said Morris Eisenstadt, of the Eisenstadt Manufacturing Company. "We expect this year to go ahead of even 1892. People feel confident; orders are coming in better; dealers in this territory have enjoyed a fine holiday business, and things all seem in good condition. Orders this year are ahead of this time last year. We think the spring trade will be better than for years."

W. F. Wilmes, Missouri and Kansas traveler for the Bauman-Massa Company, has renewed his engagement with his old house for another year, and is now out in his territory, sending in good business. "Billy," as Mr. Wilmes is best known, is a pioneer in his territory, an accomplished salesman and popular with the trade. He is welcome wherever he goes.

Merchants all along the line report a material improvement in business. Judging from calls on local wholesale houses, there was a great demand for novelties, guard chains, bracelets and rings, but watches were only in fair demand.

The holiday trade is still talked about. It was a big one. There are instances where complaints are loud, and with reason, but these come in the most golden years.

The St. Louis Clock and Silverware Company are well pleased over their fall business; in fact, they tell us that last year, was a hole, was satisfactory. December was the best single month's business in their history, and the outlook for the new year is bright with them.

Our mayor has done the wise and proper thing by the retail jewelers of St. Louis in deciding to hereafter issue no permits to peddlers of jewelry. There are other cities where it would be well if their mayors would follow his worthy example.

We are glad to report that George R. Stumpf, the well-known Franklin Avenue retailer, who has been anything but a well man the past month, is now convalescent and able to look after business with some comfort.

The *Daily Republic* recently published a half-page of illustrations of articles of jewelry and silverware distorted by the heat in the burning of the Mermod & Jaccard Jewelry Company's establishment.

Joseph McKenna, in charge of the material department at the Bauman-Massa Company's, left the middle of last month for a month's sojourn at San Antonio, Texas, for the benefit of his health.

Charles Maxwell, of Magnolia, Ark., was a recent trade visitor here.

The annual banquet of the Retail Jewelers' Association of Missouri occurred on the evening of January 19th and proved a most enjoyable occasion to all.

Jeweler J. L. Wolf, of Red Bud, Ill., a well-known buyer in this market, removed to Paducah, Ky., last month, where he has opened up a handsome store.

H. W. Maier, of Aberdeen, Miss., was in town for several days the middle of last month, replenishing his stock.

Sam. H. Bauman, of the Bauman-Massa Company, came home the middle of last month from a business trip to New York, feeling ill, and immediately took to his bed, where he has been confined most of the time since. We are glad to state, however, that he is now convalescent.

F. W. Drosten, retail, expects to move into his new store in the Fullerton Building sometime during the present month. When Mr. Drosten once gets settled in his new location he will have one of the real handsome stores of St. Louis.

The Interstate Merchants' Association, of St. Louis, has sent out 100,000 invitations to country merchants, with a view of inducing them to buy their goods in this city. Spring meetings will be held in February, March and April, when there is the usual influx of retailers.

The railroads of the West have receded from their position in regard to allowing passengers to ride on freight trains, owing to the strong pressure brought to bear on them by the different wholesale houses, and in the place of no freight train carrying passengers, as the order was first issued, the local freights will hereafter carry passengers the same as before, and only the fast freight trains will refuse to accept either passes or tickets. This will allow the traveling men to stop off at small towns which would have to be skipped if the original order had been enforced.

Next to the Merchants' Exchange and St. Louis Spanish Club, the Business Men's League is by far the most important commercial body in St. Louis. This organization constantly and systematically endeavors to foster and promote the commercial growth of the city, and is succeeding in a way that clearly demonstrates the advantages of organized effort when intelligently directed.

The fact that American exhibitors were refused space at the National Cycle Show in London, is another evidence of British intolerance of rivalry on the part of Americans. As usual, the British made "the lack of space" as an extenuation for the want of courtesy and consideration, but it is very self-evident that the knowledge of the superiority of American machines influenced their conduct in the matter.

The directors of the Wild Brothers Jewelry Co. last month elected Henry Wild president and Albert Wild vice-president and secretary.

The window smashers who recently plundered the store of William Mauch of goods worth \$70, have been fined \$500 each and sentenced to six months in the work-house.

John Bolland, of the J. Bolland Jewelry Company, has purchased for \$6,000 the stock of Zerweck Brothers, whose assignment was recently reported, and is selling it by auction. Arnold Zerweck has engaged in the commission business, and it is said that the jewelry business will be discontinued.

The Most Stupendous Money-Making Scheme Ever Introduced to the Retail Jeweler.

THE WONDER OF THE 19TH CENTURY. OUR NEW TALKING MACHINE.

Until recently the Graphophone or Talking Machine has sold at such high prices that it has been almost impossible for the average jeweler to purchase this wonderful machine. Just having closed a large contract with the manufacturers of the Graphophone or Talking Machine, we are in a position to give all orders prompt attention at remarkably low prices.

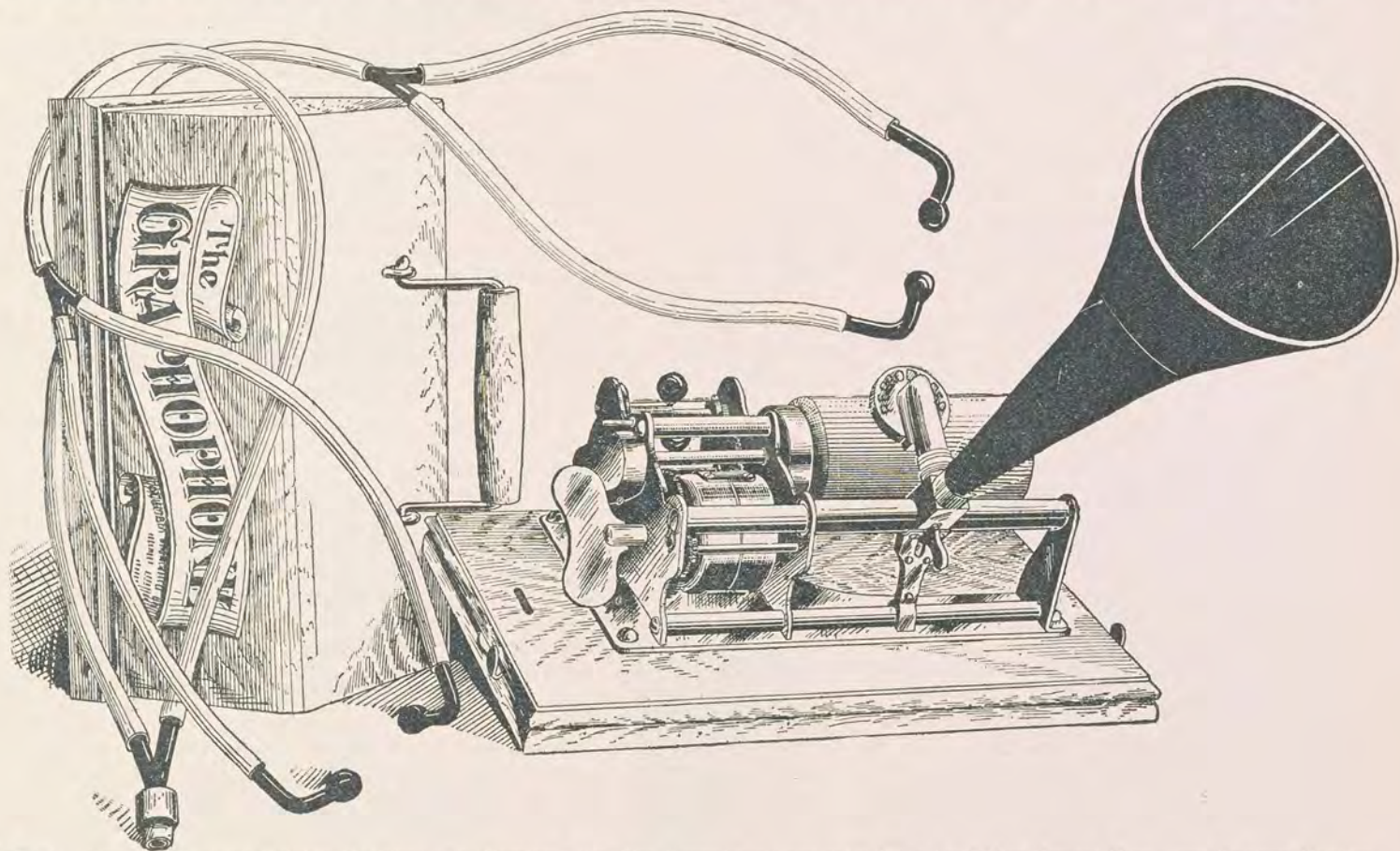
\$26.00 Complete Exhibition Talking Machine Outfit **\$26.00**

WE APPOINT
JEWELERS
AS AGENTS
IN ALL
TOWNS FOR
THIS
WONDERFUL
MACHINE.

WE SELL
THEM,
SO CAN YOU.

WRITE US FOR
SPECIAL
AGENT'S
DISCOUNTS.

\$26.00

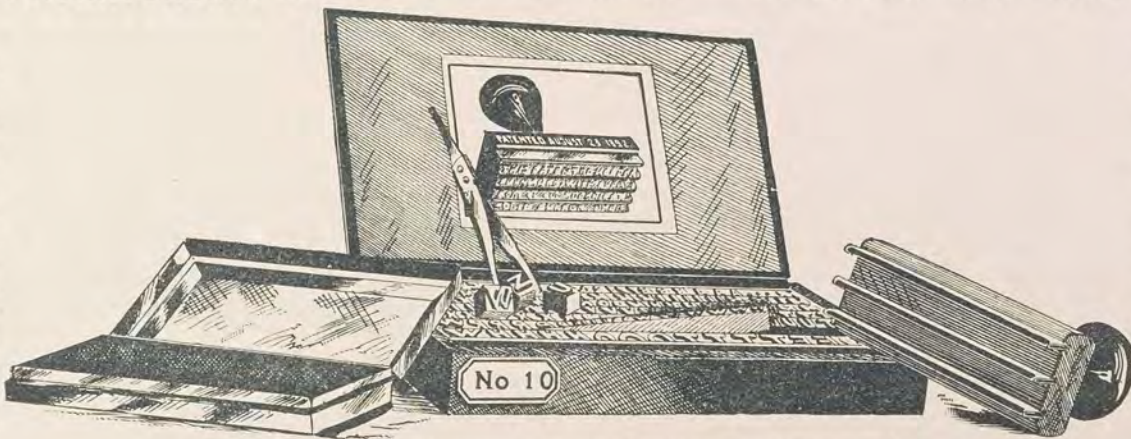


HERE IT IS! One Graphophone Talking Machine; one Aluminum Sapphire Reproducer; one extra large Amplifying Concert Horn; one Two-way Hearing Tube for private exhibitions; one fine polished oak Carrying Case; one Rubber Stamping Outfit for stamping date, time and place of exhibitions on Bill Posters; one thousand (1000) Bill Posters 11x17, to hang in show windows of hotels and business houses; one thousand (1000) printed Admission Tickets; eighteen (18) Assorted Records, instrumental and vocal, consisting of selections by Sousa, Gilmore and United States Marine Band, the celebrated Carey series by Russell Hunting, songs by Gasken; McKinley, Bryan and Gladstone speeches, etc.

GO TO SURROUNDING TOWNS IN THE MORNING. EXPERIENCE NOT NECESSARY.

PUT YOUR BIG POSTERS UP, which we furnish you, in conspicuous places in every business house, in the *postoffice, hotel and other public places*, engage your hall, and with the rubber stamp outfit we furnish you, stamp on the bottom of the posters the date and place in which your exhibition will be held. This will take a couple hours' time in the forenoon; the balance of the day you can devote to exhibiting this wonderful talking machine in the hotel where you stop, and YOU WILL NOT ONLY BE ABLE TO TAKE IN SEVERAL DOLLARS, but by exhibiting it will be advertised all around town, and will cause a great many people to attend your entertainment in the evening.

Price of Records, each, 50c.
Dozen, \$5.00.



This illustration shows Rubber Stamping Outfit, consisting of complete alphabet, set of numbers, inking pad, tweezers and holder.

YOU HAVE NOTHING TO LEARN. WE FURNISH THE COMPLETE OUTFIT READY TO GO TO WORK. The talking machine does all the entertaining. You simply use the rubber stamping outfit we furnish you to stamp your bill posters with the date and place of exhibition, post them up around town, make arrangements for your hall, and arrange with some young man in the town for a small consideration to sell the tickets at the door, and by 8 o'clock you will find your hall filled with people anxious to hear this wonderful instrument perform Bryan's convention speech, McKinley's speech of acceptance, selections by Sousa, famous songs and recitations by the world's famous artists. Send for list of records, thousands to select from.

Price of Records, each, 50c.
Dozen, \$5.00.

\$26.00 is all we ask for OUR GREAT TALKING MACHINE EXHIBITION OUTFIT, which is a great device for money-making, as well as a great attraction for a store. Any one without experience CAN MAKE \$5.00 TO \$25.00 A DAY by giving exhibitions in the evenings in school houses, hotels, halls, churches, opera houses; and in your place of business, renting it out for a home entertainment, by using our rubber tubes and charging 5 CENTS for each selection. Stop a minute and think of the families you could sell them to in your town. ORDER A SAMPLE MACHINE—THEY SELL ON SIGHT.

WRITE US
FOR
SPECIAL AGENT'S
DISCOUNTS.

YOUR EVENING ENTERTAINMENT
will comprise the EIGHTEEN DIFFERENT SELECTIONS which we furnish you, enough to entertain your audience for two hours.
Hundreds of Our Customers
are now using this, the most perfect Talking Machine on the market. With our Outfit you can exhibit every evening and MAKE LARGE PROFITS.

WRITE US
FOR
SPECIAL AGENT'S
DISCOUNTS.

If you do not receive our *Monthly Drummer*, write us and we will send it to you. It shows a splendid line of bargains in DIAMONDS, WATCHES, JEWELRY, SILVERWARE, MATERIAL and OPTICAL GOODS. See our *March Drummer* for an elegant line of 1898 NEW MODEL BICYCLES and KODAKS.

"Restless and Sleepless." **B. F. NORRIS, ALISTER & CO.,** Nos. 101, 103, 105, 107 State Street,
CHICAGO, ILL.

Cleveland and Northern Ohio.

It seems like the good times of '90 and '91 since the Christmas season, as trade is unusually brisk for this time of the year. All the jewelers report an excellent trade during the holiday season, and are looking forward to the coming year as a record-breaker. By this time the usual inventories are taken and all is ready for the coming "wave of prosperity." It is gratifying to us who live in the middle West to read the recent Government report as to the exports from the United States, which are said to amount to over \$1,000,000,000 for the past year. Northern Ohio can point with pride to a large block of this amount as the product of its own labor, brains and capital.

B. Forchheimer, 181 Superior Street, is in the East, buying goods to restock his depleted show cases.

Louis Leesburg, for the past ten years with Kretschmar, manufacturing jeweler, is now with Gunzenhauser, 208 Superior Street.

T. Y. Midlen, of the Chicago branch of the Gorham Co., was in town last month, looking up old acquaintances.

Grant Whittlesey, of the Grant Whittlesey Optical Co., has just returned from a trip through the State and reports the best business of the firm thus far. Mr. Whittlesey is passing around cigars over the arrival of an heir, a girl.

O. P. Rowley, formerly with Clemens Oskamp, Cincinnati, is now with the Bowler & Burdick Co., as traveling salesman, and will cover Ohio and Michigan. Mr. Rowley has been on the road for ten years and is a well-known and popular traveler.

John Broker, formerly with Kornblum, optician, Fifth Avenue, Pittsburg, is now in the city and expects to locate with one of our local jewelers as optician and salesman.

The Cleveland opticians are soon to have some competition in the way of two traveling opticians who advertise wonderful treatments for those who need glasses and other "spread eagle" accompaniments. The nomads have visited Columbus, Canton and other cities, and are now headed toward this city.

Frank X. Dietz, manager of the material department of the Bowler & Burdick Co., was married last month to the daughter of a prominent West Side insurance man, Mr. Mueller, of the firm of Faulhaber-Mueller Co. THE KEYSTONE extends its very best wishes to the worthy Benedict.

B. V. Arnstine, of Arnstine Bros. & Mier, is in New York on business for the firm. The above firm reports that its business for '97 was the largest in its history.

W. F. Randall, Sharpsville, Pa., was a recent buyer in our local markets.

C. J. Duncan, Massillon, Ohio, was in town the last of the month, filling up his stock from the jobbing houses.

C. M. Wilson, Salem, Ohio, was a recent buyer in the wholesale houses.

E. E. Critz, Elyria, Ohio, was in town last month and says that his holiday trade was ahead of expectations. He left good orders with the jobbers.

Harry Downs, Bellevue, Ohio, was met recently in the city. He reports the prospects good for the coming year in his city.

Wm. Sheldon, Adrian, Mich., called on the trade last month, and, as usual, left good orders for future delivery.

Mr. Kesselmeier, of Kesselmeier & Bechtol, Galion, Ohio, was a recent trade caller.

P. W. Eigner, Kent, Ohio, was in town last month and called on the jobbers.

Ed. Nolf, Wadsworth, Ohio, was in the city the middle of the month and called on the trade.

J. M. Martin, Crestline, Ohio, was a buyer among the wholesale houses last month.

The police of Warren, Ohio, have arrested the two men who robbed a traveling salesman for Lapp & Flershem, in Youngstown, Ohio. The thieves took about \$300 worth of watches and jewelry in a case from the hotel where the traveler was stopping.

The Tiffin, Ohio, jewelers seem to be in hard luck. Jeweler F. W. Birchard had his window smashed and a lot of watches stolen. Jeweler Rhinehart also has his troubles, as the Pennsylvania Railroad Company had him arrested for taking a few pieces of coal from a car. The jeweler was fined \$5 and the costs.

E. H. Drinkwater, Toledo, Ohio, had his store burglarized while he was at lunch. Two thousand dollars' worth of jewelry was taken.

W. H. Kennon and Will Wagner, the well-known travelers, have left on their usual campaign for the Sigler Bros. Co. G. L. Sigler reported that they were delighted with the business of the past three months.

The Foltz Co., Akron, Ohio, suffered a severe loss by fire and water January 2d. The fire originated in the top floor of the block and worked down. A metal ceiling is all that saved the firm from a total loss. The insurance was \$10,000. Mr. Foltz is now in the East, buying goods to replace the destroyed stock.

The jewelry field is to have an addition in the near future. Otto Loehr, head salesman, and Geo. W. Scribner, traveler and vice-president for the Bowler & Burdick Co., will open up a wholesale and retail store in the King & Uhl Block, Euclid Avenue. Messrs. Loehr and Scribner are well known to the trade, and will undoubtedly make a success of their venture.

There seems to be a spirit of moving up on the avenue among the jewelers. The example set by the Cowell & Hubbard Co., three years ago, is being followed, and by another year there will be a regular colony of jewelers and manufacturing opticians around Bond Street and Euclid Avenue. Let them come; all will benefit by it.

The "Big Four" Railroad recently issued an order which affected nearly 800 men on its system from Cleveland to St. Louis. The order requires all firemen and rear brakemen to carry watches of the grade of twenty-one jewels, adjusted, patent regulator, and only twenty days were allowed the men in which to supply themselves.

The Webb C. Ball Co., of this city, issued an exceedingly handsome calendar, bordered with embossed forget-me-nots in natural colors. It folds after the manner of a screen, and is ornamental as well as useful.

Pittsburg and Vicinity.

The past month in jewelry and kindred circles has been quiet, though business has proceeded on an excellent basis, with no cause to complain anywhere. Taking stock has been the rule among the jobbers. There is always an aftermath in business, but the usual January inactivity is the only one this year. General satisfaction over the business returns is expressed, and it is expected that the return of the late apathy in trade will not occur unless the unforeseen should happen.

A meeting of the company organized to prospect for gold in Central America was held recently in the office of T. M. Woods, on Water Street. It is known as the Monongahela Prospecting Company. The meeting was called for the purpose of hearing the decision of Jeweler C. T. Ahlborn, who was deputized to go into the field and make an investigation. The gold mine which was discovered is thought to be the same discovered by a recent local embezzler when he was a fugitive from justice. It is difficult of access and may not pay to develop.

Manager Wallace, of the Wallace Optical Company, 624 Penn Avenue, who was hurt recently while endeavoring to board a moving street car, is recovering from his injuries. He was removed to St. Francis' Hospital.

J. C. Rhodes, Homestead, Pa., is recovering from his severe attack of typhoid.

The store of Yester Bros., McKeesport, Pa., caught fire on January 17th and a big conflagration ensued. The building was valued at \$50,000, with an insurance of about \$15,000.

Much sympathy is extended to Jeweler John Fink, Shiloh Street, Mount Washington, this city, in the recent death of his mother, Mrs. Teresie Schneider, who died on January 3d.

The jewelry store of August Miller, Du Bois, Pa., was damaged by fire lately.

The Pittsburg Reduction Co. has devised another use for its aluminum product. Small portable houses, made of the metal, have been invented by Arthur Howes, of Weymouth, Mass., and the company is shipping them to Seattle as fast as they can be turned out. The house is a compact, light, and easily-handled affair, comprising not only a roof and four sides for shelter, but carries with it a stove and cooking utensils, all of them being of special make and designed by Mr. Howes for Klondike prospectors. The hut proper is guaranteed to be proof against rain, snow, frost and fire. The roof and walls are made of aluminum sheets, one thirty-second of an inch in thickness. The frame is of the finest cold-drawn steel bicycle tubing. There is a "take-down" arrangement as handy as the breech-lock of a fine gun. The whole house complete and wrapped in the miner's canvas bed, which also fulfills the office of packing case, weighs but 110 pounds. No draught of air can penetrate within the walls of the house. This unique use of aluminum will doubtless be of interest to KEYSTONE readers who have "Klondikitis."

G. Teplitz, a former jeweler of Duquesne, Pa., has leased a store in Charleroi, Pa., and will re-open there on February 1st.

Local jewelers turned out in force to witness the performance of "All That Glitters Is not Gold," as given by the J. C. Kober Dramatic Company, of which Jeweler R. M. H. Jantzer is a leading member. He played "Frederick Plum" with the ease of a finished actor. He possesses exceptional talent. Jeweler Albert Bauer was an usher at the affair, which was of a social nature.

Robert McGeagh, Fifth Avenue, won his case against the city of Pittsburg and the Pittsburg Consolidated Traction Company for damages. He was awarded a judgment for \$300.

Gus. A. Spies, Irwin, Pa., is prospering to such an extent that he has opened a branch store in Charleroi, Pa., managed by Percy L. Oyer, recently with J. A. Zang, Alliance, Ohio.

The death of Robert Fisher, of Greensburg, Pa., on January 11th, is deeply deplored among his many friends in Western Pennsylvania. Mr. Fisher drank corrosive sublimate in mistake for witch hazel, and recognized his mistake instantly, but it was too late. He leaves a wife and four children. He was connected with the most prominent families of that locality. Mr. West, of West, White & Hartman, was a pallbearer.

Samuel Kirk, a leading jeweler of Monongahela, Pa., died at his home on January 16th. He was thirty-six years old and left a wife and three children. He had been in Monongahela since 1889, going there from Pittsburg, where he had been in the jewelry business. THE KEYSTONE extends condolences to both the Fisher and the Kirk families in their bereavement.

Steele F. Roberts was a speaker at the banquet given on January 21st, at the Hotel Henry, to the supreme officers of the Supreme Senate of the United States (Ancient Essenic Order) by the Grand Senate of Pennsylvania, of which Mr. Roberts is "colonel." He is an able, fluent orator, and combines wit with common sense most admirably.

Howard A. Fleming, until the week of January 17th one of the leading jewelers of Fairmont, W. Va., was in the city for a few days before his final auction to quit the business on January 17th. The cause of Mr. Fleming's retirement from the trade was his recent appointment to the postmastership of Fairmont. "Good luck" was everywhere wished Mr. Fleming.

G. A. Boss, jeweler, of McKee's Rocks, Pa., together with C. A. Shultz, of the same place, purchased the McKee's Rocks laundry and will at once begin the erection of a new plant. All the most modern machinery will be put in the new building, and it is expected that the new company will employ at least one hundred people. The new plant will be in operation about the middle of next month. Mr. Boss, who is the oldest jeweler of this flourishing suburb, will continue his business, and expects to remove into new quarters in March. McKee's Rocks is improving right along. This makes the second big enterprise in a short time. It is estimated that fully \$50,000 will be expended on the two enterprises. Charles Loughman, who started in the jewelry business in McKee's Rocks about two years ago, is about completing a handsome new store and residence, which he expects to occupy in March.

On January 18th, while all the employees but two were at supper, four men entered the jewelry store of the Dillon, Wheat & Hancher Co., Wheeling, W. Va., and while three of the men engaged the attention of the clerks, the fourth robbed one of the show windows of diamonds valued from \$2,000 to \$3,000. The robbery was not discovered for a half hour afterward. Two men were arrested a couple of days later in Cambridge, Ohio, but were not positively identified as the robbers.

Visiting jewelers during the past month included the following: H. B. Pothoff, Latrobe, Pa.; A. F. Poole, Washington, Pa.; E. Johnson, Canonsburg, Pa.; R. Donohoe, Wheeling, W. Va.; S. C. Shuster, Latrobe, Pa.; John Linnenbrink, Rochester, Pa.; Frank Hayes, Washington, Pa.; P. J. Manson, Jeannette, Pa.; E. B. Kuntz, Natrona, Pa.; E. H. Schaefer, Beaver Falls, Pa.; J. W. Kimple, Bennett Station, Pa.; Mrs. L. C. Brehm, West Newton, Pa.; S. E. Hackethorn, Toronto, O.; W. C. McKenzie, Frankfort Springs, Pa.; Max Rudert, Tarentum, Pa.; C. M. Hyatt, Connellsville, Pa.; E. A. Blosser, New Kensington, Pa.; G. A. Boss, McKee's Rocks, Pa.; Charles Loughman, McKee's Rocks, Pa.; John T. Roberts, East Liverpool, Ohio; Harvey Wallace, Smith's Ferry, Pa.; R. H. Wolf, Smithton, Pa.; T. N. Smith, Mount Morris, Pa.; F. J. Taylor, Homer City, Pa.; L. Schmidt, Braddock, Pa.; A. Schmidt, Braddock, Pa.; Mr. Walton, Moundsville, W. Va.; F. Worrell, Washington, Pa.; H. A. Reineman, McKeesport, Pa.



Vacheron & Constantin,

GENEVA, Switzerland.

Best Adjusted Watch Movements Fitting All Sizes of American Cases.

First Prize in the International Contest of 1896.

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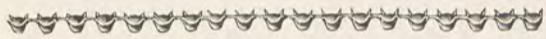
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Especially Adapted for Side Combs.

We manufacture the largest
and best variety of

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PATENT CLUSTER SETTINGS made in all sizes, and warranted
to give satisfaction.

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MUSICAL CABINET.
Style A.

Size, 3 1/2 x 23 x 21.

This Stand is made of Solid Oak or Mahogany finished, and will hold 180 Tune Sheets. It also contains two Sliding Shelves, where the Music Sheets can be laid while the music is playing.



STYLE II.

Finished in Mahogany or Oak Case, highly polished. 58 Teeth in Comb. Size of Case, 15 1/4 x 14 1/4 x 9 inches high. Diameter of Tune Disk, 11 5/8 inches.

The most improved and attractive Musical Box with Tune Disks. Jewelers would do well in sending for our catalogue and list of tunes. We feel confident that a trial order will convince any one that what we claim is true.

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THE LATEST AND BEST AMERICAN-MADE
LOW-PRICED WATCH MOVEMENT

"CENTURY"

18 Size, 3/4 Plate, 7 Jewel, Quick Train, Stem-Winding and Setting, Nickel Finish Damaskeened, Hard Enamel Dial with Depressed Seconds.
Fit all makes of cases.

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18 Size Open-Face.



18 Size Hunting.

The Waterbury Watch Co. to the Retail Jewelers:

Consider

What availeth it a dealer to skin an extra discount from some jobber, when a dealer in notions will do the same or better and then parade this purchase at a cut price with no profit?

The cream is off the milk at once.

When you buy our goods you pay a uniform price, whether from headquarters, offices or agents. You are protected in your price. Your neighbor can buy no better than you can. The years we have been with the trade have shown them how successfully their profits have been held for them, and no manufacturer has done more to retain the business in the proper channels, or produce more stylish and artistic designs that appeal to the popular tastes. It pays every dealer to keep to schedule rates in selling our goods, and when one breaks the rule, labor with him to get back into line. It's the best co-operative plan in existence.

The Waterbury Watch Co.
Waterbury, Conn.



Technical Department

Technical knowledge is the basis of all mechanical training. Without it, the best efforts with the file and graver will be of an inferior value. This was, and is to-day, the only regular and systematically conducted technical department of similar schools in America. In planning all kinds of escapements, watch and clock calibres, and their intelligent application to practical work at the bench, the Canadian Horological Institute is second to none other in the world.



Merit alone has advanced this school to its high position. Conducted on the only plan which a reliable school can and will follow, it does not mislead inexperienced people to believe that they can become good workmen in one year, let alone in six months. Schools which claim ability to do so may be successful in receiving fees, but have a poor conception of their calling, while pupils of them are only recognized because the trade is overrun by them. In a short time a pupil may acquire what a third-rate instructor may know, but to become a good workman, well up in the science and practice of the most delicate and difficult of handicrafts, requires a reasonable period of time and competent instructors. The best school is such on account of its instructors; money endowment and buildings do not teach horology. Neither director nor instructors of similar schools have been honored as our chief. Last month we published an editorial from *The American Jeweler*, Chicago. We here give further evidence of it, taken from the *Horological Journal*, published by the British Horological Institute, London, England:

"Mr. H. R. Playtner, Director of the Canadian Horological Institute at Toronto, has issued a really excellent manual on the Lever Escapement, which is just suited for students who are endeavoring to thoroughly master the art. It also affords evidence that the school is presided over by an able teacher and thoroughly practical horologist."

It cannot be expected that a first-class instructor will risk his reputation through connection with an inferior school. This one is conducted "on honor," and is above make-believe schemes,

Practical Department

This is where the work was done which won all prizes in competition among schools, at Philadelphia, proving this to be the best.

SEND FOR NEW CIRCULARS.

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Clocks.

CXXIII.

High-Grade Finish for Escape-Wheels.



AS far as correct performance is concerned, an escape-wheel left as it comes from the cutter, except to finish and smooth the angle of contact where the tooth engages the pallet, will give entire satisfaction. This will probably be better understood by inspecting Fig. 1, where we show at *A* an escape-wheel tooth, the arc *x* representing the curvature of the pallet, and the arc *y* the arc through which the tips of the escape-wheel teeth pass as the escape-wheel revolves. It is evident that the extreme point of the tooth presents the only surface acted upon by the pallet.

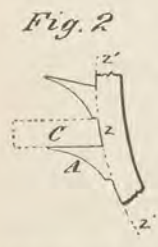


A Perfect Finish for Brass

The idea of polishing material embedding itself in brass and acting on the pallets is more worthy of thought than most people would imagine from superficial examination. All abrasives, when placed between two surfaces of different degrees of hardness, invariably attack the harder substance, the particles of the abrasive embedding themselves in the softer material and acting against the harder surface. In illustration, take two surfaces, one of lead and the other of hardened steel, and dust the contact surfaces with emery and rub them together. The steel will be worn rapidly, while the lead will be intact, except as the particles of emery have forced themselves into it. The emery may to all appearances be washed away with water, but still, on rubbing the steel and lead surfaces together, a sharp action of emery will display itself. In a similar manner, if we employed emery or rouge to polish our escape-wheel teeth, more or less of these substances would be held by the brass to act on the pallets, and emery will, to a certain extent, cut a sapphire. And even the oxide of iron in the form of rouge will cut steel or the softer stones, such as agates or pebbles.

Hence the only safe policy to pursue is to use some softer abrasive for smoothing the escape-wheel teeth. As we stated at the close of our article in January, 1898, willow charcoal is held in high favor with the horological fraternity for this purpose. There are other abrasives, however, which can be employed and which will cut brass, but not hardened steel or the softer precious stones, like agates or pebbles. We have such an abrasive in pulverized crown glass. This substance can be ground to fine powder and mixed with oil to a thick paste, and employed in the most satisfactory manner for our purpose.

The most perfect method of finishing the teeth of our escape-wheel is by grinding with a lap. To give an idea of how such grinding can be conducted we refer to Fig. 2, where we show an escape-wheel tooth in the process of grinding. The wheel to which this tooth belongs is supposed to be mounted on a chuck placed in an ordinary American lathe and held in position by the dividing device on the cone pulley of the lathe. The part shown at the dotted outline *B* represents the polishing bar with a concave polishing edge, shown at *z*.



This polishing bar is made of well-annealed sheet brass. To make such a bar, take a piece of

sheet brass of such thickness as will form the concave edge at *z*. Such brass should be about $1\frac{1}{2}$ " by $2\frac{1}{2}$ ". We show such a piece of brass at *C*,

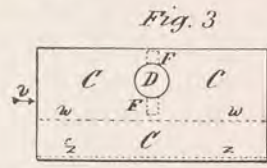
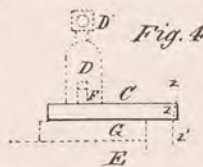
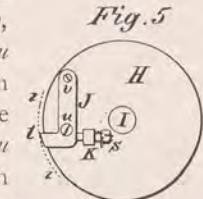


Fig. 3. Near one edge we make a hole of such size as to allow the tool-post of the slide-rest to pass up through it, as shown at *D*, Fig. 4, said cut being a view of Fig. 3 seen in the direction of the arrow *v*. At *E* is shown the upper slide of the slide-rest, to which the tool-post *D* is attached. The brass plate *C* is blocked up to such height as to make the curvature *z*, Fig. 2, come right. This curve is to agree with the arc *s*, Fig. 5, page 40, January, 1898, KEYSTONE. After the edge of *C* is bored to the curvature *z*, it is split on the line *w*, making the piece as shown at Fig. 6.

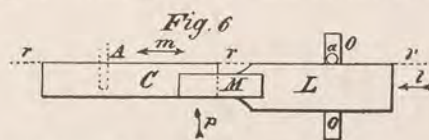
Fig. 3. Near one edge we make a hole of such size as to allow the tool-post of the slide-rest to pass up through it, as shown at *D*, Fig. 4,



The piece *C* is secured so the edge *z*, Fig. 3, stands parallel to the axis of the lathe, in which position it is secured by passing a short bar through the tool-post *D*, as shown at *F*, and setting up on it by the screw *D'*. The next operation is to bore out the edge of *C* to correspond to the line *z z'*, Fig. 4. This can be done by placing a disk of heavy sheet brass on a cement chuck. We show such a disk at *H*, Fig. 5. On the face of this disk we place the boring tool *J*, said tool being L-shaped as shown. The piece *J* turns on the screw *v*, which is tapped into *H*. At *u* is placed another screw, which is also tapped into *H*. The hole in *J* through which the screw *u* passes is in fact a slot, which permits an in-and-out motion to the cutting point *t*. This cutting point is moved out by means of the screw *s*, which is tapped through the stud *K*. This arrangement enables us to adjust the cutting point *t* to turn out the edge of *C* to the curvature at *z*, Fig. 2.



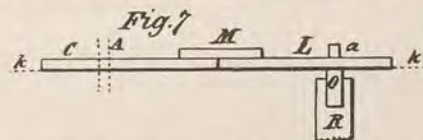
The edge of *C* is carefully finished, and, after annealing, is attached to the guide shown at *L*, Fig. 6. This guide is made of brass similar



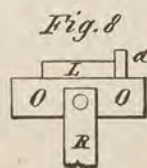
to *C*, and shaped as shown. *C* and *L* are joined by the piece *M*, which is soft-soldered to both.

How to Grind with a Flat Lap

The ruling ideas with these two pieces are (a) to have the inner edges of both *C* and *L* conform to the dotted line *r*; (b) to have the lower faces of *C* and *L* in the same plane on the line *k*, Fig. 7, said figure being a



view of Fig. 6 seen in the direction of the arrow *p*. We next get up a device to go into the T-rest holder, shaped as shown at Fig. 8, said figure being drawn as if seen in the direction of the axis of the lathe and the arrow *l*, Fig. 6. The piece *R* is made of wire which will just fit the socket to the T-rest. At *a* is placed a pin, against which the edge *L* rests as shown at *a*, Figs. 6, 7 and 8.



The idea of the device is, the parts are set and adjusted so that *C* rests on the tooth *A*, as shown in Fig. 1, and the guide *L* rests on the piece *O*, as shown in Fig. 8. Now, if all the parts are adjusted as they should be, the curvature of the edge of *C* will agree with the curvature of the base of the tooth of the escape-wheel, and the flat face of *C* will agree with the flat face of the front of the tooth *A*, Fig. 1. The pieces *C* and *I* are now moved back and forth in the directions indicated by the double-headed arrow *m*. The grinding faces of *C*, that is, the curve *z* and flat face resting on the tooth *A*, are charged with fine glass-dust and oil. The finish is much like that from charcoal, but more perfect.

"Cannot do without The Keystone. It is the best trade paper in the world for the money."—Geo. G. Lafayette, jeweler, Brockville, Ontario, Canada.

Show Windows in Small Towns.

Surprisingly few stores, says a contemporary, in towns of two thousand inhabitants and under give window-dressing the amount of attention its importance deserves. There are good reasons to believe that not one-half the merchants in small towns take their windows into consideration at all in their efforts to increase trade. They evidently do not know or cannot be convinced that a front window is good for much else than to permit light to enter the store. It seems that there are still merchants, thousands of them, who do not believe, or who have not yet had it proved to their satisfaction, that the benefit in dollars and cents resulting from fresh, attractive window displays is not worth the small addition to the store expense and the necessary time and thought.

They say that it may pay in cities and large towns, where people lay much importance to style and appearances, but that in small towns it would be of no avail as a trade winner, for there is no style there. Not a few who admit the value of window displays do not attempt anything of the kind themselves, because they have an exaggerated idea of the skill and artistic ability it takes to produce them. As a matter of fact, any one who has had experience in merchandise ought to be able to put in a window display that would be a credit to the store. Practice makes perfect, and if the same person is given the work to do steadily there is no question that the displays will improve, and in time bring recognition from the public. A display does not have to be as good as the best that are seen in Chicago and New York to be of value as a trade-winner. There may be many degrees of excellence, and because it is impossible to produce displays of the first degree it is absurd to suffer the windows to fall into neglect.

If any merchant chances to read this article who is among the number that are now awake to the possibilities of window-dressing, let us urge you to do something—no matter how little—in this line. The size of the town has not a great deal to do with it. No matter if the store is located at a cross-roads; it would be strange if there were not some one who would appreciate a neat window display.

In every small town there are people who are lured away to larger places to do part of their trading. In a great many instances they can do no better than at home, but they are impressed with the idea somehow or other that their home merchants are not up to date. It may be discovered that it is not the lack of goods, so much as it is the poor way in which the goods are displayed, that drives trade to other towns. This is an old, old truth, and it ought not to be necessary to repeat and discuss it so often; yet this space is not begrudged if it gives any one a better appreciation of the art of window trimming.

The Good Credit Man.

A man must be a good collector to get along successfully. If he can't collect his bills he can't prosper. He should, in that event, stop short in giving credit, even to his best friend. To be a good collector he must be a good credit man. A good credit man discriminates between the prompt-paying class of people and that element of improvidents that look upon him as a legitimate victim. The latter think him a hard-hearted wretch when, after months of waiting, he manifests an earnestness in collecting his bill. This is generally the thanks he receives for conducting business on the credit plan.

Caution to Watchmakers

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Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

“Half Time.”—What is meant by the term, and what is to be gained by running a watch on half time?

The phrase originated with the old-time verge watch, when, if a watch run without a hairspring only showed thirty minutes for every hour it run, it was accepted that the escapement was set about right. Well-made lever watches will run without a hairspring, from the recoil of the lever against the banks. That is, the jewel-pin will, after leaving the slot in the fork, make a full revolution, and, after striking the fork on the outside, recoil with force enough to return the jewel-pin through a full revolution and unlock the engaged pallet, when a new impetus will be given and the watch keep running. Any imperfection in the train will show itself with a watch running on half time that would escape notice with a hairspring.

“Hoosac.”—(1) Please give an idea of how to lay out a perfect cam, something like A, Fig. 1. (2) Please give instructions for laying out a name and then transferring it backwards for card plates. Fig. 1

(1) First decide on the diameter of the cam, and then the “throw” or eccentricity. This will be understood by referring to Fig. 2, where the dotted circle $y y'$ represents the extreme outer diameter of the cam, and the circle z the inner or smaller diameter. The distance between the circles $y z$ represents the throw. To equalize the throw for all the angular arcs of motion, we divide the circle y into any number of equal spaces, say eight, as shown, and draw the radial lines $x v$. Let us suppose the throw of the cam is to be $1''$; we measure in from the intersection of the circle y with the radial line $x v^1$ $1/8''$, and at the intersection of the radial line v^2 with the circle y $3/8''$, and so on around to the radial line $x y$, increasing by $1/8''$ until $1''$ is obtained. Connecting the points so established so as to form one continuous curve, as shown at the full line, defines a cam which gives equal lateral motion for equal angular motion of the cam. (2) Full instruction for doing this sort of work is given on page 23 of the third edition of our “Hand-Book of Letter and Ornamental Engraving on Metal,” by Cellini, Jr.; price, fifty cents.

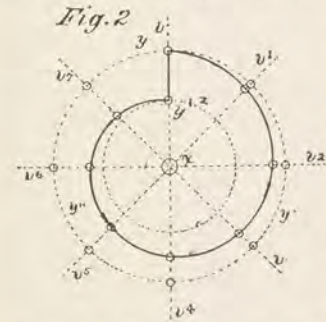
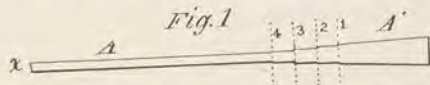


Fig. 2

“Riding Bows.”—What tools are required for drawing down gold straight temples to riding bows?

The manufacturers have a variety of ways for drawing or rather for producing taper wire, but the processes are seldom such as would be desirable for job shop purposes. A plan in common use is to roll the gold into a sheet of the desired thickness, and, after annealing, cut strips lengthwise of the sheet of the shape shown at A A', Fig. 1. The strip



of metal is then drawn successively through an ordinary wire drawplate up to the points marked at the dotted lines 1, 2, 3, 4, and then pulled back. To be more explicit, the strip A is first drawn through the drawplate up to the line 1, and then the end A' is seized by the draw tongs and pulled back out of the drawplate. The end x is next inserted in a smaller-sized hole in the plate and A is drawn through up to the line 2, after which the piece is withdrawn as before, repeating the operation until the main length of wire is reduced to the size desired. Of course this process leaves a series of slight steps, which need but a very little dressing up with a file to present a regular taper. The bead or tip at the end x is hard-soldered on after the drawing is done.

“Cedar Tank.”—(1) I have a cedar tank which holds about fifteen gallons, in which I wish to put a cyanide of copper solution. What can I put on the inside to keep it from leaking and also to protect the wood from the action of the cyanide solution? (2) How can I make copper cyanide?

(1) We know of no composition which will effectually protect wood from the action of cyanide of potassium; even gutta percha yields after a time. About the best practice seems to be to only employ the wooden vat during the time plating operations are going on. In explanation, suppose in your case you keep your tank full of plain pure water, and we wish to use it for plating purposes. Of course the planks of which it is made are saturated with water. We pour out the water and fill the tank with the plating solution. Of course none of the solution will soak in, as all the pores of the wood are full of water. Under such circumstances the

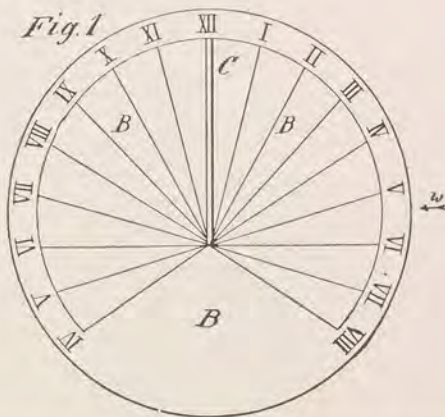
cyanide solution has but a slight chance to act. As soon as the operation of plating is over, remove the cyanide solution to enough stoneware jars to hold it, and fill the tank with water, letting it remain until the tank is again required for plating. (2) Add of a strong solution of cyanide of potassium to a saturated solution of pure sulphate of copper reduced one-half with water, as long as a deposit is formed. Any excess of cyanide redissolves the precipitated cyanide of copper. Allow the precipitate to settle, then pour off the supernatant fluid, pour on pure water, let settle, and pour off again, repeating the operation several times, to wash the precipitated copper cyanide. The ordinary commercial sulphate of copper is seldom pure enough to be employed for this purpose.

“Bent Pivot.”—What is the safest way to straighten a bent pivot?

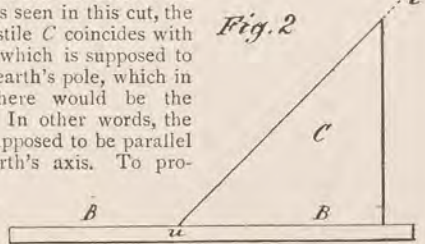
The best way to deal with a bent pivot is to break it off and put in a new one, from the fact that it is next to an impossibility to perfectly straighten a bent pivot. A workman who makes any pretence to rapidity of doing work should be able to put a new pivot in a balance-staff in fifteen minutes and do a first-class job. To straighten a pivot in a foreign watch is usually only to bend it straight, but in American watches the pivots are too hard to be dealt with in this way. Heating even in a moderate degree facilitates bending. Make a pair of copper slide-tongs to hold the staff. Heat as much as possible without bluing, then straighten pivot with a pair of heavy, smooth-bladed tweezers.

“Sun Dial.”—Please give a sketch of a sun dial. I want to make one.

The problem attending the proper construction of a sun dial is an intricate one, and even under the best modes of construction it is a very inaccurate instrument for computing time. The usual form of sun dial is a circular horizontal plate from which rises a stile or gnomon, which casts a shadow indicating the hour of the day. We show at Fig. 1 a plan or top view of a horizontal sun dial of the usual



construction. The bed B is placed in a perfectly horizontal plane, or, in other words, set with its upper face exactly level. From the level surface rises the stile C, which is made of thin metal, say a plate of brass. This stile is placed in the plane of the local meridian of the earth. At Fig. 2 we show a side view of Fig. 1, seen in the direction of the arrow w. As seen in this cut, the edge of the stile C coincides with the line $u t$, which is supposed to point to the earth's pole, which in this hemisphere would be the north pole. In other words, the line $u t$ is supposed to be parallel with the earth's axis. To properly lay off the hour divisions on the bed B requires a knowledge of spherical trigonometry, and for the amateur the safer plan is to mark the shadow cast by the stile (spelled both stile and style), as the hours pass, by a good watch set to local mean time, allowing for slow or fast clock as given in many of the almanacs. For full instructions in sun dial making our readers are referred to Ferguson's “Lectures” (Lecture 10, fourth edition, 1772, Edinburgh Encyclopedia, article “Dialing.”)



“Micrometer.”—I see in your articles “Watchmakers' Tools, and How to Use Them,” you are giving a description of a measuring device which is an attachment to a Rivett slide-rest. Now, I am much interested in all tools and appliances which tend to lift the watchmaker out of the cut-and-try system, which has been the staple method with him from time immemorial. What I particularly desire to know is, how I can adapt such a device to my Whitcomb slide-rest.

In the article to which you refer notice is given that a plan will be described, before the subject is dropped, for applying the attachment to such lathes as use the metric system for the traverse screws. We will give a brief description of the plan adopted with a Whitcomb slide-rest. The traverse screws of the slide-rest are cut to millimeters, which nearly agree with $1/25$ of an English inch; consequently if we put an index circle on such a screw, and divide such index circle into forty equal spaces, we will approximately realize measurements that are equivalent to

$1/1000''$. We could easily divide the index wheel just referred to into 100 spaces and read to $1/100$ of a millimeter, but such divisions would lead to worse complications than reading to one-fourth of a millimeter, which the divisions on our index wheel would really represent. We show at

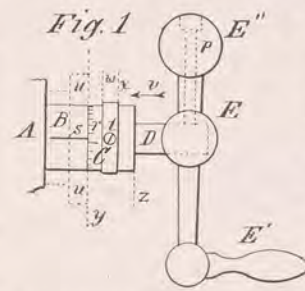


Fig. 1 a view of the end of the traverse screw to the upper slide of a Whitcomb slide-rest, with a portion of the upper slide. In the cut the part B represents a sleeve which is a part of the piece A, on which the upper slide of the slide-rest moves. To aid in the explanation we show at Fig. 2 an end view of the bed A and sleeve B, seen in the direction of the arrow v .

In the cut at Fig. 2 the crank E and the take-up nut C are supposed to be removed, and we look directly at the end of the sleeve B and bed A. The index for measurements, as the slide-rest comes originally, is shown at r , Fig. 1, and the zero mark at s . The take-up nut C can be removed by slacking up on the screw t , when, by holding the crank E E', it can be turned back until it is free except for the crank E. To remove the crank E, turn out a small screw in the counter ball E''. Said screw is indicated at the dotted lines p , Fig. 1. We have now to add the index-wheel, which we divide into forty equal spaces. There are really two index-wheels to be made, one of which is indicated at the dotted outline u , Fig. 1, and shown by itself at



Fig. 3. This wheel u goes tightly on the sleeve B, and is held in place by the setscrew l . The wheel u has a hub u' , in which this setscrew is located. This wheel has a zero mark upon it, as shown at o , to which the division on the wheel on the take-up nut C reads. This take-up nut is of rather peculiar construction, as will be understood by inspecting Fig. 4, where it is shown separate. A central zone surrounds the nut between the lines

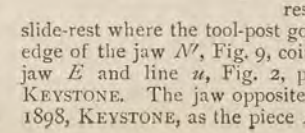
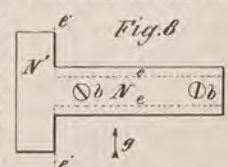
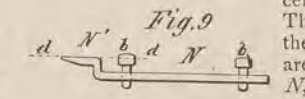
$w x$. Said zone is milled, to facilitate the setting up of the nut C on the screw D. The problem we have in hand now is, how to enlarge the diameter of the nut C to the same size as the wheel u on the sleeve B. No doubt if we had a tap which exactly matched the screw on D on which the nut C turns, the cheapest way out of the puzzle would be to make a new nut the same size as u , Fig. 3. But inasmuch as very few watchmakers would have such a tap, or facilities for making one, the better plan seems to be to enlarge the nut C by enclosing it in a device very similar to the mainspring barrel of a fusee watch. How to carry out such scheme will be apparent by a study of Figs. 5 and 6.

Fig. 5 is a side view of the parts shown in Fig. 4, except that the parts shown in dotted outline are shown in full lines. The cut at Fig. 5 shows the parts illustrated in Fig. 4 as seen in the direction of the arrow k . Fig. 6 shows a vertical section of Fig. 5, seen in the direction

of the arrow i . The mode of construction is to take a piece of brass of such size as to make a disk $3/4''$ in diameter and as thick as the length of the nut C. A hole is next bored axially through the disk, of such size as to receive the end of the nut C. The disk is next recessed to the form shown at the full lines in Fig. 6. A disk of brass is next fitted to the open side of m , as shown at the dotted outline m' , Fig. 6. This last-named disk is also bored to receive the outer end of the nut C. Three small screws are next provided, as shown at $h h h$, Fig. 5, which clamp the parts $m m'$ together, enclosing the nut C. We show the completed index disk at Fig. 7. This is drawn as if Fig. 5 was seen in the direction of the arrow f . There is a hole made in the index drum or pulley m , shown at t , which is placed opposite the screw t and allows this screw to be turned for setting the nut C fast in position. The rear jaw of the caliper is essentially the same as that described for the Rivett lathe. The jaw attached to the slide of a Whitcomb slide-rest is more simple in construction than the

one employed with the Rivett. We show a top view of such jaw at Fig. 8, and a side view, or as if seen in the direction of the arrow g , at Fig. 9. The piece $N N'$ is made of sheet steel about $1/16''$ thick, and the width of the part N is the same as the slot in the top slide of the slide-rest, which re-

ceives the foot of the tool-post. The screws $b b$ are for holding the piece N in position. They are tapped through the piece N , the lower end of the screws resting on the channel in the slide-rest where the tool-post goes. The height of the upper edge of the jaw N' , Fig. 9, coincides with the height of the jaw E and line u , Fig. 2, page 967, December, 1897, KEYSTONE. The jaw opposite N' is described in January, 1898, KEYSTONE, as the piece B.



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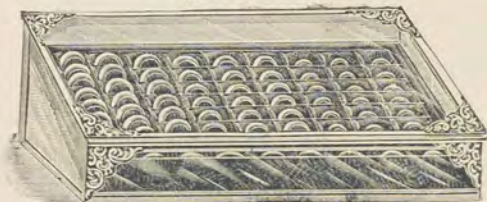
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Gold-Mining in the Klondike.

THE rush to the gold fields of Alaska has already begun, and among the first to start on the perilous journey are a number of jewelers who expect to find in the tributaries of the Yukon the wealth that comes to them all too slowly at the workbench. As time and search have only intensified belief in the marvellous richness of the fields, the spring will, no doubt, find all roads leading to the Klondike, and a more general study of the science of gold-mining. To such as are eager for official information as to the gold fields of Alaska, and as to gold-mining generally, we would commend a book entitled "Klondike and the Yukon Country," a work of over 200 pages with maps and photographic illustrations. Owing to the general interest in the subject of gold-mining, we reprint from the above volume the following extracts and illustration:

Placer Mining and Hydraulics

There are four stages in the development of newly-discovered gold fields, such as those which have been found in the Yukon Basin.

First come the men with crude outfits and few resources, who, with pan and pick, gather the gold that lies near the surface, washing out the grosser earths and leaving the precious metal by itself. This is placer mining in its simple form.

After the gold lying on the surface and most readily at hand has been exhausted, a little more complicated process is called into play. This is conducted by groups or associations of miners who use "long Toms" and cradles.

Hydraulic mining is the third stage. In hydraulics water is brought from a long distance and applied to the pay dirt at great pressure in order to separate the gold from the dross.

Last of all comes quartz mining, or tearing the gold by main force out of its beds in the rock beneath and separating it by means of stamps and pestles.

In the Yukon region the process has not yet passed the first stage, and so rich are the finds there and so difficult the importation of machinery and supplies that it may be years before the last stages will become available, although the never-satiated thirst for gold, combined with modern enterprise and ingenuity, is likely to make even the frozen rocks of Alaska amenable to modern appliances.

The history of placer mining is full of romance. It is as old as the world itself, if any reliance can be placed upon the traditions that have come down to us from prehistoric times. Gold dust and nuggets came in exchange to the Greeks from the barbarians of the north centuries before the birth of Christ, and it has been surmised that the precious metal was taken out of the mines in Siberia and in the Ural Mountains, which still yield so generously. The first placer mining of which there is any record was carried on by digging the sand or gravel, mixing it thoroughly with water, and then pouring it over floating platforms covered with skins, in which the gold settled, while the lighter sand flowed off with the water. To this practice we doubtless owe the mythological story of the journey of Jason with his Argonauts in search of the Golden Fleece. The Golden Fleece, it has been surmised, was simply the skin of the sheep which was used to catch these golden products of the placer miners. And it is significant that the voyage of the Argonauts was up the Black Sea or the Euxine into the very region of the Ural Mountain gold fields which have already been mentioned.

The beginning of placer mining in America may be said to date from the discovery by James W. Marshall of pieces of gold while digging a race for a saw mill at Coloma, California, January 19, 1848. The announcement of his discovery was the signal for an influx of argonauts, and those who first landed in California had for implements only the pick, shovel, rocker and wheelbarrow. This is about the outfit of a miner in the Klondike region to-day. It was only a few months, however, before the necessities of the case compelled the introduction of what is known as the "Long Tom." This is a rough trough ten or twelve feet in length, narrow at the top and wide at the lower end, set on an incline, with an iron plate on the bottom perforated so that the gold will drop through as it is washed along. The "Long Tom" is really a development of the rocker or cradle. The rocker what its name implies. It has a hopper at one end, with a perforated bottom, and this stands over an inclined canvas stretcher.

Hydraulic Mining is essentially the result of American inventive genius. It is the perfect development of the early form of placer mining as illustrated in the cradle and the rocker, for it may be said that the rocker, which is the rudest and simplest of all machines employed in the separation of

gold from gravel, embodies all the essential features of the elaborate machinery used in hydraulic mining. For instance, the cradle is an oblong box, about four feet in length, mounted on a pair of transverse rockers and furnished with a set of graded sieves laid in tiers, "riffles," amalgamated plates and blankets, for the separation and arrest of the gold in its descent from the hopper into which the gold-bearing gravel is placed, to the outlet at the lower end. These devices are all present in hydraulic mining, but they are so enlarged as to be hardly recognizable. Hydraulic mining may be said to have had its origin in the invention of the flume by a Connecticut Yankee named Mattison in California three years after the discovery of gold. The flume was a very simple thing, consisting of a trough to bring water down the hillside from a ditch over where the mine was opened. The first flume gave the water a head of about forty feet, discharging it into a barrel, from the bottom of which depended a hose about six inches in diameter, made of common cowhide and ending in a tin tube about four feet long, which tapered to a point about an inch in diameter. With the head of water thus obtained, a stream turned dirt and washed off the lighter earth and gravel, while the coarser gravel was washed more carefully and thrown out with a sluice fork, the name of the stick used for

that purpose. This flume was called a sluice. Later came the "ground sluice," which consisted in making the bed rock on which the pay dirt rested perform the duty of sluices, while a stream of water, used for washing away the dirt, was constantly trained against the bank. This water had about the same effect as water in any stream rubbing constantly and ceaselessly against its own banks where they offer resistance to the current.

It can be easily seen how modern hydraulic mining grew out of these comparatively simple contrivances. For the cowhide hose, canvas and then iron were substituted, and improvements have been constantly going on, until now it is estimated that \$100,000,000 is invested in ditches, dams and tunnels in California alone. Water has been carried from almost incredible distances around apparently insurmountable obstacles so as to be brought into play for the washing of gold out of the gravel

of arid diggings. In some instances from 250 to 300 miles of ditches and canals have been built at a cost of millions of dollars before water could be brought to play upon the gold-bearing dirt. Indeed it is an axiom among miners that the richness of the gravel is not so important as the abundance of water, for with water in sufficient quantities gravel containing even insignificant percentages of gold can be made to pay, and through the application of American inventiveness it has been found possible to wash out the deep gravel deposits on the high banks of the canons of streams where gold has been found. The beginning of this complete method of hydraulic mining is usually given as 1856. It was not until more than ten years after this that hydraulic mining was revolutionized by the introduction of the "monitor" in place of the discharge pipe of earlier days. After iron began to be employed for the flumes the pipes were gradually enlarged and strengthened, until they measure now from fifteen to thirty inches in diameter, terminating in monitors, which discharge the streams of water against the rocks with such tremendous force as to toss about like pebbles rocks which are tons in weight. The hydraulic monitor in action resembles very much a piece of military or naval ordnance. It is united to the supply pipe at the breech with a water-tight socket joint, which enables the miner to direct the nozzle toward any point. In spite of the tremendous force which the hydraulic monitor represents it can be managed almost by a child through a simple and effective arrangement called the "deflector." The deflector consists of a sleeve of sheet iron working on an elbow joint over the nozzle. To this sleeve is riveted an iron handle four or five feet long, by means of which the deflector can be moved so that the lip shall impinge on a column of water emerging from the nozzle of the monitor. An almost imperceptible angle is thus formed in a column of water which slowly moves the monitor in the opposite direction, relieves the friction and straightens the line of discharge. With all this tremendous force at work it is remarkable that modern hydraulic mining should have been carried to such a point of perfection that the amount of gold lost in washing is hardly worth taking account of, although in the old methods of placer mining it was estimated that from one-third to one-half of the fine gold was carried away in the debris.

This stream, tearing away the banks of gravel, forces tons of gold bearing dirt through the water-tight open drains known as sluice boxes, which are made of heavy boards covered on the bottom with blocks, with spaces for the gold to settle in.

[A copy of the book "Klondike and the Yukon Country," from which the above extracts are made, will be sent from this office, postpaid, on receipt of fifty cents, the publisher's price.]



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The Human Side of the February Hero.

BY JOHN TWEezer.

February Twenty-second is nigh, and the annual adulation of the Father of His Country portends. At the risk of suffering reproach as an iconoclast, I propose to take the halo from the canonized figure for a moment and ask the hero to step down from the pedestal to meet his fellow men on the level for purpose of closer inspection. For the present we will turn to the wall the sign, "Do not touch," which for so long has guarded the sacred presence. We want to know whether he is a demi-god, or whether he was limited by human weaknesses and influenced by human passions. I believe we will gain, rather than lose, by making a mortal of Saint George; I believe we need *examples* rather than *idols*.

Washington was a man of such liberal view and honest conviction that his spirit would speak to us to-day in Shakespeare's words, could it find voice: "Speak of me *as I am*: nothing extenuate, nor set down aught in malice." We should not dishonor him by the indiscriminating praise which he himself would have spurned. In every country boasting a history there is a tendency to gift its leaders and great men of the past with powers superhuman; and even the keen, practical American is engaged in the same process of hero-building which has given us Jupiter and Apollo in the earlier mythologies, and King Arthur and William Tell in the later. We have practically adopted the English maxim, with reference to Washington, that "the king can do no wrong." With the greatest veneration for our first citizen, I yet must confess a certain doubt as to whether he was *quite* the absolutely perfect creature which the Third Reader would have us believe. At least it is a comfort to know that he was a human being, like the rest of us; and he will be all the more endeared to us if our sympathies are excited by a recital of the evidences of his humanness.

Was He Vain of His Looks

Washington stood six feet three and a half inches in his stockings, was straight as an Indian, and in his younger days took a vast amount of satisfaction out of his own fine presence; but his firm-set mouth, which has a suspicion of "wooden cigar-store Indian" in its lines, showed very bad and irregular teeth when opened, to the chagrin of The Father's vanity. The "majestic strength of his countenance" was in some slight degree derived from an unwillingness to needlessly show his teeth. His face was pitted with small-pox. His frame wanted filling up. He was a splendid historical figure, but he would never have succeeded as a professional beauty in a dime museum. He was serenely oblivious to any shortcoming in his good looks, and was exceedingly well satisfied to sit, time and again, for his portrait. Writing to a friend, in 1785, he said: "No dray-horse moves more readily to his thills than I to the painter's chair." When Stuart was painting the famous picture of Washington, the great man stuffed cotton under his lips to supply the place of the missing teeth; and that fine portrait consequently does *not* show a likeness of Washington's mouth. But in 1796 he purchased "two sets of sea-horse (hippopotamus ivory) teeth," and he "was happy ever after."

His Slips in Spelling and Grammar

To all of us who make occasional slips in grammar and spelling comes a certain relief in embarrassment from the knowledge that the Father of his Country was "poor at grammar, a bad speller, but a good cipherer." He was a non-conformist in respect of the King's English. Through his whole life he spelled lie "Iye," liar "Iyar," ceiling "cieling,"

oil "oyl," blue "blew," rifle "riffle," Latin "Latten," and "extravagence," "imagine," "spirmaciti," "yellow oaker" and "winder" (for window). But he always spoke in self-depreciation of his education, and he frankly admitted his literary shortcomings at the time of his election as chancellor of William and Mary College, concerning which, Boucher says, his sensitiveness "drew on him, in Virginia, some ridicule." His Farewell Address was written from a draft prepared by Madison, was revised by Hamilton, and "examined," before final publishing, by Wolcott, McHenry and Pickering for errors in grammar and composition. His life affords new proof of the fact that it is mind, and not education, that puts a man at the front of great achievements.

His Doubtful Faith

No one knows what Washington believed in religious matters. Gouverneur Morris claimed to be in his secrets, and Thomas Jefferson states that Morris declared that Washington was an atheist. Dr. Benjamin Rush, of Philadelphia, said that the clergy never could draw a word from him as to his belief, on his departure from the government, when they attempted to force him to declare his opinions. We know that Sunday was his "busy day"—he closed land purchases, sold wheat, regularly wrote the overseers of his farms on business details, and went fox-hunting on Sunday. Madison believed that he "had never formed definite opinions on the subject of religion." Certain it is, from multiplied testimony, that he "swore like a trooper." At a breakfast the Secretary of War rushed in on him with a pamphlet abusing the President, written by Edmund Randolph. "Have you seen what Randolph says?" he asked. "I have," said Washington, "and, by the eternal God, he is the damndest liar on the face of the earth!" But whatever his personal faith, he always threw his influence in favor of the public observances in favor of Christian practices, for the wholesome effect on the body politic.

"A Soft Heart for Women"

During all his life he had a "soft heart for women, and more if they were good-looking." In his sixty-sixth year, writing to a friend, he confessed that "in the composition of the human frame there is a good deal of inflammable matter"; and he was wont to recall the sufferings of his youth, when he wrote verses to Betsey Faultleroy (and wretched enough was the rhythm!), wore tight boots, and made love to pretty girls who distracted him. But it was all a decorous and proper love-making, and there is no ground for the stories that were circulated by a Senator and a clergyman of his time to the contrary. He was always fond of dancing, even during his later years; and in his youth he was a great dandy. He wrote the following instructions to his London agent: "Have a Coat made by the following Directions to be a Frock with a Lapel *Breast* the Lapel to Contain on each side six Button Holes and to be about 5 or 6 Inches wide all the way equal and to turn as the Breast on the Coat does to have it made very long Waisted and in Length to come down to or below the bent of the knee the Waist from the armpit to the Fold to be exactly as long or Longer than from thence to the Bottom not to have more than only one fold in the Skirt and the top to be made just to turn in and three Button Holes the Lapel at the top to turn as the Cape of the Coat and Bottom to come parallel with the Button Holes the Last Button hole in the Breast to be right opposite to the Button on the Hip."

He was very fond of billiards, cards, gunning and the theater. He was "real flesh and blood" in respect of his amusements.

His Business Capacity

We are accustomed to think of Washington only as a great political and military leader; but he also stood in the front rank of the *business* men of his time in the Colonies. He was the largest landholder in America in his day. He owned five great farms around Mount Vernon, comprising 8,000 acres; on which were employed,

as part of the equipment, brickmakers, carpenters, masons, coopers, shoemakers, weavers and an army of slaves, on which were erected mills, factories, dairies, distilleries and stud-stables; hundreds of cattle and a thousand sheep grazed on the broad acres, and he owned a schooner to take the vast produce to market. Besides this, he owned 8,000 acres in the Mohawk Valley, New York, 30,000 acres of Western land, and town lots in many cities. His minute attention to the details of his various enterprises was marvelous, when we consider the tremendous responsibilities of his public duties. He speculated in various land operations and corporate enterprises; tried to buy an interest in a privateer; and bought lottery tickets right and left. He kept most accurate account of income and expenditures. When he died he was one of the wealthiest Americans of his time (his estate was valued at \$530,000); and, notwithstanding the insinuations of his enemies, it is not now questioned that a fortune was never more honestly acquired, or more deserved as a reward of good management.

His Enemies

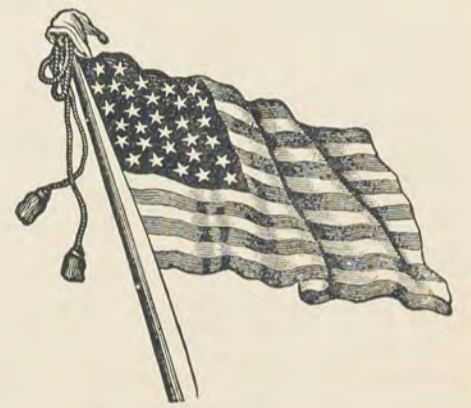
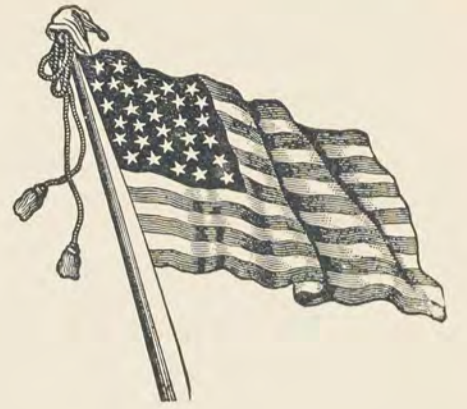
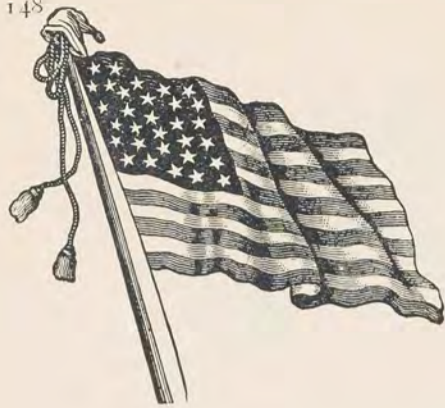
For this great man *had* enemies a-plenty; his cotemporaries were not of one mind as to his abilities and his deserts. General Gates suggested to the Congress that it appoint a committee to "watch" the commander-in-chief. General Conway wrote, "A great & good God has decreed that America shall be free, or Washington and weak counsellors would have ruined her long ago." General Charles Lee called him "a blunderer," "most damnably deficient," lamented his "fatal indecision," and declared that Washington's statement concerning Lee's conduct at the battle of Monmouth "a most abominable lie." Lee wrote, "There is a visible revolution in the minds of men, and our Great Gargantua, or Lama Babak, begins to be no longer consider'd as an infallible deity." John Adams declared that the "turn in the tide of arms is not immediately due to the commander-in-chief." Jonathan Trumbull said that "a much exalted character should make way for a *general*." Jonathan D. Sargent asserted that Washington had "lost two battles by blunders which would have disgraced a soldier of three months' standing." Other Congressmen who were opposed to Washington were Richard Henry Lee, Elbridge Gerry, Samuel Adams, William Ellery and Roger Sherman. But the most serious enmity was that which came with the alienation of his two earlier Virginian friends, James Madison and Thomas Jefferson. The latter personally wrote some of the bitterest newspaper attacks on the first President. These articles charged Washington with being "treacherous," "mischievous," "inefficient," spoke of his "stately journeyings over the American continent in search of personal incense," his "ostentatious professions of piety," and his "spurious fame." An editorial by William Duane declared that "the extravagant popularity possessed by this citizen reflects the utmost ridicule on the discernment of America." Dr. Benjamin Rush, of Philadelphia, was a bitter enemy; and Tom Paine closed an attack on him in these words: "As to you, sir, treacherous in private friendship and a hypocrite in public life, the world will be puzzled to decide whether you are an apostate or an imposter; whether you have abandoned good principles, or whether you ever had any."

The World's Estimate of Him

Well, the world seems to have quit puzzling, and to have decided that the Father of His Country deserved all the "extravagant popularity" which he enjoyed in his own time, and in increasing fervor since. The consensus of opinion is expressed by Tilghman, who declared that Washington was "the honestest man that ever adorned human nature." But it does not detract from his glory to learn that he was "of the earth, earthy"; that he had the passions common to humanity the world over; and we love him the more because he comes to our sympathies through his weaknesses, and to our affections through the "touch of nature" which "makes the whole world kin."

J. T.

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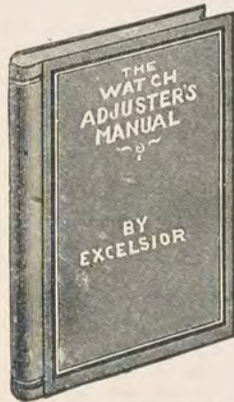


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Watchmakers' Tools, and How to Use Them.

CIV.

Closing of Description of New Style Micrometer Caliper.



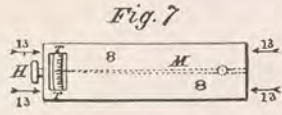
As stated near the close of our article on page 61, January, 1898, KEYSTONE, the hand *M* there spoken of should be very light, in fact not much, if any, heavier than a sweep second-hand. In the present article we shall necessarily have to refer to our January, 1898, article; and to save space and avoid confusion, we will abbreviate such references to the initials J. A. To designate similar parts we shall employ the same letters as were then used. We show the upper jaw of the calipers at *L'*, Fig. 1. Inasmuch as we exhausted the entire lower-case alphabet in our illustrations for our J. A., we will have recourse to figures to designate additional parts.

As shown at Fig. 1, the light index-hand *M* stands in the center of the index-arc *T*. This is supposed to be the normal place for the hand while a piece is being measured; still, it is not to be understood that the hand *M* must stand in the center of the arc *T*. The test is, when the piece being measured can be passed back and forth from end to end (that is, from *R* to *R'*) of the jaws *E L*, Fig. 2, without causing any perceptible movement of the hand *M* as relates to the index-arc *T*. We show the hand *M* separate at Fig. 3. When the piece *L* moves back in the direction of the arrow 2 it turns on the screw *g*, and in so turning it carries the hand *M* with it, and the short end of the hand, shown at *M''*, strikes the pin 3, which is inserted in the piece *L*, which lies below the piece *L* (see Fig. 4, J. A.), moving the index-hand *M* along the index-arc *T*.

The hand *M* turns on a pin placed in the socket *M'*. At Fig. 4 we show a side view of Fig. 3, seen in the direction of the arrow 1. The dotted line *L* is supposed to represent the upper surface of the piece *L*, Fig. 1. The hand *M* has a socket at *M'*, which goes on and turns on a pin set in *L*. To turn the hand *M* and keep it constantly pressed to one side, that is, against the banking pin 4', Fig. 1, we provide a spring shaped as shown at Fig. 5. This spring is secured to *L* by a screw with a wide head, set in the piece *L*. This spring is made of a piece of old hairspring to a nickel clock, bent to the form shown, the hook at 6' passing around a small pin in the lower side of *M*, as shown at 6, Fig. 4.

Some of the parts shown at Fig. 1 being necessarily quite frail, we must provide a sort of guard for them. This is easily done by placing a cap over the entire clamp *B* (see Fig. 4, J. A.). We show at Fig. 6 an elevation of the device precisely as shown in Fig. 4, J. A., except the dotted outline 8 shows the position of the cap we are about to add for the sake of protection.

At Fig. 7 is a top view



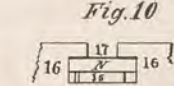
of Fig. 6, with the cap added. It will be seen that this cap has no opening, except at *g* to permit the index hand *M* to be seen. The cap 8 is attached to the piece *B* by four screws, the positions of which are indicated by the arrows 13.

The Great Advantage of Accurate Measurements

A little experience with the device we have just described will enable the workman to measure to $\frac{1}{1000}$ " as readily as to $\frac{1}{16}$ " with a pocket rule. Indeed, with such a micrometer as we have described a person can measure to one-fourth of $\frac{1}{1000}$ " with a very reasonable degree of certainty. Our reason for digressing from our description of jewel-setting with a slide rest was to afford the workman a tool for measuring a jewel, or indeed anything which requires to be accurately measured. We are aware that this measuring tool may be objected to because it requires to be set up every time it is used. We admit this, but would retort by saying that so does almost any other tool.

In further vindication of our device we would say that the clamp *B*, which includes all the essential parts except the jaw *E* (J. A.), can be put on or removed in less time than a wire chuck can be put in place, and it is ready for use; and to place the jaw *E* (see Fig. 2, page 967, December, 1897, KEYSTONE) requires but a very little more time. For adapting this device to other makes of lathes see our reply to "Micrometer," in "Workshop Notes," on page 143 of the present issue. To the description there given we would add a slight improvement to the jaw attached to the carriage, which lies in dispensing with the screws *s*, Fig. 8, and substituting a spring.

To avoid the bother of looking up the article referred to, we would say that to adapt the device we have described to almost any make of slide-rest we make the parts shown at Fig. 6 essentially as described, and for the jaw *E*, Fig. 2, we make a piece out of sheet-steel about $\frac{1}{16}$ " thick, shaped as shown at *N*, Fig. 8, when seen from above, and when seen sidewise is shaped as shown at Fig. 9. At Fig. 10 we show at 17 the channel in which the tool-post usually goes, and it is into this channel the piece *N* is pushed up to the shoulders 14, Fig. 8. On the lower side of *N* is placed a spring, shown at 15, Figs. 9 and 10, which insures the jaw *N'*, Fig. 9, standing precisely at the proper height to match the jaw *L'*, Fig. 1. After the part *N''* is bent to bring the jaws *L N'* to match, they are hardened and ground, after which they will need no change. As now devised, the jaw *N'* can be placed in position almost instantly. Indeed, thirty seconds at any time will serve to convert a slide-rest into a micrometer caliper of superior accuracy.



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Supervise the Details.

To be thoroughly successful, a retailer must keep an eye on his help. No subordinate can be found who will take the same degree of interest in the success of his business that he himself will. The proprietor must be watchful not only of his help, seeing to it that they do not grow indolent and indifferent to everything except the closing hour, but also of his purchases. Delegating the personal function to a salaried subordinate does not pay, and it has been proved over and over again where clerks acting as buyers for store have bought too freely, and indiscriminately, resulting in an accumulation of shelf-warmers hard to dispose of. —Ex.

The Kind that Wins.

The kind of a store that won in '97 and will win in '98 is just the kind of a store yours should be if you want to do a good business and to make money. Permit us to picture briefly what the right kind of a store should be, whether the town is large or small. We'll begin, if you please, with the sidewalk in front. It should be whole and smooth, whether of plank or stone, with no hollows in which water will collect to bedraggle the ladies' skirts. Just the kind of a sidewalk the neatest woman would have no hesitancy in dropping the bottom of her skirts upon while she gazes into your windows. It should be kept clear of snow and ice in winter, of mud in spring and fall, and of dust in summer. Next the windows—plate-glass, of course, spotlessly clean, and polished till they shine; neatly decorated with your best offerings, with price-tickets so the looker may know how cheap you sell. The door will, or should, open easily on noiseless hinges.

Inside one should be able to step on a clean, hard floor, flanked on either side by polished counters, just the right height, with stools at regular and convenient intervals for the weary shopper.

Back of these counters will stand neat, polite clerks, and at their back modern fixtures filled with the best-assorted stock that the merchant's capital will allow and his location warrant.

Does this general description fit your store in the more important details, or is the sidewalk rough, broken stone, which catches water and mud to soil the ladies' skirts, or worn-out planks, with protruding nails or loose slivers to tear them?

Are the windows only half cleaned and poorly trimmed? Is the door hard to open, the store floor almost as bad as the walk outside; are the counters rough and unsightly, the clerks careless and impolite, the fixtures out of date, and the stock they contain the "vintage" of former seasons?

If so, your position in the commercial world is a dangerous one. You may have just as bad a store as the one we described above, and still have made some money in 1897, and may in 1898. This is neither improbable nor impossible, for your store, even if it is a bad one, may be the best within the reach of the people of your community.

But if a couple of bright young fellows, with moderate capital but an abundant stock of energy, ideas and grit, should invade your town and give the people just the kind of a store you should have given them? What then? Wouldn't they flock to the new store, arranged on a new plan, with new stock, run on new ideas? Most certainly they would; and even if you should immediately pattern after the new store in every particular the trade would be forever divided, and, struggle as you might, you could hardly obtain more than your share.

If you haven't the right kind of a store, now is the time to remedy the matter. Don't wait until you are driven to it ungracefully by competition. Now, of your own free will, give your townspeople a store to which they can point, and you can claim, with pride. Then, if competition comes, your customers will say, "Well, Blank has always endeavored to run the best store the town could support, and so long as he continues to do so he will have our trade." Make yourself secure with your trade before it is too late. —Dry Goods Reporter.

Good Business Mottoes.

Deal openly with your clerks, that they may be frank with you.

Attend to your business closely yourself, for "when the cat's away the mice will play."

Prefer giving credit to a poor honest man rather than a well-to-do reckless and careless man.

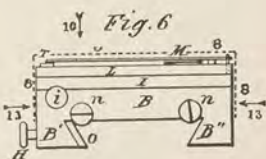
When you find a person who is a regular customer of your competitor asking credit of you, as a rule beware of him.

If a customer, however poor, patronizes you, serve with as much care, attention and civility as you would your best customer.

If a customer wants an article not usually kept, get it, however small, even if you do not see any profit in the transaction.

If a customer at a distance sends an order in which are items not usually carried, execute it complete if the goods can be procured in your city. —Ex.

"Enclosed find one dollar for *The Keystone*. I can't do without it. I have turned one or two ideas found in it into as much cash as the journal cost me for a year. The best paper published in the interest of the trade."—Val Taylor, jeweler, Beebe, Arkansas.



At Fig. 7 is a top view

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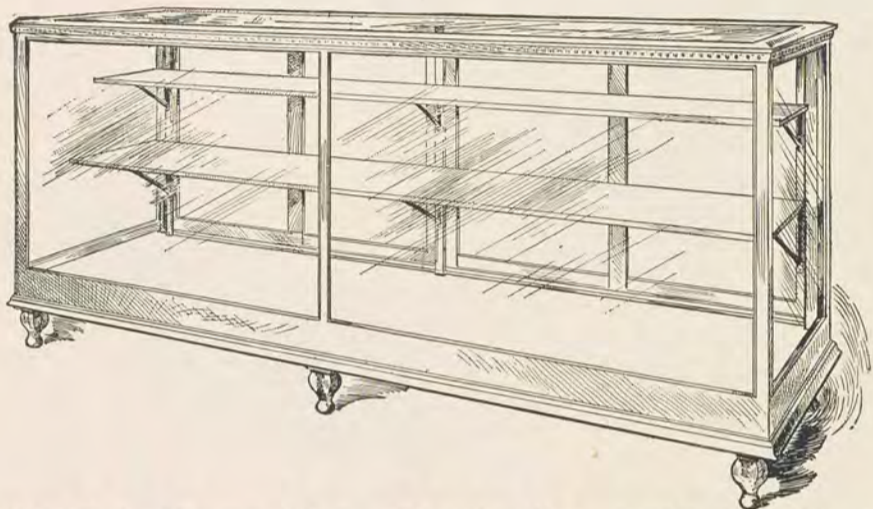
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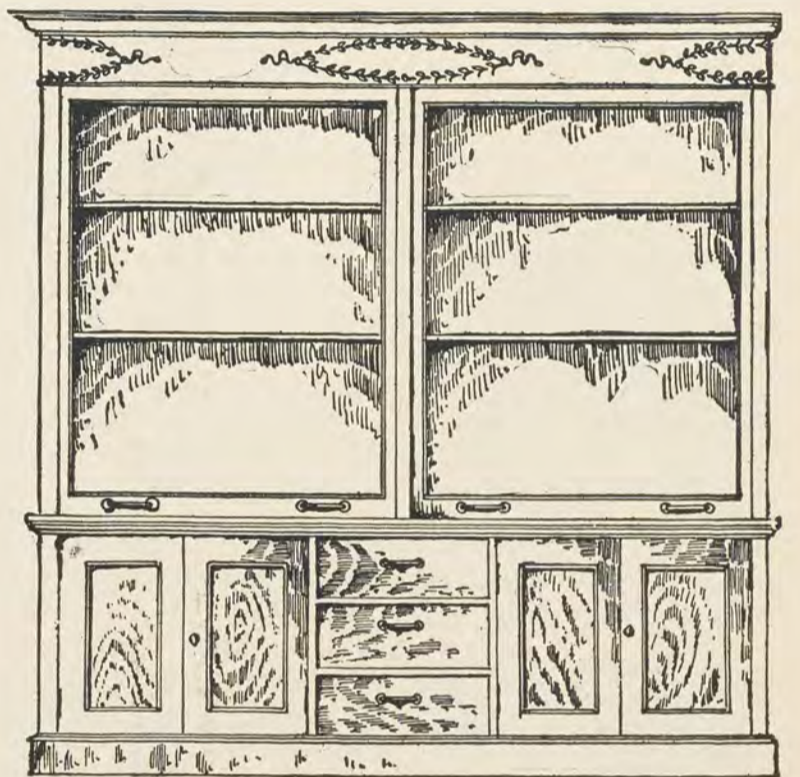
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Hairsprings, Springing and Adjusting.

XLII.

A General Summing Up.



WE are now approaching the close of this series of articles, and before doing so we would make a sort of *resumé* of what we have presented to KEYSTONE readers. As announced in the commencement of these papers, we have confined ourselves chiefly to such details and instructions as could be applied in everyday workshop routine—in fact, have given practical instructions for practical workmen in the art of springing and adjusting watches. We have also described in detail several original and advanced tools to aid the artisan in doing the best work with a saving in time.

Among such tools we can mention a hairspring gauge, which is much in advance of any tool of the kind on the market, and still so simple in construction that any ingenious workman can build one. Another tool was one which enabled the workman to select at once the proper hairspring for a balance where the old one was lost. See page 225, March, 1896, KEYSTONE. Still another time-saver is in the form of an automatic vibrator for determining the point at which a spring should be pinned in for correct performance. See page 40, January, 1896, KEYSTONE. In the matter of adjustments we gave complete details of the best automatic apparatus for temperature adjustments ever given to the trade.

In dealing with adjustments to isochronism we gave about all the methods adopted by professional adjusters, and also specific instructions for producing isochronal adjustment by employing the curb pins to quicken long vibrations. The entire gist of this method, applicable to both flat and Breguet hairsprings, is, to select a hairspring which gives the long vibrations slower than short ones, when by opening or closing the curb pins the long and short vibrations are brought to equal time intervals, or, in other words, isochronous. The watch so adjusted is regulated to time by the time-screws. When the watch is in the hands of the owner he can employ the regulator for slight corrections without materially affecting the adjustments. We do not assume this method as original, as it has been practised in England for a long time; but we do claim to have essentially simplified the process.

Some of the more recent writers, in the theoretical consideration of hairsprings, especially for marine chronometers, have dealt largely with higher mathematics. About the first writer of this kind was M. Phillips, in an essay bearing the title "*Sur le spiral réglant.*" We give a synopsis of the memoir, with a diagram and formula, as a supplement to this article. Such terminal curves as M. Phillips deals with apply chiefly to cylindrical balance-springs, such as are employed for marine chronometers. Of course a Breguet hairspring comes into the same category, but has only one terminal coil, which can be bent to the Phillips curve.

It may not be amiss to say that the English chronometer-makers had been making practically the same terminal bends to their hairsprings for marine chronometers for years before M. Phillips proved by mathematical deductions that such curve was the true theoretical form. The essays of M. Phillips have been put into book form (in

French) and sold for two francs. While we admit that the work is of practical value to the makers and adjusters of marine chronometers, still we do not hold the consideration of the matter at this time to be of sufficient importance to give the necessary space to explain the theory and methods of applying it. We would add that in order to understand M. Phillips's theories involves in the outset a knowledge of higher mathematics.

A still more profound work on timing and adjusting is by the late M. Lossier, director of the school of horology at Besancon. This work also involves a knowledge of higher mathematics to make it available.

In the series of articles of which this is the closing contribution, we have carefully avoided introducing any matter which could not be understood and made practically available by any man of sound intelligence and a common school education.

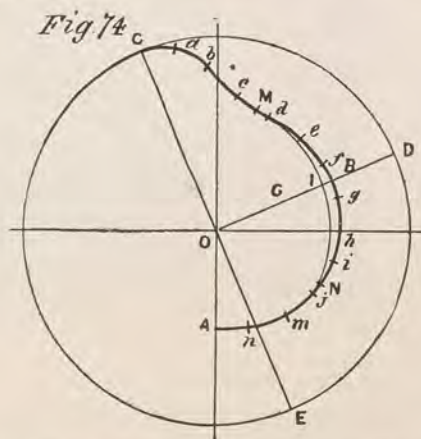
We have received repeated assurances during the serial publication of these articles, from skillful members of the watchmaking craft, of their great practical value, and we are fully convinced that any skillful working watchmaker can, if he carefully follows the instructions given in this series of articles, spring a watch to that degree of perfection that it will pass the inspector of any American watch factory, and this is saying a good deal, for the standard insisted upon in the best American factories is very severe. The only fear we have of criticism is from those who fail to find as definite instructions as they desire in the matter of adjustments. To such critics we would say that we have "boiled down," so to speak, about all that can be said to advantage on the subject, and put it into a shape available to the average practical watch repairer.

In regard to adjusting, as in fact as regards all subjects treated in our technical articles, any point or difficulty which asserts itself to our readers can be made clear by addressing a query to our "Workshop Notes" department. During the period of the publication of our articles on "Hairsprings, Springing and Adjusting" we received but one letter of inquiry relating to the Phillips terminal, and in reply to our correspondent we promised that before closing the series we would give the subject space in our journal; and in accordance with such promise we append the following extract from Saunier's "Modern Horology."

Addendum to Hairsprings.



IN his memoir "*Sur le spiral réglant,*" M. Phillips shows that if the terminal curves of a cylindrical spring satisfy the following conditions ($ABMC$ being the curve, G the center of gravity of the curve, and O the center of figure of the spring, Fig. 74):



(1) OG must be perpendicular to the radius OC , C being the point at which the terminal curve $ABMC$ starts from the body of the spring.

(2) OG must be a third proportional to the radius OC and the length $ABMC$ of the curve, so that we have

$$OG = \frac{OC^2}{ABMO}$$

A balance-spring that is so arranged, the two ends being formed into parallel curves that satisfy these conditions, will possess the following properties:

(1) The center of gravity of the spring will always be on the axis of the balance.

(2) The spring, in opening and closing, will always remain perfectly cylindrical and concentric with the axis, and its force will increase in proportion to the angle of rotation of the balance (principle of isochronism).

(3) The spring will not cause the balance, at any point of its movement, to exert any lateral pressure against the sides of the pivot-holes.

The late Prof. Lossier, to whom we have before referred, goes much more profoundly into the mathematical consideration of the balance-spring, but, as we have previously stated, his work is a sealed volume, except to those conversant with higher mathematics. We have in preparation a series of articles on "Accessory Studies for the Horological Student," which embrace enough of higher mathematics to make Prof. Lossier's work intelligible to those who first master our mathematical course. We would further say in relation to our mathematical course, that the method pursued is strictly inductive. Commencing with the student who is only proficient in common arithmetic, he is led along step by step to a sufficient knowledge of geometry to understand trigonometry and mensuration. To this are next added logarithms, followed by an analysis of the principles of algebra stripped of the puzzles and profound mathematical enigmas in which the average professor of mathematics so dearly loves to envelop his science. This series of articles is intended to furnish the horological student with all the mathematics his art demands, in a practical and condensed form. After such knowledge is acquired the formulas of Lossier and others are easily comprehended. It may not be amiss to say that all mathematical formulas, as applied to practical mechanics, must be modified to conform to the attendant circumstances—the word "environment," as employed by scientists, conveys the idea exactly. We employed the word circumstances just above, and now let us explain—or, rather, illustrate the idea we wished to convey. No doubt theoretically (as proved mathematically) a cylindrical balance-spring provided with the Phillips terminal curves should, with the mechanically perfect balance, give isochronal vibrations; yet every practical chronometer-maker knows that stiffness of the compensating curb of a chronometer balance is also a factor in the problem of isochronism as well as the form of the terminal curves. Thinner and weaker compensating curbs in a compensating balance would give slower long vibrations with the same spring than would a balance with less flexible compensating curbs. Again, it is claimed for the Phillips curves that a spring provided with such curves constantly maintains the center of gravity of the spring coincident to the axis of the balance; but there is another role which centrifugal force plays with the compensating curbs of a balance other than the one just above cited, which is, the unequal (time) return of the compensating curbs after being thrown out by such centrifugal action. The facts are, the center of gravity of the balance is constantly moving about, and affects the rate of a chronometer much more than a slight shifting of the center of gravity of the balance-spring can do.

We fully admit the value of all mathematical knowledge which tends to improve horological and other instruments; but still the practical man should not allow the idea to too strongly impress him that in the realization of such theories lies the remedy for all his troubles. The Phillips curve will never compensate for a cracked jewel, badly polished pivots, or a badly set escapement. For the everyday working watchmaker the American factories have decided on the better policy to pursue, which is, if a watch does not come to time and give good average results with given hairspring, take it out and put in another—the cash balance also justifies such course.

FINIS.

American Lathes and Their Attachments.

LXXXVIII.

Making Cutters for Wheel Teeth to Match Old Stem-Wind Wheels.

WATCH repair workmen are very seldom called upon to cut a wheel for a stem-wind train, except to replace a broken one. In such instances the best policy to pursue is to use the old wheel to form a cutter. To carry out this idea, we mount the old wheel (after hardening) on a special tool and place it in the tool-post to our slide-rest. This will be understood by inspecting Figs. 1 and 2, where *B* shows the wheel and *A* the tool on

which the old wheel is mounted. The cut at Fig. 1 is as if seen in the direction of the axis of the lathe; Fig. 2 is a view of Fig. 1 seen in the direction of the arrow *y*. The dotted arc *v* represents the periphery of the cutter we are making. The old wheel *B* is attached to the cutter *A* by a screw, shown at *z*. To insure extra stability we can employ a little soft solder to strengthen the joint between the wheel *B* and tool *A*.

In order to realize a cutting angle on the wheel *B* we must set said wheel so its upper surface comes below the center of the cutter. This idea is illustrated at Fig. 1, where *w* represents the center of the cutter placed in the lathe, and the dotted line *u* the plane of the upper surface of the old wheel *B*. Such angle is certainly not the best form for a cutter, but still it can be satisfactorily employed by working slowly. The next mechanical problem on hand is to arrange to give the tool *AB* a reciprocating motion back and forth in the directions indicated by the double-headed arrow *t*. Such reciprocating motion need not exceed $\frac{1}{1000}$ " to accomplish all we require.

We show at Fig. 3 a magnified illustration of the form of the edge of such a cutter for the teeth of wheels. The edge represented by the wavy line *s* should have about twelve indentations and corresponding projections. Cutters of this kind should be rather small in diameter, say about $\frac{5}{8}$ ". For turning such cutters the lathe-spindle must be revolved very slowly. As such slow motion of the spindle is also desirable for cutting screws, we shall deal with it more completely than we shall with some of the other technical matters treated in this article.

The best plan for revolving the lathe-spindle seems to be to attach a small crank to the hand-wheel on the drawing-in spindle. Such crank can be made of either wood or metal. Hard wood which does not split easily answers well. We show such a crank at Figs. 4 and 5, the cut at Fig. 4 being a view as if seen in the direction of the axis of the lathe. The cut shown at Fig. 5 is a

side view of Fig. 4, seen in the direction of the arrow *l*.

At *E'* is turned a recess which will just receive the hand-wheel of the drawing-in spindle; at *o o'* are placed two pins which extend diagonally over the hand-wheel, and opposite to these pins is placed a screw, shown at *p*. This screw will have to be removed when the crank is taken off the hand-wheel; and when the crank is attached to the hand-wheel the screw *p* is put in place to keep the crank in position. We must next arrange to have two gear wheels, one having ninety-six and the other eight teeth, so placed that at every revolution of the crank the small wheel will revolve eight times. The large wheel is placed on the spindle of the lathe.

We can hardly give specific instructions for doing this, because no two makes of American lathes are exactly alike where the drawing-in spindle goes into the arbor of the lathe. We think, however, that any ingenious workman can hardly go astray when he knows that the wheel having ninety-six teeth must be attached to the lathe-spindle, and the eight-leaved pinion set on some support so as to gear into said wheel of ninety-six teeth. Such wheels can be bought of any large hardware supply house. The ninety-six-toothed wheel should be about $\frac{1}{16}$ " thick, and the eight-leaved pinion about $\frac{1}{8}$ ". Let us suppose the ninety-six-toothed wheel is attached to the lathe-spindle by a sleeve which slips on friction-tight, and the eight-leaf pinion is attached to a cock supported by the lathe-bed.

How to Fasten Attachments to a Lathe-Bed

A very convenient plan, and one which in no way mars the lathe, is as follows: In the upper part of the bed of all

American lathes is a channel shaped as shown at *m*, Fig. 6, said cut being an end view of the bed of any American lathe. To take advantage of this channel we get out a strip of hard brass which will just slip endwise into the channel. We show such a piece of brass, seen edgewise or in the direction of the arrow *f*, at *I*, Fig. 7.

We bend this piece of brass upward as shown at the dotted lines *I'*, and it affords support for the plate *J*, to which is attached the eight-leaved pinion *G*. For holding the piece *I* in place, the setscrew *a'* passes through *I* and rests on the bed of the lathe.

We show at Fig. 8 a view of Fig. 7 as if seen in the direction of the arrow *i*. This view shows the plate *J*, with the eight-leaf pinion *G* attached so as to properly gear into the wheel *F* of ninety-six teeth. When the setscrew *a'* is manipulated, the headstock of the lathe is, for the time being, moved toward the tailstock.

The pinion *G* turns on a screw center, said screw entering the plate *J*. Said pinion *G* has a piece of brass attached, which serves the purpose of a crank for producing the reciprocating motion required by the tools shown in Fig. 1. We show at Fig. 9 a side view of the pinion *G*, Fig. 8, seen in the direction of the arrow *k*, with the crank *L* attached either by soft solder or rivets. The wrist-pin *d* is a screw and can be set at different distances from the center. The screw *b b'* forms the stud on which the wheel *G* and piece of brass *L* (which is virtually a crank) turn. We shall necessarily have to defer further description to our next issue.

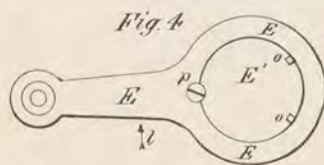
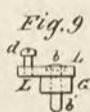
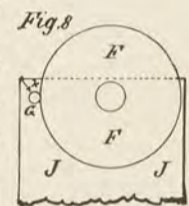
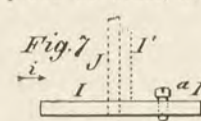
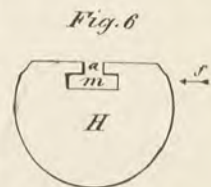
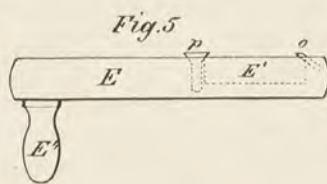


Fig. 4 being a view as if seen in the direction of the axis of the lathe. The cut shown at Fig. 5 is a



Progress in Window-Dressing.

It is gratifying to note that jewelers, alike in large and small towns, are paying much more attention to window-dressing, and many of them have achieved remarkable success in the art. Among the latter is R. W. Chamberlain, the enterprising jeweler of Marshalltown, Ia., whose window displays are one of the local attractions. A prettily and artistically designed dressing that was much admired is shown in our illustration.

The cut gives a somewhat imperfect idea of the beauty of the display, but the outline is sufficiently clear. Mr. Chamberlain is a skilled workman as well as an accomplished business man, and is connected in an official capacity with the time department of several railroads. He runs a successful optical department in connection with his jewelry business, and is a graduate of the Chicago Ophthalmic College and the Spencer Optical College, of New York.

Workshop Notes.

Subscribers wishing inquiries answered in this department must send name and address—not for publication, but as an evidence of good faith. No attention will be paid to anonymous communications. Questions will be answered in the order in which they are received.

"Sample Copy."—Please give me the formula for the gum used on envelopes.

The substance usually employed is a solution of dextrine in water. Dextrine is usually prepared by heating potato starch, but there are many other processes. This substance is also sold as British gum.

"Sun Telescope."—Will you kindly tell me in "Workshop Notes" how to fix a telescope for viewing the sun? Where should the smoked glass be placed?

You should have three pieces of colored glass, two of a very dark red and one of a deep green. These are simply plates of plain glass, and are placed between the eye and front aperture of the telescope. Smoked glass is not to be trusted, as the coating of smoke is liable to be rubbed off, and the eye exposed to the action of the sun's rays enhanced by the magnifying power of the telescope.

"Bifocals," alias "R. E. V."—The best way to uncement and recement bifocal lenses, also the cement to use?

Usually, by simply heating over a lamp bifocal lenses can readily be separated. Placing them in hot spirits of turpentine will also effect a separation. The cement almost universally employed for bifocal lenses is Canada balsam. This substance, when taken from the tree, *Pina balsamea*, is of about the consistency of thin honey, but in time thickens to a solid, which is the best form for optical purposes. To apply it the lenses are heated enough to melt the hardened balsam. Canada balsam is very transparent, and has just about the same refractive power as glass.

"Fuller Battery."—Which do you conceive to be the most economical, amount of current considered and quantity of zinc contained, the improved Fuller or the gravity battery?

As far as our own experience goes, there seems to be but slight difference in cost of maintenance of the two batteries for the same amount of electrical service rendered. An excellent work, however, on electrical matters, entitled "Electricity in the Service of Man," quotes the report from an English telephone line, which gives data of a year's experiment with Daniels cells and Fuller batteries, the cost of the same efficiency from Fuller cells being only about one-half of the Daniels. The gravity and Daniels batteries are almost identical as to efficiency and cost of maintenance. The voltage of a Fuller battery is almost double that of the gravity, and the internal resistance less, two important points.

"Enamel."—Will you kindly inform me as to process of enameling jewelry—in colors, I mean—and the degree of heat used in baking the same?

We gave some years ago an excellent essay on the process of enameling. The series of articles commenced in June, 1888, and ended in March, 1889, making ten numbers of our journal in which they appeared; hence you can well understand that it will be impossible for us, in any reply which we have space for in this department, to give more than a very brief *resumé* of the process. Enamels of all colors are merely a species of glass, and can be had of any large material supply house. To prepare them for use, a suitable-sized lump is crushed in an agate mortar, sold especially for the purpose. The enamel should not be crushed to an impalpable powder, but

the idea is to reduce it to grains about the size of very fine sand. While in the agate mortar all the fine dust formed by the process of crushing should be washed away by pouring on water. These grains are placed in the shallow recesses cut in the article to be enameled, and the article is then heated in a muffle to fuse the enamel. If the best work is desired a second application of enamel is made on top of the first and again fused, to fill the engraved recess a little more than full. The surface of the enamel is next ground smooth with the gold work and polished. For cheaper jobs the enamel is only fused in the engraved sinks, and has no polish except the gloss from the fire. Enamels, as they come from the maker, are usually intended for 18 K. goods, and to fit them for low-karat goods must be fused with an addition of borax to reduce the point of fusion, after which they are prepared in the agate mortar as above directed. It is well to bear in mind the fact that the addition of borax softens the enamel and tends to make it unserviceable.

"Non-Mag."—Please tell me how many parts must necessarily be made of non-magnetic materials in non-magnetic watches.

(1) We do not think any two writers on this subject agree. Good sense, however, would dictate that all movable parts should be of non-magnetic materials, but, accepting this statement as the basis for construction, when it comes to practical construction obstacles will be found to bar employing such non-magnetic material; as for instance, in the mainspring no non-magnetic metal or alloy will answer as a substitute for steel for making mainsprings. This fact is not to be held as of so much importance as would appear at first sight, from the fact that it is almost impossible to impart a magnetic condition to a mainspring and have it retained, from the different relations of the coils in the barrel, between fully wound and run down. Pinions and staffs, although of steel, because they simply revolve on their axes, even although they may be magnetized have very little effect on the timekeeping qualities of a watch. The balance and fork are the points where magnetism exerts the most pernicious influence. Let us take as an example an ordinary compensation balance and magnetize it. If we should remove the hairspring from such a balance and place it in the movement to which it belonged, it would be subject to innumerable vicissitudes and influences, the most prominent of which undoubtedly would be the attraction between the balance and the mass of the mainspring in the barrel. It would not be necessary for the mainspring to be magnetized, but the mere influence of the steel composing the mainspring would be enough to bring the balance to rest in a certain relation to it. Probably we would find the balance would have two points at which it would come to rest in relation to the mainspring, because it is impossible to have one kind of magnetic polarity without another; thus if we induce south polarity in a balance at one point, such polarity produces by induction north polarity at another.

A balance so magnetized would also be subject to the influence of the earth's magnetism, and probably if we replaced the hairspring and timed the watch in horizontal positions, we would find it to vary in rate as in different relations to the earth's magnetic meridian. We see from these facts, and others which will naturally suggest themselves, that the balance of a watch which has become magnetized is practically destroyed for timekeeping qualities. The next most important part of the

watch subject to magnetic influences is the lever. A magnetized fork will play all sorts of pranks as regards timekeeping, and the only remedy is a fork, pallet arms and roller made of some non-magnetic material. As regards the effect of magnetism on the hairspring, it affords another instance where doctors disagree, many able horologists maintaining that if the balance, fork, pallet arms and roller are of non-magnetic material the hairspring can be of steel as well as any material. It is not meant by this that a hairspring can not be rendered magnetic, and such magnetism act perniciously on the timekeeping qualities of the watch, but it is claimed that even under such circumstances the steel spring is to be preferred.

"Enclosed find one dollar for The Keystone. Send it on; every number seems to be getting better."—J. E. Rice, jeweler, Landisburg, Pennsylvania.

To Restrict Immigration.

A bill for the restriction of immigration recently passed the Senate by a vote of 45 to 28, and the probabilities are that the measure will pass the House and receive the signature of the President. The new bill is not so stringent as that which passed the last Congress, and which was vetoed by President Cleveland. The four sections of the old act directed against citizens of Canada and Mexico, who cross the border for work on our side of the line, but make their homes on the other, do not appear in the new bill. Neither is the educational requirement so great. The following provision is the same as in the old bill, with the important modification that "read or write" is substituted for "read and write":

All persons physically capable and over sixteen years of age, who cannot read or write the English language, or some other language; but a person not so able to read or write, who is over fifty years of age, and is the parent or grandparent of a qualified immigrant over twenty-one years of age (and capable of supporting such parent or grandparent), may accompany such immigrant, or such a parent or grandparent may be sent for and come to join the family of a child or grandchild over twenty-one years of age similarly qualified and capable, and a wife or minor child not so able to read or write may accompany or be sent for and come to join the husband or parent similarly qualified and capable.

The importance of the change from "read and write" to "read or write" will appear from the fact that according to the last census there were 222,634 foreign-born citizens in the country who could read but could not write. In the commissioner-general's report for 1896, there were among the arrivals 75,813 persons over fourteen years of age who could neither read nor write, and 5,066 who could read but could not write.

The Importance of Manner.

"I tell you, sir," said a veteran shoe drummer to an observer, recently, "too much stress cannot be laid upon the importance of a genial manner and a magnetic personality. If a man possesses the latter his success is assured, but it is to the man who does not possess it that I would give a few points. A cold, hard manner is just as repellant in business as in social circles. It is not necessary for a man to be effusive, either. There is a happy medium which it is well to aim at. When a man offers you his hand, grasp it as if you took some interest in him; inquire about little matters concerning him in a general way. Touch airily upon current topics, and try and hit upon one in which he is interested. Most men have some pet subject, and it is not wasted time talking upon it with a prospective customer. In this way I have built up a friendly footing and sold goods to many a man with whom otherwise I could never have done business. I've been on the road for nearly thirty years, and I'm convinced that a genial, attractive manner is the very best possession a salesman can have, and if he is gifted with personal magnetism besides—well, I'd almost back him to sell a cargo of ice to a party of Arctic explorers." —Ex.



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For further information, application blanks for membership, by-laws, etc., address

P. O. Box 1037. 170 Broadway, New York.

The regular monthly meeting of the executive committee was held on January 14th, the following gentlemen being present: H. H. Butts, chairman; Bernard Karsch, treasurer; J. H. Noyes, secretary, and Messrs. A. K. Sloan, Henry Abbott and W. H. Ball, of the committee.

The following new members were accepted: Mrs. Lydia T. Huson, Buffalo, N. Y.; William W. Hayden Company, Newark, N. J.; L. A. Martinez & Co., Ansonia, Conn.; A. F. W. Mueller, New Brunswick, N. J.; C. W. Little & Co., New York City; Robbins & Appleton, New York City; A. R. Katz & Co., New York City; Wilbur-Lampson Company, Galesburg, Ill.; E. Layre & Co., Philadelphia, Pa.; Weber Brothers, Philadelphia, Pa.; J. K. Roumain, Baton Rouge, La.; Moses Straus, Brooklyn, N. Y.; Fiske Brothers, Minneapolis, Minn.; C. E. Bail, Syracuse, N. Y.; N. F. P. Hansen, Waterbury, Conn.

Items of Interest.

W. J. Krug, Staunton, Ill., was recently married to Miss Helena C. Coerver, of the same town. THE KEYSTONE extends congratulations.

Miss Lottie Lee, the accomplished and talented daughter of C. I. Lee, of Kansas City, Kan., was married to Mr. W. B. Poinsett on December 9th. We extend our best wishes.

J. R. Mercer, of Kansas City, Mo., was one of a delegation that recently visited Omaha in the interest of a Kansas City display at the Trans-Mississippi Exposition.

Miss Mary E. Titus, who has been in the employ of W. & S. Blackinton, Attleboro, Mass., in their shipping department, was married January 20th to Dr. Frederick J. Russell, a bright young physician of New Bedford. The young couple will make their home at Pawtucket, where the groom has opened an office. The bride is an attractive young lady, who had a wide circle of friends in Attleboro. Pastor Hunt, of the Methodist Church, officiated at the ceremony, which was largely attended.

I. Ollendorff, the jobber, 54 Maiden Lane, New York, has gone for a short visit to the Bermudas. He is accompanied by his wife and anticipates a pleasant and healthful trip, as this resort is one of unusual attractiveness at this time of the year.

Joseph H. Sandman, the popular representative of the Trenton Watch Company in New York, has joined the ranks of the Benedicks. He was married January 5th to Annie G. Lingg, the beautiful daughter of Jeweler F. E. Lingg, 1926 Columbia Avenue, Philadelphia. After a short wedding tour the young couple settled down in apartments in New York.

We note that the energetic, wide-awake jewelers are handling umbrellas more extensively than ever. Among the newest and most appropriate for the trade are the jewel-mounted umbrellas. The mountings are made principally in gold, with different colored stones set in the handles. These styles will be very popular this spring.

Green B. Rich, formerly of Blackville, S. C., has moved his business to Waynesboro, Ga.

W. B. Jewett, Woodstock, N. B., was a recent welcome visitor at THE KEYSTONE headquarters in Philadelphia.

Arthur E. Slocum, instructor of engraving in the La Porte Watch School, La Porte, Ind., recently engraved the English alphabet on the head of a pin. With the naked eye the engraving looks like scratches, but with the aid of a magnifying glass the letters are said to be clear and distinct.

The San Luis Jewelry Co., San Luis Obispo, Cal., has acquired a local reputation for well-written trade-bringing advertisements. They are always admirably displayed with an excellent arrangement of type and neat border, and are very readable. Of course they pay.

A popular young jewelry drummer has passed away in the person of Alvin C. Hood, who died recently of pneumonia. Mr. Hood was a traveling salesman for H. Bealmear, wholesale dealer in clocks, bronzes and supplies, at 25 South Charles Street, Baltimore, Md., in whose employ he had been for several years and by whom he was highly esteemed. Mr. Hood was well and favorably known among the jewelers in Maryland, Pennsylvania and District of Columbia.

T. E. Bastian, Rochester, N. Y., accompanied by his wife, was recently welcome visitors to THE KEYSTONE office. They were en route to Atlantic City, N. J., and other places of interest, and visited New York City before returning home.

The store of A. E. Colburn, Argenta, Ark., was burglarized recently, and \$350 worth of goods stolen. The show-window was smashed in with a brick and the trays then removed from the window. The thief took the rings out of the trays and threw the trays in the street, where they were found by Mr. Colburn.

Donelson & Co., formerly in the jewelry business, located at 504 West Walnut Street, Des Moines, Iowa, for a number of years, have discontinued the jewelry business, and in the future will conduct a general auction and commission business.

Geo. C. Smith, formerly well known to the far Western trade as the agent for Eastern concerns, and more recently successfully engaged in gold mining in Colorado, who was recently reported as having committed suicide, is alive and well and attending to his extensive interests. Mr. Smith, who has since been heard from, pronounces the report without foundation.

Averbeck & Averbeck, New York, jobbers of silver novelties, have just added two large cabinets to their sales-room fixtures. This was made necessary by the addition of several new lines to their stock. The firm report an unusually lively spring trade, and that it has opened up much earlier than in recent years.

Jeweler Leon M. Carter, of Shreveport, La., has recently put in sixty-four feet of new wall cases, besides making other improvements which have made his store more attractive than ever. The new fixtures were furnished by the Union Show Case Company, of Chicago.

The firm of Mabie, Todd & Bard, manufacturers of pens, pencils, etc., at 130 Fulton Street, New York City, celebrated its twenty-fifth anniversary in business without change in partners on February 1st. The firm was organized in 1873, and the members are George W. Mabie, J. Sprague Bard, Henry H. Todd and John H. Mabie.

Richard W. Miles has succeeded George E. Savage as manager of the salesrooms of the Meriden Britannia Co., Meriden, Conn. Mr. Savage resigned his position as manager of the salesrooms and advertising department to become manager and treasurer of Manning, Bowman & Co., of Meriden. His acceptance of the latter position was by special request of the directors of Manning, Bowman & Co. Mr. Savage was with the Meriden Britannia Co. thirty-two years.

The Gorham Mfg. Co., which originated the method of selling sterling silver spoons and forks by the dozen, now grade and describe their goods by weight as follows: "Full size, trade standard"; "full size, extra standard"; "full size, heavy standard"; "full size, massive standard." The Gorham method of selling sterling spoons and forks by weight has proved acceptable to a considerable part of the trade. It is consequently advisable for jewelers to remember the grades as above mentioned. "Full size, trade standard" means light weight, full size. This grade on teaspoons will usually weigh about eight ounces to the dozen. The other grades are heavier goods, as indicated by the descriptive words "extra," "heavy" and "massive."

E. J. Pixley, Lowell, Ind., has purchased a store room on Commercial Avenue, into which he will soon move his business.

The *Lake Shore Wheelman* recently showed a cut of Alex. Loeb, jeweler, of Erie, Pa., who is a noted cyclist and enthusiastic advocate of the wheel.

Henry J. Bishop, for nearly forty years a resident of Franklin, Ind., was almost instantly killed a few weeks ago in Indianapolis by a street car striking him. Deceased was about seventy years of age and was afflicted with deafness to a considerable extent, and this malady no doubt contributed to his not noticing the car that killed him.

M. D. Butler, Colton, N. Y., has been appointed postmaster at that place. He has had one side of the Feries store, on the corner of Main and South Streets, where the post-office now is, fitted up for his jewelry business. The store is a handsome one, with attractive new fixtures.

The Jacksonville, Fla., *Metropolis* says: "Among the prominent young business men of Jacksonville none are worthier of extended notice than M. I. Cohen, the jeweler. Mr. Cohen is emphatically a self-made man, and his successful and honorable career is a shining example of what integrity and pluck can accomplish when united to energy and business aptitude. His strict attention to business, affable address and upright conduct have resulted in the ownership of one of the prettiest and best-equipped jewelry stores in the city, and he now enjoys the confidence and respect of the public to a very gratifying degree."

J. Mednikow, Milwaukee, Wis., was recently the victim of a plausible swindler, who represented himself as a member of a jewelry firm of Hartford, Wis., and presented what purported to be a letter of introduction from one of the Milwaukee jewelers. He purchased goods of Mr. Mednikow to the extent of over \$600, told him to pack the goods and he would call for them later. After the swindler left Mr. Mednikow examined the goods and found a quantity missing. Needless to say, the swindler did not return.

Simmons & Paye, the "Souvenir House," Providence, R. I., will be represented this year by George W. Pettee in Wisconsin, Michigan, Minnesota, Indiana, Illinois and Iowa.

George E. Feagans, Joliet, Ill., is both an accomplished advertisement writer and a persistent and tactful advertiser. His well-written advertisements appear in every issue of the best local papers, always top of column next reading matter. They are changed each issue. "We get the best possible results," said Mr. Feagans.

D. A. Cooke & Son will succeed Cooke & Martin, in Jacksonville, Fla. Mrs. Martin will retire from the business.

Bancroft Bros. is the name of a new firm of jewelers at 108 North High Street, Columbus, Ohio. Both brothers were heretofore with F. F. Bonnet, having charge of his jewelry and watch repairing departments and assisting at the counter. W. G. Bancroft has had twenty-five years' experience at diamond mounting and jewelry manufacturing and repairing, and his brother, A. W. Bancroft, has had seventeen years' experience at watchwork.

The Columbian Optical Co., wholesale manufacturing opticians in Denver, Colo., Omaha, Neb., and Kansas City, Mo., have changed their location in Kansas City from 915 Main Street to 15 East Eleventh Street, one of the best locations in the city. Mr. McLeod, manager of the Kansas City house, has gained much favor with the trade, and the company is enjoying a prosperous growth. A. I. Agnew, manager of the Omaha branch, was in Kansas City on January 17th on business for the company.

A. K. Jobe, of Jackson, Tenn., is having an auction sale, which is being conducted by D. O. Herndon, the jewelers' auctioneer.

F. J. Lang, secretary of the U. S. Manufacturing Co., Fond du Lac, Wis., makers of the U. S. trip cyclometer, has gone to England, Germany and France, to establish agencies for the sale of the cyclometers.

A book which well deserves a place in every watchmaker's library, not for ornament or occasional reference, but for every-day use, is "The Watch Adjuster's Manual," by "Excelsior." The book is a guide for the watch and chronometer maker, repairer and adjuster in making, springing, demagnetizing, examining, correcting, timing and adjusting for isochronism, position and temperature. It contains 376 pages, with fifty-six specially engraved cuts. For the information of our readers we may add that Swarthchild & Co., Masonic Temple, Chicago, are Western agents for the sale of the book.

Jewelers' Auctioneer

S. C. HASELTINE,

Corner Grand Avenue and Fort Street,
SPRINGFIELD, MO.

I guarantee perfect satisfaction and allow you to stop the sale at any time you are not pleased. Who could ask more?
I sell for established jewelers only.
For reference, see THE KEYSTONE the last five years. I also refer with pleasure to the trade.
In writing, give amount of stock, time in business, location, etc.

LOUISIANA, Mo., January 20, 1898.
TO WHOM IT MAY CONCERN:
We take pleasure in recommending S. C. Haseltine as a first-class salesman, a perfect gentleman and a man of pleasing manners. He holds a crowd to perfection. Yours very truly,
S. BURNETT & Co.

All correspondence strictly confidential and promptly answered.



S I G N S

I make the largest and most perfect watch signs in the world. With or without illuminated dials. They are the latest improved, and have advantages superior to all others. They are as perfect in proportion as a watch case, and also very beautifully and artistically designed. They are made of heavy sheet zinc, painted with white lead and gilded with the best XX gold leaf, and 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 varies from twelve to eighty pounds. The best advertisement for your place of business is one of these elegant signs. They are sure to attract attention, and always prove a paying investment. Price-list and photos. furnished on application. Address

Lon Barnhart,
717 W. Madison St., Chicago, Ill.



LARGE
PROFITS
GUARANTEED.

TERMS
REASONABLE.

ESTABLISHED
1880.

Very best of references and daily press notices given in corresponding.

A. GOTTLIEB — Jewellers' Auctioneer
201 S. Clark St., Chicago, Ill.

Mr. Gottlieb has conducted our most successful auction sale for the past nine weeks. He is without a doubt an excellent auctioneer. As a speaker he is eloquent and magnetic. Also the success he has over his audience, inducing them to purchase, is undoubtedly most wonderful. We cordially recommend him to any one wishing to close out their stock successfully. We are,

Very truly yours,
M. IRALSON & Co.
Successors to Kaspar & Barnes, McVicker's Theatre Building, Chicago, Ill.



RAVEN,
The
Jewelers' Auctioneer

"I shake the tree,
You gather the fruit."

I am the jewelers' auction tree shaker. I know all the ins and outs of the business; and my practical knowledge and long experience, together with my ability to advertise the sale properly, are bound to reap a rich harvest for those who engage me. All letters of inquiry will be given prompt attention, and treated with the utmost secrecy.

Here are a few names of jewelers for whom I have recently closed successful sales, and, as all are wide-awake, leading jewelers in their respective cities, they are competent to judge of my ability.

Guinand Bros., Ashland, Wis.
T. Cahill, Spencer, Ind.
G. Rohrer, Hancock, Mich.
Chas. H. Hoopes, Zanesville, Ohio.
W. H. Squires, Big Rapids, Mich.
F. G. Strong, Monroe, Mich.
A. F. Robertson, St. Cloud, Minn.
J. L. Stevert, Portland, Ind.
T. D. Pond, Allegan, Mich.
T. S. Arthur, Marinette, Wis.
M. Homrighaus, Tuscola, Ill.
Kerry Conley, Spring Valley, Minn.
Manhattan Silver Plate Co., Lyons, N. Y.
S. W. Rogers, Mt. Pleasant, Mich.
C. J. Travis & Co., Owatonna, Minn.
Teetzel & Hayden, Benton Harbor, Mich.
E. E. Starr, Bowling Green, Ohio.
Paul Hohlfeldt, Escanaba, Mich.
R. Mueller, Muskegon, Mich.
Holmes & Edwards Silver Co., Chicago.

G. W. French, Ionia, Mich.
John Herman, Lake Linden, Mich.
J. H. Hale, Lima, Ohio.
I. V. Sherman, Cassopolis, Mich.
L. Sheridan, St. Charles, Minn.
Krepps & De Witt, St. Johns, Mich.
L. W. Ensey, Troy, Ohio.
J. C. H. Haack, Saginaw, Mich.
A. H. Cathcart, Marshall, Mich.
W. F. King, Adrian, Mich.
Jas. F. Jenkins, Union City, Tenn.
M. V. B. Rowley, Hillsdale, Mich.
H. G. Austin, Plainview, Minn.
J. D. Sperry, South Haven, Mich.
H. E. Lough, Buchanan, Mich.
H. L. Baker, Reed City, Mich.
M. Sperry, Marinette, Wis.
C. G. Schlenker, Eaton, Ohio.
Robert Fuller, Montpelier, Ind.
Holland City State Bank.

JOHN H. RAVEN, Holland, Mich.

S. MARTIN, JEWELRY AUCTIONEER.

TWENTY-TWO YEARS' EXPERIENCE.

ALL BUSINESS
CONFIDENTIAL

Address—1036 Cambridge Avenue,
MILWAUKEE, WIS.

O. L. ROSENKRANS & THATCHER CO., LIMITED,
WATCHES AND JEWELRY,
129 WISCONSIN ST., MILWAUKEE, WIS.

Milwaukee, Wis., January 10, 1898.

Mr. S. Martin has made several large sales for me, and I have employed others, in fact many others, and Mr. Martin is the most successful on the stump of any man among them.

O. L. ROSENKRANS.



WATCH REPAIRING FOR THE TRADE.

LOW PRICES AND PROMPT ATTENTION.

All work guaranteed.

Price-List upon request.

C. CULMAN, Globe-Democrat Building, ST. LOUIS.

MAX R. GREEN & CO.
 Importers of
Precious and Imitation Stones
 301 Masonic Temple, CHICAGO
 Our specialty is jobbing stones. Lapidary work given prompt attention.
 Your orders solicited.

Rose Diamonds
Opals
Pearls
Turquoise
Garnets
Doublets

Whitestones
Moonstones
Onyx
Cameos
Etc.
Etc.

Schirmer's Ferrules
 in Gold and Silver

for mending riding temples. Now put up in two kinds of packages—one has twenty-four 10 K. gold Ferrules, price \$1, the other has twelve 10 K. gold and twelve silver, price 75 cents. Sizes to fit any riding temple. Gold Filled Ferrules at 50 cents a package.
 FOR SALE BY ALL JOBBERS.

The Best Window Attraction in the world. A little oil once a month and one minute's attention each day, is all that is required. Will last a lifetime, and never lose its attraction. Any watchmaker can make it in about three hours from his own material without additional cost. Full printed instructions sent to any address on receipt of \$1.00. Instructions copy-righted, 1897. Write for circular. Address
A. BUCKENHAM, Watchmaker and Jeweler,
 Box 29, Bothwell, Ontario, Canada.

50 PER CENT. COMMISSION
 Big attraction for your window, and money in your pocket.
Photo. Button Easel Card sent free to jewelers. Shall we send you one?
Photograph Novelty Co.
 125 State St., Chicago.
 Originators of Photo. Buttons.



EDWIN F. LEOPOLD & CO.,
 103 State Street, CHICAGO.
 Largest manufacturers of
Photo. Buttons and Photo. Novelty Jewelry
 in the West.
 Sample card free to the trade. 50 per cent. discount.
Photo. on Watch Dials and Cases,
 \$1.00 cash and return postage.

WHY NOT BUY
 A neat up-to-date stock of jewelry, silverware, watches, fixtures, etc.? Total invoice \$1850. If you want to buy a stock cheap and in a good location to go into business, you want to investigate this opportunity quick. Population of city 2500. It is the county seat, and a good, live town. Death of husband and inexperience in business reason for selling. A straight line to a rare bargain is a letter of inquiry to Mrs. Mary K. Curtis, Eureka, Kansas.

HEADQUARTERS FOR ELECTRIC AND PORTABLE
WATCHMAN'S CLOCKS
E. O. HAUSBURG, 41 MAIDEN LANE, N. Y.

50 YEARS' EXPERIENCE
PATENTS
 TRADE MARKS
 DESIGNS
 COPYRIGHTS & C.

Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. Handbook on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the
Scientific American.
 A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers.
MUNN & Co. 361 Broadway, New York
 Branch Office, 625 F St., Washington, D. C.

AMERICAN CUCKOO CLOCK CO.
 PHILADELPHIA, PA.
 OUR CATALOGUE FOR THE ASKING.

Chicago Gold Pen Repairer.
GOLD PENS.
 Send me your work. Repairs of all kinds.
S. N. JENKINS, 103 State St., Chicago, Ill.



GOLD SOLDER.
 BEST ON EARTH.
 Made in Low Karat, 6, 8, 10, 12, 14, 16, 18 Karats.
 Easy-flowing and good color.
SOLD BY ALL JOBBERS.

U. S. Pat. Oct. 20, 1896. Canada Pat. 1897
Wells' Perfect Self Conforming and Ventilating Ring Adjuster is the result of many years' experience. It does not wear or injure the ring, cannot spring up or lose out; yet it may be removed instantly; it can be fitted in three minutes. There is nothing to catch or break off with fair usage; it holds the ring in positive position and allows free circulation of the blood. Ask your jobber for it, or I will send on receipt of price, 1 dozen, assorted sizes, solid 10 K. gold, \$3.75 net. 1 dozen, metal, assorted sizes, 85c. net. (8c. extra if registered.) Retail price, fitted, metal, 25c. each; gold, 50c. to \$1.00 each, according to size required. Address,
CHESTER H. WELLS, Jeweler, Meshoppen, Pa.



Jewelers' Auctioneer.
 I am not as old as some others, but I can make your auction a success. Now is the time to turn your surplus stock into cash. C. W. Dingman is the man that can do it for you.
 Goods furnished if desired.
 Address
C. W. DINGMAN,
 417 S. Fifteenth Street, Omaha, Neb.

THE KEYSTONE
 For the enclosed one dollar please renew our subscription to THE KEYSTONE for one year. We consider that it is a dollar well spent, and would not care to miss a copy, as we have saved each issue since you first began publishing it, at that time being quite a small pamphlet.
WM. ROSENSTIHL & SON,
 Jewelers,
 Union Springs, Alabama.

JEWELERS' REALIZER.

AUCTIONS PERSONALLY CONDUCTED FOR ESTABLISHED JEWELERS ONLY.

The time, of all others, for a successful auction sale is the springtime, which is now approaching. Don't wait for the dull summer months. With the freshness of spring the buying spirit becomes active, and people are more easily stimulated to investment. If you contemplate an auction sale, and desire maximum results, arrange for it now, which you can do in this way:

Write me at once, stating size of your store-room, stock and town, and how long you have been in business at present location, if ever held auction there, and if so, when. I have recently conducted sales in the following towns and cities, and names of jewelers for whom I sold will be gladly furnished on application:

- | | | | | | |
|--------------------|---------------------|--------------------|--------------------|-------------------|---------------------|
| Alma, Kan. | Omaha, Neb. | Independence, Kan. | What Cheer, Iowa. | Danville, Ind. | Oklahoma City, O.T. |
| Lehigh, Ind. Ter. | Oakland, Neb. | Lincoln, Kan. | Hastings, Neb. | Covington, Ind. | Hennessey, O. T. |
| Centerville, Iowa. | Nebraska City, Neb. | Kansas City, Mo. | Fulton, Mo. | Mt. Vernon, Ohio. | St. Joseph, Mo. |
| Adel, Iowa. | Aledo, Ill. | Windsor, Mo. | Millbank, S. Dak. | Salida, Colo. | Fort Scott, Kan. |
| Great Bend, Kan. | Farmer City, Ill. | Elma, Iowa. | Mechanicsburg, Pa. | Leroy, Ill. | Topeka, Kan. |
| Fullerton, Neb. | | | | | |

TO JEWELERS AND DEALERS IN FINE ARTS:
 I have just closed a five weeks' sale that was conducted by Mr. D. O. Herndon, the jewelers' realizer, of Kansas City, Mo. He sold for three weeks here, then moved balance of stock to Macon, Miss., where we sold for two weeks, and had even a better sale than here in my home town, realizing better prices, which proves conclusively that this man can sell high-grade goods to any first-class people. He is thoroughly posted in this line of goods, and presents them to the people in a way that wins their confidence and compels them to buy at good prices. I am well pleased with the result of my sale, and cheerfully recommend him to any one wishing a successful sale of jewelry stock,
 Very respectfully,
 G. I. RUSSELL.

D. O. HERNDON, Office, 333 New York Life Building, Kansas City, Mo.
 TELEPHONE 2341.



S. A. BOYLE & Co.

AMERICA'S LEADING JEWELRY AUCTIONEERS

We are the Leaders in our line of business.
 There is ALWAYS ONE BEST,
 there can't be two.

SEE 1895 and '96 KEYSTONES.



We make no failures.
 We don't sacrifice your goods.
 Our terms are reasonable.
 Let us hear from you.

All Correspondence Strictly Confidential.

OFFICES

54 Maiden Lane, New York City.

611 Pennsylvania Ave., Washington, D. C.

If you get stuck on

REPAIRS,

send them to the

Chicago Watch Repair Co.

67 Wabash Ave., CHICAGO.

Work done by EXPERT SWISS WATCHMAKERS who make

SPECIALTIES IN COMPLICATED WATCHES.

SEND FOR PRICE-LIST.



Price Reduced to **\$8.00**

No cheap imported imitation, but the genuine

Houghton Face-Plate

for \$8.00. Excellent finish, and warranted to run true. See that

J. HOUGHTON, Manchester, N.H. is stamped on them.

MAINSPRINGS.

If you want the best at a reasonable price, buy our **RED CROSS** brand. They are made of drawn wire, and have no flaws as the ordinary springs do which are made out of rolled sheets. They are evenly tempered and highly finished. Each spring is guaranteed not to break; if any do, return the end with our trade-mark on, and get a new one.

Our price, \$1.00 per dozen; \$11.00 per gross.

Send for our special prices on Jewels and Balance Staffs.

CASH WITH ORDER

TIDD & CO.,

Columbiana, Ohio.

CLOCK HAIRSPRINGS



MANROSS
ESTABLISHED 1877.

LARGEST MFR OF HAIRSPRINGS IN U.S.

THE CLOCK REPAIRER'S ASSORTMENT CABINETS contain 50 or 100 finished hairsprings complete, all sizes and makes, carefully arranged, full directions. Cabinet of 50, \$1.00; 100, \$1.75, by mail. Same springs, any size or make, 30 etc. per doz., 20 etc. per half doz. Steam Gauge Hairsprings of every description. Phosphor Bronze Hairsprings for Electrical Instruments, etc.

F. N. MANROSS, Forestville, Conn.

EXPERT

Watch Case Repairing and Watch Case Manufacturing.



Gold and Silver Plating, Satin Finishing, Engraving and Engine-Turning.

Old English and Swiss Cases changed to fit American Stem-Wind Movements.

Special Cases made to order in Gold and Silver for English, Swiss and American Movements.

OLD CASES MADE NEW.

F. H. JACOBSON & CO.,

86 State Street, Chicago.

Send for Our New Price-List.

MONEY AND TIME SAVED
by sending your

WATCH WORK

OLOF PEARSON,

EXPERT WATCHMAKER FOR THE TRADE.

Fine Watch Repairing. My charge for Demagnetizing Watches is 50 cents. Give me a trial on this kind of work. All kinds of Wheels Cut to Order. Mail Orders promptly attended to.

Room 1313 Columbus Memorial Building, CHICAGO.

GOOD WORK AND LOW PRICES.

Money and Labor saved by

SCHIRMER'S PIVOT CAPS.


\$1.00 PER BOX. 4 dozen Caps in a Box.



These Caps will fit the staffs of any wheel in any watch. FOR SALE BY ALL JOBBERS.

THE BARBER JEWELRY MFG. CO.
39 VESEY ST., NEW YORK, MANUFACTURERS OF

PYRITES OR SULPHUR STONE JEWELRY



IN GOLD, STERLING SILVER AND GOLD FILLED.

SEND FOR OUR CATALOGUE.

AWARDS FOR

H. H. Heinrich's Marine Chronometers.

CHICAGO, 1893 PARIS, 1889 BERNE, 1959

A large stock of new and second-hand CHRONOMETERS always on hand to rent or for sale at moderate prices; rent to apply on purchase. My second-hand Chronometers are made up equal to new, and adjusted to the average rate of 5 to 10 seconds per month. Special terms to suit convenience of customer.

Repairing, springing and re-adjusting Chronometers and Fine Watches for the trade.

H. H. Heinrich,
102 Fulton St., Rooms 503-4, NEW YORK.

Get It Together.

What?

WHY OF COURSE YOUR OLD GOLD, SILVER AND PLATED SCRAPS. SEND IT TO US. WE WILL PAY YOU CASH FOR IT, OR EXCHANGE IT FOR REPAIRS OR ANYTHING THAT WE CARRY IN STOCK. WHY LET IT GO TO WASTE?

MEYER JEWELRY CO.,
1016 & 1018 Main St., Kansas City, Mo.

FOR LUCK.

Clover Leaf Novelties



Charms, Book-Marks, Letter-Openers, Spoons, Garters.

SIMMONS & PAYE,
"THE SOUVENIR HOUSE," 129 Eddy Street, PROVIDENCE, R. I.

Outdoor Plate-Glass Thermometers.



8, 10, 12 inches.

IN STOCK, OR IMPORTED TO ORDER WITH DEALER'S NAME.

LEVY & DREYFUS CO.
41 Barclay Street, NEW YORK.

GOLD and Silver effects artistically produced by

J. J. DONNELLY,
ELECTRO PLATER,
73 Nassau Street, New York City.

PRICE-LIST ON APPLICATION.

Photographs on Watch Dials and Caps.



Single or group pictures.

A Beautiful Gold Embossed Sample Card and Price-List sent free to jewelers on application.

The Elmore Co., 115 Dearborn St., Chicago.

MATERIAL.

American Roller Jewels, 1 gross in wood box, 12 bottles, assorted sizes, \$2.50.

American Balance Staffs, 3 dozen in wood box, 12 bottles, assorted sizes, \$2.50.

American Balance Hole Jewels, 3 dozen in wood box, 12 bottles, assorted sizes, \$2.50.

American Case Screws, 1 gross in wood box, 12 bottles, assorted sizes, \$1.75.

LESS 6 PER CENT. DISCOUNT FOR CASH.

The Bowler & Burdick Co.,
Importers and Jobbers of Tools and Materials. Repairs for the Trade.
208 Superior Street, CLEVELAND, OHIO.

Watches Demagnetized, 50c.



For the small charge of 50 cents I will Demagnetize Watches for the Trade, returning them the same day as received. Cash must accompany the watch. Buy a Demagnetizer, and do your own demagnetizing. Price, \$7.50 Net. Write for particulars.

GEORGE R. STUMPF,
Inventor and Manufacturer of Stumpf's Royal Demagnetizer. 525 Franklin Ave., ST. LOUIS, MO.

THE BEST is THE CHEAPEST after all.

THE only secure and simple arrangement for Interchangeable Stone Initial and Emblem Rings. Made in all desirable styles.



Globe Lever BUTTON BACK.
Post can be attached to any button.

"It has no peer"

CATALOGUE SENT ON APPLICATION.

J. BULOVA,
57 MAIDEN LANE, NEW YORK.

Small Advertisements

No advertisement inserted for less than 25 cents.

Under heading "Situations Wanted," ONE CENT per word for first twenty-five words. Additional words and advertisements, THREE CENTS per word.

Under all headings except "Situations Wanted," THREE CENTS per word.

Name, address, initials and abbreviations count as words.

If answers are to be forwarded, postage stamps must be enclosed.

To insure insertion money must accompany all orders for advertisements, and copy must reach us not later than the 25th of each month for insertion in the following month's issue.

The real name and address of every advertiser must accompany the copy of the advertisement.

Advertisers who are not subscribers must send 15 cents if they desire a copy of the paper in which their advertisement appears.

Address, THE KEYSTONE, 19th & Brown Streets, Philadelphia, Pa.

SITUATIONS WANTED.

- Enter this heading, ONE CENT per word, for first twenty-five words. Additional words and advertisements, THREE CENTS per word. No advertisement inserted for less than 25 cents.
- BY first-class watchmaker, jeweler and engraver. At ref. from former employer. Salary no object. Address, "H," lock box 49, Nocona, Texas.
- BY first-class watchmaker, jeweler and engraver in Illinois, Indiana, Iowa or any central of Western State. At refs. given. Ad., Box 79, Nokomis, Ill.
- AS traveling salesman or watchmaker by young man, age 27. At workman and salesman. Ad., "W. L. S.," Box 422, Greenville, Tenn.
- A COMPETENT workman, German, for repairing jewelry and watches, or new work, also engrave by hand or machine, wishes a position March 1st with a practical business man. Address, H. Gaggstatter, Spartanburg, S. C.
- WATCHMAKER, engraver, graduate optician, 14 years' exp., At refs., would accept position as optician with large firm, or as all-around man. Results guaranteed. Own trial case and tools. City 10,000 to 100,000—central States. "O 11," care Keystone office.
- BY first-class workman, salesman, clean stockkeeper, capable of taking entire charge. Chas. Burgess, Bloomfield, Iowa.
- PHILADELPHIA salesman of exp. wants to hear from manufacturers who desire a resident representative. Refs. Address, Allan Fellenger, 2814 Lehigh Avenue, Philadelphia.
- GRADUATE optician with exp., good plain engraver and clock repairer, wishes position to become expert watchmaker. No bad habits. "M 64," care Keystone office.
- WATCHMAKER, jeweler and engraver, 10 years' exp. at bench. Salary moderate. Address, "Jeweler," 322 W. Washington Ave., Madison, Wis.
- BY young man, good exp. and refs., capable of doing all kinds of watchwork, engraving and setting. Speak English and German. Care J. H. Purdy & Co., 126 State Street, Chicago.
- WATCHMAKER, 24, good workman, 7 years' exp. Good habits; moderate wages. Fred. R. Cox, Seneca Falls, N. Y.
- BY experienced watchmaker and engraver, 10 years' practical exp. in first-class houses only. Fine tools and the best of refs. Must be No. 1 permanent position. Address, 1019 E. Franklin Street, Evansville, Ind.
- BY young man, 21, 3 years' exp. as jeweler and workman. Can do plain engraving. Good ref. from present employer. Address, "M 66," care Keystone office.
- BY watchmaker and jewelry repairer, 7 years' exp. Have own tools. Can give first-class refs. "H 84," care Keystone office.
- WATCHMAKER, engraver, optician, jewelry repairer and salesman. Single man. "P 46," care Keystone office.
- BY young man, 19 years old, do not use tobacco in any form, strictly temperate, good watchmaker, engraver, and understand optics. Am willing to wait on trade. Abe Levy, Henderson, Ky.
- EXPERT watchmaker, thoroughly competent on fine complicated watches, also engraver, jeweler, graduate optician. Full tools; steady, sober. Far West or South pref. 750 Third Ave., box 14, New York.
- PERMANENT position by expert watchmaker, fine optician, engraver and salesman; age 28, 10 years' exp. fine work; fine set tools. Best refs. "Watchmaker," care A. C. Becken, Columbus Building, Chicago.
- AS traveler on Pacific coast. Chance to work up with some good house more of an object than salary at first. Age 30; perfect health. Will hustle. Address, "R 46," care Keystone office.
- BY first-class watchmaker and graduate optician. At refs. Address, "A. E. S.," 71 Walnut St., Springfield, Mass.
- WATCHMAKER, engraver and salesman. Ad., E. E. Reeder, 24 Franklin St., Springfield, Ohio.
- JEWELER, 16 years' exp. alloying, coloring, oxidizing; finest work. Also clockwork and salesman. Age 30. Refs. Address, "Allen," 2351 Woodstock Street, Philadelphia.
- WATCHMAKER, jeweler and engraver wants permanent situation. Best refs. Address, "H 82," care Keystone office.
- A WATCHMAKER and optician desires change of position. C. C. Williams, 630 Westminster Street, Providence, R. I.
- (Continued on page 158)

SITUATIONS WANTED.

(Continued from page 157.)

AS assistant watch and clock repairer, 3 years' exp. Best refs. Have tools. Have a job, but would like to change locality—good reasons. "P 43," care Keystone office.

AS watchmaker, graduate optician, 5 years' exp. Can do hard-soldering. Desires permanent position. Address, M. Hubbard, 10 Chatham Street, Worcester, Mass.

BY good workman on watches, clocks and jewelry. Strictly steady, honest and willing worker. Iowa or adjoining States pref. Please state particulars in first letter. Ad., "G 48," care Keystone.

YOUNG man, 27, 10 years' exp. in watch, clock and jewelry repairing. Capable of taking full charge. A1 refs. Ad., "H 78," care Keystone office.

YOUNG man wants position at once. Good all-around watch, clock and jewelry repairer, fair engraver. Strictly honest and no bad habits. Salary at start \$20 per month, with food and room. Permanent position pref. Will try to please you. Ref. given and required. Ad., "K 45," care Keystone.

JEWELER and watchmaker desires permanent position. Ordinary engraver. Address, "K 43," care Keystone office.

BY young man of 24, lathe and tools, 6 years' exp. First-class salesman and window-trimmer. Best refs. Chas. A. Thomas, Norborne, Mo.

BY watchmaker, good all-around workman. Complete set of tools; 15 years' exp. Single, age 30. Refs. first-class. Ad., "D 45," care Keystone office.

BY first-class up-to-date all-around man, position of trust, management of store, or working interest. Willing to invest a small amount to show earnestness. Address, "S 88," care Keystone office.

FIRST-class watchmaker, jeweler and plain engraver. Own tools and lathe. Best refs. Ad., L. A. Petit, 64 Brinkerhoff St., Plattsburg, N. Y.

GOOD watchmaker, jeweler, plain engraver. Complete set of tools; 9 years' exp. Age 24. Good ref. Texas pref. "L. F.," care W. Utay, 298 Main Street, Dallas, Texas.

HOROLOGICAL graduate, 2 1/2 years' exp., sober and reliable, owns tools, wants position. State wages first letter. Ohio or western Pennsylvania pref. Address, Box 52, Berlin, Md.

PERMANENT position by young man of 24, 3 years' exp. Can do all ordinary watchwork, hard-soldering and plain engraving. Own small tools. Moderate salary. H. Ledden, Sedan, Kan.

LETTER and monogram engraver wishes to change. Do hard-soldering and jewelry repairing, assist in watch and clock work. Ref. of present employer. Moderate salary. Ad., "S 89," care Keystone office.

BY watchmaker, jeweler and engraver. American, 28 years old. Have lathe and tools. Wages not so much object as steady position. Ad., "Jeweler," Woodland, Cowhiz Co., Wash.

BY exp. practical watchmaker and engraver. Good ref., good set of tools. Address, "Jeweler," 528 Jackson Street, Sandusky, Ohio.

A1 WATCHMAKER, engraver, jewelry jobber and salesman would like to make a change. 10 years' exp. Good ref. Ad., "P 113," care Keystone.

BY young man with 9 years of practical exp. as watch, clock and jewelry repairer, also salesman, desires situation at once. Has unquestionable refs. Address, "W 60," care Keystone office.

BY first-class watchmaker and salesman of 7 years' exp. Address, "Jeweler," 113 E. Third Street, Sterling, Ill.

BY good all-around American watchmaker, 25 years' exp. Good habits, single, thoroughly understands business; good salesman. Moderate wages only expected. Call Box 5, Mendon, Mo.

THOROUGH optician, salesman and plain engraver, at present employed as optician, open for engagement after Feb. 15th. Best of refs. C. G. Lord, care Wm. Hiles, Sioux City, Iowa.

AFTER April 1st, by first-class watchmaker, jeweler and salesman, plain engraver. Age 29. 14 years' exp. For particulars address, "A," care Clary, 397 E. Division Street, Chicago.

BY watchmaker, 25 years at repairing. Expert on repeating and flyback watches. Address, James Cantor, 2 Ferry Place, Brooklyn, N. Y.

PERMANENT position desired by first-class watchmaker, jeweler and salesman, fair engraver. Tools. Location over 10,000 inhabitants preferred. 25 years old. Industrious. "G 46," care Keystone.

BY young man, 21 years old, as assistant watchmaker; first-class jewelry and clock repairer and engraver. Best ref. Address, Box 418, Marshalltown, Iowa.

AFTER February 1st, by young man, 22 years old, 5 years' exp. Photograph and A1 refs. in first letter. Address, F. H. Ewald, 29 South Franklin Street, Titusville, Pa.

PERMANENT position in the West by young, married man; expert engraver. Can do all kinds of jewelry repairing, manufacturing and stone-setting. 9 years' exp. Good refs. as to ability, etc. Address, "A," 820 Exchange St., Keokuk, Iowa.

BY watchmaker, engraver and salesman. A1 refs. Address, "Y 7," care Keystone office.

BY first-class watchmaker and jeweler. "B 112," care Keystone office.

N Kansas or Missouri as watchmaker and salesman. Married, 25 years old, 7 years' exp. Member Presbyterian Church. Refs.: Woodstock, Hofer & Co., Kansas City; Frank Herbert, Garnett, Kan. Ad., Chas. Paxton, Golden City, Mo.

YOUNG man with 2 1/2 years' exp., willing to work and wants to learn, wishes a thorough man to teach him balance of the trade. Wages reasonable. Good refs. Strictly temperate. Will go anywhere. Box 133, Linden, Ind.

PRACTICAL watchmaker and engraver desires situation; 10 years' exp. Have full set tools. Good ref. Age 28. Address, "C 46," care Keystone.

OPTICAL graduate from 2 colleges, good salesman, has trial-case and stock, wishes position with optician or jeweler—any State. H. Howard, 29 Myrtle street, Worcester, Mass.

FIRST-class watchmaker, graduate optician, with tools and trial-case, 15 years' exp. Best refs. F. R. C., 117 First Ave. East, Hutchinson, Kan.

SITUATIONS WANTED.

AS watchmaker, jeweler, engraver and optician, 30 years old. 12 years' exp. Own tools, including W. W. lathe, slide-rest, face-plate, also trial-case. Best of refs. Address, Box 168, Carterville, Mo.

SOBER, industrious first-class watchmaker, jeweler; position at once. 8 years' exp. Own tools. Competent to take charge. Best refs. State particulars. "X," Box 502, Madison, Ohio.

BY good watchmaker; can also do clock and jewelry repairing, some engraving, act as salesman. Speak English and German. 6 years' good exp. Best of refs. Age 21; single. Address, Robert Fischer, Clintonville, Wis.

EXPERT watchmaker of 18 years' exp.; good optician. Fine tools and trial-case. Good refs. Can take charge. "Business," 10 1/2 Mitchell Street, Atlanta, Ga.

BY strictly first-class watchmaker, also engraver, 14 years' exp. and competent to take entire charge. Best refs. State salary. Address, Lock Box 256, Perry, Ohio.

BY a first-class watchmaker, jeweler, engraver and electro-plater. I understand the optical work. Age 37; married. Speak French and English. Will go anywhere. Address, "E," jeweler, P. O., Box 22, Levis, Quebec.

WATCHMAKER and jeweler; drug store exp. Can gold solder, do all clockwork, jewelry repairing. Have bench and some small tools. Box 210, Grover Hill, Ohio.

THOROUGH optician, at liberty March 1st, desires position in city of not less than 10,000 inhabitants. Does not smoke or chew, nor use liquor. Graduated in '93. Address, Dr. G. B. Harris, Bourbon, Ind.

BY watchmaker and jeweler, 15 years' exp. at bench. Some exp. in selling and repairing of bicycles. "W 59," care Keystone office.

TRAVEL or work at trade, exp. optician, plain engraver; can do some watch and jewelry repairing. Good refs. Moderate wages for permanent position. Would travel for jewelry or optical trade. Will go anywhere. Address, "G 49," care Keystone office.

BY young man. Can do all plain watch, clock and jewelry repairing; fair salesman. Address, Lock Box 418, Cheney, Kan.

WATCHMAKER and jeweler, first-class, also clock and jewelry repairer, desires position at once. Full set tools, lathe and bench. "E. A. A.," 45 Charles Street, Springfield, Mass.

THOROUGHLY competent watchmaker, expert jewelry repairer and good salesman wishes a permanent position. Has had 14 years' exp. in above lines, and can give first-class refs. Owns full set of tools. Will work for moderate salary if position is permanent. For further particulars address, "R 48," care Keystone office.

AS watchmaker and engraver; very thorough workman, exp. salesman, some exp. in optics. Finest refs. Salary, \$16 week. Address, "Iowa 9," care Keystone office.

BY first-class watchmaker and jeweler of over 15 years' exp. Have American lathe and good set of tools, and A1 refs. Ad., "P 44," care Keystone.

REFRACTING optician and salesman, years of successful practice. Competent to take entire charge. Best ref. To save correspondence state best salary, and address, Box 130, Postal Station C, Cleveland, Ohio.

YOUNG man would like to finish watch trade. Can do common watch and jewelry work. Best refs., own tools. State salary. "S 91," care Keystone.

BY jeweler and clock repairer, 7 years' practical exp. with first-class manufacturing and retail house. Ad., "H," 516 Main St., Evansville, Ind.

WOULD like to receive proposition giving me in charge of paying business on commission. Am practical watchmaker, engraver, jewelry repairer and salesman. Speak English and German. Single, best of refs. Own tools. Address, "L. M.," 226 Twenty-sixth Street, Milwaukee, Wis.

HELP WANTED.

UNDER THIS HEADING THREE CENTS PER WORD.

AN exp. and thoroughly posted optical salesman wanted to handle the best American goods in New York and New England. Ad., "F 33," care Keystone.

AN engraver and good watch case and jewelry repairer. Reed-Bennett Co., Minneapolis, Minn.

FIRST-CLASS manufacturing jeweler, must be good engraver. Good salary. Address at once, "P 47," care Keystone office.

IMMEDIATELY. Watchmaker, jeweler and engraver. Must have reliable refs., and state wages expected in first letter. Hollins, Lake Charles, La.

WATCHMAKER, jeweler and engraver. Single man, age about 30; best of ref. Send photo and sample of engraving in first letter. State wages. "P 48," care Keystone office.

AT once. Good workman and all-around man; one not afraid of work. Single preferred; with good refs. State salary. W. R. Washburn, Myers, Fla.

EXPERIENCED jeweler, engraver and jobber in first-class shop. Steady position Feb. 1, 1898. Address, "M 65," care Keystone office.

FIRST-class watchmaker, an optician or engraver preferred. Address, stating salary expected, Philip Jacoby, Kalispell, Mont.

REFRACTIONIST of good appearance. Must be first-class salesman and have unquestionable refs. In Eastern city. Ad., "A 27," care Keystone.

YOUNG man, good at clocks, jewelry jobbing and hard-soldering. Fred. Baker, Huron, S. Dak.

GOOD all-around watchmaker and jeweler; plain engraver pref. Permanent job. Address, with ref., Box 133, Marietta, Ga.

WATCHMAKER who can invest a few hundred dollars. Only a good workman who can take charge considered. Permanent position at fair salary. Money secured. Address, "Q 1," care Keystone.

OPTICIAN with experience, test-case, etc., to take charge of optical department on commission. Business well established. Address, "B 111," care Keystone office.

WANTED.

UNDER THIS HEADING THREE CENTS PER WORD.

JEWELERS, learn photo., steel and copper-plate engraving. Beautiful new process. Box 149, Ashley, Ill.

OPTICIAN'S trial set. Emil Ludwigs, Lexington, Missouri.

PARTNER with about \$1000 to embark in jewelry business. N. H. Klieres, Clinton, Ky.

FIRST-CLASS Javal ophthalmometer, Meyrowitz or Hardy preferred. Price must be right. Ad., "Oculist," 204 St. Joseph Ave., St. Joseph, Mo.

COMPLETE wheel-cutting tool. G. A. Bahn Austin, Tex.

BENCH room and where I can handle \$200 or \$300 stock, by German watchmaker with good tools. Sober and reliable. Address, "Jeweler," 164 Liberty Street, Cleveland, Ohio.

SOME ONE to buy my jewelry and optical business guaranteed to clear over \$100 per month. Well established in Indiana mfg. town of 5000 pop. Factories pay out weekly over \$12,000. Snap for good, steady workman. Don't write unless you mean business. Address, "H 80," care Keystone office.

WANTED to purchase established jewelry business in town of not less than 8000. Correspondence confidential. J. T. Ferguson, 1506 Chestnut Street, St. Louis, Mo.

I WOULD like to buy a Rivett jewelry or pivoting head, and a Hopkins jewelry tool. Address, "F 41," care Keystone office.

AN old-style Waltham, 14-size hunting, 15 jewel. Gable, the jeweler, Shamokin, Pa.

CITY and farm property for trade for jewelry or jewelry stock. Ad., "H 176," care Keystone.

WANT to buy for spot cash a business and fixtures in a small, live town in mild climate. California, New Mexico, Oklahoma. Give price and full particulars. Ad., "H 81," care Keystone office.

TEST-case in exchange for watch, shotgun or bicycle. Gibbs, Moultonville, N. H.

TO trade good St. Louis income property for stock of jewelry in live town. Will pay cash difference. Address, S. E. Morrison, 616 Olive Street, St. Louis, Mo.

VERY kind of gold and silverware, jewelry, watches, platinum. Market value paid. Sent by express or registered mail. Price not satisfactory, I will return all articles. J. L. Clark, refiner and sweeper of gold and silver (established 1870), 724 Filbert Street, Philadelphia.

SLIDE-rest wanted for Whitcomb 1 1/2. Address, Box 133, Pulteney, N. Y.

SMALL stock of jewelry on consignment. Ned Smering, Covington, Ga.

WHO has \$1500 in cash to go equal partner in best paying drug and jewelry business in west Texas? Must be druggist. A bonanza. Invoice \$5000. Ad., Lock Box 136, Ilano, Texas.

DEALER in jewelry to take one side of room, 26 feet long by 16 feet high, also storage, on Court House Square, good location, in this city, 45,000 people. Moderate rent; heat and light free. Ad., at once, Sears Real Estate Co., Anderson, Ind.

FOR SALE.

UNDER THIS HEADING THREE CENTS PER WORD.

STOCK of watches, chains, rings and fixtures in best location in a manufacturing town of 35,000 inhabitants in central Pennsylvania. For over 20 years a fine jewelry business has been done in this store. Good reasons to sell. Only parties with cash need write. "W 56," care Keystone office.

JEWELRY store established 14 years; central Pennsylvania. Population 6000, with 10,000 more to draw from within 5 miles. Manufacturing town; best location; 1 other jewelry store. Clean stock. Will invoice \$4000; can be reduced. Do not write unless you mean business. Address, "G 47," care Keystone office.

BARGAIN. Only store in town of 2000 people. Railroad watch inspector. Must sell; have business in Omaha. Big thing for right man with \$1000 in cash. Ad., "T 40," care Keystone office.

WELL-established jewelry business in Ackley, Iowa. Stock and fixtures \$2500. Will reduce to suit purchaser. E. L. Boucher.

JEWELRY and photo. business in best farming locality in Iowa. F. J. Kamber, Alton, Iowa.

STOCK and fixtures—safe, wall and show cases, regulator, bench, railings and everything complete. Town of 500. Good run of repairing. No opposition. Other business; must be sold at once. Price right. Splendid chance. Ad., Lock Box 314, Clarkston, Mich.

JEWELRY store at a bargain in center of thriving city western New York. Easy terms. Cause, failing sight. Ad., "K 46," care Keystone office.

ONLY jewelry and optical store in good town, 1200 inhabitants. Invoice \$1500. Good reasons for selling. Frank S. Fisher, Sidell, Ill.

MY Watertown, N. Y., outfit of jewelers' fixtures: 1 roomy safe, 4 counter cases, 36 feet, and tables, wall cases and fine, large regulator, at a bargain. L. Rubin, Oswego, N. Y.

BEST location in a city of 40,000 pop. Am watch inspector for large division of railroad. Stock and fixtures invoice about \$3500. Must be sold on account of death of an interested one. Any one with the cash can get large discount. "L 46," care Keystone office.

SHOW-case, bench, regulator, watch case, lathe, tools and material. Mrs. B. H. Bell, Clyde, Ohio.

THE best opportunity ever offered. A first-class jewelry stock and fixtures at a bargain. Must be sold. Write for particulars. Mrs. Mary K. Curtis, Eureka, Kan.

ONE of the best paying jewelry, silverware and bric-a-brac stores in Philadelphia is for sale, the whole thing, stock, fixtures and lease; fine store and in the best location; ill health the sole reason for selling; established 1855. Geo. Eakins & Son, 930 Chestnut St., Philadelphia, Pa.

JEWELRY business in fine town in north Mississippi of 3500; railroad division and repair shops here. Competition light. Benchwork runs from \$60 to \$80 per month and good business. Will pay to investigate this. "R 54," care Keystone office.

FOR SALE.

WATCHMAKERS' tools, lathe, bench and engraving tools. Address, "B," 312 Prairie Street, Champaign, Ill.

NEAT little jewelry store in town of 2000. Rich country around to draw trade from; beautifully situated and very healthy. Very little money required. "N 15," care Keystone office.

JEWELRY stock and optical goods. Inventories over cost price, \$5000. Bought at sheriff's sale to protect our claim. We desire to dispose of stock. Address, Quincy National Bank, Quincy, Ill.

ON account of the sickness of the proprietor a paying jewelry business in a prosperous Iowa town is offered for sale on favorable terms. This is a fine opening for a practical man with some means. For particulars address, "M. E. 48," room 811, at 103 State Street, Chicago.

SOLID oak wall case, 10-foot, with base, containing drawers and cupboards. "W," Lock Box 96, Barre, Mass.

THE oldest and best-paying corner jewelry store in a growing manufacturing town of 7000, on Puget Sound; county seat. Stock and fixtures invoice nearly \$5000. Plenty of benchwork. A fine optical trade. The Klondike and other mining interests must center here. The chance of a lifetime for some one to step right into an established money-making business. Fine climate. Klondike mining fever reason for selling. Don't reply unless you mean business. Can reduce stock some. "E 11," care Keystone.

MODERN store fixtures: 1 oak upright wall case 22 feet long, plate-glass, 4-shash; 3 rosewood and plate-glass counter cases, with oak tables, each 9 feet, with rosewood velvet-lined trays, all of finest workmanship and design, at a fraction of original cost. Details and prices furnished on application. Myers & Co., jewelers, Wabasha and Fifth Streets, St. Paul, Minn.

CHEAP for cash, jewelry store in central Wisconsin, jewelry, fixtures. Pop. 6500. Box 366, Marshfield, Wis.

JEWELRY store and residence. Only store in town of 4000 inhabitants. Purchaser can have store with or without stock and fixtures. Terms easy. "P 45," care Keystone office.

STOCK of jewelry in good town in western Indiana. Good place for the right person. G. H. Neff, Fowler, Ind.

GOOD jewelry business; no opposition of any kind. Pop. 2500. Poor health, cause of sale. Good opening. "F 39," care Keystone office.

JEWELRY store with fixtures, well established. Good paying business. P. O. Box 367, Holley, New York.

ELEGANT jewelry and music store. Only one in city of 6000 inhabitants. Centrally located and doing a good business. A rare bargain to the right man. Chas. A. Rigdon, Warsaw, Ind.

STOCK of jewelry. Stock and fixtures invoice about \$1000; can reduce to suit buyer. Good Kansas town of about 800 pop. No competition within 14 miles. Good run of benchwork. Ad., E. A. Dayton & Co., 417 S. Fifteenth St., Omaha, Neb.

WELL-established jewelry business, with bicycle repair shop in connection, in town of 1000 inhabitants. Stock and fixtures will invoice \$600. No competition. Good benchwork. Good reason for selling. Ad., E. A. Blessing, Central City, Iowa.

JEWELRY store in best Oklahoma town. Stock and fixtures about \$1000. Has other interests to look after. "H 83," care Keystone office.

JEWELRY and optical business in department store. Stock \$500. Tools and trial-case, \$300. Purchaser of stock takes business. Fixtures furnished. No rent. Snap. "C 47," care Keystone office.

JEWELRY store in a southern Illinois mfg. town of 5000 inhabitants, situated on the Ohio River in the finest corn and wheat belt of the world. All railroad and steamboat facilities. Stock and fixtures will invoice \$5000; can reduce to suit purchaser. Only one other store in town, whose competition amounts to nothing. Benchwork for one man all the year round. Best location in town—opposite post-office. Rent, \$12 per month; lease runs 2 years more. Reason for selling, want to go into a manufacturing business, and can't attend to both. Established 7 years. Don't write unless you mean business. Address, Fred. Pfau, Metropolis, Ill.

ONLY jewelry and repairing store in southern Iowa town of 1000; cheap. Write Halstead, Jeweler, Davis City, Iowa.

WIFE dead, want to retire. Rare chance, sell at cost. Fine climate; working now on railroad extension to Kansas City. Ad., Chas. Van Buren, Bolivar, Mo.

JEWELRY store in town of 2000. Established 20 years, no opposition, plenty of benchwork. Invoice about \$3500. Ad., "M 62," care Keystone.

BIG bargain. New Edison phonograph, complete outfit, first-class order, at one-third its cost. M. L. Bowen, Fort Madison, Iowa.

BARGAIN.—Hall's safe, double doors, and oak wall case. Ad., A. Sweningsen, Moorhead, Minn.

FINE stock, elegant fixtures, in the most prosperous locality in the Northwest. Write at once. "S 99," care Keystone office.

JEWELRY business established 18 years. Most prominent location in rapidly growing city of 12,000. 40 feet fine cherry wall cases, 30 feet latest style plate-glass show-cases with tables, fine regulator with electric street clock connected, 4 1/2-ton fire and full burglar-proof safe, Francis engraving machine. Best paying benchwork in town. Nice clean line of jewelry, etc. Will sell fixtures without stock. Ill health reason for selling. Address, J. K. Grieb, Butler, Pa.

THE leading jewelry and stationery store in a mfg. town of 3000 in central Pennsylvania. Good farming country to draw from. Repair trade good. Address, Box 93, Muncy, Pa.

HAVE bronchial trouble, must sell out and go to Colorado. Am pawnbroker, and do watch repairing. Stock mostly pledges. Value, \$3000; can reduce to \$1500. \$2500 a year profit. Chas. H. Whittier, Lynn, Mass.

GOOD-WILL and fixtures old-established store on main thoroughfare; rent, \$50. Benchwork \$100 to \$150 per month. Sales \$2000 to \$3000 per year, 30 minutes from Maiden Lane, New York City. Will bear investigation. Good chance for German-American. Will sell cheap. Address, "B 114," care Keystone office.

FOR SALE.

WATCHMAKING and jewelry business in town of 700. No other watchmaker within 15 miles. Address, Lock Box 196, McFall, Mo.

JEWELRY store in best town in Colorado, 7000 pop.; county seat. State University and preparatory school, Colorado Sanitarium; new railroad and smelters building; mining and agriculture. Splendid run of benchwork at \$1.50 and \$3.00. Optician needed. Satisfactory reason given. Will pay to investigate. Invoice about \$2000. E. A. Douglas, Boulder, Colo.

\$1800 CASH buys first-class optical business; city of 75,000. Store elegantly furnished. Cleared \$3000 annually last 7 years. Repairs from 5000 prescriptions pay expenses. Don't answer except you have the money. Cause of selling, sickness. Address, "H 79," care Keystone office.

ESTABLISHED jewelry and optical business, city of 25,000; eastern Iowa. Fine opening for practical man. Stock and fixtures, \$2500. Further information on application. Address, "F 45," care Keystone office.

OLDEST established and best located jewelry business in town of 5000 in Iowa. Will reduce stock to please buyer. Address, Ball Bearing Co., 231 Smith's Wharf, Baltimore, Md.

\$700 BUYS jewelry business; central Pennsylvania. 1200 inhabitants. Ad, "C 48," care Keystone office.

FINEST jewelry store in central Illinois; established 1889. Will sell with or without fixtures, and can reduce stock to suit purchaser. Bench trade more than pays expenses. Will sell at great sacrifice if store is purchased at once. Good reasons for selling. "B 115," care Keystone office.

CHEAP for cash, good little stock of jewelry and safe. Address, H. A. Davis, Pennville, Ind.

GRAND opening for first-class watchmaker, the leading store of the town; stock, fixtures and good-will. Account of other business in the North which takes all of my time. Address, J. Henry Smith, Ferdinand, Fla.

JEWELRY store in eastern Indiana; county seat, 5000 inhabitants. Will sell cheap. Cause, ill health. "D 38," care Keystone office.

AN established jewelry store. Town of 15,000. Biggest tobacco market in the world. Stock and fixtures invoice about \$3500. Good reason for selling. Don't answer unless you mean business, and must be cash. Address, Phil. Levy, Henderson, Ky.

\$2500 CASH buys largest jewelry store in good Illinois town. For information address, "S 26," care Keystone office.

GOOD, paying jewelry store. Clean stock, good trade, well located. Will sacrifice, owing to health being poor and getting worse. Address, C. P. Kerr, 287 Forty third Street, Chicago, Ill.

WANTED all interested to send to the Peoria Horological School for circular. 1426 Main St., Peoria, Ill. Try our trade work. See adv. on page 146.

WHERE to receive the highest cash price for every kind of gold and silver. Refiner of sweeps, filings, brushings, polishings, everything containing gold and silver. Fine gold, silver, copper for sale. J. L. Clark (established 1870), 724 Filbert St., Phila., Pa. Send by mail or express; prompt attention given.

JEWELERS—Ask your jobber for Engel's patent ring gauge. Sample to cents. Engel Manufacturing Co., Chicago, Ill.

IN order to teach students more thoroughly, the management of the St. Louis Watchmaking School has decided to reduce the number of students to only 25.

EVERYONE to send to Parsons' Horological Institute for catalogue of terms, etc. Peoria, Ill.

GOLD and silver plating, satin finish, engraving, engine turning, everything in the line of watch case repairing. G. F. Wadsworth, Silversmiths' Building, Chicago, Ill.

THE Elgin Watch Repairing School has some special inducements to offer to those who wish to learn the watchmakers' trade in a thoroughly practical manner in the least possible time, and at very low terms. Ad., for information, the Elgin Horological School, Elgin, 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 St. Louis Watchmaking School has the best facilities for teaching watchmaking, engraving, repairing, jewelry and optics. Terms reasonable. Write for circular.

SEND your work to Olof Pearson, expert watchmaker for the trade; fine watch repairing, demagnetizing, etc. Mail orders promptly attended to. Room 1213, Columbus Memorial Building, Chicago.

EVERYONE to send watchwork to Parsons' Horological Institute, Peoria, Ill. The first, the oldest and the best school in this country.

SEND for terms and prices at the Peoria Horological School. We guarantee perfect satisfaction, or money refunded.

STUDENTS wishing to attend the St. Louis Watchmaking School should make application at once, as the number of students has been limited to only 25.

EVERYONE to know that Parsons' Horological Institute, Peoria, Ill., is the oldest and best in this country.

THE best work for the least money at the Peoria Horological School, Peoria, Ill. No student work. See advertisement on page 146.

WHY not send me your watch cases that need repairing? Can replace any part of a case. G. F. Wadsworth, Silversmiths' Bldg., Chicago, Ill.

HOWARD watches at greatly reduced prices. Send for particulars. Wm. I. Rosenfeld, 19 Maiden Lane, New York.

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.

THOS. O HAYDOCK, watchmaker, 702 Chestnut Street, Philadelphia. Difficult and broken work a specialty. Pivots, 25 cents.

HAVE you an old English watch case you want changed into American stem-wind? If so, send it to me, and I will guarantee satisfaction. G. F. Wadsworth, Silversmiths' Building, Chicago, Ill.

FOR SALE OR EXCHANGE.

EDISON electric phonograph—oak cabinet, storage cells, records, etc.—for good oculists' test-set, or first-class stereoscopic camera. "A. P. W.," box 182, Wardner, Idaho.

FINE French column clock to trade for American lathe or bicycle. Ad., S. Jordan, 3021 Franklin Avenue, St. Louis, Mo.

SET nice plans for medium-priced house and barn, modern improvements. Prefer set encyclopedia, Regina music box. What have you? Write Box 483, Hartford, Wis.

GOOD 6-room house and lot, 56 x 190 feet, in Decatur, Ill., for \$1500, or would trade for small jewelry store. G. B. Jenison, Decatur, Ill.

160 ACRES good Nebraska land to exchange for jewelry. Address, Clark Long, Britt, Iowa.

PAYING fruit farm near Minneapolis for a jewelry business worth \$4000 to \$8000. Address, Box 96, Long Lake, Minn.

NEW 22 calibre Stevens pocket rifle, fitted with Malcom telescope sights. Aid Bros., Gallatin, Mo.

FINE trial-case for engraving machine, rolls or diamond. W. A. McReynolds & Co., Springfield, Mo.

RESIDENCE property in good Illinois city, value \$3500, to exchange for good jewelry stock. "H 77," care Keystone office.

SPECIAL NOTICES.

UNDER THIS HEADING THREE CENTS PER WORD.

W. I. Rosenfeld, 19 Maiden Lane, New York, is offering some unusual bargains in discontinued movements and cases. Write for particulars.

ENGRAVING and optics taught at your home by an expert. Reasonable terms. New method; well recommended. Write L. M. Piccard, 100 Nassau Street, New York.

REWARD for recovery of watch stolen—movement 4560953; case 2159043. O. F., 20 years filled case, Boss, engraved, R. W. Raymond movement. "C 50," care Keystone office.

BUSINESS NOTICES.

UNDER THIS HEADING THREE CENTS PER WORD.

THE Elgin Horological School is still making competent workmen for the trade. Watch and jewelry repairing, engraving, etc., taught in a thoroughly practical manner. Terms to suit the hard times. Send for circulars to the Elgin Horological School, Elgin, Ill.

OPTICAL instruction. Kansas City Optical College, Tenth and Walnut Streets, Kansas City, Mo. Write for catalogue.

WANTED—all interested to send to the Peoria Horological School for circular. 1426 Main St., Peoria, Ill. Try our trade work. See adv. on page 146.

WHERE to receive the highest cash price for every kind of gold and silver. Refiner of sweeps, filings, brushings, polishings, everything containing gold and silver. Fine gold, silver, copper for sale. J. L. Clark (established 1870), 724 Filbert St., Phila., Pa. Send by mail or express; prompt attention given.

JEWELERS—Ask your jobber for Engel's patent ring gauge. Sample to cents. Engel Manufacturing Co., Chicago, Ill.

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GOLD and silver plating, satin finish, engraving, engine turning, everything in the line of watch case repairing. G. F. Wadsworth, Silversmiths' Building, Chicago, Ill.

THE Elgin Watch Repairing School has some special inducements to offer to those who wish to learn the watchmakers' trade in a thoroughly practical manner in the least possible time, and at very low terms. Ad., for information, the Elgin Horological School, Elgin, 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 St. Louis Watchmaking School has the best facilities for teaching watchmaking, engraving, repairing, jewelry and optics. Terms reasonable. Write for circular.

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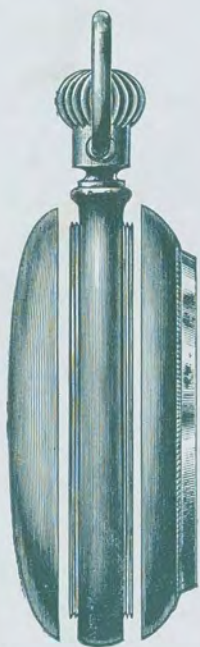
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