

The KEYSTONE

The ORGAN of the JEWELRY & OPTICAL TRADES



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BY B. THORPE PUBLISHER
19TH & BROWN STS PHILA.

Vol. 26 June, 1905 No. 6

**A Gift Watch
That May
Be Looked
In the
Works**



Watches are probably the most popular of all gifts. Yet too often the gift watch consists of a showy case and an indifferent movement.

Impress upon your customers that the

ELGIN WATCH

is the proper gift watch because it lasts a lifetime and is a source of satisfaction where a poor watch is a cause of annoyance.

See Jobbers' List for prices or write the Company.

Every dealer is invited to send for the Elgin Art Booklet "Timemakers and Timekeepers," illustrating the history and development of the watch.

ELGIN NATIONAL WATCH COMPANY,

Factories, Elgin, Ill., U. S. A.
General Offices, 131 Wabash Ave., Chicago.

New York Office, 11 John Street.
San Francisco Office, 206 Kearny St.

F&B.



This illustration shows one of our new patterns for this season,

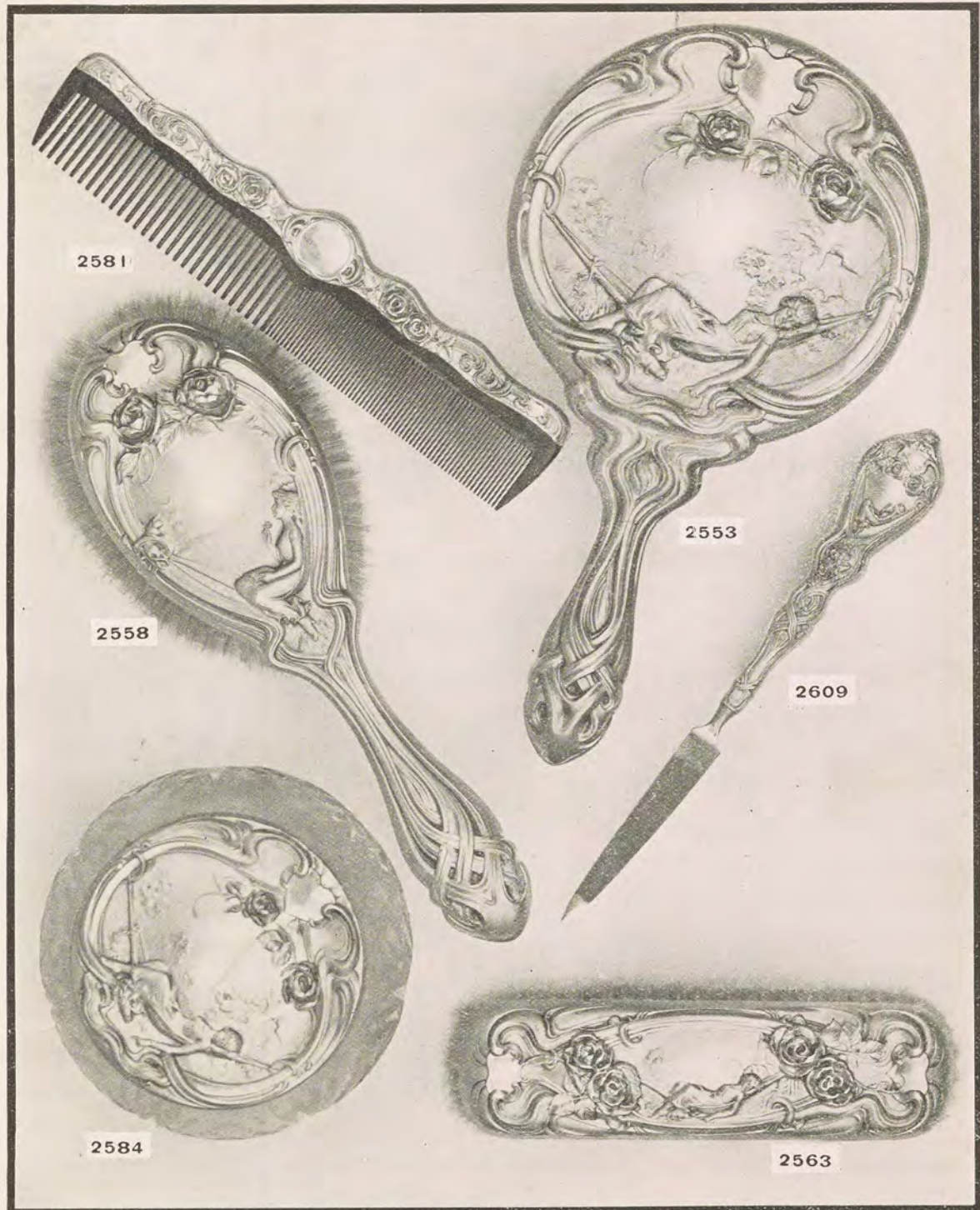
The Summer Idyl

and will be made in the full line of Toilet and Manicure parts.

Later, we will show another beautiful new pattern, not completed yet.

In addition to the above we have paid special attention to our gold filled line, and have added a great many new things.

We call your special attention to our new **Chains, Locketts, Brooches, Bracelets, Bar Pins, Scarf Pins, Hat Pins, Cuff Buttons, Crosses, Earrings, Necklaces and Hair Chain Mountings**, which every Jeweler should see before buying for the fall. They are of fine quality and finish, while prices are low. All F&B goods are trade-marked.

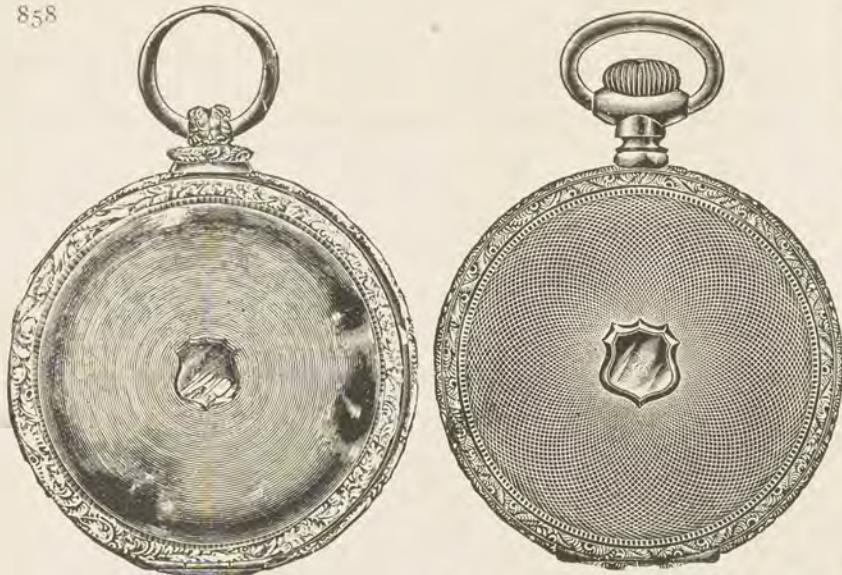


ILLUSTRATIONS 1/2 SIZE

Theodore W. Foster & Bro. Co.

MANUFACTURING JEWELERS AND SILVERSMITHS

100 Richmond Street, Providence, R. I.



English Case as Received

As Remodeled for American S. W. Movement

WENDELL & COMPANY

WATCH CASE MAKERS, REMODELERS AND REPAIRERS

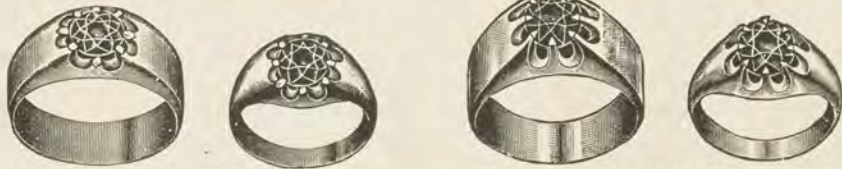
Special Cases to order in Gold and Silver, for English, Swiss and American Movements.
Key-Wind Cases changed to Stem-Wind.
English Cases changed to fit American Movements without altering outside appearance.
Hunting Cases changed to Open-Face.
Old Watch Cases Repaired and Renewed.
Melting old gold cases and making over into new case (using same gold) a specialty.

TWO WONDERFUL SHOPS

103-105 William Street, New York

57 Washington Street, Chicago

NEW CLAWS ON OLD DIAMOND RINGS



These two cuts show Flat and Round Belcher Rings as received, with claws badly worn off and too low to permit resetting stones again.
These cuts show the same rings with new, high claws, stones securely reset, and entire rings refinished like new.
Net Price for six new claws, resetting stone and refinishing ring like new, \$.75 to \$1.25
" eight " " " " " " " " " 1.00 to 2.00
We repair or put new claws on diamond Tiffany, Belcher, Tooth and rings of every description, to cost from 75c. to \$2.00, according to the condition of ring and number of claws in setting.



Initial glove ring with one claw at each end holding set.

These two cuts show initial and cameo glove ring, with two and four claws soldered to the setting, which holds the sets in very securely.

Two new claws on glove ring, 50c.
Four " " " " " 75c.

WENDELL & COMPANY

The Special Manufacturers for the Retail Jewelry Trade

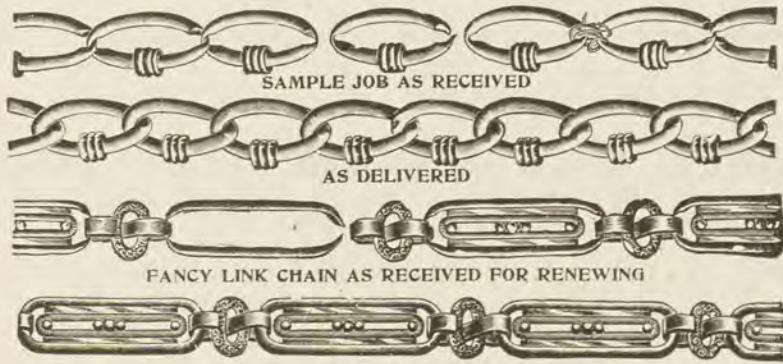
TWO WONDERFUL SHOPS

103-105 William St. NEW YORK

57 Washington St. CHICAGO



Cameo glove ring with four claws at corners holding set.



Gold Chains Refilled, Renewed and Repaired

Old Chains made over into new patterns, using same gold
Good Work. Low Prices. Prompt Attention

WENDELL & COMPANY

THE SPECIAL MANUFACTURERS FOR THE RETAIL JEWELRY TRADE

NEW YORK
103-105 William Street

TWO WONDERFUL SHOPS

CHICAGO
57 Washington Street



Stone-Setting

We carry a most complete stock of Precious and Semi-Precious Stones for special work and replacing lost sets. We import them direct from the cutters in Europe, and furnish them to the trade in single stones at dozen and gross prices.

Have your stone-setting done in our shops and save from thirty-five to fifty per cent.

We employ first-class setters, and turn out work very promptly.
No job too small to receive our careful attention.

Wendell & Company

Repairers and Special Manufacturers for the Retail Jewelry Trade

103-105 William Street
NEW YORK

TWO LARGE FACTORIES

57 Washington Street
CHICAGO

For 23 years we have been doing

Gold and Silver Plating

Sterling and Plated Ware Repairing for the Trade

Do we do yours?
Our plating rooms are the best equipped in the country for job work.



BEFORE

WE REPAIR

any article in the silverware line; making new parts to match the old ones that have been melted or broken off, the same as new.



AFTER

WE REPLATE

any metal article in gold, silver, nickel, bronze, brass, oxidized silver, old bronze, statuary bronze, and all antique finishes.

Wendell & Company

Repairers and Special Manufacturers for the Retail Jewelry Trade

TWO WONDERFUL SHOPS

103-105 William Street, New York

57 Washington Street, Chicago

Great Promptness in Getting Out Special Order Work and Repairing of all kinds

together with Good Work and Low Prices are the features that made our business the only success of its kind in the country.

For 23 years we have made a separate and distinct business of doing Special Order Work and Repairing for the Trade.

We understand our business and there is not a Job or Special Order for New Work that is taken into a Retail Jewelry Store (except watch work) that we are not prepared to do in our own factories.

It is to your best interest to deal with us. By giving your customers perfect satisfaction with their repairs and made-to-order work, you increase your entire business.

Send for our Repair Price-List and Special Order Work Catalogues

Wendell & Company

The Special Manufacturers for the Retail Jewelry Trade

Two Wonderful Shops in Fire-Proof Buildings
103-105 William Street, New York

57 Washington Street, Chicago

Our "New Year's Day"

Our fiscal year began May 1st. Our annual inventory showed the "cleanest" stock in our history. The very favorable results of the year encouraged us to largely increase our stock in all staple as well as in unusual goods in our line, and we now have great pleasure in asking for critical examination and comparison of our goods, singly and as a whole, with any other or all competing lines. We feel a little better fitted than ever before to meet the demands of the most exacting trade. We very cordially invite the trial orders of jewelers who have not dealt with us heretofore.

The Non-Retailing Company

Jobbers in Watches and Chains, Lancaster, Pa.

THE CANADIAN HOROLOGICAL INSTITUTE'S

Sixteenth year and new term begins September 5th, 1905, when all students should be present.

Send for circulars, investigate fully and apply for a seat as early as possible.

This School holds the highest reputation—the result of its merits as an educational institution; none other shows such an array of high-class work by its students.

The painstaking and conscientious personal attention, coupled with the sound and practical instructions given here, is the secret of the school's success; it is known as the best school for the very good reason that it is the best one.

There are no regrets when attending here. Circulars to any address. Write to-day.

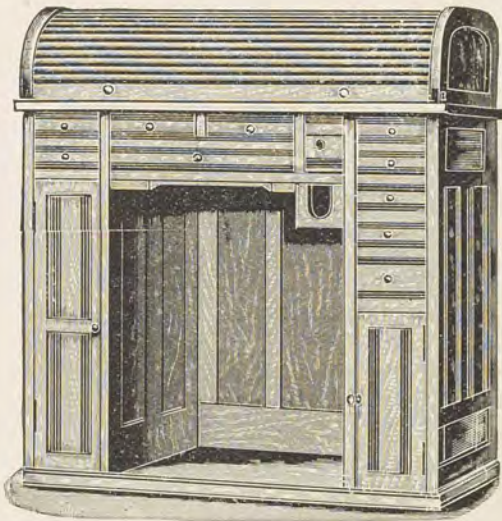
CANADIAN HOROLOGICAL INSTITUTE

H. R. PLAYTNER
Director

115 to 121 East King St., Toronto, Ont.

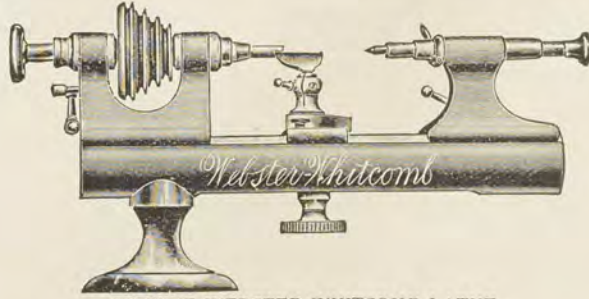
WRITE US FOR PRICES

if you need a lathe and do not find what you want on this page. We have all of the better makes in stock and sell them cheap. Also a full line of Attachments at close prices.



SOLID OAK BENCH No. 1

Latest improved. Made of well-seasoned oak lumber and finished in cabinet style. Has nine drawers which lock automatically with closing of the curtain; also has chalk box and apron drawer. Size—height, 40 inches; length, 40 inches; width, 26 inches.



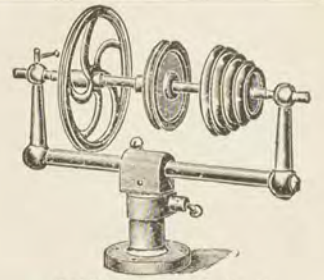
GENUINE WEBSTER-WHITCOMB LATHE

With 8 wire chucks, 1 screw chuck, 1 taper chuck, 6 brass cement pieces and belting. The Webster-Whitcomb is known the world over as standard for quality, finish and reliability. Each lathe is warranted perfect and true.



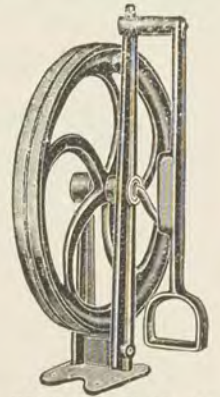
EXTRA QUALITY PIVOT GRAVERS

A fine set of gravers of perfect temper and so shaped that they are easily handled in use. The set is put up in a neat leather case. Temper of each graver is warranted correct.



COUNTERSHAFT No. 9

Our No. 9 Countershaft is well made, much better than the cheaper grades that are in the market. It is a fit companion for the Webster-Whitcomb lathe.

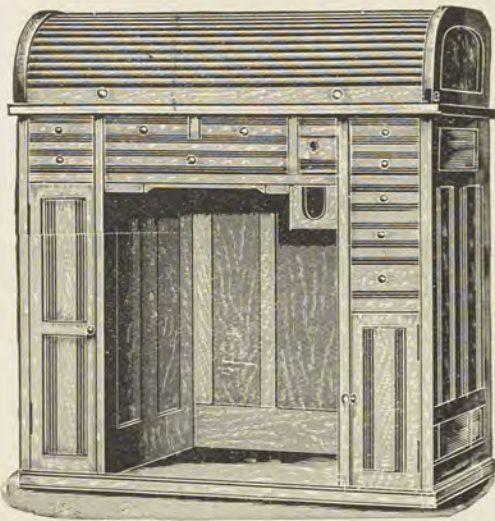


FOOT-WHEEL No. 15

A first-class wheel that will never get shaky or "rattly." Wheel alone weighs 40 lbs. and wheel complete 60 lbs., making a heavy, smooth-running wheel suitable for the Webster-Whitcomb lathe.

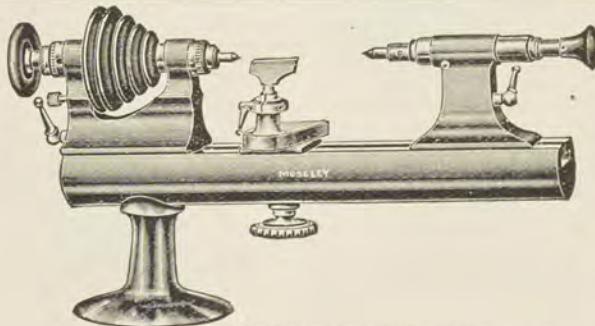
Lathe Combination A

Price of Lathe Combination A Complete, \$57.38 Net Cash



SOLID OAK BENCH No. 1

See description in Combination A



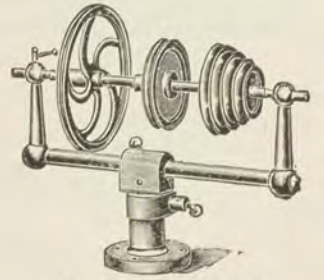
GENUINE MOSELEY LATHE No. 2

Combination includes 8 wire chucks, 1 taper and 1 screw chuck, 6 cement brasses and belting. The No. 2 Moseley Lathe has been tested for many years and stands at the top rank for accuracy and quality. A guarantee goes with each lathe.



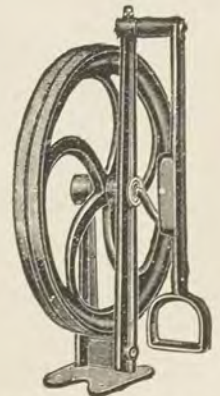
EXTRA QUALITY PIVOT GRAVERS

See description in Combination A



COUNTERSHAFT No. 9

See description in Combination A



FOOT-WHEEL No. 15

See description in Combination A

Lathe Combination B

Price of Lathe Combination B Complete, \$57.38 Net Cash

IT IS A FACT that we have one of the largest stocks of genuine Factory Material for American Watches in the United States. With this we have a large force of competent watchmakers to select orders and match small parts. Every order, large or small, has faithful and prompt attention, for we understand the watchmakers' needs.

Our New Catalogue will be issued about October 1st. If you are a Watchmaker or Jeweler, send us your business card and we will place you on our list or tell you how you can obtain a copy of our new book.

E. & J. SWIGART, Cincinnati, Ohio

ABSOLUTE

Equity



20 DWT. = 1 OZ.
12 OZ. = 1 LB.
WITH US

This one word embodies practically the foundation and success of our business. The universal and unqualified satisfaction to our patrons is our proudest achievement. It has been the corner stone of our business, the inspiration and basic principle of our methods, the secret of our growth and the builder of our success. Why not make us a trial consignment of

Old Gold, Silver, Sweeps—

anything containing Gold, You run NO risks. We make accurate valuations and hold consignments subject to your acceptance. We stand the expense of re-shipment if valuation is not satisfactory. Returns for old gold and silver made same day as received. Returns for sweepings within five days of receipt.

GOLDSMITH BROS.

Sweep Smelters, Refiners and Assayers

Offices—63 & 65 Washington St. Chicago, Ill.
Works—Fifty-Eighth & Throop Sts.

We are paying 50 cts. an ounce for Old Silver



EXTRA X ★ F FINE



SWISS PATTERN FILES

MADE FOR THOSE WHO MUST HAVE THE BEST



THEY ARE SUPERIOR TO ALL OTHERS OF DOMESTIC OR FOREIGN MANUFACTURE

ASK FOR OUR CATALOGUE

NICHOLSON FILE CO.

PROVIDENCE, R. I., U.S.A.



BEFORE

ESTABLISHED 40 YEARS

Watch Case Making, Repairing
Remodeling and Reconstructing

OUR SPECIALTY—Changing old Antique Cases to
Stem Wind

Engraving and Engine-Turning. Gold and Silver Plating.
Satin-Finishing and Polishing.

SEND FOR PRICE-LIST

MINIATURE PORTRAITS

N. J. FELIX

18 John Street, NEW YORK CITY



AFTER



ELKS' BUTTON
(Front.) Pat'd.
Sterling Silver and Gold-Plated



ELKS' BUTTON
(Side.) Pat'd.



TIGER CLAW RING
Solid Gold. Pat'd.



TIGER CLAW RING
Side View

I do all kinds of
work for the trade.
Workmanship the very
best, and satisfaction
guaranteed.



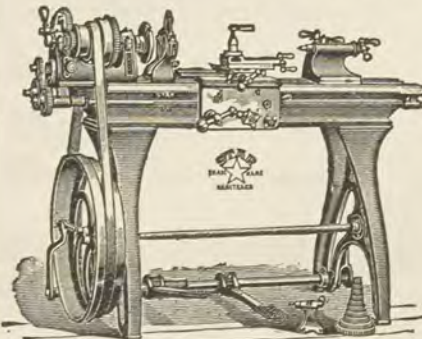
MONKEY RING
Solid Silver, Oxidized

Ikko Matsumoto

Rooms 1, 2 and 3, 17 1/2 S. Meridian St.

Manufacturing Jeweler
Indianapolis, Ind.

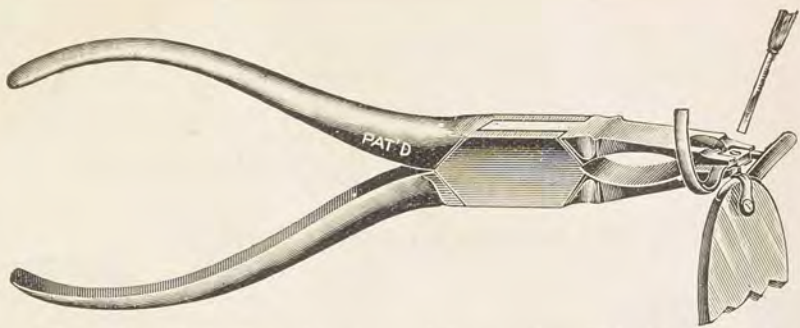
"Star" Foot and Power Lathes



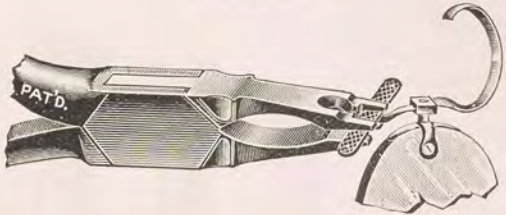
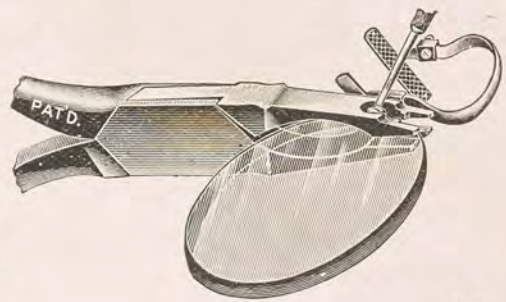
High-grade complete screw-cutting engine lathes, 9 and 11-inch swing, with automatic cross-feed, with or without compound rest, draw-in chuck, taper, milling and gear-cutting attachments, friction countershaft, metric lead-screw, etc. Suitable for tool, model, and scientific instrument makers, optical, laboratory and experimental work, for profitable use in all lines of fine, accurate manufacturing and precision service.

Send for Catalog "B."
We also make Bench Lathes, Speed Lathes, Wood Lathes and Heavy Engine Lathes.

The Seneca Falls Mfg. Co.
246 Water Street
SENECA FALLS, N.Y., U.S.A.



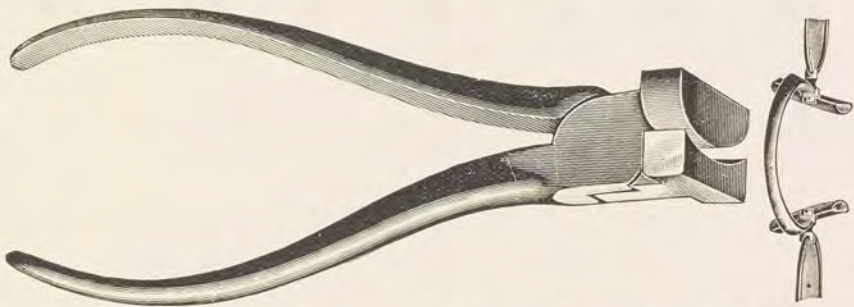
Harper's Patent Optician Plier No. 19



The various illustrations show some of the uses for which this plier is intended. Advantages are as follows:

- Thin jaws** to permit getting between narrow jaws when adjusting guards.
- Hollowed out** to clear the thickest concave lens when tightening strap.
- Milled and countersunk jaws** to hold stud and spring together while assembling.
- When tilting** a spectacle temple, pass temple through hole in jaw, no kinking or sharp bend possible. Nickel plated.

Each \$1.50



Grecian Eyeglass Spring Plier No. 72

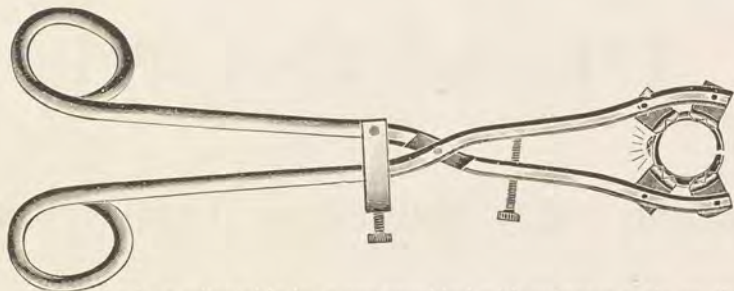
For giving any ordinary eyeglass the well-known "Grecian Bend." Designed by a practical optician, and does the work "quick as a wink." Nickel plated.

Price, \$1.00 each

Order from your Jobber.
If he is unable to supply you,
if you will write us we will
inform you who can.

HAMMEL, RIGLANDER & CO.

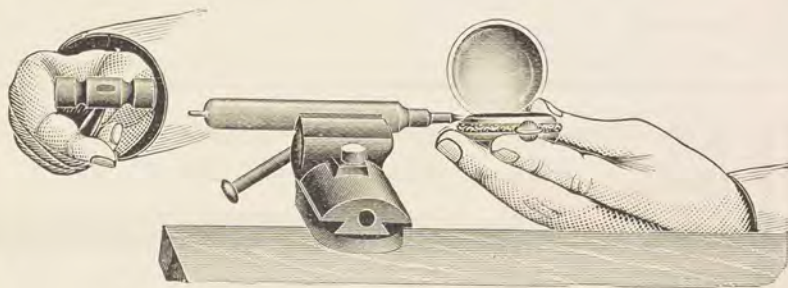
47 & 49 Maiden Lane
NEW YORK



Patent Soldering Forceps No. 50



The four adjustable jaws are provided with asbestos pads so that the heaviest ring can readily be hard soldered. No wiring of job to charcoal required. Will hold articles of all kinds of irregular shapes, also flat surfaced articles. Work can be drawn together by means of the adjusting clamp with screw. It is an article well liked by all who have used it. Nickel plated. Each 65c.

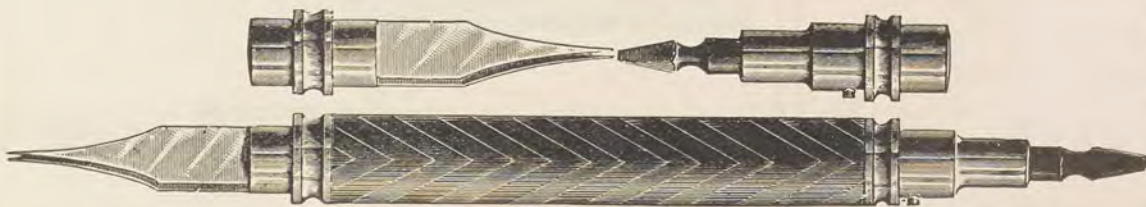


The New Nilson's Patent Rivet Extractor

The most obstinate rivet will yield to this tool. Has two interchangeable points. The handle in vise remains stationary, the center is held in position by a stiff spring, and when struck with a hammer, permits only a slight advance of rivet. Leaves both hands free to use.

Price, \$1.00

Rivet extractors innumerable have been sold with varying success; this is the latest and appeals to the mechanic as something of merit.



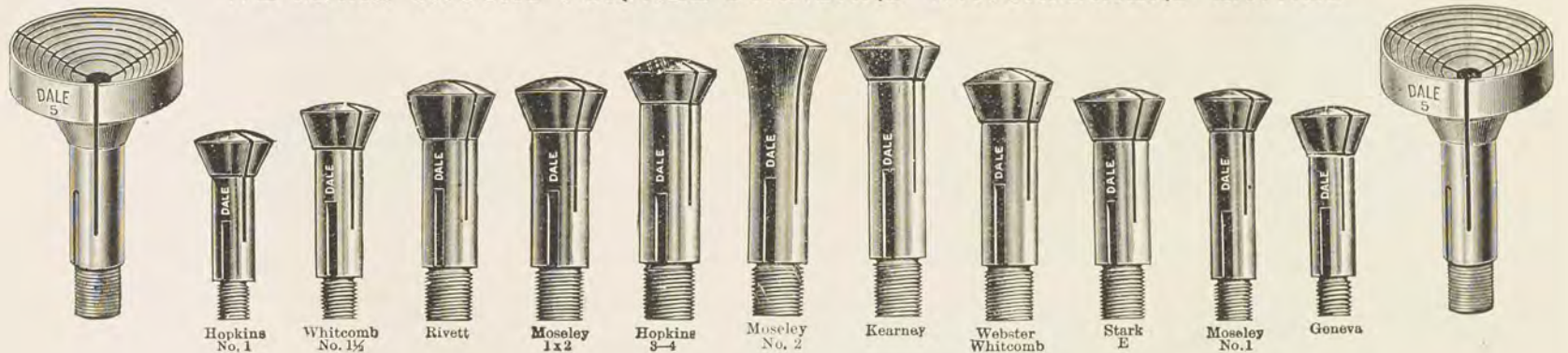
Combination Pocket Spectacle Screw Driver with Tweezer No. 106

In Aluminum Case, each 75c.

DALE CHUCKS

are the Standard everywhere. They are used by the Finest Workmen. They are made from just the Proper Material. They are produced by the most approved and complete machinery, for this class of work, in the world. They are GUARANTEED CORRECT and they sell for **60 cents each**.

WE MAKE CHUCKS FOR ALL STANDARD WATCHMAKERS' LATHES



If you are not using DALE CHUCKS now, ask your jobber for them, and if he does not care to fill your orders, we will.

We repair all makes of watchmakers' lathes and guarantee our work right. Let us quote you prices for repairing.

Our Complete Catalog No. 5 sent free on application.

HARDINGE BROS., 1036 Lincoln Ave., Chicago, Ill.

Kansas City Polytechnic Institute

FOR

Horology, Engraving and Jewelry Manufacturing

(Incorporated)

In opening the doors of this Institute to teach young men and women the different branches of the jewelry business, we have adopted the most modern methods and systems of imparting knowledge.

We consider ourselves fortunate in securing the services of the best instructors in these branches that Germany and America afford; therefore we have no hesitancy in assuring the public that the highest standard of efficiency will be attained.

This school is first-class in every respect and up to date in all its branches. Our tuition is less than any other reputable school of the kind.

For further information and tuition, address

DR. S. W. LANE, Secretary

Suite 202 Missouri Building

1021-3 Grand Avenue, Kansas City, Mo.

TIDD'S JEWELS



Are made of Sapphire and Ruby. They are expertly mounted, guaranteed perfectly true, stripped with a sapphire tool and trued to hole. Every jewel inspected before shipping. Sample dozen sent to responsible dealers for inspection.

Price per dozen, \$1.25 Per gross, \$13.50

TIDD & CO., COLUMBIANA, OHIO

C. O. BAKER, Pres.

C. W. BAKER, Vice-Pres.

PLATINUM

and its alloys, made expressly for jewelers' use

GRAND PRIZE, UNIVERSAL EXPOSITION

St. Louis, 1904

Awarded

BAKER AND CO., INC.

Newark, N. J.

120 Liberty St.,

New York City

K. & D. Pocket Screw Drivers

For Watchmakers' use, also for tightening loose Screws in Eyeglasses and Spectacles

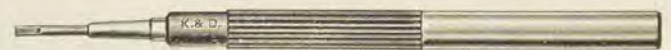


No. 415. Rubber Handle and Cap. Reversible Blade
Price, 50 cents



No. 415. Closed

FOR SALE BY THE TRADE



No. 414. Rubber Handle and Metal Cap
Price, 35 cents

KENDRICK & DAVIS, Lebanon, N. H.

Perfection in Jewelers', Silversmiths' and Dental Noiseless Electric Lathe Motors. Our Latest Improved 1905-1906 Models

The W. GREEN & CO.'S "IMPROVED ADJUSTABLE COMBINATION" Polishing, Buffing, Grinding, Drilling, Sawing and Turning Electric Lathe Motors.

Six Lathes in One, at Price of One.
For Jewelers', Watchmakers, Opticians, Silversmiths, Lapidaries, Dentists, Machinists, Electricians, Brass Workers, Glass and Diamond Cutters and Polishers, Model and Cutlery Makers, Hotels, Restaurants, Laboratories, Hospitals, Institutions, Private Dwellings, Etc., and for all Trades and Purposes.

OUR MOTORS SAVE TIME, PATIENCE AND MONEY, AND COMBINE SIMPLICITY, ECONOMY AND STRENGTH.

Showing W. Green & Co.'s Latest and Improved Model. 4 separate Speeds, 1-5 Horse Power, Direct-Current Lathe Motor. Type 40. 4. With Brush and Buffing Wheels on Spindles in position; also Drilling, Grinding, Emery (Sand Paper) and Saw Chucks; also Spindles, Single and 3-Cone Pulleys, Adjustable Plug and Cord—all used in connection with our 1-5 Horse Power Motors.



Net weight, 30 lbs.; gross, 36 lbs. Total length, 18 inches; height, 8 1/2 inches.

"Nothing better can be made; absolutely dust-proof, air and water-tight, and fully warranted."

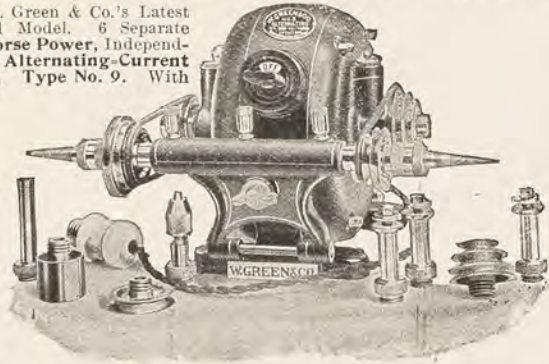
With reasonable care these motors will last, in constant use, for 20 years. Speed 500 to 3000 revolutions per minute, as desired.

DON'T WAIT, be up to date!!!

These Motors can be attached in one minute to any ordinary electric light socket and are ABSOLUTELY GUARANTEED, therefore do not hesitate to place your order. They are always ready for immediate use, no further adjustment being required.

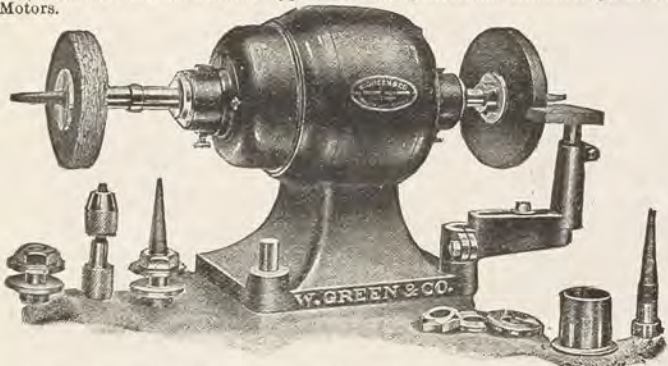
For general use our Motors have no equal at any price.

Showing W. Green & Co.'s Latest and Improved Model. 6 Separate Speeds, 1-5 Horse Power, Independent A Motor, Alternating-Current Lathe Motor. Type No. 9. With new style Steel Switch and Patent Key Attachment, and Short Spindles in position; also Drill, Grindstone and Emery (Sand Paper), Chucks, Single, 3-Cone and Flat Pulleys, Adjustable Plug, Cord, etc.



Net weight, 40 lbs.; gross, 46 lbs. Total length, 17 inches; height, 10 inches.

Showing W. Green & Co.'s Latest and Improved Model, 7 Speeds (Separate Attachment), 1-4 to 1 1/2 Horse Power, Direct-Current Lathe Motors. Type No. 6 With Grindstone and Buffing Wheels on Spindles in position; also Drill Chuck, Spindles, Grindstone, Adjustable T-rest, Turning and various other attachments, etc., used in connection with our Type Nos. 6 and 7, Direct and Alternating-Current Motors.



Net weight, 60 to 90 lbs.; gross, 80 to 115 lbs. Total length, 28 to 30 inches; height, 12 to 14 inches.

Reproduction of Autograph Testimonial Letter and additional orders from TIFFANY & CO., the famous New York Jewelers & Silversmiths

TIFFANY & CO
GOLD AND SILVERSMITHS
UNION SQUARE, N. Y.

New York, Jan. 12, 1905.
W. Green & Co.,
6 Maiden Lane
New York

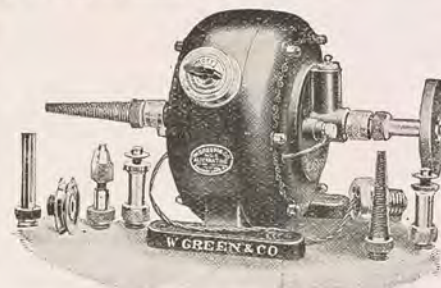
Gentlemen:—In reply to your letter of the 11th inst., beg to say we find the W. Green & Co.'s Electric Polishing Motor perfectly satisfactory, and would ask you to send us bill for same. We will arrange for additional motors later on. Thanking you for your courtesy, we are

Yours very truly,
TIFFANY & CO.

New York, April 3, 1905.
Order No. 1363.
W. Green & Co.,
6 Maiden Lane,
New York.

Gentlemen:—Please send us two W. Green & Co.'s No. 4 1905 Model Motors, 110 volts, 1-5 H. P.; one W. Green & Co.'s No. 6, with special spindle and new model speed controller, No. 11, 110 volts, 1/2 H. P. Two No. 4's to be delivered at once; one No. 6 as soon as convenient.

Yours truly,
TIFFANY & CO.

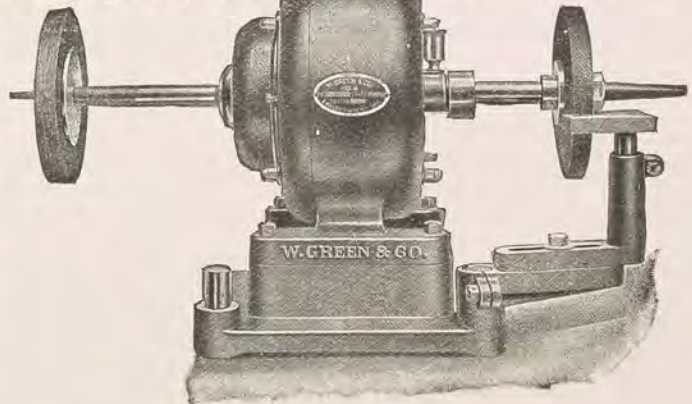


Net weight, 35 lbs.; gross, 41 lbs. Total length, 16 inches; height, 10 inches.

Showing W. Green & Co.'s Latest and Improved Model, Single Speed, 1-5 Horse Power, Alternating-Current Lathe Motor. Type No. 5.

With new style Steel Switch, Patent Key Attachment in front, Grindstone and Buffing Chucks with Grindstone and Spindle in position; also Drilling, Grinding and Emery Chucks, Single Cone Pulley, Plug, Cord, etc.

Showing W. Green & Co.'s Latest and Improved Model, 1/4 to 1 1/2 Horse Power, Alternating-Current Lathe Motor. Type No. 7. With Pulling Wheel and Grind-



Net weight, 74 to 130 lbs.; gross, 110 to 165 lbs. Total length, 25 to 29 inches; height, 14 to 16 inches.

stone on Spindles, and T-rest Turning Attachment in position. (For Drilling and other Attachments, etc., see cut, Type No. 6.)

NET WHOLESALE PRICE-LIST OF LATEST IMPROVED 1905-1906 MODELS

Our Nos. 4, 5 and 9 Motor Combinations include following Attachments

Two Chucks with tapered thread for holding the buffing wheels, and three other chucks for holding, grinding and polishing wheels of various sizes, which meet the needs of average work.

Our Nos. 6 and 7 Motor Combinations include Long Adjustable Spindles, Grinding, Turning and Tool-rest Attachment.

Voltage	Horse Power	Direct-Current Motors		Alternating-Current Motors	
		No.	Price	No.	Price
52 to 110	1-5	4	\$ 33.50	5	\$ 46.50
115 " 220	1-5	4	37.50	5	51.00
52 " 110	1-5	9	60.00		
115 " 220	1-5	9	64.50		
52 " 110	1-4	6	53.00	7	74.50
115 " 220	1-4	6	57.50	7	79.00
52 " 110	1-3	6	61.00	7	85.00
115 " 220	1-3	6	66.50	7	95.00
52 " 110	1-2	6	75.00	7	115.00
115 " 220	1-2	6	80.50	7	120.00
52 " 110	3-4	6	85.00	7	130.00
115 " 220	3-4	6	90.50	7	135.00
52 " 110	1	6	115.00	7	165.00
115 " 220	1	6	125.00	7	185.00
500	1-4	6	68.00		
500	1-3	6	75.00		
500	1-2	6	92.00		
500	3-4	6	98.00		
500	1	6	130.00		

Price-List of Extra Adjustable Attachments

	For Type No. 4, 5, 9 1-5 H. P.	For Type No. 6 & 7 1-4 to 1 H. P.
Special Adjustable Single Cone or Flat Motor Pulley with Lathe Attachment for connection with Watch, Optical, Drill or Dental Lathes, Dynamos, Fans, etc.	\$1.75	\$3.50
Ditto, three (3) Cone or 2 or 3-Step Flat Pulley	3.50	5.50
Adjustable Emery Chuck with Lathe Attachment for cleaning and grinding inside Rings, Tubes, and all classes of interior work, etc.	1.50	4.00
Adjustable Drill, Broach or Burr Chuck, with Lathe Attachment	3.00	7.00
Adjustable Circular Saw Chuck with Lathe Attachment	1.75	4.00
Circular Saws, high grade, made to fit Chucks	.35 to .50	1.00
Extra Grindstone, Saw and Lap Chucks, with Lathe Attachment	1.50	4.00
Extra Combined Tool, T-rest and Turning Attachment		5.00
Set of extra hangers and nuts for grindstone, etc.		.75
Taper or Flat Copper and Brass Laps to fit Motors, 2-inch diameter	.75	1.00
" " " " " " " " " " " " " " 3-inch	1.25	1.75
" " " " " " " " " " " " " " 3 1/2-inch	2.00	2.50
Small Circular File to fit our Nos. 4, 5 and 9 Motors	.35	
Extra Adjustable Plug and Cord to fit our Nos. 4, 5 and 9 Motors	.40	
Outfits of best quality Wheel Brushes, Buffs, Polishing Powders, Pastes, etc., to fit Motors		
Medium Size Set	3.00	5.00
Large	4.00	6.50

Starting Boxes and Automatic Speed Controllers for Type No. 6 Motors

Automatic underload release starting box No. 10 for type No. 6, 1-4 to 1 1/2 Horse Power, Direct-Current Motors Price, \$5.00
Latest automatic underload release starting box and controller No. 11 for Type No. 6, 1-4 to 1 1/2 Horse Power, Direct-Current Motors, with combination speed regulator attached for Seven Variable Speeds, to enable the operator to quickly control and regulate the motor to any speed desired. Price for 1-4 and 1-3 H.P., \$10.00. Price for 1-2 to 1 1/2 H.P., \$12.00.
Our Alternating-Current Motors are Self-Starting and Do Not Require Starting Boxes

The Following Information is Required When Ordering:

Type and Number of Motor—Horse Power—Current (direct or alternating)—Voltage—and, if alternating, Cycles or Frequency. This information you can procure from the Central Power Station supplying the current in or near your place of business or residence.

Storage Batteries. If operating from STORAGE BATTERIES, for which an additional charge of 20% is made, it will be necessary for us to know the TOTAL VOLTAGE, which would be, roughly, twice the number of cells.

Condition of Current Supply and Special Windings. Our motors are supplied for any DIRECT-CURRENT circuit from 52 to 250 VOLTS, or for ALTERNATING-CURRENT circuit from 50 to 220 VOLTS; and for frequencies as follows: 60 to 65 CYCLES; 125 to 138 CYCLES.

The above are considered standard windings. We can also wind our motors to run on intervening voltages and frequencies by using special windings, for which a slight additional charge is made. It is, of course, necessary for us to know the nature of the supply circuit before we can fill special orders.

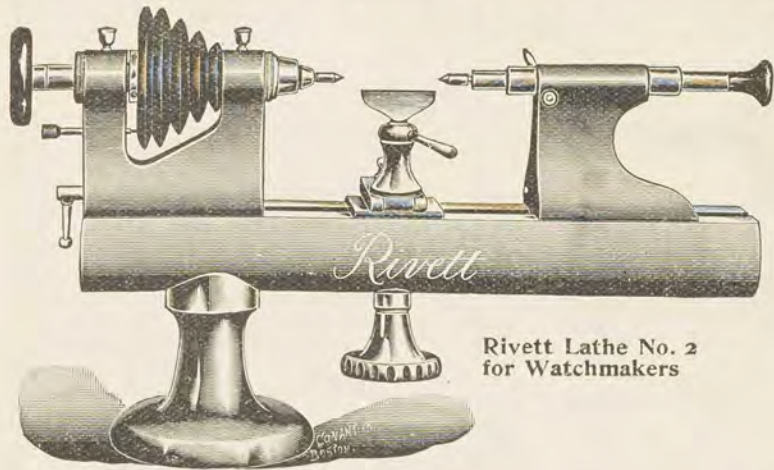
DIRECTIONS FOR ORDERING

IMPORTANT NOTICE.—We make, change or rearrange our Electric Motors to suit all trades and purposes. Perfection and Satisfaction Guaranteed.

W. GREEN & CO., Manufacturers, 6 Maiden Lane and Exporters, 6 New York, U.S.A.

IF YOUR JOBBER CANNOT SUPPLY OUR MOTORS, WRITE US DIRECT

"Rivett Lathes and Attachments form a class of their own," were the words of a famous mechanic.



Rivett Lathe No. 2 for Watchmakers

The **Rivett Lathe** is built in one of the finest equipped factories in the country, where the most modern tools procurable are used. It is the largest factory of its kind and has been built up entirely on the merits of its manufactures.

There is no other factory in the country as well equipped to turn out **Chucks.**

They are put through in such quantities that we can afford to give you better goods for your money. We carry a stock of thousands so that we can send at once whatever you require.

All first-class jobbers carry the Rivett Lathes and Attachments. For further information, just address

The Rivett Lathe, Brighton, Boston, Mass., U.S.A.

FIRE

SEND AT ONCE

for the most complete Catalogue of Fire and Police Department Badges ever published

THE C. G. BRAXMAR CO.

Manufacturers No. 10 Maiden Lane, NEW YORK

POLICE

ELECTRO-PLATING SALTS

THESE ELECTRO-PLATING SALTS ARE PREPARATIONS IN DRY FORM CONTAINING METAL AND CHEMICALS IN ACCURATE PROPORTION PRODUCING AT ALL TIMES CORRECT SHADES. DISSOLVED IN WATER THE BATH IS INSTANTLY READY FOR USE. WORKED WITH EITHER DYNAMO OR BATTERY, SAME AS OTHER SOLUTIONS.

SOME OF THE SALTS: Rose Gold, Green Gold, Parisian, Roman, 14 or 18 K., Red, Guinea, Old English Guinea Green, Guinea Rose, Gold Dip, Silver Salts, French Gray Dip, Silver Ebonizer, Oxides, Etc.

OUR ELECTRO-PLATING SALTS FOR **Dark Green Gold** and **Orange Rose Gold** (Antique Green) (Orange Yellow)

are the leading shades now extensively used for single and double coloring. Directions for doing this kind of work with order. Our Electro-Plating Salts are universally used. Write for circular.

U. S. ELECTRO-CHEMICAL CO., H. Hirschbach, Prop., 80 Elm St., NEW YORK

United States Smelting and Refining Works
L. & M. WOLLSTEIN

Office: 16 John St., New York

Telephone, 5644 Cortlandt

Works: 17 John Street, New York

Sweep Smelters and Assayers

Refiners of all kinds of Gold, Silver, Platinum, Waste
Manufacturers of Sterling Silver

Highest prices paid for Old Gold, Old Silver, Platinum Scraps
Ore and Bullion Assays a specialty

Proprietor of Platina Melting Furnace and Gold and Platina Filing Separating Process of greatest advantage to manufacturers of Platina Jewelry

**The Matchless
Pocket Cigar Lighter**

The only perfected cigar lighter on the market

Made in Gun Metal, Aluminum, Brass, Silver Plate
Gold Plate and Solid Gold

Write for Prices

**The Matchless Cigar Lighter
Manufacturing Co.**

Office and Salesroom

16 John Street New York City, N. Y.



FOX EMBLEMS

EMBLEMS OF ALL ORDERS



TRY US



A FEW NEW ILLUSTRATIONS FROM OUR



NEW 1906 CATALOGUE NOW IN PREPARATION



TRY US



OUR STYLES AND PRICES ARE AWAY AHEAD OF THE TIMES!



MAKERS OF RINGS



OF ALL ORDERS



ANY STYLE MADE TO ORDER

The Gustave Fox Co
 No. 14 - 16 East Fourth St. ~ CINCINNATI, O.
 EUROPEAN OFFICE, ANTWERP, BELGIUM.

SPECIAL DESIGNS ON APPLICATION

DROP US A LINE SO WE CAN PLACE YOU ON OUR MAILING LIST



GOOD THINGS at Right Prices

"STAR" Brand American Mainsprings. Extra quality, fine crocus finish, correctly gaged, made of the finest special steel, the tips are fitted perfectly. Price per dozen, 85c. net cash; price per gross, \$9.50 net cash.

SPECIAL. We will give an elegant Solid Oak Mainspring Cabinet, with (20) drawers, worth \$6.00, with your first order for 1 gross of "Star" American Mainsprings, assorted to suit, for \$10.50 net cash.

* "STAR" Brand American Balance Staffs, extra fine, made by the latest improved automatic machinery, correctly gaged, special 7 jewel grades,



90c. 15 Jewel grades, polished, \$1.15. 17 Jewel grades, polished, \$1.35 per dozen, net cash.

* "STAR" Brand American Balance Hole Cock and Foot Jewels in settings, made by automatic machinery, correctly gaged, special, per dozen, 90c. net cash.

* "STAR" Brand American Roller Jewels that will fit properly, 25c. per dozen; special, \$2.50 per gross net cash, including Oak Cabinet with 12 bottles.

* "STAR" Brand American Long Case Screws that will fit properly, 20c. per dozen; special, \$2.00 per gross net cash, including Oak Cabinet with 12 bottles.

All the above prices are strictly NET CASH. Orders filled in rotation as received.

H. B. Peters & Co., 177-179 Broadway, New York



We Blank Form Swedge

Our finish finest for the money

Submit sample for our price

A. N. Clark & Son, Plainville, Conn.

PLATINUM

Special Sheet and Wire for Jewelers
 Seamless Tubing

Platinum Scrap Bought at Highest Price

BELAIS & COHN
 Metallurgists

13 Dutch St.

NEW YORK

SWARTCHILD & CO., Jewelers' Building, 134-138 Wabash Avenue, CHICAGO

Not a man, woman or child will pass your show windows without stopping. Hundreds of people will be attracted who would otherwise pass your windows and not notice them.

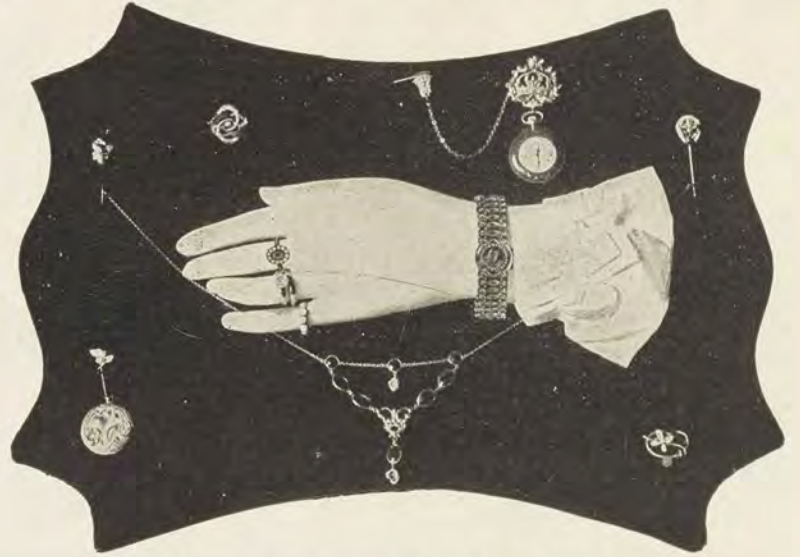


No. K 201. The Queen Optical Display Stand

Upon a fine, black velvet display stand, 16 x 16 in., is mounted a life-size face of a beautiful woman. True to life in every detail. The face is made of chemically prepared wax. It will not fade from exposure and can be readily cleaned. Delicate and beautiful tints, excellent features, dark lustrous eyes and very fine natural hair. Polished brass hooks are placed around the stand to display your goods.

Price, \$6.38, less 6% for cash

Each Stand is packed substantially, insuring safe delivery



No. K 202. The Queen Jewelry Display Stand

Combines originality, beauty and attractiveness. A display of Jewelry on this stand will increase your sales and make your show window the talk of the town.

The stand is 16 x 11, with a life-size beautiful wax hand (of same material as described to the left) for displaying rings, bracelets, etc., as showing in cut.

Price, \$4.50, less 6% for cash



No. K 203

Swartchild & Co's Improved Outfit of Jewelers' Findings

Price complete, \$25.00

This outfit consists of the most necessary and staple articles constantly used by every Jeweler. Put up in a handsome Oak Cabinet with 2 trays, divided to keep each article in its proper place, and assorted as follows:

- | | |
|---|------------------------------------|
| 1 dwt. 10 K. solder | 1 doz. asst. 14 K. antique bows |
| ¼ oz. "N" silver solder | 1 " filled gents' bars |
| 1 gro. pl. bearing pin tongs asst. | 1 " " " swivels |
| 1 " " flat joint pin tongs " | 1 " R. P. toggle chains |
| 1 doz. asst. best R. P. rd. wire scarf pins | 1 " R. P. asst. clasps |
| 1 " " " R. P. sq. " " " | 1 " R. P. " fob loops |
| 1 " " gilt scarf pins | 1 gr. R. P. " jump rings |
| ½ " blls. asst. brass wire | 1 gr. white metal asst. jump rings |
| 1 bundle asst. German silver wire | 1 doz. asst. R. P. spring rings |
| ½ doz. bundles soft solder | 1 " " R. P. lever button backs |
| 1 solderene | 1 " " R. P. dumb-bell " " |
| 1 doz. asst. R. P. snaps | 1 " " R. P. screw ear wires |
| ½ oz. R. P. wire | 1 " " R. P. " " nuts |
| ¼ oz. Silver wire | 1 gr. " best plated catches |
| 1 doz. asst. pl. scarf pin mtgs. | 1 gr. " " joints |
| 1 " " pl. stud mtgs. | 1 gr. " plated flat " |
| 1 " gold plated hat pins | ½ doz. " R. P. charm bales |
| 1 " silver plated hat pins | ½ " " R. P. pin backs |
| 1 " asst. silver bows | 1 " " R. P. chatelaine hooks |
| 1 " " antique silver bows | 1 " " R. P. spirals |
| 1 " " 14 K. filled bows | 2 " " German silver snaps |



The Perfection Manufacturing Co. beg to announce that they have given the sole agency to Henry Zimmern & Co. This solution has been largely used by the trade for years past and has the unqualified endorsement of all who have ever used it. Put up in pint and quart bottles. \$1.75 for pint and \$3.00 for quart bottle. The solution is sold by all leading jobbers. Ask for it and accept no substitute.

Notice to the Retail and Jobbing Trade

On and after January 1, 1905, The Perfection Manufacturing Co., of Newark, N. J., will not fill any order either for retail or jobbing trade for the Perfection Gold or Silver-Plating Solutions. Exclusive arrangements have been completed with Henry Zimmern & Co., Inc., to supply the jobbing trade. Retailers will please order same from their respective jobbers in the future.

Henry Zimmern & Co., Inc.

IMPORTERS OF WATCH MATERIAL

77 John Street, NEW YORK

Patent Hand-Made Tweezers ⁸⁶⁹

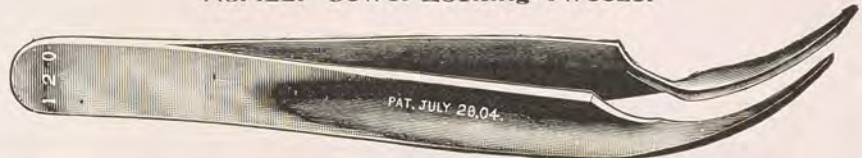
These patent tweezers are made from flexible sheet steel bodies, curved so as to give them convex and concave faces, thus making them stronger than any other tweezer in the market. The concave faces give a better hold and prevent slipping.



No. 119. Hand Removing Tweezer



No. 122. Jewel Locking Tweezer



No. 120. Collet Removing Tweezer



No. 111



No. 116

F. H. Noble & Company

MANUFACTURERS OF



Jewelers' Findings of every description — Badges, Medals, Class Pins, Flags, College Seals and Special Emblems.

Salesrooms
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103 State Street
NEW YORK
51-53 Maiden Lane

Main Office and Works
59th & Wallace Streets
CHICAGO, U.S.A.



OUR LATEST BENCH No. 10
Made in Oak, Walnut and Birch; Mahogany Finish

WATCHMAKERS SHOULD KNOW

That all our benches are made with three-ply panels. These panels are perfectly straight, and remain so. They are so strong that it is almost impossible to break them. They never split, as one thickness of the wood runs crosswise.

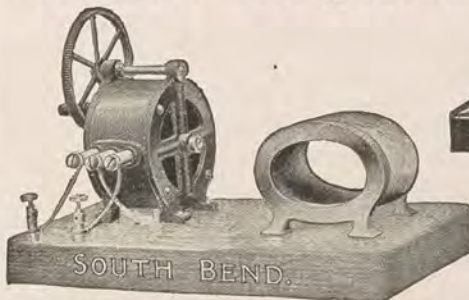
All our goods are made of perfectly seasoned and kiln-dried lumber, and it is well-known that our goods are superior to others, both in material, work and finish. We also make everything in wood for watchmakers. We make fourteen styles of benches in three kinds of wood. In ordering, be careful to see that you get our goods—look for our name plate. If they have no such plate they are not ours.

Send for our catalog, and order through your jobber.

Jessen & Rosberg

405 W. Kinzie Street CHICAGO

"South Bend" Demagnetizers



ORDER FROM YOUR JOBBER

PRICES:
For Direct Current, \$15.00
For Alternating " 5.00

Agents for England: GRIMSHAW & BAXTER, 29 Goswell Road, London, carry stock
THE KNOBLOCK-HEIDEMAN MFG. COMPANY
Successors to
THE MILLER-KNOBLOCK ELECTRIC MFG. COMPANY
South Bend, Indiana

Do You Read This Advertisement?
Will you prove it by sending us a trial of your waste?

We are adding new names every month to our satisfied list of customers. We would like to add yours

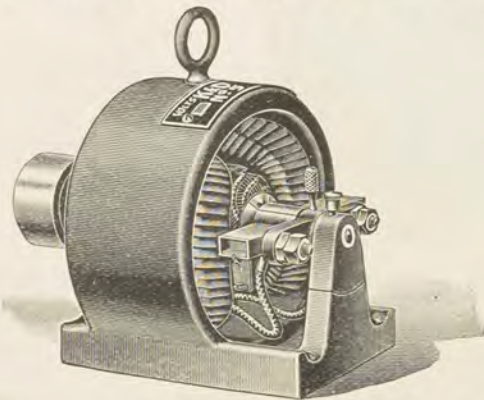
THE BROWN & DEAN COMPANY

Gold and Silver Refiners

102 and 104 Richmond Street

Providence, R. I.

New K. & D. Dynamo No. 9 For Electro-Plating. Price, \$8.00



DESCRIPTION. The most powerful of its size manufactured. Can be run by direct or alternating current motor, or any convenient power. Furnished with either flat or grooved pulley. Occupies a space of 6 x 4 1/4 x 6. Speed, 1600 to 1800 revolutions per minute. Volts, 2 to 6 respectively. Weight, 9 pounds.

AS A PLATING DYNAMO it has many advantages over primary batteries. The renewal of elements and solution are disposed of with this arrangement, and has the strength to operate a five-gallon bath successfully.

FOR EXPERIMENTAL WORK, it may be used to light miniature lamps, running small motors, etc. At a speed of 3200, it will light 24 3 c. p. 6 volt lamps. At a speed of 1800, it will light from 14 to 16 3 c. p. 6 volt lamps.

ITS DESIGN and construction embody the best practice common to the larger machines in general use.

THE FIELD is of the ring type, cast solid with the frame
THE COILS are form wound and taped and are safe from mechanical injury or break down.
THE ARMATURE is laminated and slot wound, which prevents its heating.

THE COMMUTATOR is of hard copper and sparkless.
THE BRUSH HOLDERS are of new design and add greatly to the efficiency of the machine.

THE BRUSH HOLDER YOKE is adjustable and is an advantage in regulating and operating.

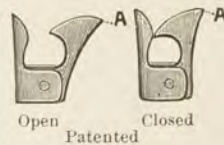
THE BEARINGS are of hard bronze and are nicely fitted.
ONLY THE BEST MATERIAL is used in its construction.
FINISHED in black enamel and furnished with 1 1/2" grooved or flat pulley as desired.
AT SPEED of 1800 it generates 6 amperes 6 volts, an output of 36 watts.

FOR SALE BY YOUR JOBBER

SPECIAL WINDINGS TO ORDER

Kendrick & Davis, Lebanon, N. H.

THE LATEST AND BEST The "Automatic" Safety Catch



Neatest, strongest, best and most practical safety catch that has ever been presented for consideration of the trade. It is **automatic** in action and a positive lock for the pin. The pin-stem engages readily and positively cannot come out until you release it. The release is as simple and can be accomplished more readily than from an ordinary open catch. A touch of the finger on point A and the pin is automatically freed from the catch. Made in Gold, Sterling Silver and German Silver.

Samples sent on application from Manufacturers or Wholesale Dealers in Jobbing Material.

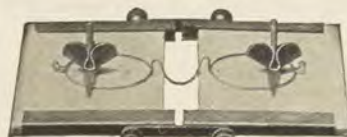
GEO. H. FULLER & SON CO., Pawtucket, R. I.
 Chicago Office—103 State Street

WEBSTER'S ADJUSTABLE SOLDERING BLOCK

(Patented Dec. 3, 1903)



Showing jewelry pads



Block as used for bridge work

It Will Save You Time and Trouble

No pins or binding wire necessary. Holds spectacle frames, rimless bridges, hat pins, stick pins, cuff buttons, rings, studs and many odd jobs of jewelry repairing.

This block is not an experiment, it has been successfully used for the past two years. When I say that it will do your work quicker and better than any other adjustable soldering device on the market, I am telling nothing but the truth. Don't take my word for it, I am prejudiced, try one yourself for thirty days, and if not found perfectly satisfactory I will return your money.

If your jobber does not have them I will send by mail upon receipt of price and 10 cents postage.

Price with Pads for Holding Spectacle Frames \$1.75

Price complete with both the Spectacle and Jewelry Pads 2.00

ARTHUR R. WEBSTER, Milford, N. H.



BEWARE
OF
IMITATIONS

FULL NICKEL PLATE

IN COMPARING PRICES WITH
OTHER LATHES, LEARN THE
DIFFERENCE IN SIZE,
QUALITY AND DETAILS
OF CONSTRUCTION

Lathe, including Taper and Screw Chuck,
6 Cement Chucks and belting \$29.00
Extra Wire and Wheel Chucks75 each

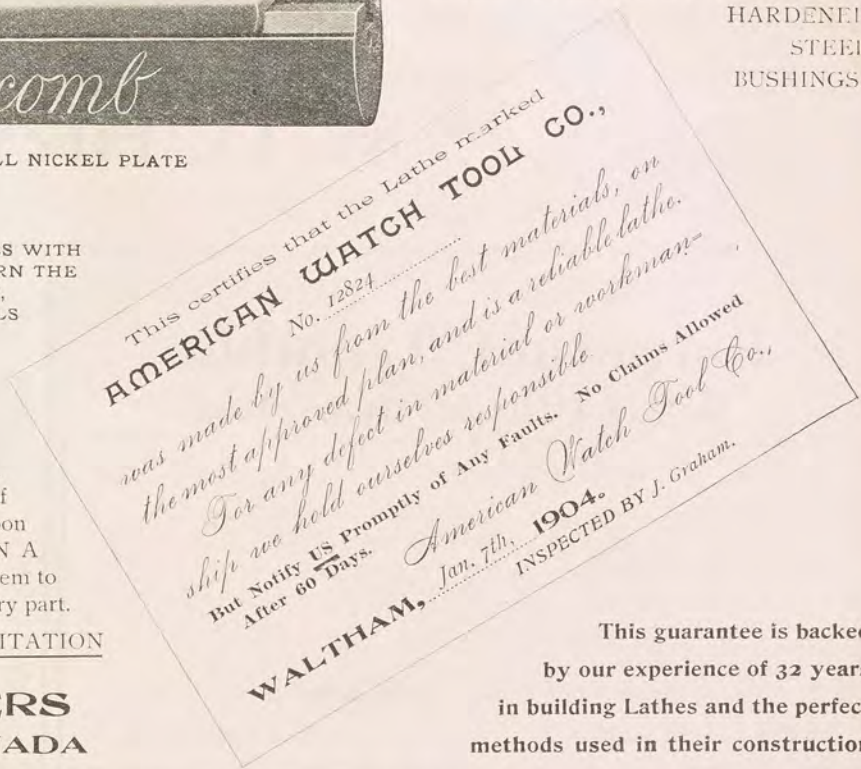
A CHUCK MAY LOOK ALL RIGHT, YET BE ALL WRONG.
Our Chucks are made of the very best steel and absolute concentricity of
cone, thread and hole is obtained by the most improved methods based upon
years of experience. We use no Dies for the threads, but CUT THEM ON A
LATHE; nor do we file and polish the cone, body or hole, but GRIND them to
a standard on special grinding machinery and guarantee perfection in every part.
WE CAUTION YOU AGAINST THE IMPERFECTIONS OF THE IMITATION

FOR SALE BY ALL JOBBERS
IN THE UNITED STATES AND CANADA

871
**PERFECT
CONSTRUCTION**

IN EVERY DETAIL

HARD SPINDLES RUNNING IN
HARDENED
STEEL
BUSHINGS



This guarantee is backed
by our experience of 32 years
in building Lathes and the perfect
methods used in their construction


THE TRUE BLUE

Beaded Label French Watch Glasses



The Crown Watch Glass



Note the  and beware of imitations

This brand of superior Watch Glasses will be supplied by the jobbing trade at the following prices:

	Gross	Dozen
Genevas	3.00	.30
Miconcaves	3.25	.35
" extra thick	8.00	.75
Flat Parallels	5.50	.50
Lentilles	11.00	1.00
Flat Concaves	7.50	.65
" extra thick	13.50	1.25
Patent Genevas	5.50	.50
Lunettes	2.00	.20

SUSSFELD, LORSCH & Co.

PARIS Wholesale Agents NEW YORK
21 Rue de l'Echiquier 37 Maiden Lane

1905

No Well-Informed Jeweler

Doubts the desirability of

as a prominent part of his stock. They are always of standard quality and desirable styles at a price that affords the Retailer a good profit.

Don't wait for our travelers but order, for selection or otherwise, direct from



M. B. BRYANT & CO.

7 Maiden Lane, NEW YORK



Perpetual Trembler Scarf Pins and Brooches

are not only rapid sellers, but attract buyers of other goods.

They are always in motion and people will stop to "Wonder Why."

Order through your jobber, or send for catalogue and names of nearest jobbers, to

PERPETUAL TREMBLER
Elmwood Station Providence, R. I.

SAMS' SAFETY BLOWPIPE OUTFIT FOR JEWELERS

The original Sams'—Greatly improved
FOR SALE BY ALL JOBBERS

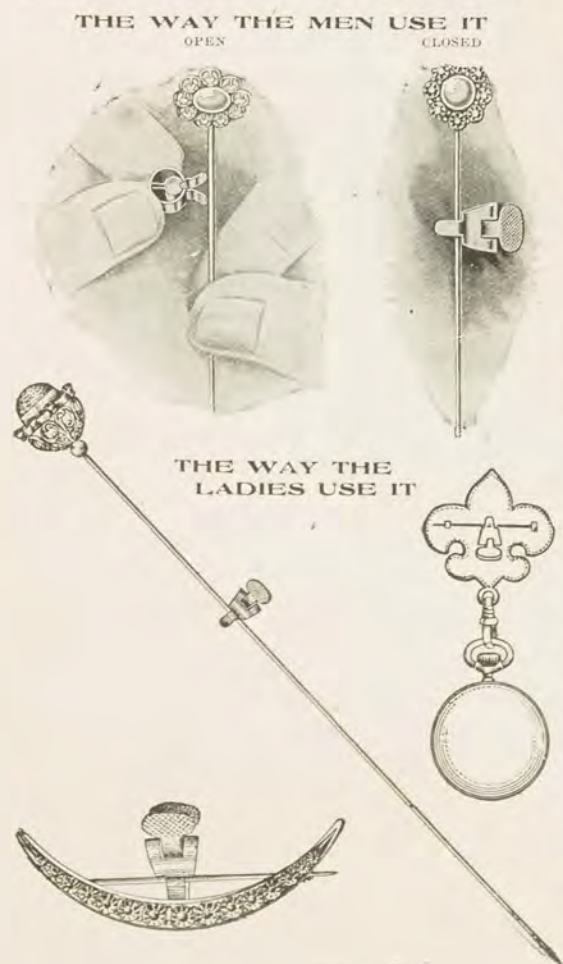
Outfit complete . . .	\$12.50
Outfit without bellows, . . .	8.50
Generator (B) . . .	6.00
Blowpipe (A) . . .	2.50
Foot Bellows (C) . . .	4.00
Sams' Flux25

Metal Specialties Mfg. Co.
(Sole Mfrs.)
18-24 W. Randolph St., CHICAGO

Generator. Size 8 1/4" high, 5 1/4" diam.

SAMS' FLUX is the best for hard soldering

THE NOBS SAFETY CATCH



This is a case where you don't have to see the point

to apply a safety catch to scarf pins, clasp or hat pins. All other kinds necessitate showing the point of pin, whereas with the NOBS you need only expose a small portion of pin and just pinch it on, and to remove it just pinch it off. It sounds easy and is just as we say. The cut shows the simplicity with which the catch can be applied to different kinds and styles of pin jewelry. When applied as it is shown on cut, it protects against loss, theft and accident. These catches are arranged one dozen on a good attractive card, ready to place on counter or in window.

Adjusted Quick as a Wink

POINTS IN FAVOR OF THE NOBS CATCH

- 1st—Can be applied to Scarf, Clasp or Hat Pins from the side without looking for the point of the pin.
- 2d—Will not injure the fingers from contact with the point of the pin as others do.
- 3d—Will not scratch or damage the pin.
- 4th—No breaking of nails in attaching or detaching.
- 5th—Is adjusted quick as a wink.
- 6th—No screw to get out of order.
- 7th—Durable and simple in operation.
- 8th—Solves the problem of simplicity and security combined.



THE NOBS SAFETY CATCH. Pat. June 27, 1904
Prevents loss by accident or theft

THIS IS IT ACTUAL SIZE
Price, \$1.50 per dozen

THE LEDOS MFG. CO., 34-36 Pearl St., NEWARK, N. J., U.S.A.

Manufacturers of Watch Case Materials and Jewelers' Findings

ROY
TRADE-MARK REGISTERED

EVERY ROY WATCH CASE is
made from ASSAYED GOLD, and



QUALITY IS GUARANTEED AS STAMPED.

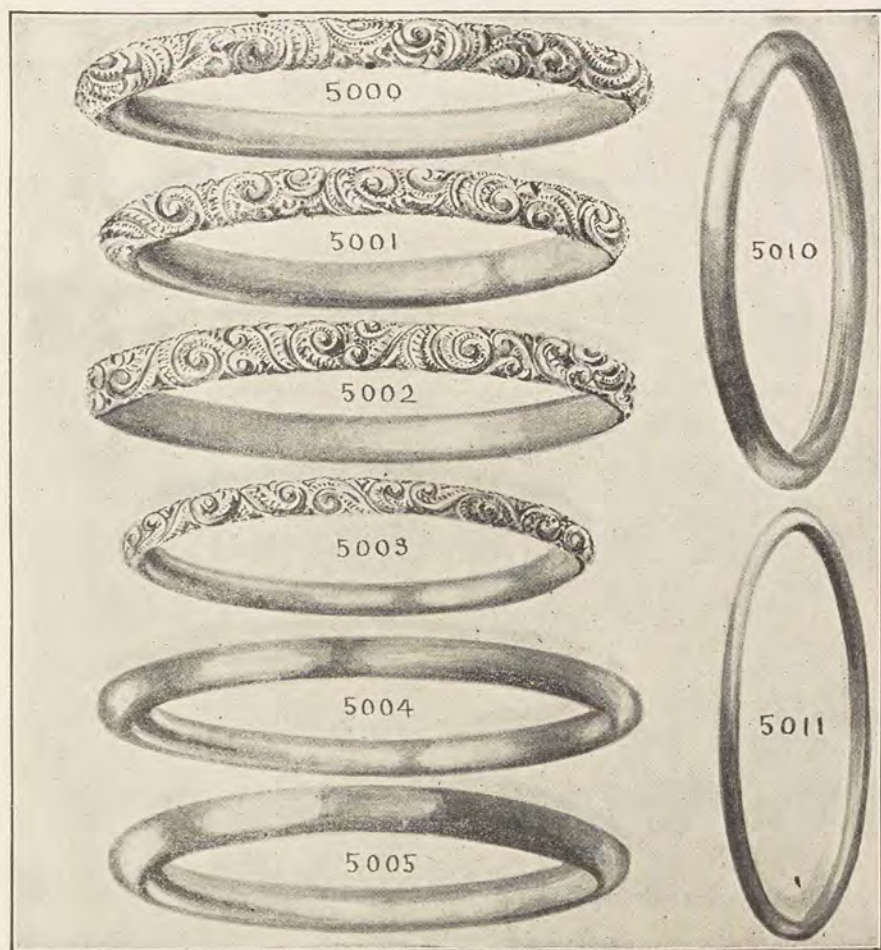
Our new Fall line in attractive designs and unequaled finish are on sale by leading jobbers who care to supply their trade with the newest and best solid gold case made.

ROY WATCH CASE COMPANY

206 Kearny Street
San Francisco, Cal.

21-23 Maiden Lane, NEW YORK

New Monarch Catalogue No. 60



The most complete and most elaborately illustrated Jewelry Catalogue ever compiled.

Hundreds and hundreds of new and unique designs in every line of goods: Watches, Locketts, Fobs, Chains, Bracelets, Brooches, Scarf Pins, Studs, Collar Buttons and all manner of novelties.

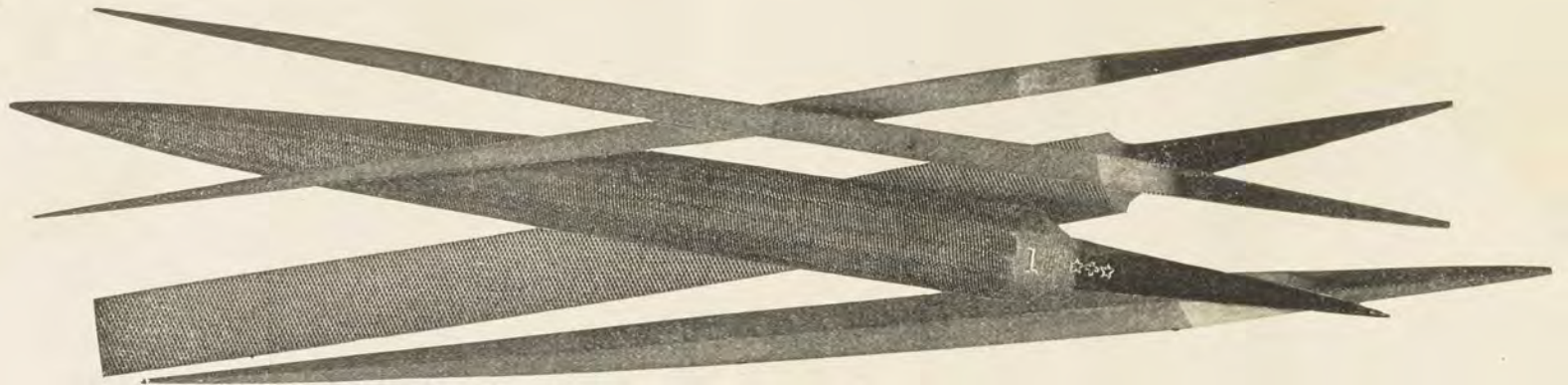
No jeweler can afford to miss this catalogue. A copy will be sent free on request.

R., L. & M. Friedlander

Wholesale Jewelers
Jobbers in American Watches
Importers of Diamonds

30 Maiden Lane

NEW YORK



FILES? Yes, but—

"Only the best are good enough"—for *watch case* and *jewelry* manufacturers.

Ever tried "American Swiss"?

No? Then kindly designate any six samples and they will come express paid and *no charge*.

Or—send us trial order with privilege to return.

No charge for Files used in trying them.

Kind? Swiss patterns, all shapes and cuts. Sizes up to 12".

Quality? A trial will tell.

Prices? *Lower* than imported. *Higher* than any other "made in America."

Made where? Elizabeth, N. J., U.S.A.

By whom? American Swiss File & Tool Co.

Enufsed?

Oh! Delivery? Prompt by

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Gold and Silver REFINERS, ASSAYERS and
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BULLION SOLICITED


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THE TRADE

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OUR SPECIALTY

Prompt attention given to
Old Gold and Silver forwarded to us
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Southwest Corner
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Newark, N. J.



THE NEW BAG-NALL CATCH

A new catch for Neck Chains, Bracelets, etc. A decided improvement on snaps, spring rings and locks; useful and ornamental; never breaking or getting out of order.

BE the first to CATCH ON to this useful ATTACHMENT that will make your customers happy.

For sale to the Manufacturing and Jobbing Trade by the manufacturers,

DORAN, BAGNALL & CO.

Patent pending which will be fully protected.

NEW YORK: 194 Broadway CHICAGO: 67 Wabash Ave. SAN FRANCISCO: 126 Kearny St.

Doran, Bagnall & Company

Successors to Young, Bagnall & Co.

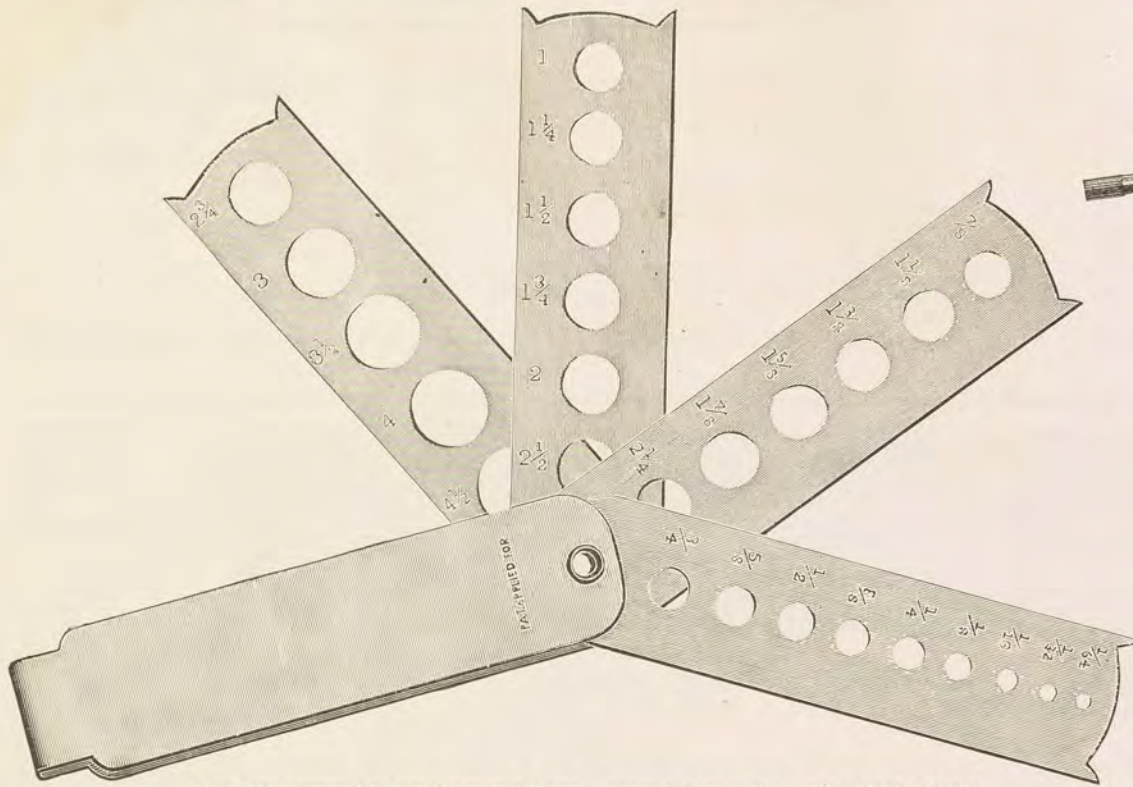
Established 1870

MANUFACTURERS OF

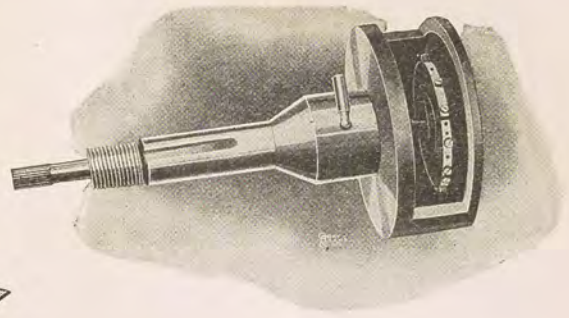
*Fine Rolled Gold Plate and Sterling Silver
Chains, Bracelets and Novelties*

North Attleboro, Mass.

NEW DEVICES from our Tool and Material Department



New Aluminum Pocket Diamond Gage. Handy to have in the pocket. **Each, \$1.00**

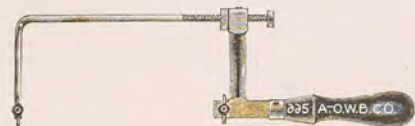


Culman Balance Chuck

For refinishing balance pivots without removing the hairspring or roller, and protecting them while the pivots are being polished

Each, \$3.50

When ordering, state size and make of lathe



No. 665. Screw Tension Saw Frame
Nickel-plated. **Each, 50c.**



No. 553. New Nickel-Plated Pocket Clock Screw Driver. Each, 35c.



Cut showing No. 553 closed



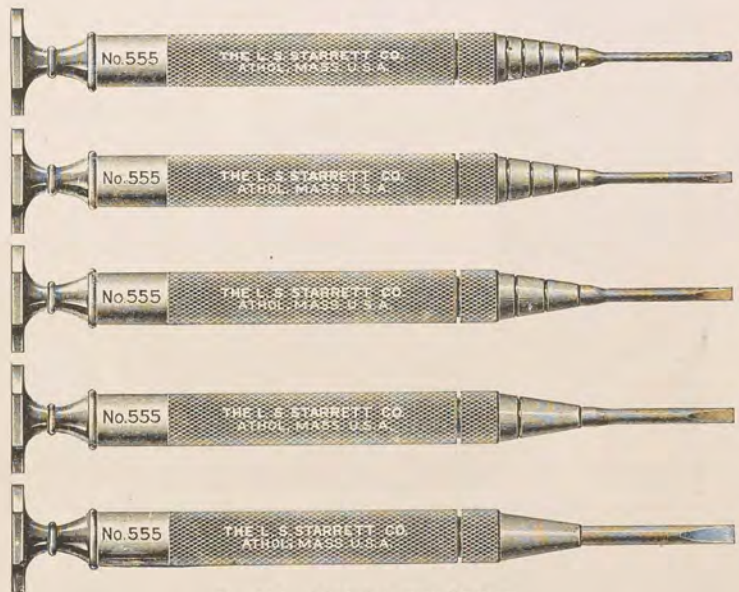
No. 414. K. & D. Pocket Watch or Spectacle Screw Driver. Each, 35c.



No. 415. K. & D. Pocket Watch or Spectacle Screw Driver with Reversible Blade. Each, 50c.



India Oil Stones. Mounted in pol. wood case. 6 x 2 inches, medium or coarse. **Each, 95c.**



No. 555. Watch Screw Drivers

They are nicely and substantially made from steel tubing, knurled and nickel-plated. Five constitute a set, with blades varying from .040 inch to .100 in size. The blades are held from turning in the handle by a solid lock, and from coming out by a slight turn of a neat chuck. The top is finished with a swivel knob, concave to fit the finger and hexagonal in shape to prevent rolling off the bench. To designate the size at a glance, the chuck end is marked with various grooves, four grooves indicating the finest size A, three grooves the next larger B, two grooves C, one groove D, the largest size, E, being plain.

Price per set of five, \$1.60

6 per cent. discount for cash

BENJ. ALLEN & CO.

131 to 137 Wabash Ave,

CHICAGO, ILL.



Insist Upon Getting

The Special Year-Long

with large silvered metal dial and compensated pendulum

The "Just as good" won't do

JOS. B. BECHTEL & CO., Importers

Price, \$10.50 Net, f. o. b. Philada.

725 Sansom Street, Philadelphia, Pa.

B
B

Class Pin Money

is easy money when you handle Bastian's Class Pins. Whenever Bastian's Class Pins and an up-to-date jeweler meet, they become friends.

This is the Class Pin Season. Are you prepared for it? Send for one of Bastian's catalogs to-day. The young men and women who buy class pins are the jewelry buyers of the future. Make them your customers now by giving them the best class pin made. We are Class Pin Specialists. Our patented process of manufacturing gives us an honest monopoly: that of highest quality and lowest price. Verify these facts yourself by comparing our prices and goods with those of others. Silver-Plated and Sterling Silver Pins, same as illustration, in any color of enamel and with any letters desired (letters not to exceed in number those shown):

SILVER-PLATED PINS, per doz., 75c.; STERLING SILVER PINS, per doz., \$1.87 1/2

These pins are rapid sellers at 10 and 25 cents, respectively. On the Sterling Silver Pins the very best French enamel is used.

BASTIAN'S GOLD CLASS PINS, \$15 a dozen

Merit, price and extensive advertising have made Bastian's Class Pins as famous as Elgin watches. Besides Class Pins we make to order Badges, Medals and Buttons in either Gold, Silver, Bronze or Ribbon. Special designs and estimates cheerfully sent free of charge.

BASTIAN BROS., R, 21 South Ave., Rochester, N. Y.

B
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10 Kt. Rings



DAMM & BLOCK
BUFFALO, N. Y.

Captains of Industry and Messengers of Commerce

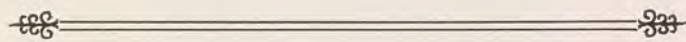
are our six representatives who will show you our fall line of Rings this year, which comprises over 1000 different patterns of 10 K. Solid Gold Stone Set Rings of the very latest designs. It will pay you to look at our line before placing your orders elsewhere. Drop us a postal whether one of our men should call upon you this fall.

Are you next to the fact that we do one of the largest selection package businesses in the United States? We give you three reasons why you should write **to-day** for a memorandum package:

1. We size our rings free of charge.
2. We replace all stones except diamonds in our rings free of charge for two years after you have sold them.
3. We exchange all unsalable rings for new styles of stone-set rings at any time.

Write us to-day. We pay express charges both ways and give you January 1, 1906, terms on all goods selected.

The Queen City Ring Mfg. Co., Beecher Building, Buffalo, N. Y.



The United States Government

has the best mail service in the world, and we have recognized that promptness in repairing comes next to good work and low prices. We have adopted all three as our standard, and if you appreciate promptness, good work and low prices, give us a trial as the best method of convincing yourself. We guarantee the following service:

STATES	Repairing leaving your store on	Will be back in your store on
Ohio, Pennsylvania, New York	Monday	Wednesday
Indiana, Michigan, Virginia, West Virginia	"	Thursday
Iowa, Illinois, Wisconsin, Minnesota, Carolinas	"	Friday
Nebraska, Kansas, Dakotas	"	Saturday

We Set Stones in Ladies' Rings for 3c.
 We Set Stones in Gents' Rings for 7c.
 We Make Rings Smaller for 8c.
 Other Repairing Accordingly.

We make all kinds of Rings to order the same day order is received



The Queen City Ring Mfg. Co., Beecher Building, Buffalo, N. Y.

STANDARD STONE SIZES

PRICES

FIRST-GRADE DOUBLETS				BEST HUNGARIAN OPALS			
ROUND		OVAL		ROUND		OVAL	
Size	Price	Size	Price	Size	Price	Size	Price
1-10	3c.	3 m/m	6c.	1-6	4c.	3 m/m	6c.
11-15	4c.	4 m/m	7c.	7-8	5c.	4 m/m	14c.
16-20	5c.	5 m/m	8c.	9	7c.	5 m/m	19c.
21-25	7c.	6 m/m	9c.	10	9c.	6 m/m	39c.
26-30	11c.	7 m/m	12c.	11	12c.	7 m/m	60c.
31-35	15c.	8 m/m	16c.	12-15	20c.	8 m/m	91c.
36-40	20c.	9 m/m	20c.	16-17	27c.	9 m/m	\$1.41
41-44	28c.	10 m/m	26c.	18-21	35c.		
				22-23	45c.		
				24-26	70c.		
				27-29	84c.		
				30-31	\$1.03		
				32-34	1.22		
				35-36	1.40		

Order your stone stock from us. The above prices are for single stones ordered or used in repairing. Ten per cent. off in quantities of six dozen or over.

Terms, July 1, 1905, net

The Queen City Ring Mfg. Co.
 Beecher Building, Buffalo, N. Y.

A Full Stock of Watchmakers' Tools of Every Description

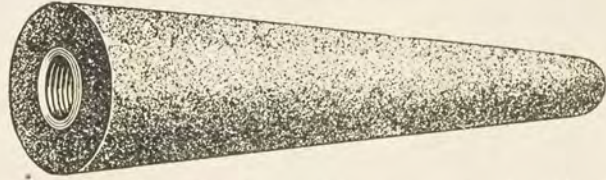


\$ 1.00 per Dozen
10.50 per Gross



A Regent Mainspring Cabinet is given FREE with your first order for 1 gross Regent American Mainsprings

Lathe Cone for Rings OF SOLID GRIT



A desirable article for repairing. Is made of solid grit and will outwear thousands of paper shells. Has a metal taper cone to fit on brush arbor.

In two grades—one to cut down solder, the other to finish next to rouge.

Refuse metal can be removed in a few seconds with ammonia and gold saved if desired.

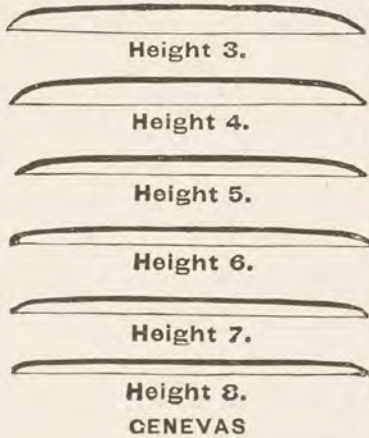
Price per pair, 75 cents



\$.15 per Dozen
1.50 per Gross



\$.75 per Dozen
7.50 per Gross



Fac-Simile of Our Label



\$.75 per Dozen
7.50 per Gross

PRICE-LIST	Genevas		Patent Genevas	
	Per gross	Per doz.	Per gross	Per doz.
Genevas	\$ 3.00	\$.30	Patent Genevas	\$ 5.50
Parallels	5.50	.50	Extra Thick Mi-Concaves	8.00
Lentilles	11.00	1.00	Thick Mi-Concaves	3.25

Orders for less than 1/2 gross will be charged at dozen price. BLANK ORDER SHEETS SENT UPON APPLICATION

ORDERS FILLED FROM ANY CATALOGUE

Cross & Beguelin, (A Corporation)

Importers, Exporters and Manufacturers
Watches, Diamonds, Jewelry
Silver-Plated Ware, Etc.

17 Maiden Lane, New York

WATCH REPAIRING for the Trade

If you have not tried Craft, you have missed the profit and pleasure of sending watch work out.

W. H. Craft
210 Pearl St., Buffalo, N. Y.

Established in 1892

Established 58 Years

James H. Dederick's Sons ASSAYERS AND BULLION DEALERS

ALL QUALITIES OF GOLD AND SILVER, in Plate, Square and Round Wire, Rolled to Any Gauge.

ALL QUALITIES OF GOLD AND SILVER SOLDER
BUYERS OF OLD GOLD AND SILVER
16 Maiden Lane, NEW YORK



Miniature Portraits

on WATCHES, DIALS, BROOCHES and LOCKETS

Our work will not fade or peel off
Hand-Painted Miniatures Copied from any Photo.

THE GOLDSTEIN ENGRAVING CO.
45 Maiden Lane, New York



NEWARK BRUSH COMPANY
BRUSHES
12 GREEN STREET NEWARK, N. J.
Polishing Set Complete, \$2.00, Prepaid
COTTON, BRISTLE AND FELT WATCH CASE BUFFS
FELT AND COTTON RING BUFFS
BRISTLE WASH AND END BRUSHES
FELT AND COTTON BUFFS
BRISTLE POLISHING BRUSHES
SATISFACTION GUARANTEED OR MONEY REFUNDED

When writing to advertisers, kindly mention The Keystone

COMMUNITY SILVER

OUR advertising has placed "Community Silver" in a class by itself. We ourselves did not realize how effective our advertising was until late last Fall, when from every part of the country repeat orders for "Community Silver" fairly rained in on us.

Believing that every dollar spent on advertising means larger sales for the dealer, we are this year making "Community Silver" advertisements more prominent than ever. Throughout the entire year they will appear in each issue of nearly thirty of the leading magazines and ladies' papers.

The tremendous selling power of such advertising—reaching, as it does, practically every home in the country—cannot be over-estimated. It will pay you, therefore, to stock early with a full line of "Community Silver." Remember that it not only sells well, but your profit on the line is unusually large.

If you are not now carrying "Community Silver," write us.

ONEIDA COMMUNITY, LTD.
ONEIDA, N.Y.

Founded in 1848

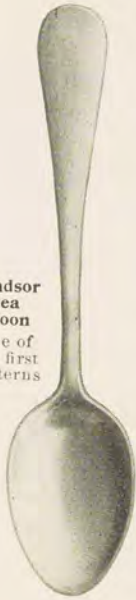
THE STAMPS OF "1847"

The Postage Stamp and the Silver Stamp

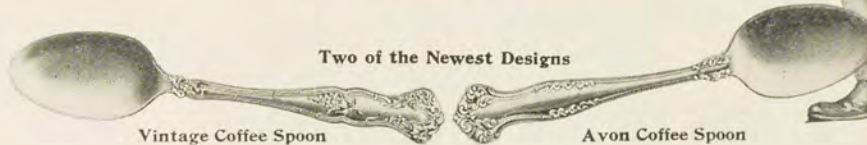
In the year 1847, during Cave Johnson's administration as Postmaster-General, was issued the first postage stamp of the United States—the beginning of the great postal system of to-day. In the same year, under the skillful eye of the original Rogers Brothers, was produced the first electro-plated silverware—the beginning of the famous

"1847 ROGERS BROS."
Spoons, Forks, etc.

Windsor
Tea
Spoon
One of
the first
patterns



Two of the Newest Designs



Vintage Coffee Spoon

Avon Coffee Spoon

The coupling of these two events serves to show the early origin of the "1847 ROGERS BROS." silverware and its growth in prestige with the development of the country. Its reputation for wearing quality has been tried by time. It is the accepted standard in silverware, and is guaranteed by the largest makers in the world. For sale by all leading dealers. In purchasing spoons, forks, knives, etc., see that the stamp "1847 ROGERS BROS." appears on each piece. Write for our new catalogue "70 K," showing the newest designs.

MERIDEN BRITANNIA CO., Meriden, Conn.

(International Silver Co., Successor)





THE KEYSTONE

A Monthly Journal Devoted to the Interests of the Jewelry and Optical Trades

Subscription—One Dollar per year, postpaid, to all parts of the United States, Hawaii, Porto Rico, Philippines, Guam, U. S. Island of Samoa, Cuba, Mexico and Canada (except Newfoundland); **single copies**, regular issues, 15 cents; special issues, 25 cents. To Foreign Countries 10 Shillings (\$2.44) per year; **single copies**, 1 Shilling (25 cents).

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

Change of Address—Subscribers desiring their address changed, should give the old as well as the new address.

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. Changes in advertisements should reach us not later than the 18th of the previous month. All communications should be addressed to

THE KEYSTONE

CHICAGO OFFICE 19TH & BROWN STREETS
 42 MADISON STREET PHILADELPHIA, PA.

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 BOTWRIGHT & GREY, 13 SPENCER ST., CLERKENWELL, LONDON, E. C.
 RAPHAEL, WHEWY & REDFERN, 51 CLERKENWELL ROAD, LONDON, E. C.
 HIRST BROS. & CO., LTD., 8 CURZON ST., OLDMAN, LANSHIRE.
 SCOTLAND—JOHN BAIRD, 88 MITCHELL STREET, GLASGOW.

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A Warning to Subscribers

WE must again warn the trade against giving subscriptions to any person soliciting same unless such person is well known to them. It has just come to our knowledge that a person giving the name W. H. Taylor has without authority solicited and received subscriptions for this journal, and was recently operating in Boone and Colfax, Iowa. He is described as light-complexioned, about thirty years old, 5 feet 3 inches in height, with smooth face and weighing about 135 pounds. Do not give your subscription to this or any other individual not personally known to you. It is safest in every case to send your dollar direct to this office.

Our New Art Jewelry Department

WE direct the special attention of our readers to the illustrated article on pages 889, 890, 891 and 892 of this issue entitled "The Work of a Woman Metalsmith." This article is the first of a series which will deal in a masterly way with modern art jewelry designing and kindred subjects. The authoress, Miss Irene Sargent, is well known as a specialist in the field of art literature, and her writings in the various magazines have revealed her as probably the most accomplished critic of the time in the matter of jewelry and art-metal work. Miss Sargent's accession to the staff of THE KEYSTONE is consequently an event of unusual interest to our readers, especially those aspiring ones who are in sympathy with the new world-wide movement for higher art and greater beauty in articles for personal adornment. Most of the matter so far published on the subject of art jewelry dealt with the work of foreign artists. Miss Sargent will cover a wider field and introduce the trade to the triumphs of American genius, skill and effort in this line, as well as to the creations of the European metalworkers. All the articles will be enriched by well-executed illustrations of the objects described, and the descriptions by the eminent authoress will be highly educative.

It will appeal to the patriotism as well as the trade pride of our readers to know that there are not a few designers and metalworkers in this country whose work will compare favorably with that of even the greatest European luminaries. Indeed, the vogue established by Lalique, Wolfers and others seems to have taken firm hold on this side of the ocean and quite a number of talented young Americans are even now taking courses in designing, enameling, metallurgy and kindred arts. America, with its wealth and liberality, affords the most tempting field for artistic effort of this character, and it is for our young men and women to strive for the reward which surely awaits skill and genius. We feel confident our new art jewelry department will render material aid towards this end and furnish the necessary inspiration for many gifted young craftsmen.

The Lesson of a Diamond Robbery

THE sudden and mysterious disappearance of diamonds, valued at \$35,000, from the workshop of Tiffany & Co., New York, emphasizes the necessity of the strictest surveillance over the stones from the moment when they come into possession of the jeweler till the act of delivery into the customer's own hands is consummated. The chief portion of the goods stolen in this case consisted of three large pear-shaped diamonds, which were bought especially for an expensive throat ornament. On the day when the robbery must have occurred the jeweler in charge of the ornament had taken these three stones out of the safe to match them with the pattern. It is the rule of the house that all material used in the workshop be turned in at night through the window of a grille which surrounds a safe. All the material is then checked off and put into the safe for the night. Something must have gone wrong with the Tiffany system that night, for next morning, when the workman in charge of the setting called for these particular diamonds, they were not to be found. It is conceded that no one outside of the employees could

have taken the stones, a fact which gives peculiar gravity to the case.

ALL jewelers recognize that the confidence of the public is their chief stock-in-trade—the prime essential of success in their specialty. For this reason extreme care is always taken in the selection of employees, and the very few cases of the betrayal of trust, either by jeweler or employee, is, indeed, the glory of the craft. But however confident a jeweler may be of the honesty of employees, he should have such a system in the keeping of stock as will be an effective check on possible dishonesty. As long as it is human to err, and as long as temptations exist, there will be occasional lapses, and it is no reflection on employees to put in force such precautions as will prevent dishonesty. These precautions have, indeed, been the salvation of many a clerk, while a loose system is responsible for many a downfall. But it is because the system in Tiffany's was presumably as perfect as human foresight could make it, that gives peculiar gravity to this latest theft.

THE public, who are always interested in jewels and jewelers, have developed a romantic interest in the theft, and the press, responsible to popular sentiment, is devoting space to its discussion. The following extracts from an editorial in the *New York Sun* have an interest for the trade:

"The loss of three costly diamonds by a great jewelry company is a peculiarly serious matter to the concern itself, and incidentally to large dealers in precious stones generally, because it seems to have been due to theft inside the establishment, in spite of a system of precautions against such stealings which seemed to have been brought to something very near perfection by this company during many years of experience. The immediate money loss to so great a concern is not of high consequence, but the doubt engendered as to this system of security and as to the honesty of the employees of the company must be painfully disturbing.

"The security of jewels under the keeping of a great jewelry company, with its safes and its carefully adjusted system of accountability by all those handling them, has not been distrusted. People may have been wary about turning over costly jewels for resetting or for repair except to establishments of indubitable trustworthiness; but for that very reason concerns which have won and deserve public confidence have been necessarily trusted the more. Generally, too, the buyers of precious stones, unable themselves to discriminate as to the genuineness of these, are obliged to give full faith to the seller, and consequently a highly reputable jeweler occupies what is peculiarly a position of trust.

"It may be assumed, therefore, that the important jewelry company which has suffered by the loss of the three costly diamonds will exhaust every means of discovering and punishing the thief or thieves and in strengthening its system of protection against such a chance, whatever may be the cost in time and money. The very foundation of its business and of the trade in which it is so dominant depends on the stopping of such a leak; and, moreover, the determination of the exact cause of the loss is essential as an act of justice to its employees, in whom so much confidence must necessarily be imposed. The employees in the best jewelry trade generally are men carefully selected because of irrefragable character, and in this

particular company some of them, if not many, are not only of long service in the corporation but also among its stockholders."

Well planned as this robbery must have been, there is little probability that the culprits will escape detection. To offer the stones for sale or to be cut would be a great risk to the thief or thieves, and almost certainly result in their arrest. The company is, of course, using every possible means for the detection of the culprit and the recovery of the gems. Descriptions of the stones have been telegraphed all over the world, and all known to be interested in the diamond business have been, as far as possible, apprised of the facts. The machinery of the Pinkerton agency has been set to work, and limitless resources and detective genius will be lavished on the search. It is to be hoped that the mystery will soon be cleared, and suspicion raised from the innocent workers of probably the greatest jewelry workshop in the world.

Our Vast Life Insurance Interests

THE publicity given the unseemly quarrel among the responsible heads of the Equitable Life Insurance Co. has directed renewed attention to the vast amount of life insurance in force in this country. The latest calculations show that the total assets of thirty-one life insurance companies in the United States amount to \$2,397,912,074, and are increasing at a marvelous rate. In 1880 they amounted to \$392,789,427; in 1895 to \$1,138,659,726. They have doubled in ten years and increased 512 per cent. in a quarter of a century. The estimated wealth of the United States in twenty-five years has increased 146 per cent., so that the insurance power is growing faster than the country itself. The insurance companies own \$167,986,115 worth of real estate. Their investments in stocks and bonds amount to \$1,216,865,128. Their loans on real estate mortgages are \$640,813,541, and on collaterals \$40,707,703. The income of the insurance companies in 1904 was \$560,172,553. In rain or shine, in prosperity or panic, in "tight money" and in times of ease, more than \$1,500,000 pours into the treasury of the life insurance companies every day.

ALMOST beyond human conception is the total of "life insurance in force." The figures are \$11,487,690,263, or equal to considerably more than one-tenth of the wealth of the country. There are now four companies, the Mutual, the Equitable, the New York and the Metropolitan, whose insurance in force exceeds \$1,000,000,000, and one of these, the New York, now boasts of nearly \$2,000,000,000. Verily the Ameri-

cans are the most insured people on earth, and the fact is greatly to their credit. The late Dr. Talmage, speaking of life insurance, said that "the man who passed away leaving no provision for wife or family didn't die. He absconded." Our people do themselves honor in making such provision, at least to a greater degree than any other people.

Development of the Merchants' Associations

A STRICTLY modern business institution which will do much for the trade of the country at large, is the merchants' association. Almost every large city now-a-days has its organization of wholesalers and manufacturers, the objects of which include the procuring of special railroad rates for visiting buyers from distant points, the reception and entertainment of such when they visit the city, the cultivation of closer relations between the retail trade and the jobbing houses in the centers of supply and the advancement of business interests generally. But while the primary purpose of the merchants' associations was to induce out-of-town merchants to visit personally the jobbing headquarters, they found that the attainment of their objects would be much hastened by taking the mountain itself to Mahomet, and consequently extensive itineraries were arranged which would enable the individual jobbers and manufacturers to call on the retailers and extend to them a personal greeting across the counter.

Speaking of this new departure, a jobber said: "I think it is an excellent plan for the wholesalers to call on the retailers to whom they sell goods, and in this manner become acquainted with those who rarely, if ever, come to the city. There are hundreds of dealers who know us only by the name on our letterheads or through travelers, whereas there should be a personal acquaintanceship." No trade is solicited on these excursions, the calls being intended merely to establish friendship and mutual good feeling, but that business will result from them there can be no doubt. Such excursions have been made by the merchants' associations of New York, Philadelphia, Pittsburg, Cleveland, Cincinnati, Chicago, etc., and always with satisfactory results.

BUT it must be kept in mind that as far as the interests of the retailers are concerned, nothing can take the place of a personal visit to the big market. Mr. Otto Heeren, of Heeren Bros. & Co., Pittsburg, admirably states the case as follows: "The retailer who always does his buying at home can never see the actual complete lines of

goods carried by the houses he deals with. No matter how many travelers a house may send out on the road, no matter how well they may stock the traveler's outfit, and no matter what an exceptional good salesman the latter may be, no house, especially a large jobbing house carrying a complete, comprehensive yet constantly varying stock of goods, can do justice to their customers or to themselves by a method which is limited by 'trunk space.' In these times of constant increase in the lines of goods necessary to the progress of a modern jewelry house, it is utterly impossible to have every department justly represented on the road, and it is undoubtedly necessary and to the interest of every dealer, to visit the city as often as it is possible for him to do so, not only to see the goods he cannot find in travelers' trunks, but to get personally acquainted with the members of the firms he is dealing with, and to find out what is really going on in the trade."

It is truly said that travel is the greatest of all educators. An occasional visit to the big markets will benefit the merchant not merely commercially but physically and mentally, and all who conveniently can should avail themselves of the opportunity afforded by the cheaper railroad rates, and the friendly reception and comforts which the merchants' associations assure them.

IN the above we refer to associations of wholesalers and manufacturers, but a new institution in the form of local associations of retail merchants in all lines, has also grown up in the commercial field. The objects of these local bodies are manifold and comprise booming the town and its trade advantages, the suppression of abuses such as trading stamps, auctions, etc., attracting out-of-town trade, establishing a local commercial agency, regulating credit, blacklisting the dishonest, and generally advancing the interests of the town and merchants. A noticeable instance of the activity of such associations was evidenced in an advertisement which recently appeared in Indiana dailies, offering free fares to Indianapolis every day in the year for trips of seventy-five miles on trolley lines and forty miles both ways on steam roads. The offer was made by the Merchants' Association of Indianapolis, whose membership embraces every line of business, and was conditional on the purchase of \$25 worth of merchandise from one or more members of the association. An additional cash rebate was to be allowed on all purchases in excess of this sum.

These associations can do much to help the business of their members, but much discretion must be exercised in their management. For instance, the Indianapolis offer

will naturally be resented by the merchants in the smaller towns in the prescribed area, and occasionally much friction has been caused by the efforts of local associations in neighboring towns. In Brookfield, Mo., an association was formed and was said to be doing much good for the town and merchants, but the farmers of Linn county somehow got the idea that the association was a sort of local combine to boost prices on merchandise. They threatened to boycott Brookfield and no explanations would be accepted from the merchants. As a result the association was forced to quit business.

In such cases the public must be taken into the confidence of the association, and convinced, if possible, that the organization is as beneficial to the people as to the merchants. The star-chamber, inquisitorial or combine idea, must be eliminated if these organizations are to appeal to the buying public, and candor must be the basis of their working. The local association, however, has undoubtedly come to stay, and is another manifestation of the intense strenuousness that now prevails in the mercantile world.

Bankruptcy Act and Life Insurance

EVERY business man will be interested in a decision recently handed down by the United States Supreme Court, which finally determines the question whether life insurance policies having a cash surrender value must be transferred to the trustee by a bankrupt before he can be discharged, or may be retained as an exemption. The court holds that the issue is one depending solely on the exemption laws of the state in which the petition is filed, such laws being specifically recognized as controlling by the terms of the bankruptcy act.

The case at issue, that of Holden & Holden vs. Stratton, arose in the United States District Court of Washington. The petitioners went into bankruptcy owning certain life insurance policies having a cash surrender value, whereupon the trustee, Stratton, sued to obtain possession thereof, on the ground that although such policies were exempt under the laws of the State of Washington, they were rendered non-exempt by the specific terms of Section 70a of the federal bankruptcy law. The referee sustained the claim of the trustee, but his ruling was reversed by the District Court, whereupon, on a petition for revision, the Circuit Court of Appeals held that the bankrupts were obliged to pay the cash surrender value in order to retain the policies. The case came for final decision before the Supreme Court with the result above stated.

Railroads and Their Future

THE accession of the United States to economic leadership among the nations was impressively emphasized at the meeting of the International Railway Congress, held in Washington, D. C., last month. This is the first time the Congress met in the United States, and delegates were present from practically every country in the world. Some of the facts and statistics promulgated at the convention in regard to America's pre-eminence in the railroad world, must have startled the visiting foreigners. It was announced, for instance, that in the world at this time there is something like 550,000 miles of main track railway. Very nearly two-fifths of that, or 214,000 miles, is in operation in the United States. No other country in the world makes even a good second to the United States in this field. The German empire, which leads all the other countries of Europe, has 33,000 miles of railway, or less than a sixth of that of the United States. Next to Germany in railway mileage come, in this order, European Russia, Austria-Hungary, France and Great Britain and Ireland. England was earlier in the field in the building of railways than was the United States, but the entire mileage of main track in the United Kingdom is 22,000 miles, or not much more than a tenth of that of the United States. Texas has more miles of railway than Italy or Spain, and more than any three of the minor countries of Europe. The number of men in the employ of the American railways is 1,500,000, and the assets of the American railway companies are said to reach the incredible aggregate of \$16,000,000,000!

ANOTHER interesting announcement made at the Congress was the statement by George Westinghouse that electricity will soon supplant steam on the United States railways. Senator Chauncy M. Depew made a similar statement recently, and, in fact, on the New York Central Railway, with which he has been connected for over a third of a century, some advances toward the electricity stage have already been made. A trial of electrical locomotion was made by the company some time ago, and it has been announced by George H. Daniels, the general passenger agent of the road, that several electrical engines for immediate use are being constructed. Each, according to this authority, is guaranteed to draw a train of Pullmans at the rate of eighty-three miles an hour. The change will be in the nature of a revolution, and will mean new-style locomotives, faster trains, lower rates, a saving of expense, the abolition of smoke and dust, and many other advantages both to passengers traveling and freight transportation.

Death of Samuel Eisenstadt

The news of the untimely death of Samuel Eisenstadt, president of the Eisenstadt Mfg. Co., of St. Louis, cast a shadow over the trade, not only in that city but throughout the country, for Mr. Eisenstadt was widely known and held a unique position in the trade of St. Louis and the Great West and Southwest which will be hard to fill. Everywhere were heard words of regret and sympathy, and many a tribute was paid to Mr. Eisenstadt's worth as a man of business and a friend.

After an illness of less than one week, Mr. Eisenstadt died at 11.10 o'clock on the morning of May 18th, at the residence of his mother, Mrs. Mary Eisenstadt, 4349 Westminster Place, St. Louis. His death came as the end of a brief struggle with cerebral meningitis. The first warning came the Friday evening before his death, when he was seized with a fainting spell in the presence of his brother, at their home on North Crompton Avenue. Only at a few intervals did he regain consciousness after being stricken, and his death was not unexpected.

Samuel Eisenstadt was born in St. Louis on November 22, 1857. He was the son of Michael Eisenstadt, who founded a jewelry manufacturing and jobbing business in that city in 1853. As a boy, he was quick to learn, and entered Wyman's Military Academy when seven years old. Here he remained until his eleventh year, when he entered Washington University, where he graduated at the age of seventeen, being the youngest graduate this institution had up to this date. He then started on his business career under his father's tutelage, and on the death of the latter he and his brother Morris succeeded to the business, reorganizing and greatly enlarging it under the firm-name of The M. Eisenstadt Jewelry Company, until eight years ago, when it was made to read "The Eisenstadt Manufacturing Company," now one of the largest and most successful wholesale and manufacturing jewelry houses in the country. At the time of his death, Mr. Eisenstadt was the president of this firm. He was a member of the Mercantile Club, the Manufacturers' Association and the Elks. The funeral occurred Sunday morning, May 21st, at 10.30 o'clock, from the residence of his mother, to Mount Olive Cemetery. It was largely attended by representatives of the trade, both from at home and abroad. Rabbi Leon Harrison officiated at the services at the residence, while those at the grave were in charge of the St. Louis lodge of Elks.

When "Sam." Eisenstadt, as he was best known, died St. Louis lost a most useful and kindly-spirited citizen. Absolutely honest, an honor to his race and a credit to his religion, as true as steel to his friends, merciful to his foes—who were few and far between—exceptionally bright and clever in business, Mr. Eisenstadt was loved by all who knew him well and respected by

all who were associated with him in business. He was a man so genial, full of sympathy and companionable that he made friends wherever he turned. His broad views, keen interest in passing affairs and public spirit gave him a place quite his own in the jewelry trade of St. Louis and the West. No man the trade has ever known in this city came so near filling the part of everybody's friend. It was his nature to help on the cheerful and useful fellowship of men, and it was his gift to make others approachable. That his heart was tender and sensitive to every appeal is known to his multitude of acquaintances. If a porter or an errand

Herman Mauch, William S. Kemper, Solomon Ruby, Dr. Chancellor and John Bolland. The active pallbearers were the following employees of the deceased: Winten Barker, Woerner Schoentaler, Henry Hain, Louis Gutfreund, Frank Brockmeyer, Herman Kellersman, Adolph Eisenbeiss and Nelson Hagnauer.

For the purpose of giving formal and joint expression to their regret at the death of Mr. Eisenstadt and sympathy with his family, a meeting of the wholesale jewelers of St. Louis was held on May 20th, at the office of the Bauman-Massa Jewelry Co., at which the following were represented:

Aller, Newman & Wilmes, L. Bauman Jewelry Co., Bauman-Massa Jewelry Co., S. L. & M. Bauman Co., H. G. Bergfeld & Co., Blankenmeister, Oberting & Co., Brooks-Auer Jewelry Co., Brooks Jewelry & Optical Co., J. W. Cary & Co., Furstenwerth, Uhl Jewelry Co., C. R. Hettel Jewelry Co., F. W. Hoyt & Co., Langsdorf, Beyers Jewelry Co., R. Loewenstein Jewelry Co., Sol. Loewenstein Jewelry Co., H. Morris, S. A. Rider Jewelry Co., St. Louis Clock & Silverware Co., Wm. Weidlich & Bro., Weiss Jewelry Co. At this meeting touching tributes were made to the deceased and the following resolutions were adopted:

WHEREAS, It has pleased Almighty God for His own good reasons to call unto Himself our deeply-lamented friend, Samuel Eisenstadt; and,

WHEREAS, We have known him intimately in life and have worked with him for many years in the same honest and honorable calling; and,

WHEREAS, On this sad occasion we are anxious to give public expression of our great esteem and appreciation for the deceased; therefore be it

Resolved, That the wholesale jewelers of the city of St. Louis, at a specially-assembled meeting, desire to offer their heart-felt sympathy and sincere condolence to the bereaved family; be it further

Resolved, That a copy of this resolution be sent to the family of the deceased and the daily newspapers.

In response to a special call the members of the Missouri Retail Jewelers' Association held a meeting in the store of President Mauch, and the following resolutions were adopted:

WHEREAS, It has pleased an all-wise Providence, in its unfathomable wisdom, to remove from our midst our friend and business associate, Samuel Eisenstadt, and,

WHEREAS, By his demise, the Retail Jewelers' Association of Missouri has lost a faithful friend and a staunch advocate of its principles, its individual members a companion of rare social qualities, and the business world one of its brightest, most energetic and progressive members; therefore, be it

Resolved, That the Retail Jewelers' Association of Missouri, bearing in mind the many acts of kindness of the deceased, shall ever honor his memory, and herewith desires to express to the family its deepest sympathy in this, their hour of bereavement and distress.

These two sets of resolutions reflect the general feeling both in the trade and the wide social circle in which the deceased was known.



SAMUEL EISENSTADT

boy connected with the establishment was in trouble, Samuel Eisenstadt was his sympathizer, and a willing ear was ready to listen to the trouble of his employee. If the occasion was one of joy the employee was sought and congratulated by the employer. Indeed, the building of the magnificent business of the Eisenstadt Company was largely due to the united efforts of himself and brother. There was but one "Sam." Eisenstadt. No one can exactly fill his place. The sympathy with his mother and brother will be as widespread as the country, and affectionate remembrances of his personality will last as long as one of his friends survive.

The funeral was one of the largest ever seen in St. Louis, and impressively evidenced the esteem in which the deceased was held. The Missouri Retail Jewelers' Association was largely represented, and the Wholesale Dealers' Association attended in a body. Besides the local members of the trade many retail jewelers from outside the city followed the remains. The honorary pallbearers were: J. Hess, Gerhardt Eckhardt, Geo. Stumpf,

The Jeweler's Responsibility in the Matter of Guarantees

YOU sell various lines of goods which are "guaranteed" by the makers; on the strength of these guarantees by the maker you, in turn, guarantee the goods to your customer; and as you may feel that your responsibility comfortably rests upon the responsibility of the maker, you have no further anxieties. If the goods fail in their guarantees you will simply fall back upon the maker, require him to "make good," pass the new article over to the customer in exchange for his defective piece—and all is well.

But *is it?* Are there no grounds for further anxieties? It is a question which is worth your serious thought; and more and more jewelers are daily doing some serious thinking.

Your concern (primarily) should be as to whether the *goods* will sustain the guarantee; secondly, whether the *maker can*, if the goods fail. The important thing—the *foundation* of your protection—is the goods themselves. If they prove unworthy, the whole structure of the guarantee will fall like a house built of cards. The maker *must* go down in the fall; or he may "get out" *before* the fall, leaving you to shoulder the burden of his sins.

Did you ever look into the definition of the word "guarantee?" It may help you to a realization of just what you undertake to do, when you "guarantee" to your customer that which is "guaranteed" to you. Here it is, according to Webster:

GUARANTEE: A promise to answer for the payment of some debt, or the performance of some duty, *in case of the failure of another person who is primarily liable.*

Now, look the facts in the face. Suppose you sell for \$1.50 (a good profit) one of the cheap rolled-plate chains which are "guaranteed for five years"; suppose that the chain does not (it cannot) wear the five years; suppose that the maker, knowing the inevitable failure of this and the thousands of his other like chains to last out the guaranteed period, wisely "gets under cover" by going out of business or changing his firm or corporate name; suppose that your customer then calls on you to "make good." You cannot recover from the maker, whose identity has been lost or who has disappeared from business; but you are bound to give the customer another chain—not one of the cheaper, worthless chains, *but one that will last out the five years.* The loss falls upon you, without recovery.

So it is with every other kind of goods which are "guaranteed" to you, and by you to your customer on the strength of the

maker's guarantee—the vital, underlying element of safety in your thus guaranteeing *must* be in *the goods themselves.* If they cannot justify their guarantees, you are bound to lose from either or both of two alternatives: First, in loss of your reputation as a judge of values; second, in direct money loss, in the inevitable end of the maker who cannot support the burden of continuous, predetermined guarantee-failures.

It behooves you, therefore, to consider carefully, before you add your guarantee to that of the maker, this prime question: *Is the article good enough to justify its guarantee?* The standard by which you will determine whether or not it is "good enough" is the *admitted best* in its line; if the questionable thing is sold at a lower price, though guaranteed for the same length of wear, as the "admitted best," you will have ground for serious doubt as to the wisdom of putting it on sale. Moreover, as the maker who is financially responsible *cannot afford* to make goods below the quality-standard (consequently, price) of the "admitted best," it is safe to assume that the article which is *similarly guaranteed but lower priced* than this "best" is *not* supported by a financial responsibility which would justify the risk of your eventually having to make good the guarantee out of your own pocket.

Pointers

A *LITTLE* advertising is often *too* little to "land" the public. You can't hatch a whale from a bantam egg.

The man who thinks it cheaper to move than to pay rent is of the class who think it cheaper to let the business dry up than to pay for advertising space.

Didn't your advertisement "pull?" Then do not question the value of advertising until you have passed upon the question of your ability as an advertiser.

An electric fan buzzes all day and blows out a lot of wind, but it never *says* anything. Some advertisers do likewise.

He whose business is everybody's business hasn't any business to have any business—and he generally hasn't.

One can excuse mistaken effort in a clerk, but there's no forgiveness for *absence* of effort.

Work out your complete advertising scheme before you put pencil to paper in writing the first advertisement. You wouldn't undertake to build a sky-scraper with only a plan for the elevator shaft.

You can't pay bills by giving checks when you have no money in the bank; nor expect to escape, when you advertise "guaranteed" goods that are not up to the standard. Sooner or later you've got to make good.

No, the world does *not* owe you a living. It owes you nothing. It was here first.

"Do it now" is good advice, but "Do it at the right time" is better. Be sure that "now" *is* the right time; sometimes there's profit in waiting long enough to think the question over before acting. "Delays are dangerous," truly; but precipitate action before your thought is fully matured is dangerous, too.

Don't waste breath in cussing because your competitor made the sale which you expected to make. You can expend your energy more profitably in looking into the reasons *why* he made the sale.

You need not "spy" on your clerks, but you are entirely within your privileges and duties in keeping an eye open as to how they spend their evenings, to find out who are their intimates and discover what you can as to their personal expenditures. You may thus be securing yourself against future trouble and loss of goods or cash.

Make new customers, when you can; but hang on to the old customers, at all hazards. Conciliate those who are offended, satisfy those who express a grievance, appreciate those who stand by you. A bird in the hand is worth a whole flock in the treetop.

There are sixteen hundred and seventy-three ways, or more, of doing a thing wrong, and one way of doing it right. Stick a pin here, my son.

You are probably the wisest chap in the whole town, to-day; but there's no telling when a wiser one will come down the pike and start into business on the same street. It is a contrary world, you know, and unexpected things are bound to happen. Your only chance is to try to get wiser, day by day.

"Early to bed, and early to rise,
Makes a man healthy and wealthy and wise."
Thus saith Poor Richard, whose wit none denies;
But though dry bread suits *some* tastes, *we* revel
in pies,
And what fits the farmer is scarcely *our* size!
Poor Richard "meant well," and he uttered no
lies;
But the up-to-date merchant, who wins when he
tries,
May go to bed midnight and seal up his eyes
'Til long after sun-up, and *yet* get the prize
Of plentiful boodle, and peace when he dies,
If he knows how to hustle and advertise.

WALTHAM WATCHES

Observations by Great Observers

From the Autobiography of HERBERT SPENCER,
Vol. II, Page 167, American Edition.

"The presentation watch named in Prof. Youman's letter, was one of those manufactured by the Waltham Watch Company. . . . It has proved a great treasure as a time-keeper, and has excited the envy of friends who have known its performances."*

* "I find in a letter written in December, 1880, after the watch had been in my possession fourteen years, a paragraph respecting it which may fitly be quoted:—'I have several times intended to tell you how wonderfully well my American watch has been going of late. It has always gone with perfect regularity, either losing a little or gaining a little; but of course it has been difficult to adjust its regulator to such a nicety as that there should be scarcely any loss or gain. This, however, was done last summer. It was set by the chronometer-maker in July, and it is now half a minute too slow; never having varied more than half a minute from the true time since the period when it was set. This is wonderful going. As the Admiral says, one might very well navigate a ship by it.'"

("In 1890 it went with equal nicety; lost 42 seconds in half a year.")



HERBERT SPENCER



RALPH WALDO EMERSON
From a drawing made in 1857 by
S. W. Rowse, now in possession
of C. E. Norton.

RALPH WALDO EMERSON, the Concord Philosopher, used the Waltham Watch as a type of the highest development when he wrote in one of his Essays on Eloquence, in speaking of a man whom he described as a leader and a Godsend to his community:

"He is put together like
a Waltham Watch."

The REV. R. J. CAMPBELL, in a sermon preached at the City Temple, London, on Sunday, September 18th, 1904, spoke as follows:

"When I was in the United States last year, I visited the well-known Waltham Watch Factory; some of you now are wearing the products of this American manufactory. Do you understand, or do you ever try to understand how it is that you are able to afford these articles as compared with the earlier day? I will tell you: It is because the brains of a whole army of men are concentrated in that marvellous institution. I remember asking my guide, as we went from room to room, 'How many watchmakers of an older day do you estimate sit on each of these stools, and the men who do the work by machinery—how many are they equivalent to?' He replied: 'Everyone you see at work here is equivalent to fifty at the very least of operators who lived before this day, conscientious and able though they may have been.' Inventions have increased the working value of every individual man; they have raised the level of the productive output of the civilized world. So it is in higher region."

"The Perfected American Watch," an illustrated book of interesting information about Waltham Watches, sent free on request.



THE CITY TEMPLE
Holborn Viaduct

American Waltham Watch Company
WALTHAM, MASS.

An Improvement on the Want Book

WE have frequently impressed on the retail trade the necessity of keeping a "Want Book," in which the jeweler or clerks make a memoranda of goods needed so that orders for same could be sent to the jobber or given to the salesman on his next visit. Most jewelers start to keep such a book, but seldom continue to make use of it systematically. One reason for this is that the jeweler has no means of classifying the items, and when the salesman calls it is about as much trouble to pick out the items from the book as it is to obtain the same information by looking over the stock.

An excellent suggestion for a systematized record of the wants in stock is made in *The Business Man's Magazine and Bookkeeper* by a writer who would use the card index idea in preference to the "Want Book." Whenever stock of any kind has run low make a note of it, he says, on a 3 x 5 inch card or slip of paper cut the same size, then file this card or slip in a card file. One of the small desk boxes will answer the purpose, or a home-made box may be used.

This file should be provided with blank indexes on which are written the different departments or different classes of goods required, arranging these as far as possible to conform to the lines carried by the jobbers with whom the merchant is dealing. According to this system a jeweler would have one index headed silveware, another headed optical goods and so on. Behind these indexes would be filed the slips showing goods wanted in the several classes. These departments or classes should be further sub-divided, as it is not likely that all of the goods will be bought from the same house.

Where certain houses are favored for certain lines of goods it is well to have an index headed with the name of each of these concerns. When a salesman for the firm from whom you have been buying rings, for instance, calls, a glance at the cards behind the index will show what is needed in his line. If a salesman for another house offers specially attractive prices on rings, you will have no difficulty in remembering that you have been buying rings from the other firm, and can immediately refer to these cards.

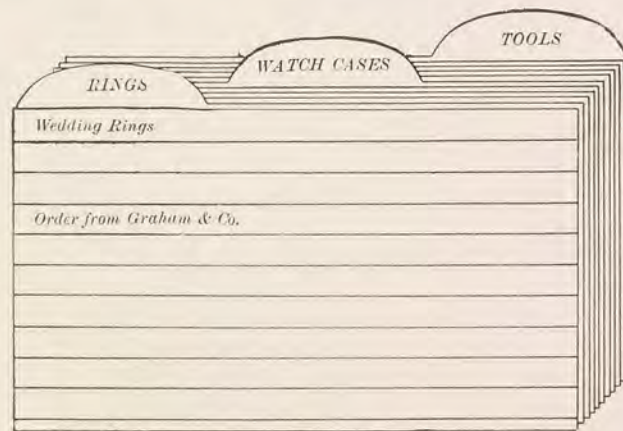
The manner of filing and indexing the cards is shown in the illustration.

One advantage of a card index of such a record as this is it is never filled up with dead matter. When the goods are ordered, simply destroy the card. This frees the files from dead matter and gives you only the

information desired. This system is a decided improvement on the "Want Book" idea, especially for the larger stores.

Fixing the Price of Goods

WE have before us a letter from a subscriber who tells us the population of his town, his store rental, running expenses, etc., and who then asks "what fixed percentage of profit should I place on my goods under these circumstances?" As we receive many letters of this character, it may be opportune to state that in modern business doing it is not customary to charge a fixed percentage of profit on all the goods sold. As every well-posted retailer knows, some goods will stand fifty per cent., some only thirty-three per cent., and it may be



Card Index of Goods Wanted

that some will stand no per cent. at all, yet must be kept and handled as a convenience.

In fixing percentage of profit, the character of the goods and the resources of the people who would purchase them must be taken into account. An expensive gold watch with fine movement and heavy ornamental casing would, of course, command a much higher and more arbitrary percentage of profit than a seven-jeweled gold filled watch, the value of which is pretty generally known. Art and exclusiveness in any line of goods will always command a much higher percentage of profit than mere mediocrity. Competition affects staple lines more particularly, and care must be taken that in such wares we cleave to the average profit. There are goods which suggest the question "what limit will I put to the profit on these?" While there are others which will suggest the question "How little can I afford to sell them for?" Two things must be kept in mind, however. Whatever the profit, the same price should be charged to all, and too large a profit on any article is generally ill-advised.

Creating Business

NOT all jewelers realize that a chief function of advertising is the creation of new business, and not merely attracting to your store the business already available. Many retailers still entertain the idea that business comes simply from the necessity for the goods. This is not true of any line of wares—much less of jewelry. A very material proportion of the entire business transacted each year is created not by necessity, but by caprice or whim, by a temporary desire aroused by advertising or by seeing the article. If the article is not seen or heard of it is not desired, and if it is not desired it is not purchased.

Take for instance the case of a camera. How many of us lived for years without a camera or any desire for one. But one day we saw an advertisement which told us of cameras, of the pleasure they bring, of the handsome souvenirs they provide us with, of the enjoyment entailed in the making of pictures. "You push the button and we do the rest" said the camera man. "Go to the woods, the mountains, the cities," he said, "and bring them all home with you." How inviting was all this, and how irresistible! We purchased a camera, films and all other accessories, played with photography for a while and then laid it aside, but business had been created and the advertising had done its work.

What was responsible for the great bicycle boom? The advertising which created a temporary desire for the seductive two-wheeler. Many a cellar is to-day ornamented with a rusty bicycle, but millions were made while the fad lasted. Every man spends every year a certain percentage of his income on what might be called artificial or stimulated desires. If the jeweler fails to stimulate a sufficient amount of desire for things in his line, then the surplus cash will be spent in other directions. Indeed the jeweler should pay particular attention to *creating* business for the reason that his wares are not the necessary shoes, clothes or bread, but to a large extent luxuries. Jewelry buying is a matter of desire rather than of necessity, and the creation of this desire is a first duty of the successful jeweler. This implies that the jeweler should be the greatest and most persistent of all advertisers, and that his show window should be utilized for publicity purposes even more than the window of any other merchant.

We fear that a large percentage of the trade are not doing justice to themselves or their business in this respect.

GORHAM LEATHER

"Tomorrow to fresh woods and pastures new."
—Milton.

¶ Shortly the tide of Summer travel in quest of "fresh woods" will be at its height and coincidentally will arise the demand for Traveling Necessaries.

¶ Foremost among these must be placed those Gorham traveling bags which are universally accepted as the acknowledged standard of excellence.

¶ Whether with or without fittings they express the very highest skill of the worker in fine leathers, and when fitted with toilet articles carrying the stamp of Gorham individuality the combination is interestingly unexampled.

GORHAM M'F'G CO.

Silversmiths and Goldsmiths

Broadway and 19th Street, New York

BRANCHES

CHICAGO

NEW YORK

SAN FRANCISCO

LONDON

WORKS: Providence and New York



The Work of a Woman Metalsmith: Miss Leonide C. Lavaron

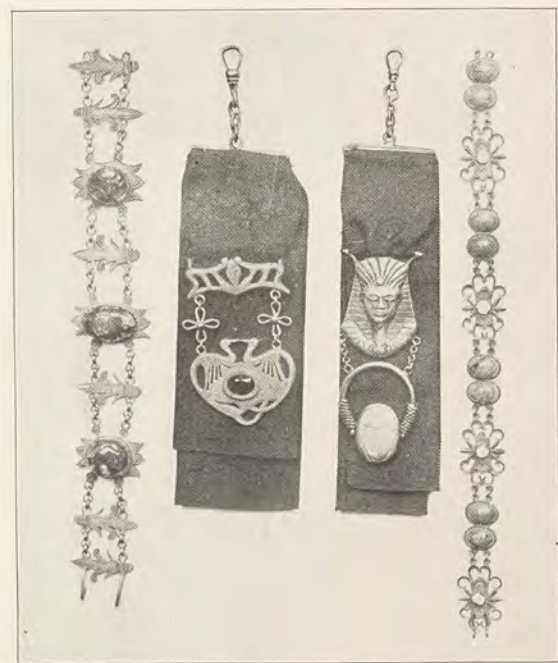
By IRENE SARGENT

At the present time there is little question of major or minor among the arts. Reputation and reward depend largely upon the ability of the artist, who may choose his medium of expression, without meeting censure or indifference from critics and public, if he prefer to practise an art-craft, rather than a pure fine art. The proof of this statement stands evident in the position created and maintained for himself by René Lalique, who, nominally a jeweler, combines in that capacity the accomplishments of sculptor, painter and scientist; while also his broad studies and his great natural gifts have lately led him to develop strong qualities as an architect. This Frenchman is recognized by competent judges as one of those most rare individuals who, epoch-makers in their work, like Cellini and Palissy, are honored for centuries as geniuses: the idea of their force and peculiar faculties always presenting itself to the mind which recalls them, before that of their specific vocations or employments.

New Fields for Artistic Endeavor In thus reaching most unusual distinction, M. Lalique has opened by-paths promising lesser although ample reward to persons of talent willing to limit their ambitions to a field more responsive to effort than that of the pure fine arts, which produces but seldom a perfectly developed fruit. We find, therefore, scattered throughout France, Germany, England and America, many men and women who, having studied painting, modeling or architecture, with more or less success, prefer to aid in the reform of a long commercialized art-industry, and to attain visible results, rather than to dissipate their endeavors in the vague regions of the ideal.



Miss Leonide C. Lavaron



Bracelet: Vert antique gold, set with opal matrix. Fob: Gold set with Spanish topaz. Fob: Antique silver, with scarab. Bracelet: Rose gold, set with lapis lazuli and baroque pearls

To persons of this class America offers conditions peculiarly favorable for their development and recognition. As makers of objects of personal adornment, these producers appeal to a more numerous class of opulent and eager purchasers than can be found in any other country. They furthermore find ready to their hand rich natural resources in the form of gems and precious stones, which are daily discovered in places where their

pally applied to the treatment of copper in a natural, modern extension of her art. As a result of these long and even dangerous trials, she is now able to produce the beautiful iridescent surface which characterizes antique objects composed of mineral substances, such as glass, or certain metals: the color-play being sometimes the intentional work of the artisan, and sometimes the consequence of long inhumation. Objects of this nature abounding in the museums, have, in recent years, increased their attractions for a public rapidly advancing in taste; while to reproduce their beauty has been the untiring purpose of the most skilful artificers. The patina imparted to the surface of silver by M. Lalique

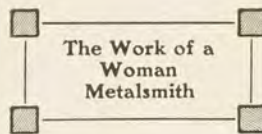
presence is least suspected. Lastly, the genius for experiment and invention characteristic of Americans, encourages and incites them to undertake original work, to attempt new processes; while the majority of the Europeans who exercise the same art-craft, are more fully content to follow precedent and tradition.

Art Jewelers of the United States As a consequence of such conditions, the art-jewelers of the United States are numerous, highly intelligent, and oftentimes recruited from the wealthy and cultured classes: some of them working as amateurs and as a relaxation from heavier and more perplexing employments; others using, as a rich active capital, knowledge and skill variously acquired; the remainder—and these are the youngest members of the craft—coming from the industrial art school or the bench of the apprentice to engage, as a life-work, in the smithery of the precious metals and the making of personal ornaments.

Within the second of these classes are included the greater number of the women jewelers and metalsmiths, who are found equally in the East and the Middle West; Boston, New York, Cleveland and Chicago being each the home of one or more workers of recognized ability. Among these women, notable as well for their personal accomplishments as for their unusual choice of study and employment, Miss Leonide Lavaron, of Chicago, is distinguished for her successful experiments in chemical processes, which she has princi-



Pendant in green gold set with azurite. Necklace in Roman gold, set with Spanish and Brazilian topaz



offered the models of these metallic objects, the modern craftsman, with all resources of science and of manual dexterity at his command, has but to add perseverance to the equation in order to obtain approximate, if not entirely satisfying results.

Genius, Devotion and Industry

Such perseverance Miss Lavaron has evidenced to a remarkable degree, since not only in her extraordinary experiments, but also in her usual work, she sacrifices her physical comfort and even endangers her life: the powerful acids with which she deals acting upon the mucous membrane of the mouth and nostrils, as well as causing heavy depression of the vital forces, and, at times, periods of unconsciousness. Being thus an investigator, dependent upon no master or text-book, she simply applied a knowledge of chemistry to her problem, advancing slowly through difficulty and peril, until she gained for herself a special place among her fellow-workers; giving her name to the "Lavaron copper," whose beauty of color-play and surface is well supported, in most instances, by the distinction given to its shape.

Original Creations

In this latter consideration Miss Lavaron attempts to maintain originality, which is an endeavor upon her part much to be praised; since, as she is strongly attracted to the substance of antique bronze, it would be most natural for her to copy the forms under which it appears. But here she follows the same method that she observes in her designs for execution in the precious metals: that is, having studied the best models in existence, she discovers the structural principles and lines composing them; thence acquiring a fund, a capital, which she reorganizes into a new and vital scheme approaching the old, since it is built upon similar proportions, but containing plain and strong evidence of individual life. In this class of objects are included the lamps, urns and bowls which, pseudo-classic in form, show exquisite rainbow surface effects, and are etched with designs clearly modern in their variety and freedom of treatment. Possessing thus the characteristics just noted, these large pieces produced by Miss Lavaron seem adapted to the usual surroundings into which they are taken by purchase, and so differ from purely classic utensils

constitutes, almost equally with the design, the charm of his compositions. The work of the atmosphere upon metals—oxidation and corrosion—is now recognized as an ally of art whose service is worthy of diligent search. The tombs of Egypt, Cyprus and Etruria having

and ornaments which, unless they are parts of a patiently elaborated, consistent and complete scheme of decoration, give an impression of affectation and unfitness for service. Such, for instance, are the Pompeian lamps with their numerous suspensions which have long since lost all meaning save an archeological one, or yet again the frequently observed model of the Menorah, or seven-branched Jewish candlestick,

which inadequately responds to the modern need and demand for light. Quite otherwise are Miss Lavaron's copper basins and bowls which, upon the first glance of the spectator, suggest to him their ordinary and various uses. The same is true of her lamps and lanterns, the latter of which, even though they in some cases possess a strong mediæval, or Colonial quality, offer excellent provisions for illumination: no element of picturesqueness being suffered to interfere with their first practical essential.

Blending of Art and Utility

In such exercise of the sense of utility lies the secret of the woman artisan's success, as it also lies in her eclecticism, which she shows by accepting and putting to use without prejudice ideas from all available sources, whether classic, oriental, or mediæval; her liberalism also extending to the employment of old metallic substances, such as bronze, brass, or copper, which she finds in the Chicago Ghetto, and adapts to her new purposes and designs.

The Lavaron copper, when etched with designs like the butterfly, or the peacock-feather *motif*, becomes quite indescribable, and to be appreciated, as to its beauty and brilliancy, requires to be seen. Here, as in all cases when it is a question of effects chemically produced upon pottery or metals, chance and not intention is largely responsible for the result. No two pieces can be alike, and the so-called "accidents" make or mar the artistic value of the object. Owing to this fact, and therefore in justice to Miss Lavaron, no illustrations, with the exception of those of two candlesticks, are here given of her work in the baser metals. These small and comparatively unimportant pieces are chosen from among their numerous companions because they show a successful treatment of plant-life, and,

consequently, represent the best tendencies of modern industrial art: that is, the rejection of historic styles and a return to Nature as the source of structural form.

In both examples the idea of growth and life is preserved; the plant is not tortured into unfamiliar or painful attitudes, nor is it regarded as inert, dead material upon which to make decorative experiments. On the other hand, it is so conventionalized and adapted to the unyielding, durable



RINGS

(Numbers read from left to right; beginning at top of page)

- Number 1: Rose gold; olivines; lavender and orange pearls
- Number 2: Rose gold; diamonds; baroque pearls
- Number 3: Rose gold in serpent design; pink tourmaline; yellow sapphires
- Number 4: Antique silver, set with blue agate
- Number 5: Crimson enamel, serpent design, with pigeon-blood ruby
- Number 6: Reproduction of a ring of the Louis XIV. period (1643-1715); pierced gold; rose diamonds; opalescent pearl
- Number 7: Banquet ring; pigeon-blood ruby and diamonds, set in platinum
- Number 8: Leaf *motif*, with sapphires and diamonds
- Number 9: Leaf *motif*, with diamond and East Indian sapphire
- Number 10: Cabochon ruby, with diamonds
- Number 11: Antique silver; Austrian opals
- Number 12: Narcissus *motif*, with yellow diamond
- Number 13: Antique Roman silver; cabochon sapphires
- Number 14: Banquet ring; green gold, set with jade and diamonds
- Number 15: Rose gold; diamonds; East Indian cream-white pearls
- Number 16: Banquet ring; diamonds, rubies, sapphires and emeralds
- Number 17: Pisces (sign of the Zodiac for February) ring, set with diamond

material into which it is translated as to meet the first requirement of all art, which is that it shall represent, but not imitate, Nature.

The poppy-plant, used in the design at the right of the illustration, is less noticeable than the flower-form of the scheme at the left, since, for thousands of years, it has been a favorite with artists; as well because of its symbolism derived from its medicinal qualities, as for its beauty of blossom, seed-vessel and leaf. The second *motif*, based upon a less brilliant species of the field flora, shows the happy disposition evidenced in much of the best modern art to select the humbler forms of life for study and representation. The plant will be easily recognized as the wild carrot, with its umbel of small flowerets forming the cup of the candlestick. The same blossom, severed from its long, slender stalk essential to the candlestick design, appeared in a successful piece of jewelry in enamel, designed by Mr. Louis C. Tiffany for the Louisiana Purchase Exposition. In the latter case, the weed, despised by all save botanists and artists, was arranged as a corsage bouquet, and rendered in an opaque white *smalto*, which was relieved by the gold points of the stamens and by the sparkle of minute diamonds, set among the clustering flowers in order to simulate dew-drops. It may be noted in passing that this selection of artistic models among the commoner species of flora and fauna may be directly traced to the impulse of M. Lalique, who studies with keen pleasure the lowest forms of life; presenting to us their hitherto ignored beauties as through a microscope, and explaining them in all the eloquence of genius; going even to the length of admitting into his objects of personal adornment the ordinary red garden pebbles found in France, in cases where the shapes and the color of these stones concur in the harmony of a given scheme.

Miss Lavaron as a Jeweler

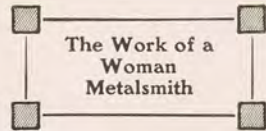
If space permitted, it would be agreeable to describe in detail certain beautiful specimens of Miss Lavaron's work in combinations of mother-of-pearl, or of opalescent shells with copper. But these must be set aside in favor of her designs for jewelry, the creation of which has been one of her principal employments, since she abandoned the profession of a water-color painter.

As a jeweler she must be considered both as to her choice of material and her characteristics of structure and drawing. From the first of these two points of view she evidences her modern spirit; from the second, her individuality. In common with all who at present give attention to the subject, she recognizes the importance, one might almost say the supremacy, given to color in all modern works of art which are deserving of the name. Therefore, following this indication as expressive of an imperative need of the times, she uses, in creating her small ornaments, the same rich palette as the mural painter who has wide space at his



Necklace of green gold, set with Spanish topaz

command; producing contrasts, harmonies, even whole gamuts of color-notes by the studied inter-adjustment of stones and enamels.



In order to command this wealth of material it becomes necessary for her to accept, not only such gems as have hitherto been described by experts as semi-precious, but also certain substances which, during the last century, would have been rejected as worthless by all save the naturalist intent upon reading the story of the earth. Within this class is included the so-called "bone turquoise," derived from the remains of the mastodon skeletons of southern France: ribs, tusks and teeth which, becoming impregnated with phosphates of iron and salts of copper, have changed from their original ivory-white to sky-blue, or brilliant peacock-hues. Such, also, is the baroque pearl which, not many years since, if compared with its full-orbed, perfect similar, would have been dismissed as the debased specimen implied by its name: a poor misshapen thing fitted only to form the hunches of toy-dwarfs in jewels, such as one sees displayed in the Green Vaults, at Dresden, and in the Uffizi Palace, at Florence. But now its variety of shape, its soft bloom of color are eagerly sought by the new school of artist-jewelers, who introduce it into designs where the Oriental pearl, even if its monetary value were not prohibitive, would be recognized by the cultured eye as out of place and harmony.

The Vogue of Colored Gems

Differing from the "bone turquoise" and the baroque pearl,

in that, instead of having been always despised, they had fallen into disuse since the time of our grandparents, there may be further mentioned the yellow and the rose-colored topaz, the amethyst, the carnelian, and other stones whose beauty of color or sheen has not always been able to maintain their claims, as opposed to those of inferior gems of a more costly species: the diamond impaired by flaws having been long preferred, except by persons of the most refined taste, to a perfect specimen of a topaz, tourmaline or zircon, enhanced by effective mounting.

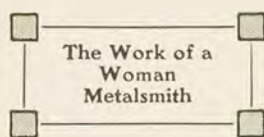
Skill and Art Happily Combined

Playing thus upon an extended gamut of color-notes,

Miss Lavaron is enabled to compose in well-defined styles—like the Egyptian, the Persian or the Japanese, which demand great brilliancy—and, better, to represent Nature as she reveals herself in the exquisite hues of flower, bird, or insect. This she does in strict obedience to the laws of design and of workmanship, as she recognizes that crude drawing, unbalanced composition



Necklace of diamonds and baroque pearls in rose and cream-white tints, mounted in platinum



and a want of mechanical skill only too frequently mar the production of those who are in revolt against the time-honored traditions of the artistic crafts. Therefore, to her freshness of treatment she adds the qualities of a master workman who has successfully passed through the trials and tests of apprenticeship.

As an example of Miss Lavaron's happy treatment of color may be cited a necklace in which large baroque pearls of cream and rose tints form the principal element of composition. The pearls are separated by small diamonds set in platinum after the French style, and the whole offers a fascinating harmony of cross-lights and reflections: the diamonds catching the delicate pinks of the pearls and the latter becoming even more satin-like in surface when contrasted with the transparency of the diamonds, than when seen alone. For this fine effect good spacing is to a degree responsible, and the piece, apparently so simple, will, if studied, reveal itself as an instance of the "art which conceals art."

Bracelet of Novel Design

A second necklace shows a detailed study of the thistle-plant, from which one may imagine the pains and the intelligence expended in producing the ornament; for, surely, a well-filled note book of observations must have yielded the composite idea of the design. The chain of the necklace is formed of long, fine coils of gold, such as are seen in ancient Etruscan work; these being alternated with ornaments centered by topazes, the mountings of which are thistle leaves conventionalized in the most artistic manner: that is, by accentuating their salient feature to the exclusion of other details. The leaves with their sharp angles easily lend themselves to reproduction in metal; becoming thus frames for the jewels, and, in the color-harmony, supporting by the green tone given to the gold, the clear, light yellow of the stones. The pendant suspended from the chain shows a symmetrical union of two leaves drawn in profile and so joined as to suggest the frame-work of a lyre; the enclosure being again centered by a gem, above which two thistle-flowers rise and meet, in order to give richness and proper mass to the design; while the color is also appropriately focused here in the deep golden quality of the four large ovoid topazes.

Two Novel Designs

Two less important necklaces here given in illustration, are of pleasing and unusual design: one modern in treatment, with its pendant of assembled leaves, executed in green gold which affords a fine setting for the blue of the two azurites; the other of delicate workmanship in Roman gold: the chain showing the exquisite rosettes so familiar in all classic gold work and in the perfect reproductions made of it by Count Castellani; the pendant offering a study of the acanthus *motif*, developed with much ability and evidencing on the part of the designer a thorough knowledge of Italian and French art of the Renaissance period.

Pretty Classic Effects

Allied in treatment to the latter necklace are two bracelets, revealing the same historic knowledge and the same original use made of that advantage. The first bracelet is a curious union of a scarab with a floral *motif*; the insects being repre-



Two candlesticks in "Lavaron copper": wild carrot and poppy *motifs*

sented by opals in the matrix, applied upon plant forms, and alternated with *fleurs-de-lis*, with all the gold work colored to a deep *vert antique* shade, harmonizing beautifully with the play of light in the gems. The other piece, less pronounced in character, is no less attractive, with its carefully studied open-work pattern in rose gold; the voids being well contrasted with the solids formed by ovals of *lapis lazuli* placed in pairs between the units of wrought metal.

Historical and Mythical Designs

In her designs for watch fobs Miss Lavaron is no less successful, as may be judged from the illustrations given of several such pieces. One of these, executed in old silver, is an Egyptian composition symbolic of Nature worship. It shows a typical head of the moon-goddess

Isis, in relief upon a plaque from which depends a scarab, significant of the divinity existent in the lowest forms of life. The insect is set in the earliest form of the finger-ring, which was a copy of the sling weapon, consisting of a leathern band or strap, holding the stone in place until it was thrown at the adversary: the gold representing the leather, and the jewel simulating the projectile.

Another fob, freer in design, is a further example of the wise use of historical knowledge. It is executed in gold set with a Spanish topaz, and it suggests the old Scandinavian style with its facing swans, open-work and interlaced lines. A third fob is closer in treatment to the Norse type; displaying two singularly wrought animal heads suggestive of the myths of the Eddas. The metal here employed is gold and the stone is an opal in the matrix.

Pretty Ring Designs

A passing word must also be given to certain of the rings appearing in our illustrations. As a whole less original than the ornaments previously described, they possess compensating beauties in refined color combinations of metal and gems. Noticeable among them is a serpent-composition gaining distinction by appropriate treatment in crimson enamel, with the eye of the serpent rendered by a ruby of the much-desired pigeon-blood tone. Another specimen is a pure East Indian design (Number 15) in rose gold, diamonds and cream-white pearls: the metal and the combination recalling the bazaars of Bombay and Calcutta. A third ring reproduces a design of the period of Louis XIV. It is set with a large gem whose iridescent, luminous quality suggests the metaphor of Dante, when he described the full moon as "the eternal pearl." The luster of the gem is enhanced by a number of rose diamonds, and the gold is wrought in a beautiful pierced pattern which shows how much the French smiths were indebted to the Florentine artificers.

An Inviting Field for Women

Thus one might continue indefinitely to follow — and always with profit—the course of the serious and successful studies made by Miss Lavaron in an industrial art only recently cultivated by women. Her work deserves to be widely known, and it is to be hoped that she and her present few companions will be joined by many others of their sex who, trained in the plastic arts, do not possess the personal fortune, the patience or the genius to await long-deferred success in architecture, painting or sculpture. The times demand practical results, and it is not the least of triumphs to understand and to interpret the spirit of the age in the definite terms adopted by Miss Lavaron.



Fob: clover design in gold and turquoise matrix
Fob: gold, set with chrysoprase and *lapis lazuli*
Fob: Ancient Norse design in gold, set with opal matrix



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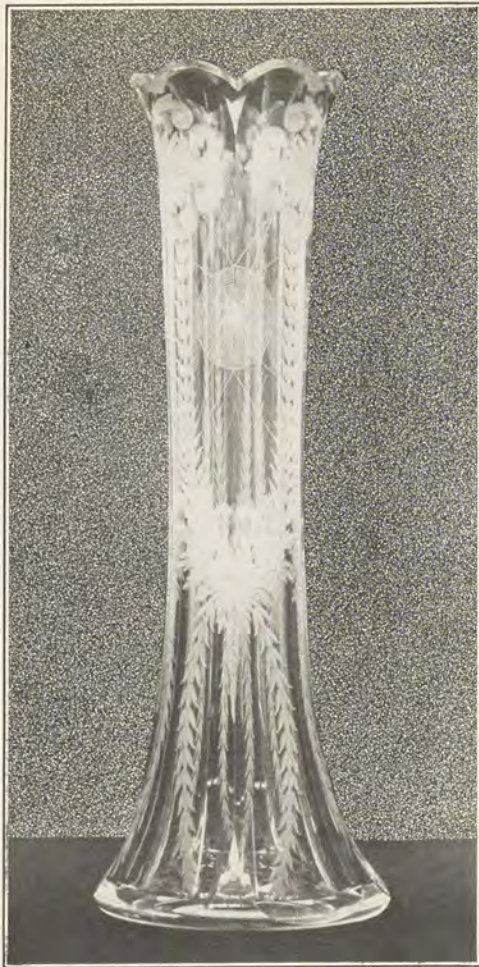
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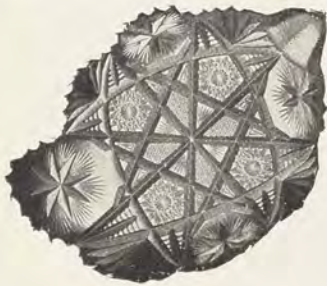
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The Lewis and Clark Exposition

On the first day of June will be formally opened in Portland, Oregon, an exposition which, as a monument to human achievement, is probably the most remarkable ever held. The Lewis and Clark Exposition will show what has been done in developing the resources of the far Northwest in the past hundred years, or rather what has been done in the past fifty years, for a half century had elapsed before even 14,000 people settled in Oregon.

In making the exposition Oregon, California, Washington, Montana, Idaho and Wyoming joined hands, and all made liberal appropriations. The city of Portland with commendable enterprise has given about \$450,000, and the national government has also loaned substantial aid. Many other States have made liberal provision for representation, the sum total represented aggregating upward of \$5,000,000. The display will, consequently, be of surprising magnitude. Surrounding the grounds are the foothills of the Cascade Range; hills high enough to be called mountains in a flat country, and these are covered with a heavy growth of fir trees and underbrush, so that they retain, to-day, the primeval appearance they possessed when Lewis and Clark first saw them. Beyond the foothills the lofty peaks of the Cascades bound the horizon like hoary-headed sentries.

The exposition site, comprising 430 acres, is a triangular tract bounded by the Willamette River, the foothills and one of the principal residential districts of Portland, and includes what is known as Guild's Lake, covering 200 acres.

The land on which the principal exhibition palaces stand slopes upward from the lake shore, and the buildings are seen among the trees at the crest of the elevation. In the western part of the grounds a considerable tract, sloping down from the hill crest, has been left almost in its natural state, forming Centennial Park. Yet even here the workmen have been busy cutting out a tree that has hindered the growth of a more beautiful sister



Lake View Terrace and European Exhibits Building

tree, and culling an occasional dead or unsightly branch. The result of this work, now completed, is a stretch of woodland which has lost none of its natural loveliness and gained much that Nature had not supplied.

In several parts of the grounds, where embellishment by artificial means is fitting, the skill of the landscape-gardener is found reflected in the sunken gardens. The largest of these will be in Columbia Court, the central plaza of the exposition. The gardens are located between two wide avenues, and here will be little plats containing tropical flowering plants, separated by winding paths. With fountains of picturesque design freshening the air with cold, clear mountain water, and the gardens bordered by a balustrade ornamented with vines, urns of rare plants and bay trees, the effect will be fascinating. To complete the picture, in the center of the court will be placed an heroic statue of Sacajawea, the heroine who twice saved the Lewis and Clark Expedition from destruction, and guided the travelers through the wilderness.

Guild's Lake, the natural grand basin of the exposition, is a fresh body of water of rare beauty. It is spanned by the Bridge of Nations, an elaborate structure, upon the mainland end of which is located the amusement section, called "The Trail." An esplanade starting at the boat landing at the foot of the grand stairway extends out into the lake, then turns west and follows the lake shore to the live stock pavilions. This esplanade will be an admirable promenade from which the visitors can watch the night scenes on the lake.

When President Roosevelt took out the first spadeful of earth, thus beginning work on the exposition site, it was an earnest of how the nation is interested in this unique centennial, for the government display alone will comprise five buildings, the main one being an imposing edifice with two towers, each 260 feet high. In the towers will be placed a set of chimes, and it is now the plan of the electrical experts to have President Roosevelt press a button in Washington on the opening day and, by means of the electric current, ring the bells.

The main portion of the structure is flanked on either side by peristyles which connect with the Territorial Building on one side and the Irrigation



The Palace of Agriculture—Largest of the Buildings

Building on the other. A commodious structure to hold the government fisheries' display will be erected to the right of the main building, while a model life-saving station will be located on the shore of the lake.

Another feature of Uncle Sam's participation, which is certain to prove of interest to everybody, will be the Filipino display. The Filipinos will occupy villages on the government peninsula, the population representing several tribes.

Besides the government group, the principal structures planned are the Palace of Agriculture, Forestry Building, and buildings for displays which will be made by exhibitors from Europe as well as the Orient, for the interest which has been aroused over the event, in Asia and amid the islands of the Pacific, will make the latter exhibit very elaborate in character.

The Palace of Agriculture is the largest structure on the grounds, being 460 by 210 feet in size. It is made conspicuous by the great dome which rises from its center. The dome is covered with green, translucent fiber. Its ribs, and the finial which crowns it, are thickly studded with electric globes, which at night will shed a glow light visible from many points in the city.

In decided contrast is the Forestry Building, a gigantic log house, exemplifying in its composition the forest wealth of Oregon and Washington. Besides being a timber exhibit in itself it will contain their native woods, as well as the finished products of the forest. The logs in its walls would measure two miles in length, laid end to end. The interior of the building, as well as the exterior, will be an exhibit of the forest wealth of the Northwest. Here a colonnade of fifty-two columns of fir and cedar trees, each forty feet high, supports the roof. Rustic stairways and inside balconies run around the entire building. In the construction of the Forestry Building the logs were fastened together with big wooden pins, no nails whatever being used.

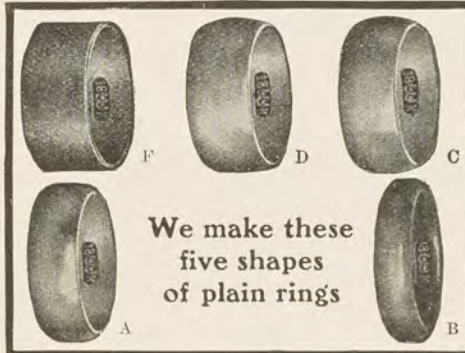
The European Exhibits Building, which is in the style of the Spanish renaissance, possesses many graceful features. Each corner of the structure is set off by towers, having open arches on the sides guarded by ornamental balustrades. The main entrance is through a huge semicircular arch, the face of which is richly adorned with flowers, vases and allegorical figures woven into a scroll of bas-relief. In the center is a roof garden, the sides of the tower forming a surrounding loggia. All exhibits from European countries will be installed in this structure.

The Oriental Exhibits Building stands between the Forestry and the European Exhibits Building.



Forestry Building—A Gigantic Log House

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In 14K., 10K., Sterling,
Gilt and Gold Filled

Also, all kinds of

**PLAIN, REAL and IMITATION
Tortoise Shell Combs**

Selection Packages sent
to Responsible Jewelers

Wagner Manufacturing Co.

41 Union Square, New York

Repair Work a Specialty

Factory, Lorimer St. and Throop Ave.
Brooklyn, N. Y.



New York Letter

Of Interest to Importers

Is an importer justified in withholding payment of duties pending the adjudication by the courts of a protest against the imposition of such duties? This is the question which the government will contest in the United States Circuit Court of Appeals, second circuit, on a writ of error. Tiffany & Co., the firm concerned, imported at New York and entered for consumption, goods which were assessed for duty at the rate of 10 per cent. ad valorem, the entry was liquidated and the duty accordingly paid. Before one year had elapsed there was a reclassification, a reassessment at the rate of 60 per cent. ad valorem and a reliquidation on that basis. The importers filed a protest against this, did not pay the extra duty and for the recovery of the latter the government instituted proceedings. The importers, in their answer, submitted that the duties had been illegally assessed and at a trial in the United States Circuit Court presented evidence in proof thereof. To this evidence the government objected, denying the importers' right to dissent from the official assessment, and to support this argument they quoted section fourteen of the customs act of June 10, 1890, which provides that the collector's decision "shall be final and conclusive" should there be no protest or proceedings before the board of general appraisers. When motion made by the government on this point was duly argued before the court, the decision of the Supreme Court in the case of the United States vs. Goldenberg, was cited by the importers in support of their contention. Judge Coxe, in overruling the motion said: "My impression is now that, under the peculiar reading of this section of the law as interpreted by the Supreme Court, the only remedy the importer now has is to do just what these parties have done, and that if they should pay the duties at this time or at any time there would be at least an exceedingly awkward question for them to meet before the board of general appraisers." The jury brought in a verdict in favor of the importers, and it was afterwards announced that the case would be appealed.

Vice-President and Mrs. Fairbanks recently selected the inkstand which will adorn the Vice-President's desk, and which, according to established custom, will become the property of Mr. Fairbanks when he retires from office. Of late years the Vice-Presidential inkstands have increased in elaborateness, and incidentally in price, as the designers have vied with each other in producing stands that will make beautiful and lasting souvenirs. A dozen jewelers submitted designs for Mr. Fairbank's inkstand, and he and Mrs. Fairbanks had a choice collection from which to make a selection when they appeared at the office of the secretary of the Senate, where the beautiful wares were set forth for inspection. A creation of silver, gold and cut glass, made by Tiffany, caught their fancy, and it will be on the

Vice-President's desk when he raps the Senate to order next October. The cover is a clever imitation of the dome of the capitol. The limit of cost of the souvenir is \$500.

Another Record in Precious Stone Imports

The importations of pearls and precious stones at this port during the month of April were greater than those for any similar period on record, thus adding one more to the long series of record-breaking months regularly reported in these columns within the past year. It would appear that the present import rate can no longer be regarded as abnormal and that nothing but a severe spell of business depression can cause a falling off. Judging by existing conditions, it seems safe to assume that this latter is an extremely remote contingency. The actual total value of the April, 1905, imports was \$2,429,338.19, which was made up of cut stones valued at \$1,511,945.78, and uncut at \$917,392.41. The total increase over the gross imports for 1904 was represented by \$969,862.19, or an increase of \$703,522.44 in the value of cut, and of \$266,339.75 in the value of uncut stones. But April, 1904, can scarcely be regarded as a reliable basis for comparison owing to the strike of the Antwerp diamond polishers at that time. April, 1905, however, exceeds the highest previous April, that of 1901, by \$131,301.34, this increase being solely in uncut stones. According to the data prepared by Gen. George W. Mindil, precious-stone examiner at the New York Public Stores, the classified imports for the past four years were as follows:

April.	Cut.	Uncut.	Total.
1905	\$1,511,945.78	\$917,392.41	\$2,429,338.19
1904	808,423.34	651,052.66	1,459,476.00
1903	1,449,853.76	508,364.55	1,958,218.31
1902	1,118,866.82	422,481.79	1,541,348.61

A Notable Clock A clock now on exhibition in the lobby of the Grand Opera House, New York, is nearly twenty feet high, with a base eight feet wide, and in appearance is not unlike the belfry tower of a church. Thirteen dials form a circle around the clock face, these thirteen dials giving the time in thirteen cities in different parts of the world. The face proper is a blue field, in front of which are images of the sun, earth, moon, the planets and fixed stars—all in regular order. Below hangs the pendulum, which is a representation of the coat of arms of the United States. In carved balconies around the top are images representing the different ages of man. The clock is surmounted by a cupola in which sits an image of George Washington. Once every hour there is a procession of the Presidents before him. This cupola is topped by a statue of Liberty. The clock is the work of an ingenious German, who spent a large part of his life in making it.

Robber Brandished Razor

A negro entered the jewelry store of Joseph Rider, opposite the old town hall, in Gravesend, on the evening of May 3d, and said he wanted to look at some watches and some rings. The jeweler's sixteen-year-old daughter was in the store and before showing the negro anything she called her mother. Then a tray of rings

and a tray of watches were brought out for his inspection. The negro took a handful from each tray and stuffed them in his pockets. Then he drew a razor and threatened to kill both women if they made an outcry. He got away before they recovered their nerve to give the alarm. The Coney Island police were telephoned to and Capt. Dooley sent his reserves to Gravesend in a trolley car. They hunted for the negro, but didn't find him. The goods are said to be worth \$500.

On Monday, May 1st, Mermod, Jaccard & King Co., opened their beautiful diamond, jewelry and art sales rooms at 400 Fifth Avenue. This establishment is exclusive both in its appointments and in the choice and exclusive stocks which it contains. Of these latter the company, in its handsomely engraved opening announcement, states: "We particularly wish to impress upon you that since the origin of our establishment in the year 1829, we have been supplying many thousands of families with these wares, and we are offering to you the benefit of our wide experience." The company does an import, repair and manufacturing business. With the beauty of its equipment and the variety of its wares, it makes an interesting addition to the jewelry trade of the city.

Joseph B. Witman, manager of the firm of M. Strauss, 409 Fulton Street, Brooklyn, was recently tendered a complimentary dinner at the Brooklyn Elks' Club by a number of his friends. There were sixty-five participants in all, and Philip Brennan presided as toastmaster. A number of appropriate speeches were made, in all of which Mr. Witman's many estimable qualities were praised. Wm. J. Buttling, former sheriff, presented to Mr. Witman, on behalf of the guests, a sterling silver loving-cup as a mark of appreciation and regard. The recipient made a graceful acknowledgment. The cup stands thirty-one inches high and bears an appropriate and artistically engraved inscription. Each diner received an engraved jewel case as a souvenir of the function.

The death of John W. Tooker, who had been associated with the retail jewelry firm of J. H. Johnston & Son, 14 John Street, for twenty-eight years, occurred some weeks ago at his home in Richmond Hill, L. I. Mr. Tooker's death was due to Bright's disease, from which he had been suffering for three years. He was one year short of seventy, and was a native of New York. At the age of fifteen he went to learn the jewelry trade with Clark & Hall, then located at Ann and Nassau Streets, and continued with this firm twenty years. It was in 1877 that he first became associated with J. H. Johnston & Son, then known as the firm of J. H. Johnston, and the connection then established terminated only at Mr. Tooker's death. Deceased was noted for his skill in jewelry repairing. For twenty-seven years prior to his demise he was a member of the Jewelers' League. He was twice married, and two sons, of the first union, and one daughter, of the second, survive him.

The Jewelers' League, of New York, has moved its offices from 169 Broadway to the Anderson Building, 12 John Street.

YOU CANNOT AFFORD TO MAKE MISTAKES

CHART FOR THE GRADING OF DIAMONDS

- A. Blue white and perfect
- B. Blue white and very slightly imperfect, commercially perfect
- B1. Blue white and slightly imperfect
- BX. Blue white and imperfect
- C. Extra white and perfect
- D. Extra white and very slightly imperfect, commercially perfect
- E. Extra white and slightly imperfect
- EX. Extra white and imperfect
- 1. White and perfect
- 2. White and very slightly imperfect, commercially perfect
- 3. White and slightly imperfect
- 3X. White and imperfect
- 4. Commercial white and perfect
- 5. Commercial white and very slightly imperfect, commercially perfect
- 6. Commercial white and slightly imperfect
- 6X. Commercial white and imperfect
- 7. Good color and perfect
- 8. Good color and very slightly imperfect, commercially perfect
- 9. Good color and slightly imperfect
- 9X. Good color and imperfect

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any more than we can. You cannot afford to risk selling any customer a diamond about which you are not sure.

We cannot afford to sell you any stone which we cannot guarantee to be as we represent it.

Our grading chart protects us all—you, your customer and us. We sell you diamonds graded by our copyrighted grading chart, and guarantee the grading in the chart to be that of the stone indicated.

We are a formidable factor in the diamond market, buying large quantities of diamonds for spot cash, at prices which only cash can secure.

We have a complete assortment, and can supply any jeweler's needs.

Let us send you a few stones to prove that we are right.

HENRY GINNEL & COMPANY

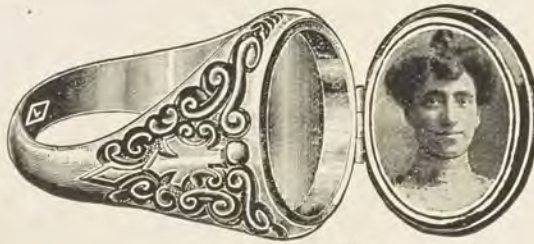
DIAMONDS and WATCHES

31 Maiden Lane, NEW YORK

Established 1835



Closed



Open



No. 1740



No. 1750

A. EISENBERG & CO.
126 Kearny St., San Francisco, Cal.
are my only representatives on
the Pacific Coast

Signet Carbon-Photo. Rings

(Patent Pending)

This invention solves the problem of indestructibility of miniatures in locket rings

SEND FOR MY CATALOGUE

CHARLES M. LEVY

Manufacturer of

FINE GOLD RINGS AND DIAMOND LOCKETS

90 William Street (near Maiden Lane)

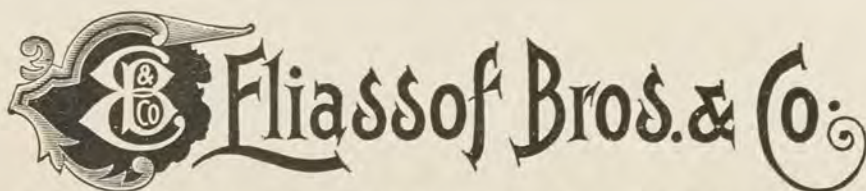
NEW YORK

The "MODEL" Fountain Pen



THE MODEL OF PERFECTION. Retail Price, \$1.00 to \$10.00. Made of finest grade rubber and fitted with a 14 K. Gold Pen. No extra charge for special imprint. Every pen guaranteed. Write for samples and prices. All makes repaired and returned same day received.

HERING & CO., 17-19 John Street, New York



A LARGE ASSORTMENT OF DIAMOND-MOUNTED JEWELRY CARRIED IN STOCK

IMPORTERS
AND
JOBBER OF

Diamonds Watches Jewelry

9-11-13 Maiden Lane
NEW YORK

100 State St.
ALBANY, N. Y.

New York Letter

(Continued from page 899)

New Clock for Trinity Steeple

The E. Howard Clock Co., 41 Maiden Lane, are installing a clock of the most modern construction in the steeple of Trinity Church, to replace the old timepiece which, for well nigh sixty years, has looked down upon the anxious, rushing throng in the Wall Street vicinity and tolled the passing hours. No expense has been spared in the construction of the new timepiece, and experts say that it will in all probability keep to its task for two centuries. The numerals of the clock face are to be regilded and the stone work renovated before the new mechanism starts. The tones of the new clock will be similar to those of the old one. Of late, the voice of the old clock had lost its wonted clearness and vibrancy and the mechanical motion had begun to falter. About one month ago the clock celebrated its fifty-ninth birthday, and on that day the chimes rang out clearly. But the recovery was only for the day. The clock became uncertain in the tale of the hours, the chimes more indistinct, and the old German attendant listening in the tower could hear the heartbeat growing fainter and fainter. At last the old clock faltered as it sounded the hour, chimed half way through and then, like the famous timepiece of the old song, "stopped, short, never to go again."

Alleged Count a Delinquent

The store of Lebolt & Co., 54 West Twenty-third Street, was visited late on the afternoon of May 11th, by a foreign-looking personage whose card, with which he presented Louis Chanand of the store, was inscribed: "Le Comte Raggi, Conte Carlo." He desired, he said, to purchase diamonds for a rich American lady whom he was to marry, and in particular he wanted a brooch. He was taken to the diamond department, where Julius M. Strass, after the door had been locked from the outside, displayed a selection of such goods as the stranger desired. The latter picked out five clear blue unset stones of 1½ carats, and a two carat stone for a centerpiece. The price, it was agreed, would be \$2000. It was suggested that the visitor pay a deposit, and this he readily agreed. He made vague references to his French estates and to his \$39,000 francs on deposit at the Waldorf-Astoria. He asked Mr. Strass and Mr. Chanand to go with him to his hotel, that he may arrange for the deposit. They went to get their hats, inadvertently slamming the cage door on the customer. The caged noble called on a boy outside to let him out. The boy did so. When the salesman returned they discovered that a bowknot brooch, worth it is said \$1500 had disappeared with their late visitor. They went in pursuit, and seeing him vanishing up Twenty-sixth Street, called to a policeman to stop him. The count tried hard to beat off the officer, and it was not until belabored with the official "billy" and firmly handcuffed, that he ceased to resist. The brooch was recovered and the prisoner held for trial.

Appropriated 110 Pound Hall Clock

A young man carrying a light overcoat on his arm went to the ladies' entrance of the Fifth Avenue Hotel on May 5th, and seated himself in the rear of the hallway. He soon afterwards shifted to a chair under the mantelpiece on which stood a Tiffany clock. Interrogated by a doorman, he replied: "I'm to meet two guests of the hotel here." The porter went to

call a cab for a couple, and when he returned, both the clock and the visitor had disappeared. The porter and a house detective followed, and at Seventh Avenue and Twenty-fifth Street, they saw a crowd surrounding a policeman and the visitor who had vanished simultaneously with the clock. The policeman explained that he became suspicious as to what the fellow had concealed in his overcoat, and when the clock, which was going, was revealed, he arrested him on suspicion. The prisoner was taken to the police station, where he gave his name and occupation as George Rogers, salesman.

Jewelers' Security Alliance

The regular monthly meeting of the executive committee of the Jewelers' Security Alliance was held on Friday, May 12th, the following members being present: Chairman Butts, President Sloan, Vice-Presidents Wood and Champenois, Treasurer Karsch, Secretary Noyes, and Messrs. Abbott, Alford, Bowden, Brown. The following new members were accepted:

Allsopp & Buob, Newark, N.J.
S. Burnstine, Washington, D. C.
M. L. Kile, Creighton, Nebr.
W. H. H. Needy, Hagers-town, Md.
Shaw & Brown Co., Washington, D. C.
Woolf Zacharia, Des Moines, Iowa.
Carter-Allen Jewelry Co., Shreveport, La.
Geo. H. Church, Oak Grove, Mo.
W. M. Lockard, O'Neill, Nebr.
Pinsler Bros., New York City.
Chas. W. Rompel, Louisville, Ky.
B. F. Sheibley, Lewistown, Pa.
H. M. Stevenson, Escanaba, Mich.
Horace N. Tuttle, Philadelphia, Pa.
Thos. J. Apryle, Johnstown, Pa.
Geo. M. Bitner, Altoona, Pa.
A. Y. Boswell, Tulsa, Ind. Ter.
Chas. Fehrenbach, Allegheny, Pa.
Santa Fe Watch Co., Topeka, Kans.
W. J. Shiffler, Irwin, Pa.
H. P. Sutton, McCook, Nebr.
Geo. A. Werner, Bangor, Pa.
W. B. Wilcox, Utica, N. Y.
I. Castagnetta & Son, New York City.

L. P. Currenee, Clarksburg, W. Va.
Fred. W. Laban, Steubenville, Ohio.
C. W. Morgan, Pittsburg, Pa.
J. & H. Ostendorf, Vincennes, Ind.
M. R. Shingler, Wellsville, Ohio.
Wessels Bros., Aiken, S. C.
H. Thompson Whaler, Miami, Fla.
Silas A. Burgoyne, Mobile, Ala.
Beck Bros., New Orleans, La.
F. A. Brunet, New Orleans, La.
Frank L. Burns, Hamilton, Mont.
C. E. Cansy, Richfield Springs, N. Y.
A. W. Carlson, Lake Charles, La.
Geo. H. Gutteridge, Mayward, Mass.
Wm. A. Inskeep, Jr., Columbus, Ohio.
J. Petzelberger, Mount Vernon, Wash.
Lucien Rault, New Orleans, La.
B. H. Sanborn, Middleport, Ohio.
John Vanderpool, Xenia, Ohio.
W. H. Wheeler & Son, Springfield, Vt.
Fahler & Landes, Allentown, Pa.

Street Clocks as Advertisements

The chief idea of the advertising man is to put something before the passerby which he will look at, preferably of his own accord, says *The Sun*. The head of a big jewelry store undoubtedly had that fact in mind when he put up twenty big clocks in various parts of town and hired a man to keep them wound and as nearly accurate as possible. The only advertisement on the clocks is the name of the jewelry firm which put them up. There isn't much doubt that thousands glance at each of the timepieces each day, and shrewd advertising men say that they have already paid for themselves as a publicity proposition. The clocks are also a convenience to the public, which can be said of mighty few advertising dodges that are being practiced on New Yorkers.

Mrs. Dulles Gets Her Pearls

The string of pearls valued at \$26,000, seized from Mrs. L. Harrison Dulles, of Philadelphia, on July 22, 1902, was handed over to her on May 12th by the customs authorities of this city. In the trial which followed the seizure, Mrs. Dulles contended that she had included the necklace in her declaration of wearing apparel, and was waiting for her husband on the pier to decide on the amount of declaration when the article was seized. Last June Judge

Holt directed a verdict in favor of Mrs. Dulles. It was said at the Custom House that the necklace would be sent abroad again.

Louis Freund, of Henry Freund & Bro., sailed on May 16th on a two-months' trip to Europe. He will spend considerable time in the diamond markets purchasing stones for the holiday season. He will then make a trip to the Black Forest and other interesting places in Germany. Mr. Freund is accompanied by his friend, Leopold Winterhalter, of the firm of Towle & Winterhalter, Butte, Mont., and they will spend much of their time abroad together. It has been ten years since Mr. Freund has been abroad, his brother Henry meanwhile making the annual trips in the interest of the firm. They will exchange places this year.

E. Roth, manager and secretary of the Western Clock Co., spent a few days in this city last month looking over the improvements and the extensions that have been made in his company's New York offices recently. He expressed himself as very much pleased with these, and also with the growth of the company's business in the Eastern territory. For the past year, under the able management of Messrs. Osborne & Leroy, the company's business in this territory has been increasing at rapid strides.

Monroe B. Bryant, the respected and venerable head of the well-known firm of M. B. Bryant & Co., manufacturers of gold rings, 7 Maiden Lane, was the recipient of numerous congratulations upon the recent celebration of his eighty-first birthday and the completion of his fifty-sixth year in ringmaking. The excellent physical health which Mr. Bryant enjoys at this stage of his career affords striking testimony of how a well-regulated and uniformly-active life conduce to longevity and serene and unimpaired mentality even in old age. Mr. Bryant continues to be a daily attendant at his office, still takes a deep interest—mingled, not unnaturally, with pride—in the affairs of the firm. He cherishes the distinction of being one of the founders of the Republican party, and has ever been a firm adherent of Republican principles. When a resident of Staten Island, during his early manhood, he was secretary of the Richmond County Republican Committee, and figured in some of the bitterest party struggles of those days. His affiliation with the Republican Club, of the city of New York, began when the organization was yet in its infancy, and at various times he has served on its committees. For three decades of years he has been a resident of Manhattan.

Roy R. Spencer, of Roy R. Spencer & Co., Opera House Block, Newark, N. J., and Mrs. Spencer, are mourning the death of their infant son, Orville Albert, which occurred recently, at the age of ten days. The funeral services were held from their home, 2 Elm Street, Rev. Arthur Copeland, D.D., officiating, and interment was at Willow Avenue Cemetery.

The business of Charles S. Platt, gold and silver refiner, 31 Gold Street, has been incorporated under the name of Charles S. Platt & Co., with a capital stock of \$100,000, and Messrs. C. S. Platt, M. V. Cruser and Robert Thompson, of New York, as directors. At a meeting of the directors, Mr. Platt was elected president, Mr. Cruser treasurer and Mr. Thompson secretary.

James Valentine Bergen, son of J. D. Bergen, of the J. D. Bergen Co., the well-known cut-glass manufacturers, of this city, was married, some weeks ago, to Miss E. Pain, of Meriden, Conn. THE KEYSTONE joins with the many friends of the young pair in tendering felicitations.

(Continued on page 903)

INCREASED DEMAND

must be as good an argument as any one can use, that an article has merit.

The Larter Shirt Stud has been on the market a number of years, and each year the sale increases.

This is especially true of the Larter Stud in 10 K. gold and 14 K. plate, which Progressive Jobbers are handling with success.

We have just issued a booklet showing in an attractive manner some of the salable patterns in these two lines.

A postal will bring one to you.

LARTER & SONS

21-23 Maiden Lane

New York

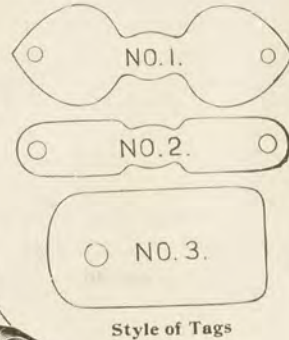


Registered Trade-Mark

"THE" Machine for Tagging Rings, etc.

Complete Outfit consists of { Our Eyelet Machine, 1000 Celluloid Tags, 1 Bottle Ink.

Price complete, \$5.00 net



Style of Tags



Hand Pliers are Useless for Tagging Rings

Pat. applied for

The HOLD-ON CLUTCH

Best Safest Simplest



YOU slide the Clutch on— IT does the rest

Pat. May 20, '02

A Splendid Seller Retailing at 50c.

Scarf Pin Insurance

Ask your Jobber or write to

Hold-On Clutch Co., 33 Gold St., NEW YORK

The Highest Achievement in Watch Construction

is represented in the

VACHERON & CONSTANTIN

GENEVA, SWITZERLAND



THE LEADER in { Quality Adjustment Durability Style

It Fits All Sizes of American Cases
New Grades—New Sizes—New Improvements
Special Grades for Railroad Men

EDMOND E. ROBERT, SOLE AGENT

3 Maiden Lane, New York

New York Letter

(Continued from page 901)

Reduced Railroad Rates

Reduced rates for the fall buying season will be made to New York City by the Trunk-Line Association, the announcement to that effect having been received by the Merchants' Association of New York. The special fares will be in effect on August 19th-23d, inclusive, and September 3d-7th, inclusive, under the regular certificate plan. The return limit on each ticket will be fifteen days. The territory of the Trunk-Line Association is best described as follows: From the New York-New England border west to Buffalo and Salamanca, N. Y., Erie and Pittsburg, Pa., Wheeling and Huntington, W. Va.; south to Charleston, W. Va., the Potomac River, and the line of the Chesapeake & Ohio Railway. Montreal, Toronto and Hamilton, Canada, are also in this territory. The rate is not effective from points less than one hundred miles from this city. The applications of the Merchants' Association to the Central Passenger Association and the Southwestern Excursion Bureau are now pending, with the probability that favorable action by the former will be bulletined within a few days. The dates requested from the last-named territories are earlier than those on which rates will be operative from the near-by section.

New Rule for Diamond Buyers

Diamond importers who buy rough stones from the De Beers selling syndicate in London, have received notices in the last few days of the new terms of sale, which are likely to lead to higher prices at retail. After this the importer must take stones in whatever assortment they may be offered. Hitherto the importer had discretion in accepting or refusing stones above fifteen carats. Importers say that their profit is in the smaller sizes, by which they mean stones weighing from one to ten carats, and there is difficulty in getting back the outlay on those that are larger. This is explained in part by the fact that the syndicate's prices per carat on a heavy stone are much higher than on a smaller gem. Nobody apprehends that any one of the nine firms in the United States that buy direct from the London syndicate will display any opposition to the new condition. The penalty of refusal to accept a shipment would be the displacement of the importer from the syndicate's list of buyers in favor of another merchant, and many are awaiting such an opportunity.

A Mysterious Gem Robbery

The disappearance on or about May 4th, of three diamonds valued at between \$30,000 and \$35,000 from one of the departments of Tiffany & Co., Union Square, created a sensation in the trade. Up to the time of this writing the mystery of their removal remains unsolved. The detective forces of the United States and Europe have been set to work on the case and in London a reward of £1000 has been offered for the recovery of the gems. At the close of work on May 4th, in accordance with the usual custom, the setter who had been working upon these gems is said to have handed in at the grille for deposit the package containing them. Next morning they were missed by the man in charge of the deposits and the loss was then reported. The members of the firm have maintained a strict silence in the matter to all except the authorities, thus multiplying the opportunities for independent rumors. It is said that the gems were

taken from the fifth floor of the company's building, where fifty trusted men are employed. Those of the employees known to have handled the goods have the implicit confidence of the firm, which shifts suspicion from them; moreover, it is thought that the difficulty of disposing of such goods would be sufficient to deter any of them from such a theft. Among undenied or unconfirmed reports published in the newspapers was that preparatory to the removal of the firm to its new store a number of tradesmen and workmen from without were employed, some of whom had access to the floor from which the gems disappeared.

Gratifying to Importers

Importers of materials for the manufacture of optical instruments will be gratified to learn that unwrought glass plates for optical instruments, with edges ground and polished, regardless of dimensions, are entitled to entry free of duty under par. 565 of the tariff act of 1897. This, in substance, was the decision made by the Board of United States General Appraisers in sustaining the protest of Bruckmann & Lorbacher against the assessment of duty at the rate of 45 per cent. ad valorem by the collector of customs at New York, on an importation of these goods. The decision as rendered by General Appraiser Sharretts is as follows:

The merchandise covered by these protests consists of unwrought glass plates or disks, rectangular in form, severally less than eight inches in dimensions and suitable only for use in the manufacture of optical instruments. The opposite edges of each of said plates having been ground and polished to afford the passage of light in order to detect air bubbles or other imperfections in the glass, the collector followed the principles enunciated in G. A. 5252 (T. D. 24,150) and assessed duty on the merchandise at 45 per cent. ad valorem under par. 112. The importers claim free entry under par. 565 of the tariff act of 1897. The board in abstract 2728 (T. D. 25,538), on the authority of G. A. 5252 (*supra*), overruled a protest involving the same issue as that presented in the present case. Upon review, however, the circuit court for the southern district of New York, in the case of Hensel vs. United States (T. D. 26,193), reversed the board, and the treasury department having acquiesced (T. D. 26,255), we sustain the protests now before us and reverse the collector's decision in each case.

Pawnbrokers Hold Annual Dinner

The Pawnbrokers' Association of the city of New York held its eighth annual dinner on Tuesday evening, May 2d, at the Savoy Hotel. It was quite an interesting reunion of an important body of business men. The feast was presided over by President B. Fox. Henry W. McAleenan, a 77-year-old veteran of the trade, responded to the toast of "The Dean of the Profession," and received a very enthusiastic ovation. Among the notable speakers were Gen. James R. O'Beirne and Abraham Levy. Both of these speakers referred to the convenience which a legitimate pawnbroking business oftentimes provides, and they earnestly urged upon all followers of that business the need of ever maintaining a high standard of commercial morality. A feature of the wine service was the arrangement in each cocktail glass of three cherries, very obviously symbolic of the trade to which the diners belonged.

Fifty Years With Tiffany & Co.

William H. Jenks, recently marked the fiftieth anniversary of his connection with the silverware department of Tiffany & Co. The board of trustees of the firm availed of the interesting event to make him the recipient of a beautiful silver vase of artistic design, specially made at the works of Tiffany & Co. His immediate associates in the store manifested their esteem

by presenting him with a handsome drawing-room clock bearing a suitable inscription. Both of these unique tokens of regard were accompanied by letters of felicitation. Mr. Jenks first became connected with Tiffany & Co. immediately after the removal of the firm from 271 Broadway to 550 Broadway, near Prince Street, which latter location was then considered very far up town. By an interesting coincidence he completed half a century with the firm just as it is about to remove from its present location in Union Square to palatial premises at Fifth Avenue and Thirty-seventh Street. Notwithstanding his long period of activity, Mr. Jenks is still in the enjoyment of unusually vigorous health.

R., L. & M. Friedlander, 30 Maiden Lane, have issued the Monarch Catalogue No. 60, for 1905. This catalogue measures 12 x 9½ inches, approximately, is printed on enameled paper in black ink and bound in a cover of dark green. It deals with watch cases, velvet boxes, lockets, chains, novelties, fobs, bracelets, etc., all of which are abundantly illustrated, consecutively numbered and concisely described. There is a page of general information regarding discounts, ordering and delivery, and reference is facilitated by a careful index.

The members, purpose and work of the Merchants' Association of New York City have been set forth in a book of eighty pages, copies of which can be had of the secretary, New York Life Building, New York.

John A. Abel, of Abel Bros. & Co., 64-66 John Street, returned from Europe on Wednesday, May 3d, after visiting the diamond and precious-stone markets of London, Paris, Amsterdam, etc. He also visited the chief manufacturing centers of Europe. He began calling on the home trade on Monday, May 8th, with a line of diamond mountings, diamond jewelry, loose diamonds and precious stones.

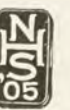
Henry Fein & Co. is the name of a new firm of wholesale material dealers who have recently started in business at 49 Maiden Lane, this city. Mr. Fein and his partner, L. Bruggemann, are old employees of L. H. Keller & Co. Mr. Fein has been connected with the firm for the past eleven years, most of which time he has traveled in the Southern, New England, Middle and Eastern States, and has a wide acquaintance among the trade in this territory. He will continue to travel in the interests of his own firm hereafter, while Mr. Bruggemann will look after inside work and filling of orders. Mr. Bruggemann's experience of seventeen years with Keller & Co. has given him a thorough knowledge of the material business. Both men have a wide acquaintance among the trade and have every prospect of making a success.

Korones Bros. have opened a new store at 32 Maiden Lane in addition to their quarters at 38 Chrystie Street. The new store occupies the entire ground floor of the building at the address named, and the firm's immense stock will comprise everything in goods, material and equipment required by watchmakers and jewelers. This extension of the firm's facilities was necessitated by a proportionate increase in their business. They cordially invite the trade to call upon them when visiting the city, inspect their comprehensive lines and accept the courtesies which the house will gladly extend.

M. E. Stern, the John Street optical jobber, is taking a short vacation and rest cure at Atlantic City. Mr. Stern had not entirely recovered from his recent severe illness and his physician recommended a sojourn at the sea shore to help restore his strength. He is accompanied by Mrs. Stern.



YOU
 CAN SECURE THAT
 CLASS PIN ORDER
 BY SHOWING
 OUR DESIGNS AND SAMPLES.
 WE ARE HEADQUARTERS.
 WRITE TO EITHER FACTORY.
 WENDELL & COMPANY,
 103-105 WILLIAM ST.
 NEW YORK.
 57 WASHINGTON ST.
 CHICAGO.





WESTERN BUREAU OF THE KEYSTONE
ROOM 1201 HEYWORTH BUILDING

CHICAGO, May 25, 1905

Business Conditions and Prospects

Business continues fair in Chicago and her territory in the lines represented by this journal. It is even better in the West and Southwest than in the Northwest. Generally speaking, as the spring season passes the record for the current year's business is climbing and really shows some improvement over last year. Conditions in general are excellent. About the only thing the Western country can worry about now is the too-abundant moisture. In many sections, on account of the excessive rains, planting is late. Winter wheat is six points above the ten-year average. Complaints of high water come from some sections, while loss of life and destruction of property by cyclones is reported from others. Here in Chicago business people have been fighting for the privilege of using the streets of the city. Happily, though, the strike situation is brightening up, and it looks to-day as if the strike will end within another twenty-four hours. Strike conditions undoubtedly have affected the general retail business here in Chicago, and the jewelers and opticians, along with all classes of retail dealers, have felt the effect. The daily press, however, have painted things a great deal worse than they really are. When the strike ends retail conditions will improve rapidly.

Chicago Trade Extension

More evidence is accumulating right along that the Chicago Commercial Association is an organization of ceaseless vigilance and strenuous exertion. Since its organization there have been many achievements to its credit. A late addition to this score was made in the tour of its representatives through the Northwestern States to the Northwest Pacific Coast during the latter half of April and the early part of May, and still another was added May 6th in the very successful luncheon given to Governor Cummins, of Iowa; Senator Harris, of Kansas, and the foreign consular corps of Chicago. The former of these achievements was for the extension of friendly and business relations between Chicago and the great Northwest. The result of the excursion even surpassed expectation, both in the cordial treatment received at every city visited and in the promise of increased trade with the distant territory. The luncheon mentioned above was the occasion of the announcement of the Chicago Commercial Association's favorable attitude towards reciprocity. Judging from the utterances of

the speakers, and the enthusiasm with which these utterances were received, the Commercial Association will be not only favorable to reciprocity but aggressively so. Both the excursion and the reciprocity luncheon are movements for trade extension, one more strictly for the city of Chicago and the other for the entire country, or particularly for the great agricultural West, which already feels the need of free access to the markets of the world. They show that the Chicago Commercial Association's trade extension policy is being developed in a manner both intelligent and broad.

Good Crop Prospects

Reports from all parts of the West, Northwest and Southwest, show a most promising outlook for general business during the summer months. Almost without exception these reports are of an optimistic nature, and tell of excellent crop conditions and bright prospects for trade. In these days of general prosperity and remarkable business expansion, it will be especially encouraging to the business public to have good crops of the chief products of the soil. For this reason it is encouraging to know that a large crop of wheat is promised for 1905.

On the basis of the government report on acreage and condition, the winter wheat crop of 1905 will amount to 460,000,000 bushels. This is far larger than any crop gathered up to this time. The winter wheat yield of 1904 was 332,000,000 bushels, and that of 1903 was 399,000,000. The largest winter wheat crop ever harvested to the present day was in 1902, which was 411,000,000 bushels, or 49,000,000 under that promised for this year. From the present outlook, the aggregate wheat yield of 1905 will break all records. The condition of spring wheat, despite the backward weather for the past fortnight throughout much of the producing states, is fully up to the average of recent years. The aggregate wheat harvest for the past few years was 748,000,000 bushels in 1901; 670,000,000 in 1902; 637,000,000 in 1903 and 552,000,000 in 1904. The winter wheat outlook is so much better this year than ever before there is a chance that 1901's harvest, which was the highest record, will be beaten in the present season. All the indications promise a new "highest" for 1905 in the wheat round-up. But wheat is not the country's greatest grain crop. Corn is the imperial product of the American farm. For the past few years corn has aggregated twice as high as wheat in aggregate value. As estimated by the department of agriculture, the value of the country's corn crop on the farm of December 1, 1904, was a little over \$1,000,000,000, while that of wheat was

\$510,000,000. In most of the recent previous years, wheat was farther below corn in market value than it was in 1904. However, the favorable outlook for winter wheat, which far exceeds spring wheat in acreage and production, this is very pleasing to the western business man.

Visit Portland's Big Show this Summer

From what returning travelers tell us, and reports we have from people on the ground, we feel like advising everybody to take a trip to Portland this summer to visit the Lewis and Clark Exposition and get acquainted with a region which will have a powerful influence in the country's political and social affairs in coming time. The Lewis and Clark Centennial merited a celebration in some conspicuous way, and it has seemed to the people of the Pacific Northwest who were in charge of the plan of observance, that the exposition idea would be the best way of commemorating it. President Goode, of the exposition, takes pains to point out, "this exposition is intended primarily to acquaint the American people with the resources and potentialities of the vast extent of country constituting the Pacific West." Oregon, Washington, California, Nevada, Utah and Idaho are communities which have vast possibilities in the way of development. To a larger degree than the States of the Atlantic seaboard they will be benefited by the Asiatic trade, which is still in its preliminary stage. For this reason the Lewis and Clark Fair is bound to prove mighty interesting to everybody east of the Rocky Mountains. It is interesting to hear at this stage of the exposition from our young friend, John B. Warren, of the general office force of the Elgin National Watch Company, who is now on a missionary trip for the Elgin Company in the Pacific Northwest country, that he visited Portland and its fair the middle of May. He writes this office that "I visited the fair grounds and was most agreeably surprised with the grand scene presented and the outlook for Portland's big show. The natural features are beautiful, and the additions in the way of buildings and landscape gardening are splendid to look upon. The buildings are well grouped, the statuary is good, and to me the plan of the Lewis and Clark Exposition is a charming picture. The exhibits are being installed rapidly, and if the display is as good as the setting prepared for it—and I do not doubt that it will be—Portland's big \$5,000,000 exposition will merit all the patronage that can be given it and will amply repay a visit, to say nothing of such side attractions as trips to the many wonders of the Pacific Coast States and Alaska, with Hawaii and the Philippines in ready communication by water."

Personal

M. Goldsmith, of Goldsmith Bros., the refiners, returned to Chicago this week from a nine-months' stay in Southern California. His family accompanied him. Mr. Goldsmith is feeling fine and looking much better than when he left us. He tells us that his health is much better and that he now feels that he is a well man again. He also says that they enjoyed their stay in the land of flowers and sunshine greatly, and that Southern California deserves all that is said of it as a health resort.

C. C. Offerman, Chicago and Western representative of Wm. Smith & Co., is now on an extended Western trip, which includes the Pacific Slope.

Julius Ghislin, manager of the watch department at Benj. Allen & Co.'s, has been enjoying his annual vacation in the country the past fortnight.

(Continued on page 907)

From the Markets of the World

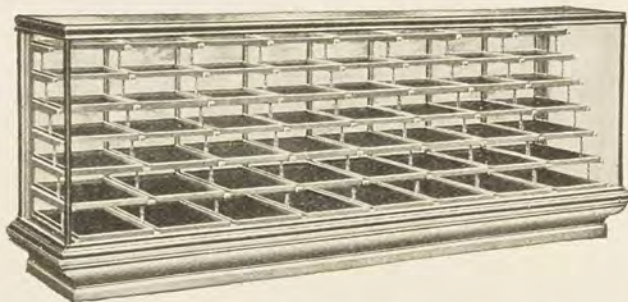
We have now at the service of the trade the most complete and comprehensive stocks which the markets of the world can afford. We have been especially successful this season in assembling ideal assortments in

Diamonds, Watches, Jewelry and Cut Glass

Our recognized leadership in diamonds applies equally to other lines, and all jewelers, whatever their requirements, know from past experience that they can rely on thorough satisfaction and the promptest service.

Mail orders will be filled as conscientiously, promptly and satisfactorily as if the senders visited us in person

Stein & Ellbogen Company, Diamond Cutters and Wholesale Jewelers
103 State Street, Chicago



We'll Confess at the Start

that the man who is looking for "plunder" won't like our prices.

☛ On the other hand we don't believe we'd care for his business.

☛ We know that there is an increasing number of merchants who buy fixtures, as they take a partner—for a lifetime.

☛ They are the people we're after, and for them we have a story out of the ordinary.

PHILLIPS'

Silent Salesman
TRADE MARK

Show Cases

are all that their name implies—have been that for more than forty years—only they're just as far in front now as in 1864, the date we started business.

GET OUR 1905 CATALOGUE OF CASES AND FIXTURES

JOHN PHILLIPS & CO., Ltd.

Established 1864

Branch, Windsor, Ont.

DETROIT, MICH.

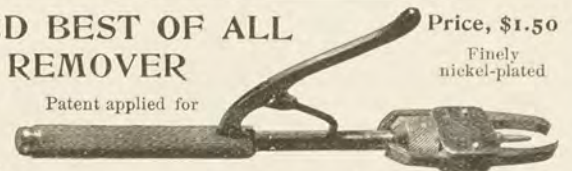
OUR IMPROVED BEST OF ALL ROLLER REMOVER

Price, \$1.50

Finely
nickel-plated

Our Never Equaled
Pivot Drill Chuck
and Drilling Device

Patent applied for



Once used, you would not be without it for five times its cost.

Description of Tool.—A is milled band to clutch in screwing down set nut B which holds Pivot Drill in position. C is back center taper which fits tail stock of lathe. D shows rest pin entering C, or tail-stock spindle. Place Pivot Drill in countersink in the staff to be drilled. Push up tail-stock spindle and set thumb-screw, and as the drill enters the staff the opening between C and D shows the depth you have drilled. This device also lessens the breakage. Price, 75 cents.

We also furnish best quality of Pivot from 4 to 30 thousandth for 30 cents per dozen. Order either from us or your jobber. In ordering, mention name and kind of lathe used. We also manufacture tools for watchmakers, jewelers and opticians. Write us for estimates.

Our New

Crown Enlarging Tool

This tool sells for \$1.00, and will enlarge inside of crowns from small swiss to 18 size. Nickel-plated.



DETROIT WATCH TOOL CO., 516 Michigan Ave., Detroit, Mich.

A Genuine

6 ft. high **Mission Hall Clock**
to Retail at \$11.00

The greatest clock offer of the year.

See our "ad." page 774, May KEYSTONE, or better yet,

Write for our "Special Wedding Month Offer."

American Cuckoo Clock Company, Inc.

Station S3, Philadelphia

Chicago Letter

(Continued from page 905)

Will. Manheimer, of Louis Manheimer & Bro., has just returned from a fortnight's trip through the Northwest and reports crop and business conditions good in that section, but that trade is somewhat quiet.

M. H. Cowan, formerly representing L. A. Eppenstein & Co., in the far Western territory, has gone with Sproehnle & Company and will cover the same territory for the last-named firm. Mr. Cowan is already out on his first trip for his new firm.

John R. Lilja, manager of the diamond department at Benj. Allen & Co.'s, sailed for Europe, May 16th, on the Cunard liner *Caronia*, to be absent six weeks. Mr. Lilja will visit the European diamond marts on his annual buying trip and will select the firm's fall stock of diamonds and precious stones before returning home.

Herbert Compton, formerly traveler but of late years buyer for the F. C. Happel Company, who resigned his position early in the present year to embark in truck farming in Texas, has abandoned his farm and accepted a position with the L. Bauman Jewelry Company, wholesale, St. Louis, as buyer. In the latter position Mr. Compton succeeds Harry Aller, also a former Chicago man. Mr. Aller is embarking in the wholesale business for himself in St. Louis, and will be the head of the new jewelry jobbing house of Aller, Newman & Wilmes.

Mark Holland, of the Chicago office of the Philadelphia Watch Case Company, was called to Missouri last week to attend the funeral of his father.

Wm. H. Cloudman, assistant superintendent of the Elgin National Watch Company's works at Elgin, returned last week from a short visit to New York and other Eastern points. While in New York he attended a reunion of the third corps of the Army of the Potomac, a prominent G. A. R. organization. While at the meeting, Mr. Cloudman was highly honored by being elected president of this organization for the coming year.

Miss Carrie Green, the well-known and able buyer for the jewelry department of the Seigel-Cooper Company, will sail early in June for a six-month's tour of Europe. Miss Green's trip will be one of travel and recreation entirely, and will afford her a much-needed rest, which she richly deserves.

Louis Manheimer, head of the house of Louis Manheimer & Bros., Mrs. Manheimer and Miss Manheimer, sailed for Europe, May 16th, on the Cunard liner *Caronia*, to be absent until September. The party expect to do the continent at easy stages and then see England, Scotland and Ireland before returning home. The trip is purely one of sight-seeing, travel and recreation.

Charles Chambers Inskeep, secretary of F. A. Hardy & Company (incorporated), returned recently from a trip to Kansas City, where he attended a joint convention of the Missouri Association of Opticians and the Kansas Association of Opticians in the interest of his firm's new optical instrument the "Stigmatometer." Mr. Inskeep tells us that the idea of a joint meeting was a happy one, and that he hopes the two State societies will find it convenient to meet in Kansas City in joint session again next year.

Louis E. Fay, Chicago and Western representative of the R. F. Simmons Company, the widely-known chainmakers, returned early in the month

from a fortnight's trip to the factory. Mr. Fay left for the West last week, his trip to include the Pacific Coast.

Ernest M. Lunt, Chicago manager for the Towle Manufacturing Company, is at his desk again after a three-weeks' trip to the factory.

George M. Stannard, for the past eighteen years with the Geneva Optical Company, this city, most of that time in charge of their buying, has resigned to take a position in the office of the Standard Optical Company, at Geneva, N. Y., where he will reside in the future.

A. W. Johanson, retail, at 270 Wells Street, and Mrs. Johanson, will leave for a European trip about June 1st. They expect to be absent about two months and will visit England, France, Germany and Sweden while abroad.

Charles E. Bunker, for several years past Chicago and Western representative of Whiting & Davis, is now with the F. E. Morse Company.

W. A. Fay, formerly traveling in Western territory from the Chicago office of the New England Watch Company, has resigned and is now with the John T. Mauran Manufacturing Company as their Chicago and Western representative. Mr. Fay left, the middle of the month, with his new line for an extended Western trip, going as far as the Pacific Coast.

Mr. and Mrs. Otto Young will open their summer house at Lake Geneva, June 1st. The family will remain at this splendid country seat until September. Mr. Young will make frequent trips to the city during the season.

Among the June weddings announced that will interest the trade is the marriage of Miss Ethel Hulburd, only daughter of President Charles H. Hulburd, of the Elgin National Watch Company, to Hugh McBirney Johnston, of this city. It will be an afternoon wedding, at 4.30 o'clock, in the New England Congregational Church, on the North Side, and will be followed by a reception at the Hulburd residence, 40 Lake Shore Drive.

Louis W. Bruns, Western traveler for the Juergens & Andersen Company, with headquarters at Denver, is spending this week at Chicago headquarters. Mr. Bruns reports the Rocky Mountain country as fairly prosperous with good prospects for a fine fall trade.

Colonel William B. Keeler, for the last thirty years secretary of the firm of Charles E. Graves & Company, retail jewelers, for many years located at Clark & Madison Streets, but recently removed to handsome new quarters in the corner room of the new Heyworth Building, at Wabash Avenue and Madison Street, was only recently chosen president of the Woodlawn Park Club, a popular social organization on the South Side in Chicago. Colonel Keeler was born in Ohio sixty-five years ago and is a Civil War veteran, serving as colonel under Sherman in the army of the Tennessee. He has lived in Chicago thirty-four years and in Woodlawn for the last twenty years. He is now commander of the Illinois commandery of the Loyal Legion of the United States and a prominent clubman of the South Side.

Hans Juergens, of the Juergens & Andersen Company, leaves June 15th for a trip to the Yellowstone Park, where he will meet his father, Paul Juergens, and his mother and sister, who are on their return from a six-months' trip to the Pacific Coast.

Herman Fues, credit man for the Juergens & Andersen Company, sails for Europe next week to be absent two months. Mr. Fues will spend most of his time while away visiting at the home of his parents in Switzerland.

A. N. Sperry, for the past twenty-six years with the Sercomb Company and its predecessors as manager or partner, severs his connection with the firm June 1st and will rest through the summer. Mr. Sperry is undecided just what he will engage in when he takes up business again in the fall, but he is a man that will not remain idle long. F. H. Putnam, for a number of years past in the office of the Sercomb Company, will succeed Mr. Sperry as manager of the company.

E. F. Hornikel, the well-known engraver, has gone to Kansas City, where he has accepted a position with the Jaccard Jewelry Corporation as manager of their engraving department.

R. A. Kettle, Chicago and Western manager for Robbins & Appleton, selling agents for the American Waltham Watch Company, left last week for a two-weeks' visit to the company's factory at Waltham.

J. H. Hardin, of F. A. Hardy & Company, is at his desk again after a ten-days' trip to the Eastern manufacturing centers.

Dr. Earl J. Brown, of the Geneva Optical Company, returned recently from a trip to Kansas City, where he delivered a course of lectures before the joint session of the Missouri and Kansas Optical Associations. Dr. Brown tells us that the meeting was the largest, most enthusiastic and enjoyable State meeting he ever attended, and that the Kansas City jobbers know how to do a good job as entertainers. He thinks the idea of a joint convention at a central point like Kansas City an excellent one, and hopes that the Kansas and Missouri Associations will again try a joint meeting next year.

Gossip Among the Trade

Borsch & Company, the well-known opticians, are now nicely located in their new store at the corner of Dearborn and Adams Streets, with an entrance at 215 Dearborn Street. Their new premises are much larger and more prominently located than their old quarters and more modern in every particular. Their shop has double its former space and has been fitted up with an entire new equipment. They have now one of the finest shops among the retail trade.

The optical department of Benj. Allen & Company, Silversmiths' Building, is sending out to the trade upon request a special catalogue of cameras and photographic supplies, which is a most seasonable line for jewelers just at this time of the year. If you have not already received this useful camera and photographic supplies catalogue, a postal-card request will bring it to you.

The E. H. H. Smith Silver Company, of Bridgeport, Conn., have established a Western salesroom at 131 Wabash Avenue, in charge of W. D. Smith.

Kelsey & Wienecke, retail opticians, formerly on the second floor of the Stewart Building, are now located on the third floor of the new Chicago Saving Bank Building.

Norris, Alister & Company already are hard at work on their new fall catalogue, in which they will introduce some new features. They intend to issue a larger and more complete book than ever.

The C. P. Goerz Optical Company have opened up a Chicago office on the fifth floor of the new Heyworth Building.

Sproehnle & Company are now nicely situated in their new quarters on the eleventh floor of the Heyworth Building. They are being congratulated on all sides by their friends on the cheerfulness and completeness of their new office and its handsome appearance.

(Continued on page 909)



The Sensation of the Year



is the new Chronograph Watch made by the New York Standard Watch Co.

It is the *one* article the Jeweler can now sell without much effort. Why?

Because—There has never been offered before anything like it. It is therefore a *decided* novelty and fills a need that has never been met before, i. e., of a good, reliable timepiece, with chronograph attachment, at a low price.

Some of its characteristics:

It is an American Watch.

It is remarkably simple and consequently durable.

Its parts are interchangeable and easily duplicated at little cost.

The remarkable thing about this new Chronograph is, that it compares favorably in point of accuracy with the most expensive imported watches.

Jewelers who haven't seen this great seller had better order samples at once from their jobbers. Can be had in Nickel, Silver and Gold Filled Cases, made by leading manufacturers.

VICTOR NIVOIS, 47-49 Maiden Lane, New York City

Chicago Letter

(Continued from page 907)

News from the Trade

Jeweler Ed. Hebert, of Briceyln, Minn., has recently bought a half interest in a drug store in that town. The firm reads Beadle & Herbert, dealers in drugs and jewelry.

Frank H. Mooney & Company, fountain pen manufacturers, have removed their factory to larger and more commodious quarters at Randolph and Desplains Streets, where they have three times the space they occupied in their old location. Their removal was made necessary by the rapidly increasing demand for their product. This firm still retains its business in the Silversmiths' Building.

News has reached the Chicago trade that Charles Hanson, of Mason City, Iowa, has traded his stock for land in Dakota and retired from the jewelry business. He will engage in the land business in the future.

H. S. Tower, the well-known jeweler, of Charles City, Iowa, is closing out his stock and will remove to Baker City, Oregon.

Among the recent graduates of the Northern Illinois College are the following full-fledged opticians: E. F. Eaton, of Urbana, Ill.; F. K. Sims, Emporia, Kans.; Harry D. Williams, Chicago; James T. Whitson, Uniontown, Pa.; W. F. Ballinger, Aurora, Ill.; W. W. Hendricks, Bardolph, Ill.; W. E. Sharpnack and Geo. E. Hervey, Akron, Ohio; R. G. Merrell, Cedar Falls, Iowa; E. T. Olson, Lake Park, Minn.; Clifton Rice, Portland, Ore., and R. W. Ramsdell, St. Joseph, Mo. The following students are studying optics at the college this month: Frederick G. Koester, Des Moines, Iowa; Mrs. D. Young, Chicago, and Mrs. Dr. Frank, California; W. K. Grady, Stillwater, Okla.; M. W. Rozzell, Mayfield, Ky.; N. Kimira, Japan; H. E. Scattergood, Sturgis, Mich.; Victor J. Miller, Ohio; John Lemp, Chicago; Leslie Hollbrook, of Kenosha, Wis., and John Prochaska, Toledo, Ohio. Max Goldberg, who recently completed his degree of bachelor of ophthalmology at this college, has fitted up optical parlors at Twelfth and Halstead Streets and is already doing a nice business.

Herman Testroet, Persia, Iowa, was burned out April 22d. The fire was a severe one, destroying all the business houses in the town but two. Mr. Testroet was fortunate enough to save most of his stock and fixtures.

J. C. Klatholt, the well-known jeweler, of Springfield, Ill., has for over twenty years done a fine trade with the lawmakers who gather at the capital city when the legislature is in session. But the legislative season only recently closed has treated Mr. Klatholt more kindly than any previous one, according to an item in the local press, which says that he sold close to \$5000 worth of goods for gifts made at the close of the Illinois General Assembly. "That the senators and members of the house of representatives of Illinois were remembered by their parting associates, is putting it in a mild way. Last Friday afternoon, toward the close of the senate session, Hon. Lawrence Y. Sherman was presented with a handsome solid silver loving cup. Hon. Orville Berry presented it with a deep expression of thought and word. Mr. Sherman responded, extending his thanks in an able manner. Hon. Corbus P. Gardner was presented with a fine Patek-Phillipe watch. Hand-some tea services were given to Hon. Leon A. Townsend, president pro tem. of the senate, and to Hon. Charles E. Hull. A large candelabra set, with a silver plate attached, bearing the inscription, 'Presented to Hon. Orville Berry, by the members of the Forty-fourth General Assembly Illinois,' was given him. On Saturday evening, at the last session of the house of representatives, Hon. Edward D. Shurtleff, speaker of the house, was presented a massive chest of solid silver table ware, and a solid silver tea set as a token of esteem and love by his fellow men. An elegant Jules Jurgensen watch, chain and diamond emblem charm was given to Hon. Thomas Tippit, minority leader of the house. Hon. William E. Trautmann was recipient of a diamond locket, with a handsome inscription on the back. Gold-headed canes were gifts from the legislature to John A. Reeve, clerk, and Edwin Harlon, doorkeeper, for faithful services rendered. Mrs. Ida M. Bacon, postmaster,

and Lucy M. Long, assistant postmaster, were each given tea sets, and to wind up the climax each and every member of the House of Representatives received a beautiful souvenir teaspoon as a remembrance of the Forty-fourth General Assembly. These presentations were all furnished by Jeweler Klatholt, in whose window they were viewed by many for a day or two after the gifts were presented."

THE KEYSTONE takes pleasure in presenting the portrait of Eugene F. Confarr, the well-known jeweler, of Livingston, Mont., as he appeared at the State tournament of trap shooters of his State which met at Anaconda late in April of this year. Mr. Confarr enjoys the reputation of being one of the cleverest experts at trap shooting in the United States, and has the medals to show for it. He is pleasantly mentioned in his own country as the "medal dog" for the reason that he has earned the title, winning almost every trophy in the whole Northwest. Confarr's shooting for the first two days in the Northwest tournament held last year at Pendleton, Oregon, was phenomenal, his general average being better than ninety-seven per cent. It was a record that the most expert professional shooters in the world might be proud of, made as it was under the most trying conditions. The



Eugene F. Confarr

wind was favorable and he was pitted against some very clever gun men, among them being professional representatives of the powder factories and arms companies, but the pace set by the Montana shooter was too fast for the best of them, and he turned the baked clay birds into dust so fine that it was scattered all over the Southern part of Oregon. Mr. Confarr has won enough medals, cups and the like to literally fill a wash tub, and he is still striving for more. Some of the Northwest medals he now holds are the Globe, valued at \$1000; the Peters, a handsome and valuable medal given by the Peters Manufacturing Company; the Brownlee medal, one of the handsomest in the Northwest; the high average medal for 1904, and nearly all the Montana medals and trophies. With all his fame as a rifleman, Mr. Confarr makes a success of his jewelry business, but his automobile and his rifle are his greatest enjoyments.

The following list of students are recent arrivals at the Jewelers' School of Engraving: V. J. Miller, Tiffin, Ohio; Oscar L. Hess, Palmerston, Ont.; H. J. Townley, Traer, Iowa; Roscoe C. Childs, Traer, Iowa; H. P. Greeley, Waterman, Ill.; Mosse A. Sherre, Moscow, Russia; Lester W. Hugett, Batavia, Ill.; Frank J. Gagaman, Chicago; Bessy Hubbell, Chicago; Rosallino Pascuzzi, Decollatura, Italy.

J. B. White, of the White-Haynes Optical Company, wholesale, Columbus, Ohio, is in Chicago to-day calling on the wholesale and manufacturing optical trade.

Mrs. I. F. Varney, wife of Jeweler Varney, of Wichita, Kans., is spending a few days in Chicago visiting with friends.

J. P. Mayo, watchmaker for Syman Bros., Denver, Colo., for several years past, spent a part of this week in Chicago, accompanied by Mrs. Mayo. Mr. Mayo was en route to Battle Creek, Mich., their old home town, where he expects to embark in the retail jewelry business for himself early in June.

Jeweler Lon Williams, of Wichita, Kans., is moving into a handsome new store this month which he has fitted up in modern style with new fixtures. We are glad to note the prosperity and expansion of our old friend, who is the kind of man who is deserving of it all.

Will H. Beck, of Sioux City, Iowa, spent a day in Chicago last week, en route to Washington, D. C., to see his daughter graduate at Miss Sommer's College for young ladies. Mr. Beck will stop off again in Chicago on his way home, and spend more time with his friends in the trade.

The L. Manasse Company, 88 Madison Street, are sending out to the trade upon request their handsome new wholesale optical catalogue, which is profusely illustrated and contains 170 pages. It is a useful handbook and price-list of everything optical, and the jeweler-optician who has not already received the book, should send a postal request for it right away.

Jeweler J. Segerstrom, of Rhinelander, Wis., has built a boat to be used as a pleasure craft on the Wisconsin river. Up in his town they now call him "Captain" Segerstrom, and his friends by way of pleasantry, allude to him as one of the "Old Vikings of Norway."

Henry Reinhard, Southern and Southwestern traveler for the Juergens & Andersen Company, arrived at headquarters the first of the week from a trip through Oklahoma, Kansas and Missouri. He reports trade conditions and prospects as very promising in Oklahoma as well as in other States he visited.

August Wetteroth, the veteran jeweler, of St. Joseph, Mo., has recently returned from a four-months' stay in Southern California, much improved in health.

Out-of-Town Visitors

H. P. Proctor, the well-known and pioneer jeweler, of Grinnell, Iowa, spent a few days in Chicago recently, calling on his friends in the wholesale trade and doing his spring buying.

R. E. Dale, of Bedford, Indiana, accompanied by Mrs. Dale, were met in one of our wholesale houses last week, where they were selecting goods for the home market. Mr. Dale reported trade fairly good in his section, and that his town was growing and prospering.

J. E. Mitchell, the well-known jeweler, of Ft. Worth, Texas, spent a few days in Chicago early in the month combining business with pleasure.

J. W. Neesham, the well-known and prosperous jeweler, of Ottumwa, Iowa, a familiar and always welcome figure in this market, was here for a few days this week on a business trip. When seen in one of our wholesale offices, Mr. Neesham remarked that crop and trade conditions in his section were most favorable for a good summer and fall trade. In fact, they were expecting a better business this summer and fall than they enjoyed last year during the same period.

Jeweler F. G. Hayner, of Colorado Springs, Colorado, and Mrs. Hayner, were here for a few days the early part of the month, combining business with pleasure.

Jeweler Tom. Morris and wife, of Crookston, Minn., were in Chicago for a few days early in May, combining business with pleasure.

A. B. Schaeffer and son, of Sandusky, Ohio, spent a few days in Chicago recently calling on their friends in this market and doing some buying.

G. H. Geer, the well-known jeweler, of Jackson, Tenn., spent a few days in Chicago early in May, selecting goods for the home market and enjoying the sights of the Western metropolis.

E. E. Chandler, of Boone, Iowa, a familiar and always welcome figure in this market, spent a few days in town last week doing some buying and enjoying the pleasures of a great city.

F. E. Baylers, of Chillicothe, Illinois, accompanied by Mrs. Baylers, was in Chicago last week for a few days, combining some buying with sightseeing.

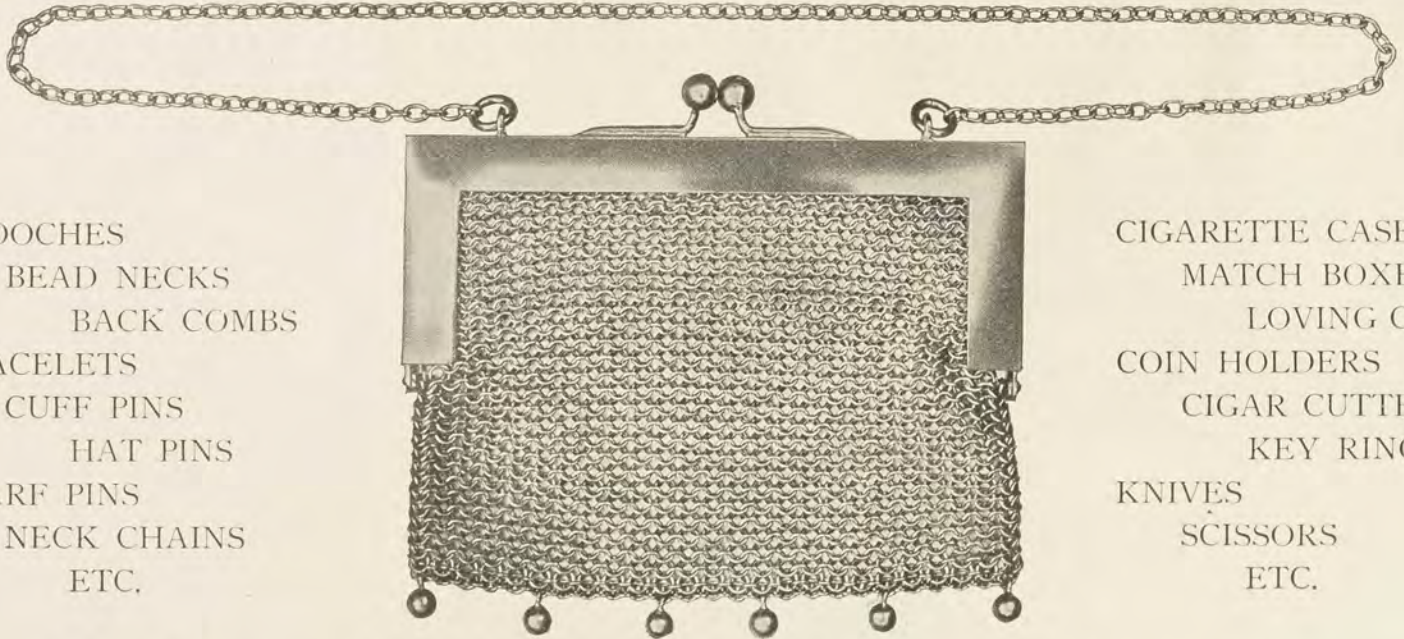
W. N. Boynton, of Manchester, Iowa, spent a few days in Chicago recently, calling on his old friends in the trade.

Marsh Hainer, of McComb, Mississippi, a well-known buyer in this market, was here for a few days recently, doing some buying for the home store.

Full line of German Silver Bags and Purses

IN SIZES FROM 2 INCHES TO 6 INCHES

Roman, Silver, Gun Metal and Old English Finish. White Kid Linings



BROOCHES
 BEAD NECKS
 BACK COMBS
 BRACELETS
 CUFF PINS
 HAT PINS
 SCARF PINS
 NECK CHAINS
 ETC.

CIGARETTE CASES
 MATCH BOXES
 LOVING CUPS
 COIN HOLDERS
 CIGAR CUTTERS
 KEY RINGS
 KNIVES
 SCISSORS
 ETC.

Codding & Heilborn Co., North Attleboro, Mass.

New York—Chas. Van Ness, 11 Maiden Lane

Chicago—G. S. Titus, 88 Monroe St.

San Francisco—H. C. Van Ness & Co., 115 Kearny St.

Special Announcement

Having removed to our new home, Suite 1104 New Heyworth Building, corner Wabash Avenue and Madison Street, Chicago, you'll find that we have the handsomest engraving school and studio in this country.

Send for New 48-Page Catalog. Correspondence Solicited

The Jewelers' School of Engraving

Established 1889

Some of the Features

Splendid Light
 Perfect Ventilation
 Handsomely Furnished Reception and Class Rooms
 The Best System of Instruction
 Universal Endorsement by all Jewelers

RICHARD O. KANDLER
 Proprietor

Loose
DIAMONDS
 Mounted

**JOS. NOTERMAN
 & CO.**

512 Race Street
 CINCINNATI, OHIO



Seventy-seventh Anniversary of a Jewelry Firm

The Mermod, Jaccard & King Jewelry Company on May 1st celebrated the seventy-seventh anniversary of the founding of the jewelry house of Louis Jaccard. Mr. Jaccard came to this country from Switzerland in 1829, and in the same year opened a small jewelry shop on Main between Pine and Chestnut Streets. The shop was a small affair, and in it was sold a limited stock of goods, principally from Switzerland. From that small beginning the establishment has grown steadily, until to-day it is the largest and most celebrated jewelry concern in the West. Coincident with the celebration of the seventy-seventh anniversary of the house in St. Louis, is the opening on the same day in New York, at 400 Fifth Avenue, of the Eastern branch of the establishment. The New York store will handle a regular line of jewelry, cut glass, stationery, and, in fact, everything that is sold in the mother house. The history of the great jewelry house is filled with interest, and follows closely the history covering the business development of St. Louis, through the troubled times of Civil War, and during trade depressions and panics during three-quarters of a century, it has weathered every storm, and is to-day a credit to St. Louis and the West. Louis Jaccard returned to Switzerland after founding the house, and in 1847, Eugene Jaccard came to St. Louis and took charge, establishing the business from which the present house springs. In 1882 the firm was incorporated under the name of Mermod, Jaccard & Co. This year the firm-name was changed so as to incorporate the name of Goodman King, its president. The house has been represented at nearly all the great world's fairs in recent years. Its display at the Columbian Exposition in Chicago was one of the most representative in the great manufacturer's building. At the St. Louis World's Fair, its exhibits received many rewards, including grand prizes and gold medals. The store was devastated by fire Sunday morning, December 2, 1897, but this never caused a day's suspension in business. The company opened for business Monday morning in temporary quarters across the street on Broadway. Mermod, Jaccard & Co., in 1901, absorbed Eugene Jaccard Jewelry Co. and the Merrick, Walsh & Phelps Co., two of the largest retail jewelry houses in St. Louis.

Real estate transfers in St. Louis in April were more numerous than in any previous month. They numbered 1552, with a value of \$7,283,587. For March and April the transfers in value exceeded \$15,000,000.

St. Louis is now the third city of the Union in the manufacture of shoes. *The Shoe and Leather Reporter* annual for 1905, which has just been published, advances the rank of St. Louis as a shoe manufacturing city over last year. Lynn, Mass., is first, with 161,250 pairs a day; Haverhill, Mass., 92,500; St. Louis, 77,500; Brockton, Mass. 57,000; Cincinnati, 40,250; New York City, 28,750; Chicago, 26,000; Philadelphia, 19,500.

Mrs. G. W. Myerley, wife of Jeweler Myerley, of Rich Hill, Mo., with her two children, were visiting at the home of a brother in Snyder, Oklahoma, at the time the frightful cyclone passed over that town last month and nearly destroyed it. Mrs.

Myerley and children escaped the fury of the storm, her brother's house being one of the few to stand intact.

Fred. G. Frey has again embarked in the manufacturing jewelry business, and has opened up a modern factory with everything new and up-to-date, in rooms 508 and 509 in the *Globe-Democrat* Building. Mr. Frey is well-known in the St. Louis trade as a former manager of the Bauman-Frey Manufacturing Company.

Herbert Compton, formerly buyer and traveler for the F. C. Happel Company, Chicago, is now buyer for the L. Bauman Jewelry Company, succeeding Harry Aller, who is the head of the new wholesale firm of Aller, Newman & Wilmes.

The trade was well represented at the funeral of the late Samuel Eisenstadt, by leading representatives from other cities. The Elgin National Watch Company by G. V. Dickinson, general agent; The Keystone Watch Case Company by H. M. Carle, of Chicago; The American Waltham Watch Company by Ives L. Lake, of Chicago; Sumner Blackinton, George Weidig and W. S. Sparrow, of Chicago.

Our Bank Clearances Still Growing

St. Louis is proving that she is the only exposition city on either continent which has shown no business reaction immediately after its world's fair. Note how our bank clearings continue to grow notwithstanding the fact that we are now comparing with the world's fair period. For the first quarter of 1904, when the bank transactions were swelled to a considerable extent by the preparations for the fair, the clearings for the St. Louis banks amounted to \$708,818,291. For the first quarter of 1905, when there is no fair to affect the exchanges, the clearings were \$722,348,787. This is a gain in the three months just ended of \$13,530,496, as compared with the like period a year ago, or nearly two per cent. It is safe to predict that the year's second, third and fourth quarters will likewise show large gains over 1904.

The E. H. Kortkamp Jewelry Co., 612 North Broadway Avenue, are the makers of the handsome loving cup presented to Mr. Shaunessey, proprietor of the Lindell Hotel, in this city, by his employees. This loving cup was a very fine specimen of the silversmith's art, and a unique tribute to an esteemed employer.

Crop Conditions in this Territory

Crop conditions continue favorable throughout the St. Louis territory, yet reports from some sections of Illinois say that wheat is not doing well. Generally speaking, wheat has made excellent progress, and except where the corn was poorly planted, on account of drouthy conditions last fall, the crop promises well. Not much is heard of the Hessian fly, and the indications are that this pest will cause little damage to the crop. Most of the corn is in the ground, although planting was delayed by rain in some sections. The early planted is coming up to a fairly good standard. There is a marked increase of acreage sown in oats, and while the cool and dry weather early in the year retarded the growth, most of the crop is in fairly good condition.

In view of the success that attended the corn show institute meeting held in 1903, the Missouri State Board of Agriculture has decided to repeat the experiments this year. Meetings will be held in the parts of the State where corn improvements are to receive the most attention, the aim being to make the instructions as practical as possible.

Tilling flat lands in Missouri has proven a success in many instances, and much of it will be done in the future. Farmers who bought large tracts of low lands during the farm land boom two or three years ago, were laughed at when they stated that they would drain their lands by the use of tilling, yet they have done this most successfully, thereby putting much valuable land under cultivation.

Boom in Real Estate Trading

Never before in the history of St. Louis has there been such active trading in real estate as for the past five months. The people who predicted all kinds of disaster for the business interests of St. Louis as a result of the reaction which they said would follow the world's fair, are surprised at the great activity in real estate and building as well as the great activity of trade in general, which is now here and which shows no indication of diminishing. Instead of a reaction in real estate and building, we are really enjoying a boom of unexpected activity and strength. Month after month exact figures tell this story, and show that St. Louis is enjoying more genuine prosperity in substantial activities than she has ever known before. True it is that according to all former experiences, an international exposition was followed by a reaction, and citizens were warned by those most familiar with such exhibitions, that there would be excessive building and a general drop in business when our fair ended. But in St. Louis the result has been just the opposite. Here are the figures: For the first quarter of the present year the building permits represent a value of \$5,287,422, against \$3,373,574 for the same period last year, when many structures incidental to the fair were included. In real estate transactions the total for the first three months of the present year is \$18,211,392, compared with an aggregate of \$11,059,247 for the first quarter of 1904. The increase is over 50 per cent. both in the value of new buildings and of the transfers of real estate. Bank clearings give evidence of a similar kind, the aggregate for the last quarter reaching \$722,348,787, against \$708,818,291 in the first three months of 1904. Postal revenue confirms the showing. The post office here has transacted a larger business every month this year than in the corresponding months of 1904. Postal receipts in St. Louis last month were \$337,702, and in May 1904, they were \$321,472, a gain of 5.21 per cent. These figures are all official and complete. They are certainly an agreeable surprise for the citizens of St. Louis, who looked forward to some ebbing of the tide as a feature unavoidable attending a world's fair. The real truth of this pleasant situation is that the striking development now going on in St. Louis is due to her central position as the central city of the American continent, her high vitality and exceptionable advantages.

The following out-of-town dealers visited this market last month: E. G. McDill, Sparta, Ill.; C. J. Harper, Dixon, Mo.; J. M. Dikob, Alexandria, La.; John Roark, Winchester, Ill.; W. G. Myerley, Rich Hill, Mo.; J. C. Wieser, Roodhouse, Ill.; E. L. Bersche, Columbia, Ill.; A. Altemueller, Washington, Mo.; G. H. Geer, Jackson, Tenn., and John Koetting, Ste. Genevieve, Mo.

"It is a matter of wonder to me that The Keystone can purvey such a vast amount of choice matter for only one dollar. I have not got the cheek to suggest anything as an improvement."—*H. M. Miles, Jeweler, Oklahoma City, Oklahoma Territory.*



The time of school closing has come, and with it a good trade is expected by the jewelers. They are well stocked with elegant presents for the graduates. Graduation pins, class pins and medals are in great demand, and the enamellers are quite busy. Then come the June weddings, which make business very good for the jewelry trade. There is a great demand for fine cut glass, and the bride of to-day receives much in the glass line, a change from years gone by when silverware prevailed. The season of graduation gifts and wedding presents will be welcomed by the jewelers, as business has been very poor on account of the inclement weather. The heavy rainfall through this section has spoiled crops and caused a severe loss to the farmers throughout Michigan.

F. Rolshoven & Son, of Detroit, recently celebrated their fiftieth anniversary of the establishment of their jewelry store. F. Rolshoven started to work at the bench without capital fifty years ago, and by hard work has risen to the head of one of the finest retail stores in Michigan. Mr. Rolshoven came from Cologne on the Rhine, where he and M. Hermeling, the present court jeweler to the Emperor of Germany, worked together. He was a member of the Society of Masters, the original Free Masons of Europe. His son, Herman A., has been associated in the business with his father for thirty years.

The election of the grand encampment of Michigan Odd Fellows resulted in the election of Chas. L. Edwards, of Carleton, as grand patriarch. Mr. Edwards is senior member of the well-known jewelry firm of Edwards & Adams, Carleton, Mich.

A warrant was sworn out recently by Wright, Kay & Co., Detroit, Mich., for the arrest of George Parrish, charged with the larceny by conversion of a diamond ring valued at \$394. Mr. Wright said that Parrish had been a customer of the firm, and had an account with them. One day he bought a ring and had it charged to him, and then left Detroit.

William Traub, of Traub & Co., Detroit, Mich., recently returned from Bermuda, where he went for his health. He was very much benefited by his trip.

Louis Meier, at the corner of Gratiot Avenue and the Boulevard, Detroit, Mich., has just completed after fourteen months' work a curious clock, nine feet high, six feet wide, and weighing three hundred pounds. A feature is an illuminated moon moving regularly on its axis, showing the changes from quarter to quarter. Twelve small dials indicate the time in different parts of the world. Another dial shows a perpetual calendar. Mr. Meier's geographical clock attracted very much attention at the World's Fair in Paris. His hobby is the manufacture of freak clocks and tower clocks.

Opposition has developed in Detroit to the Palmer Bill, which provides for a State board of examiners for opticians. It appears the measure does not fix the status of graduates of three optical colleges in this State, two of which are doing business in Detroit. The proprietors aver it will put them out of business if the bill becomes a law, and claim it is partly directed at them. It is pointed out that these schools cannot exist if their function

becomes that of a preparatory concern for the board of examiners. An attempt will be made to amend the bill, exempting graduates of these schools from the law.

Orson A. Wood, formerly of Palmyra, Mich., is now located in Blissfield, in the same State.

G. A. Boughner recently opened a retail jewelry store at 1123 Twelfth Street, Detroit, Mich.

C. L. Herrick, of Thompsonville, Mich., has closed out his business.

Wm. G. Blish, Niles, Mich., is closing out his stock.

John H. Touse moved recently from Jonesville, Mich., to Osseo, Mich.

Stuart W. Crofts has reopened business at his old location in Greenland, Mich.

Governor Warner, of Michigan, recently appointed Otto Stoll, an optician, of Detroit, jury commissioner of Wayne county.

Chas. E. Stevens, of Paw Paw, Mich., has discontinued business.

J. Lewis Tinsman has disposed of his business interests at Romeo, Mich.

Frank Blaisdell, Jackson, Mich., has moved his stock into larger quarters.

Andrew Warsaner, formerly of Mohawk, Mich., is now located at Beacon, Mich.

Myron Ellis, Greenville, Mich., recently purchased the stock of E. A. White, Clare, Mich., and will continue business at the old location.

C. A. Piella, Lansing, Mich., has removed his jewelry store into new quarters on Washington Avenue in the same town.

Michels & Gillet, jewelers, of Hubbell, Mich., have dissolved partnership. The former retiring, while Mr. Gillet will continue the business.

An optical concern in Detroit reports several unsolicited orders for eyeglasses from the Orient. An order was recently received from an optician at Su Chow Su, China.

Thos. J. McCormick, who recently graduated from the Jackson Optical College, Jackson, Mich., contemplates opening a store in Wilkesbarre, Pa.

Weight of a Carat

At a meeting of the Philadelphia College of Pharmacy some time ago, an interesting note was furnished by W. E. Ridenour on the value of the carat as expressed in the metric system. He said that some time ago he was called upon to weigh a diamond and to state the weight in jeweler's terms, carats and fractions. It was necessary to find the equivalent in the metric system, as his weights were of the latter, and in looking the matter up, found the following clipping from the *Mining and Scientific Press*, October 27, 1900: "The weight by which diamonds and precious stones are calculated is: 4 grains = 1 carat; 157 1/2 carats = 1 Troy ounce. A fine diamond, perfectly white and pure, weighing 1 carat is worth \$100; 2 carats, \$400; 4 carats, \$1100; 5 carats, \$1750."

The diamond weighed 0.327 gram, and, according to the above data, he reported its weight to be 1 1/4 carats. His report was made in the presence of the diamond salesman, who became indignant, as he claimed the weight to be 1 carat 1/2—1-16 and 1-32. The diamond was subsequently taken to several jewelers and the weight of 1 carat 1/2—1-16 and 1-32 was verified in each case. Mr. Ridenour then weighed several 1-carat weights and found them all to weigh 0.205 gram, being 0.055 gram lighter than stated in the *Mining and Scientific Press*. This was subsequently confirmed by Henry Troemner, Philadelphia; so therefore 1 carat = 0.205 gram = 3 2-13 grains.

Scraping Noise in Movements

ED. KEYSTONE:—A couple of months ago I asked you to give me some information in regard to the scraping sounds in lever movements after putting in a jewel. In April issue you state that a new staff causes this noise and as a remedy suggested that the corners of pivots be polished off. Experience shows that this is not often correct. A watch may run smooth, and yet if you remove one of the balance hole jewels and replace it with another you will likely hear the scraping noise, and the fault is not in the pivot. I use good-grade jewels, \$1.50 to \$1.75 per dozen, but find much of the above-named trouble.

Very truly,
Galion, Ohio. H. M. WOLLAM.

The Origin of Illustrated Postal Cards

A French contemporary says that the first so-called picture cards originated during the Franco-German war. At a small place in the Department of La Sarthe some 40,000 French soldiers had been concentrated, and some of the privates, who came from the South, wanted to describe to their relatives the magnificent scenery surrounding them; however, not having time for writing long letters, they went to the stationery store and inquired for photographs. These inquiries became so numerous that the proprietor of the store had postal cards printed showing various views of the town and the surroundings. After the war the postal cards were forgotten, until they came up again in Germany in the nineties, and to-day there is scarcely a spot on the globe where one cannot buy an illustrated postal showing the respective locality.

Electric Regulation of Clocks

A plan for the electric regulation of clocks by means of a selenium pile has recently been invented. This pile is placed in the focus of a parabolic mirror, and a perforated plate is attached to the pendulum rod in such a way that the pile is protected from the light from an electric lamp except just at the lowest point of its swing. The light then excites the pile, which gives a slight impulse to the pendulum through the medium of an electro-magnet. The duration of the exposure of the pile to the light, and therefore the impulse, is regulated by the speed of the pendulum, and is greatest when that is least, and when the most impulse is required. The apparatus must require very delicate adjustment.

No Room in the Safe

The traveling man was standing, looking disconsolately at the floor.

The hotelkeeper was watching him.

By and by the hotelkeeper said to the traveling man:

"Lose something?"

The traveling man nodded.

"Something valuable?"

Another nod.

"Sure you had it when you came here?"

Another nod.

"Don't you see that sign, 'House not responsible for valuables lost unless they were put in the office safe?'"

Another nod.

"Then why didn't you put it in the safe?"

"Couldn't."

"What was it?"

"My job."



*The Crowning
Glory of an*



Ring

OSTBY & BARTON CO
PROVIDENCE R I

9 MAIDEN LANE
NEW YORK

103 STATE ST
CHICAGO



Rockford Silver Plate Co.

Rockford, Ill.

HIGH-GRADE PLATED FLATWARE

HAS MADE

The Company an enviable reputation.

Several thousand staunch customers.

Thousands of satisfied "call-often" customers
for the retail jeweler.

Has for a quarter of a century been as
to-day, up to and a little above
the standard on plating.

Is sold to retail jewelers only

New, Snappy, Original, Exclusive, Designs



IN HAND-PAINTED CHINA

72 Jewelers Saw a Good Thing

and ordered our \$50.00 Assortment, containing twenty of the best decorations *ever produced*. Every customer more than pleased.

We will continue shipping the Assortments for another 30 days. Order at once; every piece will sell quickly. When our salesmen call you can knowingly place your fall order.

The superiority of our line has been established beyond our most sanguine expectations. A well-rated St. Louis merchant, reordering, wrote as follows: "Your decorations are clean and tasty, by far the best I ever saw. You will get my future business."

Another merchant says: "Your Peach Tankard is the most attractive ornament I ever had in my window; it certainly stops the people." Price, only \$10.50.

Do not fail to visit our studio when in Chicago. Easy to find—take Cottage Grove Avenue car, get off at Thirtieth Street, walk one and a half blocks east; only fifteen minutes from Madison Street.

The J. H. STOUFFER CO. ↓ Incorporated
3000 LAKE PARK AVE. CHICAGO. ↑ 1902

H.C.Fry Glass Co.

Radiantly Beautiful
Cut Glass



18" ELECTRIC LAMP

IT SPEAKS FOR ITSELF

The characteristic excellence of Fry Glass is its Brilliancy and Purity of Metal.

DEMANDS APPRECIATION

We manufacture the figured blank, a modern improvement in the glassmaker's art.

H.C.Fry Glass Co.
Rochester, Pennsylvania

THE WESTERN CLOCK MFG. CO.

La Salle, Ill.

NEW YORK CITY
51-53 Maiden LaneCHICAGO
131-133 Wabash Ave.

Rome Alarm

IN the ROME ALARM we have aimed to produce the best finished four-inch dial alarm on the market and offer it to the jewelry trade at such a low figure that, while the dealer will on one hand always obtain for it the highest price on account of its appearance and quality, he will on the other save so much on the cost that his profits will be increased both ways.

The case of the ROME ALARM is drawn out of a single seamless sheet of brass, susceptible of a very high polish and fine plating. The movement has all the advantages of our CASTING CONSTRUCTION, which permits the use of VERY THIN HARD STEEL PIVOTS, reducing the friction to a minimum, assuring absolutely true wheels and producing perfect timekeepers.

The ROME ALARM is sold with the Arabic dial only.



OUR FALL LINE

is more complete than ever, showing many new ideas in

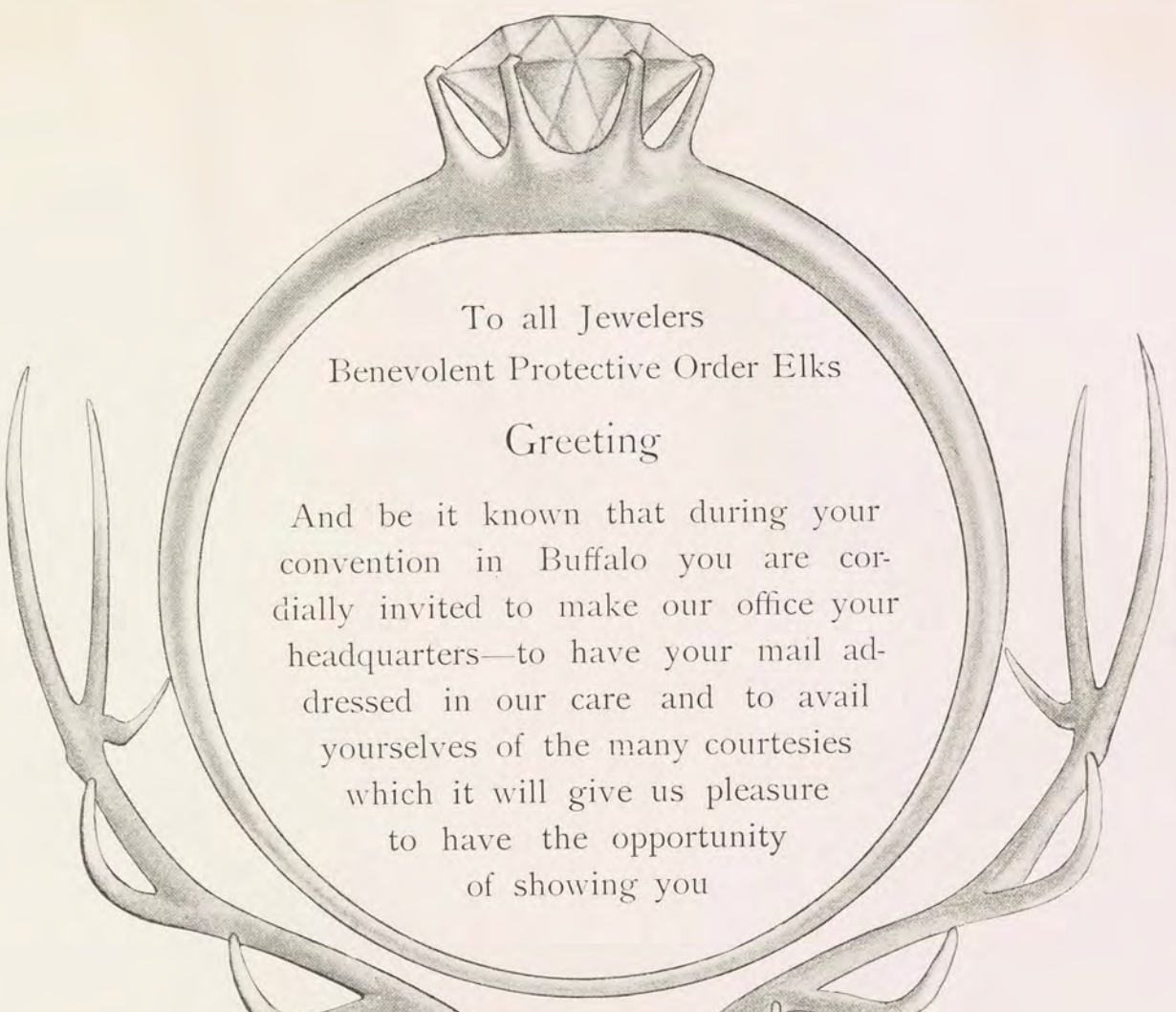
Fob Chains
Lorgnette Chains
Vest Chains
Neck Chains
Festoon Necks
Stone Lorgnettes
Chain Bracelets
Nethersole Bracelets

Sterling Silver and German Silver Bags

Ask your jobber for our goods

LOUIS STERN & CO.
Chainmakers & Silversmiths
PROVIDENCE·R.I.


J.W. MOTT & CO.



To all Jewelers
Benevolent Protective Order Elks

Greeting

And be it known that during your convention in Buffalo you are cordially invited to make our office your headquarters—to have your mail addressed in our care and to avail yourselves of the many courtesies which it will give us pleasure to have the opportunity of showing you



HEINTZ BROS BUFFALO NY RING MAKERS

918
Manning, Bowman & Company, Meriden Connecticut

New York
 Chicago
 San Francisco

Nickel and Silver Plate



No. 241
 CHAFING DISH OUTFIT

"M. & B." CHAFING DISH ALCOHOL

This "Alcohol" is especially prepared for use in Alcohol Lamps. Unequaled for use under Chafing Dishes, Coffee Percolators, etc. It should be in the stock of all first-class dealers.

Chafing Dishes

"Meteor"
 Coffee Percolators

Tea Ware

Baking Dishes, Etc.

Prize Trophies

Solid Copper with English Pewter
 Mountings, and
 English Pewter Throughout

IVORY ENAMELED
 FOOD PAN OR BLAZER



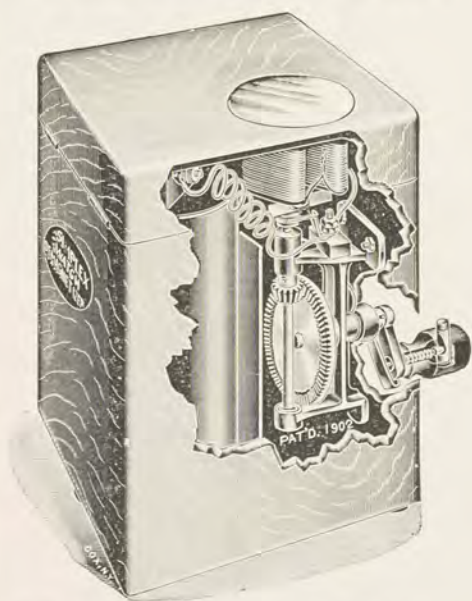
Patented May 23, 1899

THE GREATEST IMPROVEMENT
 EVER MADE IN A CHAFING DISH

Can be used in any of our 3-pint Chafing Dishes. Pure, clean, durable. It is so constructed that food can only come in contact with the Ivory Enameled Dish. The top rim being plated, the complete Chafing Dish has the same appearance as when made entirely of metal.

From testimonials received we do not hesitate to say that the Patent Seamless Ivory Enameled Food Pan is the most desirable one ever used in a Chafing Dish. Once tried, always used.

THE SIMPLEX
 WATCH DEMAGNETIZER



Self-contained—requires no outside current.
 Automatic—switch prevents batteries from burning out.
 Portable—can be used anywhere.
 Compact—size, 6 x 6 x 8; weight, 9 lbs.
 Send for descriptive circular.

Price, \$12 net. May be purchased through your jobber.

THIMBLES
 Gold and Silver



144



143

ESTABLISHED 1832
KETCHAM & McDOUGALL
 MANUFACTURERS
 GOLD & STERLING SILVER THIMBLES
 AUTOMATIC EYEGLASS HOLDERS
 37 AND 39 MAIDEN LANE, N. Y.
 SEND FOR CATALOGUE "E"



149



163

The Automatic Eyeglass or Pencil Holder



Made in Gold, Silver, Rolled-Plate, Gun Metal, Royal Copper and Black Enamel. Samples sent upon request

Hello, There!

Did you know that every retailer who carries a large assortment of S. O. Bigney & Co.'s Gold Filled Chains and Safety Fobs is satisfied with the results? Design, workmanship and quality play their part.



Those who neglected the golden opportunity should not let another season pass without laying in a large variety of our Chains

*Procrastination is the thief of time,
He who hesitates is lost.
So get busy and buy our line—
Be in the front ranks at any cost.*

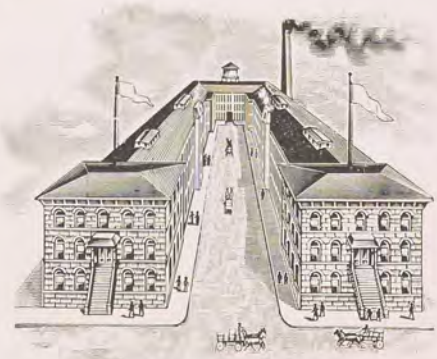
Remember, opportunity knocks at your door and mine but once
on any single mission

S. O. Bigney & Co.

Factory

Attleboro, Mass.

New York Office, 3 Maiden Lane





*The June Birth Flower Pin
(Rose) is unusually pretty
and effective.*

PRETTY CUSTOM in connection with weddings is the giving of gifts to the best men and bridesmaids, and June is pre-eminently the month in which weddings are celebrated. It is probably the busiest month for the jeweler, excepting the fall. He often has calls for something odd or special which he does not carry in stock. We are prepared to supply that demand and send anything desired in the line of DIAMONDS, WATCHES or JEWELRY. Whenever you wish a particularly fine assortment, let us hear from you.

We have many new and exclusive designs in Jewelry, and in Watches our stock is more complete than ever. We can supply you with the new 16 size Howard Watch, a fine article, in which there is a good margin of profit. Booklet on request.

HENRY FREUND & BRO.

Diamonds, Watches and Jewelry

Elk and Fraternal Order Eagle
Goods a Specialty

9 Maiden Lane, New York

The Watch House of Philadelphia



“The Sweet Girl Graduate”

June is the month of roses—of weddings and commencements—of brides and graduates—of pretty presents for pretty people.

We can furnish the trade with a special line of the most coveted and profitable of all gifts:

Beautiful Watches for Beautiful Women

for bride, graduate, matron or daughter. A great variety of rich, novel, artistic designs in cases. Fascinating stock for fastidious purchasers.



H. O. Hurlburt & Sons

14 South Tenth Street
Philadelphia, Pa.



The Palace Hotel, of San Francisco, has issued a neat little brochure entitled "Sight-Seeing Suggestions," for the convenience of strangers in San Francisco. It is free from advertising, wherein it differs from other guide books. The Palace keeps its lead and recently installed telephones and steam heat in every room.

Alphonse Judis, president of the Alphonse Judis Co., Inc., wholesale jewelers, is visiting the large jewelry centers of the East. Mr. Judis will spend four or five weeks in New York and incidentally look into the market for new novelties for his fall trade. Mr. Judis finds it necessary to visit the East annually so as to keep in touch with the diamond market.

A. W. Huggins, of the firm of A. I. Hall & Son, jewelry jobbers, of San Francisco, is on his annual trip East, visiting the jewelry and watch centers. Mr. Huggins will go by way of Los Angeles and expects to be away for at least six weeks.

A. Eisenberg, of A. Eisenberg & Co., has returned from his Eastern buying trip, after spending a month among the diamond merchants of New York, where he picked up some desirable assortments of brilliants.

A. Kingsbury, the Pacific Coast representative of the Elgin National Watch Co., is visiting his friends among the retail jewelers in Northern California, Oregon and Washington, and expects to return to town about June 15th.

M. Schussler & Co., wholesale jewelers, have added another traveler to their out-of-town force. A. Haber, who has been with the house for a number of years, is calling upon the retail trade with a finely-selected line of staples and fancy pieces in diamonds, brooches, etc. We feel safe in predicting that Al. will make good in his new position.

Louis Freund, of the wholesale jewelry firm of Henry Freund & Bro., New York City, sailed on May 16th, on the Steamship *Kaiser Wilhelm II* for Europe on a much-needed vacation and will be away for at least two months, after fourteen years of continuous work. Mr. Leopold Winterhalter, a retail jeweler, of Butte, Montana, also sailed on the above steamer and will accompany Mr. Freund in his rambles abroad.

We regret to announce the death of Mrs. Charles Haas, wife of the Stockton retail jeweler, who passed away on April 20th, after a lingering illness. Deceased was fifty-four years and four months old. THE KEYSTONE joins with their many friends in and out of the trade in offering their sincere sympathy to Mr. Haas and his family.

The Kimberley Diamond Palace, at 804 Market Street, have finished refitting their store, and it now compares very favorably with any of the up-to-date stores on this thriving business street. The fixtures of mahogany and plate glass make a very artistic appearance.

C. A. Dreiss, who was formerly in business at Onatanagon, Mich., has opened a new retail jewelry store in Chico, Cal. Mr. Dreiss was in town recently on a buying trip, and made a very attractive display when he opened the new store.

L. C. Koberg, the genial retail jeweler, of Healdsburg, Cal., was among the visiting tradesmen in this market recently, looking over the wholesale dealers' stocks, preparatory to placing orders for fall goods.

The trade are extending their sympathy to R. W. Cantrell, of the California Jewelry Co., upon the sudden death of his father, who passed away on May 12th.

Fred. Lezinsky arrived in San Francisco last month after visiting all of his Eastern houses. Fred. returns with a few new lines of ready sellers, which he will be showing the trade in the near future.

F. J. Stumm, who conducts the finest retail establishment in Benecia, called upon his friends in the trade during his recent visit to this city. Mr. Stumm looks forward to a banner year in his section, as the recent rains have improved the crop conditions.

H. Jehlinger, manager for The Emporium jewelry department, is now calling upon the manufacturing jewelers in the East and will be away for five or six weeks. Mr. Jehlinger will visit his host of friends in the jewelry trade in and around Chicago before going to New York.

A. J. Kuechler, of Stockton, was among the out-of-town retailers in this market recently, selecting seasonable novelties for his growing trade.

C. W. Wickersham, of Wickersham & Co., Bakersfield, paid a flying visit to town recently, in search of ready sellers. Business in Bakersfield is on the jump and all lines are feeling the effects of the good times in this hustling oil center.

Jacob Marx, of Kossuth Marx Co., dealers in precious stones, is in town, calling upon his many friends in the trade, and from the smile that adorns his genial countenance, must be getting at least his share of business.

A. Hansen, the Seattle retailer, after spending a delightful vacation in and around San Francisco, has returned home, feeling greatly benefited by our invigorating climate.

H. W. Barr, who conducts a jewelry establishment in Salem, Ore., was among the visiting tradesmen in search of novelties for his patrons recently.

J. Reardon, of Reardon & Schacht, retail jewelers, of Sokane Falls, is receiving the condolence of his many friends upon the sudden death of his wife after a short illness.

A. Bollack, manufacturers' agent at 738 Mission Street, this city, has annexed a new line to his long list of stocks. The new line is made by the Anchor Silver Plate Co., of St. Paul, Minn.

Thomas White, retail jeweler, from Vallejo, was in town buying a new line of novelties. Mr. White is building up a fine trade in this growing city, which is partly due to his good judgment in picking out ready sellers.

J. W. Kirk, formerly in the employ of C. J. Hill, retail jeweler, of Everett, Wash., was sentenced to the penitentiary last month to serve a term of one and a half years for grand larceny.

Ed. Willis, one of Armer & Weinschenk's advance agents, is spending a six-weeks' vacation in his old Kentucky home, after an absence from Louisville for a few years, and expects to return to his duties about July 1st.

Hammersmith & Fields, the Kearny Street retail jewelers, have signed a contract for a new store front and will put in windows four feet wider than the old ones, and they will refinish their entire wall space in new, up-to-date tinting, which will improve their store considerably.

A. Schohay & Son, who conduct a fine jewelry and optical establishment on Hayes Street, this city, are showing the spirit of the times and are remodeling their store. Judging from the designs shown THE KEYSTONE man, we feel safe in saying that the remodeled store will compare favorably with any store in this section of our city.

Roland Jacobs, who formerly represented the wholesale jobbing house of Alphonse Judis Co., on the road, has bought out the retail jewelry store of Frank P. Sieglitz, in Globe, Ariz., and will conduct it in conjunction with his brother. THE KEYSTONE wishes the boys every success in their new venture.

The Alexander, a retail jewelry store on Market Street, finding that their business is growing rapidly, have installed a new balcony in the back of their store, so as to enable them to handle their trade to better advantage.

Paralyzed With a Little Prosperity

It is remarkable that nearly all of the great achievements of the world have been accomplished by men under the stern spur of necessity. Very little has been accomplished by men and woman of leisure, or by those who have not been spurred on by want. There is something in ease and comfort which draws the energy out of a man. Necessity, in a way, takes the exertion out of effort, and not only makes it endurable, but even, after a while pleasant.

We often see a poor but ambitious boy from a farm work his way through school or college under the greatest difficulties, and establish himself in business in a way which challenges admiration and raises the hopes of all who know him for a most brilliant future; yet, strange to say, as soon as this young man has got fairly well established and secured an income large enough to support a family upon comfortably, his ambition begins to wane, and his energy gradually to ooze out. He likes to take a few days off to go fishing or hunting in the country. After awhile he does not rise so early in the morning as he did, or stay quite so late at his office at night. In other words, there is a general letting down of standards or release from the strenuous life.

A young man would not for a moment admit that he is not just as ambitious as ever and determined to reach the goal he has first marked out for himself, but everybody who knows him realizes that there is a gradual suspension of activities, like the cessation of a volcano after a violent eruption. He seems to take life easily. In fact, he gradually becomes like a locomotive which has been running at a frightful speed until the fires have cooled under the boiler, and speed has been gradually slacking until the engine has come almost to a full stop.

This is one of the great dangers of a youth who starts out to become a self-made man—the danger of losing energy—the temptation to allow comfort to rob one of ambition, until a promising life becomes a common life, and great ability is doing the work of mediocrity.

Somehow, when the spur of necessity is withdrawn and a man finds that it is a little easier to get a living than it was formerly, and that he is not absolutely obliged to stick quite so closely to business, it requires great resolution, persistence and determination to run with the same head of steam as when pushed on by want, and spurred forward by expectation.

Under the softening influence of comfort and the withdrawal of necessity, all except very extraordinary characters becomes listless and drop to the commonplace. It takes a great deal of staying power, grit and determination to keep up the race after the withdrawal of the spur.

It is a remarkable fact that the greatest work people ever do is done when they are climbing the ladder, not after they have reached the top, or what to them is the top.

Our Best Customers

are our old customers, which speaks volumes for our lines and the kind of treatment we have been giving the jewelers of the Great West and Southwest for the past eighteen years.

We Treat New Customers

so that they stay with us. We give their mail orders prompt attention, likewise their correspondence, and when they call on us we welcome them in true Western style whether they buy of us or not. This is the secret of our success. We are ready to do business with you and solicit a trial order.

Woodstock=Hoefler Watch and
Jewelry Company
Kansas City, Mo.

MAKE UP YOUR MIND TO-DAY

to make yourself more valuable, by addressing a postal card to the

Horological Department of Bradley Polytechnic Institute, Peoria, Ill.

for a catalogue setting forth the methods of that institution in instructing students in Watch Work, Jewelry Work and Engraving. This branch of Bradley was formerly the Parson's Horological School and is the oldest school of the kind in America. It is recommended by jobbers, watch manufacturers and the trade in general. Have turned out nearly three thousand successful workmen, and would be pleased to forward one of their catalogues in order that you may know just what you might do to become more valuable to your employer and consequently to yourself. A postal card addressed **Horological, Peoria, Ill.**, will get it. Do not delay.



HOROLOGY HALL

The Largest Building in the World Devoted Exclusively to a School of This Kind



May a Good Month for Weddings

The old superstition that May is an unlucky month for Hymen seems to have fallen in disrepute, judging from the number of fashionable weddings that occur during that month. June can no longer claim all the spring weddings of note. The sale of wedding gifts helped very materially to swell the sales last month. While silver still holds its place as the ideal wedding gift, cut glass, art pottery, brass and bronze ornaments and electroliers were much in demand.

Large Imports of China

According to the annual report of the surveyor of customs in the Indianapolis Federal Building, this city stands high in the importation of chinaware. During the past fiscal year, the report shows that chinaware valued at \$160,000 was imported to Indianapolis, making it the ninth largest city in the importation of this material. A number of jewelers carry a line of fine imported china plates, cups, saucers and vases.

Indianapolis is rapidly increasing the number of automobile owners. The many miles of beautiful asphalt streets, all perfectly level, make it an ideal city for auto-enthusiasts. Among the number are found the following representatives of the jewelry and optical trades: Silas Baldwin and Joseph E. Reagan, of Baldwin, Miller Co.; Isidore Grohs, of I. Grohs Jewelry Co.; Henry Schergens, retail dealer, and John Wimmer, optician. Charles Mayer & Co. have added an electric wagon to their delivery line.

Julius C. Walk & Son have accepted the agency for Van Briggie pottery, made in Colorado Springs, and Rivere bronze, made in Rivere studios, New York.

Enrique C. Miller, vice-president of Baldwin, Miller Co., was elected a vestryman of St. Paul's Episcopal Church at the annual Easter-Monday election.

Christopher Bernloehr is preparing to take a three-months' vacation abroad this summer. He will be accompanied by his father. After visiting relatives in the old home at Wartenberg, Germany, the tour will be extended over the continent and will include a visit to some of the famous watch factories of Switzerland. The European diamond markets will also be visited and in all probability some generous purchases will be made, as the firm of Chris. Bernloehr & Bros. are extensive dealers in both watches and diamonds.

Horace A. Comstock was recently elected secretary of the Limited Gun Club for the ensuing year. Mr. Comstock has always been an active member of the club and has held office a number of times. He thinks the coming year will be one of the most successful in the club's history. Several large tournaments will be held, the most important of which will be the annual shoot for the Grand Hotel Cup, which carries with it the championship of Indiana, Illinois, Michigan, Kentucky and Ohio.

Decorations from China

The Emperor of China has just decorated four Indianapolis men with the insignia of the Order of the Double Dragon, upon the recommendation of Prince Pu Lun, special commissioner from China to the St. Louis Exposition, who spent nine very busy days in this city,

The four honored men are the mayor, the superintendent of public schools, the president of the Commercial Club and the chairman of the committee on entertainment in honor of the Chinese prince. The decoration consists of a large silver sun with an enameled center and a circle about the enamel with two dragons. Surrounding the dragons are gilt letters or figures that explain the presentation by the Emperor. In the center of the insignia is a jewel of blue crystal and at the top of the enameled circle is set a coral. The completed decoration is hung on a blue and gold silk ribbon to be worn about the neck. With each decoration came a large Chinese document of white paper bordered in red in which are figures of dragons. The document, written in black ink, tells of the conferring of the Order of the Double Dragon by the Emperor. It also bears an official stamp in purple ink.

Saw with Diamond Teeth

The Atkins Saw Works in this city recently completed a large circular saw containing two hundred teeth, with a one-carat Brazilian diamond set in each tooth. The saw is to be placed at one of the large stone quarries near Bedford and used to cut the famous Indiana limestone into desired size. It is eight feet in diameter, five-sixteenths of an inch thick and weighs almost one-half a ton. It is made of the best steel and instead of the usual sharp teeth this saw has almost a smooth edge. Two hundred inserted steel holders are firmly fastened across the edge of the outer rim, from each one of these holders protrudes a large diamond; these points compose the teeth of the saw and are said never to wear out or to become loosened. Each one of the two hundred is set in a different position, just as the alternate steel teeth of a saw are placed. The diamond points are set in the grooved band and red-hot steel forged around them, securing them firmly to the edge of the saw. The diamonds are very dark in color and of almost no value as ornaments but highly prized for cutting purposes. The average value of the stone is \$20. They are purchased from diamond merchants in the East. The Atkins plant will soon turn out two other saws, duplicates of the completed one. The three taken together will represent about \$10,000 worth of diamonds, steel and labor.

A. J. Burns, for years with M. F. Smith, is now head watchmaker for the firm of Gray, Gribben & Gray.

The Indianapolis Clock Co. has recently located at 932 Fort Wayne Avenue, where they have a thoroughly equipped and modern manufacturing plant. O. E. Bell, is president of the company and manager of the Indianapolis plant. The company is chiefly engaged, at the present time, in turning out a new pattern of a watchman's time clock, to be used both inside and outside factories and residences. It is also used to keep an absolutely correct record of the time spent on "piece-work." This clock has been placed on the market and is meeting with most encouraging success.

Hyam Cohen, who has conducted a diamond, watch and jewelry business for thirty-six years at the same location, 37 South Illinois Street, is selling out to retire from business. Mr. Cohen is one of the oldest and best known merchants on the street, while he has always occupied the same location, his storeroom has been refitted and remodeled from time to time and is now a very handsome and beautifully fitted-up room.

The first Sunday in May was observed as Memorial Day by the local aeries of Eagles. An elaborate service with especially fine music was

held at English Opera House. John P. Mullally, president of the Indianapolis aerie, made a fine introductory address. Mr. Mullally is the well-known jeweler in Monument Place.

A number of gold nuggets, found in the gold regions of Southern Indiana, formed an interesting part of Carl L. Rost's window display recently. The nuggets, worth from \$3 to \$11, were mined by the Gold Creek Mining Co., in which company Mr. Rost holds stock.

The largest ring ever made in Indianapolis was recently sold by the Fidelity Watch & Diamond Co. It was a Red Man ring, of the official design, and measured size 19½. When displayed in the window with a baby ring (size one) placed beside it, the ring attracted much attention and amusement.

An electric enameling furnace has been added to the workshop of the A. P. Craft Co., and the working force increased by the importation of two fine engravers from Chicago. This firm is the first in the city to commence the Saturday half-holiday for 1905. E. M. Craft, of the firm, has returned from a trip to Dayton and other Ohio cities in the interest of his firm.

F. M. Herron's big street clock has been thoroughly overhauled and put in perfect order. The severe weather of last winter had caused some of the parts to work with a little friction and as Mr. Herron is determined to give the public perfect time, the clock was taken apart and carefully gone over. This clock has become one of the landmarks of the city and can be relied upon at all times.

A Daring Burglary

The post office at Sweetser, Ind., six miles west of Marion, was burglarized April 20th. The post office is located in the jewelry store of Elmer Veach, who suffered a loss of \$100 in jewelry. Entrance to the store was gained through a rear door. The combination of the outer door of the safe, containing the stamps and jewelry, was worked and the inner door and strong box were opened by the use of a "jimmy." Stamps valued at \$300 and a small amount of money were taken. The police had no clue, but suspected the gang that operated along the line of the C., C. & L. Railroad for some weeks previous.

Simon Kiser, of S. L. Kiser & Co., had to give up his road business for over a week last month on account of a severe attack of "pink-eye."

John Bernloehr was absent from the store several days recently, being confined to the house by illness.

J. H. Reed drives to and from his store in a wagon or road-cart that bears his name, in neat gold letters, and the announcement that he repairs clocks and bronzes. The cart is used as a delivery wagon and is an effective means of keeping his business before the public.

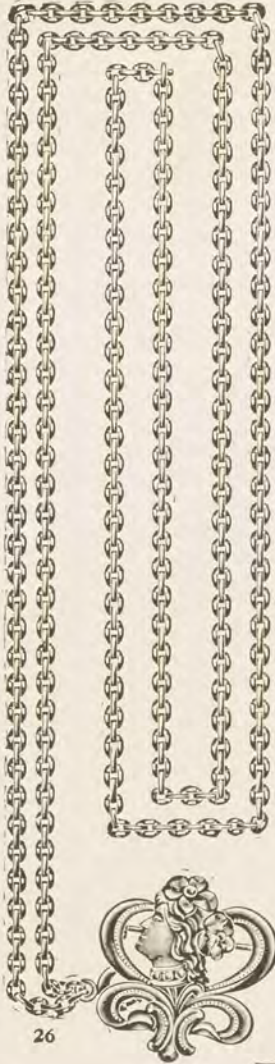
C. H. Gardner, on Massachusetts Avenue, conducted a "closing-out sale" during May.

J. Hill, 636 Massachusetts Avenue, conducted an auction sale for a few days early in May.

Ben Couchman, manager of the tool and material department of S. T. Nichols & Co., visited in New Castle, Ind., recently.

The Major family owns the largest tract of ground in one farm in Shelby County. It contains 1700 acres and is owned by two brothers and their two sisters, one of whom is Mrs. Frank C. Sheldon, wife of the well-known jeweler, of Shelbyville, Ind.

The jewelry business of Cooper, Dumas & Short, at Knox, Ind., recently passed into the hands of P. E. Dumas, who will enlarge the stock and make other improvements.



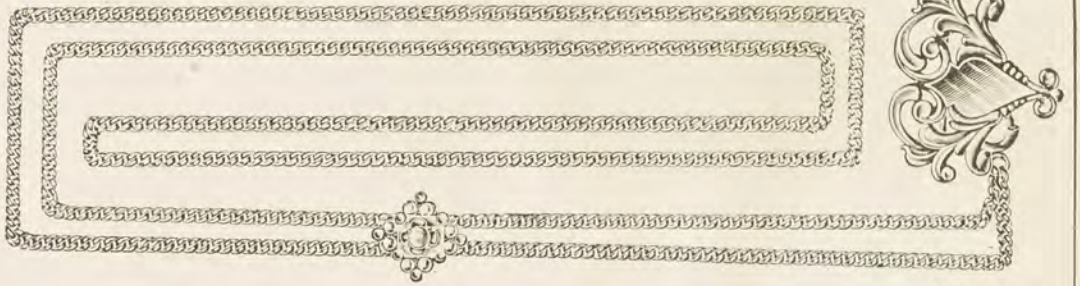
TRADE-MARK

MARSH COMBINATION



PATENT APPLIED FOR

Makers of Fine Chains



31/1141

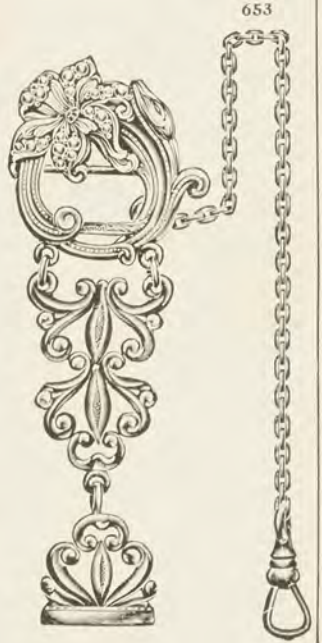
The Chatelaine Pin may be worn separately or in combination, as desired

We manufacture a full line of **LADIES' LORGNETTES, MARSH COMBINATION, NECK CHAINS and FOBS.** Also **GENTS' FOBS, VEST CHAINS** and **GRAND VIZIERS** in great variety, which are sold through the leading **WHOLESALE** houses.

Ask your jobber for the Marsh Combination, the best-selling ladies' chain on the market

C. A. Marsh & Co.

ATTLEBORO, MASS.



653

DESCRIPTION OF KEYSTONE JEWELER'S OUTFIT

Made of oak, finished light antique, golden or flemish oak, or made of birch, imitation of cherry or mahogany finish. Glass, double strength AA quality.

WALL CASES.—Base part 30 inches high, 23 inches deep, outside; three drawers in center, cupboard either side with hinged paneled doors. Upper part 59 inches high, 17 inches deep, inside. One 10-inch, one 12-inch and one 14-inch wide shelves on brackets. Shelves and interior lined with dark blue felt. Two doors sliding up and balanced by weights.

SHOW CASES AND TABLES.—42 inches high, 28 inches deep, outside.

Show case front glass 14 inches high, top glass 24 inches wide, front and top in two lights each, horizontal sliding doors lined with American mirrors. These tables have hand-sawed French legs.

SCREENS.—66 inches high to top of rail, 71 inches high over all, paneled below, glass above.

We can furnish jewelers any quantity of wall cases, show cases, tables and screens immediately. Send list of each kind required and we will be glad to quote prices. We send our catalogue upon request.



OUR No 2 KEYSTONE JEWELERS OUTFIT
 UNION SHOW CASE CO
 DESIGNERS & MANUFACTURERS
 105 E. LAKE ST.
 CHICAGO ILL.



Trade Sound Despite Rains

Texas has been suffering from a prolonged spell of wet weather, with consequent delay of planting operations. It, therefore, remains for the Lone Star State to sustain her old-time reputation for rapid recovery from temporary agricultural setbacks. Business generally is by no means depressed, but rather sufficiently animated to indicate sound basic conditions and suggest rosy possibilities if all were well with the farmer. We hope to report this much-desired consummation next month.

The Southern Horological Institute

In many respects Dallas may be called the coming city of the Southwest, and we are gratified to report that horology holds a worthy place in the general business and mechanical development. In the near future, it is said, we are to have established here a technical training school devoted to horology, and to be known as the Southern Horological Institute. From the inception of this institute we may doubtless anticipate many accretions to the watchmaker's ranks and a general heightening of the standard of mechanical skill so far as it relates to horological work.

W. W. Otto, of Austin, has discontinued business in that city.

Jim Walton, of Fort Worth, was a recent visitor in Dallas.

W. A. Peck, of Denison, attended the Shriners' meeting here recently.

H. Iversen, of the firm of H. Iversen & Co., was in Dallas some weeks ago, attending to special business.

W. B. Dutton, of Weatherford, was among last month's visitors.

H. H. Hawley, formerly with the firm of Morgan & Hawley, who has been spending some time in Huntsville, spent several days in Dallas recently.

L. Niveth, who for a number of years was in business in Paris, was in Dallas, looking for a new location. He finally became established at Bonham.

R. L. Reese, of Corsicana, had a successful auction sale recently, which was conducted by R. P. Hill.

R. L. Russell, of Farmersville, was a recent visitor to this city.

R. D. Saunders, of the firm of Saunders Bros., of Paris, spent several hours in Dallas, looking over the various stocks of jewelry.

J. H. Gordon, of Schultz & Gordon, Fort Worth, was in Dallas a few weeks ago, and reported good business conditions in his town.

N. Curry has returned from a two-weeks' visit at Marlin Wells.

E. Hall, who has been located on Elm Street for a number of years, has removed to a location close to the court house on Main Street.

M. Holland, of Marshall, has been here, buying some fill-in goods.

D. Davis, of Sanger, was in the city recently, buying some tools to add to his outfit, among them a nice lathe with attachments.

L. Lechenger, of Houston, Texas, has remodeled his store and installed a good deal of additional shelving.

W. S. Guthrie, of Terrell, was a recent visitor to this city.

Texarkana is to have two public clocks, one on the city hall and the other on the court house, both of which buildings are centrally located. These timepieces will cost \$1200 each.

M. W. Walker, of Waxahachie, was in Dallas recently, after returning from a visit to relatives in Illinois.

Hall Shuttles, of the firm of Shuttles Bros. & Lewis, is at this writing in the Eastern markets. A. T. Threadgill, traveling representative for the firm, is spending a short vacation in Mineral Wells.

W. E. Heald, of San Angelo, was in Dallas recently, making some purchases.

P. J. Narry, of Narry & Mitchell, Venus, Texas, was in the city recently, looking over a line of musical instruments which he intends to add to his stock in the near future.

C. L. Norsworthy, of the firm of O. L. Norsworthy, was last month called to the bedside of his mother, who was dangerously ill, but we are glad to learn that she has greatly improved.

R. W. H. Hamilton, traveling salesman for C. L. Norsworthy, recently returned from a six-weeks' trip. Mr. Hamilton reports business very good.

Will. Mitchell has retired from the Shuttles-Mitchell Co., and the business will be continued by W. E. Mitchell.

The wholesale houses enjoyed visits from quite a number of jewelers throughout the State during the recent K. of P. gathering at Mineral Wells.

Indianapolis Letter

(Continued from page 923)

Smallest Stationary Engine

An Indiana jeweler, John H. Cunningham, of Eaton, has made and operated the smallest stationary engine in the world—it runs by steam and rests on a five-cent piece. The following description is taken from a local newspaper: "The little engine operates at a remarkable rate of speed under a pound of steam. So small are some of the parts, that a magnifying glass is necessary to make a proper examination of them. The screws that hold the parts together are made from needles, the threads being so fine as to defy the naked eye. The screws are a fraction of a millimeter in diameter. The fly-wheel measures about three-eighths of an inch in diameter. It was turned from steel by Cunningham, who says that it is the largest wheel that the engine will turn. The engine has one-sixteenth of an inch stroke; the cylinder head measures one-eighth of an inch in diameter, while the capped cylinder head measures a fourth of an inch. The striking boxes are packed with lint scraped from silk thread, cotton being too coarse for the purpose. Cunningham cannot estimate the power of the little contrivance whose steam is generated in a boiler made from a hand bicycle pump and heated by a gas jet. The engine thus far has never been able to overcome greater resistance than that furnished by the fly-wheel. The engine was first built on a five-cent piece, and Cunningham has now mounted the coin and engine on a small stand. The piping for the engine is a small copper wire drilled out in the center and running to the boiler, which is several times the size and weight of the engine."

Philip Diels, of Marion, Ind., recently presented a handsome bust of Frederick Froebel, to the free kindergarten of his town.

J. S. Veirs has removed his jewelry business from Knox, Ind., to Mansfield, Ohio.

Denver, Colo., has become the home of T. C. Winkler, who removed his jewelry business from Rockport, Ind.

On May 1st burglars plundered the jewelry store of C. Genung, at Kirklin, Ind., taking fourteen gold watches and a number of set and plain band rings. This was the second time within a few weeks that the same establishment was robbed. The first time goods valued at several hundred dollars were carried off.

Edward Nix, at one time located at Stillwell, Ind., has opened a new jewelry store at Van Buren, Ark.

Walter D. Chapman has gone out of the jewelry business. His store at Akron, Ind., has been discontinued.

J. C. Nutter, for many years located at Martinsville, has removed his stock to Gosport Ind., where he is well located on the principal street.

Thieves recently made an early morning raid on the jewelry store of Robert F. Denny, at Plainville, Ind. A wagon was used to carry off the plunder, which included a number of pieces of silverware, fourteen clocks and half a dozen watches.

After many weeks spent in the Runnels' Sanatorium, in this city, Mrs. Whittaker, wife of Jeweler D. S. Whittaker, of Lebanon, Ind., has been removed to her home, from where encouraging reports have been received as to her condition.

During the first week in May, Mr. Washburn, of Washburn Jewelry Co., Anderson, Ind., visited his store after several months of nursing a sprained ankle, the result of a fall on an icy sidewalk.

C. A. Bassett, Anderson, Ind., recently moved into larger quarters and added a full line of musical instruments.

Fred. Stebbins has opened a drug and jewelry business at Montezuma, Ind., and reports trade as very fair from the start.

Geo. P. Warner, of Tuscola, Ill., was a recent buyer in the Indianapolis market.

Frank Eaton, a mussel fisherman, found a pearl near New Harmony, Ind., in the Wabash River, last month, which he sold in New York for \$700. It was the largest and most valuable pearl ever found in that vicinity.

Geo. L. Spahr, Lebanon, Ind., was among the recent visitors in the city, where he did some buying for the home store and visited his brother, John Spahr, a well-known lawyer and politician.

E. B. Webb has disposed of his stock of jewelry at Plainfield, Ind., and gone West. He will probably locate in California.

William Goodman has retired from the jewelry business. He was located at Gas City, Ind.

John C. Smith has removed his jewelry business from Hudson, Ind., to Waterloo in the State, and is admirably fitted.

K. J. Timmerman, Batesville, Ind., recently visited the Cincinnati market to replenish his stock.

J. E. Micks, Elkhart, Ind., is taking an extended pleasure tour through the West.

Mr. and Mrs. Harry B. Greyer, Muncie, Ind., have returned from their wedding trip and have gone to housekeeping.

The store room occupied by Klein Bros., Muncie, Ind., is soon to be torn down and a six-story modern building erected on the site. In this new building Klein Bros. have leased the corner room, which will have a 40-foot front, 40-foot rear and 60-foot side, all of the finest plate glass. By November 1st, the firm expects to be settled in these handsome new quarters with an entirely new stock of the finest goods carried by an up-to-date jewelry store. The safes and watch bench will be the only pieces of furniture now used by the firm, that will be given space in the new rooms.

Jewelers from different parts of the State recently visiting the city were: C. N. Hetzner, Peru; J. W. Thompson, Danville; Joseph Meyers, Brookston; Geo. L. Spahr, Lebanon; Aaron Pursell, Noblesville; A. Mols, Bloomington; T. H. Barnes, Roachdale; J. A. Pickett, New Castle; J. A. Oswald, Crawfordsville; H. L. Rost, Columbus; J. W. Hudson, Fortville.

926



Mr. Jeweler.

Dear Sir:

Are you doing anything with Gold Shell Rings? If not, why not? What do you think of these Signet and Wedding Rings? They are 14 K. Gold Shell, stamped with our Registered Trade-Mark and guaranteed to wear for Twenty Years in constant use.

Write to us to-day for a line of samples, and we will send them at our expense.

Yours truly,

RHODE ISLAND RING CO., INC.

103 Sabin St.

Providence, R. I.

KLEIN SCHOOL OF OPTICS

185 Summer St., Boston, Mass.
The only Optical School in the world where students serve a regular apprenticeship on bench and in office. All instructions are practical. Fees, \$75.00 for whole course. No correspondent courses. Address,

Klein School of Optics
185 Summer St., Boston, Mass.

PRESCRIPTION OPTICIAN
Promptness and Accuracy

Don't forget that there is more than one place in New England where they do Standard R Work. Our shop is up to date. Try us.

EBEN HARDY
Room 405 21 Bromfield St., Boston
Telephone 4397-3 M.

AUGUST F. SCHERER
ENGRAVER
ROOMS 71-72
373 WASHINGTON ST. BOSTON
JEWELERS BLDG.
I employ six engravers the year round. Can give prompt attention to mail and express packages.

Send for sample sheets of illustrations for newspaper advertisements, circulars, letterheads, envelopes, etc., specially prepared for jewelers and opticians.
THE KEYSTONE
19th & Brown Sts., Philadelphia, Pa.

Watchmaker to the Trade

Established 1893 4 Experienced Assistants

Watches Demagnetized
Repairing of all kinds

JOHN S. LOWELL

373 Washington Street

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Manufacturer of

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A full line of all descriptions at lowest market prices. Mail orders promptly executed
Jewelers' Building 373 Washington St.
Rooms 71 and 72 BOSTON, MASS.

FIRST-CLASS
JEWELRY REPAIRING
FOR THE TRADE

DIAMOND SETTING
SPECIAL ORDERS PROMPTLY FILLED
MASONIC JEWELS
FINE HAND CARVING

HARRY SMITH

JEWELERS' BUILDING, ROOM 76 TEL. 1795-4 MAIN
373 WASHINGTON ST., BOSTON

F. Schnetzer, Jr., & Son
Watch Case Repairers

Gold Plating and Watch Case
Coloring Materials

Especially attention given to Watch Case Repairing, Springing, Re-Engine Turning, Engraving, Polishing, etc.
Particular attention paid to Orders by Express.

21 Bromfield Street, Boston, Mass.
Room 508



CANDO
SILVER POLISH
IS THE BEST

not only for the consumer but also for the JEWELER to sell

PAUL MFG. CO., Boston, Mass.

When writing to advertisers, kindly mention The Keystone



The month of May in the business centers of New England was generally a dull month. But, strange to say, the suburban jewelers are reporting extra fine trade for this season. All are hopeful of a steady increase in the month of June, which is usually a good month for the jewelers. Undoubtedly, the retail merchants' associations, of which there are many springing up in the small towns and cities, have had considerable to do with keeping the trade in their own hands. Buyers, as a rule, are stocking much heavier as well as earlier than usual, evidently in anticipation of a good trade. The farmers in the outlying districts are reporting the most severe drought in years, but the rainy spell in the middle of the month tended to prevent any serious consequences to the crops.

Nathan Sallinger, of Boston, whose valuable diamond and sapphire scarf pin was stolen from him while on the cars, has positively identified a Michael Galman, of Boston, as the thief. He has a long record, but denies all knowledge of the affair.

C. A. Syman, of Randolph, Mass., has recently left the hospital, where he had his leg amputated. Although his present condition inconveniences him considerably, he is quite cheerful and claims to feel much better than for years past.

Norman Treat, the popular young salesman, who formerly had charge of the leather goods at Bigelow, Kennard & Co.'s, has severed his connection with that firm. He is now with Bailey, Banks & Biddle, of Philadelphia.

The business of Smith, Patterson Co., of Boston, has so steadily increased that they have planned extensive alterations, to be made after Christmas, as they have been unable to properly handle the growing business within the limits of their present floor space. They have leased the entire building of five floors for a period of fifteen years. The street floor will be lowered to the level of the street. The change will be a great advantage to the firm and will afford them the needed facilities.

John A. Covelle, the official watch inspector of the Boston & Maine Railroad, is making one of his many extensive trips over the system, calling on the sub-inspectors.

Geo. O. Skoog, of Maplewood, Mass., who has been confined to the hospital for a number of weeks by a serious operation, is now on the road to recovery, but will be unable to attend to business for some time to come.

We regret to announce the death of W. S. Anderson, the veteran jeweler, of Charlestown, Mass., at his home in Somerville, on May 7th. He was seventy-two years old and had been in the jewelry business for fifty years. His death is a loss not only to his family, but to the many people with whom he had business dealings as well, as he was highly respected and well liked by all who knew him. He leaves a wife and two daughters, one of whom has had considerable experience and will continue the business.

Geo. E. Homer, of Winter Street, Boston, has been making extensive alterations in his store. An entire new front and new wall cases, which have been installed, will make him better fitted to cope with his rapidly increasing patronage.

Jim Nelson, of Chelsea, tells a very good story on himself. He is an ardent motorist and

was recently invited out by a friend, who owned a speedy car. After traveling some distance, our friend was invited to run the machine. They were hardly under way again before they were stopped and their names taken. Jim was going to have fun with the officer, but as he laughingly explains it, "he had fun with me and it cost me \$10."

G. H. Frary, of Weymouth, was the unfortunate victim of a daring thief, who succeeded in stealing \$50 worth of jewelry.

The Jewelers' Club of Boston held its quarterly meeting and banquet on Tuesday, May 9th. This interesting reunion was presided over by the president of the club, C. O. Lawton. A short business session was held prior to the banquet, at which the resignation of E. A. Bigelow from the secretaryship of the club was received and accepted and Woodbury Melcher was chosen to succeed him. The project of holding a ladies' day outing early in June was one of the subjects discussed.

Attleboro was honored by a visit from Baron Kaneka and Jun Ichino Suzuki, under the guidance of Osborne Howes, of Boston. The intricate devices used in the manufacture of jewelry in the various factories which they visited, elicited their admiration. They were highly pleased with the trip.

F. S. Davis, of Boston, Mass., was recently the victim of a diamond thief, who quickly snatched a valuable ring from the tray and ran out of the store. After a long chase he was caught, but the ring was not recovered.

A decision has been granted by the Supreme Court at Washington in favor of J. B. Humphrey, against C. T. Tatman, trustee in bankruptcy of Nelson H. Davis, Worcester, Mass. Morrill Bros. transferred a chattel mortgage of May 6, 1899, on Davis' stock to J. B. Humphrey. The mortgage was not recorded. On April 30, 1901, Mr. Humphrey took possession, under the terms of the mortgage, of the stock and fixtures belonging to Mr. Davis, who on May 23, 1901, filed a voluntary petition in bankruptcy. The case was vigorously pushed by the New York Jewelers' Board of Trade, acting for the unsecured creditors, who, after much litigation, secured a decision, that Mr. Humphrey was not entitled to a preference under his mortgage. The decision has since been reversed by the Supreme Court of the United States, Justice O. W. Holmes delivering the opinion.

Arthur Smith, of the Crescent Watch Case Co.; E. H. Heath, of Brockton, and Martin Zerega, of Percival's, have purchased launches built by W. E. Geyer, also of D. C. Percival's. Mr. Geyer is the inventor of the Geyer reversible propeller. He is at present negotiating with a number of the larger European shipbuilders for the sale of the European rights to his patent, which has proven to be a most valuable one. By reason of his mechanical ability, coupled with his ingenuity and his thorough knowledge of boats and boating, in the construction of which he is an adept, he has successfully solved the problem of the best reversible propeller on the market.

On May 24th, the centennial of the Grand Commandery of Massachusetts and Rhode Island, the first of its kind, was held in Boston, where were representatives of all the United States and Territories, Canada and England. The parade was scheduled to start at 11 A.M., on a long route through the principal streets of the city. After the parade, banquets were served by the various lodges. An elaborate programme was arranged for the evening. The gala day was voted by all to be a grand success in every respect and one long

to be remembered. Among the many jewelers, who are high in the order, are: Eben H. Cain, Geo. E. Homer, E. E. Hardy, Frank Nathan, H. R. Arnold, Chas. Sinclair, H. L. Gruber and M. N. Smith.

The W. E. Woodman Co., formerly of Tremont Row, who have been auctioneering off their accumulated stock, have moved into the store on the corner of Washington and Bedford Streets, where they will occupy the entire building. They were fortunate in securing so fine a location in the center of the business district.

A. A. Robert, of the former Boston firm of Robert & Foster, has planned a three-months' trip through Europe, where he will be accompanied by his family. He will visit his many friends and relatives and travel through the more interesting sections of Europe.

The following jewelers have visited Boston recently: A. E. Garnsey, Sanford, Me.; V. W. Hills, Norway, Me.; C. F. Godfrey, Brockton, Mass.; F. H. Bowers, Taunton, Mass.; Jos. Lajoie, Worcester, Mass.; Geo. E. Twambly, Saco, Me.; G. W. de Mars, Lawrence, Mass.; A. P. Sundborg, Worcester, Mass.; H. P. N. Dahl, Maynard, Mass.; Harry F. Howe, Littleton, N. H.; A. C. Tucker, Whitman, Mass.; L. R. Hapgood, Orange, Mass.; J. P. Farrington, Kingston, Mass.; Hugo Beil, Lawrence, Mass.; W. L. Pierce, Stoughton, Mass.; N. C. Squire, Lynn, Mass.; J. H. Conner, Lynn, Mass.; W. W. Oliver, Maynard, Mass.; S. Gurney, Brockton; L. W. Weston, South Framingham, Mass.; Jos. Geoffrion, Manchester, N. H.; F. S. Scales, Winchester, Mass.; Gustav A. Schmidt, Lawrence, Mass.

Art Engraving as an Advertisement

Nothing so well reflects the tone of a jewelry store as fine engraving. Workmanship like that shown in the inscription here illustrated is a permanent, trade-bringing advertisement for the jeweler. The illustration is one of hundreds shown in that masterly portfolio "Hornikel's Engravers' Text-Book," the greatest compilation of artistic letter-work ever published.



The work consists of sixty-one page plates of letters and monograms, pretty patterns and all manner of combinations—all styles of monograms for all kinds of purposes, for lockets, spoons, trays, cigarette and match cases, loving cups, rings, fobs, etc.

No matter what engraving work a jeweler may have to do he will find a model for it in this book. No description of it would suffice; it must be seen to be appreciated. A copy will be sent post-paid to any part of the world on receipt of price, \$6.00 (£1 5s.)

For sale by THE KEYSTONE

19th and Brown Streets, Philadelphia, Pa.
42 Madison Street, Chicago

—Adv

JEWEL CASKET

THAT IS A JEWEL ITSELF

Size, 5 x 3 x 3 1/4 inches high

Patent applied for



- No. 3581, Jewel Casket, Ormolu Gold, \$2.82 each
- “ 3582, “ “ French Gray, \$2.19 each
- “ 3582-s, “ “ Silver, \$2.50 each

Prices subject to trade discount

“THE BREAD WINNER”

Illustration 1/2 size

The finest and most appropriate design ever conceived in the line of a Bread Tray



- No. 350 Patent applied for
- French Gray finish
- List price \$2.50 each less trade discount

ANCHOR SILVER PLATE COMPANY

San Francisco, Cal.: 738 Mission Street
Chicago, Ill.: Palmer House

Works: St. Paul, Minn.

EZ=FLOE

A SOLDERING SOLUTION that is *good*. Will not lose its strength. *Note* the way it is put up—in a *ground glass stopper bottle*. The jobber as well as the retailer can see this advantage at a glance.

Free—Free—Free

A year's supply of "Silver Solder" free. Write for particulars.



For Sale by

- Sischo & Beard, St. Paul, Minn.
- Reed-Bennett Co., Minneapolis, Minn.
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- Otto Young & Co., Chicago, Ill.
- A. Hirsch & Co., Chicago, Ill.
- F. W. Schmidt & Co., Chicago, Ill.
- A. C. Becken, Chicago, Ill.

Our book "How to Hard Solder" sent *free*. A postal will do.

EZ=FLOE CHEMICAL CO.

904 Globe Building

St. Paul, Minn.

LEADERS OF THE NORTHWEST

Kirchner and Renich

MAKERS & REPAIRERS OF JEWELRY

WE RETURN ALL REPAIR WORK SAME DAY AS RECEIVED.

SEND IN YOUR NEXT PACKAGE AND OPEN AN ACCOUNT WITH US.

10=59 Seventh St. MINNEAPOLIS, MINN.



The retail business conditions are not as hopeful as they were a month ago. The past thirty days have been very quiet, and the quietness has not been confined to the jewelry trade but extended to all lines. Dry goods merchants join the others in complaining of poor sales. There have been unfavorable weather conditions to contend with, and when these conditions prevail little can be expected from the trade of the gentler sex, on which the retailer must largely depend. There seems to be plenty of money in the country, and the general business conditions are good; building is being carried on to a larger extent than in previous years; stocks are higher as compared with last year, and still the retail trade languishes. Furthermore, this is not a local condition, but seems to be general. Such at least are the reports the boys on the road are forwarding to headquarters.

Webb C. Ball, accompanied by Mrs. Ball, spent last week in Washington, D. C., attending the meeting of the International Railroad Congress.

At a recent meeting of the Retail Merchants' Board of the Cleveland Chamber of Commerce, J. H. Danforth, secretary and treasurer of the Cowell & Hubbard Co., was elected president of the board. Mr. Danforth has been closely allied with the board's interests since its formation.

The jobbing trade are planning another tour of the State. This trip is given by the chamber of commerce and has been the means of advertising the city's interests in a very satisfactory way. The jewelry jobbers will be represented by H. W. Burdick, of the Bowler & Burdick Co.

Frank P. Martin, manager of the porcelain and art department of the Cowell & Hubbard Co., will sail for Europe in a few days on his annual buying tour. All the important centers of Europe will be visited.

William Wingate, of the Wingate-Nusbaum Co., is receiving the congratulations of his friends over an heir and son.

Adolph Numvar, the optician, has severed his business relations with Mr. Klein, in the New England Building, and is now located in the Central Trust Building.

J. P. Johnston, optician, Colonial Arcade, has taken Jack Hubbard into partnership. Mr. Hubbard for some time past has been in the insurance business, but decided to return to his former occupation of oculist. The firm of J. P. Johnston & Co. is well known to Ohio readers, and the business has been made successful by advertising.

A. E. Knight, formerly with Arnstine Bros. & Mier as traveler, has joined the forces of the Scribner & Loehr Co., and will cover the territory formerly covered by Mr. Merrill.

The Continental Jewelry Co. is another jewelry concern to move up town. This concern will occupy the second floor of the new block which is being erected on Euclid Avenue, opposite Dodge Street.

F. B. Strawn, the Arcade jeweler, suffered the loss by death of his wife last month. Mrs. Strawn has been in Florida all winter, and her decease was very sudden and unexpected.

W. E. Cawood, Toledo, Ohio, has sold his interest in his jewelry business to J. G. Kapp, 415 Summit Street.

Wm. Strath, for some years past with Scribner & Loehr Co., was operated upon at St. Alexis Hospital, and the surgeons removed one kidney which had become diseased. He is rapidly recovering and hopes to be out in a few weeks.

E. H. Holter and wife have sailed for Europe, and will spend the entire summer abroad. Mr. Holter is one of the ex-jewelers of Oberlin, Ohio.

S. J. Gilger, Norwalk, Ohio, announces the leasing of a new store room from the Huron Co. Bank, which will be fitted up in a strictly first-class style and occupied about August 1st. This will be one of the best-appointed stores in Northern Ohio.

Eugene Chatelaine, one of the pioneers in the jewelry business in Wooster, died recently in Millersburg, Ohio, to which place he had removed when he retired from the jewelry business a number of years ago.

E. E. Critz, Elyria, Ohio, has incorporated his business into a stock company under the name of the Critz-Haserodt Co. The incorporators are E. E. Critz, O. P. Haserodt, G. B. Haserodt, M. S. Critz and F. F. Sanford. The capital stock is \$10,000.

N. E. Hascall, with J. J. Freeman, Toledo, is in Europe, buying diamonds for his firm.

A. J. Harris, formerly with Mr. Wade, Warren, Ohio, has bought the interests of John Burri, New Philadelphia, Ohio.

C. P. Coyne, 122 Euclid Avenue, is in New York on a business trip.

The following out-of-town dealers were among last month's visitors: W. J. Higgins, Shelby, Ohio; C. M. Wilson, Salem, Ohio; H. Coleman, Massillon, Ohio; Geo. High, Medina, Ohio; Ed. Nolf, Wadsworth, Ohio; L. J. Goddard, Ravenna, Ohio; H. S. Sumner, Akron, Ohio; W. J. Eroe, New Castle, Pa.; Harry Downs, Bellevue, Ohio; C. J. Duncan, Massillon, Ohio.



May business for the first half of the month was disappointing to both retailer and jobber in this section, the quietness being undoubtedly caused by the continuous rain, there not being a clear day among the first seventeen days of the month. The weather is now bright and warm and no doubt business will pick up correspondingly. Another cause for dullness in the retail line was the fact that farmers were all seeding, being favored in this by the gloomy weather. It just rained enough to keep the ground in good, light condition. June, the month of brides, roses and commencements, is the summer holiday season for the jeweler, and will prove itself a good month to all that prepare for it. The meeting of the American Association of Opticians at Minneapolis, in July, is already being discussed by Northwestern optometrists, and plans are being laid to visit the Twin Cities at that time by a large number. Local reports tell of great enthusiasm and the attendance will be large. The visitors can rely on a grand programme, as the "men behind the guns" are known as good "entertainers," not to speak of their ability to give "more than value received" to all in the way of instructive matter. The committees in charge of arrangements have the matter well in hand, and are waiting the proper time to

fire the signal gun, and only request us to announce at this time that "all optometrists in the United States are expected to be in Minneapolis, Minn., the last week of July, 1905."

Tom. Morris, Crookston, Minn., has returned from West Baden, where he spent several weeks trying to rest up and regain his health.

F. J. Kobarle, Ellsworth, Wis., is now located at 612 Broadway, St. Paul, Minn.

N. Michals, Hubbell, Mich., has sold out to Xavier Gillet and moved to Hancock, Mich., where he reopens for himself.

McGruer & Wold, Langdon, N. Dak., have enlarged their store, repapered and brought it up to date.

K. K. Lee, Fosston, Minn., has moved into his new store.

N. K. Olson, Crookston, Minn., died last month. M. A. Bratrud has bought his stock and will continue at the old stand.

E. A. Brown, St. Paul, Minn., the oldest jeweler in the city, has been succeeded by the E. A. Brown Company, incorporated, with a capital of \$50,000. The incorporators are: E. A. Brown, Emil H. Koerner, J. F. Moyer and Roy D. Correll.

The E. D. Best Optical Co., a corporation, has succeeded to the optical business of E. D. Best, Minneapolis.

Edw. Schoepp, a graduate of Stone's School, St. Paul, has started in business at Alma, Wis.

W. M. Thurston, for the past two years with H. H. Starr, New Richmond, Wis., has gone to Ironwood, Mich.

Burglars entered the store of S. C. Hone, Osceola, Wis., May 8th, and robbed it of everything of value. The loss is particularly hard on Mr. Hone, as he had just got started nicely.

G. R. Simons, Langford, S. Dak., passed through the Twin Cities last month, on his way home from a three-weeks' visit East.

John Berthelemy, lately with C. N. Murphy, Neche, N. Dak., has begun business at McHenry, N. Dak.

Wm. Plackner, Benson, Minn., has returned from a three-weeks' visit to his old home, Arlington, Minn.

M. J. Kaliber, Westhope, N. Dak., has just completed his new store building.

R. Branchard, Cavalier, N. Dak., has just repapered and painted his store, which looks bright and cheerful.

S. J. Steiglitz, Crookston, Minn., has moved into his new store.

C. C. Folkers has begun business at Benridge, Minnesota.

O. T. Jacobson has moved from Colfax, Wis., to Cyrus, Minn.

A. C. Van Valkenberg has started in business at Eden Valley, Minn.

Miss Blanche, eldest daughter of C. F. Sischo, of Sischo & Beard, St. Paul, was married last month to Robert C. Gibson, of Los Angeles, Cal. THE KEYSTONE'S hearty congratulations to the happy young couple.

L. T. Smith, for the past year with I. M. Radabaugh, Hastings, Minn., has gone to Nielsville, Wis., where he starts in business for himself.

C. H. Nerbovig, Mankato, Minn., was a delegate to the O. E. S. convention at Minneapolis last month.

John Engrisch is the new jeweler at Eden Valley, Minn.

Albert Goodman has reopened his store at 322 Jackson Street, St. Paul.

E. B. Nelson has begun business at 1535 East Franklin Street, Minneapolis, Minn.

Clark Long, formerly at Britt, Iowa, is now located in Sprague, Wash.

Geo. W. Dillon, Manley, Iowa, spent a few days last month visiting his son at Litchfield, Minn.

E. W. Boyce, Rhinelander, Wis., has gone to work for A. S. Putnam & Co., Manistique, Mich.

Martin Loken, lately with A. O. Banks, Michigan, N. Dak., has started in business at Petersburg, N. Dak.

Visitors to Twin City jobbers the past month were: Wm. Plackner, Benson, Minn.; Jno. C. Marx, Shakopee, Minn.; I. M. Radabaugh, Hastings, Minn.; H. D. Strauch, Le Sueur Center, Minn.; Charles Sorenson, Albert Lea, Minn.; G. R. Simons, Langford, S. Dak.; O. T. Jacobson, Cyrus, Minn.; C. H. Nerbovig, Mankato, Minn.; W. A. Swain, Osage, Iowa; L. R. Barnett, Glendive, Mont.; Mr. Hoover, of Foster & Hoover, Truman, Minn.; Geo. W. Dillon, Manley, Iowa.

The Giant in Quality of in Sales Collar Buttons



The Standard Collar Button

Millions of Krementz
One-Piece Collar Buttons
made, and are sold
all over the world

WHY? Because of their HIGHEST QUALITY, BEST CONSTRUCTION, GIVING THE MOST WEAR, AND GREATEST COMFORT and their IRON-CLAD GUARANTEE.

To verify this we invite the trade to read "The Story of a Collar Button, with Illustrations," which may be had FREE for the asking, and to try the experiment suggested on page 5 of that booklet, by which all may easily determine the exact amount of 14 K. gold in Krementz plate.

Extract from "Printers' Ink,"
Nov. 23, 1898.
The Little Schoolmaster now suggests, to every pupil in his class, to send a two-cent stamp to Krementz & Co., 49 Chestnut Street, Newark, N. J., and ask to be favored with a copy of their leaflet, "The Story of a Collar Button." Afterward, if any pupil will send to *Printers' Ink* another leaflet, new or old, that is half as good as this one, or that approaches it in excellence, the deserving student will be rewarded with one of *Printers' Ink's* souvenir spoons as an acknowledgment of his discovery and contribution. "The Story of a Collar Button" is the best piece of advertisement construction that has come to *Printers' Ink's* attention in the year of our Lord 1898.

Should you wish to utilize this booklet to increase your collar button business, we will, on receipt of your order, print your card upon and send you a quantity of them.

The several qualities of Krementz One-Piece Collar Buttons are stamped as follows, ON BACK :



Patent Sustained by United States Supreme Court

Quality and Construction have made Its Reputation

All Krementz Collar Buttons—of every quality—are Manufactured by

KREMENTZ & CO.

in their Factory

49 Chestnut Street
NEWARK, N.J.

PARKS BROS. & ROGERS
20 Maiden Lane, New York
Selling Agents to Jobbing Trade

The Perfect Shape Umbrella

"MAIDEN BALTIMORE"



No Springs.
No Screws.

As a jeweler you want exclusive designs. *This we give you.*

We make UMBRELLAS and CANES for the jewelry trade, of sterling quality, which you can sell with a guarantee (we stand back of this).

Our latest patent DETACHABLE HANDLE UMBRELLA has proven the greatest seller in the umbrella line.

Should our representative not reach you, write for samples. Will send express paid.

Siegel, Rothschild & Co.

418-420 West Baltimore Street

Baltimore

Ohio Flint Glass Company

LANCASTER, OHIO

WE desire to call the attention of the Jewelry Trade to a line of goods which is made by a different process from the ordinary methods used for producing a high-grade line of goods. We call this line the **CONCORD**, and this name is covered by trade-mark.

We make it in a large variety of goods, and samples will be furnished at the regular prices. Illustrated catalogue will also be mailed, with complete price-list to cover it.

The line is well worthy of attention, and the goods are without competition, both in quality and in prices.

Solid Gold Signet Rings



4080
4 dwt.

4113
4 dwt.

5092
5 dwt.

4085
4 dwt.

3086
3 dwt.

3098
3 dwt.



2087
2 dwt.



1088 B
1 1/4 dwt.

All rings finished in Polished, Rose or Roman gold. We make a complete line of Signet Rings. Send for our sheet of new designs and special reductions in prices.

S. FRACKMAN, Manufacturing Jeweler
51 Maiden Lane, NEW YORK



Following a backward spring, trade has been fairly active during the past month. The repair trade has been dull, and manufacturers say that it has been an unusual thing for all branches of the business to grow lethargic at the same time. Dealers in diamonds and high-class watch movements report a good business. The indications are that all lines will enjoy in a few weeks a greater amount of activity than has been experienced for months past.

A. Weiler, of Greenwood, Miss., passed through the city on his way to New York, to make some purchases. He stopped over long enough to visit old friends.

Harry B. Greyer, of Muncie, Ind., accompanied by his bride of but a few days, stopped over in this city on their honeymoon trip to the East.

A. A. Spiegel, with Gustave Fox & Co., recently made a Western trip, taking in States as far West as the Pacific Coast. He will be absent some time.

Louis Rauch has remodeled and entirely refitted his present quarters in the Commercial Tribune Building, and is handling a larger line of goods than heretofore.

John Herschede, with the Herschede Hall Clock Company, made a trip through the South, and was so successful that he has started on an Eastern trip of several weeks.

Mr. and Mrs. William Oskamp spent some days in Kansas City, visiting relatives and friends and attending the wedding of their niece, Miss Jones.

P. D. Freeman, of Ashland, Ky., was in the city for the purpose of purchasing fixtures and stock. He has completely remodeled his old store.

A new bank, with a capital stock of a half million dollars, has been organized by local capitalists, to be known as the Queen City Savings Bank and Trust Company. It will open quarters in the Carew Building, at Fifth and Vine Streets, July 1st.

W. C. Ward, of Winchester, Ky., was here some days, looking for a buyer for his business. Mr. Ward desires to close out his present establishment at Winchester, with a view to leaving that section.

Miss Rita Oskamp, a daughter of Mr. and Mrs. Henry Oskamp, was married on Easter Monday to Harry Breneman, a well-known young business man, at the Grace Episcopal Church, Avondale. The event was a notable one in social circles, in which the young bride was a favorite. The best man was Howard Oskamp, while John Richardson, Herbert Oskamp and Alpheus Collins were ushers. The ceremony was performed by Rev. McCready, assisted by Rev. Harriss. The young people will make Cincinnati their future home.

A boulder-thrower recently smashed a show window of the White Topaz Diamond Company, and got away with a considerable amount of jewelry.

A. L. Thomas, of Sistersville, Va., was among the out-of-town buyers who left neat orders. He reported business good in his section of the State.

Charles Sederberg, the Milford jeweler, whose store was looted some months ago, just after he had installed a new stock, has been able to recover almost all of his goods through the assistance of the local authorities. Bloodhounds were used to trail the thieves, and located them in a neighboring village. When arrests were made much of the plunder was found.

George Simper, the Vine Street jeweler, has started on an extended trip through Europe and Africa, and expects to return home with some choice diamonds. His first protracted stop was to be Amsterdam. Leaving there he will tour through Spain and then cross the Mediterranean Sea into Africa.

Miss Ida Coons, a young lady well known to the trade, who was in the employ of D. Jacobs & Co. a number of years, was recently married to James King, a young business man of this city. Her many friends wish her every happiness.

The firm of Weber & Smith, which was burned out at Delta, Ohio, some time ago, has dissolved partnership. Mr. Weber has become allied with the Gehring Brothers, the new firm being known as Gehring Bros. & Weber.

Stickel & Wyant is the name of a new firm which has opened at 109 Garfield Place. The firm began business as the National Jewelry Company, but when informed by Secretary E. P. Wilson, of the board of trade, that such a firm-name was already in use in the Arcade, they decided to abandon it in order to avoid confusion in getting mail.

Albert Bros. report a good spring business, their traveling men having toured a number of States with great success.

Fred. and D. Gruen, who sailed for Europe some weeks ago, recently sent back word of their safe arrival in Paris, where they will remain some time.

R. Jacobs & Co., who have been doing business at 14 East Pearl Street, have arranged to move into the new building at 17 West Seventh Street.

W. L. and J. C. Miller, of the firm of Miller Bros. & Co., have made extended trips through Ohio, Indiana and other States.

G. F. Gallup and wife, of Catlettsburg, Ky., spent a few days here, buying spring goods. They later continued their trip to the East.

There was born to Mr. and Mrs. Eli Gutmann, at their suburban home, on May 3d, a fine girl. Mother and the young heiress are reported doing nicely.

T. H. Bowen, of Elgin, Ill., was here early in the month, looking about for new fixtures for his store. He reports business booming to such an extent that he was obliged to increase his store and stock.

Joseph Noterman, the senior member of the well-known firm of Noterman & Co., diamond dealers, was honored May 1st by the mayor of Covington, Ky., who appointed him a member of the water works commission. The appointment was one which met with the approval of the commercial interests of Covington. This makes the second manufacturing jeweler of this city, living in Covington, who has been awarded political honors in the recent past, Edward Croninger being a member of the Covington city council.

The wholesale and jobbing firm of S. & H. Gilsey, who have been located at 6 East Pearl Street for some years, has joined the up-town movement by securing new and handsome quarters on Race Street above Fourth.

In order to secure concerted action in movements tending to boom the city, twenty-seven commercial organizations recently united in creating a central governing organization known as the Cincinnati Associated Organizations, which exercises a limited jurisdiction over each of the individual members, yet reserves to them their individuality. The new body started in by pledging itself to promote a better park and boulevard system, and is making its first issue the elimination of railroad grade crossings in the suburbs of Walnut Hills. The opening was created by the early expiration of the franchise of the C. L. & N. Railroad, which is seeking a perpetual renewal. The Associated Organizations demands that the city insist on the abandonment of grade crossings inside of the city limits before the franchise is renewed.

The police of Hartford, Conn., have arrested a man wanted in this city to answer to the charge of raising and forging post office money orders upon a number of local jewelers. The man's game was to buy an order for twenty cents and then raise it to a larger amount, which he would pass in payment for small purchases. The post office department brought about the man's arrest. He operated under various names.

Charles Esberger, Sr., retail jeweler, of 1116 Vine Street, has enlarged and improved his store and reports a prosperous spring business.

All the salesmen for E. & J. Swigart were on the road during the past month and reported business in general to be very good. A large number of good bills were sold by them, indicating that the trade which is to be had is of a superior quality.

Clay Henry, of Portsmouth, Ohio, announces his intention of selling out his business in that town and moving to another city, the location of which he has not yet decided upon.

Edward Bosche, the retail jeweler, at 612 Elm Street, died recently, after a brief illness. The business will be conducted temporarily by his heirs.

J. E. Mitchell, jeweler, of Fort Worth, Texas, stopped off to visit friends for a few days while on his way to New York and the East to do some extensive buying. He brings the information that business is thriving in Texas.

Edward Mittendorf, the genial manager for E. & J. Swigart, after having been confined at his home for several months, suffering from pneumonia and a complication of other troubles, was able to be out and assume his duties again early in the month.

Charles M. Davidson, a younger member of the Davidson family of jewelers, has given up the newspaper business to go with the firm of E. & J. Swigart. He was connected with the *Times-Star* in a reportorial capacity some years, but felt that he had not been cut out for the strenuousities of that calling and returned to his first love.

An automobile belonging to James Holland, of the John Holland Gold Pen Company, was badly damaged a short time ago in a collision with a carriage team. One of the horses was killed in the smash and the other was badly injured, while the auto came near being wrecked. Mr. Holland and his chaffeur were both badly shaken up by the collision.

An auction was started by R. H. Dilley, retail jeweler, of Cambridge, Ohio, on May 15th, with the purpose of closing out his entire store and quitting the business in that town.

William Plueger and the remainder of the traveling force with Jos. Noterman & Co., were out on the road during the past month and took in a number of the surrounding States.

Solomon Fox, of the manufacturing firm of Fox Brothers & Co., and his son, Burton, arrived in Europe some weeks ago and are now taking in the sights of France and Italy. They will remain abroad several months.

S. Strauss, of the firm of Lindenberg, Strauss & Co., recently returned from a three-weeks' trip to New York, where he went in the interests of the firm.

A. J. Simpson, who has been in the retail business at Williamstown, Ky., moved his business to New Richmond, Ohio, where he has opened handsome new quarters.

Walter Eisenschmidt has severed his connection with the retail firm of L. C. Eisenschmidt & Brother, of Newport, Ky., and left a short time ago to open a business under his own name at Charlestown, West Va.

Both members of the firm of Neal & Aden, of Paris, Tenn., were among the jobbers a few weeks ago and reported business in their section to be flourishing. They left a number of neat orders before departing.

David Gutmann, of Eli Gutmann & Sons, is home from a visit to Mt. Clemens, improved in health. He left on a short business trip to the East, after his return.

The following were among the visitors to the trade during the past month: L. A. Boli, Hamilton, Ohio; R. Schloch, Vanceburg, Ky.; W. C. Ward, Winchester, Ky.; P. D. Freeman, Ashland, Ky.; A. Weiler, Greenwood, Miss.; H. B. Greyer, Muncie, Ind.; T. H. Bowen, Elgin, Ill.; John Selbert, Frankfort, Ky.; R. J. Zimmerman, Batesville, Ind.; W. H. Grosse, Dayton, Ohio; G. F. Gallup and wife, Catlettsburg, Ky.; R. C. Beer, of Beer & Barth, North Vermont, Ind.; Mr. Kyle, of Kyle & Tate, Xenia, Ohio; George Krecke, Lexington, Ky.; G. H. Hansgen, Bethel, Ohio; Peter W. Starks, Manchester, Ohio; R. H. Dilley, Cambridge, Ohio; Adolph Lehne, Mechanicsburg, Ohio; A. L. Thomas, Sistersville, Va.; A. C. Davis, Coolville, Ohio; F. A. Schweeting, Oxford, Ohio; C. A. Gossard, of Gossard & Co., Washington, Ohio; S. C. Frantz, DeGraff, Ohio; J. H. Drake, Lebanon, Ohio; S. E. Bariow, Georgetown, Ky.; L. P. Brockman, Augusta, Ky.; Mr. and Mrs. Throp, Greensburg, Ind.; Neal & Aden, Paris, Tenn.; Frank Fullilove, Owenton, Ky.; Mr. Beutel, of Beutel Bros. & Co., Hamilton, Ohio; G. F. Schermund, Greenville, Ohio; Alfred Cook, with Frank Taylor, Carlisle, Ky.; Wm. Crowder, Bessemer, Ala.; J. E. Mitchell, Fort Worth, Texas; A. J. Simpson, Williamstown, Ky.; Henry Morman, Germantown, Ohio; Charles Sederberg, Milford, Ohio; Albert Bland, Greenfield, Ohio; Nicholas Sanning, Walton, Ky.; H. Reisinger, Lawrenceburg, Ind.; A. K. Diefenbach, West Alexandria, Ohio; Oscar Finch, Chillicothe, Ohio; L. C. Diefenbach, Lewisburg, Ohio; S. C. Pettit, Folsom, Ky.; C. H. Creighton, Morrow, Ohio; R. A. McClelland, West Union, Ohio.

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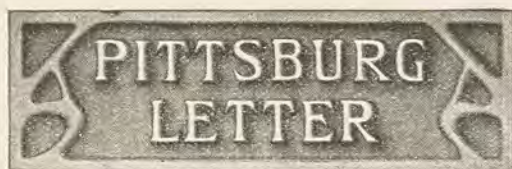
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Local Trade Conditions

The jewelers in this city, almost without exception, say that the month of May has been unusually dull for them. While they look for a quietness during that month, the dullness this year seems to have been more pronounced than usual. Various causes have been assigned for this condition. Some say that the weddings have been scarce, and that the people generally are not disposed to buy liberally in view of the high cost of living. Others say it is simply a spring lull, and find considerable satisfaction in the future outlook. Pittsburg jewelers can always find some bright spot on the horizon, and they are calling attention to the approach of June with a number of fine weddings scheduled, which will help matters generally. The opening of tennis and golf tournaments with the summer season and the annual commencement exercises of the schools, colleges and seminaries of the city, are factors of no small importance. There are complaints concerning abnormally high rents this year as last. "If this keeps up much longer" one dealer said, "it will simply force the jeweler out of business, because he cannot possibly make a living and pay all he can hope to earn to the landlord."

An incident that attracted some attention in the trade early in May was the sudden death of Benjamin Hirsch, well and favorably known in Pittsburg business circles. Mr. Hirsch was a tailor of considerable means. He was the father-in-law of Samuel Harris, one of the active men in the jewelry company of that name, which went to the wall in March, and closed three stores in Pittsburg. After going into bankruptcy, Mr. Harris was made a defendant in a criminal suit brought by M. Shiff & Company, of New York, on the grounds that he had falsely represented his financial responsibility in obtaining credit. Mr. Harris was convicted, but it is said the conviction was largely technical. The day after the conviction, Mr. Hirsch went to his lawyer's office to learn the outcome of the case and was informed of the result. He took the conviction to heart, and turned to go with an expression of sadness in his face. He suddenly fell to the floor, and in a few moments died. Doctors said that the shock and grief had induced apoplexy.

New Stores Opened

With the beginning of June, two new retail stores will have opened in Pittsburg. One has leased a small floor space, cut out of the old Baltimore and Ohio railroad ticket office in Fifth Avenue near Wood Street. This store has been elaborately fitted up, the fixtures being particularly handsome. Herbert L. Joseph & Company, of Chicago will have this store. The second store is around the corner in Wood Street, and will be occupied by S. A. Sampson & Company, also of Chicago. This also will be handsomely fitted up. Both stores are finely located in one of the busiest sections of the city.

Gillespie Brothers, in the Park Building, have completed changes and alterations in their handsome store. It is twice as large as formerly, and being on the second floor of this building, the rent question has not assumed such an important role as it would on the ground floor. The trade of this firm has increased steadily however. In the

new store there has been an enlarged cut glass department magnificently arranged, while new fixtures and new stocks of all kinds appear. The cases are in oak designs, and the large windows of the store make the place handsome with their display of fine stocks. A. A. Gillespie, who has been spending some time in the country on a vacation, is now arranging to go to Europe in July, to make the annual purchases of diamonds and French bronzes. The trip will combine pleasure with business, and will last some weeks. Mr. Lang, of this house, is at present building a handsome new home in Allegheny, and will occupy it during the coming summer.

It was in discussing trade conditions that Mr. Gillespie expressed the idea, in contradiction to the common theories, that the jewelry trade is not the barometer of business that it is supposed to be. Mr. Gillespie argues that it is wrong to say that people buy jewelry only when they have lots of money and are prosperous. His experience has always been that there are a large body of the public that will buy in bad times as well as good times. Wedding presents will be purchased if other things have to suffer, and the demand remains active in dull seasons for many lines. Gift-making in America has reached a point that makes it a social necessity, and hence, it is not always safe to measure business conditions generally by the state of the jewelers' trade. Some of the other members of the trade agree with this view.

Reviewing the results of the last Merchants' and Manufacturers' trip into Northern Pennsylvania, the G. B. Barrett Company stated that the trip covered a territory that has been usually well canvassed by Buffalo trade, and while much was accomplished for Pittsburg jewelry houses, yet the Ohio and West Virginia trips were more pronounced successes. Others yet to come will be still better.

Heeren Brothers & Co., are operating their factory with full force, and while noting a general quietness in trade, look for a normal year under readjusted business conditions all over the country. The small retailers are not buying heavily, preferring to let their stocks get down to absolute necessities and depending on replenishing their lines as needed.

Vilsack & Company, whose handsome store in Fifth Avenue is greatly admired because of its ever-changing displays of unusually high-class stocks, has been doing excellent business. The window decorations have been superb, and a feature of them has been the constant bringing out of the newest art goods and bronzes. Among the latter being electroliers of various types and other rich novelties.

Auction sales are becoming less as the season advances. A few are still being held, but they are small affairs and have little influence on the general trade. The list of small shops with cheap stocks and looking-glass fronts are dwindling fast. This is said by many to be an illustration of the indisposition of the working classes to buy much that is not in the line of necessities. Without a rush of trade, such shops cannot meet the high rents and high taxes of this district. The optical trade is in good shape according to most of the dealers. The appearance of a number of new stores in the lower business district indicates continued expansion in the business.

Cut glass, as a jeweler's stock, seems to be in transitional style. This is said to be due to the influx of a cheaper line of goods at popular prices. The lowering of prices of these goods is destroying their attractiveness to many of the more fastidious buyers, whose custom is much sought for. Some of the dealers said this month that if the practice of cutting pressed glass or completing ware partially of pressed design by the hand or machine process continues, there will soon develop a sharp division of this line of goods into low or commercial, and high or art grades. He placed samples of two lines mentioned together and showed how strikingly they differed. The result of this poorer grade has had the effect of bringing down the price of the art goods in many instances, and leaving small margins of profit, but the readjustment, it is believed, will soon be a fact.



The Optical Convention

The principal event of interest to the jewelers and opticians of Kansas City and vicinity the past month was the annual convention of the Missouri and Kansas associations of opticians, which was held at 1016 Grand Avenue, Kansas City, May 9th and 10th. More than a hundred delegates came from all over Kansas and Missouri, and devoted the sessions to the discussion of optical questions, the election of officers and the hearing of lectures. The social side of the convention was not neglected, and the visiting delegates were shown the "time of their lives." There are separate associations in Kansas and Missouri, and this is the first time that they have ever met in conjunction, but the convention was so successful that it was decided to hold the two annual meetings simultaneously next May. The big social event of the convention was, of course, the banquet, which was given at the Midland Hotel. It proved to be a most enjoyable affair both from a material and intellectual point of view, for the banquet itself was very elaborate, and the speeches were remarkably witty.

The visiting opticians availed of the occasion to visit the wholesale optical houses of the city and made a thorough investigation of all the improvements in the optical line. Many of them made purchases and all of them made friends.

Walter Jaccard and Mrs. Jaccard will sail early in June for a stay of several months abroad. Mr. Jaccard goes primarily to pick up new Parisian jewelry designs, but no doubt will make a big purchase of bric-a-brac, bronzes, etc., at the same time.

George H. Edwards and N. R. Fuller went to New York last month for a stay of several weeks. They will visit the principal jewelry centers of the East before returning.

W. J. Gurney, of Gurney & Ware, served on a jury last month in a case of violation of the Sunday law for saloon closing, and participated in fining the culprit.

The Kansas City Commercial Club has returned from what was one of the most successful trade extension trips it ever made. The jewelry and optical branches of Kansas City commerce were represented by Leo H. Ludwig, of Edwards & Sloane Jewelry Co.; D. C. Prudden and C. B. Norton, of the C. B. Norton Jewelry Company.

Emil Fricke, of Meyer's, is to leave soon for an extended trip through the East.

The W. E. Cannon Jewelry Company, with headquarters in the Dwight Building, went into voluntary bankruptcy last month. The liabilities have been estimated as high as \$85,000, and the assets cannot be determined until the end of the invoice, which is now progressing. The business was conducted by Mrs. M. G. Nesbit, formerly Mrs. Cannon, who succeeded to its management upon the death of her husband.

The J. Perlin Jewelry Company, at Tenth and Main Streets, lost a quantity of valuable bric-a-brac last month through the collapse of a big glass shelf in the show window.

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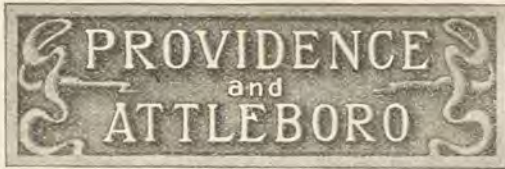
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Japanese Visitors to Attleboro Jewelry Factories

The establishments of McRae & Keeler, D. F. Briggs Co. and D. E. Makepeace Co., Attleboro, were recently inspected by three notable visitors from the Orient, to wit., Baron Kaneka, personal representative of the Emperor of Japan; Jun Ichino Suzuki, attache of the Japanese Legation, and Osborne Howes, of Boston, honorary consul to Japan. The Japanese notables were much impressed by the ingenious methods of manufacture in vogue in American factories, and manifested a keen and intelligent interest in the various productive processes explained to them.

Death of William W. Flint

William W. Flint, senior member of the Providence jewelry manufacturing firm of Flint, Blood & Co., passed away recently at his home, 214 Bowen Street, Providence, in his sixty-eighth year. Mr. Flint's death resulted from Bright's disease and was the culmination of a four-years' illness from that malady. He was a native of New Hampshire, and his first experience in the jewelry business was as an apprentice in the factory of Northrup & Thurber. During an epoch of depression in the jewelry trade he became a book agent, afterwards joined the navy, but eventually abandoned the sea and re-entered the jewelry field, this time joining the firm of Brown & Sharpe. His next connection was with Cheney & Battell, and after working five years for this firm he was joined by Joseph F. Blood, James A. Young and Benjamin A. Holbrook, and the quartette launched a business under the firm-name of Flint, Blood & Co. The retirement of Mr. Holbrook in 1878 occasioned a change in the name to that of Flint, Blood & Young, but the original title was resumed at the death of Mr. Young, ten years later. In March, 1904, the firm was incorporated, and Mr. Flint became its president. Deceased held high rank in the Masonic fraternity, and among the many floral tributes laid upon his bier were a wreath from Orpheus Lodge, to which he belonged; a triangle from Pawtucket Council, a cross from St. John's Commandery and a broken column from the Scottish Rite Lodge.

A Handsome Catalogue

The Chas. M. Robbins Co., Attleboro, announce they have in press the most complete catalogue of college goods, enameled souvenir spoons and sash pins, fobs, medals, badges and emblems ever issued. It contains over one hundred pages, is profusely illustrated and artistic in typography. The cuts are richly executed and regularly numbered, and the goods themselves include a great wealth of beautiful designs.

Death of Chas. J. Heimberger

After an illness, which continued for three years, Chas. J. Heimberger, senior member of Heimberger & Pearson, manufacturers of jewelers' findings, 158 Pine Street, Providence, died on Monday, May 1st, at his home in Pawtucket. He was born in Germany sixty-one years ago, learned the trade of diesinker and toolmaker in Russia, and came to the United States in 1870 with Cassius M. Clay, then United States Minister to Russia. The object of this joint mission was to introduce into this country the electro-depositing of iron for printing plates to

supersede electro plates, the Russian government having given Mr. Clay the necessary permission. The project, however, met with indifferent success, and so Mr. Heimberger was soon following his regular trade in the New World. Before many years had elapsed he had built up a substantial business. He began manufacturing jewelers' findings in 1885, and this enterprise developed rapidly. In 1896 he was joined in partnership by Peter Lind, but this connection continued for only three years, when Mr. Lind retired and was succeeded by William J. Pearson, the firm's traveling representative. Then it was that the firm-name of Heimberger & Pearson was adopted. Mr. Heimberger's fraternal affiliations included membership in the Lassing Lodge, I O. O. F. A widow survives him.

Col. Sidney O. Bigney, of S. O. Bigney & Co., Attleboro, recently made formal announcement of his candidacy for the governor's council. Col. Bigney has a notable record as a conspicuous worker in the Republican ranks and has always been the vigilant and sturdy spokesman of the jewelry industry in all matters affecting its interests. He represented the Attleboro congressional district at the last Republican national convention.

At the request of Joseph L. Sweet, of the R. F. Simmons Co., Attleboro, the corner stone of the new public library in that town, the erection of which is largely due to Mr. Sweet's generosity and personal initiative, will be laid under Masonic auspices. The stone to be used in the ceremony was brought from the King Solomon quarry by Mr. Sweet during a recent tour of the Holy Land.

The Paye & Baker Mfg. Co., North Attleboro, in order to provide the increased space and facilities demanded by their growing business, will make an addition to their present building. A new structure will be erected on the west side of the company's shop, having a frontage of 50 feet on Richards Avenue and extending backwards for a length of 30 feet. It will be a wooden building, two stories high and affording an aggregate floor area of 3400 square feet.

The Relief Association of Irons & Russell, Providence, passed a pleasant evening on Friday, May 5th, in the hall at 23 Weybosset Street. An enjoyable musical programme was rendered in which many of the employees of the firm acquitted themselves very creditably. The musical features were followed by a dance, which brought the function to a close. The event was in charge of the following committee of arrangements: George A. Manchester, chairman; William G. Nixon, secretary, and George N. Tanner, treasurer.

The death of Wm. B. Durgin, late president of the William B. Durgin Co., Concord, N. H., was followed by the announcement that the Gorham Mfg. Co. had acquired a controlling interest in the Durgin corporation. The business will be continued on the same lines as heretofore, with such expansion and introduction of new methods as the new proprietorship may decide upon. The Gorham Company is incorporated under the laws of Rhode Island, and is capitalized at \$5,000,000. At the last session of the legislature, the charter was amended so as to enable the company to purchase shares in other corporations. Their first use of this privilege was in the purchase of the Whiting Mfg. Co. some months ago, and this has been followed by the acquisition of the Durgin corporation.

The Wolcott Mfg. Co., is the name of a recently incorporated Providence concern, the object of which is to engage in the business of manufacturing and selling jewelry. The capital stock is \$30,000, and the incorporators are Henry Wolcott, William I. Macomber and John Rister.



Wholesalers to Visit Retailers

At a meeting of the board of directors of the Merchants' and Travelers' Association, held some weeks ago, it was decided that merchants should make a tour of the State and meet their customers personally, with a view to bringing them into closer touch with the wholesale trade of Philadelphia. The party, numbering about one hundred in all, will leave Philadelphia on the morning of June 26th, stopping, according to the published itinerary, at Coatesville, Lancaster, Columbia, York and Harrisburg. They will leave Harrisburg on June 27th, going thence to Newport, Mifflintown, Lewistown, Huntingdon and Bellefonte. From Bellefonte, on June 28th, they will go to Lockhaven, Williamsport, Newbury and Scranton. Leaving Scranton on June 29th, they will visit Wilkesbarre, Hazleton, Mahanoy City, Shenandoah, Ashland and Pottsville. From Pottsville they will journey on Friday, June 30th, to Reading, Phoenixville, Norristown and thence back to Philadelphia. At each of these towns they will separate, call upon and renew friendship with their regular customers and make the acquaintance of other dealers with a view to securing their patronage.

"Bargain Clocks" Exploded

The purchase of a package by Louis Perelman at a recent auction sale of unclaimed freight had an unexpected and almost tragic sequel. The purchaser believed his package contained two clocks. Instead of these, however, the contents are reported as having consisted of a clock or portions thereof, an electric battery and a coil of wire. He interested a policeman in his purchase and began experimenting with it in the hope of discovering its utility. His five-year-old son was present and kept his face in close proximity to the batteries. One of the coils was attached to each battery. The percussion cap was exploded and the two men and boy ran. The boy was hit in the forehead with a piece of copper and another imbedded itself in the father's ankle. The officer carried the mysterious apparatus to the station house. The explosion gave rise to a report that an infernal machine had gone off, and for hours the neighborhood was thronged with the curious.

Wm. T. Miller, 2010-2012 Ridge Avenue, is the inventor of a motor which is specially adapted to the operation of the bellows of church organs. Its utility, however, will scarcely be confined to this one function, as it will in all probability become practicable as the motive power in other contrivances. Mr. Miller is a mechanic of more than ordinary skill and resource, from whose inventive genius may be anticipated, no doubt, many other creations of interest and use.

Robert L. Saunders, of 13 South Eighth Street, has acquired the adjoining store at number 11 South Eighth Street, thus considerably increasing his space and enlarging his facilities to cope with a growing business.

Horace N. Tuttle has opened an office as a jobbing jeweler at 925 Chestnut Street, this city. Mr. Tuttle was formerly connected with N. H. White & Co., New York, but previously was with H. O. Hurlburt & Sons, Philadelphia, for ten years, and is therefore well known among the trade in the Quaker City.



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

Alabama

A. Malmgren, of Thorsby, has sold out his business at that location to Olaf Schive, of Illiopolis, Ill. Jeweler Malmgren's address will be 524 Pearl Street, Sioux City, Iowa, until such time as he finds a new business location.

Canada

F. Claringbowl, the well-known jeweler, of Hamilton, Ont., recently changed his location, having removed from 8 James Street, South, to 22 McNabb Street, North. The new quarters afford an appreciable increase of space and are very handsomely equipped. A capacious window of plate glass provides fine frontal display facilities, and the interior furnishings are prettily finished in cherry and fancy glass. The lighting arrangements are abundant, consisting of an electrical and gas apparatus combined. The store is steam-heated, and includes a comfortable workroom and well-appointed optical department.

Delaware

Joseph Kern, the well-known jeweler, of 719 Market Street, Wilmington, sailed for Europe on May 18th, for the benefit of his health. Jeweler Kern will be gone three months. He contemplates shortly retiring from business.

Illinois

Robert P. Kiep, of Joliet, has vacated the store in which he had been established for the past ten years, and has become temporarily located in other premises. Prior to his removal, he held a three-weeks' auction sale, for the purpose of reducing his stock. The old store is being torn down, and on its site, which is his own property, Jeweler Kiep will erect a new and modern building, which he expects to occupy next fall. This will be equipped throughout with new and handsome fixtures, and will contain an ample vault.

Geo. E. Feagans, the well-known jeweler, of Joliet, Ill., announces his removal from 110 to 308-310 North Chicago Street, in a four-page folder in maroon ink on coarse brown stock. The reading matter on this folder has all the brevity, point and directness which have given such distinction to Jeweler Feagans' advertising. A formal opening was held in the new store on Tuesday, May 9th, from 2 to 10 P.M., and was attended by a large number of admiring visitors, to each of whom was given a suitable souvenir of the event. The new quarters, which are composed of a double store, measure 44 x 100 feet, afford 4400 square feet of floor space and admirable light. Mr. Feagans' folder says: "We believe we made a record during the past twenty-three years at our old store. Here we expect to make another record." No doubt the firm will be as good as its word.

Jesse L. Mullins, who has been engaged in the jewelry business at Morrisonville for the past three years, has purchased the store of Chas. H. Wither- spoon, of Hillsboro, and has installed new fixtures therein, with a view to making it one of the most modern jewelry and optical stores in that section. Mr. Mullins is becoming established in his newly-purchased store, and has sold an interest in his

business at Morrisonville to his cousin, Jesse F. Mitchell, who now manages that enterprise while Mr. Mullins has assumed charge of the Hillsboro store. Both concerns will be run under the name of Gem Jewelry and Optical Co.

John Grear, jeweler, of Jonesboro, died some time ago, after a continuous business career in that place of half a century.

Indian Territory

A. Y. Boswell, of Tulsa, favors THE KEYSTONE with a photograph of his jewelry store. This is a neat and roomy establishment, equipped with modern wall and counter cases. There is an imposing display of cut glass in one of the wall cases, and the counter case standing opposite contains an elaborate array of watches. The other stock is also displayed to good advantage. Jeweler Boswell commenced business in Fairland in the spring of 1894, when only nineteen years old, and continued there until June 1903, when he removed to Tulsa. He carries an extensive stock, and has built up a satisfactory business.

Iowa

Theodore Ernst, of Fort Madison, recently celebrated the fiftieth anniversary of the founding of his business. Although the oldest business man in Fort Madison but one, Jeweler Ernst is still an active worker at the bench. Originally his store was at 736 Front Street, and after occupying that location for a number of years, he removed to his present quarters at 716 Second Street. THE KEYSTONE felicitates Jeweler Ernst upon his long career and continued activity.

Fred. Evans & Co., Le Mars, have issued an interesting and tasteful booklet, measuring approximately 9 x 3 $\frac{3}{4}$, in which they exploit their various lines very effectively. This booklet had features especially suitable for the spring and Easter seasons. Clocks, cut glass, silverware, watches and rings were dealt with in turn, and the final page was devoted to the repair and optical department. Every page is appropriately illustrated, the cuts are well executed and the typography attractive. Prices are quoted throughout, and this together with full and forcible descriptions, no doubt, appreciably facilitate selection. The little book is printed in black ink on white paper, and bound in a stiff, green cover. "We think circular, booklet or catalogue advertising sent out through the mail does us more good than anything else," the firm write, and as the booklet under notice is probably typical of their mail advertising, their experience in this connection seems quite natural.

The death of M. C. Conner, diamond merchant, gold and silversmith, Burlington, occurred recently after a successful business career, in the last-named town, of more than a third of a century. Wm. P. Foster and I. C. McConnell, executors and trustees, continue the business, and will discharge all obligations of deceased in accordance with the provisions of his will and the order of the District Court.

Kansas

C. C. Stevenson, of Pittsburg, has removed back to his old location at the corner of Sixth Street and Broadway, where he has more room, more and better light and increased facilities generally. He has installed some handsome new fixtures, including a fine mirrored window, and will be pleased to greet his many old friends in his renovated quarters. He also had a number of improvements executed upon his home at a cost of \$300.

Michigan

The jewelry store hitherto owned by F. S. Palmer, of Rochester, is now owned by L. E. Palmer, Jr., formerly of St. Louis, Mo. This business has been established for over twenty years, and was formerly owned by D. E. Palmer. F. S. Palmer has opened a jewelry store at Delray.

Missouri

The A. Chenue Jewelry Co., of Cape Girardeau, request us to contradict the statement made in another journal that their business had been sold. The company are enjoying a prosperous trade and have no present intention of disposing of their business.

Montana

J. M. Thompson, formerly in the jewelry business at Eagleville, Mo., has moved to Missoula, this State.

New York

L. Robins, hitherto located at 117 West Washington Street, Syracuse, is now located at 127 North Salina Street, in that city. He recently held an "Introduction sale" of his entire stock and advertised the event quite uniquely and extensively. One of the pamphlets used in exploiting this sale contained a tentative list of the offerings, while on its reverse side there was a long poem in praise of Jeweler Robins' store and service, and of the opportunities which his sale afforded for economic buying.

Carl A. Beyer, formerly in the Chamber of Commerce Building, Rochester, has opened a partnership with D. F. Lewis, under the firm-name of Beyer & Lewis, and the new firm has become established in the Cornwell Building, 156 Main Street, East, Rochester.

The Utica Jewelers' Association held a meeting on Friday evening, May 5th, and adopted a constitution and by-laws. Instructions were given the secretary to communicate with the various jewelry houses of the city with a view of their becoming members of the association. The annual dues of the association were fixed at \$5, and its objects, as stated in the constitution, are to foster the fraternal feeling among members of the trade and to promote their general welfare. Thus far it has met with an encouraging measure of success, and it would seem that it needs only the earnest and continued support of those to whose interest it is devoted to be fruitful of much benefit for them.

Ohio

Davis & Humphreys, of Bellefontaine, have dissolved partnership, and the business is being continued by J. G. Davis, the senior partner.

E. J. Harrison & Co., formerly at Osborn, have purchased the business of Mrs. Clara Smith, at Jamestown, and removed to the last-named place. Their newly-bought establishment is roomy, well appointed and affords all the facilities demanded by this firm's growing business.

W. E. Bargar, hitherto an apprentice with I. E. Spreng, the Sycamore jeweler, has opened business for himself at McCutcheonville as watch and jewelry repairer.

Texas

W. E. Heald, a leading jeweler of San Angelo, has recently disposed of a one-third interest in his business, and has associated with him as partner R. H. Dobyms, recently of Clarksburg, Ind. Until further notice the name of the new firm will be Heald & Dobyms. Mr. Dobyms comes with the highest of recommendations, and we bespeak for the management of the new firm continued success. Mr. Heald has the distinction of being the oldest established jeweler in the city, having been continuously engaged in the business since October, 1889, first as watch and jewelry repairer and later as retail jeweler.

Wisconsin

The co-partnership hitherto existing between Crook & Sikes, watchmakers to the trade, Madison, has been dissolved by mutual consent. Mr. Crook continues the business at the same place.



EISENSTADT
MFG CO.
ST. LOUIS



A CYCLONE
IN RINGS

* * *
OUR IMMENSE FACTORY
MAKES IT POSSIBLE FOR
US TO TURN OUT ALL SORTS
OF ODD SPECIALS TO ORDER
ON SHORT NOTICE

ESTD
1888

A New Enterprise in Ingersoll Watch Advertising

The advertisement shown in reduced size on the right commences a brisk summer campaign to build up sales when business ordinarily drops off.

It occupies conspicuous space in the leading June magazines and will be read by **thirty-five million people**—half the entire country. These people are scattered all around you.

While the advertisement offers to give away 10,000 watches (about one day's output of our factory), it is, of course, calculated to arouse interest and stimulate sales through our dealers. The cash prize contest is directly intended to induce sales.

Helps to Dealers

This whole plan is carefully worked out and is one from which dealers can reap large benefits on their Ingersoll Watch sales.

We would like to explain the plan in detail to you and to tell you how to utilize it so as to get the greatest possible good from it. Specially designed printed and advertising matter is ready for dealers selling Ingersoll Watches.

Write us for full information on your business letter-head, and we will show you a means of taking advantage of this extensive campaign for your personal profit. The people all around will be interested. It is for you to clinch the results.

Remember always that Ingersoll Watches please customers, are guaranteed, are never sold at cut prices, are broadly advertised and sell rapidly and all the time.

Your jobber sells them or we will quote terms and prices.

ROBT. H. INGERSOLL & BRO.

"Watchmakers to the American People"

51 Maiden Lane, New York

304 Masonic Temple, Chicago

\$10500
in Prizes



It Looks Easy Can You Do It?

How soon will the Hour, Minute and Second Hands again appear to be equal distances apart?

To popularize the name of the Ingersoll Dollar Watch, to get it on every tongue from ocean to ocean, it has been decided to offer four square watches to 10,000 people who can send us the correct solution of this problem before September 1, 1935.

Sam Loyd's
Ingersoll
Watch Problem

It is the latest and cleverest problem by Sam Loyd, the world's greatest puzzle genius, inventor of "Puzzles in Clover," "How Old is Sam," and other brilliant brain-teasers.

We hope through this widespread discussion to bring out the fact that the Ingersoll Watch is a practical timepiece, adequate to every requirement of sane souls of the American people, because it is accurate and reliable. No easy conditions are imposed. Send your solution right in.

The full problem is stated above and no further information can be given in fairness to all contestants. \$500.00 in cash prizes in addition is offered to winners of Ingersoll Watches.

If you send 50 stamps with solution you will receive acknowledgment of your answer and a formal entry blank and conditions for the cash prize contest, as for the above and Sam Loyd's book of celebrated puzzles. Awards will be made in accordance with the correct solution furnished by Sam Loyd, which is locked in our safe, inaccessible to any one.

Ingersoll Watches are sold by 50,000 dealers throughout the country, or postpaid by us for \$1.00.

Booklet Free

Enter on an INGERSOLL—the name is on the dial.

Fully Guaranteed



ROBT. H. INGERSOLL & BRO. Jewelers' Court New York

BOOKS FOR

THE NEED OF ACCURACY makes imperative a high standard of watch repair work. No watchmaker can pretend to competency now-a-days who is not a thorough master of adjustments. For this reason no ambitious repairer can afford to be without the one standard treatise on this subject,

THE WATCH ADJUSTER'S MANUAL

the only complete and practical guide in adjusting watches and chronometers for isochronism, position, heat and cold. Third Edition now ready.

Sent postpaid to any part of the world on receipt of price, **\$2.50**



THE BENCH

System in Watch Work demands that a complete record be kept of all watches repaired. This can be done in a moment by using the right kind of watch record book. E. L. Spencer, Richmond, Ind., writes "Send me at once one

Keystone Record Book of Watch Repairs

I have used this style for years and none other satisfies me." This is the opinion of thousands of jewelers who have a thoroughly systematized repair department. The book has space for 1600 entries, with printed headings.

Sent postpaid to any part of the world on receipt of price, **\$1.00**

PUBLISHED
BY

THE KEYSTONE, 19th & Brown Sts., Philadelphia, U.S.A.

The Treasures of the Kremlin

The Wonderful Palace of the Czar—Its Priceless Contents—Furniture Decorated With Gold, Silver and Glass—The Costliest Plate

THE recent internal troubles in Russia and the assassination of the Grand Duke Sergius have given renewed interest to Kremlin castle, the Moscow residence of the Czar. Should revolution ever break out in this historic city the great royal residence would afford unique opportunities for loot, as within its walls are stored untold wealth in gold, silver and precious stones. The barbaric splendor of the furniture is said to be beyond belief. The throne of Ivan the Terrible, for example, is made of solid silver, ornamented with gold and studded thickly with gems. His robe of state, which is still on exhibition, was described by a writer of the fifteenth century as seeming to be one sheet of diamonds, while his neck collar, the bands of his sleeves, and the train that he drew behind him, were within of sable and without of uniform pearls like large drops of water, of the purest whiteness, each being of the value of a male slave." This mantle can be seen any day between the hours of 10 and 3 in the treasury, and the ancient writer did not exaggerate its richness.

According to popular opinion there is in the Kremlin enough useless treasure to pay the public debt of Russia; and in the churches and palaces enough gold and jewels to build a schoolhouse in every village and give an education to every child in the empire. The Czar has twenty-one city and country palaces—all of them sumptuously furnished and filled with costly plate and ornaments—but the palace of the Kremlin surpasses them all for the richness, value and uniqueness of its treasures. The palace of the Holy Synod, which is the official residence of the Metropolitan of the Orthodox Greek Church, contains sacred treasures of similar value. The collection of pontifical robes dates back to the tenth and eleventh centuries, and they are ornamented with rare and valuable jewels. One diamond in the mitre of a Metropolitan who lived in the fifteenth century is valued at \$250,000, and in another is what is claimed to be the finest sapphire in the world, valued at \$100,000.

The priest who showed these things to me a few years ago, writes William E. Curtis in the *Philadelphia Press*, told me, in a naive way, that he believed there was not money enough in all the universe to replace the jewels which were spread before our eyes, and that it would be impossible to duplicate them even if there were money enough to pay the bill. He showed us a ring set with a cameo head of the prophet Daniel, which, he assured us, was made for King Belshazzar, and an alabaster vase said to contain the ointment that remained after Mary had bathed the feet of the

Saviour. That is the chrism brought from Constantinople after the division of the Christian Church, and from it is taken the oil with which the Czars are anointed. One drop is used at the coronation of each Czar, and no more, and it is replaced with an equal quantity of oil, so that the precious ointment never grows less.

Atonement Gifts of the Czars

In ancient times it was customary for the Czars to atone for their sins and excesses by making valuable gifts to the church, and most of them have been retained and can be seen in the collection of the Holy Synod. Ivan the Terrible, after he beat his son to death, presented the Metropolitan at Moscow with a robe that carries fifty-four pounds of precious stones. Other Czars have given similar gifts and they have frequently received presents of enormous value from other sovereigns. Many of them are deposited in the treasury which stands on the opposite side of

in war; and a long row of thrones of old Asiatic princes which conquest has made vassals to the Czars. The throne of the ancient Mongols, of the Golden Horde that overran Russia, stands beside a gorgeous ivory chair blazing with diamonds in which the Shah of Persia once sat.

The next room contains the coronation robes of twelve of the sovereigns of Russia, including that of Ivan the Terrible, of which I have spoken, and that of Catherine the Great, which is so loaded with gems, gold, silver and lace that it required twelve chamberlains to carry the train. Each Czar and each Czarina for two hundred years is represented here. Those of the present sovereigns are the simplest of the entire collection, having been woven in beautiful brocaded designs, of gold and silver bullion thread in the city of Moscow in 1894. They bear no jewels, but are said to have cost \$100,000. Every ornament and every stitch of clothing worn by the Czarina Alix at her coronation, from her slippers to her hairpins, is preserved in a great case of plate-glass upon a life-sized manikin.

In the next room is an assemblage of crowns, most of them coming from the countries where the thrones were stolen. The remainder were worn by the Czars.

In the second story of the treasury is an immense collection of gold and silver plate—the most extensive and valuable in the world—which was made, not for ornament, but for actual use, and is always brought out for the banquet which celebrates every coronation. The Czar and the imperial family use nothing but dishes of solid gold and their guests nothing but

solid silver. This is known as the "imperial coronation plate." There are other collections of plate used by Czars as far back as the eleventh century—much of it decorated with enamel and studded with gems. There are platters more than a yard long, of solid gold, so heavy that one man can barely carry them, and the rim of one tray is set with more than two thousand diamonds.

In a massive case of ebony is a set of beautiful repousse silver plate presented to Ivan the Terrible by Queen Elizabeth, of England, when she sent ambassadors to Russia to inaugurate commerce between the two countries.

There are several rooms filled with gifts that have been received by the different Czars for several centuries back, at their coronations, at their marriages, on their birthdays and on various other occasions, for all such things are considered the property of the crown instead of the individual. Some of them were presented by their fellow-sovereigns, others by cities, corporations, associations and rich individuals. Most of them are superb works of art in addition to their intrinsic value. There are also carriages, harnesses, saddles, swords, weapons used in war and in the chase that are loaded with jewels. The carriage of Catherine the Great has her crest in diamonds, as big as a dinner plate on each door.



Kremlin Castle, the Moscow Residence of the Czar

the court from the Holy Synod, and is a sort of historical museum containing a chronicle of the Empire for a thousand years, written in crowns, thrones and arms.

The guide book says that the jewels and the silver and gold, the accumulation of ten centuries of barbaric splendor and conquest, represent an actual value of \$600,000,000. Skeptics, however, declare that this is a great exaggeration, that while the silver and gold are genuine, many of the jewels are bogus and many more are practically worthless because of flaws and other defects. Nevertheless, there is no such accumulation anywhere else.

Thirty Captured Thrones

In the first room is the finest collection of armor ever gathered together; more interesting and valuable for its antiquity and its associations than for its splendor. In the next room is a collection of more than thirty captured thrones, each with a history. It includes that of Constantine the Great, a sacred relic brought from Constantinople. It is perhaps the only one that came honestly there. The ancient throne of Poland, which was brought from Warsaw in 1833, when that kingdom was made a part of the Russian Empire, stands beside it, suggesting a striking contrast. There are three thrones upon which different Sultans of Turkey have sat, all of them captured

The Winning Goods

for the last

On July 1st our jobbers will be prepared to show the result of our six months' study and labor in perfecting a matchless line of Keystone Gold Cases.

We have *remodeled* our 16, 12 and O size, and the cases which will shortly be shown are the *thinnest* and *most compact* that are practically possible. The new model shows to special advantage in Plain Polished and Engine-Turned, and we ask for them the particular attention of those jewelers whose trade is largely in this description of Solid Gold.

We have introduced a new type of *ornamentation* which is certain to meet with instant favor. We call it

“Brocade”

The texture of this decoration is entirely original, and the effect is most artistic. A soft green contrasts beautifully with the yellow of the vermicelli overlay and the relieving bright-cut. Every jeweler will want a representation of these exquisite patterns in his stock to justify his claim to being up to date.

The Keystone

19th & Brown Sts.,

in Keystone Gold half of 1905

Another very beautiful style of decoration has been named by us

“Etruscan”

The designs are not too daring, yet are striking, and will appeal to refined tastes among your customers. Many of these designs are in combination with “hammered” effects; others have the “modeled” features of plastic work. This decoration is made in O size only.

A third interesting style of ornamentation, in patterns never heretofore shown, is

“Roman with bright-cut”

These will demonstrate newly the unequalled skill of the Keystone staff of artists. They are made in O size only.

The several thousand new patterns of Keystone engraving and decoration call for the admiration of the trade and the public. *Urge* upon your jobber to show you these *new* things—new in shape, new in ornamentation—so that you can keep in line with competitors who will be showing these latest and best in Gold Cases.

Watch Case Co.

Philadelphia

These New 16 Size Howard Watches

are now in the hands of our Jobbers for distribution. They will appeal to all Jewelers whose first thought is for

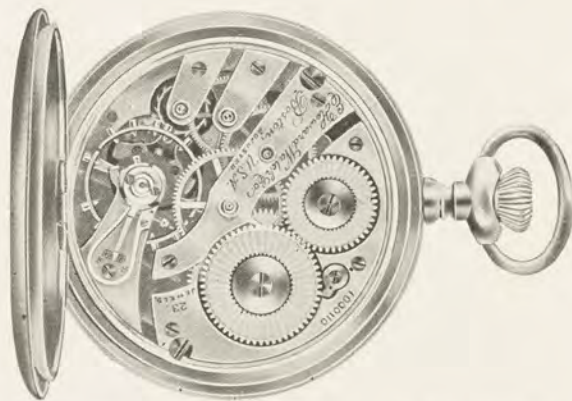
Quality and Finish

These high-grade goods will be sold only as **Complete Watches**, cased in heavy 18 K. or 14 K. **Solid Gold** and **Boss or Crescent** 25-year Filled Cases.

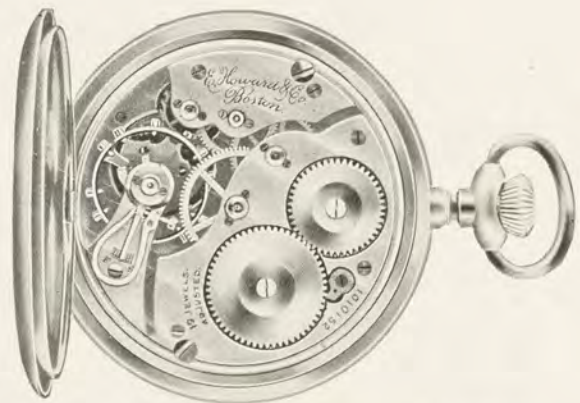
No publishing of trade prices allowed.

The **retail** selling price of each Watch is fixed by the manufacturer, assuring the Jeweler an attractive profit.

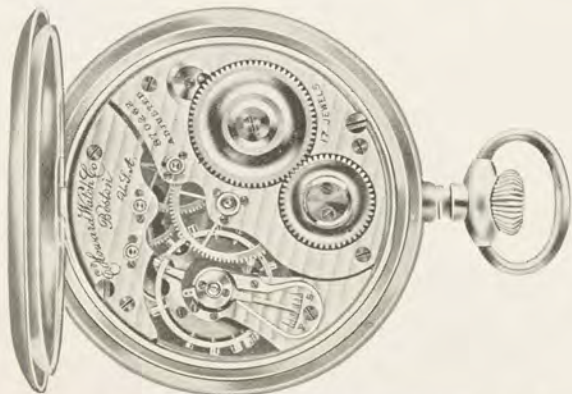
No cutting of prices will be permitted.



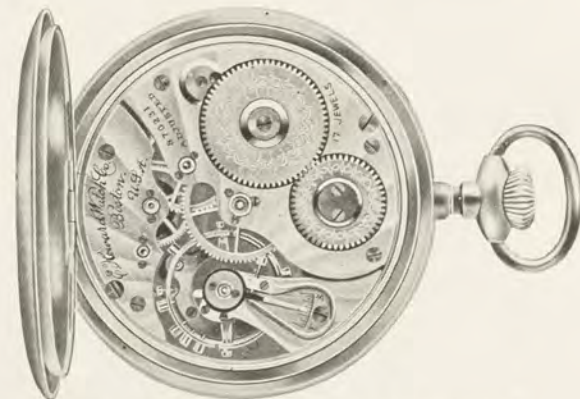
23 ruby and sapphire jewels (raised gold settings); adjusted to 5 positions, temperature and isochronism; breguet hairsprings; micrometric regulator; gold train wheels; double roller; steel escape wheel; sapphire pallet stones; all steel parts highly finished; extra fine, hand-made, double-sunk dial; **timed in the case and certificate of rating furnished with each watch.**



19 ruby and sapphire jewels (gold settings); adjusted to 3 positions, temperature and isochronism; breguet hairspring; micrometric regulator; gold center wheel; double roller; steel escape wheel; sapphire pallet stones; all steel parts highly finished; extra fine, hand-made, double-sunk dial; **timed in the case and certificate of rating furnished with each watch.**



17 ruby and sapphire jewels (gold settings); adjusted to 3 positions and temperature; breguet hairspring; micrometric regulator; gold center wheel; double roller; steel escape wheel; sapphire pallet stones; all steel parts highly finished; extra fine, hand-made, double-sunk dial; **timed in case.**



17 ruby and sapphire jewels (gold settings) adjusted to temperature; breguet hairspring; micrometric regulator; gold center wheel; steel escape wheel; sapphire pallet stones; all steel parts highly finished; extra fine, hand-made dial; **timed in case.**

Each Watch is enclosed in a highly finished, silk-lined Mahogany Box

Write to us for Booklet giving full descriptions and the prices at which these Watches are to be sold to the consumer; also a list of **Wholesalers** from whom these Watches can be obtained.

E. Howard Watch Company, Waltham, Mass.



Announcement of A New Complete O Size Watch



The "Betsy Ross"

is a 7-jeweled, pendant-set, nickel, O size Movement, of highest grade, in a Boss 20-year Filled Case.

This combination of Movement and Case provides the *best* 7-jeweled 10 K. Filled O size Watch in the market.

The peculiar excellence and beauty of this watch assures its immediate popularity with the watch-buying public; and *its name* will at once attract to it the special good will and sympathy of the 957,922 members of the "Betsy Ross Association," who will be found in every one of the States, Territories and Colonies of the United States. New England has 101,280 members; the Middle States, 607,800; the South, 30,990; the Western States, 110,640; Territories, Colonies and Foreign Possessions, 9,650.

The "Betsy Ross" will be sold only as a Complete Watch. Write to your jobber for samples and prices.

THE FIRST AMERICAN FLAG

was made by

BETSY ROSS

A BIT OF INTERESTING HISTORY

Before the battle of Lexington each of the Colonies had its own emblem; the result was confusing. A Flag Committee, appointed by the Continental Congress, evolved from the ideas presented by the various Colonial flags one known as the Cambridge flag, which was raised at Washington's headquarters at Cambridge, Mass., Jan. 1, 1776. It had thirteen alternate red and white stripes (as now), with a field of blue which bore the British "Union Jack"; and was thus a combination of British and Colonial ideas. A howl of protest arose; it was suggested that the British would see in it the emblem of submission; Samuel Adams said, "Give us a flag that shall not be hailed with acclaim by the British tyrants in Boston and the patriots at Cambridge at the same hour." The people demanded a distinctive emblem.

George Washington went to Philadelphia May 28, 1776, and with Robert Morris and George Ross took under consideration the question of an appropriate flag. After calling at the house of John Hancock, President of the Congress, and getting from him some red, white and blue English bunting, the committee proceeded to the near-by home of Betsy Ross (a niece of George Ross) at 239 Arch Street, Philadelphia, where Washington submitted to her the rough sketch which he had drawn of the proposed flag. The stripes were unchanged, and were left as in the Cambridge flag; but the field of blue now bore a circle of thirteen stars. "Can you make it?" asked Washington. "I can try" answered the fair revolutionist. There was some discussion as to the shape of the star; Washington argued that the six-pointed star was easier to make—but that was the shape of the *British* star. Betsy folded a piece of the bunting a few times, then with one clip of her scissors produced a perfect five-pointed star. That settled the question. Three days later the committee returned and Betsy Ross displayed to their admiring gaze the First American Flag, the flag destined to become "Old Glory."

Betsy Ross, widow of the man who six months before had fallen in battle with the British troops, niece of the loyal Colonel George Ross, was fitted no less by her celebrity as an unusually skilled needlewoman to be entrusted with the distinguished honor of making the first American Flag. By general consent she continued to make the flags for the new Republic for many years. The Old Flag House, at 239 Arch Street, Philadelphia, has since become the Mecca of patriotic sightseers from all parts of the country; and it is soon to pass into the hands of the National Government, which will buy the adjoining properties and by surrounding the house with a small park will secure it from fire and other accidents. Over 950,000 persons have become members of the Betsy Ross Association.

The materials of which the house was built, three centuries ago, were brought from England by William Penn; and a most interesting fact, brought to notice by Hon. John Quincy Adams, the Secretary of the Association, is that the exact dimensions of the house are 17 x 76—a prophetic measurement, truly! for the house was built many years before 1776, the year of the Declaration of Independence.

The Keystone Watch Case Co.

19th and Brown Sts., Philadelphia





Millions
of women
saw this
advertisement
in the
Delineator

“New England”
Dealers

feel the benefit of New England Watch advertising. Each one of the thousands of inquiries resulting from our advertising is a direct opportunity for a “New England” dealer to make a sale.

We see to it that he gets this opportunity, but it's “up to him” to be prepared for it. Not a watch is sold direct. The whole enormous demand for New England Watches that we are stirring up must be supplied by the retailer.

All over the country people are asking to be shown the “New England” trays. Can you afford to be without them?

The line extends through every style of watch at all prices, and includes some rapid-selling novelties, such as the Skeleton Watch, that are making talk among the trade.

The “New England Blue Book” of Ladies' Watches and the “New England Red Book” of Men's Watches will be sent to any address upon application.

New England Watch Co.
Waterbury, Conn.

37-39 Maiden Lane, New York

131-137 Wabash Avenue, Chicago

Spreckels Building, San Francisco

New England
LADIES' WATCHES

Their charming daintiness of design and beauty of finish, coupled with their absolute reliability as time-keepers, have given them the widest popularity among people of discrimination and refinement. Made in hundreds of styles and at prices to suit everyone. Ask your dealer to show you the “New England Trays” and judge for yourself as to their delicate beauty and exquisite workmanship.

Our New England Blue Book, illustrating the complete line of watches, is now ready and will be sent to any address upon application. Every intending purchaser should see this book before making their selection.

THE NEW ENGLAND
WATCH COMPANY
NEW YORK CITY 37-39 Maiden Lane
CHICAGO 131-137 Wabash Ave.
SAN FRANCISCO Spreckels Building

Lessons in Horology

COURSE IN MECHANICS AS APPLIED TO CHRONOMETRY

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(Continued. Part XVIII.)

A pulley of 0.80 m. diameter executes 90 turns to the minute, what should be the diameter of the pulley driven, knowing that it should execute 160 turns during the same time?

The formula

$$\frac{r'}{r} = \frac{n}{n'}$$

can be just as well written

$$\frac{2r'}{2r} = \frac{n}{n'}$$

and from thence one establishes

$$2r' = 2r \frac{n}{n'}$$

in figures

$$2r' = \frac{0.80 \times 90}{160}$$

and performing the calculations

$$2r' = 0.45 \text{ m.}$$

180. It often happens that a tool, such as a lathe, a counter-sink, or a drill, should run at different speeds, in order to satisfy the necessities of the work. One installs then on the driving arbor a multiple pulley, tapered pulley or speed cone. On the driven arbor is likewise found a similar pulley, but always in the contrary manner. It is only necessary then for one cord to be placed on the different pairs of pulleys which correspond. The sum of the radii of two corresponding pulleys should then be constant.

181. Let us now suppose the case of a foot-lathe. The cord of the large wheel is wrapped around the groove of a counter-shaft pulley and transmits the movement to this counter-shaft. Another cord is wrapped around another groove of the same counter-shaft, but of a different radius, and transmits the movement of the arbor to the pulley fastened on the lathe. What is the relation between the number of turns of the first wheel and that of the last?

Let us designate in a general manner

the number of turns of the large wheel by	n
" " " " " " counter-shaft by	n'
" " " " " " pulley of the lathe by	n''
" radius of the large wheel by	R
" " " " " " small groove of the counter-shaft by	R'
" " " " " " large " " " " " by	r
" " " " " " small " " " " by	r'
" " " " " " large " " " " by	r''

We then have (Fig. 42)

$$n' = n \frac{R}{R'}$$

and, in like manner,

$$n'' = n' \frac{r}{r'}$$

or, replacing n' by its value,

$$n'' = n \frac{R}{R'} \times \frac{r}{r'}$$

Since, in this first case, the wheel drives the small pulley of the counter-shaft, and the large pulley of the counter-shaft drives the small pulley of the wheel, one obtains the greatest number of turns made by the arbor of the lathe. It is moved, then, with the greatest speed.

If, on the contrary, we guide the cord of the large

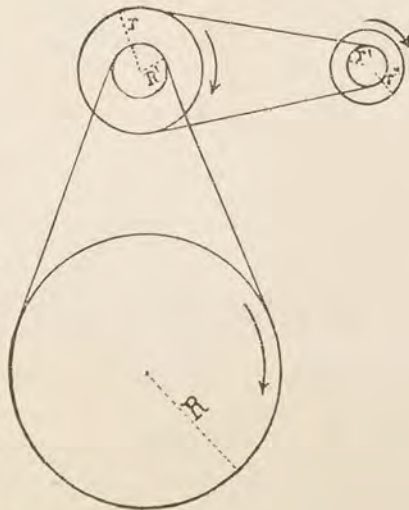


Fig. 42

wheel in the large groove of the counter-shaft and the second cord, wrapped in the small groove of the counter-shaft, into the large groove of the pulley of the lathe (Fig. 43), we shall obtain a lesser speed.

Let us remark that, since it is a mechanical work which should be transmitted, according as the speed of the last pulley diminished, the force increases, and reciprocally.

Thus, when one wishes to turn a piece of soft metal, such as brass, one arranges the cords in the manner to obtain a great speed, on condition, always, that the object to be turned is of small dimensions. On the other hand, if one has a hard piece of metal to turn, such as tempered steel, or an object of large diameter, it is proper to arrange the cords in such a manner as to obtain less speed.

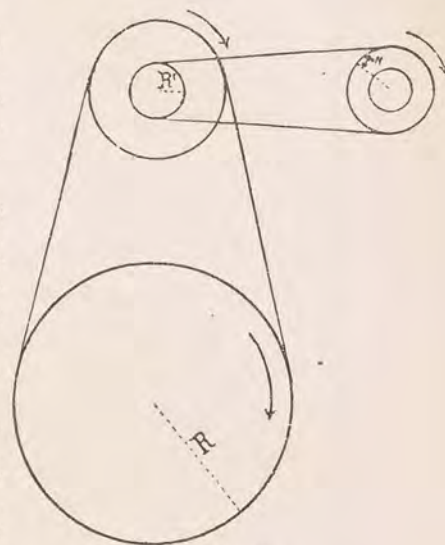


Fig. 43

In the second case (Fig. 43) one has, in an analogous manner to the first,

$$n'' = n \frac{R}{r} \times \frac{R'}{r''}$$

182. Numerical Application. Let

$$\begin{matrix} n = 1. & R = 400 \text{ mm.} & R' = 30 \text{ mm.} \\ r = 50 \text{ mm.} & r' = 20 \text{ mm.} & r'' = 40 \text{ mm.} \end{matrix}$$

For the case of greatest speed, one will have

$$n'' = \frac{R \times r}{R' \times r'} = \frac{400 \times 50}{30 \times 20} = 33\frac{1}{3} \text{ turns.}$$

After arranging the cords so as to obtain a slight speed, one then has

$$n'' = \frac{R \times r}{r \times r''} = \frac{400 \times 20}{50 \times 40} = 4 \text{ turns.}$$

183. The transmission of force by the means of wheels, or rolling cylinders driving each other by simple contact, can scarcely ever be employed in practice, because the adhesion, called "force of friction," is very slight; the limit being passed, slipping is produced.

To obviate this inconvenience, one inserts in the wheel projections, which are the *teeth*, gearing in the openings contrived in the pinion. One then forms what has been called the *leaves* of the pinion. With this arrangement the movement of the two toothed wheels should be made in an identical manner to that of the cylinders first considered.

It, therefore, follows that in a gearing one can always imagine two circumferences driving each other by simple contact, and in the same conditions of movement. These circumferences bear the name of *primitive circumferences*.

184. One calls the *pitch of the gearing* the length of the arc measured on the primitive circumference of one of the wheels, extending from a point of one tooth to the similar point of the tooth which follows. The pitch of the gearing should then comprehend the space occupied by a whole and a blank of a tooth.

The pitch of the gearing of the wheel should be equal to that of the pinion which it drives. Let us designate this pitch by the letter *p* and call, moreover, the number of teeth in the wheel *n*, and the number of leaves in the pinion *n'*.

The length of the primitive circumference of the wheel, $2\pi r$, should then be equal to $p \times n$, since the pitch ought to be contained *n* times in this circumference.

For the same reason the length of the primitive circumference of the pinion, $2\pi r'$, should be equal to $p n'$.

(Continued on page 947)

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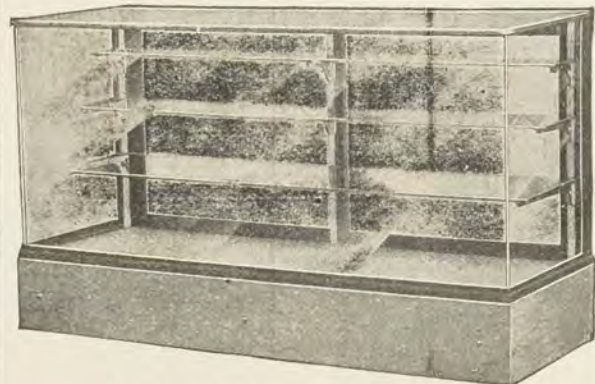
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Lessons in Horology

(Continued from page 945)

In order to obtain a relation between the primitive radii and the numbers of teeth, let us divide the equation

$$2 \pi r = p n$$

by

$$2 \pi r' = p n'$$

we will obtain

$$\frac{2 \pi r}{2 \pi r'} = \frac{p n}{p n'}$$

or, after simplifying

$$(3) \quad \frac{r}{r'} = \frac{n}{n'}$$

The primitive radii are then proportionate to the numbers of teeth.

185. Calculation of the Primitive Radii. In an exterior gearing, such as that which we have considered (Fig. 38), the distance between the centers of the two movers is equal to the sum of their primitive radii; that is to say, one should have

$$(4) \quad D = r + r',$$

D representing this distance.

Let us take up again the proportion (3)

$$\frac{r}{r'} = \frac{n}{n'}$$

in which the radii r and r' are unknown quantities and the number of teeth n and n' known quantities

Without changing the value of an equation, one can add to each of its members the same term, or an equivalent term. We can then write

$$\frac{r}{r'} + \frac{r'}{r'} = \frac{n}{n'} + \frac{n'}{n'}$$

since the two terms $\frac{r'}{r'}$ and $\frac{n'}{n'}$ are both equal to 1.

The common denominator permits us to write

$$\frac{r + r'}{r'} = \frac{n + n'}{n'}$$

and because of (4) one will also have

$$\frac{D}{r'} = \frac{n + n'}{n'}$$

from whence we deduce

$$(5) \quad r' = D \frac{n'}{n + n'}$$

In an analogous manner we would find

$$(6) \quad r = D \frac{n}{n + n'}$$

186. Numerical Application. A barrel of 80 teeth should gear in a pinion with 10 leaves, what should be the primitive radii of the two movers, knowing that the distance between their centers is 11.565 mm.?

Replacing in formulas (5) and (6) the letters by their values above given, one will have

$$r' = 11.565 \times \frac{10}{80 + 10} = \frac{11.565 \times 10}{90} = \frac{11.565}{9}$$

and

$$r = 11.565 \times \frac{80}{80 + 10} = \frac{11.565 \times 80}{90} = \frac{11.565 \times 8}{9}$$

These two calculations give

$$\begin{aligned} r' &= 1.285 \text{ mm.} \\ r &= 10.28 \text{ " "} \end{aligned}$$

As a verification, one should have

$$D = r + r' = 10.28 + 1.285 = 11.565.$$

187. To obtain the primitive radii, one can also simply regard the distance D as divided into as many parts as there are teeth in the wheel and the pinion together; therefore, into $n + n'$ parts, and appropriate a number n of these parts as the radius of the wheel and a number n' for that of the pinion. The calculation is thus brought back to that of the preceding example.

188. The case of exterior gearing is the one which is most generally presented in practice. In this system we will observe that the movement of the two mobiles takes place in contrary directions; when the wheel is animated with a movement to the right, the pinion will possess a movement to the left.*

189. When the center of rotation of the pinion is placed in the interior of the wheel's circumference (Fig. 44), the gearings thus constructed take the name of interior gearings. In this case the pinion takes a movement in the same direction as that of the wheel.

The distance between the centers is then equal to the difference between the primitive radii of the two wheels. Therefore,

$$(7) \quad D = r - r'.$$

If the distance between the centers and the numbers of teeth in the wheel and pinion are known, the value of their primitive radii can be calculated in an analogous manner to that which we have just employed to determine those of exterior gearings. We have the proportion (3),

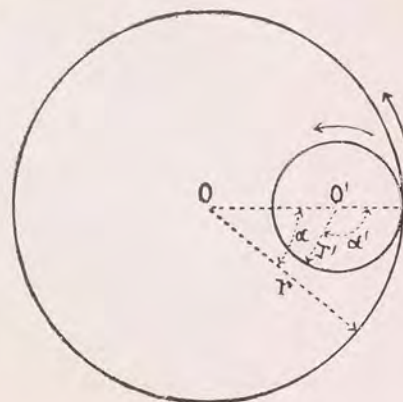


Fig. 44

$$\frac{r}{r'} = \frac{n}{n'}$$

which can be written

$$\frac{r}{r'} - \frac{r'}{r'} = \frac{n}{n'} - \frac{n'}{n'}$$

or, again,

$$\frac{r - r'}{r'} = \frac{n - n'}{n'}$$

and, on replacing $r - r'$ by its value D ,

$$\frac{D}{r'} = \frac{n - n'}{n'}$$

from whence we find

$$(8) \quad r' = D \frac{n'}{n - n'}$$

In an analogous manner one would arrive at the conclusion

$$(9) \quad r = D \frac{n}{n - n'}$$

190. Numerical Application. Let us take as a numerical example that of a wheel with 120 teeth gearing interiorly in a pinion with 14 leaves, the distance between the centers being 8.75 mm.

The application of the formulas (8) and (9) give:

$$r' = D \frac{n'}{n - n'} = 8.75 \frac{14}{120 - 14} = \frac{8.75 \times 14}{106}$$

and

$$r = D \frac{n}{n - n'} = 8.75 \frac{120}{120 - 14} = \frac{8.75 \times 120}{106}$$

performing the calculations, one arrives at the conclusion

$$\begin{aligned} r' &= 1.156 \text{ mm.} \\ r &= 9.906 \text{ " "} \end{aligned}$$

The verification should always give

$$D = r - r' = 9.906 - 1.156 = 8.75.$$

191. Let us now examine a kind of gearing sometimes employed and which is called rack gearing. In this case the primitive circumference of the wheel becomes a straight line; its radius is, consequently, infinite and the number of its teeth unlimited. This gearing can be considered either as exterior or as interior, for the distance between the centers can, equally, be

$$D = \infty + r' = \infty - r' = \infty.$$

To determine the primitive radius of the pinion gearing in the rack, it is sufficient for us to know the number of its teeth and the pitch of the gearing.

*It is customary to call "motion to the right" that which is effected in the same direction as that of the hands of a watch when looking at the dial.



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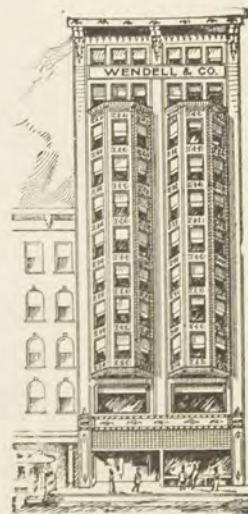
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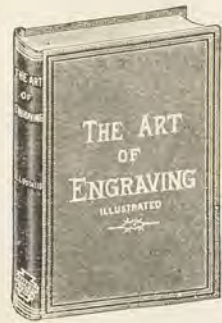
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(Continued. Part XXVIII. Begun in March, 1903)

Beginner's Difficulties

The top of the C we considered in our last issue is an inverted stroke, as shown at Fig. 102, and the method of cutting it is the same. These cuts, as described and illustrated, are the principal ones embodied in bright-cut old English letters, and one familiar with block letters and such cuts as we have here mentioned, will find little trouble in cutting any letter in the alphabet. One reason for beginners being discouraged when they first commence old English, is that the letters are so complicated in appearance that they fear they will not be able to cut them properly, while if they study the letter in detail, as previously intimated, they will find the letters are simple, being composed of vertical and angular bars connected with straight lines, which must of necessity be an easy letter to master. The beginner should not attempt to grasp the entire letter at one time, but simply study and work on one bar of the letter at one time, keeping in mind the other bars sufficiently to give the proper location of the one he is at work on, and he will soon become so familiar with the letters that he will be able to design them with much accuracy and rapidity.

Old English letters, bright cut, are used usually on Roman gold finish or cheap goods, such as aluminum or Britannia goods, satin finish or even sterling silver satin finish. The higher class of old English is usually fine-line English. The method of cutting what is known in card engraving as solid old English (an apt name for the style above described) is used extensively on watch caps for inscriptions. In cutting this class of letter the method is exactly the same as above described, except that the graver is left in the condition that it comes from the oilstone—not polished—thereby making a bar of a letter in such condition as to cause it to appear to be composed of a series of fine lines due to the ragged condition of the extreme cutting edge of the graver. This style of cutting old English is used on polished surfaces. The student should remember that he should never cut bright cut with a flat-face graver on a polished surface. On a deadened finish, such as satin finish, we cut bright cut, and on polished surfaces the effect of the incisions should be a deadened or dull one, which is obtained by a series of fine lines cut with a square graver, or with the ragged cutting edge of a flat-face graver.

At Fig. 109 we illustrate a bar of several of the old English capital letters, which is cut in the direction of the arrows. We do this because of the fact that a great many beginners cut this bar directly in the opposite direction, while the bar should be cut as indicated by the arrows illustrated at Fig. 109.



Fig. 109

At Fig. 110 we illustrate the word "Roe" in old English. We have previously mentioned some facts in reference to the exact proportions of old English, but to show the proportions by means of a drawing the student is referred to Fig. 110, where he will observe that the letters are divided into eight equal spaces, the capital occupying eight and the lower-case letters four; the angular bars of the lower-case letters one space and the perpendicular bars two spaces. This gives to the student with mechanical accuracy the proportions of old English letters when the lower-case letters are to be one-half the height of the capitals. If it is desired to increase the height of the lower-case letters five spaces should be used, and if still higher, six. It is, however, preferred, where

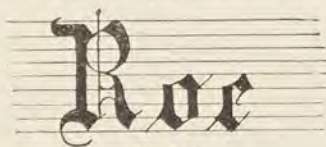


Fig. 110

proper space is given, to make the lower-case letters either one-half or five-eighths the height of the capitals.

Wriggled Old English

One of the styles of cutting old English letters used by jewelers more extensively than any other on plated ware, is that of wriggled old English. The method of wriggling has been previously described by an illustration showing the position of the graver rocking to the right and the left, and the student should refer back to such description. In wriggling, a flat-face graver is used and held in the hand on a proper angle to keep the point of the graver in the metal so as to enable the engraver to rock the tool to the right and the left, and as the graver is thus rocked it is gradually turned in the hand, which causes the point of the graver that is out of the metal to slightly protrude out beyond the point that it left when it was raised from the metal, thereby taking a little forward movement as it is rocked backwards and forwards.

At Fig. 111 we illustrate one of the principal bars of the lower-case letters, showing how the vertical bars are wriggled coarse with one width of the graver and the angular bars wriggled finer with another, the latter bars being one-third wider than the vertical bars. The width of the wriggling is increased and diminished by the angle on which the graver is held. The higher up the graver is held and the less rocking to the right and the left the finer the wriggling will be. The finer the wriggling, if accurate, the more beautiful is the work, but in a case where the vertical bars of the work are wriggled coarse and the angular bars wriggled as fine as possible, the best effect is produced.

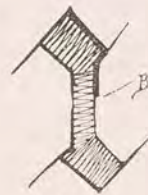


Fig. 111

Again, referring to Fig. 111, we illustrate from the top of the bar down to the point indicated by the letter B, how the wriggled old English letters can be shaded with a flat-face graver. The method of shading, allowing the angle of the incision to incline toward the bar of the letter, has been previously described, but attention is again called to it. These letters could be shaded even wider than here illustrated, but a width such as is shown, is advisable for the beginner. After one is skilled in the use of a flat-face graver for shading, a shade made one-third the width of the bar should be used, but it requires great deftness in the use of the tool to make a shade stroke this width.

Wriggling can be used in conjunction with bright-cut letters by making the vertical bar of the letters, both capitals and lower-case, bright cut, and having all angular and horizontal bars wriggled very fine. A letter cut in this way would produce a very beautiful effect, providing, however, that it is on an unpolished surface. If on a polished surface the bright-cut strokes should be cut with a graver unpolished, when the effect will be found to be equally as artistic. This method can be reversed by bright cutting the angular and horizontal bars and wriggling the vertical bars.



Fig. 112

At Fig. 112 we illustrate one of the bars of the old English letters wriggled. The method of wriggling such a bar is a very difficult thing for a writer to describe. It would be an easy matter to show a student how this class of work is done, but if he were told that it was possible to take a flat-face graver and wriggle from an incision equal to the width of the graver itself and gradually tapering down to a fine line he would not believe it, yet this is a very easy thing to do, and it is very useful to the engraver. Indeed, if it were not for our ability to make such a cut wriggled we would not be able to wriggle certain old English letters.

The method of cutting the bar, shown at Fig. 112, is to place the graver in position for regular wriggling, and as the graver is pushed forward and gradually rocked, it is pulled upward toward the operator. Now, just how much to pull the graver toward the operator and just how much to push it forward, is the secret of doing this work with accuracy. It will be plainly seen that in order to make the letter curve around with any degree of accuracy, the pressure forward and the pull toward the operator must be in harmony or in unison. If we push the graver forward with more power than we pull it toward the operator, the bar of the letter would be too long, while if we pulled it toward the operator with more power than we pushed it forward, it would be too short, and if the pressure forward and toward the operator should vary at different stages from the beginning to the end, we would have an irregular curve.

(TO BE CONTINUED)

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Gold and Silver Casting in Sand Molds

Article No. 56 of the serial entitled "Gold Working," begun in the November, 1900, issue of THE KEYSTONE.

THE sand employed for casting metal articles is moistened by sprinkling with water, so that it will pack and maintain its shape. Exactly how much water is a matter of experience. In most cases the water is allowed to remain in the sand until the metal is poured. This remark applies chiefly to large castings in brass and iron; for smaller work in gold and silver, sand molds are usually baked to expel the moisture and is known among brass founders as "dry-sand" work; while damp-sand molding is called "green-sand" work. In molding, frequent recourse is had to so-called "cores;" such cores producing openings in the casting. A good illustration can be given in casting solid plain Belcher rings. In making the pattern for the rings a "core print" is added. We show at Fig. 1 a wood pattern for a plain ring.

How Molding is Done

Let us imagine that we are to cast a plain ring from it. As shown in Fig. 1 the wood pattern can be described as a solid wood cylinder shown at *A' A''* with an embossed band around it as shown at *A*. To mold it we spread on the "finch," a table in front of the workman at such height as to be comfortable to work at, a layer of molding sand an inch or two thick, and after leveling the surface of the sand lay a piece of board on it and beat it down with a mallet. The surface of the sand so leveled off should be a trifle larger than the flask. With the molder's hand-tools a recess is scooped out in the sand, which will receive a trifle less than one-half of the wood model.

Molding sand is packed around the wood model until up to the line *z*, Figs. 1 and 2, the latter figure being a view of Fig. 1, seen in the direction of the arrow *x*. The cut at Fig. 3 shows the situation exactly. The wood model is buried up to the line *z* in molding sand spread out on the molding bench. After the molding sand is packed around the model *A*, so that exactly one-half rises above the surface shown at *z*. The next operation is to cover the surface at *z* with dry parting sand or charcoal powder dusted on the surface of the sand. Such



Fig. 2

parting sand is old dry molding sand brushed from former castings and tied up in loose woven cotton cloth and shaken over the surface *z* of the sand bed on the molding bench. The idea of this dry-sand coating is to prevent the molding sand packed on top of it from adhering to it.

Packing the Molding Sand

After the surface *z* is dusted over as described, a half of a flask is placed over the model as shown at the dotted line *w*, and first prepared molding sand is sifted from a sieve over the model and then more sand is added with a small scoop until the flask represented by the outline *w* is heaping full. During the operation of filling the flask with sand, said sand is packed with the hands and small blunt wooden wedges. After the flask is full and carefully packed, the top of the sand is scraped flat with the upper edge of the flask, that is, to correspond to the line *v*, Fig. 3. The flask *w* is now lifted from the molding bench and usually the pattern *A''* will be carried with it; if it does not, remove the pattern and place it in the recess in the sand contained in the flask.

The filled flask is now placed on the molding bench, from which the bed of molding sand has been pushed back so as to leave the bare plank. The flask now stands as shown in Fig. 4, where the parallel lines *D D* represent the edge of the bench. The upper surface of the sand in the molding box, represented by the line *u u*, Fig. 4, is now dusted with parting sand as before and the remaining half of the flask is placed on the one shown in full lines. The dotted outline *B'* shows the position of the added half of the flask. Molding sand is next packed in the added half *B'*, as before directed, and the excess of sand scraped off to the line *t*. Of course, it is to be understood that the flanges *C* and *C'* are to be provided with dowel pins or wire nails to ensure their going together twice alike. On separating the flasks *B B'* and removing the pattern *A* we have a recess left in the sand of precisely the same size and shape as the pattern. The perfection of the mold will depend on the materials we use and the perfection of our workmanship.

Core Working in Metal Casting

In order to obtain a casting in the form of a plain ring, one must introduce what is termed a "core;" this core is shaped precisely like the pattern shown at Fig. 1, except that portion representing the ring to be cast is removed. We

show at Fig. 5 the proper form of a core to employ with the pattern shown at Fig. 1. It will be seen that the parts *A' A''* fit exactly into the sand and have a recess precisely the form of the ring which is to be cast. In founders' parlance, the parts *A' A''* on the pattern are called "core prints" and have a recess in the mold which the core exactly fits into. When many such cores are to be used, it is well to provide a core mold in which the cores are molded of clay and sand and then baked. Sawdust made into charcoal in a close iron box, mixed with loam, also makes good cores. Whatever cores are made of, they should be thoroughly baked to expel all the moisture. In dry-sand casting the molds are subjected to a temperature of about 120° F. to expel all traces of moisture. To aid in the stability of dry-sand molds, the sand is moistened with a solution of rock candy and water; but such treatment has a tendency to sophisticate the sand and render it unfit for green sand casting. Plaster of paris can be employed for a core mold and answers an excellent purpose. It is an excellent plan for any one who anticipates to do gold or silver casting to make a visit to a brass foundry and watch the operation of molding. In case a brass foundry cannot be reached, one where iron is cast will give a great many valuable ideas. It may not be amiss to say, that the reader will understand that it is a very easy matter in casting plain rings to extend the pattern, so as to cast half a dozen rings of different sizes at one time instead of one ring, as shown. We would also beg to add, that we do not think casting plain rings is rather a cheap or expeditious method of producing such articles, and only recommend such process in extreme cases where the workman cannot purchase one of the size and weight required. The chief reason of our selecting a plain ring as a specimen of gold or silver casting, was from the fact that we had to employ a core in the operation.

We will describe in detail the operation of making a core, such as we show at Fig. 5. We carefully turn a hard wood block to the proper shape; then make a plaster-of-paris mold from it going together in halves. This can be done either by splitting the pattern in half with a very thin saw, or by immersing one-half in melted beeswax, and after cooling take a plaster-of-paris cast. The face of the plaster cast is next carefully coated with shellac dissolved in alcohol. The next operation is to remove the core model from the beeswax, and after cleaning with turpentine it is placed in the recess in plaster cast and a second plaster cast taken. The process of making cores will be resumed in our next article of this series.

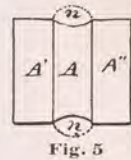


Fig. 5

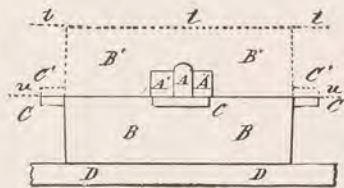


Fig. 4

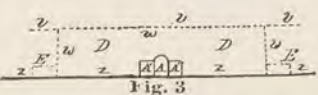


Fig. 3

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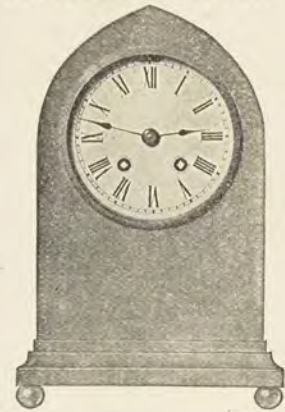
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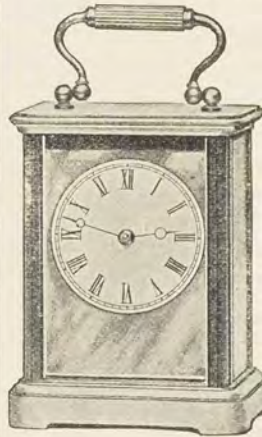
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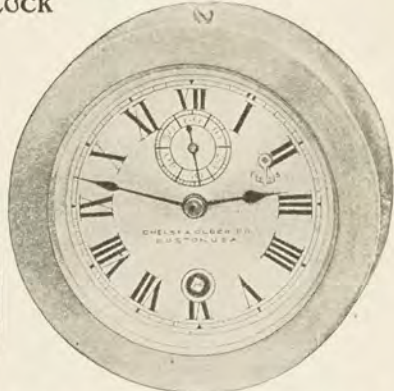
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Practical Pinion-Making

Article No. 51 of the serial entitled "Cleaning and Restoring," begun in the April, 1901, issue of THE KEYSTONE.

THE material to use for making pinions is Stubs steel wire, or what is called drill rod, of late years. A piece of such material is selected and placed in a suitable wire chuck and enough allowed to protrude to form a pinion. The end of such rod is turned to a cone point, as shown at *y*,

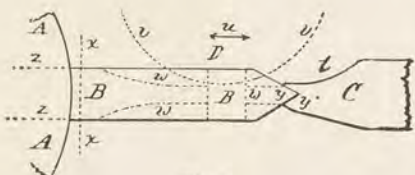


Fig. 1

Fig. 1. The general form and size of the pinion is turned, as shown at the dotted outline *w w*. Before the pinion leaves are cut there should be a center provided, which goes into the tail-stock spindle. We show such a center at *C*. A center of this kind should be cut away on top so the rotary cutter, which we described in our last article, will run free of it—the position of such cutter is shown at the dotted circle *v*. The cutter is fed back and forth until the cut is made the entire length of the leaves. The necessary divisions for most pinions can be gotten from the division circle on the lathe pulley. If other divisions are required, we shall have to get an extra plate and attach it to the lathe spindle outside of the head stock. In cutting pinions or milling any steel article the cutter should be kept well oiled.

It may not be amiss to give some specific instructions in regard to the supporting center *C*. Such a center is turned up in the cone center so as to perfectly fit the tail-stock spindle, after which the recess at *t* is filed out, then the center is hardened, when it is fit for service. There is quite a little skill required in cutting pinions. The chief thing at the outset is to learn to go slow. As stated in former article, an alternating motion with a fiddle bow does better work than can be done by a cutter turned in one direction. We are aware that in the factories the cutters which cut pinion leaves turn in but one direction, but they employ three cutters; the first cutter making but a slot, the second cutter shaping the leaves approximately, the third cutter, being very sharp, perfects the cut. But with cutters made as we have described, and learning how to go slow, better work can be done than with cutters turning only in one direction. We do not mean that the novice in pinion cutting can make a cutter as we have described and turn out a better pinion than an experienced factory hand, who makes use of a cutter turning only in one direction. The point we wish to impress on our readers

is the single rotary cutter worked with a fiddle bow, is the cutter par excellence for pinions and steel stem-wind wheels for job-shop purposes.

Holding a Blank Pinion for Cutting the Leaves

The only use of the back center *C*, Fig. 1, is to support the pinion during the process of cutting; and in roughing out the pinion the staff portion is not perfectly shaped but shaped to a curve, as show at *w*, and this curve is shaped so as to just clear the cutter *D*. The idea is, that as the cutter *D* is fed back and forth in the directions indicated by the double-headed arrow *u*, shall not touch the back center *C*, at the recess *t*. It may be well to say a few words about the cone *y*, and the corresponding recess in the back center *C*. These two cones, that is, the male and female cones, should fit; that is, they should both have the same angle and the cone on the pinion staff below the pinion should be the full size of the staff so as to afford secure and ample support to the pinion during the process of cutting.

After the leaves of the pinion are cut, the upper part of the staff is turned, cutting off the pinion to the form shown at Fig. 2.

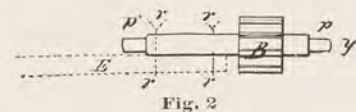


Fig. 2

It will be seen that the pivot *p* is turned. If proper care is taken in hardening any portion of a pinion can be finished and polished before hardening. In regard to polishing the flanks of the leaves, we would say, this can be done while the pinion is in the chuck, as shown at Fig. 1. For finishing and polishing, we can use a bell metal or zinc lap turned in the lathe precisely as we turned the cutter which cut the pinion leaves, except it is not cut into lines with the graver. The steel cutters, which cut the leaves, if properly made and managed, will be so smooth that a zinc lap, shaped precisely like said steel cutter will speedily polish the pinion leaves if used with vienna lime and alcohol. The zinc lap is placed on the same arbor as the one which carried the steel cutter. We can, in this instance, however, to advantage arrange to drive the arbor of the rotary cutter by a band from a counter-shaft, as the slow alternating motion of the fiddle bow is not adapted for the operation of polishing.

For forcing off the ends of the leaves, the tool to employ is a flat-faced lap in a pivot polisher. For turning the pivot at *p'*, about the best policy to pursue is to us a cement chuck. After the pinion is finished, it can be hardened by securing it to a piece of iron wire with binding wire, as shown at the dotted outline at Fig. 2, where *E* shows the wide handle and *r r* the binding wire. For

heating the pinion to harden it, put some cyanide of potassium in a small crucible and fuse it, and when red hot plunge the pinion attached to the wire handle into the melted cyanide and when the pinion is red hot remove and plunge into cold water. The fused cyanide, which was attached to the pinion, prevented it from oxidizing, will soon dissolve off, leaving the pinion file hard and the polish as good as before heating.

The pinion is now placed in a small dish of lard oil and heated until the oil gives off a little smoke. After the oil cools the pinion is removed and placed in benzine, to dissolve the oil. Steel articles so tempered have about the same degree of hardness as those tempered to a dark straw color in the usual way. In regard to the brass wheels of the train, we would say, about the most practical plan to follow is to decide on the outside diameter of our wheel and then cut the teeth so the wheel will be a little large, and then reduce the size by a rounding-up tool until the train runs free. For cutting brass train wheels, we can use a rotary cutter, which has simply a saw edge, cutting a slot a trifle narrower than the finished tooth space and through these teeth run the cutter of a rounding-up tool, repeating the operation until, as stated above, the train runs free. It is a very difficult matter to decide on the exact outside diameter of a wheel, because the shape of the ogives of the cutter has much to do with the depth.

Fly cutters are used in our factories for cutting the teeth of train wheels. These cutters can readily be made. The operation is very similar to making pinion cutters, as described in former article, except the angle between the flanks of the teeth if very small, as for instance, in an 80-tooth wheel the entire angular extent of each tooth is only $4\frac{1}{2}^\circ$; and, inasmuch as the tooth of such a wheel occupies a little more than half a tooth space, the cutter can only be a trifle more than 2° . In making a fly cutter, we turn the edge of the disk, which forms the cutter to the form of the tooth, precisely as we did in making the pinion cutter, only we use a round-nosed turning tool, the cutter of which was to a greater diameter—say to a circle which would cover three teeth of the wheel. This will be better understood by inspecting Fig. 3, where we show the edge of a fly cutter in the process of making.

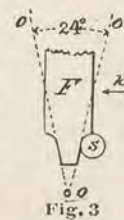


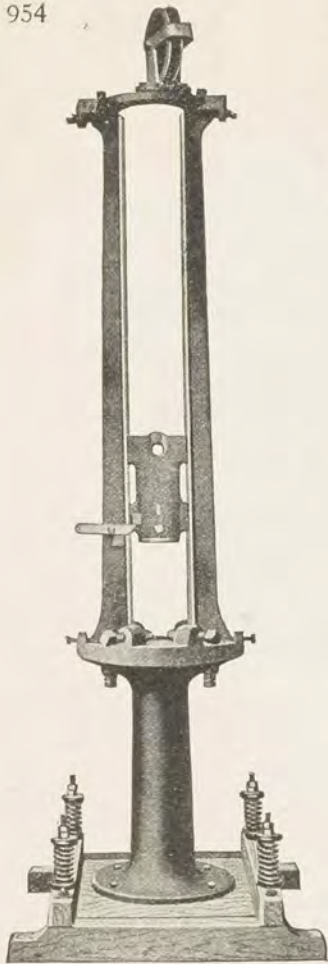
Fig. 3

The slide of the slide rest is set to include $2\frac{1}{6}^\circ$ and the operation conducted the same as when we made a rotary cutter for cutting pinions. The steel disks for such cutters should be larger than

Making Fly Cutters

The slide of the slide rest is set to include $2\frac{1}{6}^\circ$ and the operation conducted the same as when we made a rotary cutter for cutting pinions. The steel disks for such cutters should be larger than

(Continued on page 955)



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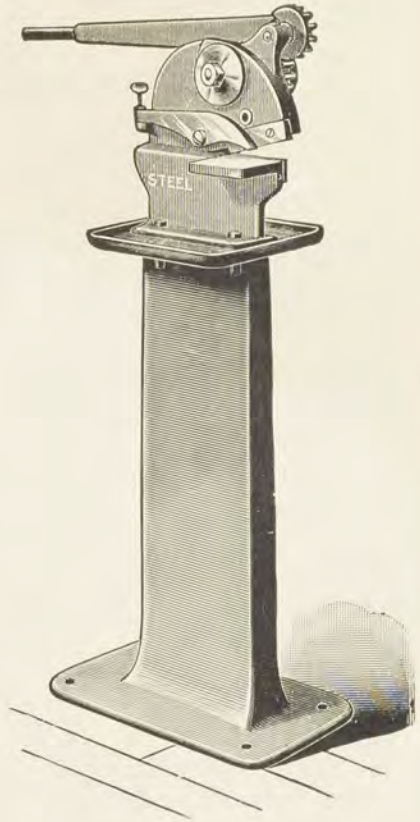
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Practical Pinion-Making

(Continued from page 953)

for pinions—in this instance, say 1". After the edge of the disk *F* is properly shaped, it (the disk) is cut up into segments, as shown at the lines *n n*, Fig. 4, said figure being a side view of Fig. 3, seen in the direction of the arrow *k*. The disk *F* is cut up into sections as shown at the lines *n n*. One section of the disk *F* is attached to a brass disk, as shown at the dotted circle *G*, Fig. 5. The brass disk *G* is mounted on an arbor, which revolves very rapidly. In cutting wheels with a fly cutter there should be several of them mounted on the same arbor. The wheels to be cut should have the teeth roughed out with a plain saw cutter before the fly cutter is used.



Fig. 4

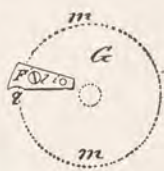


Fig. 5

There is another task involved in making train wheels, and this is cutting out the arms. In the large factories all this is done with dies, which accomplish the task, as one may say, "in the twinkling of an eye." But with job-shop facilities the job is only accomplished slowly. The task can be much quickened by cutting out the form of the space between two arms in two pieces of thin sheet steel. This will be understood by inspecting Fig. 6, where *H* represents a side view of two pieces of sheet steel. The opening at *I* is made precisely the shape of the opening or space between the arms of a wheel we wish to finish up. After the opening *I* is finished, we drill a hole at *d* to represent the center of the wheel.

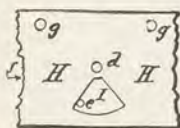


Fig. 6

At Fig. 7 we show an edge view of Fig. 6, seen in the direction of the arrow *f*. To insure the going together of the steel pieces *H H*, we drill two holes for guide pins, as shown at *g g*.

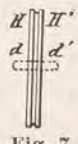


Fig. 7

To use our device, we drill five holes at equal intervals in our wheel blank, as shown at Fig. 8, where *L* represents a wheel and *e* the holes. We place the wheel blank between the steel pieces *H H'* and place a slightly taper pin in the center hole at *d*; we then put the guide pins in the holes *g g'*. A pin is also placed in one of the holes *e* in the wheel blank. This last-named pin is turned as far to one side as the opening *I* in the plate *H H'* will permit. The pin in the hole *e* is



Fig. 8

now removed and the hardened steel pieces *H H'* clamped with a hand vise. We insert a jeweler's piercing saw in the hole *I* and proceed to saw out the space for an arm as near as possible, after which the opening should be finished with files. A little practice will enable the workman to cut out and finish an arm space by means of the device we have described, in much less time than he would deem possible, until he had tried it. In many fine watches the arms have beveled edges; this finish is done with fine files after the space is cut out.

It is the practice of late years to make the train wheels of gold, and if this material is employed an alloy of about 14 K. should be employed, as this quality is about as low as will hold its color under all conditions. To properly finish such wheels, the flat surfaces should be lapped. Such workmen as have been accustomed to doing this, we need give no instructions, but to those who are not conversant with the operation, we would say that in order to finish the flat side of a wheel in this way it should be cemented to a disk of some kind of metal—brass, for instance, with shellac—and then held to the face of a jeweler's lap until the surface is dead flat and brilliant as a mirror. Inasmuch as many workmen have no such facility, we would say a very perfect substitute can be made of a slip of bluestone. These stones come in lengths of about 5" and various widths and thicknesses. For the present purpose the stone should be about 1" wide.

To prepare it for our purpose, we grind the flat sides on a roughened glass slab with fine emery and water until dead flat. We then wash the stone and glass slab free of emery and rub the bluestone slip on the roughened surface of the glass until perfectly smooth. The bluestone slip is now allowed to dry thoroughly, after which it is rubbed liberally with clock oil and the oil allowed to soak into the stone. The surface of the stone is smeared with oil and allowed to stand for several days—in fact, as long as the stone will absorb more oil. The stone is wiped with an old rag to remove all the outside oil. After this the surface of the stone is burnished with a piece of half-polished sapphire, which produces a partially glossy surface. The wheel to be polished (lapped) is cemented to a brass disk and rubbed with gentle pressure on the bluestone. A little practice will soon enable one to do as choice work as we see on high-grade watches. Of course, it is not to be expected that first-class results will be attained at the first attempt. In fact, it may be a failure, but patience and practice will undoubtedly enable any workman to master such polishing in a comparatively short time.

Largest Bottles Ever Blown

What are believed to be the largest bottles ever blown were recently made at the works of the Illinois Glass Company, at Alton. The largest will hold approximately forty-five gallons, whereas the largest bottle heretofore held twenty gallons. "To make the largest bottle," says the Chicago *Inter-Ocean*, "forty pounds of molten glass were taken from the furnace on the end of the long iron tube used by the blower. The blowing of the bottle required 11,000 cubic inches of air, and this had to be supplied by one man, and that man was unable to take his lips from the end of the tube during the process of blowing in order to prevent the bottle from collapsing. The blower supplied the air and the two assistants helped him to bear up the weight of the glass. In order to secure a bench of sufficient height to work the glass the officers of the glass company had to cut a hole through the side of one of the factories and the blower stood in the second story and worked the glass through this aperture.

The making of the big bottles was at the suggestion of Superintendent Thomas Morfoot. Morfoot is the superintendent of the largest bottle plant in the world, and as such had an ambition to create the largest bottle ever blown. He accordingly instructed his workmen to attempt it and after half a hundred unsuccessful attempts extending over a period of several weeks the big bottles were obtained."

The Illinois Glass Company will use these bottles for exhibition purposes.

What Lack of Transportation Does

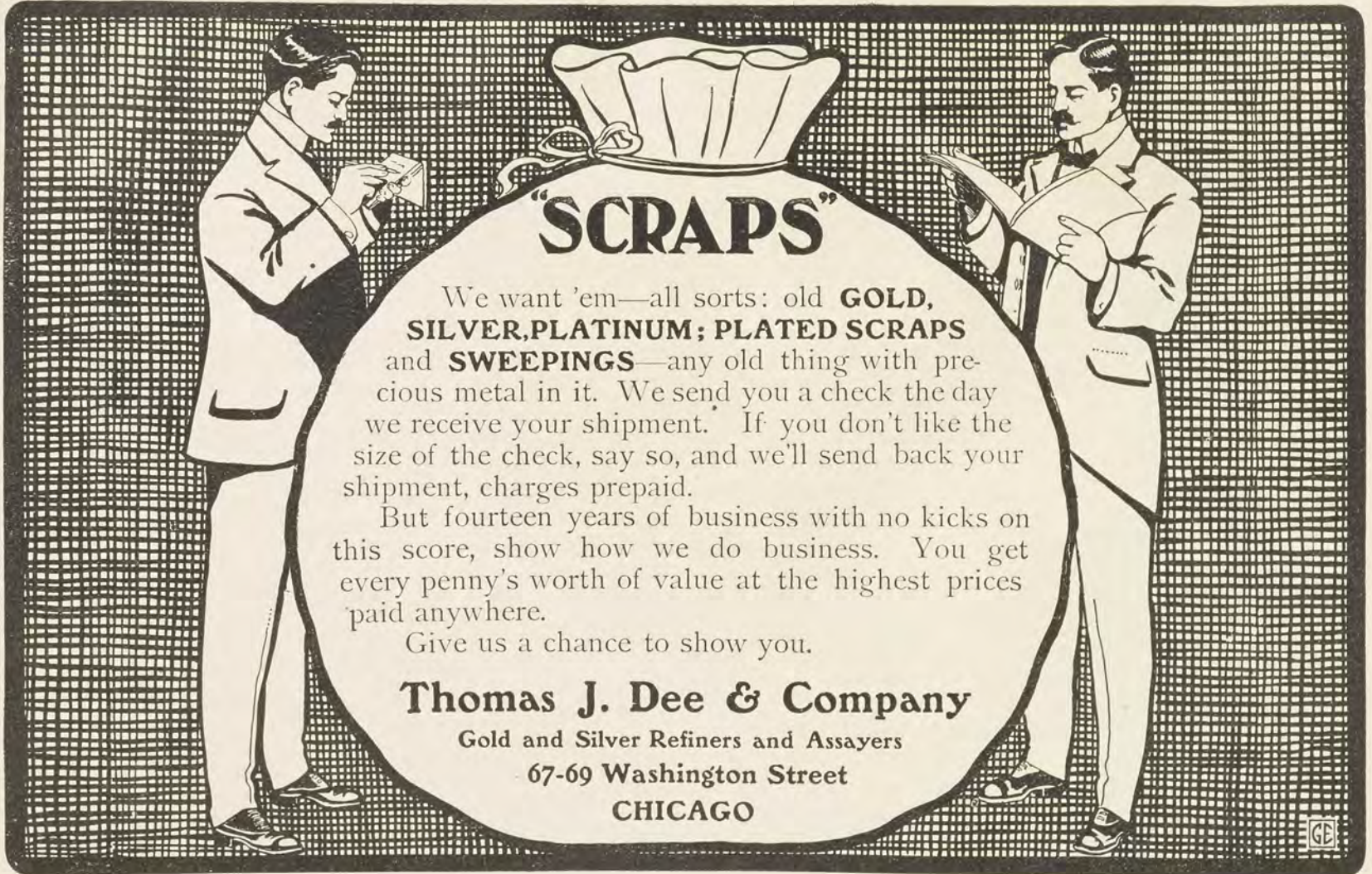
At the mouth of a mine in Arizona 200,000 tons of precious ore are stacked awaiting the building of a railroad to haul it to a smelter, for, precious as it is, its value would be consumed in transportation charges if an attempt were made to move that ore by wagon or animals at a cost of 25 cents per ton mile, while the profit on it will be immense when it can be taken out by rail at a cost of one-half a cent per ton mile. In British Columbia many fine ore bodies have been staked out and then abandoned because they were so far removed from any railroad that with the utter lack of transportation it was a waste of time and money to take out the ore. In Mississippi, within the last ten years thousands of acres of the best timber that ever grew have been sold for a mere pittance of 25 cents per acre because owing to the lack of transportation there was no way to get the timber out, and if cut it merely rotted where it lay. In one part of the state within three years after a large block of land was so sold a railroad was built through the country, and thereafter not an acre of that land could be bought for less than \$5, while most of it was sold to new settlers at \$7.50 to \$8 per acre.

In order to be of value, lands must be accessible and their products transferable to market at a cost that shall not consume the value of the products in transportation.

"Good, Sound Literature"

ED. KEYSTONE:—Enclosed please find my dollar for renewal of expired subscription. I am a little late, but don't you think I don't want THE KEYSTONE. I consider it the best dollar's worth of good, sound literature on most any subject I can buy, and as a jeweler I am lost without it.

Yours truly,
Pittsburg, Pa. D. D. KING.



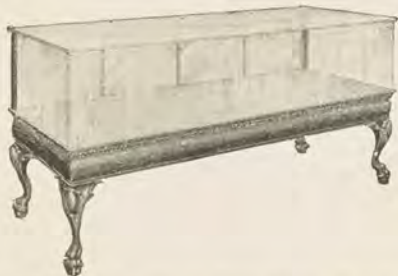
"SCRAPS"

We want 'em—all sorts: old **GOLD, SILVER, PLATINUM; PLATED SCRAPS** and **SWEEPINGS**—any old thing with precious metal in it. We send you a check the day we receive your shipment. If you don't like the size of the check, say so, and we'll send back your shipment, charges prepaid.

But fourteen years of business with no kicks on this score, show how we do business. You get every penny's worth of value at the highest prices paid anywhere.

Give us a chance to show you.

Thomas J. Dee & Company
Gold and Silver Refiners and Assayers
67-69 Washington Street
CHICAGO



"American Beauty" Floor Case, No. 410

Cut above shows front view, and one below rear view, of one of the very best selling cases on the market to-day.

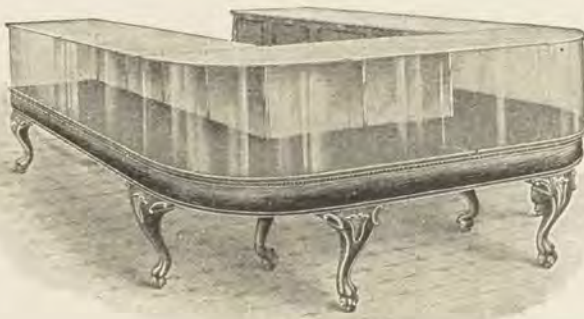


"American Beauty" Floor Case, No. 410

Write for our Catalogue "B," with more illustrations of our peerless line of cases. Let us also send you some testimonials from your neighbors and confreres. They predict the total eclipsing of all other classes of floor cases by our "American Beauty" ones.

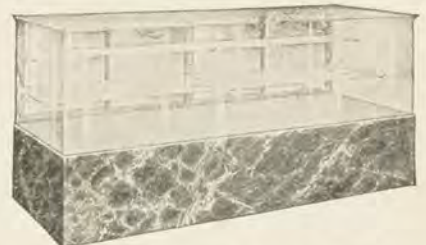
Some of our
"American Beauties"

The magic of their name, the superbness of their appearance, are utterly irresistible



"American Beauty" Horseshoe Case, No. 465

REMEMBER that there is not a single hole drilled through the plate glass at any point, and that these cases are practically as everlasting as the marble and glass of which they are composed and as solid as a wall!



"American Beauty" Case, No. 406

Cut above shows front view, and one below rear view, of a case novel in its application to the jeweler's trade; but probably the very richest one to be purchased.



"American Beauty" Case, No. 406

GRAND RAPIDS SHOW CASE COMPANY

New York Office, 718 Broadway
Some floors as Frankel Display Fixtures Co.

The Largest Show Case Plant in the World

Grand Rapids, Mich.



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.

An INDEX to the questions answered in Workshop Notes department for each year accompanies each December number. Subscribers are requested to preserve these indexes, and, before mailing questions, to refer to them, as similar questions may have been answered in previous issues. These indexes are arranged alphabetically, according to subject covered in each answer, and tell the issue and page on which the information may be found.

"Cylinder No. 2."—Would like information regarding fitting new cylinders.—This matter has been fully considered several times in these columns. One reply giving full detail was that to "Cylinder," page 1023, October, 1900, KEYSTONE. It is also fully covered in the new book "Watch and Clock Escapements," price \$1.50, which can be had from this office.

"Fresco."—How are the colors for frescoing mixed, ready for applying. Where may they be procured?—The colors used in frescoing are mostly earth and minerals, as few others will stand the action of the lime. They are ground and applied with pure water. You can obtain such colors from any artists' supply or paint house; merely mention the fact that you want them for frescoing. The success of the operation does not lie so much in the paints selected as in their application. As you are probably aware the ground to be painted on is the last or smooth coating of plaster. This last coating of plaster should be laid on immediately before the painting is commenced. On quitting work any of the plaster that has not been painted on is cut away, and when the painter is ready to commence work the next day, the plasterer is at hand and joins closely another portion of plaster to the edge of the portion painted on the previous day, which had been slightly sloped when cut. By pursuing this plan the artist has a firm and smooth surface to work on which, though wet, gives the best results.

"Ratchet."—I have had some trouble with two watches to keep them wound. They appear to be all right for several weeks, and then, without any apparent cause, they will unwind. I have made everything right, as far as I can see; the hooks at each end of spring, barrel cover, click and ratchet on arbor; but again and again, with a similar result. They are both key wind, and one has pin in center arbor and groove in pinion. I put a new pin in arbor to fit as snug as it will allow. Can you see any point I have overlooked?—There is one thing that you have failed to examine, to see if the center wheel is tight on the pinion. Should this be tight, then you must have neglected to examine some part carefully. We do not think that the spring slips, for if it did, it would do it oftener. The ratchet and click is where we would first look for the trouble. See that the ratchet teeth are sharp and deep, also the click has a good end and fits into the teeth. See that the ratchet wheel does not have too much play; that the click spring is strong enough to keep the click in place, that the click does not bind. With the examination that you have made and the above suggestions, the fault should be found.

"Correct."—(1) What is the absolutely correct way of oiling the escapement; by putting oil on the faces of the pallet stones before putting movement together or by oiling one or two of the teeth of the escape wheel after putting the movement together?—There is no absolutely correct way to oil the escapement. The object is to get some oil on the pallet stones and escape wheel teeth. It makes no difference whether we put the oil on the impulse or locking faces of the pallet stones, before we place them in the watch, or if we

put the oil on three or four escape-wheel teeth, after the watch is put together. It is a matter of convenience or custom of the workman.

(2) In adjusting fine railroad watches to heat and cold, what is the temperature of the cold box?—Between 32 and 38 degrees.

(3) Give name and address of dealer in engraving blocks having screws to hold articles and ball base.—You can obtain such a block from any of the large material houses whose announcements appear on our advertising pages.

(4) What is the process of applying French gray finish?—See reply to "French Gray," page 423, March, 1904, KEYSTONE.

"Staffing No. 1."—In a recent issue of The Keystone you published an article on "Staffing," in which you illustrated some gravers. I write to request more information in regard to the making of gravers. What is the best steel to use? More definite information in regard to the size, length, width, etc. What is the best way to grind and sharpen? How to harden and temper for use?—These gravers are best made out of 1/8-inch square Stubbs steel, which can be bought of the Stubbs Steel Wire Co., 17 N. Fifth Street, Philadelphia. It comes in 3-foot lengths and costs about 15 cents. The length of the gravers will depend upon whether you want to use them in handles or not. The writer prefers them without handles, about five inches long. The graver is left the width of the steel, 1/8-inch. They are first filed to the desired thickness, tapering towards the point (see Fig. 1). The thickness at the extreme point is about 1 mm. You will note one side of the graver is left flat. This flat side we rest on the T rest when using; in filing the graver it is best not to file it to the desired thickness, but take the graver

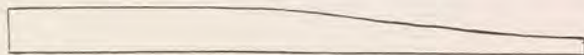


Fig. 1

in the hand, working it up and down on the file, which will bring it absolutely flat and smooth. This should be done on all sides. Then rub on an India oilstone, then on the Arkansas oilstone, when we are ready to put the angles on the side and end for cutting. This is done with the file and oilstones, the angles to be as described in the article you refer to. Now, as to tempering, we heat the graver about one inch from the cutting end to a cherry red and plunge it into water, when we polish it bright with an emery buff, then we rub it again, as explained above, on the India, then on the Arkansas stones. Special care must be taken in sharpening the cutting angles, to see that they are not too long (see article referred to) and that they are flat. The great trouble with most workmen in sharpening gravers is, they do not get the graver flat, or free of the file mark, which it must be if we want smooth turning. We advise using the graver with the temper as it is, but should we find the points chipping off and nicking, we can then draw them to a very light straw color.

"Springy."—I send you two watch movements—one Century and one Swiss. They came to me to have mainsprings put in, but after putting in the springs they will not run. I would like you to look over them, or through them, and tell me what is the trouble. The Century, I know, needs cleaning, but there is "another screw loose." Two springs broke in it before I could get one to stand.—We received the two watches above referred to. We found the Swiss watch needed cleaning. The mainspring is several numbers too strong and fills the barrel too much, two of the barrel teeth are burred, each of which would stop a watch; roller jewel does not stand perpendicular. We can readily understand why the Century movement does not go, for it not only needs cleaning, badly, but is in a very bad condition. It has a brass pin for a ruby pin, has had a lower balance pivot put in, which is much too small for the jewel and is oblong shape instead of round. The hairspring is out of flat, caused by its being fastened to the stud by a piece of wood instead of a pin. The end of the upper plate has been bent, giving the

pallet and escape wheel entirely too much end shake. Mainspring is not the right spring for the watch. It is at least four numbers too narrow. There is enough soft solder between the teeth of the barrel, where a hook has been soldered in, to stop any watch. The barrel arbor has so much end shake that the barrel rubs on the plate. We do not know what happened to the center and third wheel teeth, for they are all chewed and marred. Then there are several other things wrong, which we think useless to mention.

"Success."—I have a Gilbert No. 10 regulator, which has given me considerable trouble. It keeps excellent time, but the minute hand and second hand will not stay where they should. You see, they might be correct at 9.15, and at 9.30 be thirty seconds off, and at other times they might be off at fifteen minutes after the hour and be correct at thirty minutes after. The minute hand is perfectly tight, and does not drop or fall back, and where the trouble is I am at a loss to tell. Kindly give cause and remedy.—The second hand of this clock must make one revolution in one minute because the train is geared to that proportion and the pendulum beats 80 to the minute. Count the teeth in the center, third and escape wheel and see if they do not contain the following numbers: Center wheel, 64; third, 60; escape, 40. Multiply these together, which gives us $64 \times 60 \times 40 = 153,600$. Now multiply the leaves of the pinion of the third and escape wheel, which is $8 \times 8 = 64$, we divide 153,600 by 64, which gives us 2400. Multiply this by 2, because there two beats to each escape-wheel tooth: $2400 \times 2 = 4800$ beats in one hour, or $4800 \div 60 = 80$ beats in one minute. Now, as there are 40 teeth in the escape wheel, which contains the second hand, and there are 2 beats to each tooth, therefore the pendulum would beat 80 times to one revolution, or in one minute. This proves that the second hand should make one revolution while the minute hand moves one minute. There are two causes that we think of that may cause the trouble:

First, the second hand loose on the pivot or binding on the dial, pivot not in the center of the hole; second, it may be possible a slight inaccuracy of the spacing of the minutes on the dial may cause it. The train above referred to is the one used in the No. 10 movement. Perhaps your clock is of another pattern.

"Curious."—I have a 6 size, 7-jewel watch which I cleaned some two months ago; very slightly magnetized, just enough to show a movement of the compass. All the train works free, balance runs free and true, but it is acting queer. After cleaning, took to running fast, ten to fifteen minutes in twenty-four hours. Put washers under screws (four), and still too fast, with regulator clear over to the slow side. Then put two more washers on to bring it near time, and now it is running slow, and took all the washers off. With regulator over to the fast side, it will lose ten to fifteen minutes some days, and gain as much next day. Cannon pinion is tight. Can you give me a hint where to locate the trouble?—A watch that varies as much as the one you speak of has something badly wrong with it. It may be the magnetism that is in it; if not that, you must have overlooked some fault with the train (binding in one or more of the wheels), or the balance does not take the same arc of vibration in all positions. We would suggest taking the watch apart and examining all the parts thoroughly. Try each wheel alone from the barrel to the balance, and when trying the balance, remove the hairspring and hold the watch in all positions. See that it does not come to a sudden stop in any position. When replacing the hairspring, see that it is flat and no two coils rub together or touch anywhere. It should be a simple matter to find this fault, which we think is a sluggish action in some positions.

"Melting."—I would like to know how much heat platinum will stand? Will it stand any more than gold?—Gold will melt at about 2300° F. Platinum is fusible only with the aid of the oxyhydrogen blowpipe or the electric current.

THE "VELVET" ADJUSTABLE BRACELET

Patented December 13, 1904

FITS ANY SIZE OF WRIST

Made in New Narrow Widths; also in Child's Size

A simple arrangement of springs makes this bracelet adjustable to any wrist, whatever its size or conformation. It is thus the extreme of

Comfort, Comeliness and Security

Simple in its parts and strong in construction, it is durable and not liable to get out of order.

Made in rolled-gold plate and sterling silver. Plain or with signet or locket top.

MASON, HOWARD & CO.

New York Office
180 Broadway

Manufacturers

Factory
Attleboro, Mass.



THE NEW NARROW CHILD'S "VELVET"
Made also with Signet Top



THE NEW NARROW "VELVET"
Made also without Signet Top



THE WIDE "VELVET"
Made also with Signet or Locket Top



I WANT YOU TO READ THIS LETTER

PROF. F. W. SCHULER, Philadelphia, Pa.

Patchogue, Long Island, N. Y.

Dear Sir:—We want to thank you and your instructors for the advancement of our son in watchmaking and engraving. He knew nothing whatever of the business before he came to your school, and after taking a seven-months' course, we feel that he is a competent workman, and at the present time is holding a good-paying position.

We only regret that we were unable to visit the school and thank you personally. Being a poor boy, and working hard to save the money to take the course, we do not think he will ever regret the time and money spent at your school.

You have our very best wishes for your school, and we trust all parents are as grateful as we are.

No. 61 Cedar Avenue

Yours very truly

Mr. and Mrs. GEORGE NICCOLI.

Now let me tell you why our students are so successful and learn so quickly, yet thoroughly.

It is our method of teaching, which is thorough, practical and up to date.

It is our instructors, who are teachers as well as thorough workmen:

It is our system, which is to give each student personal and individual attention, and not in class form.

AND THE MOST IMPORTANT IS:

Because we make a specialty of all branches,

WATCHMAKING, ENGRAVING and OPTICS

We have been teaching them over 11 years and we know how to make a first-class workman of you—the kind that are in demand; the kind that command good salaries—and we do it in a short space of time.

Better send for our Prospectus, but do it to-day. It will give you full information.

The Philadelphia College of Horology

F. W. SCHULER, Principal

Broad & Somerset Streets, PHILADELPHIA, PA.

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.

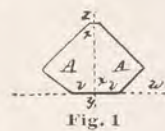
"Remove."—Do you know of any way to remove the name from a dial, other than that given in "Workshop Notes" in the August, 1904, Keystone?—You might try the diamantine method. This is done by applying a little fine diamantine to the end of the forefinger and gently rubbing the name till it disappears. To restore the polish, use a small quantity of diamantine mixed with oil; this may be applied with a small piece of cork. An agate burnisher may also be used for this purpose.

"Caliper Rest."—What are the best methods of using the swing-jeweling caliper rest as applied to setting of jewels in settings and plates?—The jeweling caliper is used for a great many purposes. Opening barrels to fit arbors, wheels to fit pinions, plates to fit jewel settings and settings to fit jewels, when mounting them. It is simple in its action and when properly set will measure correctly any object placed between the stops and cut a sink of the same diameter. There are several points that should be observed in its use. First, the cutters that go in the spindle should be cut exactly in half, that is, they should be filed exactly to the center. To find the exact center, turn the steel to a point; file it flat until the point is reached, taking care not to go any farther, by using your filing fixture set level and at the proper height. Then turn your piece in the chuck one-quarter round and three spaces by. These three spaces are for clearance. For example: If you have started with the index pin in the hole at zero, this will bring you to the eighteenth hole. For the shape of the cutters on the end, etc., see answer to "Querulous," page 245, February, 1904, KEYSTONE. To adjust the cutter for jeweling, put on the universal head or face plate; put the cutter in the push spindle, and the spindle in the jeweling caliper, then adjust one stop or finger so that when the arm is brought against it the front edge of the cutter will be exactly in line with the point of the pump center in the face plate or universal head. To prove that the cutter is in the correct position, put a piece of brass wire in your chuck and drill a hole in it; then take a jewel, place it against the stop, which you have adjusted and press the swinging arm back against it; pushing the spindle forward and cut your sink. If the sink is too large for the jewel, the swing stands too far forward and the stop or finger must be turned back a trifle. If the sink is too small (the jewel does not enter) the stop is too far back and should be set forward. When the exact size is reached, fasten the stop in position by the screws. This will insure exactness in future operations without resetting every time it is used. That is, no matter what size jewel we would want to set and turn the sink for, if placed against this stop or finger, the cutter will cut the sink so that it will fit the jewel just as perfectly as the first one we cut. Care must be taken that we do not cut our sink too deep. This can be avoided by using the adjustable screw or stop in the rear of the jeweling caliper.

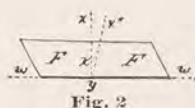
"Modeler."—We are making a lever escapement model, distance of centers, pallet arbor to escape wheel arbor, 11.5 mm; diameter of escape wheel, 20.7; diameter of balance rim, 39 mm. How large a spring would you advise us to use, and how many wheels in the train? Is there any way to calculate strength of spring required?—By escapement model we presume you mean a model where the escapement (balance, pallet and escape wheel) only is in view. If such is the case, we would advise using a clock movement as motor power. This will save cutting and making a whole train. Your upper plate, upon which your balance, pallet and escape wheel bridges are mounted, will measure at least 70 mm. You can get a small

Ansonia clock movement, which measures 52 mm. This movement can be screwed to the bottom of the plate, attaching the escape wheel to the fourth wheel pinion of the movement. Of course, the original fourth wheel pinion that comes with the movement will not be long enough to reach to the escape-wheel bridge. You can buy at any wholesale house a clock pinion the same size and number of leaves that will be long enough. The model when finished can be placed in a wooden base, when the clock movement will be entirely hidden.

"Distinguish."—(1) What is the best and easiest way to test a diamond?—There is no infallible way of determining a genuine diamond except by its hardness and its high refractive power. We often hear of the single "reflection" of a diamond from an ink or pencil mark. Think of it for a moment and you will see there is no reflection attending the experiment. To aid in the explanation we refer to Fig. 1, where we show the outline of a brilliant cut diamond, but make no effort to show the facets, as they would only interfere with our explanation. In the cut the line w is supposed to represent the surface of the paper. Now, diamonds cut to the brilliant form



have two flat parallel surfaces, a small one, the culet, at z and a larger one, the table as it is called, at v where it rests on the paper. In looking at the ink spot or pencil mark at y , on the paper w , the light which illuminates said paper is received through the faceted sides of the stone, but the image of the ink spot or pencil mark is transmitted directly through the diamond on the line x , and is neither reflected or refracted, and we see but one spot or pencil mark. If, however, the stone A was a white topaz or almost any other white natural stone, we would see two ink spots or pencil marks from these stones possessing the property of double refraction. This property of double refraction is illustrated at Fig. 2, where K represents a piece of Iceland spar which, although white and transparent, and also has parallel sides, would show two ink spots or pencil marks. And if an imitation brilliant cut diamond was made from it, it would show a double image of anything seen through it. The closest imitation of a diamond is the so-called paste diamond made from a peculiar lead glass which, like the diamond, has only the power of single refraction, and would show but one ink spot or pencil mark. As stated above, we have only two readily available tests for diamonds, and these are high refractive power showing brilliancy of prismatic tints and hardness. A well cut paste, as far as fire and brilliancy are concerned, would approach near to a diamond, but if we tried the hardness test it would signally fail. The stone next in hardness to a diamond is a sapphire, and if a given stone, say, the one we have in question, will scratch a piece of sapphire it is safe to assume it to be a diamond. A fragment of sapphire can be had for very little money, and by selecting an out-of-the-way spot on the suspected stone we can readily settle which is the hardest. Such tests should be conducted with great caution, because the owner of a piece of imitation diamond jewelry would scarcely like to have a stone of this kind scratched to prove it was not a genuine diamond. The double refraction test will decide on some kinds of white stones, but the sapphire test, that is, see if the stone in question will scratch a sapphire, is almost infallible.



(2) What is the best way to restore the color of gold after it has been overheated during the soldering operation?—See reply to "Firecoat," page 1253, August, 1904, KEYSTONE.

"Contact."—I have a 12-inch electric gong in front of my store that I ring every day at 12 M. and 7 P.M. At present I have to make the connection at stated hours by hand, but I would like to know if you could advise me as to how I could make my regulator make this connection at 7 and 12, or is there a clock (not expensive) that I could buy and attach to the wire so as to make a connection at said hours?—The only clock that we know of, which would suit your purpose, is the pro-

gramme clock, which can be set to ring a bell at any time of day or night, but they are quite expensive. You can very readily make an attachment that will do the work that you wish done, providing you do not want the alarm to go off on the second of 12 noon and 7 P.M. Such an attachment we described in detail in the January, 1904, KEYSTONE, on page 93, in reply to "Electric." Instead of the escape wheel, as described there, you want to cut or have a wheel cut that contains twice as many teeth as the hour wheel of your clock. This wheel is to gear into the hour wheel, and will make one revolution in twenty-four hours. Now, on this wheel we place two pins so that it will connect with the electrical attachment precisely at the stated hours, 12 noon and 7 P.M. Any electrician can supply the wire and other necessary material.

"Isochro."—Will you please explain what particular difference there is between a watch adjusted to temperature and five positions, and one adjusted to temperature, position and isochronism? As I understand it, the two adjustments, position and isochronism, are inseparable. To adjust a watch to position, the long arcs must be little the slowest; for isochronism, the long arcs must be little the faster. How then can a watch be adjusted to position and not to isochronism?—The usual method in adjusting is to first get the balance spring isochronous, then correct the balance, for error in temperature, then quicken the short arcs, whatever may be necessary for correction in position. The positions are five: Pendant up, down, right, left, dial up, and dial down gives the sixth position.

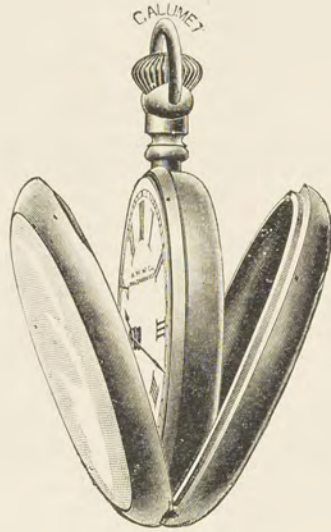
"Testing."—(1) How do you test gold with acid? What kind of acid is used?—The acid generally used for testing is nitric acid, prepared by adding ten grains of common salt to each fluid ounce of acid. Many workmen prefer and use a mixture of nitric acid 4 ounces, water 3 ounces and hydrochloric acid 1/2 ounce. The testing acid is kept in an ordinary glass test bottle, and when an article is to be tested by it the stopper is moistened with it and is then applied to a polished surface on the article. Such testing takes but a very short time; in fact, the determination of the gold is accomplished in a very few seconds, but to accurately name the karat of the article under examination a little experience is necessary, as the color of the surface to which the acid is applied determines this point. The mixture will have no effect on 18 karat gold; on 14 karat it will turn the surface nearly black; on 8 or 10 karat gold the surface will become green and appear much the same as would brass under similar treatment.

(2) How do you test silver with acid? What kind of acid is used?—For testing silver, probably the best plan is to employ a 10 per cent. solution of silver nitrate, to which a few drops of nitric acid are added. On silver this solution will have no effect, but on other white metals the surface will turn black.

"Anode."—(1) I made a solution by dissolving 2 ozs. of c. p. cyanide of potassium in a quart of distilled water and then run off some pure gold from the anode in a porous cup in the vessel of cyanide and water using the electric current. After running off the gold for two hours I mixed it all together and tried to plate. The work comes out almost black, and after scratch brushing lightly it produces a yellow color, but more like brass than gold. Where is my trouble?—You failed to state how much gold was dissolved into the solution. However, the main fault lies in the cyanide solution. In this the cyanide of potassium is largely in excess; 4 ozs. to the gallon, 1 oz. to the quart, is the quantity used by the most successful and experienced workmen. Then again, the solution is probably weak in gold; the proper amount in a quart solution would be four pennyweights. You can easily determine the amount by weighing the gold during the process of dissolving. If you will make a solution on the lines suggested, we have no doubt you will get a rich gold color.

(2) How should I proceed to set a diamond in a perfectly plain surface?—The manner of setting the stone depends largely on the shape of the article and the size of the stone. We think you can get the idea better by inspecting a piece of work similar to that which you contemplate producing.

“The Calumet”



An exceedingly compact Filled Case with only a single joint. The construction affords unusual thinness, and the case presents an elegant appearance that at once attracts the eye of the discriminating buyer.

It is made in 16 and 12 size only, in 25-year quality. Sold by all first-class jobbers.

The Crescent Watch Case Co.

Main Office, 21 Maiden Lane, New York

HERMAN G. LAMMERS, Vice President
HERBERT TEMPLETON, 3rd Vice President

WILLIS J. WELLS, President

WM. A. HINNERS, Treasurer
J. LENHART SHILLING, Secretary



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BINNER-WELLS COMPANY

GRAPHIC ARTS BUILDING - 309-310-311 MICHIGAN BOULEVARD
CHICAGO

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Our new Sunlight Skylight has made it possible for us to make halftone plates of Jewelry, Silverware, Cut Glass and kindred subjects direct from the objects.

We eliminate the commercial photographer entirely. The result is a remarkable success for illustrated catalogue work.

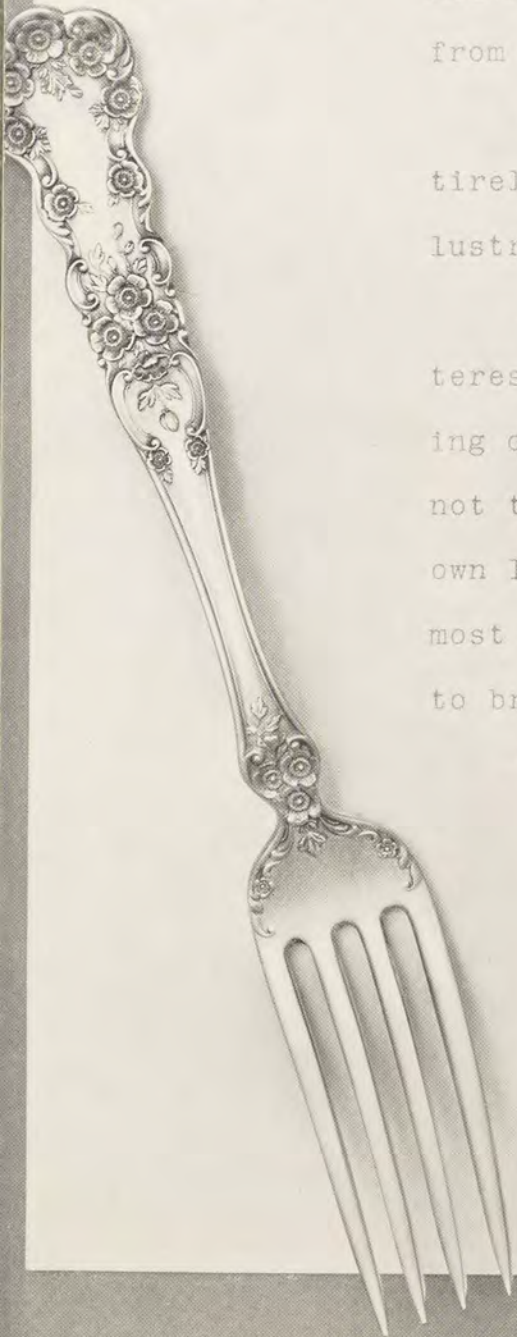
Every manufacturer and dealer should feel interested in this wonderful improvement in the making of halftone plates. We feel convinced that not to do so would be decidedly "standing in their own light," and refusing the help of the Best and most convincing Selling Force that it is possible to bring to their aid.

We invite correspondence.

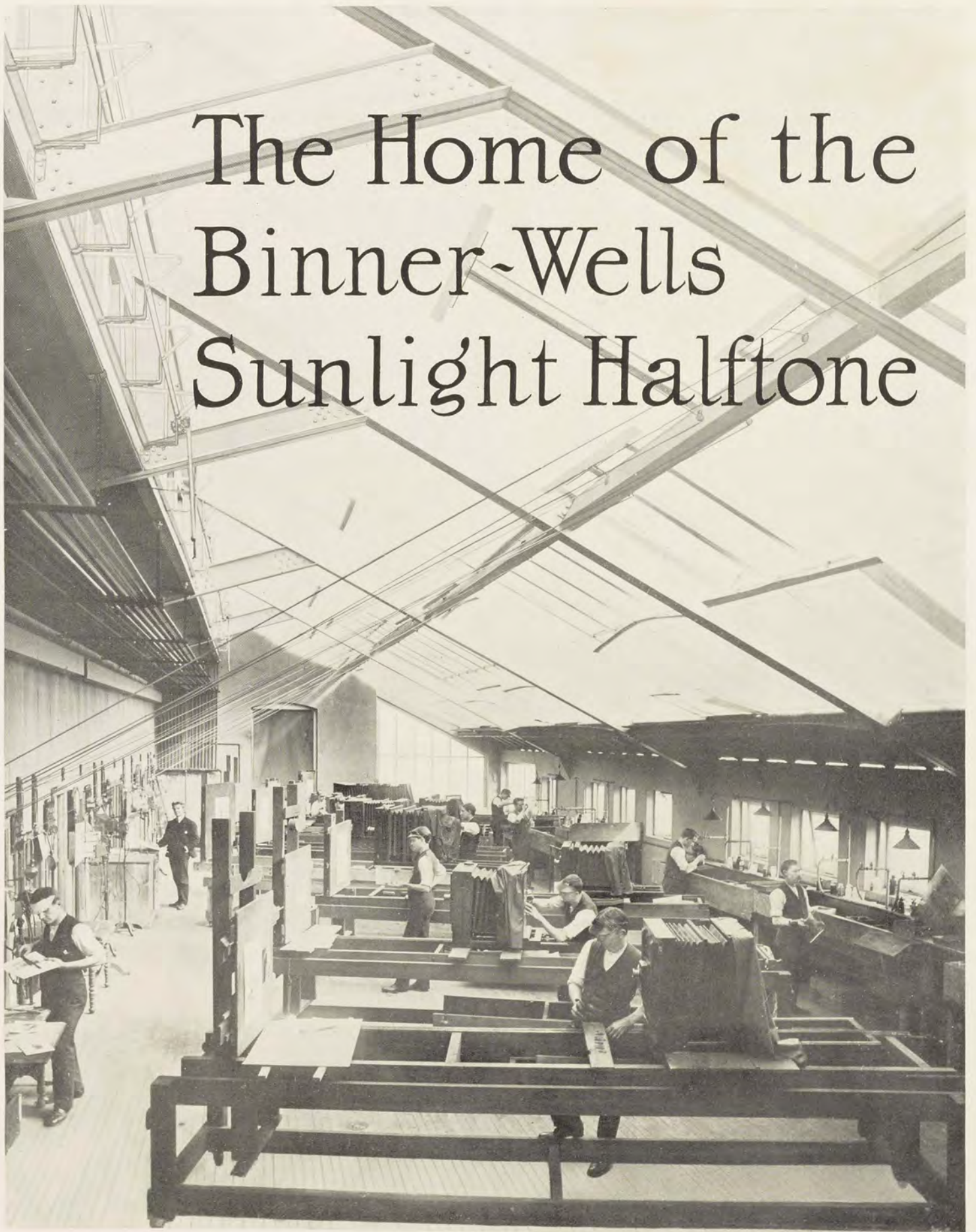
Yours truly,

BINNER - WELLS COMPANY,

By *Willis J. Wells*
President.



The Home of the Binner-Wells Sunlight Halftone

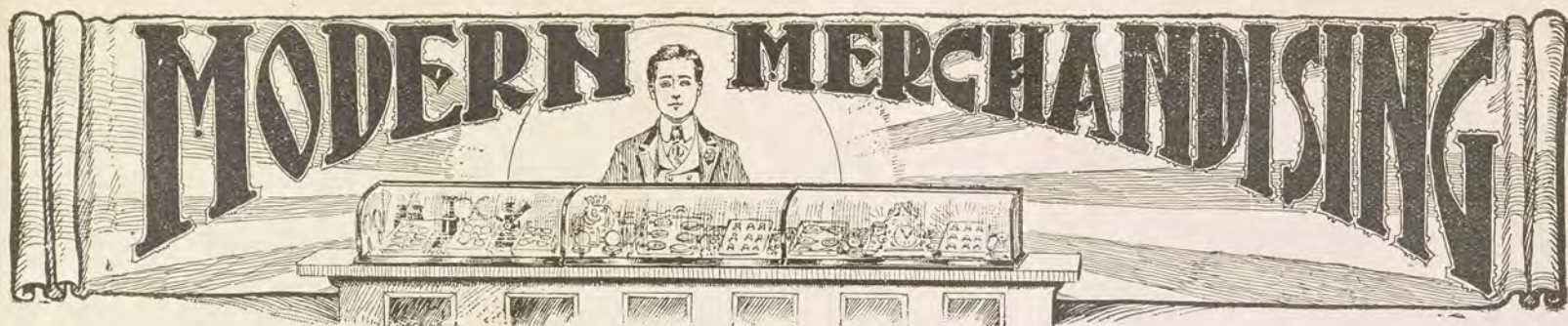


Our fifteen years' experience as Halftone Engravers taught us how to plan and build this, the first practical sunlight skylight. Here is where we make our "Sunlight Halftones" direct from the objects. We are Designers, Engravers and Printers. Our whole plant—building, machinery, methods and men—is modern. We invite correspondence. BINNER-WELLS COMPANY, GRAPHIC ARTS BLDG., 309-10-11 MICHIGAN BOULEVARD, CHICAGO



Mention the Keystone

See other side



Store, Show Case and Show Window Illumination

A MOST important factor in store equipment is the light, and in no kind of store is the lighting of more importance than in a jewelry store. Tantalizing proof of this is found in the dazzling displays which are made by the various fake diamond concerns solely by manipulation of the illumination and by the clever placement of mirrors. Light adds manifold to the attractiveness of a jewelry, diamond or cut glass stock, and its worth as a business agent is in proportion. For this reason our readers will be especially interested in the following analysis of the various illuminants by Van Ransellar Lansing in the *Clothier and Furnisher*:

The lighting of a store can be divided in general into four parts: First, the lighting of the store proper. Second, the lighting of show cases. Third, the lighting of the office. Fourth, the lighting of the window display.

The lighting of the store proper.—If electricity is the illuminant to be used, there are two methods to consider, namely, arc lighting and incandescent lighting. If arc lighting is to be used the arcs should be equipped with opal outer globes so that perfect diffusion may be obtained and all possibility of a glaring, intensified light striking one in the eye be avoided. Five and a quarter ampere arcs thus equipped will give good and fairly uniform illumination. These arcs should be placed about twenty-five feet apart, and as high as possible in order that the light may cover a large area.

The following points should be remembered when taking into consideration the question of lighting a store with arcs or incandescents: The arc light will show up the true value of colors better than the incandescent lamp, but the effect of the arc light is cold and does not give the warm, cheerful appearance of the incandescent light. It is possible, by placing incandescent lights properly, to secure as high an efficiency in illumination as is obtained by the use of arc lights placed at rather long distances apart.

If incandescent lights are considered there are several methods which may be used: Stud lighting: The light may be placed against the ceiling, provided the ceiling is not too high, and with

proper care glass reflectors or globes, such as, for example, are furnished in the holo-phane system of illumination, the light can be directed strongly downward and practically uniform illumination throughout the store is secured. Chandelier lighting: The lights, with proper distributing globes grouped on the chandeliers at proper distances, heights and angles, will result in a fine general illumination throughout the store. It is possible also in special cases to use bracket lights, but these in stores are not generally to be recommended.

If gas is the illuminant the only practical method applicable is that of the use of mantle burners on chandeliers. Such burners should be equipped with proper diffusing globes so that all possibility of glare is entirely eliminated. At the same time such globes should have the power of redirecting the rays of light at an angle of from fifteen degrees to forty-five degrees below the horizontal as mantle burners ordinarily give as much light in an upward direction as in a downward direction, and, although a slight amount is reflected from the ceiling and high side walls such upward light is generally entirely lost.

Show Case Lighting

The fundamental principle of show case lighting is to entirely conceal the lights themselves. Where high show cases are used it is possible to treat this subject in exactly the same manner as that of window lighting, which is described later. In considering low show cases, which are usually made entirely of glass, with possibly a slight wooden trimming, it is possible to run a very narrow trough reflector along the top edge nearest the customer, which trough should contain small, candle-shaped lamps of from four to eight candle power each. This will entirely hide the lights themselves, and if properly placed, beautifully illuminate the show case. The top of the glass above the trough reflector should be silvered, which will entirely hide the trough reflector and at the same time add a finish to the case. A good example of such show-case lighting can be seen in Marshall Field's retail store.

Office lighting: The office should be lighted with incandescent lamps, rather than with arcs, if electricity is to be used. There should be as good a general illumination and

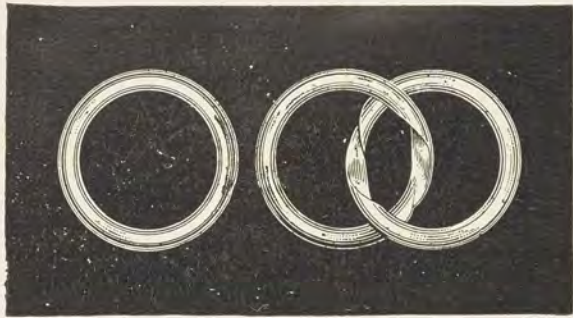
about as equal an intensity as is obtained in the store, and, in addition, the desks should be provided with proper reflectors to concentrate the light on the work on hand. The requirements of such a reflector are that it must protect the eyes from all brilliant light and at the same time be absolutely free from any glare or striation due to a bare incandescent light, and intensified by the ordinary green porcelain reflector. The use of such reflectors should be absolutely prohibited unless used with a frosted lamp, in which case the effect is very good. Another method of lighting the office is to place a special style of pagoda reflector about four feet above the desk, which will admit of the elimination of all special desk lights and at the same time give a good general illumination to the room. This is one of the up-to-date methods which is being largely employed.

Show Window Lighting

The first principle of properly illuminating a window is to hide the lights themselves entirely and at the same time concentrate the light strongly on the goods displayed. Generally speaking, it is better to use single reflectors rather than trough reflectors, inasmuch as single reflectors are more efficient and can be placed in such positions as to direct the rays of light at any given angles to properly illuminate the window. In case the reflectors cannot be hidden from the street by placing them up high enough, a black band should be painted on the glass, the band to be of sufficient depth to hide the lights from the observation of a person in the street.

The using of a row of lights, placed all around the window framing, is fatal to the proper lighting of same for the reason that a person standing on the outside, looking in at the goods, cannot help but notice that the lamps are the most prominent objects in the window, and being the brightest objects, everything else is dark in comparison and suffers thereby. As the art of window dressing is being developed to greater perfection, more and more attention is being given to this matter of lighting, which, as before said, is especially important in the case of a jewelry display. The modern store is always well equipped with lights so distributed and arranged as to make a uniform illumination and obviate imperfectly-lighted corners.

⁹⁶² Numerous inquiries have been made, Who makes



THE ALLIANCE RING?

Let us solve this question for you
WE DO!!!

The graceful style of the Alliance Ring is rapidly supplanting the use of the old-style wedding ring.

Its mysterious construction is another reason for its increased demand.

We have thus far supplied the entire demand, and we take these means to inform you that should you need them, we can supply you.

These rings are most carefully adjusted; the joints are barely perceptible, except by a magnifying glass.

Whenever engraving is desired, it is done in the inside flat surface. They are easily opened as shown on illustration by inserting a sharp instrument, for instance a pin, in the inside pin hole.

They should not be pried open, as this would destroy their adjustment.

14 karat, 3 dwts., each, \$1.25 per dwt.; in dozen lots, \$1.10 per dwt., net
18 karat, 3 dwts., \$1.40 per dwt.; in dozen lots, \$1.25 per dwt., net

LEONARD KROWER, Manufacturing Jeweler

536-538 Canal Street

New Orleans, La.



New Fall Line Now Ready

OUR new line of Fobs for fall trade represents the extreme of beauty in these goods.

This line includes a great wealth of new patterns, as do also our new fall lines of Chains, Chatelaine Pins, Locketts and Bracelets.

The Bates & Bacon products have been known to the trade for almost half a century as the standard in style and quality—the quickest to sell and most profitable to handle. The new fall line well sustains this reputation.

BATES & BACON, Attleboro, Mass.

New York Office, 9 Maiden Lane

Chicago Office, 103 State Street

Tribute to an Eminent Canadian Member of the Trade

W. K. McNaught, president of the American Watch Case Co., Toronto, Canada, was made the recipient of a unique and notable honor at the National Club, Toronto, on the evening of May 9th, by the men prominent in the social, civic, commercial and professional life of that city. A banquet was held in his honor, at which a complimentary address and a rich casket of silver were presented to him, the address having been read and the casket formally bestowed by Mayor Urquhart, of Toronto. This distinguished tribute was as an appreciation of Mr. McNaught's services as a director and for the past three years as president of the Industrial Exhibition Association, to the success of which he has contributed more than any other individual. The banquet was very fittingly held under the formal auspices of this association, and one of the notable participants pronounced it "as the most representative gathering of Toronto's best men" that he had ever seen.



W. K. McNaught

After "The King" had been honored, the toast of "The Dominion of Canada" was proposed, to which his Honor Lieut-Gov. Clark responded. In closing his address, this speaker paid a hearty encomium to Mr. McNaught. Mayor Urquhart was the next speaker, and after some preliminary remarks he read the appended address to Mr. McNaught, and presented the latter with the silver casket:

The directors and members of the Industrial Exhibition Association take this opportunity of congratulating you upon the work which you have done for the association in the past.

For thirteen years you have been a director of this association, and during all that time you have been untiring in your efforts on its behalf.

As president of the association for the past three years you have displayed great executive ability, unflinching courtesy, and judgment in the direction of its affairs. The splendid record of the exhibition during that period is sufficient evidence of the wisdom and enterprise of your administration.

In congratulating you upon your election to a fourth term as president, the association is also to be congratulated on retaining you in the office which you have so ably filled, and they are confident that under your guidance the exhibition will increase in usefulness and extend in fame.

The directors and members of the association, in extending to you their good wishes for your future welfare, ask you to accept the accompanying cabinet of silver as a token of the esteem in which you are held by them, and also as a slight testimony of appreciation for the services which you have so freely given to their interests.

Mr. McNaught made an admirable response, saying in part: "That I feel deeply grateful for

such a distinguished mark of your esteem as this splendid testimonial, I need not say, and that it will occupy a foremost place amongst my most cherished treasures while I live, and after I am gone be something that I trust my children and my children's children can look at, with a just measure of satisfaction and pride." Continuing, he said, that although he accepted it more as a tribute to the great enterprise with which he was connected than to any personal merits, he felt no less honored on that account. He gave great credit to his predecessors in the office and his associates on the board, whom he said were responsible for almost all the success of the exhibition.

A number of other speeches by notable individuals were delivered, all profuse in eulogies of Mr. McNaught's labors for the success of the exhibition association.

Among those at the guests' table were: Lieut-Governor Mortimer Clark, Dr. Andrew Smith, Hon. Jas. Young, Mayor Urquhart, Thos. Crawford, M. P. P., Dr. R. Wilkie, D. M. Stewart, Controller Hubbard, Lieut-Col. Geo. T. Dennison, Geo. T. Bell, Hon. Nelson Monteith, W. J. Douglas, W. K. McNaught.

Philadelphia Jewelers' Club Honors Prominent Members

It was a genial and interesting company that assembled in the red room of the famous Bellevue-Stratford Hotel on Monday evening, May 1st, to participate in the banquet tendered by the Philadelphia Jewelers' Club to three of its most prominent members, namely, J. Warner Hutchins, L. P. White and William P. Sackett. This honor was in recognition of the services of these gentlemen to the club, particularly in the matter of securing for it some time ago larger and more beautiful quarters. Nor could the function have been more happily timed, for it gave the members an auspicious opportunity of wishing *bon voyage* to Messrs. Hutchins and White, who sailed for a pleasure trip to Europe a few days afterwards, and of appropriately marking the departure of Mr. Sackett for his new sphere of duty as manager of Reed & Barton's recently completed and finely appointed jewelry store in New York City. There were, in all, sixty-five guests, and these spent a pleasant interval of social intercourse in the Clover Club room prior to the serving of dinner. Upon entering the dining-room a scene of unusual brilliance presented itself. The apartment was gorgeous with illumination, shimmering candelabra, rare flowers and refreshing greenery. A circle of five tables surrounded the table at which the guests of honor were seated. In the center of the latter was an ingenious floral miniature of the steamship *Koenig Albert*, on board which Messrs. White & Hutchins were to sail soon afterwards.

The toastmaster of the evening was Archie Rutherford, president of the club, at whose right were seated Messrs. Sackett & Hutchins, while Mr. White occupied the place on his left. During the progress of the feast a very choice selection of music was rendered by an orchestra and selections by eminent vocalists were also given.

Mr. Rutherford inaugurated the speech-making in a neat address suitable to the occasion, and Messrs. White, Hutchins and Sackett gratefully acknowledged the tribute paid them by their brother jewelers in the regal function given in their honor. Col. John L. Shepherd, of New York, the veteran favorite of the festive board, greatly amused the assemblage by a playful prediction of the proba-

ble Continental experiences of the prospective voyagers.

The menu was one of the most unique creations of its kind, the cover consisting of lizard skin specially imported. This was adorned by little framed photographs of the three guests of honor. In humorous significance, however, the souvenir of the occasion surpassed it. This consisted of a silver miniature tray, lined with gold, upon which was a small vial filled with a suspicious-looking draft and bearing a skull and crossbones. Underneath was the inscription "Osler Formula." A tiny cut-glass goblet was on the tray.

This interesting memento of an interesting event was made by the Bailey, Banks & Biddle Co.

Book Notices

As the author of "Mrs. Wiggs of the Cabbage Patch," Mrs. Alice Hegan Rice achieved an enviable popularity as an entertaining, resourceful writer of fiction. The fame thus acquired has created a big demand for her latest book entitled "Sandy," a somewhat melo-dramatic story of an adventurous Irish youth whose "life on the ocean wave" and elsewhere was sufficiently eventful to satisfy the most imaginative. As might be expected from the creator of "Mrs. Wiggs," the story abounds in humor, blended with homely philosophy, and is very entertainingly told. "Sandy" is the ideal hero who meets difficulties only to surmount them, and in his uniformly successful emergence from all complications, recalls the charmed hero of the Sunday-school stories. In its excess of sensational incident, the book is the antithesis of the "cabbage patch," which it by no means equals as an entertaining and enduring work of fiction. "Sandy" is published by the Century Co., New York, price \$1.00.

A handsome cloth-bound volume of 400 pages entitled "Exporters' Encyclopedia," which has just been issued, evinces the growing interest of the country in export trade. This book contains full and authentic shipping instructions in detail, for every country in the world, giving the names and addresses of all the transportation companies, both steam and sail (arranged separately for each country), their ports of call—points for which bills of lading may be obtained, also complete list of the prominent inland cities and towns, telling where they are located and how they are best reached, and the time to principal places.

It explains all that is required to be done as to the arrangement of consular documents, the charges for same, etc., and gives full information regarding the requirements of the different foreign governments and of all the steamship companies. It also shows how to pack, mark and ship, how to insure and consign, how to arrange bills of lading, custom house clearance, consular invoices, "drawbacks," etc. The book is published by the Exporters' Encyclopedia Company, 65 Duane Street, New York City, and the price \$3.00.

"Errors of Refraction and Their Treatment," is the title of a handsome little cloth-bound volume of 100 pages by Charles Blair, M.D., Fellow of the Royal College of Surgeons of England and an ophthalmic surgeon of eminence. The little book is in the nature of a pocket treatise for medical students, the subject being treated in a brief and lucid manner. Its remarkable feature is the condensation of so much knowledge in so small a volume. It is published by John Wright & Co., Bristol, England, and the import price is one dollar.

JUERGENS & ANDERSEN Co.

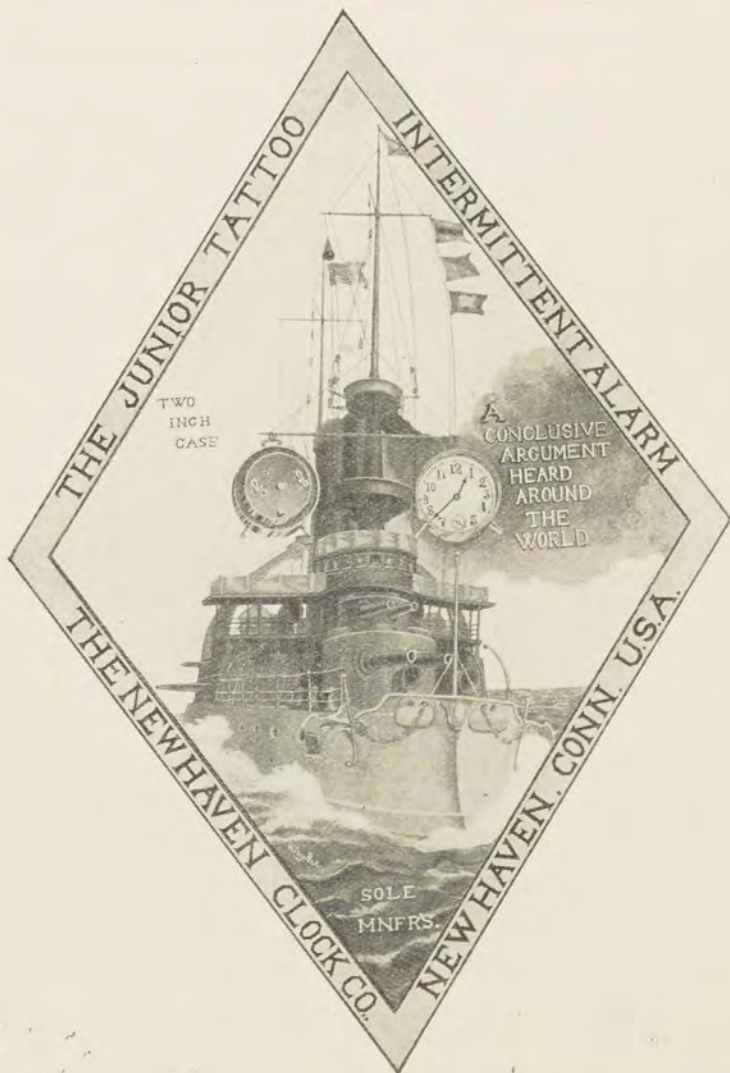
DIAMONDS, PEARLS

MAKERS OF FINE JEWELRY

92 TO 98 STATE STREET

CHICAGO

23-25 LOOIJERSGRACHT, AMSTERDAM, HOLLAND



Our popular line of

COMBS

is giving us a fall business in the spring.

“Think it over”

There is profit in it for you

Scofield & De Wyngaert

Manufacturing Jewelers

50 Walnut St., NEWARK, N. J.

Among Jewelry Advertisers

That the retail trade has now a thorough realization of the importance of advertising as a factor in their business, is proved by the interest taken in this page. "Probably the most serviceable page in your magazine," is the way one jeweler puts it. "These ready-made advertisements save time and gray matter for me," says another. "You can't give us too many sample advertisements," writes a third, and so on. We would have our readers to understand that these announcements are given as suggestions rather than as

samples. The form and phraseology may often be improved on, and a larger space should always be used for the advertisements than is here available. The type here used is necessarily too small and the matter is too crowded, our purpose being to show as many samples as possible in the small space at our disposal. It would be impossible for us to reprint a fraction of the ads. sent us, and we would therefore ask those who kindly forward samples to us to take our limitations of space into consideration. The fact that we do not reprint the ads. has no critical significance whatever, though not all, of course, are equally meritorious.



Oriental Figures

In order to reduce our stock as quickly as possible, we have made some phenomenally low prices on subjects of which we have duplicates. The prices shown on those displayed in our window will convince you of our full determination to carry out our purpose.

H. F. Vollmer & Co., Direct Importers
Broadway, corner Third Street

JEWELRY

All kinds here—Rings and Pins and Studs and Earrings and Brooches and Chains. Everything up-to-date in design and properly priced.

John Brenner
Youngstown Ohio

The Skillful Mending of Jewelry

YOU have often heard it said that really right repairing was a lost art—that the average mending done nowadays was a bungle. Those who bring their jewelry here to be repaired will find unusual facilities and unsurpassed skill. Nor is that all. When the work is finished we subject it to a rigid inspection to make sure that it is right. Your search for faults will be fruitless. Prices as low as the work is good.

C. L. Byrd & Co.
W. C. GRAVES, Manager

TOILET SETS

of three pieces, Mirror, Brush and Comb, sterling silver, silver-plated or china-backed, make most acceptable gifts—useful, ornamental and pleasing. The season's newest designs, \$4.00 to \$16.00.

H. U. SEAMAN CO.
Washington, Pa.

When Selecting a Diamond

Look for {
First—Brilliantcy
Second—Color
Third—Cutting and Perfection

The Essential Points of a Fine Diamond

We have just received, direct from the cutters, a fine lot of specially cut Diamonds.

While paying particular attention to the above qualities, our prices are the lowest. Send for our new booklet, "How to Buy Diamonds."

Jaccard Jewelry Company
1032 Main Street

Are there any REALLY PERFECT Diamonds?

Certainly! plenty of them. Not so many as of the other kind, to be sure, but enough to go around for all those who really want them.

O yes, it's true some diamond merchants say there is no such thing as an absolutely perfect diamond, but that is because they sell cheaper stones.

To begin with, only five per cent. of all diamonds mined will make perfect stones as large as 1/2 carat or larger after cutting. Naturally they are the most expensive.

Then most of this five per cent. come to America in the rough to be cut here. That leaves few perfect stones to be cut in Europe. That is the way of it.

We have diamonds in any sizes that are perfect, in white or blue-white color. Perfect in proportion and brilliancy, perfectly flawless—perfect every way.

We will sell diamonds subject to exchange at full value for a larger stone at any time—six months or six years. We open accounts with responsible parties.

C. L. BYRD & CO.
W. C. GRAVES, Mgr. Memphis, Tenn.

CHESTS OF STERLING SILVER For Wedding Gifts

Perhaps the most prized heirloom in your home is the Old Silver handed down from generation to generation.

The chest of New Silver that you are thinking of giving now will be prized and handed down in the same way.

A dozen superb patterns sold at the uniform price of

\$1 an ounce

Sets in Oak or Mahogany Chests \$44 and upwards



Our Specialty

We make a specialty of two rings—the **DIAMOND SOLITAIRE ENGAGEMENT RING** and the **PLAIN GOLD WEDDING RING**. The former binds the bargain and the latter ties the knot. If you have the girl, we have the ring.



E. Schimpff, 327 Lackawanna Avenue, Scranton, Pa.

FOUNTAIN PENS TO MEND

When your fountain pen meets with an accident, or needs cleaning, and the feeds adjusted, or whatever may be the matter, the safest way is to have it put to rights by our pen expert. Often but a minute or two is required to correct the difficulty; and you can take the pen along with you. In any event, the cost is small.

Cleaning your pen is important, if you are to get the best service out of it. Some folks bring in theirs once a month, to be overhauled.

The ink should be right, too. A bad ink will cripple the best pen. Let us fill your pen with the sort of ink it's best to use—no charge, of course.

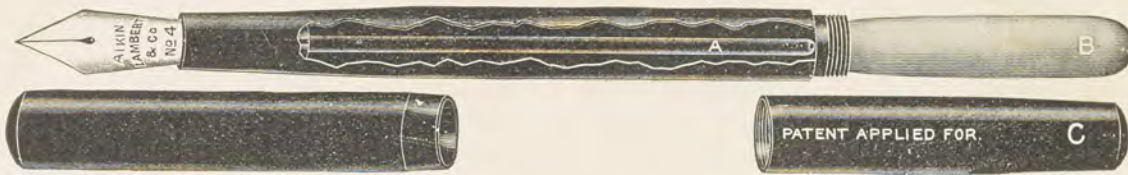
No excuse for not having a good fountain pen. \$1—and guaranteed.

HOSKINS, PHILADELPHIA

AIKIN, LAMBERT & CO.'S

Self-Filling Fountain Pen

No. 4 A Mercantile, as illustrated, retails at \$3.50



We offer the trade a new self-filling device in Fountain Pens that we believe for convenience, durability and simplicity to be the best yet invented for this purpose, and shall be pleased to furnish samples to dealers with prices and discounts.

It has no ink joint to soil fingers or clothing. Holds three times as much ink as any other self-filler. Ink is held in a hard rubber reservoir instead of soft rubber sack. Pressing the bulb expels the air and ink flows into the barrel.

NEW and GOOD

Mercantile Fountain Pens

Made and fully guaranteed by

AIKIN, LAMBERT & CO.

19 Maiden Lane

NEW YORK



WEDDING INVITATIONS

A most profitable line for you to handle. Write for information regarding sample sets.

WM. FREUND & SONS.

ENGRAVERS, PLATE PRINTERS AND EMBOSSEERS
174-176 STATE ST. CHICAGO.

COMMENCEMENT INVITATIONS





The Wright Self-Filling Fountain Pen

Fills a long-felt want for a fountain pen that is simple, CLEAN and easy to fill

- No ink dropper required
- No blow
- No sweating
- No dripping
- No leaking

Fills instantly at any ink well.



- No. 33. Fitted with No. 3 14 K. pen, \$15.00 doz.
- No. 34. Fitted with No. 4 14 K. pen, \$18.00 doz.
- No. 35. Fitted with No. 5 14 K. pen, \$21.00 doz.
- No. 36. Fitted with No. 6 14 K. pen, \$24.00 doz.

Samples sent on request to responsible jewelers
SEND FOR NEW CATALOGUE

WRIGHT PEN CO., 614 Locust Street, St. Louis

Fills Itself, Cleans Itself—The Standard Pen, 623 Baker Bldg., Toledo, Ohio

- No ink-dropper
- No twisted rubber
- No hump—no blow

NO EXTRA PARTS—NO EXTRA PRICE



DEALERS, send for new catalog and trade discounts. SALESMEN, write for territory and terms



THE EAGLE "FLASH"

A self-filling Fountain Pen. Writes the moment it touches the paper.

This is the only practical self-filling Fountain Pen—it is a pen built for business. It requires no glass fillers. There is no spilling of ink—no clogging—no shaking—no loss of cap.

We absolutely guarantee the sale of these pens—we also guarantee every pen.

Send us your order for one dozen at once. 9 plain, 3 with gold bands, the dozen as assorted, \$13.50 for the lot.

M. J. Averbeck, Wholesale Distributer, 19 Maiden Lane, NEW YORK

STATIONERY DEPARTMENT

Window Display of Wedding Stationery

The wedding season affords a fine opportunity for an effective window display of stationery, and when we consider that the jeweler-stationer is in a position to furnish not only the stationery, but a large proportion of the wedding presents also, the opportunity is all the more attractive. A wedding window in a Brooklyn, N. Y., store was recently the subject of much eulogistic comment, and has been credited with being unusually effective as a trade winner. An original and striking feature of the display as described by the *American Stationer* was some enlarged wedding invitations and announcements. These were shown in silver frames, 22 x 26 inches, without a mat. There were three invitations, one each in upright French script, shaded old English and script. Of the announcements there were also three, all in script. These enlarged samples were disposed about the sides of the window and showed up the newest styles very advantageously.

The centerpiece was a beautiful bridal bouquet in a cut-glass vase. The bouquet was composed of bridal roses and lillies of the valley with showers of lilies of the valley streaming by dainty ribbons from the main part of the bouquet.

About the sides also, but more to the rear, were disposed some white pipes in graduated heights. These were placed to form a pyramid. All of these pipes had silver bands.

Each roll of paper was decorated in silver and at the heading of the decoration in silver lettering were the words: "Wedding Stationery," and from the letter "W," hung by ribbons, were two silver bells. Appended to these were two cupids so disposed as to give the idea that they were ringing wedding bells.

Disposed about the window were six silver frames in which were mounted six of the newest designs in monograms.

Well to the front of the window was shown a white silk desk set made of white moire silk. The desk pad had a silver initial on each of the corners and on the front in silver figures was 1905. This very novel gift for a bride was composed of the following pieces: Inkstand, stationery rack, stamp box and blotter. Each piece was decorated in silver monograms in similar style of lettering, the size varying according to the size of the article.

Some white moire boxes were decorated with cupids and wedding bells to match the rolls of paper already described. The boxes were lined with white moire silk and the paper was tied with white moire ribbons.

Among the books was everything conceivable for the desk and library, all bound in white moire silk. There were cake boxes of white satin decorated with bridal flowers in the heart, bells and many other shapes, silver dinner favors, silver decorated dance orders for a wedding dance, dinner and menu cards with heart, bow and arrow, and bridal procession decorations and many similar goods.

Silver bands were about each pack of wedding envelopes and each 100 sheets of paper. White silk cords and tassels also were used in profusion for tying the sheets and envelopes.

The following engraved work was displayed in correct size of sheets and cards: Wedding invitations, wedding announcements, wedding anniversary invitations, reception and tea cards, betrothal and birth cards, dance programmes and visiting cards, etc., etc.

A Handsomely Appointed Store

One of the most noted business establishments in Montreal, is the new premises at 136 St. James Street, into which the L. E. Waterman Company, of Canada, Ltd., has just moved. The new quarters are of such extensive dimensions as will accommodate the growing business of the company, and in arrangement and equipment seem to reach the ideal.

As shown in our illustration, the most striking feature of the exterior display is in the form of an overhead sign on which appears on a beaten gold background, a ten-foot Waterman's Ideal fountain pen in semi-relief. This is well set off at the sides by beveled plate-glass signs with a black background and chipped gold letters, showing a list of the different offices in various other cities. The predominating colors on the outside consist of a mingling of green, black and gold, while the appearance is made more attractive by a hanging plate-glass sign.

The interior of the store is handsomely finished from floor to ceiling, the floor being of solid oak. There is a seven-foot oak wainscoting and from the top of this to the ceiling, the wall is finished with green burlap with an ornamental gold frieze.

For interior display two handsomely finished fifteen-foot show cases are used. The bases of these are of solid oak, and the top is of heavy plate glass without mounting. These cases are arranged down the center

of the front part of the main floor, and at the end of them is an archway dividing the show room from the correspondence department, which is very orderly arranged and modernly equipped. The interior color scheme is in green, gold and oak.

Two flats at the rear are temporarily utilized as storage rooms for a large number of



show cases, displaying fixtures and advertising matter usually supplied to dealers. On these floors will also be carried a reserve stock of pencils, pen ink and other accessories.

The lighting of the store is unique. Sixteen incandescent lights are hung on either side of the two long show cases, suspended from the ceiling by a brush brass chain fixture, the lamps being encased in globes of Tiffany favrile glass, which gives a most beautiful effect.

Origin of the Steel Pen

"We owe the steel pen," said an inventor, "to a man named Gillott—Joseph Gillott—an Englishman.

"Gillott was a jeweler. He lived in Birmingham. One day, accidentally splitting the end of one of his fine steel jewel-making tools, he threw it peevishly on the floor.

"An hour later it was necessary for him to write a letter. Where, though, was his quill pen? He searched high and low, but couldn't find it. Looking finally on the floor he discovered not the pen, but the broken steel tool.

"I wonder if I couldn't make shift to write with this?" he said.

"And he tried to write with the split steel and, of course, he succeeded perfectly.

"To this episode we owe the steel pen, which has superseded the quill all over the world."

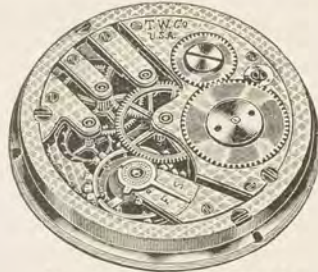
"You know I cannot get along without The Keystone. It is invaluable."—W.O. Kelly, Jeweler, Memphis, Tennessee.

TRENTON MOVEMENTS, IN ALL SIZES, ARE NOW MADE TO FIT REGULAR PENDANT-SETTING CASES

TRENTON Pendant

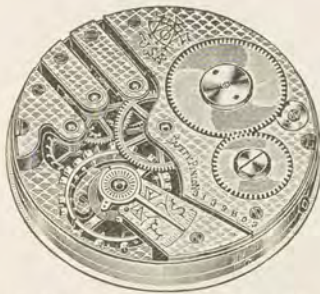


WATCHES Setting



No. 320. "FORTUNA."
12 Size, 7 Jewel, Hunting and Open-Face, Pendant Setting

Nickel damaskened, cut expansion balance, safety pinions, screw bankings, straight line lever escapement, hardened and tempered breguet hairspring, quick train, exposed winding wheels, handsome white enamel dial with depressed seconds and red marginal figures. Open-face, without seconds.



No. 130. Bridge Model, 16 Size, 7 Jewel, Hunting and Open-Face, Pendant Setting

Nickel damaskened, quick train, straight line escapement, exposed pallets, cut expansion balance, hardened and tempered breguet hairspring, safety pinion, screw bankings, exposed polished steel winding wheels, dust band, roman or arabic white enamel dial with monogram "T. W. Co."

No. 100. Bridge Model, 0 Size, 7 Jewel, Hunting and Open-Face, Pendant Setting

Nickel damaskened, quick train, straight line lever escapement, exposed pallets, cut expansion balance, hardened and tempered breguet hairspring, safety pinion, screw bankings, dust band, roman or arabic white enamel dial and red marginal figures. Open-face, without seconds.



No. 310. "FORTUNA."
6 Size, 7 Jewel, Hunting and Open-Face, Pendant Setting

Nickel damaskened, cut expansion balance, safety pinion, screw bankings, straight line lever escapement, hardened and tempered breguet hairspring, quick train, exposed winding wheels, handsome white enamel dial with depressed seconds and red marginal figures. Open-face, without seconds.



No. 135. Bridge Model, 16 Size, 11 Jewel, Hunting and Open-Face, Pendant Setting

Nickel damaskened, quick train, straight line escapement, exposed pallets, cut expansion balance, hardened and tempered breguet hairspring, safety pinion, screw bankings, exposed polished steel winding wheels, dust band, depressed center and seconds white enamel dial with monogram "T. W. Co."



No. 140. Bridge Model, 16 Size, 15 Jewel, Hunting and Open-Face, Pendant Setting

4 pairs in settings, micrometer regulator, nickel damaskened, quick train, straight line lever escapement, exposed pallets, cut expansion balance, hardened and tempered breguet hairspring, safety pinion, screw bankings, exposed polished steel winding wheels, dust band, roman or arabic depressed center and seconds white enamel dial and red marginal figures.

Price-List furnished on application

Jobbers sell TRENTONS

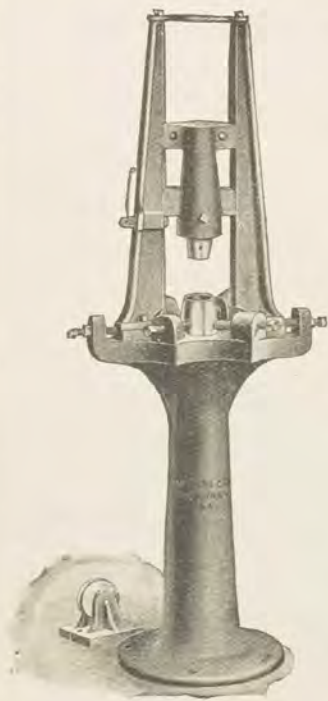
Manufactured and guaranteed by the

TRENTON WATCH CO., Trenton, N. J., U.S.A.

"BLISS"

JEWELERS' MACHINERY

"BLISS" JEWELERS' DROP HAMMER



This Drop Hammer is specially designed to meet the requirements of button and jewelry manufacturers, but can be used for a large variety of similar work in the manufacture of novelties, metal trimmings, etc. It is handy and solid in construction. Prices low.

Write for particulars regarding our presses, dies, drop hammers and special machinery for jewelry work.

E. W. BLISS CO.

27 ADAMS STREET

BROOKLYN, N. Y., U.S.A.

Here's a Good Bunsen



By mail, 25 Cents

Whether it's a cheap Bunsen, a Blowpipe or Furnace for smelting and enameling you need; whether to be used with coal gas, natural gas, gasoline gas or kerosene, we probably have it, and will be glad to send you catalogue "B.k" so you may ascertain.

BUFFALO DENTAL MANUFACTURING CO.

Buffalo, N. Y., U.S.A.

Makers of efficient Blowpipes, Furnaces and Blowers

The Largest Wholesale Stock South of New York

Complete Assortments of Standard Goods at Right Prices

Watchmakers', Jewelers' and Engravers' Supplies
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LETTERS from the TRADE

Readers are requested to send for publication new ideas on any subject, technical or mercantile, of general interest to the trade. As this page is for the use of individual readers, we do not hold ourselves responsible for the views expressed. Editor The Keystone.

Puffing for a Window Background

ED. KEYSTONE:—Part of a window design shown in your journal recently was a puffed background. Like many of my brother jewelers, it is only lately that I became interested in this matter of window displays, and there are many of the simple things that puzzle me. What is the proper way to make this puffing? Under your instruction I am experimenting with window trimming and am very much encouraged.

Yours truly,
P. T. M.
Winnipeg, Manitoba.

[To make a puffed background, first ascertain the exact height, length and depth of the window and then proceed as follows: Make a skeleton frame of wood a couple of inches longer than your window is in height, and wide enough so that it will divide the combined length of back and ends of the window into as many equal parts as you desire; then sew together some old cheesecloth, preferably the color you intend using to puff with, as this gives a deeper tint to the puffing; tack this to the frame with pins, and you have a frame on which to do your puffing; then cut and sew enough new cloth together to make a sheet, when spread out, twice as wide and two and one-half times as long as frame; place frame on edge, then begin at upper right-hand corner and work back and forth across the frame, drawing the cloth up into puffs, and pinning wherever necessary; run the point of the pin through the cloth and back again; this leaves a smooth surface on the back of sheet, and holds puffing securely in place. In this way you can make the puffing fine or coarse, just as you prefer. A pleated background is also much used by jewelers, and the puffing can be used over the pleating without injury to it. It can, of course, be removed at pleasure, leaving the pleating good as new, thus making a pleasing variety with little trouble or expense.—ED.]

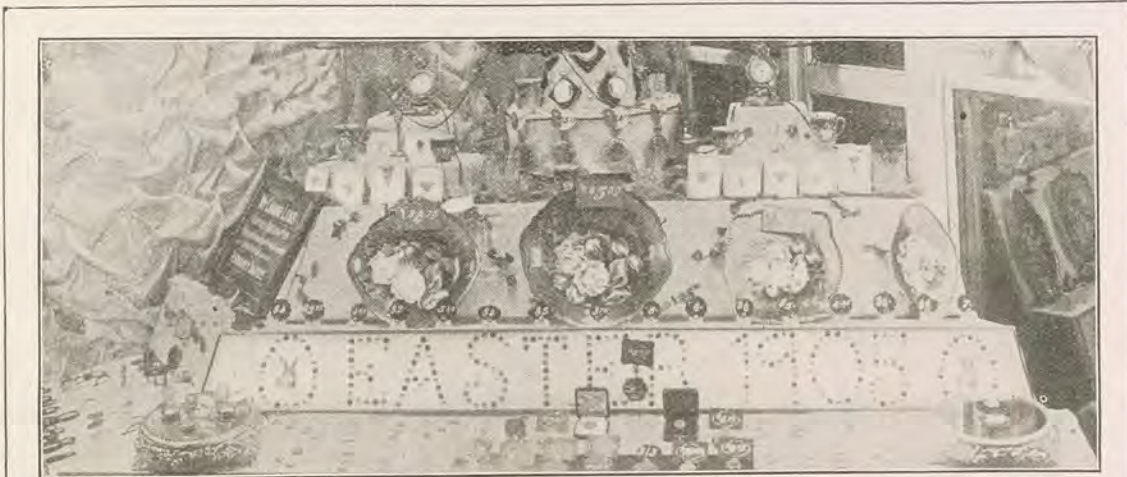
The Universal Oiler

ED. KEYSTONE:—I am prompted to send you enclosed booklet, that you can read some of the "fool" uses this oil is said to be good for, and perhaps, if you feel so inclined, say a word that may allay, in a measure, the pernicious influence it may have, particularly relating to our trade. If

you can spare a few moments of your time, read under heading of clocks, watches, silverware and cameras. Any person at all familiar with a delicate camera shutter, should know that it should never have a drop of oil. Of all the absurd advice, that in this booklet is "the limit." My only wonder is that it does not advocate its use in cleaning jewelry.

Fair Haven, Vt. Yours very truly,
H. W. SMITH.

[Marvelous, indeed, is the oil, judging by the booklet sent by our correspondent. It will restore an old mahogany chair, cure chapped hands, preserve automobiles, make golf clubs more pliable, cures brittle hoof in horses, preserves patent leather, and is "an ideal lubricant for the most sensitive mechanisms like those of clocks and watches." This wonderful oil, we are told, "won't gather dust to choke the balance wheels, pinions, etc.," and also "preserves wood clock cases, bringing out the beauties of the wood." The



Easter Display of Ed. T. Jenison, Decatur, Ill.

Our illustration shows the lower section of a handsome Easter display by Ed. T. Jenison, of Decatur, Ill. The central feature of this window was a revolving pyramid. Prices were marked upon representations of Easter eggs, from each of which a chicken protruded. The sign, "Easter 1905," near the base, was made of red, white and blue foil. A feature which attracted a great deal of attention, but which is completely obscured in the photograph, consisted of a pair of ladies' chains suspended from the top, at the end of which hung a pair of revolving iron dumb-bells, thus demonstrating the strength of the chains as well as enhancing the attractiveness of the display. On the summit of the pyramid was a vase filled with Easter lilies, but these too were eclipsed in the picture. This display was designed and trimmed by the proprietor himself, and he believes it to have been the most effective display he has ever gotten up.

directions for oiling the clock are as follows: Remove works from case, touch friction or action points with broom straw dipped in the oil. To reach parts next to face, hold clock at right angles and pour a few drops into the works, letting oil run to the various points. Jewelers, we are told, use this oil on "watch springs to prevent rust and oil the works too." And then comes this advice to the watch wearer: "Send twenty-five cents and save \$1.75 for cleaning." The manufacturers have in truth "struck oil" if their product is as efficacious as this booklet tells us.—ED.]

The Dennison Mainspring Gage

ED. KEYSTONE:—I would like to know the basis of measurements marked on the Dennison Standard Mainspring Gage, especially those relating to diameters, diameters of wheels, diameters of crystals, verges, etc. It seems to me that among your large clientele there should be some who can give this information; I have searched for it diligently, but have been unable to obtain anything reliable.

Newark, N. J. Yours truly,
"OLD VERGE."

[We should be pleased to hear from any of our readers who can give the desired information.—ED.]

Important Express Decision

The decision recently made by Justice O'Dwyer in the New York City court in the case of Edward Kann & Co. against the Adams Express Co. is of great importance to shippers using the express companies. Abraham Oberstein represented the plaintiffs.

Kann & Co. shipped in December, 1902, through its agents, to its place of business in that city, furs valued at \$3000. The agents told the man in charge of the shipment the value of the furs and instructed him to see that the value was marked on the express receipt. The man who attended to the shipping took the receipt from the agent after telling the express company of the value of the shipment, and without looking at it sent it on to Kann & Co. The omission of value in the receipt was not noticed until one bale of goods was lost in transit, whereupon suit was brought against the Adams Express Co. for its value, \$960.62.

The company set up the defense that under the terms of its contract, and under decisions already rendered, even assuming that the plaintiffs' contentions were true, they could not recover more than \$50 unless the value of the package lost was stated in the express receipt.

Mr. Oberstein contended, however, that the former decisions, which had invariably upheld the contention of the

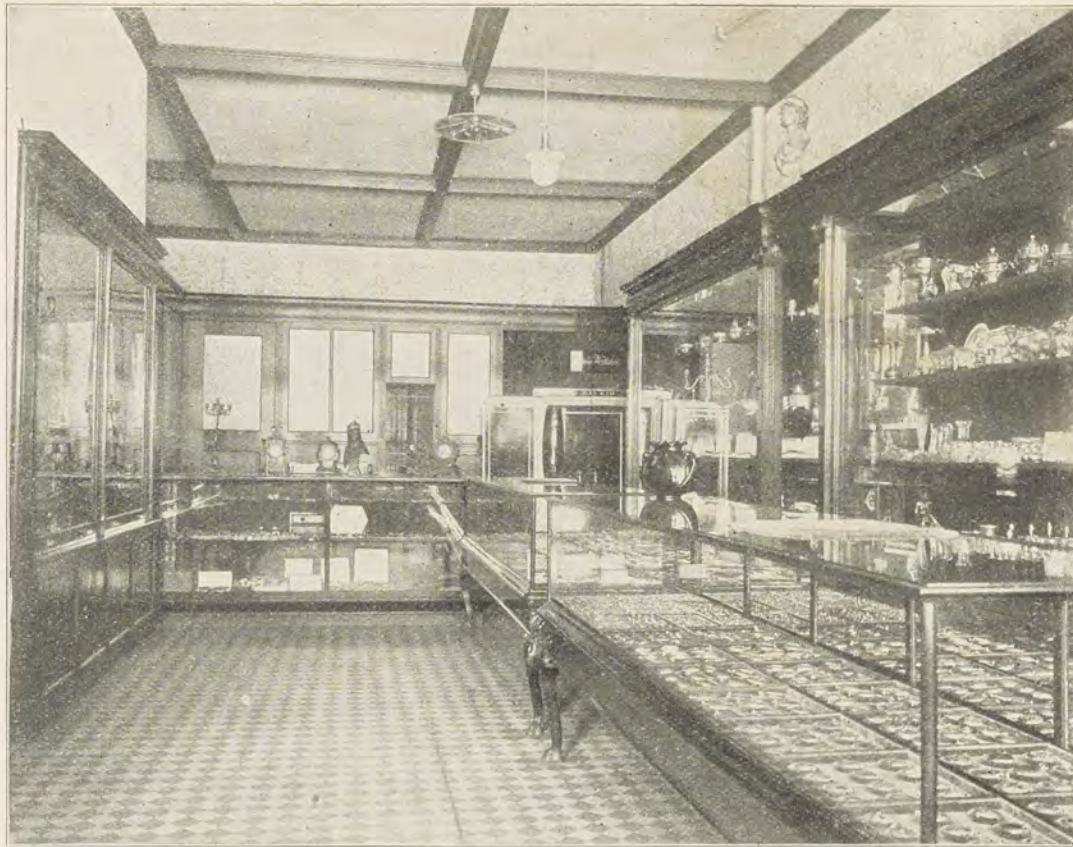
common carrier, did not apply here, for the express company had been guilty of fraud and imposition in that it did not put in the receipt the value of the shipment, although requested to do so, and, although the shipper had been negligent through its representative, the facts remained the same. The fraud by the company, the lawyer argued, vitiated the contract and reinstated the common law making the common carrier liable for the full value of the merchandise lost.

Judge O'Dwyer, without hearing any evidence for the express company, instructed the jury to find for the plaintiffs for the full amount with interest.

The Preacher's Lapsis Linguae

In a little town in Nova Scotia are two churches, situated in the two divisions of the village locally designated as the "North End" and "South End." At a Sunday morning service the officiating clergyman read the following notice: "There will be preaching at 11 o'clock next Sunday morning in the church at the North End and at 4 o'clock in the afternoon at the South End. Infants will be baptized at both Ends." —New York Times.

High-Grade
Modern
Jewelry
Store
Fixtures
and
Show
Cases



Manufacturing
To Order
Our Specialty

State your wants

Estimates
cheerfully
furnished

One of the Many Jewelry Stores Designed and Furnished by us

ALEXANDER H. REVELL & CO., Manufacturers
Rees, Dayton, Eastman Sts. and Hawthorne Ave., CHICAGO, ILL.



GEO. KUEHL & CO.

178 E. Randolph Street


CHICAGO, ILL.

Manufacturers and Importers of

Genuine Black Forest
Cuckoo Clocks

with



Jewelers! If you order Cuckoo Clocks, see
that you get the same with the .
They are the BEST.

Sole Agents of

400-Day Clocks

with



For sale at all Wholesale Clock and Jewelry Houses

Tales of the Road

Many traveling men make mistakes by steering shy of cranks. The so-called crank is the easiest man to approach, if you go at it right.

I once sat at dinner with two other traveling men. They were strangers to me—as strange as one traveling man ever is to another. This is not so very strange; for the cosmopolitan life of the road—without breeding familiarity to the extent of contempt—promotes a good-fellowship and a sort of secret society friendliness among all knights of the grip. My territory being new, I made inquiries regarding the merchants of a certain town to which I intended to go.

"Don't go there," spoke up one of my table companions. "There's no one there any good but old man Smith, and he's the biggest crank on earth. He discounts his bills, but, Gee, it's a job to get near him!" Some men on the road are vulgar; but will not the same comment apply to some few of any class of men?

"My friend," said my companion number two, looking straight at the one who had just spoken, "I've been on the road these many years; and, if my observation counts for anything, those we meet are, to a great extent, but reflections of ourselves. True, many call Mr. Smith (his name was really this) peculiar, but I have always got along with him without any trouble. I consider him a gentleman."

I went to the "old crank's" town. As I rode on the train, louder than the clacking of the car wheels I heard myself saying over and over again: "Those we meet are, to a great extent, but reflections of ourselves."

When I went into the old gentleman's store he was up front in his office at work on his books.

I merely said, "Good-morning, sir," and went back and sat down by the stove. It's never a good thing to interrupt a merchant when he is busy. He, only, knows what is most important to do. Maybe he has an urgent bill or a sight draft to meet; perhaps he has a rush order to get off in the next mail; possibly he is figuring up his profit or loss on some transaction. Then is not the time to state your business if you wish to make your point. The traveling man must not forget that the merchant's store is a place of business; that he is on the lookout for good things and just as anxious to buy them as the salesman is to sell them; and that he will generally lend an ear, for a moment at least, to any business proposition.

After a while the old gentleman came back to the stove, and, as he approached, said to me politely, "Is there something I can do for you, suh?"

I caught at his Southern accent, and taking off my hat—for he was an old gentleman—replied: "That remains with you, sir," and I briefly stated my business, saying finally, "As this is my first time in your town, and as my house is perhaps new to you, possibly, if you can find the time to do so, you may wish to see what I have." Recalling that one of my table companions he said that he considered him a gentleman I was especially careful to be polite to the merchant. And politeness is a jewel that every traveling man should always wear in his cravat.

"I will see you at one-thirty, suh. Will you excuse me now?" With this the old gentleman returned to the office. I immediately left the store. The important thing to get a merchant to do is to consent to look at your goods. When you can get him to do this keep out of his way until he

is ready to fulfil his engagement. Then, when you have done that, pack your goods and leave town. What the merchant chiefly wants with the traveling man is to do business with him. True, much visiting and odd turns are sometimes necessary to get the merchant to the point of "looking," but when you get him there leave him there until he is ready to "look."

The Crank's Punctuality

At one-twenty-nine and a half that afternoon I started for the "old crank's" store. It was just across the street from my sample-room. I met him in the middle of the street. He was a "crank" about one thing: keeping his engagements promptly. I respect a man who does this. The old gentleman looked carefully, but not tediously, at my goods, never questioning a price. In a little while he said, "I shall do some business with you, suh; your goods suit me."

I never sold an easier bill in my life and never met a more pleasant gentleman. Our business finished he offered me a cigar and asked that he might sit and smoke while I packed my samples. Yes, offered me a cigar! And I took it. It was lots better than offering him one. He enjoyed giving me one more than he would have enjoyed smoking one of mine. You flatter a man more by accepting a favor from him than by doing one for him. Many traveling men spend two dollars a day on cigars which they give away. They are not only throwing away money but also customers. The way for the salesman on the road to handle the man he wants to sell goods to is to treat him as he does the man of whom he expects no business. When you give a thing to a man he generally asks in his own mind, "What for?"

Before I left the town of the "old crank" I met with another of his peculiarities. I was out of money. I asked him if he would cash a sight draft for me on my firm for a hundred dollars.

"No, suh," said he; "I will not. I was once swindled that way, and I now make it a rule never to do that."

Needles stuck in me all over.

"But," continued the old gentleman, "I will gladly lend you a hundred dollars or any amount you wish."

For the many years that I went to the town of the "old crank" our relationship was most cordial. I believe we became friends. More than once did he drop business and go out fishing with me. Since the first day we met I have often recalled the words of my table companion: "Those we meet are, to a great extent, but reflections of ourselves."

—Chas. N. Crewdson, in *Saturday Evening Post*.

The Worth of the Traveling Man

At a recent meeting of a business men's organization a merchant paid the following well-merited tribute to the traveling man and his mission:

It has been largely due to the traveling man's efforts that the widely-scattered dealers have become educated on their different specialties. He is the advance agent of progress, posts us on new goods and developments and materially helps in keeping us abreast of the times. He cannot be supplanted by the catalogue and the post office, and the reason is plain. We get interested in some particular article. The traveling man has with him a sample of the article by means of which he can easily explain its numerous advantages. If questions are asked he answers and in fifteen minutes the dealer learns more essential points of the article, gets more practical knowledge of the same

than could be obtained by reading the catalogue over and over again. Then, also, the salesman not only gives the retailer information in regard to his own line, but is also able to tell about other makes of goods, to compare both and show why his line is better, more practical, more salable, a better profit-maker. He strengthens the faith in his lines, increases the enthusiasm, makes the line an easy one to sell.

The traveling man visits thirty, forty or perhaps fifty stores each month. He meets dealers of different ages, of various abilities and also of unlike character. In this way he has an opportunity to see and hear new ideas; here he notices a novel way to show goods or trim the window, and there he learns of an ingenious manner of selling a watch, and the result is that his knowledge is mine for the asking.

A large number of customers in the store prefer to trade with the owner of the business or at least like to be recognized by him when in the store. We, in turn, would like to buy from some jobber or manufacturer whom we personally know—would like to shake hands with him, be shown around in his establishment by himself. As this is impossible, we accept his salesman in his place, and if the salesman is up to his job he will be the connecting link between his house and the retailer. The more attentive he is in forming a friendly feeling, in creating confidence and faith between his employer and the customer, the better he will succeed as an order receiver. Buying from the catalogue alone can never give the satisfaction as a personal intercourse between the jobber's representative and the retailer.

Rules of the Road

"There is a 'rule of the road' which is observed by every traveling man who lays claim to being half-way decent," said a drummer recently. "Certain proprieties are lived up to, and to violate them would mean the ostracism of the offender from that inner circle of good fellows among whom there are ties more binding than those of Masonry or any other secret organization. No salesman, for instance, will interrupt another salesman when he is busy with a prospective customer. No matter how pressed he may be for time, nor how anxious he is to get ahead of his competitor in selling goods, he will not interfere even though the buyer himself offers to be led away. I have often got to the same town with my competitors and hurried to the store of our common customer almost neck-and-neck. The first one greeted by the man is supposed to have his undivided attention, after the first formalities of greeting are exchanged, until he gets through with him and then the other man can take his chance.

"There are plenty of ways of getting ahead of a rival salesman which are perfectly allowable, however, and which are played every day, although the older and more dignified men on the road seldom resort to them. The trick of filling your order-book full of phony orders and display it to the other traveling men is an old one and doesn't go with any but a very green hand at selling goods. It is not regarded as unfair or ungentlemanly to exaggerate the business one does in any town under discussion, or to make believe that you didn't do any business when in reality you sold some good bills. Traveling men help each other as far as dispensing information in regard to hotels and the running of trains and the characteristics of merchants, and so forth, even when they are knifing each other to the heart for business."



should be especially interested in Simmons Watch Chains as a selling proposition.

For the reason that he is in close touch with many men to whom accurate timekeeping watches are absolutely essential, his opportunities for selling high-grade movements are exceptional. And, likewise, his opportunities for pushing high-grade chains should be equally great.

Simmons Chains have the essential qualities that are demanded by hard, everyday service—undoubted quality of stock and making, strength and great durability.

They meet the exacting requirements of railroad men better than all-gold chains—and cost less.

Their wearing qualities are out of all proportion to their cost, as compared with lower grade gold filled chains—therefore they are actually cheaper than cheap goods.

Every sale you make of Simmons Chains is at our risk: the absolute guarantee of *entire satisfaction* that goes with every chain is insurance for your customers and for you.

Almost any jobber of consequence can supply you with a representative line.

R. F. SIMMONS COMPANY

Main Office and Works, ATTLEBORO, MASS

Salesrooms 9-13 Maiden Lane, New York, and 103 State Street, Chicago

The Show Window

CAN you tell me how long ago it was that you gave a description of the way to make an electric fountain?" asks T. R. Cushing, of Rockland, Mass. As we recently received somewhat similar queries from several other subscribers, and as it is possible that some of these may not have the files of five years ago for reference, we will again explain how such a fountain may be constructed, remarking incidentally that for a summer display the idea, even without the illumination, is a peculiarly apt one. Proceed as follows:

First, have a tinsmith make the center bowl *A* out of tin, any size you wish, according to your window. This resembles a large cake-tin, hollow in the center. Have it enameled white (it will not cost very much). Then cut a hole in the center of your window; place this tin over the hole; secure a circular glass shelf *B* from any ordinary motion or perfumery counter stand; put a large rubber band around the center tin cone and rest the glass shelf *B* upon it. Have a fancy stem *C* made of tin and enameled white and soldered to water pipe, which passes through the hole in center of glass shelf *B* and is attached to main pipe in the basement. A rubber washer on the glass shelf makes it water-tight. Fine holes are punched into the stem *C* at top and bottom. The water-flow is regulated by water-stop. The surplus is carried off through waste pipe. The skeleton pulley *D* is arranged so that half of it is in center of the fountain. In the four openings of pulley are four pieces of colored glass—red, green, yellow and blue—held in position by tacks. A strong electric light, with reflector *F*, sends its rays through the colored glass upward and through the center cone on the water, giving a very beautiful effect. The changing of the colors can be reduced to speed by means of the reducer *E*. Three electric bulbs, colored green, with wires made water-proof, are well insulated and enameled white and laid in the lower bowl. A few pond lilies and gold fish, together with other accessories suggested, make a magnificent center feature. The entire fountain can be constructed in your back room, at odd times; and so good an attraction as this may be left in the window for two weeks without growing stale.

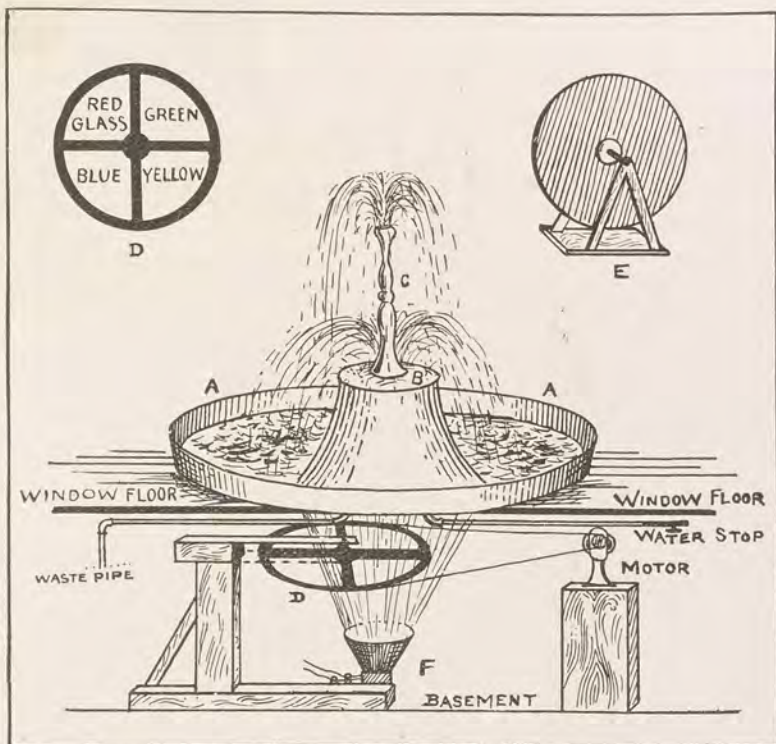
In connection with the fountain as an appropriate summer display, we recall another hot-weather idea which many of our readers have used to advantage. Get a piece of narrow tin spouting, of the width of

your window glass. Close up the two ends. Perforate one side of the spouting with small holes, in a line, about an inch and a half apart. Fasten this spouting on the frame of your window, just above the glass, out of sight of observers from the outside—the perforated side toward the glass. Get another piece of spouting like the first, but not perforated. Put this on the floor of the window, concealed from view by the frame of the glass. From the edge of the spouting nearest the glass attach a narrow rubber (or oil-cloth) apron in such a way that it will press firmly against the glass. The

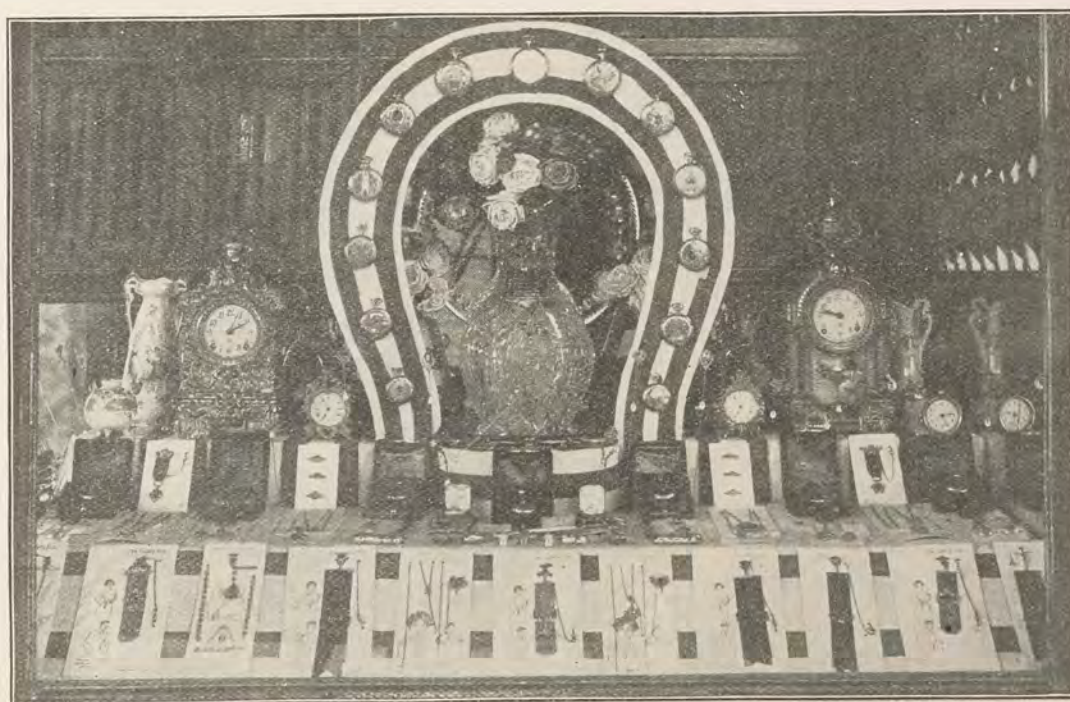
spouting must be small and the work neatly done, so that the arrangement is not visible from the street-side of the glass. Put a small india-rubber tube into the extreme corner of the window, extending from bottom to top of the glass, the upper end opening into the upper spout. Now turn on the water, after having made connections of the rubber hose with your spigot. You must regulate the flow so that the upper spout receives enough, but not too much, for the perforations to carry off. Also see to it that the perforations have been made *small and exactly the same size*, so that the flow of water over the whole surface of the glass is uniform. The lower spout, with its rubber apron against the glass, will receive every drop of water that flows from the upper spout, without any risk to the goods in the window or wetting of the wood-work. A piece of small hose attached to the discharging spout of the lower reservoir will carry the water into the cellar, or into a receptacle, or out into the street. If the details of the plan have been carefully worked out,

the observer outside will look through a shimmering veil of water that will not obscure the goods in the window, but that will add a new attraction to your usual display and bring wondering crowds to see.

An attractive display, suitable for any jewelry store, is that of J. T. Gabbert, of Caldwell, Kans., shown in our illustration. This window is 4½ feet in length, 2½ feet in depth and 6 feet in height. White and moss-green crepe paper were used largely in the decoration. The end and top of the window were interwoven with it, but this feature does not show in the photograph. In the background there was an eighteen-inch mirror and in the horseshoe a fourteen-inch mirror, in front of which stood a large vase filled with roses. This window was designed by H. B. Hill, watchmaker, of the firm, who is an enthusiast in the matter of attractive decoration and a firm believer in its advertising value. The effectiveness of this display was proven by a large increase in sales during the time it was continued.



Electric Illuminated Fountain



Window Display of J. T. Gabbert, Caldwell, Kans.

"If it burns alcohol we make it"

Increase your sales by distributing circulars furnished you, free of charge, with your name and address printed thereon.

Daily Growing in Popularity



The foregoing is a reproduction of the illustration on cover of the new two-color 12-page circular that illustrates and describes the superiority of

**The
Sternau Coffee Machines**

To those dealers that stock the Sternau Coffee Machines, we will supply **free of charge** a quantity of the circulars to distribute.

The circular is attractively printed and also illustrates our Coffee Machine Sets.

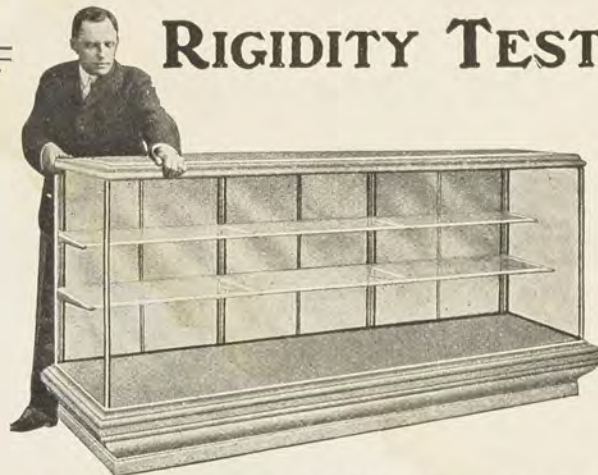
Full information and prices on request.

S. Sternau & Co.

New York Showrooms
Broadway and Park Place
Opposite Post Office

Office and Factory
195 Plymouth Street
Brooklyn, N. Y.

RIGIDITY TEST



Did you ever test your cases for rigidity? Seize the end corners and push with all your strength. If they give in the slightest degree, the case is not and cannot be dust proof. The joints will continue to work loose, and will leak dust as long as you have the case in use.

Illuminated "Quick Sales" Show Cases
(JOHN PETZ, Patentee)

Are made with inlaid front top corners and "dove-tailed" back top corners. The bottom corners at front and rear are reinforced with an invisible inlaid corner block—wood glued to wood—insuring remarkable strength, durability and rigidity.

The glazing on "Quick Sales" Show Cases is the best and strongest in the world. It costs more to make cases our way, but they are absolutely dust proof, and will remain so for a lifetime.

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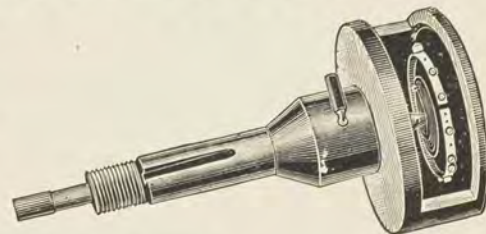
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Pittsburg Can Serve the Jewelry Trade

By OTTO HEEREN, of Heeren Bros. & Co.

A Retrospect

Looking back forty years into the history of the jewelry business in Pittsburg and vicinity, it is astonishing, even to those constantly and closely connected with it for that length of time, to note the wonderful changes that have taken place in this wonderful branch of industry during that period. If some of those old-time, leading jewelers, like McFadden, Stevenson, Richardson, Roberts, Scott, etc., could return from "the land beyond" they would certainly not be able to recognize in its present magnitude the business to which they had successfully devoted the greatest part of their lives.

While Pittsburg was at that time already recognized as a place where quality, not price, was the first consideration, and the best — just good enough — for all classes, the rather extreme conservative ideas of the people in general, run more towards utility and durability of an article, even in the lines of adornments and luxury, with less attention to style and beauty than at the present time.

During the War of the Rebellion and many years afterwards, when silver coins were scarce, jewelry was made out of dimes, quarters and half dollars, and for those more ostentatious, out of silver dollars. Almost any style of ladies' jewelry would have a run for years without change and be handed down from mother to daughter. The wealthy man would purchase an 18 size solid 18 K. gold case of average 100 dwt. weight, or a guard chain of about the same weight for his wife, while the iron worker or coal miner had to have a silver case of 10 oz. weight with a corresponding silver chain, strong enough to chain a large dog to it. Silver shield rings were made by thousands, heavy and large enough to serve as "knucklers," and plain gold wedding rings—constructed—for which two twenty-dollar gold pieces, with the necessary alloy to make it 18 K., were used for each.

Good Goods Insisted on

Quality and weight were the main objects, gold filled goods had not yet been introduced to any extent. Very few changes took place in years in the style of silverware, and the designs of clocks apparently never changed,

at least the same old styles, which Jerome, one of the first Yankee clockmakers, used to take down the Mississippi by boat fifty years ago, were still staple lines in the jobbing houses twenty years ago.

Old man Garrison, the silversmith, with the help of an apprentice and some old hand-power machinery, was able to supply the demand for solid silver flatware, for which the trade furnished him the material in the shape of old silver watch cases, broken spoons, etc., while the three small jewelry repair shops did all the work for the retail trade in the city as well as surrounding country. The wholesale jewelry houses, each represented by one traveler on the road (two of them members of their respective firms), were sufficient to supply quite a large territory, and, while doing a thriving business, the limited line of goods in demand at that time made it comparatively easy to satisfy all

all his buying at home, from ever getting to see the actual complete lines of goods carried by the houses he deals with. No matter how many travelers a house may send out on the road, no matter how well they may stock the traveler's outfit, and no matter what an exceptional good salesman the latter may be, no house, especially a large jobbing house carrying a complete, comprehensive yet constantly varying stock of goods, can do justice to their customers or to themselves by a method which is limited by "trunk space." In these times of constant increase in the lines of goods necessary to the progress of a modern jewelry house, it is utterly impossible to have every department justly represented on the road, and it is undoubtedly necessary and to the interest of every dealer, to visit the city as often as it is possible for him to do so, not only to see the goods he cannot find in

travelers' trunks, but to get personally acquainted with the members of the firms he is dealing with, and to find out what is really going on in the trade. There is certainly no place in the Union today where the jeweler can see a larger, finer and more varied stock of goods than in the hands of the enterprising, up-to-date wholesale and retail jewelers of Pittsburg, or find a better opportunity to study



A Pittsburg Skyline, View from the South Side

CUT BY COURTESY PITTSBURGH BANK FOR SAVINGS

the wants of the trade. Pearls, diamonds and other precious stones were handled only by leading jewelers in the large cities, of whom, however, very few carried art goods or bric-a-brac in stock. The country jeweler at that time, of course, had no use for diamonds or such stuff, and did not dream that the time would come when diamond jewelry would be as necessary to his stock as watches or clocks, and he would find as ready sale for the latest productions of the art centers of Europe, as he did once for his five-bottle castors in "ye olden times." Verily, times have changed and business and business methods with it.

Personal Visits to the Big Markets

While formerly the merchant would come to town regular, at least twice a year, to make his purchases for the spring and fall season and take "a look around," he now buys only his "daily" needs from the army of travelers who skirmish through every nook and corner of this great country. If the first man does not have the exact piece he wants, there are seven others waiting outside the door. This is undoubtedly a great convenience for him, but a questionable advantage in so far as it prevents him, if he does

the market and tendency of the times regarding his own business.

Pittsburg as a Jewelry Center

It is a well-known fact that Pittsburg ranks with the largest cities in this country as a market, not only for extreme high-valued jewelry, silver goods and art productions, but also for all medium and low-priced lines of goods in their endless variety.

Those who do not come often to this city have hardly any conception of the stock, the facilities and the advantages offered by the Pittsburg wholesale jewelry houses. They are reliable, progressive firms, who, by push and energy, have grown up with the city and have made wonderful strides during the last decade in their lines of gold and silver, as Greater Pittsburg has in iron and steel. They all extend a hearty welcome to the visitors, who should come, not only twice a year, as in "ye olden times," but once a month, and if our Merchants' and Manufacturers' Association, with their commendable push and genuine Pittsburg pluck cannot rouse some of you to come to the largest workshop of the world and find out yourselves who we are, what we are and what we are able and willing to do for you, then better stay at home, go to sleep and let those only come who are wide-awake to their own interest.

SIFT out facts by the sure, safe and inexpensive means of comparison. Comparison is the forerunner of wisdom, opening your eyes to things that you had not known and safeguarding your interests.

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The Philanthropic Millionaire's Bothersome Millions

BY JOHN TWEEZER

There are inconveniences in poverty, beyond a doubt. But it is quite as certain that riches are bothersome, too; especially if the owner is possessed of a desire to distribute his superfluous millions where they will do the most good. His difficulty is in determining this *where*; and sometimes he experiences a further difficulty in persuading the proposed beneficiary to accept the gift. For further particulars, inquire of Mr. John D. Rockefeller *via* the Congregational Mission Fund.

The Embarrassment of Riches

What is the poor rich man to do when the begging world puts its hands behind its back and says, "Don't want *your* money—it's tainted!" How shall men of imposing solvency get rid of burdensome cash, if they can't *give* it away? Must they be forever tied to their monstrous capital, like Ixion to the wheel? Isn't such punishment too dreadful for *any* crime they may have committed in the gathering of the wealth? In view of Mr. Andrew Carnegie's pronouncement that "he who dies overrich dies disgraced," what escape is there from infamy for the multi-millionaire who cannot persuade the world to accept his gifts? Poverty is hard enough; but it seems that to be very rich has even greater terrors for the sensitive soul.

We congratulate Mr. Carnegie. Thus far he has not met with the cruel rebuff which was recently experienced by Mr. Rockefeller; and he has succeeded in giving away \$135,000,000, to date. He has still some hundreds of millions to find place for, but there is hope that he may live long enough not to "die disgraced." He is really making fair progress.

Genius in Giving

It probably requires as much genius to give away money—*wisely*—as to make money; and one doesn't have as much time to practice the giving as the getting. Injudicious giving does more harm than good. It emasculates the beneficiary; pauperizes his will; saps his moral strength; creates a worse evil than the evil it would destroy. The penalty of enormous wealth is in the responsibility for a wise disposition of it. Mr. Carnegie has lately shown himself a genius in giving. His wisdom has grown with the exercise of the practice. In the primary stages of his education in philanthropy he gave to numberless libraries; thus extending the circle of novel readers and incidentally adding to the tax rate of the communities which are re-

quired to support these libraries. Very much may be said in favor of his library gifts as making for popular knowledge of the things worth knowing; but here and there is heard a whisper of doubt as to whether this particular form of beneficence was the wisest disposition of the money. Apparently Mr. Carnegie himself, in the secondary stages of his education in giving, experienced an illumination; for he discontinued his gifts to *popular* education and diverted his philanthropy to the objects of *higher* education. We learn of his substantial help to numerous struggling small colleges and, in especial, his splendid endowment of ten million dollars for an institute that is to be devoted to original scientific research. And this brought Mr. Carnegie to the maturity of his wisdom in gift-giving; for his next advance in education made him Master of Arts. As he grows older—and poorer—his generosity grows more discriminate and practical. The nobility and breadth of his motive in endowing with ten million dollars a fund for pensioning superannuated college professors is as notable as the immense aggregate of the gift. There has been nothing finer in the whole history of philanthropy. Providing for the teachers of to-day is really taking care of the men of to-morrow. The latest Carnegie benefaction is a gift to the future of the human mind. He will go down to fame as not only the largest, but the wisest, giver of all those who have had much to give—and *gave*.

Supposing

It seems to me that Carnegie can go no higher nor do greater good to the race than in this last and most glorious example of individual generosity. His efforts thus far have been in the direction of the diffusion of knowledge. Suppose that he should feel he can do no more in that direction; suppose he should still be burdened with unexpended millions and is in terror lest he may "die disgraced;" suppose he should turn a despairing eye upon John Tweezer and beg for advice; now, suppose I am advising.

Advice, Gratis

In common with 86,457,369 other Americans who do *not* have Carnegie's millions but who are plentifully stocked with 18 K. advice, I am willing to spend his superfluous millions in ways that will do much good. Assuming that he has supplied all the needs of the larger educational field and looks "for fresh fields and pastures new;" assuming, also, that he declines the religious proposition, turns down eleemosynary institutions and all the exploited avenues of charity; there are still left to him some unexplored and uncharted fields for the exercise of his generosity, two of which, I think, present

some peculiarly engaging features to the altruist. Neither makes for increase of knowledge, but for increase of *happiness* only; neither adds remotely to the prosperity of the people as a whole, but much to the individual peace of mind; and as the attainment of happiness is the ultimate goal of all human creatures, it is safe to hope that such provisions as I am about to suggest would bring great satisfactions to certain beneficiaries who have never before been blessed in any scheme of philanthropy.

1. Provide a fund of ten million dollars, to be called "The Gentlewomen's Comfort Fund," the income from which would provide five thousand women with an annuity of one hundred dollars each. The selection of beneficiaries to be made from that class of refined women (limited to widows and spinsters) who have become impoverished through the fault of others and whose birth, training or previous environment makes a peculiar hardship of their present conditions; and to the end that these women of delicate sensibilities should enjoy the finer flavor of the gift, the names of the beneficiaries should be rigidly shielded from public knowledge.

None but those who have paused to take note of the cruel deprivations imposed upon "the shabby genteel" can fully realize the extent of satisfaction which an extra hundred dollars yearly would bring to the sensitive and shrinking women whom this beneficence would bless. It would mean all the difference between pinching poverty and comparative comfort. It would dry many a tear-stained cheek, soothe many a vibrant nerve, add years to many a care-harassed life. And it would reach a class of needy ones who would never themselves lend voice to the greedy chorus of the begging crowd.

2. Provide a fund to be called "The Supporters' Vacation Fund," the income from which would provide twenty-five dollars (or more) to each of a large number of small-pay clerks who are the sole support of families or dependent relatives; the beneficiaries to be changed from year to year; the sum to be expended solely on a vacation to be taken by the clerk.

Stop to think what *this* would mean to the faithful man or woman who toils for others with many a fear for the future, and who must husband income and closely watch expenditure; who feels it would be selfish to indulge in the expenses of a personal vacation; yet who needs, and deserves, the vacation. How that needed vacation would be enjoyed with added zest if the funds for it would not have to be extracted from the hard current necessities, but were put into the grateful hand by a generous giver!

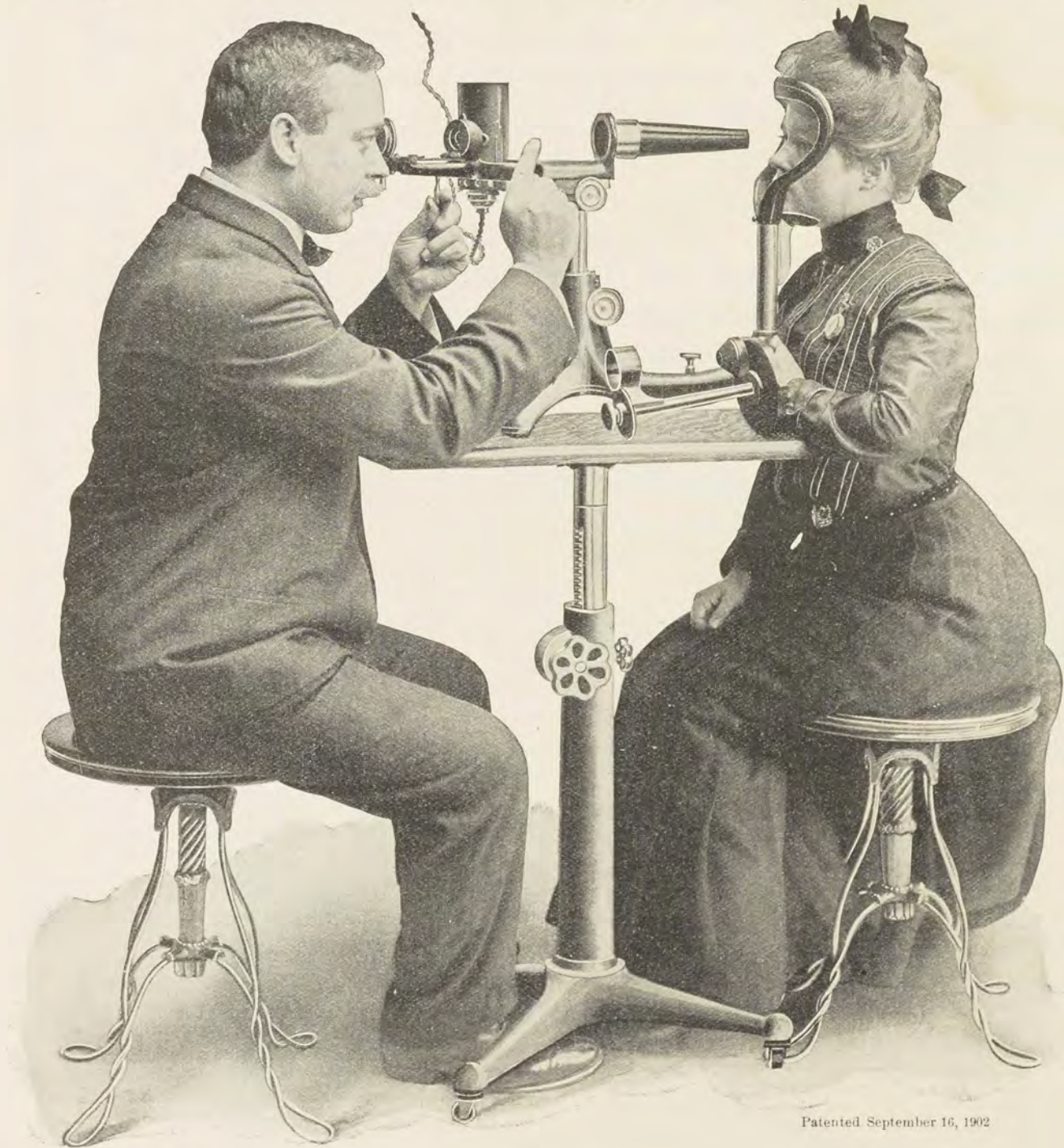
Here's to Carnegie

All of which, dear Mr. Carnegie, is respectfully submitted. And may your fountain-pen never go dry, your check-book never be mislaid, and your generous heart never be stilled, until you have achieved your noble ambition to distribute your wealth wisely and well.

J. T.

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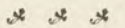
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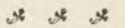
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Our booklet explains how to operate both the Retinoscope and Ophthalmoscope, and how to change from one to the other.

The findings of the Retinoscope are the full corrections, without additions or subtractions.

Lenses all in place.



Reviews of Current Ophthalmological Literature of the World

An Interesting Discussion About the Best Determination of Vision

Although the visual acuity of the human eye can never be determined absolutely because the illumination, the blackness of the printed letters and many other factors will influence the sight more or less, still it is very desirable that our tests should be as uniform as possible so that they may be compared, to a reasonable extent, if made by different observers in different localities. At the last Tenth International Ophthalmological Congress, at Lucerne, this question was again discussed on the basis of the following proposition, which had been adopted by the French Ophthalmological Society:

1. The vision is determined through the minimum separabile, *i. e.*, the smallest angle with which two black points or lines on a white ground can be perceived as separate.
2. The interspace to be of the same thickness as the lines.
3. The vision to be inversely proportional to the differentiating angle.
4. The unit of measure for the vision to be represented by an angle large enough to enable the degrees commonly dealt with in practical ophthalmology to be expressed in whole numbers.
5. The arrangement to be a progression with the factor 1.259. The physiological reason for the choice of this number is that it expresses the diminution of the vision from the center to the periphery of the macula, as recently established by Sulzer.
6. The vision to be expressed as increasing by 1 through tenths of a unit.
7. The unit of measure of the differentiating angle to be $\frac{1}{3}$ of a centiquadrant, or $10' 48''$, the vision thus to equal 0.0926, as compared with the system in use at present.
8. Test types to be adjusted so that the principle of minimum separabile will be employed as fully as possible.
9. The word "opt" to serve to designate the unit of vision.
10. These propositions to be submitted to the international congress, at Lucerne.

In the following discussion Dr. Landolt stated that in common with a considerable number of the French society, he could not approve of two points as presented in the propositions. First, the adoption of the coefficient of progression 1.259 would greatly increase the difficulty of calculating the visual acuity. Instead of speaking of half, double or triple vision, meaning that the same test type is read at half, double or triple the distance, we would have to speak of 2, 3 or 4 opts, which, however, would not correspond to twice, three times or four times the vision, but to a vision 1.259 or 1.259²; that is, 1.259 times 1.259 times greater. Difficulties would also arise if one attempted to explain to a layman, for example a judge, that a man's vision was six opts, meaning that the vision was 1.259⁵; that is, 3.6633 times greater than one opt. If the designation opt should be chosen it should be applied to the unit of vision which corresponds to an angle of $1'$ or

$10''$, and the decimal system should be retained under any circumstances. In the second place, Landolt protested justly against the division of the quadrant into 100 centigrades, as it conflicted with the usual division of the circle, which, being too firmly established, could not be overthrown. Besides it was unnecessary, for if we took as the unit of vision that corresponding to a visual angle of $10'$ we could express the usual degrees of vision in whole numbers and a simple calculation alone would be necessary to change expressions in the old method into the new, while by accepting the opt and the centigrade division special tables would be needed for this purpose, and complications would be certain to arise.

Monoyer, who first proposed the term dioptry, remarked that there were at present more than twenty-seven optometric tables, at least one-third of which were based on different principles. The ophthalmological societies of Mexico and Paris had made an attempt to bring about unity. He agreed with these propositions only in regard to the principle of the method of measurements, otherwise not, and instead proposed the following:

1. The vision is to be measured according to the principle of the minimum separabile.
 2. The unit of vision is to correspond to an angle of $1'$.
 3. This unit needs no special name.
 4. The graduation is to be expressed in decimal arithmetic progression.
 5. Vision is to be tested at a distance of five meters. Test types should be blue letters on a black ground, and for the illiterate, easily recognizable figures corresponding to the letters.
- V. Siklossy objected to Snellen's visual unit that the basal visual angle of $1'$ is usually too large, as he had found the average angle in persons with normal vision to be $45''$, which corresponds to a vision of 1.4 Snellen. Besides he thought it unsuitable to take as a unit of measure one of high value and to reckon in fractions when we are accustomed to choose as small units as possible to serve as units of measure. He proposed as the unit of measure that vision with which in a certain illumination a test object with a separable distance of $1cm.$ is recognized at the distance of $1m.$ This he named "acuity." From this absolute acuity the relative acuity can be calculated. If an object $0.2cm.$ thick is recognized at $7m.$ the vision is 35A; 35A would correspond to Snellen's 1. The use of fractions would no longer be needed, but vision could be expressed in whole numbers. To obtain unity in illumination he had constructed an apparatus composed of a box with transparent test types illuminated from behind by incandescent lights of fixed energy. The illumination could be modified by the interposition of from 1 to 20 light absorbing glass plates.
- Landolt hoped on account of the importance of the subject that unity would be attained in the principle of measurement and in the designation of vision. This rests on four conditions:
1. Attention to practical needs.
 2. Adoption of the principle of the minimum separabile.
 3. Does a unit angle of $1'$ suffice?
 5. Is a single optotype needed?
- Siegrist thought the first condition of an agreement would be the choice of a universal international optotype. Of Sulzer's lattice test he disapproved. For universal use he preferred Landolt's rings. As regards the designation of vision, he thought

we should be contented with the substitution of decimal for common fractions. He therefore moved that the congress unite in the recommendation of Landolt's rings and the use of the decimal system.

Berry considered Snellen's test types best for practical use, while for scientific purposes Reymond's squares may be preferred.

Javal seconded Siegrist's motion that a commission be appointed to consider the question of the determination of the vision and to report propositions at the next congress. He added that no one should serve who had published test types.

The following committee was named and accepted by acclamation: Nuel, of Belgium; Hess, of Germany; Jessop, of England; Charpentier, of France; Reymond, of Italy; Dimmer, of Austria, and Eperon, of Switzerland.

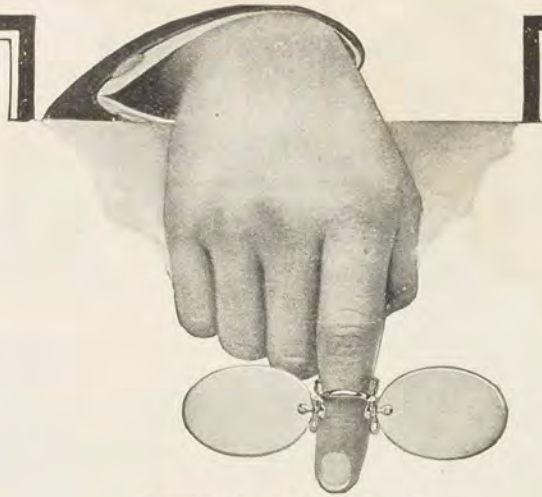
The Astigmoscope, an Improvement on Placido's Keratoscope

Placido's disk, which consists of a circular sheet of tin on which concentric circles of black and white are painted, is a valuable means to discover the presence of astigmatism. The patient is placed with his back to the light and is directed to look at the center of the disk while the observer, holding the instrument close to his own eye, looks through the hole in its center and sees an image of the concentric circles reflected on the patient's cornea. If the patient has no corneal astigmatism the circles will all appear as perfect circles, but if astigmatism exists the rings will appear elliptic with its long axis corresponding with the meridian of least curvature. But while this instrument will readily show the presence of astigmatism it will not give the actual amount of this refractive error and it is for this reason that Javal's ophthalmometer has been employed so largely.

Lately, however, in the *Centralblatt f. prakt. Augenh.*, Dr. Roth describes an improved Placido's disk which seems to allow of a fair numerical determination of the astigmatism. Roth constructed a Placido's disk out of a steel plate which at its back carries a steel wire by means of which the plane surface may be converted into a more or less curved cylindrical surface. This steel wire is fastened to a series of teeth, which, together with a scale, are screwed to the tube through which the eye is examined. The disk rotates around the tube as its axis and a white line at its back indicates the axis of the cylinder the surface of which is represented by the disk. If the examined eye shows astigmatism the plane disk will show ellipses. These ellipses are converted again into circles by the proper adjustment of the steel wire, which produces the curvature of the disk and indicates the degree of astigmatism by the number of the tooth to which it had to be transferred.

It is true that the accuracy of this instrument cannot be quite as great as that of Javal's ophthalmometer, but it would seem that it might be quite helpful to those who object to the high price of the big apparatus.

Secure and steady in the strongest wind and cannot be shaken off by violent exercise. Perfect fitting, without the painful gripping of the ordinary eyeglass spring.



The necessary pressure is supplied by minute spiral springs hidden in the mechanism, acting independent of the rigid bridge. Put on or off without touching the lenses.

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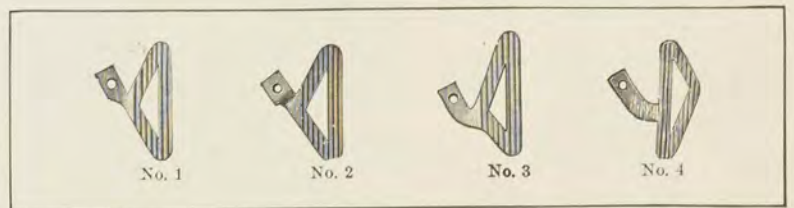
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(Continued. Part VI)

Motais thinks it acts not only as a moderator for the inferior oblique, but also as a "pulley of reflection."* Together with the inferior oblique itself, it forms a kind of musculo-aponeurotic loop, the two ends of which are inserted near the orbital margin, one at the outer angle, the other at the inner angle. And the check ligament of the inferior rectus muscle embraces the middle portion of this loop, so that when the inferior rectus begins to contract, its check ligament stresses the loop.

The check ligament of the inferior rectus has therefore for its orbital insertions the tendon of the inferior oblique muscle, and the check ligament of the same muscle like the two limbs of a Y.

The Connection of the Levator Palpebrae Muscle with the Superior Rectus deserves a passing notice, since these muscles work so uniformly together.

From the upper surface of the sheath of the superior rectus, near its inner border, and along its whole length from the apex of the orbit to the equator of the eyeball, is given off a sheet of fibro-cellular tissue, which reaches the under surface of the levator, and splits into two to enclose that muscle, thus providing it with a sheath.

On reaching the equator, however, the upper surface of the sheath of the superior rectus is reflected (*R* in Fig. 12) as a whole on to the under surface of the levator, describing a strong curve, with concavity backwards, in its passage from one muscle to the other. A prolongation (*P*), however, still continues to cover the outer or upper surface of the tendon of the superior rectus, and forms, in fact, part of the anterior hemisphere of the external capsule of the eye continuous with *AEC* in Fig. 4. From the upper surface of the levator is given off a facial layer (*C*), which goes to the orbital margin, and forms part of that facial cone in the orbit which we commenced this whole subject by describing. Notice, too, that the nerve for the levator penetrates the superior rectus.

CHAPTER II

The Ocular Motions

A universally mobile body is capable of no fewer than six independent motions, which are called "degrees of freedom." It can be translated as a whole in any three directions at right angles to each other, or be rotated about any three axes at right angles to each other.

Translations of the Globe.—If we regard the head as fixed, and confine ourselves to the study of the voluntary motions of the eyeball, we shall find it *approximately* true that translation of the globe is forbidden in virtue of its attachments to the orbit.

Were we to investigate this statement very strictly, we should not, however, find it rigidly true, since the center of motion lies a little farther back than the geometrical center of the eyeball, in consequence of which the globe is slightly translated in whatever direction the eye is made to turn. On looking to the right, the globe is translated slightly to the right; on looking to the left, to the left, and so on. In the maximum excursions of the eye, this translation is probably not less than 1, or greater than 2 millimeters.

Center of Motion.—The distance between the mid-point of the optic axis and the center of rotation is given by Donders and Mauthner as follows:

REFRACTION	DONDERS	MAUTNER
In Emmetropia	1.77 mm.	1.24 mm.
" Myopia	1.75 mm.	1.82 mm.
" Hypermetropia	2.17 mm.	1.47 mm.

*By this he must mean that when the muscle contracts, the ligament slightly bends the muscle by drawing its middle part outwards, so as to make its traction on the eye a little less oblique.

Since, except to the trifling extent just noticed, translation is denied to the eye, we may now turn our attention to its rotations.

Rotations.—A body deprived of translation might still be able to rotate, and that about three axes at right angles to each other. Rotations about all other axes are resolvable into rotations about two or more of these, from which it follows that a body which enjoys three degrees of rotational freedom can rotate about as many diameters as are conceivable.

We have, therefore, next to inquire whether the eyeball retains this full rotational freedom.

One Voluntary Rotation Denied.—Actual experiment has shown, what we could not have otherwise proved, that one degree of freedom is lost in all voluntary parallel movements of the eyes which start from the straight forward position.*

The degree of freedom lost is that of rotating about the fore-and-aft axis (considered as fixed in the head), while the two freedoms retained are those of rotation about the vertical axis, and about the transverse axis (both considered as fixed in the head).

Listing's Plane.—Simultaneous rotations about the vertical and transverse axes can be variously compounded into rotations about any intermediate axis. This is equivalent to saying that they are limited to rotations about all conceivable diameters in one plane, namely, that plane in which the vertical and transverse axes lie, and which it is convenient to call "Listing's plane," since this degree of constraint was discovered by Listing.

Listing's plane passes through the center of motion of the eyes, and is a vertical transverse plane (corresponding to a coronal section) fixed in the head, and perpendicular to the fore-and-aft axis, about which rotation is denied.†

When the head is held erect and the eyes look straight forward at a very distant object on the horizon, they are generally said to be in their "primary position," and though we shall have to quote a truer definition later on, we may for the present accept this simple one, in order to say that however many and complex the motions of an eye may be in glancing from point to point, the *ultimate* result of them all is equivalent to a single rotation of the globe about some one axis in Listing's plane, provided the eye has started from the primary position.‡

Torsion.—By *torsion* we mean rotation of the eyeball about its own fixation line.§

Let us remember that there are two fore-and-aft axes we have to consider, one of which is fixed in the head and which we have already treated, and another proper to the eyeball itself and moving with it, so as, indeed, to be for all practical purposes regarded as identical with the fixation line.

Secondary Torsion.—When the eyeball (starting from the primary position) rotates either vertically upwards or downwards, or horizontally to either side, its motions are called "cardinal motions," and are not accompanied by torsion. But when the eyeball looks obliquely, in any intermediate direction, two cardinal motions are compounded together. Every motion of an eye from the primary into an oblique position is accompanied by torsion as an essential component of the motion.

Donders' Law.—Donders' observed that whatever position the eyeball may take, there belongs to that position a definite amount of torsion which remains the same no matter how often the eye may return to that position, and however many motions it may make in arriving at it.

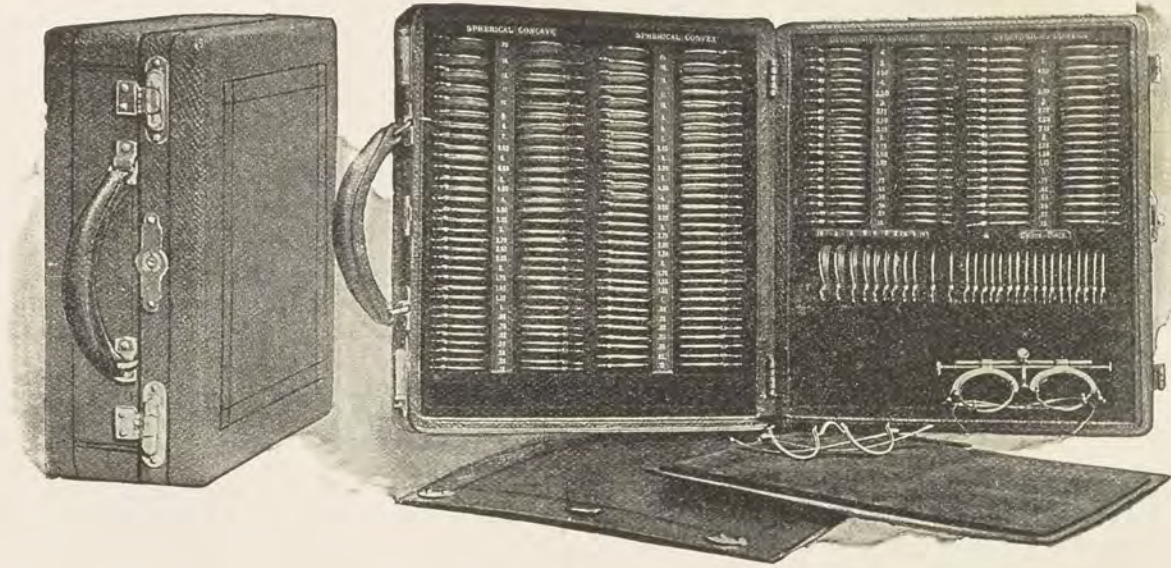
To quote his own words: "For any determinate position of the line of fixation with respect to the head, thereto corresponds a determinate and invariable angle of torsion, a value independent of the volition of the observer, independent also of the manner in which the line of fixation has been brought into the considered position."

The same law has been put more concisely by Helmholtz (and at the same time amplified) in the words: "The wheel-movement of each eye is, with parallel fixation lines, a function only of the elevation angle, and of the lateral deflection angle."||

*Latent Torsion, discussed in Chapter XIII, is not voluntary.
 †In the "primary position" of the eye, Listing's plane is practically identical with the "equatorial plane" of the eye, but it must not be identified with it, since the latter moves with the eye, whereas Listing's plane does not.
 ‡It will be seen that I have guarded myself from stating that rotations from one secondary position to another are about axes in Listing's plane. They are not. Helmholtz has correctly shown in what plane they lie.
 §"We will call *torsions* rotations of the eye about the line of fixation" (Helmholtz).
 ||Helmholtz's "Optique Physiologique," page 602.

[TO BE CONTINUED]

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Clinics in Optometry

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[Each of these clinics is complete in itself, and one of them is published each month in this department. They cover all manner of eye defects, from the simplest to the most complicated, and give the most authoritative procedure in the diagnosis and correction of the various visual defects. In order to make these clinics of maximum benefit, we invite our readers to join in them by sending us any criticisms or suggestions they may have to make in regard to the treatment here given. The first clinic of the series appeared in the May, 1904, issue.—ED.]

Convergent Strabismus

This little girl (Sylvia S.) is five years of age. Her mother tells us the left eye has always turned in, and as you look at this child you have no difficulty in seeing that it is an unmistakable case of convergent strabismus. For several weeks past she has been rubbing spittle on her eyes and complaining to her mother that there is dirt in them.

The frequency with which strabismus occurs in childhood, and the importance of a correct understanding of the conditions involved in order that the case may be properly managed, justifies us in giving time to the careful consideration of this subject.

Strabismus is usually defined as consisting of a deviation of the visual axis of one eye from the correct position of fixation. But this is only a partial definition: In a case of convergent strabismus there is in addition to the abnormal convergence, a defect of the fusion faculty, a suppression of vision in the eye, which is not used for fixation, and a condition of amblyopia in the deviating eye, either congenital or acquired as the result of neglect or inefficient treatment. There is also an error of refraction present, usually hypermetropia.

In normal eyes the natural desire for binocular vision causes the visual axes of the two eyes to meet at the object looked at. But if this desire is absent or interfered with, the incentive to perfect accord between the movements of the two eyes is lost, and then any slight cause may disturb the equilibrium of the convergence center and allow the visual axes to assume faulty directions.

In order to see distinctly such a person must fix the object with one or the other eye, and he will naturally choose the eye that has the highest visual acuity or the lowest error of refraction. Both eyes move together, but both are not directed to the same point. He moves his eyes until he gets his best eye in the desired position, and then the other eye will be turning in towards the nose.

Always remember that in convergent strabismus both eyes do not deviate inwards; the good eye assumes a straight position, while the poorer eye shows the convergence of both. The first is known as the "fixing eye," the other as the "squinting or deviating eye." In the majority of cases of convergent strabismus, the separate movements of each eye are perfect; when one eye is covered, the other can turn up, down, in and out to the normal extent.

The natural relation between accommodation and convergence is not disturbed, as proven by the fact that when the fixing eye accommodates strongly for a close object, the deviating eye turns still more inwards, proportionately to the extra effort of accommodation that is put forth.

Convergent strabismus sometimes occurs as occasional and again as alternating strabismus. In the latter case on account of each eye assuming the burden of vision at times, the vision of both is good, and for this reason such patients do not suffer from neglect.

Many of the students whom I meet have the mistaken idea that in convergent strabismus because the two eyes cannot be directed to the same object, the patient sees everything double. But such is not the case; the image formed in the deviating eye is mentally ignored, all the attention being given to the image formed in the fixing eye. The patient is not conscious of suppressing this impression; it is involuntary and is probably due to a defect in the fusion faculty. Not only is diplopia absent in these cases, but it is usually impossible even to produce an artificial diplopia by means of prisms or different colored glasses before each eye.

In view of the amblyopic condition of the retina of a squinting eye, the question has often been discussed whether the amblyopia with its imperfect power of fixation causes the deviation, or whether the strabismus with its non-participation in the act of vision, causes a deterioration of the retina from disuse.

In the case of convergent strabismus when the fixing eye is covered, the deviating eye becomes straight and assumes the act of vision, its image being no longer suppressed. In some cases its vision is so poor that fingers can scarcely be counted, while in other cases the larger letters on the test card are legible. Sometimes when central vision is almost entirely lost, indirect vision suffers but little impairment, and then by turning the head and eye objects are seen much more clearly.

There is a widespread belief among the laity as to the spontaneous cure of strabismus, which is probably based upon the fact that when the child attains his full growth, the angle of convergence becomes less without any treatment. But this does not often happen, and when it does the squinting eye has by this time become blind from disuse. I have seen this occur in many, many cases because the parents were advised to wait and see if the child would not outgrow the defect.

The age at which a convergent strabismus first shows itself is an important point. Statistics prove that in seventy-five per cent. of the cases, the deviation appeared before the fifth year, while in a very trifling percentage was its advent delayed until after the sixth year. In more than ten per cent. of the cases the strabismus developed during the first year of life.

In regard to the aetiology of convergent strabismus, many curious suggestions were formerly made by the family and friends. Professionally the first definite theory attributed it to a shortening of the internal recti muscles, for which the natural cure would be a division of these muscles.

This resulted in a great deal of indiscriminate muscle cutting, the disastrous effects of which were beginning to be recognized when Donders published his great work and gave to the optical world his accommodation theory as to the causation of strabismus.

When a pair of emmetropic eyes are engaged in distant vision, the accommodation and convergence are both at rest. When such eyes are directed to an object close by, they must converge in order that both visual axes may meet at the object, and at the same time they must accommodate in order that the object may be seen clearly.

These two functions, convergence and accommodation, being always performed together have become "associated," so that it is difficult (and unnatural) to use one without the other.

An error of refraction disturbs this association. A hypermetrope must accommodate even for distance, and still more so for near objects. This unnatural and excessive accommodation tends to produce a proportionate abnormal convergence. Donders first recognized this tendency as the cause of convergent strabismus, and he advised correction of the hypermetropia as a cure for the strabismus.

While this was a great advance in optics at that day and led to a rational treatment of this defect, yet in the light of our later knowledge, we cannot unreservedly accept the accommodation theory as the fundamental cause of strabismus.

The vast majority of children are hypermetropic, yet only a very small percentage (perhaps four per cent.) develop strabismus. It has also been proven that the amount of hypermetropia has but little to do with the question as to whether the patient shall or shall not squint in the first instance, but when once strabismus is established, the refractive error becomes an important factor.

We must go further back than the eye itself in the investigation of this subject, and the most recent views show that the essential cause of strabismus is a defect in the fusion faculty.

At birth we do not find the proper coordination of the eyes, but the fusion faculty begins to develop about the sixth month, and is perhaps not complete before the sixth year. At first the instinctive desire for binocular vision will keep the eyes straight, and when the fusion faculty is fully established, it is doubtful if an error of refraction can cause strabismus.

Exceptionally the fusion faculty does not develop until later, or develops very imperfectly, or it may never develop at all; and then it is an easy matter for anything that disturbs the balance of the motor coordination, to cause a strabismus.

In these cases then where there is a defect in the fusion faculty, and the eyes are in a state of unstable equilibrium, ready to deviate inwards or outwards on the slightest provocation, an error of refraction such as hypermetropia proves to be an important factor, for the reasons which I have already briefly mentioned to you.

In the great majority of cases of hypermetropia, it cannot be doubted that the fusion sense is unimpaired and hence the eyes maintain their proper positions. But in the minority cases where the fusion sense is deficient, there is no check to the tendency to deviation and the child develops a convergent strabismus.

At first the strabismus is occasional, manifesting itself only when the child is

(Continued on page 985)

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Clinics in Optometry

(Continued from page 983)

looking intently at some close object, and disappearing when the accommodation relaxes. It is at this period that the proper convex lenses to correct the hypermetropia are of the greatest value. But if the case is neglected, the excessive convergence becomes permanent and the strabismus is noticeable even when the eyes are completely at rest. At this time convex lenses do not cause an immediate disappearance of the deviation, but if the wearing of glasses is persevered in, there is gradual restoration of the normal position.

We will now return to the examination of our little patient. No tests are required in this case to determine the presence of a deviation or its character; a simple inspection shows a convergent strabismus of the left eye. We ask the child with both eyes open to follow the movements of our fingers, and as the two eyes turn equally in all directions, we know the strabismus is concomitant.

The next step would be to estimate the visual acuity, but this is not always possible in the case of young children. We ask the mother if this child knows her letters, and we are informed that she has been attending a kindergarten school and is familiar with some of the letters. After a few patient trials, we find that the visual acuity is about $\frac{2}{30}$, and that she seems to see equally well with either eye.

A subjective test in a child so young as this is scarcely to be depended upon, but we will see what information we can gain from it. After several changes of lenses $+1$ D. spheres are accepted, with which vision is raised to $\frac{3}{40}$.

We will now use the ophthalmometer to determine the existence of corneal astigmatism, but the eyes are in such constant motion it is difficult to get definite results. However we can see that the mires overlap considerably in the vertical meridian, from two to three steps.

The retinoscope, on which we must chiefly depend in estimating the refraction in young children, reveals a hypermetropia of 1.50 D. in the horizontal meridian and 1 D. in the vertical meridian, thus showing a compound hypermetropic astigmatism with the rule.

The ophthalmometer indicates a higher degree of astigmatism than the retinoscope, but as we are unable to verify our findings by a subjective examination, we will use our judgment and order the following as the refractive correction:

$+1.50$ D. sph. $\odot +.50$ D. cyl. axis 90° .

In strabismus seldom can we measure the amount of deviation by prisms, for the reason that the image formed in one eye is suppressed and the vision is monocular. However in this case we are more fortunate, for when we place a Maddox rod over the left eye, the child sees the red streak way off to the left, and the light in its proper position. This indicates a high degree of esophoria, and we commence with weak prisms, bases out, which bring the streak and light closer until finally we reach a 20° prism, with

which the streak is directly through the light as far as we can depend upon the answers of our little patient.

This would ordinarily call for an increase in the strength of the convex spheres, but as this would blur the vision at first, the child would be inclined to reject the glasses. She cannot understand the value of the glasses, or the reason for which they are given, and if she found she could see better without them, she would probably refuse to wear them.

Therefore we will rely on a prismatic correction of the deviation to a partial extent, and will order a 2° prism base out over each eye to be combined with the spherocylinder. We will direct these glasses to be worn constantly, and tell the mother that they should never be removed except for toilet purposes and when the child is in bed.

It is sometimes necessary to prescribe glasses for children even younger than this. Some authorities claim that no infant is too young to wear glasses when required, even if not more than twelve months of age, but in my own experience I have never ordered them in a child less than three years of age. Of course such young children often break their glasses, but I have never known the eye to be injured thereby. The lens being confined by the frame does not break into pieces, or if it does they are not dislodged from the frame.

We will direct the mother to have this child's eyes examined once a year, and in this way we can probably keep the strabismus under control and prevent either eye from becoming amblyopic, with the result that the child will attain maturity with a pair of serviceable eyes. Whereas if a case like this is neglected, the strabismus becomes fixed and the sight of the deviating eye is lost.

Dull versus Polished Lens Edges

ED. KEYSTONE:—I am debating as to whether to use polished edge lenses or not. I have heard several opinions on the subject, and would be glad to know the advantage or disadvantages of same, and what the authorities say about it. I will greatly appreciate any information you may give me on this matter.

Yours truly,

H. H. B.

[Deferring to the wishes of our correspondent we submitted his question to Chas. F. Prentice, M. E., of New York, a recognized authority on such subjects, and his answer is as follows: "Polished edges on frameless lenses are detrimental to clearness of vision, because they permit extraneous rays of light, principally from above and below, to enter between the refracting surfaces, which then act as opposite reflectors to diffuse the objectionable light throughout the interior of the lenses. For this reason, in many optical instruments, in which the lenses are confined in tubes, the lenses have dull edges, which are frequently even blackened, so as to more effectually prevent internal diffusion of extraneous light often admitted by the exposed surfaces of the lenses."

The use of polished edges of lenses is certainly on the decrease, and one scarcely hears a word said in their favor now-a-days. In debating this question, our correspondent should have no difficulty in deciding to have the edges of lenses finished dull. The only advantage that can be mentioned in favor of polished edges is a greater brilliance in effect, and in concave lenses where the edges are thick, the polished transparent edges makes them less conspicuous, and without the gray line which a dull edge displays.

On the other hand the polished edges cause a decided reflection to the patient, which more than counterbalances their beauty of appearance. A transparency of the edges is found to cause refraction and reflection of light, which can be prevented only by dulling the edges. In these days when artificial light is so much used, no matter whether the light comes from above or below or from one side, the refraction and reflection of the light by the polished edges is annoying to the patient, disturbs vision and irritates the retina. The advantages are so largely in favor of dull edges that we think there should not be a single dissenting voice.

Not quite in the line of this question but as showing the part played by the edges of lenses, the writer recently had an unusual experience. A patient who had been wearing frames, desired frameless. He returned in a day or two complaining that he could not wear the new glasses and had to return to his old ones. Another examination was made with the same results as to vision, but in order to satisfy the patient, glasses were changed to .25 D. weaker. He came back again in a few days saying he could not wear the new glasses, that the old ones were better. This time a slight change was made in pupillary distance and height of bridge so as to bring lenses closer and lower. Still he returned with the same complaint.

On close questioning it developed that he worked facing a window in which there was a bright reflection from a building on the opposite side of the street, and with the new glasses there was a band of light which interfered with his work, but which was not noticeable with his old glasses. As he sat in my office with back and side to light, there was no trouble, but as soon as he turned to face the light, the bright band made its appearance and prevented comfortable reading. It did not now take long to locate the cause of the trouble, it was the reflection from the edges of the frameless lenses. With his frame glasses, the frame prevents this refraction. Our remedy was to paint lower edges of lenses with black enamel, since when there has been no complaint.—Ed.]

New Mexico Optical Society

As reported in our last issue, New Mexico has passed an optometry bill and a competent board of optometry has been appointed to see that the law is enforced.

The newly-appointed members of the board met at Albuquerque, N. Mex., Monday, April 17th, and organized with the following officers: S. T. Vann, Albuquerque, president; W. R. Tipton, M.D., Las Vegas, vice-president; O. G. Myhre, Silver City, secretary and treasurer. On the evening of the same date, the New Mexico Association of Optometrists was organized with the following officers: Otto G. Bebbler, Albuquerque, president; M. M. White, Folsom, vice-president; Geo. F. Everett, Albuquerque, secretary and treasurer.

Examination by California State Board of Optometry

Of the fifteen candidates who presented themselves for the examination of the California State board of examiners in optometry, held at Los Angeles, Cal., on April 24th, the following passed satisfactorily and are entitled to certificates: C. H. Heard, H. B. Howell, H. C. Ownsby, J. F. Reed, J. H. Sohn, of Los Angeles, and Mable Smith, of Pomona.

Buffalo Optical Society

The Buffalo Optical Society held its regular meeting in the New Gruener Hotel, Buffalo, N. Y., on Friday, May 5th. The chief feature of the meeting was a paper by Dr. Frank B. Seitz, entitled "A Study of the Ocular Muscles."



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An oculist and optician in Baltimore, Md., writes as follows: "Have used EYE-FIX in my practice, under personal observation, and found it to do all that is claimed for it."

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A Circular Test for Astigmatism

ED. KEYSTONE:—I believe that the circular method of detecting and finding the angle of astigmatism which I am about to describe is an original idea.* Theoretically it has advantages over other subjective tests for that defect in the matter of accurately finding the angle for the defective meridian or the angle of the correcting cylinder.

Now, if we consider the various methods, we see that they do not bring before the patient all the meridians under the same circumstances at the same moment. Dr. Pray's astigmatic letters cover every fifteen degrees, which can be quickly run over in succession, so that the memory of the patient is not much taxed.

This circular test covers all meridians at once and does not trouble the memory of the patient. In the ordinary cylinder method for finding the angle for the correcting cylinder axis, is a severe tax upon the memory of the patient, when trying to find the best position to a great nicety, and further than that, the result is likely to be spoiled by the variations, which from one cause and another may be taking place in the patient's visual acuteness. All these difficulties appear to be got rid of in this method.

Diagram 1 consists of thick concentric circular bands of black and white of about equal thickness. If used at a distance of twenty feet, the bands should be about $\frac{3}{4}$ inch wide, and proportionately narrow at close distances.

As can be seen in the diagram, the angles are prominently marked round for one half the circle, and are marked so that the angle, as read off by any one in front with the patient, or the patient himself, corresponds with the angle as read upon the trial frames, which is read off upon the opposite side to the patient.

The line at right angles to the horizontal or zero line should be placed exactly vertical (as shown by the arrow) and the patient standing with head exactly upright—the center of the disk being on a level with the eye being tested to insure the visual axis being perpendicular to the plane of the disk.

Diagram 2 gives a representation of the appearance that might be seen by an astigmatic person, whose defective meridian is 27° from the horizontal, as shown by the dotted line A, which runs through the middle of the diffused sectors. The dotted line B shows the position of the axis of the correcting cylinder—it runs through the

middle of the sectors, where the bands can be clearly seen. This sector can be narrowed by placing before the eye a suitable spherical lens; in this way the finding of the position of the axis can be done very exactly.

After sphericals, if necessary, have been placed before the eye so as to give a narrow and clear sector across the black and white bands, then a cylinder can be placed with its axis at the same angle as the line B, which bisects the clear sector; a weak positive cylinder can be tried first and if it increases the size of the clear sector, a stronger one can be tried until we get the bands to look fairly clear in all meridians. If, however, the plus cylinder makes every part foggy, we can try a weak minus cylinder and so on.

Finally, we must algebraically add up our cylinder and sphericals to make the required

very fine degrees of astigmatism are not fixed to one meridian. When this stage of correction is reached, we have accomplished all science can do.

Yours truly,

A. E. BLACKMAN.

Castle Forbes Bay, Honn, Tasmania.

Optical Newspapers

We have referred from time to time to the plan of publishing a little paper practiced by some opticians. Quite a number of these journals have been brought to our notice recently, one of the brightest and most practical being *Optical Talks*, by H. D. Buck, of Centralia, Ill. Mr. Buck gives useful information on how to clean glasses and how to put them on and take them off, on spectacles

versus drugs, etc. The article on "How to and How not to Clean Glasses" was reprinted on page 485 of our March issue. "How to Put on and Take off Glasses" is told as follows:

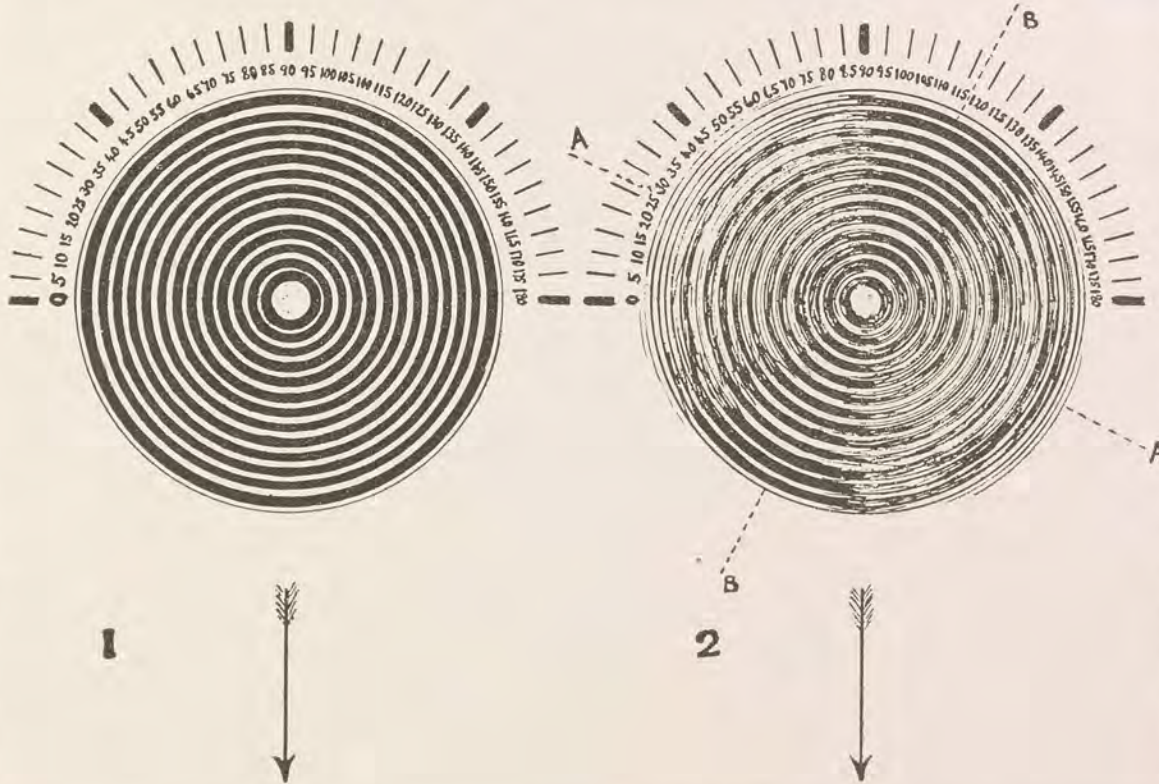
Open the temples, place the thumb under the forefinger over the temples, just at the bend of the hook, then place the bridge of the frame on your nose first; then carry the hooks of the temples over the ears, then place the tips of the forefingers on the temple or end joints of the frame and adjust the frame into a comfortable position. To take off a riding bow spectacle, take hold of the temple with the right hand and lift it off from the ear. Then turn the head to the right, and the left temple will fall off the left ear, and the spectacles will be off without any dragging or pulling the frame out of shape. Just try the above suggestion and see if it is not an improvement over your way.

Articles are devoted to the advisability of always consulting a competent optician, lenses and their properties, the eyes of children, signs of failing vision, etc., and there are many such pertinent pointers as the following:

Never do any close work, such as fancy needle work, or attempt reading fine printing during convalescence from any form of illness; and even after natural strength has been regained, read only a little at first, increasing the amount slowly.

Carelessness in putting on and in taking off ones glasses is responsible for a large per cent. of the broken and bent frames; careless and improper methods of cleaning them and negligent care of the glasses when off the face will account for the remainder of the broken and damaged glasses.

When you are through reading or sewing, don't lay your glasses on the table or mantle, exposed to dust, liable to have a book or garment laid on them—perchance to have them thrown on the floor when that is removed, or picked up by a child for a plaything—but put them in a safe place free from dust and harm. They are a part of your own eyes now and need as suitable care and attention as you would give a fine watch or a jeweled ring.



glasses, taking into consideration, of course, the amplitude of accommodation and whether the glasses are required for distance or for reading. Also not forgetting to avoid fully correcting the vertical element of positive refraction in young people, which as we know diminishes naturally as age advances.

This method can be well used at closer distances. The diagram as illustrated will serve at somewhere between one and two feet distance.

A little patience and skill is necessary on the part of the optician sometimes in making his patient understand exactly what he wants him to point out.

However, I think most educated people can readily understand, and the angle is given with such certainty that you cannot feel any need of retrying, and it is also very quick.

If the patient has very little astigmatism or when the patient's astigmatism is as nearly corrected as the trial lenses can do, the diffused sectors will often appear very unstable—they will seem to revolve about the center of the disk, sometimes to and fro, sometimes again rapidly, round and round, exhibiting very forcibly the flexibility of the refractive media of the eye and showing that

*The circular test for astigmatism is not new, as O. Becker used it more than thirty years ago (see Graefe and Saemisch Handbuch) but as it appears to be almost forgotten, we gladly reprint the paper of our esteemed correspondent.

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How and When to Employ Prism Exercises

Of late years the furore to operate upon the muscles of the eye for every little deviation from the muscular balance, has given way to the more conservative attitude of first trying to improve the muscular balance by ocular gymnastics and especially prism exercises. This is clearly shown again by a paper of Dr. Alexander Duane, of New York City, read before the American Ophthalmological Society and published in their transactions. We reprint the article in full, as it may be very beneficial for the practical work of the refractionist:

In offering these remarks on prism exercises, I intend simply to give a few conclusions that I have reached as a result of my own experience. These conclusions, it must be added, I regard as tentative only. Premising this, I will state first the methods that I have been led to adopt in making prism exercises, and second, the indications that, in my experience, such exercises may be expected to fulfill.

Methods Employed

I regularly employ four exercises:

Exercise A. Distance exercise with prisms, base out.—The patient looks at an object—either a small light or the bull's-eye of a one-foot target—on the other side of the room, and holds a square prism of, say 10° , base out, before the left eye. The moment he unites the double images produced by the prism, he drops the latter and puts up a stronger prism, say one of 15° , before the right eye. This in turn he drops as soon as the double images are united, and substitutes for it a prism of 20° , held base out before the left eye. When he can overcome the 20° readily, he tries in succession the following combination:

15° before one eye and 10° before the other, producing an absolute converging effect 13.5° of arc.

20° before one eye and 10° before the other, producing an effect of 16.5° .

20° before one eye and 15° before the other, producing the effect of 19.5° .

20° before one eye and $15^\circ + 10^\circ$ before other, producing an effect of 25° .

$20^\circ + 15^\circ + 10^\circ$ before one eye, producing an effect of 29° .

A progressive increase in the effect may be produced not only in the way above indicated, *i. e.*, by using different combinations of two or three prisms, but also by using a single prism and *rotating* it on a vertical axis either forward or back. The deflecting power of a prism can be almost doubled in this way, and, moreover, can be increased gradually, so that with two or three prisms thus

rotated all degrees of deflection may be produced from 5° to 50° of arc.

If with any given combination the diplopia cannot at once be overcome, resort may be had to Gould's expedient of approximating the test-object until seen single, and then gradually carrying it off to the proper distance, the patient all the time keeping his eyes on it and endeavoring to maintain fusion. Or, the same thing may be effected if, as suggested by Stevens, the patient looks through the prism at a finger held close to his nose, and keeps his eyes fixed sharply on the finger as it is slowly carried out toward toward the distant object.

Exercise B. Exercise with prisms, base out, at near points.—Exercise at near points with prisms, base out, is done in the same way as for distance, except that the test-object is either a minute electric light or a fine dot* in the center of a circular card five inches in diameter. The card is held at the reading distance, and is shifted back and forth, special efforts being made to maintain fusion while the card is being carried *toward* the eyes.

Exercise C. Exercise at near points with prisms, base in.—As is well known, the ability to overcome prisms, base in, when the eyes are directed at a distant object, cannot usually be increased by practice. This does not hold, however, for such prisms when used at near points.

The test-object here is the same as that used in Exercise B, *i. e.*, is either a minute electric light or a dot on a card. The patient, holding a 12° or 15° prism before either eye, brings the object up toward him until it appears single, then carries it steadily off until he can no longer fuse the double images. This is done three or four times in succession, the attempt always being made to carry the object off as far as possible and still maintain fusion.

Exercise D. Exercise in converging on a pencil.—This consists simply in carrying a pencil (or in amblyopic patients a minute electric light) from arm's-length in toward the nose until the object appears double. This is repeated three or four times, the attempt always being to bring the object closer than before and still maintain fusion—in other words, to approximate the convergence near-point.

Precautions to be Observed in Doing the Exercises

1. The *test-object* should be well defined and not such as to be confused with its surroundings. It should be just large enough for the patient to see distinctly at the distance employed, and yet so small that he has to fix sharply in order thus to see it.

*If there is hyperphoria, the dot may conveniently be replaced by a short vertical line.

2. The patient should wear the *glass correcting his refractive error* when doing the exercises, and, if presbyopic, he ought to wear his reading-glasses when doing Exercises B, C and D.

3. Attention should be paid to the *effect of the exercises on the accommodation*. The use of prism, base out, tends to cause a spasm of accommodation, the amount of which can be inferred from the degree of blurring of the sight produced when the patient looks through the prisms at a test-card, and from the strength of the concave glass that is required to clear his vision.

In some cases possibly this spasm of accommodation may keep up for a long time after each practice, and may even be permanent. In most cases it should be possible to obviate any such tendency to undue spasm by using diverging exercises (Exercise C) directly after exercises A and B. If this does not suffice, or if for any reason it seems improper to use Exercise C, the desired relaxation of the accommodation can be effected by using the test-types as an object of fixation when doing Exercise A. The patient, looking at the letters through the prisms, gradually learns to relax his accommodation, so that his vision slowly clears from $\frac{2}{200}$ to perhaps $\frac{2}{40}$, or better, even while he is still maintaining the convergence that the prisms impose. With Exercise B (prism convergence at near points) a similar relaxation of the accommodation can be effected by adding a $+2$ or $+3$ D. to the patient's distance glass, and with Exercise D (convergence on a pencil) by adding a $+10$ D. This seems to be rarely necessary.

Uses of Prism Exercises

The uses of prism exercises, I think, may be stated as follows:

I. *To rectify muscular anomalies.*—Prism exercises often relieve a muscular anomaly either because they actually reduce its amount or, perhaps more frequently, because they give the patient ability to overcome the anomaly with greater ease, so that he can readily maintain binocular fixation in spite of it.

1. *Exophoria.*—In this condition I use all four exercises, A, B, C and D, combining and varying them according to the variety of exophoria present.

Thus in a pure *convergence-insufficiency*, marked by considerable exophoria for near, with recession of the convergence near-point, but with little or no exophoria for distance and a prism divergence of not over 8° , I restrict or altogether dispense with exercise with prisms at a distance (Exercise A), but push the convergence exercises at near-points (Exercises B and D). At the same time it is often necessary, particularly if the diverging

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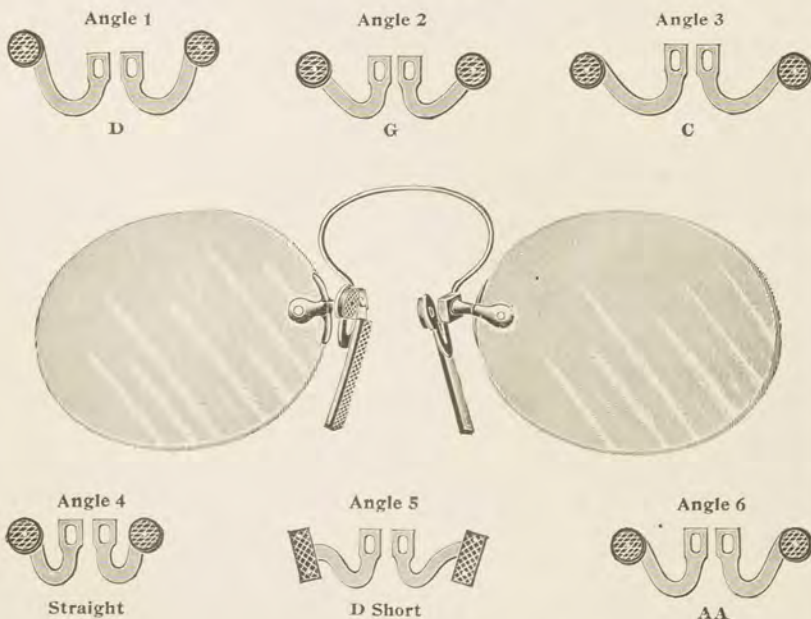
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How and When to Employ Prism Exercises

(Continued from page 989)

power is low (less than 5°) to add diverging exercises (Exercise C) and even push them, in case observation shows that the convergence practice is causing a homonymous diplopia for distance or is producing a spasm of accommodation. In these cases we have to watch closely the results of the practice, and push sometimes one exercise, sometimes the other, as the occasion seems to demand.

On the other hand, in a *divergence-excess*, characterized by marked exophoria for distance with a prism-divergence of 10° or considerably more, we should push the distance practice with converging prisms (Exercise A). If, as is often the case in this variety of exophoria, there is little deviation for near, and the convergence near-point is about normal, we would restrict or even altogether dispense with convergence exercises at near (Exercises B and D). Exercise C (practice with prisms, base in) would here be obviously improper.

In cases of *combined divergence-excess and convergence insufficiency*, with marked exophoria for both distance and near, we would use all four exercises, varying them according as one or the other element (divergence-excess, convergence-insufficiency) predominates.

Each case has to be judged by itself, and the amount of exercise prescribed determined by the patient's ability and endurance. As a rule, I have the patient practice at home either three or four times a day, for three or four minutes at a time, each practice consisting of Exercises A, B, C and D, done in succession, and in the order given, and very precise directions being laid down as to the amount of work to be done in each exercise. These directions have to be modified from time to time, as the muscular condition changes. Hence, I re-examine the patients once or twice a week, determining the amount of deviation for distance and near and the converging and diverging power, and from these data judge how the case is progressing and how the exercise should be varied.

At no time should any exercise be pushed to the point where it produces more than slight or temporary fatigue.

As a general thing, I think convergence exercises do very little good, unless the patient works up to a prism-convergence of at least 50° for distance and near and reduces his convergence near-point to less than two inches. This he can usually do in two or three weeks.

Esophoria.—Here the use of diverging prisms at near points (Exercise C) is indicated. This is done some four times a day

for a few minutes at a time. I have thought this exercise especially useful in cases of *convergence-excess*, and particularly in the temporary esophoria produced in myopes, who for the first time are wearing concave glasses for near. Theoretically, it should also help in *divergence-insufficiency*, or the condition characterized by marked esophoria for distance, with low or negative diverging power and with little or no esophoria for near. I have not had enough experience with it in these cases to vouch for its efficacy.

II. *To modify the effect of operations*.—The effect of a tenotomy can be very considerably modified by prism exercises, particularly if these are initiated during the first few days after the operation.

Here considerable care has to be observed, for it is quite possible to produce an unpleasant over-effect by excessive exercise. The exercise in this case, at least during the first week or two, ought to be conducted mainly by the surgeon himself, being altered from day to day, and one exercise being balanced against the other as the case demands.

I am sure that I have prevented the development of a divergence after tenotomy of the interni, by exercise with prisms, base out, and the development of an undue convergence after tenotomy of the externi, by exercise with prisms, base in, and in other cases still have secured closer approximation to an ideal result by means of prism exercise.

III. *To modify accommodative states*.—Exercise with prisms, base out, may be used to stimulate a subnormal accommodation, and exercise with prisms, base in, to relieve a spasm of accommodation. These exercises, particularly the latter, constitute a very useful application of prisms.

Vision in the Ocean Depths

It seems a contradiction in terms to speak of "vision in the ocean depths," because, as we know, below a certain depth the ocean is pitch dark. But in an interesting contribution to *Cosmos*, by M. E. Hérichard, the writer tells us how those of the deep-sea creatures that need light in the pursuit of their prey manage to make it for themselves:

In the Deepest Depths

Dredging shows that the great depths of the sea may reach 8000 or even 9000 meters (28,000 to 30,000 feet); at this depth, as we go farther and farther, the temperature diminishes and tends to approach zero; there is an increase of pressure of one atmosphere for every 10 meters (32 feet) of depth, and finally the light grows rapidly feeble, until below 400 meters it no longer penetrates; there is eternal darkness. Plants, not being able to grow without light, disappear at this level; as a first consequence of life in the darkness all animal life found below it must be carnivorous; there also result important modifications in the organs of vision.

According to the transformist theory, every organ not in use atrophies and finally disappears—a fact that had been verified in the case of vision by creatures living in caves or under ground, before the study of great ocean depths had been prosecuted. Nevertheless in this latter medium

species belonging to three essentially different groups—fishes, cephalopod mollusks and superior crustaceans—have organs of vision as perfect as possible, while with others the vision is almost entirely atrophied.

Huge Organs of Vision

By the side of creatures deprived of the sense of sight we have others provided with huge organs of vision, like a young fish with pedunculated eyes found at 2000 meters depth by the *Valdivia* (a German exploring vessel). This apparent paradox has been cleared up since the first expeditions; the darkness, in fact, is not absolute at great depths; certain animals are themselves a source of light, as is the glowworm on land, or the firefly and so many other species, especially in the tropics. Among marine fauna phosphorescence is a much more frequent phenomenon, especially at great depths; it is due either to a peculiar mucous secretion on the surface of the animal or to special organs that give out light in flashes.

The crustacean chrysophorus, a carnivorous swimmer, with enormous eyes, has luminous organs attached to these; two others ornament the upper part of the thorax, and still another pair the ventral surface. The structure of these latter organs is complex; they include essentially a reflector, shaped like a horseshoe, and a lens to concentrate the light. The organ that is attached to the eye is less complex, having no lens, but only a parabolic reflector.

These veritable projectors were at first taken by the anatomist for an organ of vision, and this is not astonishing, for all the animals studied were then dead, and as their lanterns were all extinguished their analogy with the eye was complete.

An Illuminating Organ

The luminous organ is found in perfect condition in the cephalopods obtained by the *Valdivia*, and it was even possible to photograph some of them by their own light. Among the fishes these special organs are not less numerous and varied; in the stomiades there is a double set of luminous organs, one set being by the side of the fishing-filaments.

The function of the organs that accompany the eyes is to illuminate the surrounding space to enable the animal to perceive its prey. Several hypotheses have been advanced regarding the rôle of the others; they may serve to dazzle and attract the prey as a lamp attracts a moth.

Although other creatures of the deep sea do not see, this is because of their different habits; the absence of eyes is an absolute characteristic of a sedentary life, and the swimming creatures all see.

At the surface, the eyes of the cephalopods strongly resemble those of the vertebrates; while, generally speaking, crustaceans have faceted eyes. Extner has shown that in the light each facet furnishes a special image, but that in the dark the images become one by superposition; thus the luminous sensation may be sufficiently strong even with a very feeble illumination.

The disposition of pigment in the eyes of the deep-sea crustaceans is always that which is determined by darkness in the case of analogous surface creatures, and a large number of the crustaceans of great depths are even wanting in pigment entirely.

So-Called Telescopic Eyes

A very important fact about this structure of the eyes, is that this adaptation to the environment is found equally in three very different groups; it must therefore be absolutely necessary. To this special arrangement of the eyes, in long parallel tubes, Chun has given the name of "telescopic eyes." The structure is peculiar—no diaphragm, huge crystalline lens, and proportionately large retina. These telescopic eyes are intended to grasp the image of moving luminous points, showing the presence of other creatures at short range.

Here is precise correlation between environment and organ, a correlation that becomes striking when we study the crabs. Among species that live at the surface, while certain ones run about, others remain almost constantly in the earth; the eyes are much more developed in the former. In great depths, this difference is much exaggerated; the species that are unable to mount to the surface at any period of their lives do not see.

Thus are cleared up, taking account of the conditions of existence, many facts of atrophy or organic disappearance that have hitherto been unexplained.

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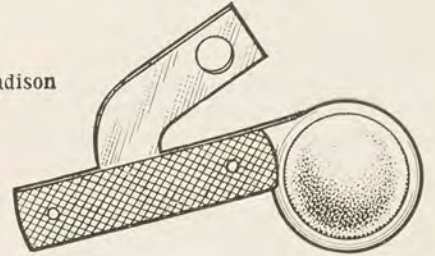
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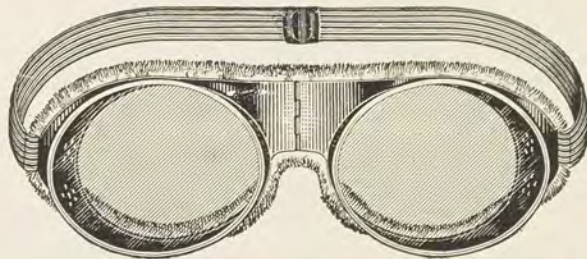
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Code of Ethics for Opticians

(Continued from page 993)

in placing his case in his care, should not be abused. No exaggeration of the patient's visual imperfection should be made, to influence the sale. The welfare of a patient's eyes, his good will and personal comfort should be above the desire to make a sale, and if the patient does not need glasses, he should be told so, and charged the regular examination fee.

Section 2.—Cases that in any way indicate the need of medical treatment, should be referred to a competent oculist or to the family physician.

ARTICLE III

DUTIES TO PHYSICIANS

Section 1.—Our duties to physicians should not be ignored. No optometrist should include in any criticism of the medical men, but we should deem them our best friends, and endeavor to work in harmony with them as far as possible.

Section 2.—It is deemed unwise for an optometrist to recommend the use of any drug or eye lotion for diseased eyes, but he should advise all patients so afflicted to consult medical authority.

ARTICLE IV

DUTIES TO THE PUBLIC

Section 1.—An optometrist should be diligent in enlightening the public regarding the care of the eye, and the causes and dangers of defective vision and eyestrain. He should constantly endeavor to raise the standard of competency among optometrists and do all in his power to preserve legislative recognition of the practice of optometry, afterwards being vigilant to keep it effective and beneficial.

ARTICLE V

PRACTICES

Section 1.—It is deemed unprofessional for an optometrist to canvass from house to house, but he may make professional calls upon request, the same as physicians.

In adhering to this code, the refractionist will be doing full justice to himself, his patients and his profession. It will advance him greatly in the estimation of the public, and place him in a position to command such liberal fees for his services as the dignity and delicate character of his calling should command.

New Jersey State Optical Society

The second annual meeting of the above society was held recently at the Continental Hotel, Newark, N. J. Before proceeding to practical business the members partook of supper in the dining room. President G. F. Applegate called the meeting to order and the minutes of the last annual gathering were read and approved.

The following members were admitted at this meeting: Ernest H. Smith, Vineland; J. A. Gillesheimer, Philip Noshier, W. S. Gwynne and Chas. E. Miller, Newark; F. Goldblum, Rahway. In his annual address the president spoke of the desirability of getting a hearing in the daily journals of the State in the presentation and furtherance of their efforts to purify and legalize their work. He said it was to be regretted that there had been practically no record in the daily papers of the recent important Albany committee hearing of the New York optometry bill, and that, in fact, many of the newspapers had refused outright to discuss the matter at all. He realized, he said, that for some unknown reason nothing in this direction was to be expected from the great city papers, but that every optometrist living in the

smaller towns should use the columns of the newspapers of his own place.

The principal speaker of the evening was P. A. Dilworth, of New York, whose paper on "The Ophthalmoscope" appears on another page.

The executive committee recommended the official adoption of the minimum price-list of the Rochester Optical Society, the various members to use the same as far as local conditions permit, and to mould opinion in their various cities with a view to its general adoption. Instructions were given the secretary to procure copies of this list and distribute them among the members, and at the same time request them not to lower the prices for repair work. The respective reports of the secretary and treasurer were submitted and showed a membership of eighty-nine and a satisfactory balance in the treasury. The following officers were elected for the ensuing year: President, F. H. Hewlett, Paterson; vice-president L. B. Hilborn, Newark, N. J.; secretary, J. J. Hartman, Newark, N. J., treasurer, L. A. Rochat, Jersey City; executive committee—R. G. Smith, chairman, Jersey City; O. O. Stillman, New Brunswick, N. J.; L. B. Hilborn, Newark, N. J.; H. E. Pine, Bridgeton, N. J., and James Wheeler, Salem, N. J.

The attendance included: L. B. Hilborn, F. D. Jackson, E. C. Kerr, W. H. Podesta, C. E. Bail, L. A. Rochat, P. A. Dilworth, R. G. Smith, E. Le Roy Ryer, T. C. Leaming, Geo. Wilking, Fred. H. Hewlett, F. Goldblum, Philip Noshier, J. A. Gillesheimer, J. Edward Jaekle, Joseph Vilanoh, George F. Applegate, Caleb Dickinson, William P. Short, W. E. Gwynne, J. F. Decker, James S. Wheeler, C. J. Brotherly, Joseph J. Hartmann, R. M. Lockwood.

Frederick H. Hewlett, of Hewlett & Sachs, Paterson, N. J., the newly-elected president of the New Jersey State Optical Society, whose portrait is here shown, was born at Mount Kisco, N. Y., on September 20, 1859, and has been in the optical business for thirty years, having entered the factory of the Spencer Optical Co., at Mount Kisco, in December, 1875. His next connection was with the New York Optical Co., New York City. Other metropolitan firms with which he



President Frederick H. Hewlett

was engaged in the years that followed were F. A. Cook, E. B. Meyrowitz and GaNun & Parsons. He afterwards opened business as a manufacturing and jobbing optician in New York, but in 1891 he went to Paterson and, in partnership with Chas. H. Sachs, opened under the firm-name of Hewlett & Sachs, the retail optical concern with which he is now identified. He is a business man of the progressive type, and with his ripened experience in the trade should prove a worthy chief executive of the New Jersey Society.

Rochester Optical Society

The Rochester Optical Society, Rochester, N. Y., has elected the following officers for the ensuing year: H. M. Bestor, president; L. L. Mincer, vice-president; C. I. Sumeriski, secretary; H. C. Mielke, treasurer. Executive committee: Messrs. Benedict, Newman, Bliss, Pellow and Handy.

New York City Optical Society

The above society held its regular monthly meeting at Lexington Assembly Hall, New York, on Friday evening, May 12th, President E. LeRoy Ryer in the chair. The business session was occupied with the reading of the minutes, the election of Albert Cohen to membership and the authorization of bill payments. It was decided to revert to the original meeting arrangements and, accordingly, the society will assemble in the Fifth Avenue Hotel on the second Wednesday of each month in the future. The secretary was instructed to make all the arrangements necessary for the change. After an exhaustive discussion of the question of adopting a minimum price-list, it was decided to at once set about obtaining the signatures of all who were willing to adopt such a list. The movement was inaugurated there and then; President Ryer headed the list and these members followed suit: R. M. Lockwood, P. A. Dilworth, Willard B. Fisher, A. M. Frankel, A. B. Barrow and W. S. Hohl.

The scientific session consisted of a lecture by President LeRoy Ryer, on "Means for Estimating Correctly the Differences that May Exist Between Two Eyes." The following questions evoked by the question box were fully discussed:

1. In testing hypermetropia subjectively, should the correction be that lens which blurs slightly or the strongest one that gives perfectly clear vision?
2. When should the full myopic correction be given, and when should it not?
3. Should myopic astigmatism always be fully corrected?

Lowell Optical Society

A special meeting of the Lowell Optical Society was held at the rooms of the New England Optical Company, in Lowell, on the evening of April 20th. There were about twenty local opticians present who listened to a very interesting and instructive address by Dr. Wm. A. Earle, of Boston, on "Methods of Refraction." Dr. Earle began his talk by giving in detail his own methods of refracting a case, and in the course of his talk gave many practical points on measuring the various forms of errors of refraction. At the close of the meeting the society extended to Dr. Earle a vote of thanks for his valuable address.

We are glad to report that interest in the society is growing, and that the membership list is increasing.

Rhode Island Society of Optometry

The regular monthly meeting of the Rhode Island Society of Optometry was held in Prescott Post Hall, 124 Washington Street, Providence, R. I., Monday evening, May 1st, with First Vice-President W. J. Davis, of Woonsocket, presiding.

The regular routine business was transacted, and John E. Ward, of Providence, was elected to membership.

The committee on securing certificates presented a very handsome design drawn by E. A. Wright, of Philadelphia. It was unanimously adopted by the society, and the secretary, who was chairman of the committee, was instructed to procure same. It is an exceptionally-pretty certificate.

The committee on revising the by-laws made its report, which will be acted upon at the June meeting. The question box was opened and the questions were discussed at some length by the members present. Those most prominent in the discussion were: Messrs. Tarbox, of Pawtucket; Fellman, of Woonsocket, and Cyrus Blake and S. A. Dodge, of Providence.

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Missouri and Kansas Associations Meet in Joint Session at Kansas City

Genuine interest, earnest endeavor and confidence in future success marked the joint meeting of the Missouri and Kansas Associations of Opticians, held in Kansas City, May 9th and 10th. The convention surpassed that of the previous year in attendance and enthusiasm when considered separately, but in joint session this was doubly true. It was a success in every way, and there was considerable talk among the members present from both associations of holding another joint meeting next year in the metropolis at the mouth of the Kaw. The two associations met separately at the morning session on Tuesday. At the afternoon session they came together, and each session thereafter was a merged meeting. This convention was the first joint meeting of the two organizations.

Relations Between the Wholesale and Retail Dealers

The sessions of the joint convention furnished quite a number of indications of the exceedingly pleasant relations which exist between the jobbers and their customers in the retail trade. The Kansas City wholesale houses, both in the optical and jewelry trades, united in giving the convention a very hearty reception and a generous and thoughtful welcome, which was very much appreciated. They were constant, through some of their representatives, in attendance on the sessions and in extending in many ways courtesies to the members. Indeed, the cordial and hospitable spirit evidenced by the wholesalers and the local optical people of Kansas City contributed much to the pleasure of the members and the success of the convention. This same spirit made the out-of-town members of both associations feel that Kansas City was the right place to hold another joint session next year.

Much of the success of the meeting was due to President Lane, of the Southwestern Optical College, and Chas. L. and Fred. C. Merry, of the Merry Optical Company. These gentlemen were untiring in their efforts to make the convention profitable, educational, pleasant and successful.

Separate Meetings

At the separate meeting of the associations, Tuesday morning, only routine business was transacted. President Hatch, of the Missouri Association, made an address, reviewing the work of the association for the past year. Being a resident of the capital city of the State, he had done a large amount of work before the State legislature the past winter for the association's bill to regulate the practice of optometry in Missouri. Mr. Hatch said he was well received by the legislators, and had every reason to believe that the bill would have passed and become a law but for the great amount of business on hand and the little time for it on account of the large amount of time being taken up by the senatorial deadlock. He felt encouraged to say that prospects were good for the bill two years hence, when the legislature would again be in session.

President Thomas Gowenlock, of the Kansas Association, in his opening address gave his experience with legislatures and suggested ways and means of securing proper legislation to regulate the practice of optometry in that State. Mr. Gowenlock said it was the purpose of the associations to secure stringent laws in both States, and that they proposed to keep up the good work

until they had their bills passed and on the statute books. He further said: "The associations of both States had bills up before the last two legislatures, but in Missouri the senatorial deadlock prevented the bill from being reported and in the Kansas legislature the committee on hygiene and public health, composed of doctors, killed the bill without reporting it. It is easy to see which way the wind blows when the doctors oppose such necessary measures. There is nothing more precious than the human eye, and why should it not be protected? We propose to have State boards of examiners appointed to license opticians, so that only competent men can practice."

Joint Meetings

Tuesday afternoon the two associations met in their first joint session. The meeting was opened by President Hatch, of the Missouri Association, who introduced Mayor Neff, of Kansas City, who delivered an address of welcome.

President Hatch followed with a neat welcome from the Missouri Association to their brethren from Kansas. President Gowenlock replied in his usual happy vein. Dr. Lane next gave an interesting and forceful optical talk of thirty minutes. He began by saying that, after all, it was knowledge and skill that was needed to build up the optician in his profession. It was good to meet in annual convention to review the past, discuss the present and make plans for the future. We may not be able to do all we desire, but much has been accomplished and more remains to be done. But this one thing we all can do—get knowledge. This can be done in our every-day work and in quiet study in our homes after the day's work is done. When we have the proper knowledge and the thorough skill to meet every emergency, then we are bound to command the respect of the entire public, not excluding the medical profession.

An illustrated lecture on the eye, covering both normal and abnormal conditions which interest the optician, was next given by Dr. Earl J. Brown, with Geneva Optical Company, of Chicago, who was listened to by a fine audience. Dr. Brown is a familiar figure at both national and State association meetings and never fails to interest his hearers. He talked interestingly for over an hour, illustrating the natural eye on the screen in every condition imaginable, and was clear and practical in description. Dr. Brown's lecture closed the afternoon session.

The Banquet

The two associations were tendered a banquet Tuesday evening, at the Midland Hotel, by the jobbers of Kansas City, the arrangements being in the hands of a committee consisting of President S. W. Lane, of the Southwestern Optical College, chairman; Charles L. Merry, of the Merry Optical Company; W. G. Riggs, Columbian Optical Company; Charles C. Hoefer, Woodstock-Hoefer Company; Geo. H. Edwards, Edwards & Sloane Company; C. B. Norton, C. B. Norton Jewelry Company; C. A. Kiger, of C. A. Kiger & Co.; Louis Meyer, Meyer Jewelry Company; Fred. Krueger, of Dorst & Company; A. E. Pittenger, president of Kansas City Horological School; Carl Kionka, of Kionka & Stuhl, and W. S. Smythe, editor *Kansas City Jeweler and Optician*. Covers were laid for one hundred people in one of the dining rooms of the hotel. Back of the speaker's table, in an adjoining room, was a table occupied by the jobbers and by men of local prominence, who contributed their efforts toward making the affair the brilliant success it proved to be. S. W. Lane was toastmaster, and

he introduced the speakers happily. A. H. Hatch, the president of the Missouri Association, responded to the first toast, "Missouri," in a pleasing manner and voiced the thanks and appreciation of the members of the two associations for the cordial hospitality with which their stay in Kansas City had been accompanied.

President Gowenlock, of the Kansas Association, was the next speaker, with "Kansas" as his theme. Mr. Gowenlock delivered the most unique, forceful and eloquent after-dinner speech that we have had the pleasure of listening to in years. He carried everything before him and kept playing with his hearers until they kept crying for "more, more, more!" His address was thoroughly enjoyable and a regular gem in its way.

E. A. Krauthoff, secretary of the Kansas City Association of Credit Men, was asked to respond to the toast "Astigmatism," despite the fact that he is an attorney by profession and a stranger to the science and practice of optics. Mr. Krauthoff delivered an ideal after-dinner address, full of good points and interesting from start to finish. He is graceful, witty and at times eloquent, and is an unusually accomplished and cultured speaker.

Hon. L. C. Boyle, an ex-attorney general of Kansas and at present a well-known member of the Kansas City bar, delivered a spirited and finished address on "Hypermetropia." He contrasted the business of the optician who asks only a fair field and no favor to sell goods of known worth at a legitimate profit, with the class of financiers which deceive investors into buying something of unknown worth at many times its actual value and later forcing them to sell the same unknown quantities back at a fraction of their cost.

Election of Officers

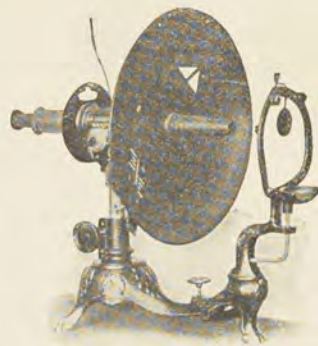
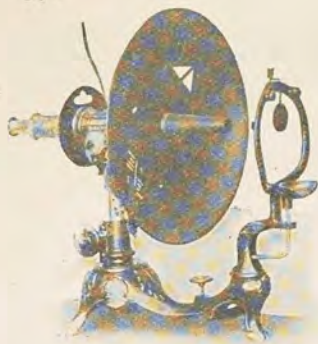
The associations of the two States separated for the election of officers. The Missouri Association reaffirmed the scale of prices in effect last year, and in special session elected the following officers: C. M. Wheeler, Columbia, president; Charles Smith, Boonville, first vice-president; C. E. Ring, Clinton, second vice-president; E. H. Schmidt, Washington, secretary and treasurer. The association also reaffirmed the minimum scale of prices in effect last year. The Kansas Association adopted the code of ethics promulgated by the Rochester Association, relating to treatment of customers and competitors. It elected the following officers: F. W. Hunt, Burlingame, president; L. E. Armel, Holton, first vice-president; Walter Sperling, Seneca, second vice-president; H. T. Corson, Kansas City, Kans., secretary and treasurer.

The Kansas contingent to the convention was as follows:

Jules A. Bourquin, Horton.	J. H. Talbert, Kingman.
W. Lou Speer, Argentine.	C. A. Wilson, Wichita.
C. H. Paxton, Paola.	W. C. Wagner, Osage City.
F. W. Hunt, Burlingame.	Otto Burklund, Osawatimie.
W. J. Lewis, Topeka.	L. E. Armel, Holton.
H. T. Corson, Kansas City.	Walter Starke, Junction City.
Frank Kassell, Pittsburg.	J. A. Mosher, Burlington.
Magnus S. Hall, Mankato.	Walter Sperling, Seneca.
Thomas Gowenlock, Clay Center.	W. A. Crawford, Kansas City.
L. J. Grimm, Jewell City.	F. W. Bartlett, Leavenworth.
D. D. Hillabold, Canton.	S. F. Berner, Wamego.
Vance N. Robb, McPherson.	Frank Kilgore, Caldwell.
Perry E. Miller, Wellington.	F. W. Reed, Wichita.
J. H. Newell, Lyndon.	S. F. Miller, Tonkawa, Okla.
E. T. Lord, Quenemo.	J. C. Diss, Lawton, Okla.
C. C. Stevenson, Pittsburg.	L. E. Hendrickson, Osage City.

The Missouri contingent comprised:

Claude M. Wheeler, Columbia.	Leon Baer, Kansas City.
A. H. Hatch, Jefferson City.	S. J. Huey, Excelsior Springs.
J. M. Pollard, Mexico.	Charles W. Frodsham, Savan-
C. E. Range, Trenton.	nah.
Wm. Westphal, St. Charles.	Thorwald Kolstad, Pleasant
John J. Dowley, Dexter.	Hill.
C. F. Bass, Huntsville.	W. H. Meyer, Lawson.
James R. Cary, Dexter.	Louis Megede, Richmond.
J. Kechnel, Hale.	F. D. Ormond, Sedalia.
Elmar H. Schmidt, Wash-	C. W. Crosby, Kansas City.
ington.	Geo. T. Field, Marshall.



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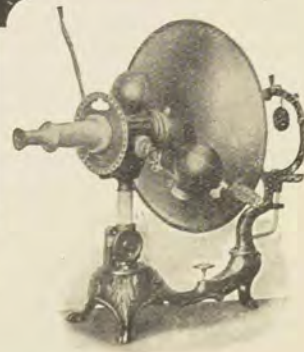
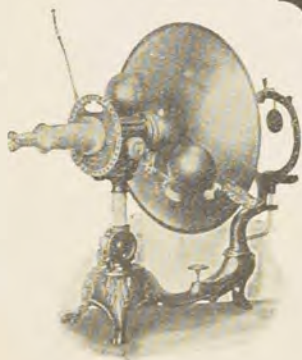
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Optical Questions and Answers

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.

"J. T."—Please tell me how you make your cement for bifocal lenses—your very best cement. Please tell me the best lotion for irritated eyes or granulated lids—something that I could prepare myself. How many drops of belladonna would it be advisable to drop in a person's eyes before examining?

Canada balsam is used to cement bifocals; it can be obtained from any optical jobber.

The most satisfactory eye wash for inflamed eyes is a solution of boracic acid in the proportion of ten grains to an ounce of distilled water, or a half teaspoonful to a cup of water when prepared by the patient himself. This is suitable for simple conjunctivitis, but is harmful if the cornea or iris is involved, and as keratitis and iritis are often mistaken for conjunctivitis, it is a safe rule to refer all such cases to a physician for treatment.

The crude drug belladonna is not used in the eye, but only its active principle, atropine, of which a solution is made in the strength of from two to four grains to the ounce, and one drop instilled into the eye and repeated if necessary. But this is a matter which optometrists would do well to leave in the hands of medical men.

"T. N."—Gentleman, age, thirty-seven, bookkeeper, has worn glasses for fifteen years. Has had various experiences with different "eye specialists" without relief. When he first came to me he was wearing, R. E.—1 ax. 180°; L. E.—.75 ax. 180°. With this correction his vision was $\frac{5}{8}$; by adding a —.50 sphere his vision $\frac{3}{8}$. With the cylinder alone his range was 5" to 12", without glasses it was 4½" to 33". Using the Roman type and the page containing your questions and answers. Test with Maddox rod at 6 m. showed orthophoria. By producing diplopia with a prism base up, it required 4° base in to fuse the vertical arrows. With these prisms still before him, two horizontal lines 6" long would appear connected at the right-hand end and the one seen with the eye would appear ¼" lower than the one seen with the left at the left end. In the distant test without glasses, he could barely read the 20-foot line with the left eye, and the 30-foot with the right. I sent him to a physician for a mydriatic and got substantially the same result. These results were borne out with the Geneva retinoscope and with the ophthalmoscope attachment. I could detect nothing except a slight indication of scrofula. Now, what puzzles me is, that I can give him vision above the average, yet when he reads any length of time he gets what he terms a "blinding headache." I tried base-in prisms but soon discarded them and added a +1 sphere for near work, but nothing gives him satisfaction.

The history of this case would lead us to suspect hypermetropic astigmatism, instead of myopic. Because he was wearing concave glasses when first seen, does not, by any means, prove the existence of myopic astigmatism. The fact of the matter is that it is a very common error to mistake hypermetropic astigmatism for myopic. In such cases the accommodation is indirectly brought into action to neutralize the hypermetropic meridian; in doing this, it has an equal effect on the emmetropic meridian, which is thus made, apparently, myopic.

The principle involved is so important that we will use an illustration to make it more understandable. Suppose a case of simple hypermetropic astigmatism of 1 D., the defect being located in

the horizontal meridian, the correction for which is +1 cyl. axis 90°. Without glasses the accommodation is called upon to the extent of 1 D. This converts the horizontal meridian into a condition of emmetropia, and the vertical meridian into a condition of myopia. Now, then, with the accommodation in force when the glasses are placed before the eyes, the correction will be —1 cyl. axis 180°. In both cases the astigmatism is "with the rule," and the same relative difference is maintained between the vertical and horizontal meridian, the former exceeding the latter in each case by 1 D.

Under such conditions it is easily understood how the patient might be in doubt about the acceptance of convex cylinders, and then the optometrist, without giving the accommodation an opportunity to relax, changes to a concave cylinder, which is, of course, quickly preferred, after which it is impossible to return the convex cylinders, and the case is wrongly diagnosed.

We are told this case was sent to a physician for a mydriatic, but we have no definite report of the result. We would advise either the addition of a convex sphere to these concave cylinders, or convex cylinders, and advise their constant wear, even though they fogged distant vision for a time.

In order that a correct and definite understanding may be had of each case submitted, it is necessary that correspondents should give ALL the particulars asked for at the head of this page.

"E. G. L."—Lady, seventy years old, about three years ago came for glasses. She could not make out the largest letter on chart at 20 feet; +2 on each eye gave her $\frac{2}{80}$ vision good, and with +3 added for reading she was all right. Lately she has been having trouble with her right eye, and while the vision is good when she holds her head at a certain angle, if she moves it up or down, part of the letters (one side of the chart) will fade away, then she can adjust her head and see the chart again as good as with the other eye at certain angles. She sees double at a distance of 20 or 30 feet. What would you advise in this case?

This case calls for a thorough and careful ophthalmoscopic examination in order to determine if there are any opacities in the refracting media, or if there is any lesion of the retina or optic nerve. If diplopia shows itself at a distance of 20 feet, there is a loss of binocular fixation and a deviation of the visual axes. Perhaps this may account for the impairment of vision in certain positions. Presumably the left eye is the fixing eye, and the right eye the deviating one, but this must be definitely determined. Then is the deviation outwards or inwards, and what strength prism will correct it, and is base in or out? Unless our correspondent has confidence in himself that he can properly handle the case, we think it would be best to refer her to an oculist, for his own reputation and the welfare of the patient.

"H. E. U."—Lady, about thirty-eight years, who has never worn glasses, complains of her vision being blurred at times and that she cannot recognize persons across the street. I found vision without lenses to be: R. E. $\frac{2}{80}$; L. E. $\frac{2}{80}$. With the following correction on the right eye: —3 D. S. —.50 D. cyl. ax. 180°, vision was R. E. $\frac{1}{80}$, which was the best I could get it. But with both eyes together with the above correction on the right, vision was $\frac{2}{80}$. Muscles tested with the Maddox rod were found to balance all right. Examination was made with trial case. Would it be satisfactory to place that correction on the right eye and a plane on the left?

We are inclined to think that the glasses mentioned are too strong. A vision of $\frac{2}{80}$ would scarcely be possible in the presence of 3 D. of myopia. A patient with this amount of near-sightedness would scarcely be able to name the largest letter on the test card, that is, their vision is likely to be less than $\frac{2}{80}$.

The vision of the right eye has probably been defective for many years, and the retina is doubtless amblyopic. Under such conditions the opto-

metrist, in his desire to raise vision to normal, keeps adding stronger and stronger concave lenses, and as the patient does not always reject them, an over-correction is the result. A re-examination should be made, and convex spheres and cylinders tried first, if they have not already been used. If absolutely rejected, concaves may be tried with the above precautions in mind, and the very weakest found that affords the best vision. Inasmuch as left eye is normal, it is doubtful if glasses will be borne for constant wear. If not, then we would suggest the daily exercise of the affected eye with its proper correction, while good eye is occluded.

"R. W. C."—I regret that I did not give full particulars in my question last month. The girl's age is seventeen. Not very strong physically; stopped school in the junior year of high school. Has a bright mind; has deformed limb and hand. Had a stroke of paralysis when about one year old. Her vision in either eye is normal. Reads the normal line on the test card at 20 feet. Cycloplegic test reveals emmetropia (not any hyperopia). In fact, +.25 D. sph. clouds her vision, while under atropine. There is absolutely no error of refraction in either eye. I thoroughly tested this under atropine before I wrote you, which I should have stated. The manifest strabismus is the only trouble, and it takes a prism 8°, base out, to establish binocular vision, which glasses look odd, and are heavy, but she refuses to submit to tenotomy.

In view of the former attack of paralysis, the question at once occurs as to whether the strabismus present in this case is paralytic or concomitant. This is an important point that must be determined, and it can easily be done by watching the movements of the two eyes. In the concomitant form the squinting eye follows the good eye in all its movements in every direction. In paralytic strabismus there is an absence of movement in one direction—that is, in the direction of the affected muscle. The treatment will depend on which form of strabismus is present. In paralytic, a tenotomy is not to be thought of; rather, a course of treatment instituted to restore the innervation of the muscle. The fact that there is no hypermetropia present to cause concomitant strabismus, leads us to believe the deviation is paralytic, in which case it would be well to consult a medical man.

"E. R. W."—I have several cases when examining for muscular imbalance with the Maddox rod that the streak of light is seen in the same direction as the rod runs which is exactly opposite to the way it is seen in most cases. I was very particular to have it centered in front of the eye, and have tried to find what might cause it, and would like to know if you have had such experiences, and where the trouble is? One case is—girl of fourteen, with 2 D. of hyperopia, asthenopic and decided lack of duction power in lateral muscles, add. 15°, abd. 5°. Another—young man twenty-five years, eyes inflamed, vis. each eye, $\frac{2}{80}$ +, ref. com. hyp. ast. with oblique ax.; not wearing glasses, duction weak, add. 18°, abd. 3°.

The Maddox rod is simply a strong cylinder, and knowing the action of such a lens upon light it is impossible that the streak of light should run in the same direction as the rod. It must be at right angles; this is a law to which there are no exceptions. There may be other sources of light than the single point of light that should be looked at, which may tend to confuse the patient, but the invariable law is as above stated.

In the case of the girl, the hypermetropia should be corrected as fully as possible, and this will probably afford relief to the asthenopic symptoms.

In the young man's case, it goes without saying that the compound hypermetropic astigmatism should be carefully corrected, and instructions given to wear glasses constantly.

The knowledge of the duction power of the external and internal recti muscles as given in these two cases is of little value in the absence of other tests. The fact is these duction tests are often misleading because the patient does not seem to understand what is expected of him and hence the full power of the muscles is not always determined.

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This remedy is distilled from pure botanical products that have been positively demonstrated to possess active properties—Antiphlogistic, Antiseptic, mildly Astringent, Absorptive and Tonic—which properties, united in perfect harmony, constitute a reliable bulwark of defense and curative strength—unsurpassed for the protection of the Eye and the treatment of Eye-ills.

The discovery that MURINE is *non-irritant* and *harmless under all conditions*, while at the same time the most powerful eye curative yet evolved by medical science, has led to the adoption of MURINE by oculists and others needing eye preparations.

The soothing, sedative and anti-inflammatory effects of MURINE, due to the unequalled absorptive action on irritated and diseased membranes, has placed it prominently before the medical world, to the supplanting of many of the irritating, smarting, burning treatments of the old school, as a collyrium with which to subdue irritation, congestion and inflammation, and for the suppression of disease-processes in the ocular membranes and tissues.

To prescribe MURINE, to use MURINE, is equivalent to the removal of eye troubles in so far as a collyrium may be effective. Errors of refraction often cause strained and diseased conditions of the eye and eyelids; these errors must be corrected by *properly fitting glasses* in order to make effective the relief afforded by MURINE and to prevent their recurrence.

MURINE EYE REMEDY has steadily but surely grown into general favor with the medical profession, as well as with the non-professional, and in the home as a household "ready to use" eye cure.

MURINE has won on its merit, has spared countless thousands the terrors of surgery, and restored normal eyesight and eye comfort to an army of people in whose cases surgery would have otherwise been adopted. There are many eye troubles requiring operative work—and in every such case MURINE should be used before and after the operation.

MURINE is prepared in two forms, liquid and ointment. The former is termed MURINE EYE REMEDY, the latter MURINE EYE SALVE (Unguentum Hydro-Murine), and is more especially indicated in diseased conditions of the eyelids.

MURINE is not an "Eye Water," but a remedy that cures a wide range of eye diseases ordinarily treated by the oculist.

MURINE is offered as the only safe preparation known that is effective in the relief of congestions and will obviate the use of mydriatics.

MURINE does not dilate the pupil; causes no pain; but clears the transparent medias of the eye. Professionals often feel the need of a collyrium, where congestion or inflammation is present, in order to prepare the eye for a proper measurement for glasses, but in view of the fact that there is such a large number of eye waters and drugs suggested for this purpose, which have caused discoloration—opaque spots—weakness of vision—and in many cases entire loss of sight, much caution should be exercised in the selection of the vehicle used.

MURINE is a distillation, *highly concentrated* but *absolutely harmless* even in the eyes of a nursing infant. It contains the *astringent, antiphlogistic, tonic* and *antiseptic* qualities so much desired by the eye specialist, and is used largely by oculists and the medical profession throughout almost the entire world. At the same time it is safe as a *Home Remedy*.

THE MURINE EYE REMEDY CO. OF CHICAGO, ILL., U. S. A.

numbers among its associates prominent oculists who personally preside over its laboratory, and is the only company thus professionally manufacturing an *Exclusive Line of Eye Remedies* of which MURINE is the essential and standard.

OTHER MURINE REMEDIES

MURINE EYE SALVE (Unguentum Hydro-Murine) for inflamed eyelids, scales on lids, lost eyelashes, cysts, styes, ulcers, etc.

BANENE (taken internally) for cloudiness of vision, impaired circulation, floating spots before vision, cataract absorbent.

GRANULINE, for old chronic cases of sore eyes and granulated eyelids.

OLIN'S RED CLOVER COMPOUND (Pink Tablets) for sore eyes, resulting from blood disorders, completely purifies the blood. A very effectual remedy.

HYDRONE, an eye bath for cleansing eyes from matter discharge—and for the socket where a glass eye is worn.

OXIDO-FLARINE (Salve) clears up opacities (spots) and cloudiness of the cornea when due to a syphilitic taint, or other blood disorder, cures ulcers and running sores on edges of eyelids.

HYDRARGYRINE (Powder for local application) will remove spots (opacities) of the eye (cornea) which are the result of inflammation or injury.

SULPHO-FERRINE, a systemic tonic in eye cases.

Prepared only in the Laboratory of the **MURINE EYE REMEDY CO.**

Sold by all Drug and Optical Jobbers

CHICAGO, ILL., U. S. A.

Eleventh Annual Convention of the New England Association of Opticians

THE eleventh annual convention of the New England Association of Opticians, held in Boston on May 16th and 17th, was the most successful ever held in the history of the association and in point of numbers was the largest optical convention as yet held, with the exception of one or two of the annual meetings of the American Association. The register contained 208 names, and while the great majority of these were from New England States, yet there was a sprinkling from New York, Pennsylvania and several other more distant States. The convention was held in the same halls as used by the American Association three years ago—the most successful meeting ever held by the National Association.

This is the second year that the association has made an effort to have an exhibit, and the showing made on this occasion was very creditable and far in advance of the showing made last year. The exhibitors reported excellent sales at the convention and will probably be back with finer and larger displays next year. The business meetings of the society were well attended and the largest ever held. The papers were all of a high character and the discussions which followed their reading indicated the interest with which they were listened to.

The Opening Session

The morning hours of the first day, the 16th, were given over to the inspection of the exhibits in the lower hall, the registration and distribution of a large silk badge appropriately worded. The first business session was held in the afternoon and was called to order by President Hardy. The minutes of the previous meeting were read and the reports of the secretary and treasurer were received and show the association to be in a very flourishing condition. The active membership is now 114, and the treasurer's report showed that they had a comfortable balance on hand. R. C. Thompson, chairman of the programme committee, reported receipts of \$320 from advertising, and that after all expenses were paid the committee would have over one hundred dollars profit to turn into the association's treasury. This was received with applause, after which the chair appointed Messrs. Ward, Donovan and Klein as tellers in the annual election. Later in the session the tellers made their report, as follows: President, Albert A. Carter, Boston, Mass.; first vice-president, William L. Thomas, Boston, Mass.; second vice-president, E. A. Flye, Gloucester, Mass.; treasurer, Walter W. Slade, Boston, Mass.; secretary, George A. Barron, Boston, Mass. Executive committee: M. J. Atherton, Boston, Mass.; Howard C. Doane, Boston, Mass.; F. P. Simmons, Boston, Mass.; E. A. Flye, Gloucester, Mass.; W. R. Donovan, Boston, Mass. Trustees of funds: Briggs S. Palmer, Boston, Mass.; A. G. Barber, Boston, Mass.; W. E. Hicks, Boston, Mass.; G. H. Newell, Lynn, Mass.; G. W. Mansfield, Boston, Mass. Membership committee: N. T. Worthly, Jr., Bath, Me.; F. M. Drisko, Dorchester, Mass.; C. N. Quimby, Boston, Mass.; C. S. Hart, Lynn, Mass.; W. E. Wright, Keene, N. H. For representative to the annual convention of the American Association: Eben Hardy, Boston, Mass.; alternate, Briggs S. Palmer, Boston, Mass.

Papers and Discussion

The first paper on the programme was read by J. W. Barber, of the Barber Advertising Agency. Mr. Barber discussed "advertising" as a general proposition. He is well qualified to talk on the subject, as he has been connected with an advertising

agency for a great many years and has made a very close study of the subject. He believed that the newspapers were the best mediums for advertising as a general rule and quoted in support of his opinion the experience of a great many of the largest advertisers in this country. The reading of the paper was followed by a discussion on the subject, and Mr. Barber answered many questions that were propounded to him.

The next paper was read by D. C. Doleman, of A. J. Lloyd & Co., of Boston, on "Toric Lenses and Invisible Bifocals." The portion of the paper dealing with toric lenses will be found on page 1009 of this issue; the remainder of the paper will appear in the next issue.

Mr. Doleman was followed by a paper prepared by E. E. Arrington, of Rochester, N. Y., on the "Minimum Price-List," which was read by Briggs S. Palmer. Mr. Arrington gave the history of the establishment of the minimum price-list in Rochester, where the movement was first started, and told how successful it had worked out in that place and also in other localities where the plan had been adopted, and strongly urged its adoption by the New England Association. The sentiments expressed in this paper seemed to meet with the general approval of the delegates present, and the best methods to be followed were closely discussed after the reading of the paper. Much consideration is now given to this matter by opticians all over the country.

Henry Kirstein, of Rochester, N. Y., forcefully endorsed the statements of Mr. Arrington as regards the success of the minimum price-list at that place, and stated that it had done more to establish confidence between the local dealers than anything they had yet done as an association. He, however urged caution in whatever action would be taken, as he stated there were legal risks in formally adopting a list of this sort and they might be charged as violating the anti-trust laws of the commonwealth. Mr. Doleman, who followed, thought that the best method of keeping prices on a proper level would be to force the manufacturers and wholesalers to refuse to supply the retail dealers who cut prices.

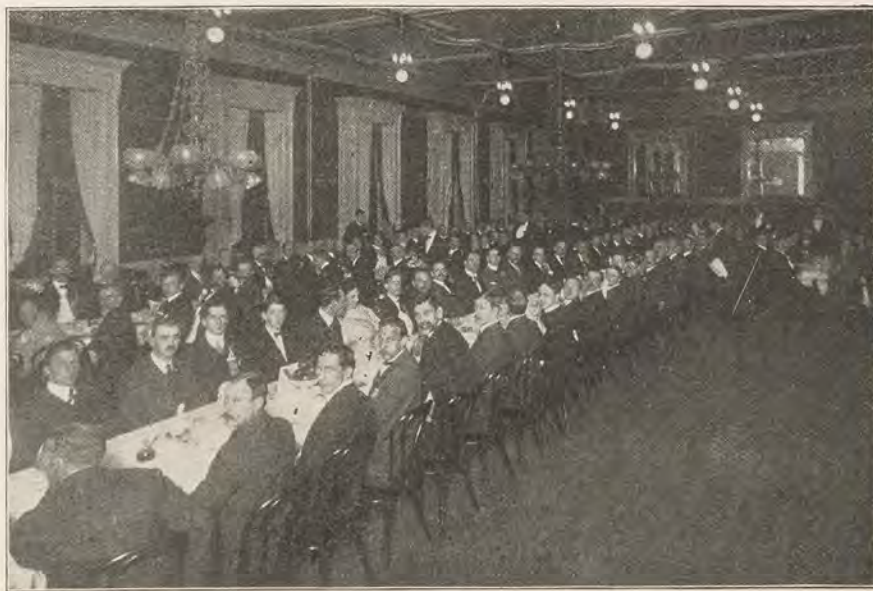
Mr. Fellman, representative of the Rhode Island Optical Society, stated that his society had been wrestling with this problem for some time past, but had not come to any decision as yet; but he believed they would follow the lead of the New England Association in whatever action would be taken. Mr. Fellman stated that the worst competition the optician experienced in regard to prices was with the jeweler who did some optical business on the side, as he seemed to be willing to sell optical goods at a lower price than the regular optician. He also thought that the question of charging a fee for examination was inseparable from the minimum price-list question, and that it was really the solution of the problem as to how they could adopt a list that would be satisfactory to the dealers in large cities as well as in the small places. He pointed out that in the big cities, where

better prices prevailed, the dealers could charge a larger examination fee; while in the smaller towns or in mill cities, such as the one he was located in, and other places where lower prices prevail, they would have to make the examination at a very much lower sum in order to retain the minimum price-list agreed upon.

It was suggested that the chair ask a showing of hands as to how many dealers had been using the minimum price-list, and about one-half of the delegates indicated that they had been doing so. After further discussion, it was agreed that the committee of five having the matter in charge should be increased to ten and instructed to make a report at the evening session.



President A. A. Carter

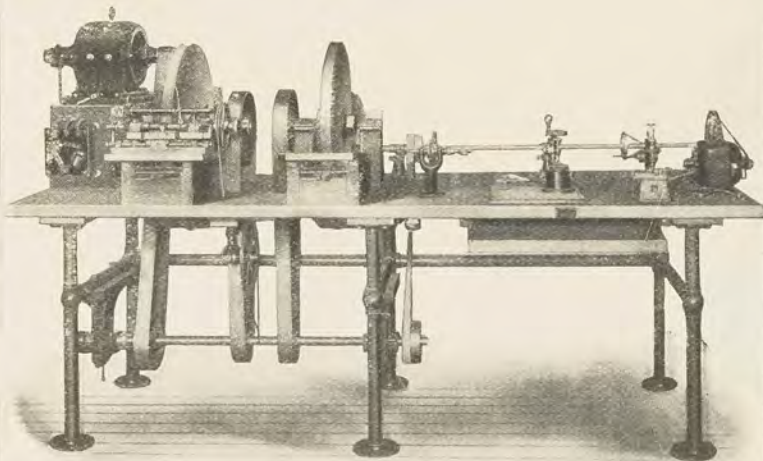


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New England Association

(Continued from page 1001)

The tellers having made their report on the election of the new officers, as indicated above, Mr. Carter, the newly-elected president, was called for. He thanked the members for the honor conferred upon him, and promised to bend all his efforts during the next year to advance the interests of the association and advance the interest of optometry in general, and hasten the day when the optician would be the only man who would furnish the public with glasses. A vote of thanks was then extended to the local dealers and others who had been instrumental in making the convention so successful, after which the meeting adjourned at 5 P.M., in order that the room might be cleared for the dinner which followed an hour later.

The Dinner

At 6 o'clock the delegates and visitors again assembled to partake of the luncheon which was furnished by the Globe Optical Co. and the Boston Optical Co. About 150 sat down at two long tables, running lengthwise in the hall. Provision had not been made for such a large number, so it was necessary to set a third table to take care of the overflow. When the coffee was served, Secretary Barron arose and moved a vote of thanks to the hosts for the entertainment. This was seconded by A. A. Carter and Wm. J. Benn. In his remarks the latter stated that, with the possible exception of Rochester, there was no city in the country that had made such a record for holding and entertaining successful optical conventions as Boston, and referred to the growth of the association and the large increase in the attendance, especially in the last two years, over the previous meetings. He also referred to the growth of the two companies who acted as hosts, and that a great deal of the credit for the success of the many optical meetings held in Boston was largely due to the untiring efforts of Mr. Barber, of the Globe Optical Co., who was one of the charter members of the New England Association, and an active worker ever since its organization. These senti-

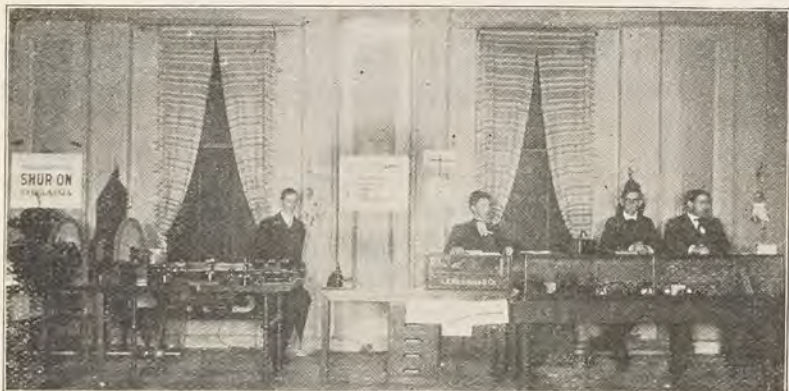


Exhibit of Globe Optical Co.

ments met with a hearty response, after which the motion for thanks was formally put by the president and was heartily responded to. President Barber, on behalf of the Globe Optical Co. and also of the Boston Optical Co., thanked the speakers for their kind expressions regarding himself and his company, and said they were very glad to be able to co-operate in making the meetings successful. The company then dispersed, and the hall was cleared for the evening session.

Evening Session

The evening session began about 8 o'clock and was opened with an address by Dr. C. H. Brown, of the Philadelphia Optical College, on "Prism Problems." This interesting and instructive paper will be found on page 1011, of this issue. At the conclusion of the address a number of the members asked the doctor his views on various problems connected with the use of prisms, and the doctor explained what his opinion would be and the best method for treating each case. He was followed by a comprehensive paper by A. Jay Cross, of New York City, on "Legislation for Opticians." Mr. Cross gave in detail the efforts that had been made by the New York State Society to pass a bill through the State legislature and the opposition they had met on the part of the Medical Society.

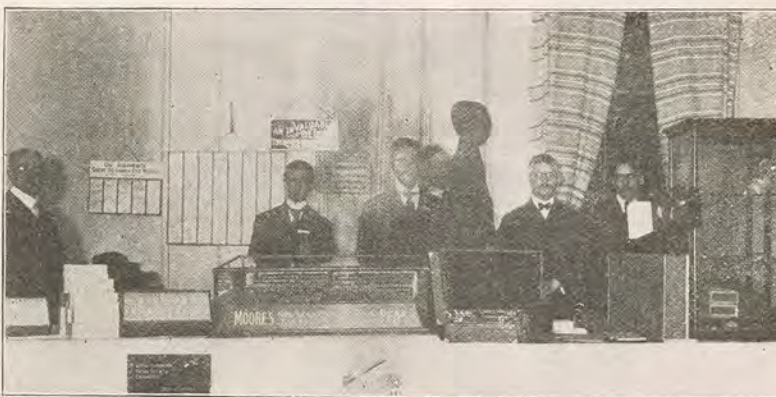
After the reading of this paper the committee on the minimum price-list made their report, suggesting a number of minor changes to be made in the prices that had been used by many of the members during the past few months. After discussion as to the best method of putting the revised list into effect, it was finally decided that the chair should recommend the use of the revised list to all the membership. The revised list will be printed and distributed to the members for their guidance. The meeting then adjourned.

The Exhibits

The exhibits were arranged on tables along both sides of the long hall. Entering on the left, the first exhibit was that of the Meyrowitz Mfg. Co., of New York, who displayed their new ophthalmometer, Finch mountings, pivot guards and amblyoscope, along with a number of other specialties

and optical goods. The exhibit was in charge of C. E. Piper and H. G. Herold. The De Zeng Optical Co., of Philadelphia, occupied the next space, and H. L. De Zeng, of the company, explained the advantages of his luminous ophthalmoscope, retinoscope and new ophthalmometroscope.

The next exhibit was that of the Globe Optical Co., and the special feature of the exhibit was their complete work bench, combining a lens drill, small motor, new composition grinding stones and automatic rimless edge grinder. This outfit was greatly admired and favorably commented



Exhibits of W. F. Cushman and Boston Optical Co.

upon. In connection with this exhibit was the display of the dynamo and other goods made by Kendrick & Davis. A. A. Waterman & Co. made a display of their fountain pens in connection with this exhibit, as the Globe Co. handle these goods in New England. The Globe Co. also displayed one of their new revolving tables and a line of opera glasses and lorgnettes. The exhibit was looked after by R. C. Thompson, F. M. Drisco, W. T. Wilkins, E. B. Nagel, C. A. Nagel and E. P. Leonard.

On the opposite side of the hall, the first exhibit was that of the R. F. Simmons Co., of Attleboro, who displayed a line of their eyeglass and guard chains and also made a partial display of their fobs and a general line of chains. The exhibit was in charge of M. A. Frohock.

The next space was occupied by M. J. Averbek, of New York, who displayed his new Flash self-filling fountain pen, in addition to a general line of jewelry, and was in charge of Asher Green and Charles Weizmiller.

The next exhibit was that of the Bay State Optical Company. Here, Mr. Chulee had a busy day in showing up the strong points of their new independent safe guard, a sample of which was given to each of the visiting delegates. Adjoining this exhibit was that of the Murine Eye Remedy Co., of Chicago, and here was exhibited the different eye remedies prepared by this enterprising concern. It was in charge of Charles Waldenburgh, their New England agent, who recently opened up an office in the Pond Building, Boston. Mr. Waldenburgh was assisted in handing out sample packages and telling about the merits of their remedies by Laurence Burnett, who for a time was attired in a very handsome special uniform.

McIntire, Magee & Brown, of Philadelphia, were the next exhibitors, and Mr. McIntire, of the firm, personally had charge of the exhibit, which was confined to a few of the firm's specialties, Kachoo mountings made without stud screws, Powell condensing lenses and several styles of a fine special bending pliers.

The next exhibit was a large display of motors and a new upright lens drilling machine by W. Green & Co., New York. The motors and drilling machine were all in operation, and their noiselessness and easy running attracted the attention of the visitors. The motors shown were the latest models recently placed on the market, while this was the first time the lens

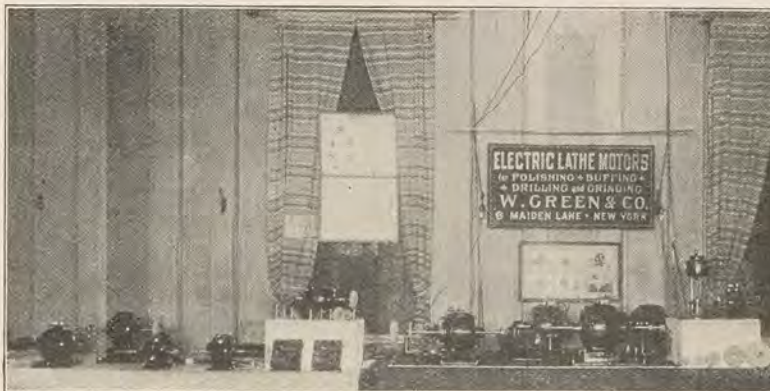
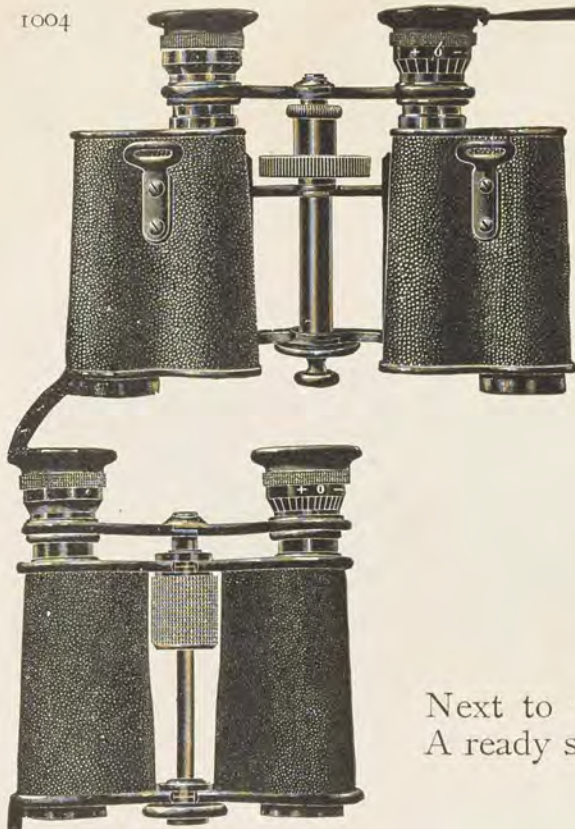


Exhibit of W. Green & Co.

drill had been shown to the trade. W. Green, who was present in person, booked a large number of orders for both. He was assisted in explaining the advantages of the motors and drill by A. P. Waterman and George W. Boylen.

The Boston Optical Co. displayed a line of trial cases, automobile goggles and books on optometry. The display was looked after by F. R. Hardenbergh and James MacElroy. The next exhibit was a joint one of W. F. Cushman, who displayed a line of his well-known German eye water

(Continued on page 1005)



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New England Association

(Continued from page 1003)

along with a display of Moore's non-leakable fountain pens, in which Mr. Cushman is interested, of Adams, Cushing & Foster. The last exhibit on this side of the hall was that of E. Kirstein Sons Co., of Rochester, N. Y., and consisted of a display of Shur-on specialties and eyeglass cases. The display was in charge of Henry Kirstein, who is a prominent figure at most of the optical exhibits and conventions, at which he has acquired a reputation for being a "great mixer."

Trip to Southbridge

About one-half of the visitors made the trip to Southbridge on the 17th, to inspect the factory of the American Optical Company. The party traveled in a special railroad car to Worcester, from which place the trolley cars conveyed them direct to the lens plant of the company. The morning hour left, after their arrival, was taken up with the inspection of the two buildings devoted to the making of all kinds of lenses. The new, massive brick building, where the grinding is done, was first inspected and later the older wooden structure, which was the sole structure formerly used in this department, but now used for inspecting, washing, finishing and packing.

Here, as in the main factory buildings, the chief things of interest and the different operations, were explained by large placards, which gave the necessary information for a rapid inspection. Among those noted were the big generators of 400-horsepower, a compound engine of 900-horsepower, a stock of raw lenses of 250 tons, still packed in the boxes they came in from England and Germany, 100 tons of corundum, in bags, which is used for grinding the lenses, and 150 tons of emery in bags. This latter is used over and over again, by means of huge settling vats; also a refrigerating plant and a laundry. The big machine shop is also located in the basement of the old building, while up-stairs, where was seen the interesting process of



Exhibits of McIntire, Magee & Brown and Murine Eye Remedy Co.

finishing the lenses, was a vast series of bins capable of storing two million dozen of interchangeable lenses. The visitors were greatly impressed with the size and massiveness of the new lens building, with its thick brick walls, its cement floors and pillars, and the rows and rows of huge grinding frames, for making every conceivable kind of lens, working with great rapidity.

As the noon whistle blew and the 1700 odd employees, of whom about two-thirds are males, came pouring in great streams from the various buildings, the visitors were escorted to the new administration building in the front center of the main factory buildings. After a brief inspection of the splendidly-appointed offices of the president and secretary and treasurer, and the directors' room, the party were ushered into the new exhibit room on the top floor. This room had just been finished and was turned into a banquet hall for the occasion. After registering and being handed, as a souvenir a framed print of the company's complete plant, neatly boxed and appropriately inscribed, the party sat down to luncheon. The ride of an hour and a half and the hour's walk through the lens plant had given all a keen appetite, and the good things prepared and served by a Worcester caterer were enjoyed in full measure. After the coffee was served, Mr. Carter, the newly-elected president of the New England Association, arose and proposed cheers for the optical company, and these were given with a will and a feeling that only a good meal can inspire. President Geo. W. Wells, of the optical company, responded, and in a few words extended a hearty welcome to their guests. He expressed regret that the exhibit of all goods they made was not installed for their inspection, but promised that this would be ready before their next visit.

G. W. Fowler, of Lynn, Mass., who was of the visiting party, although not a member of the association, expressed his pleasure at the opportunity of visiting the plant and partaking of the company's hospitality. In addition to the print of the plant distributed to each visitor, he also found in front of his plate an eyeglass case, containing a gold filled, rimless eyeglass, with one of the newest-designed guards. The case was appropriately stamped in gilt with the name of the association and the company and the date. The visitors also carried away a neat menu card.

Shortly after one o'clock the inspection of the main factory buildings was begun, and, although the tour was made as rapidly as it conveniently could be made for a passing inspection of the countless things of interest that caught the visitor's eye at every turn, two full hours were taken up

before the party reached the starting point. As during the inspection of the lens plant, the visitors were divided into small groups, each in charge of one of the officials or department heads, as the best means of giving as nearly as possible a personal guide to each individual.

It was noted that almost all of the former buildings of wood have been replaced with more solid constructions of brick and iron, and great piles of loose brick are piled up outside ready for the construction of new buildings to take the place of the small part still remaining of the old wooden frames.

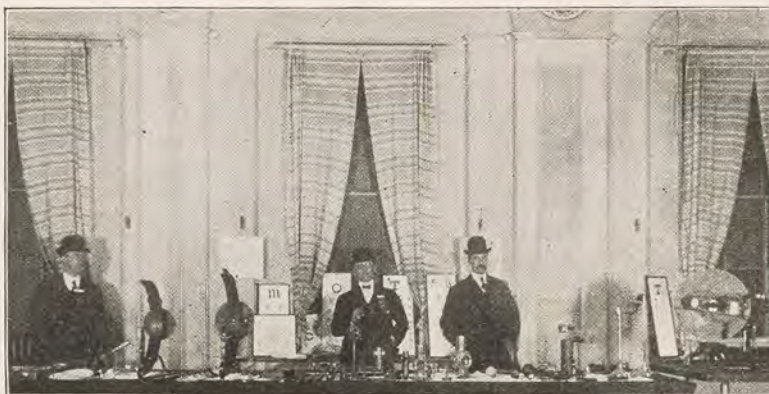


Exhibit of Meyrowitz Mfg. Co.

To the visitor of former years, the transformation was most striking, in the changes made in such a short period and without interfering seriously with the constant demand for goods. At a convenient point the visitors were taken outside and around the rear of the buildings so as to obtain a better understanding of the size and formation of the different groups of structures.

From the roof of the administration building the visitors were given a view of the plant and the lens factory a little way down the Quinebaug River, with the town of Southbridge on the other side. It would require considerable space to record all the interesting things to be seen in this, probably the largest optical plant in the world. Each department was gone through and the various processes traced from the working of the raw material to the last touches in the finishing room and inspection department and shipping rooms. Long sheets of gold filled stock, the first to be turned out in the company's own plant for this purpose, were piled up alongside of big blocks of solid gold that made one wish they, too, were stamped as souvenirs, with a wheelbarrow to carry them off. As one passed through almost startling figures would be given of the amount of goods the plant is capable of producing—150 dozen a day in the gold department, 400 dozen in the gold filled, and a great many times more in the cheaper grades; 700 dozen eyeglass and spectacle cases a day, and 70 different styles of trial cases are made; \$50,000 worth of leather is used in a year to cover cases of all sorts, and many other things not possible to note in a hurried inspection.

Shortly after three o'clock the party wound up in the main offices again, and after extending personal thanks and greetings with their hosts for the privileges of the visit and the hospitality extended, the special cars were boarded at the door, with a feeling that a day had been spent that was not only pleasurable but profitable.

Albert A. Carter, the newly-elected president of the association, brings to his new office all the advantages of youth, energy and enthusiasm. As an initial step in the optical business, he entered the services of the Globe Optical Co., Boston, Mass., in 1896, in the capacity of salesman, prosecuting, at the same time, a thorough course of study under the New England Optical Institute. In 1900 he severed his connection with the Globe Optical

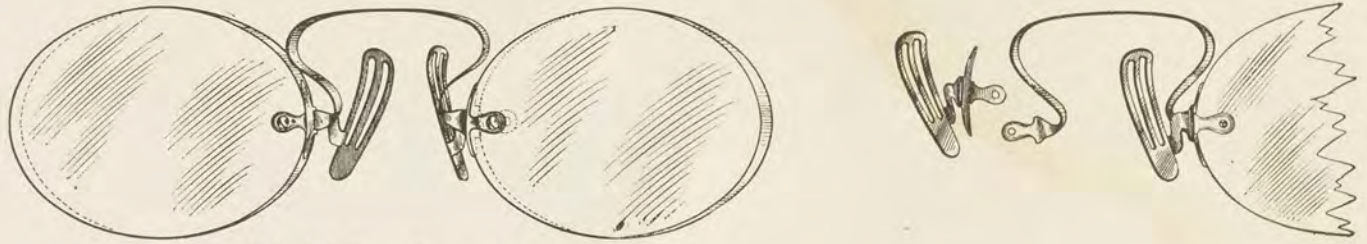


Exhibits of M. J. Averbeck and R. F. Simmons Co.

Co., and took charge of the optical department in Houghton & Dutton's department store, Tremont and Beacon Streets, Boston, Mass. At this time the firm did a counter business solely, but they afterwards established an exclusive optical department with a handsomely-equipped office and the most modern scientific facilities for refractive work. Of this Mr. Carter is in charge and has, besides, a large interest in it. He joined the New England Association of Opticians in December, 1901.

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Necessity of Using the Ophthalmoscope

Address by P. A. DILWORTH, ex-president of the Optical Society of the City of New York, before the New Jersey Optical Society.

IF the uses of objective methods were more fully understood by those engaged in the study of the refraction of the eyes, it would be of immeasurable benefit to us as a class. First in importance comes the ophthalmoscope, and as a knowledge of its uses cannot be too widely disseminated, my remarks will be confined to this indispensable instrument. The ophthalmoscope was invented by Helmholtz in 1851, and to this instrument more than to any other, we are indebted for the the largest portion of our knowledge of the eyes. Previous to its invention the phenomena of the fundus and reflex appearances due to certain pathological changes were unobserved. Now, by its uses, however, we are enabled to explore the interior of the eye at a glance and the optometrist is immediately able to determine the normal from the abnormal; to determine whether there exist pathological conditions of cornea, lens, retina or optic nerve.

Preliminary Inspection of the Eye

It is always advisable to make a general inspection of the eye before proceeding to examine for errors of refraction, as by so doing we are immediately able to determine whether the case is within our province or not. As a general rule, we find the eye to be devoid of pathological phenomena. In such cases there is nothing to prevent us from exercising our professional functions, and we may proceed to adapt the required glasses by whatever mode of procedure we like, either objective or subjective. It is not sufficient that we are able to talk volubly of errors of refraction and accommodation, muscular insufficiency, etc., in addition it is absolutely essential that we should understand the uses of the ophthalmoscope in order to assure ourselves that the case is, or is not, one for the optometrist.

Methods of Examination

In using this instrument we employ three methods of illumination, viz., the oblique, the direct and the indirect. By the oblique or focalization method, a convex lens of two inches, more or less, focal length is used, and we concentrate a bundle of rays upon the cornea and front part of the eye. The modus is as follows: Place your client on a chair, with the light on a level with the pupil, and about fourteen inches to one side and a little to the front. By manipulating the light, thus causing it to flit over the front part of the eye, we are enabled to detect opacities of the anterior chamber and cornea. By means of this examination time is frequently saved, as slight opacities oftentimes occasion a subacuity of vision, these opacities being often invisible during the skiascopic, direct or indirect ophthalmoscopic tests.

By the direct method we look directly into the eye examined by reflected light from a gas flame, or sixteen-candle power frosted electric light. The light is placed at one side and back of the client's head, about four or five inches to the right and as many to the rear. In looking into the eye by means of the ophthalmoscope, we must remember that everything seen at the fundus or background is enlarged at least eight or ten times. This is due to the fact that the refractive media of the eye act as a biconvex lens. But, as the fundus is viewed through the refractive media and all images or

objects are seen magnified, we come to look upon them, from their apparent size and position one to the other, rather than from their real size and condition.

If the right eye is the one to be examined, the light is placed to the right and rear of the client's head. We then sit at the right of the client on an adjustable chair or stool, that brings us to the same height as the client, and by means of the ophthalmoscope, the light is reflected through the pupil into the eye. Now, in order to see the fundus or background clearly, the observer must come close to the observed. Then, by looking through, if the media are clear, the whole fundus of the eye can be illuminated, and one looks upon the retina and optic nerve. This is the only nerve in the whole body which can be inspected under physiological conditions. I might also mention, it is the only place in the whole body where the circulation of the blood is exposed to view.

Measuring Refractive Error

In examining the left eye, the same manner of procedure is followed. Now, in order to be able to measure the amount of refractive error, by the direct ophthalmoscopic method, the optician first corrects any ametropia



Ophthalmoscopic Examination

that may exist in his own eye. To estimate the amount of refractive error, it is essential that the power of accommodation of both client and examiner be thoroughly relaxed. This is easier for the observed than the observer, because the observer is inclined to look at the fundus as from a near point, whereas he should view it as from an infinite distance, and if he looks at it as from a near point, it produces an increased convexity of the lens, making his eye temporarily myopic, which would require a concave glass to see the details of the fundus clearly; whereas, the light reflected into the eye of the observed, falling upon the macula, the most sensitive part of the retina, causes him to intuitively relax his accommodation.

However, this must not be wholly depended upon and the client's attention should be directed to a distant object. Now, having relaxed your client's accommodation by making the examination in a dark room, and having directed him to fix his vision on some object in the distance, then if the examiner's own accommodation be suspended—which often requires great practice owing to reasons already stated—and the image of the disk appears quite clear and distinct, the case is one of emmetropia.

The emmetropic eye is adapted for parallel rays of light and as such the emergent rays travel parallel, consequently when the accommodation of both the observer and observed are relaxed, the light which is deflected by the mirror into the

observed eye, will again be reflected by the retina and emerge parallel into the observer's eye, and without effort be brought to a point on the retina. If, however, it requires an effort of our accommodation to make the image appear clear and distinct, we rotate in front of the aperture of our ophthalmoscope a convex lens, and the strongest convex lens which enables us to see the smallest vessels distinctly, indicates the amount of hypermetropia.

In hypermetropia the emergent rays are divergent, hence they neutralize the convexity of the dioptric media of the examiner's eye, and in order to restore the equation, we rotate the strongest convex lens, which enables us to see the smallest vessels clearly. If, however, by rotating the convex lens into position and the image of the disk becomes more indistinct, we turn the wheel of the ophthalmoscope in the other direction, so as to bring into place the concave lenses, and the weakest concave lens that brings the blood vessels and other details of the fundus distinctly into view, will indicate the amount of myopia; because, any stronger lens merely brings into play the accommodation of the examiner. In a myopic eye the emergent rays are convergent, and as such are treated by rotating into position the concave lens, whose angle of divergence equals the angle of convergence of the reflected rays.

In cases of astigmatism oftentimes the disk appears oval instead of round, and its longest diameter may lie in any of the meridians. The essential point to keep in mind is, that the lens with which the vessels are seen in one direction is a measure of the refraction at right angles to it. The estimation of the refraction by this method is very valuable, but to become proficient with the test requires a great deal of practice.

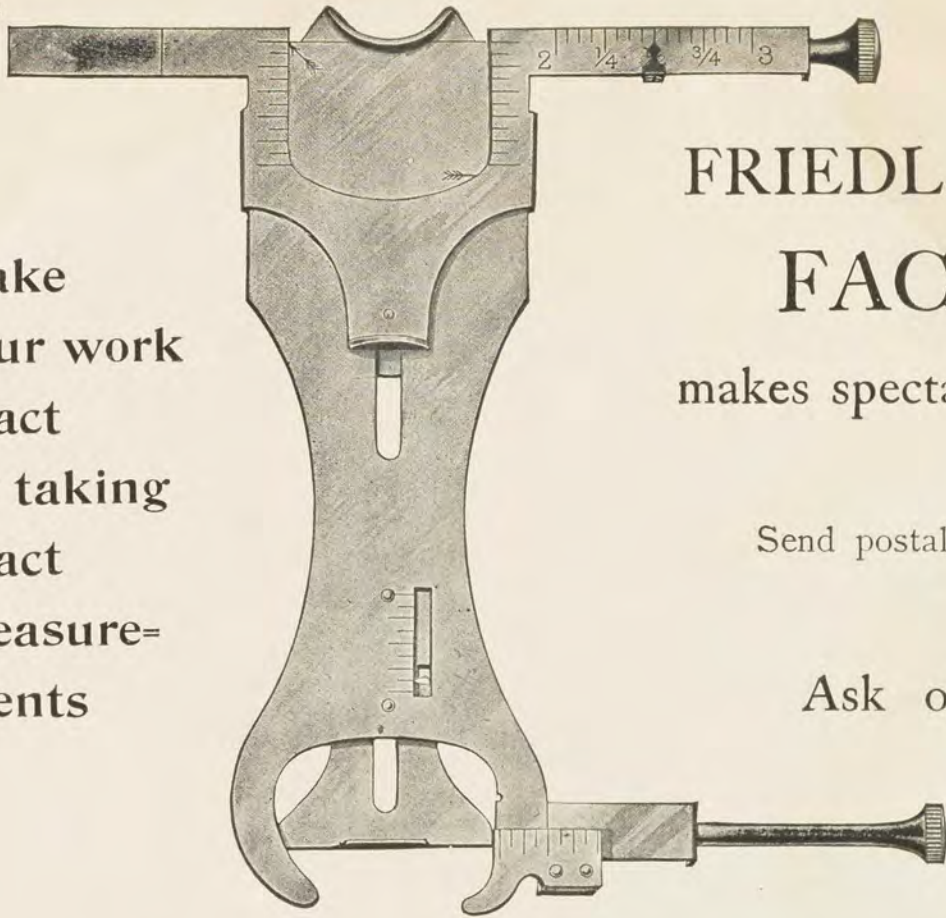
Indirect Illumination

Now, those who may not have the opportunity to obtain the necessary practice, with the direct ophthalmoscopic method, may become proficient with the indirect method, and with practice be able to tell the general refractive error. In using this method we view the eye from a distance of ten to fourteen inches, and use an intervening convex lens of, say, two or two and a half-inch focus, placed at its focal length from the eye. In this examination the lens is held by the thumb and index finger directly in front of the pupil and steadied by the little finger resting on the temple or brow of the client. In using this method we must remember that the disk, *i. e.*, the optic nerve and all the details of the fundus or background are inverted and appear smaller than by the direct method of examination, especially with a weak convex lens of, say, 3 D. within the ophthalmoscope. This method is probably the best for obtaining a general view of the eye, for while the magnification is less it gives a greater field of vision than by the direct ophthalmoscopic method.

Now, when we move the lens from the eye, to the observer the image of the disk must be steadily kept in view, as any increase or decrease in its size gives us an indication of the amount of the refractive error. We must bear in mind that the inverted image of the disk produced by the convex lens at a certain fixed distance from the cornea, is larger in hypermetropia and smaller in myopia than in emmetropia. But when the lens is moved from the eye to the examiner, if the eye is emmetropic, the disk will remain the same size. If the eye is hypermetropic, the disk will grow smaller in proportion to the defect; if myopic, it will grow larger in proportion to the defect. Simple hypermetropic astigmatism is indicated if one meridian decreases in size while the meridian at right angles thereto remains stationary. If the whole disk decreases in size in one meridian more than in another, it is compound hypermetropic astigmatism, the most hypermetropic meridian being the one that diminished the most. Simple myopic astigmatism is indicated when one meridian increases while the other remains stationary. Increase of size of disk, one meridian increasing more than another, shows compound myopic astigmatism. When one meridian increases while the other decreases, it indicates mixed astigmatism.

In conclusion, I would state that in using the ophthalmoscope, care should be taken to use a certain routine; first, examine the cornea, then the media, then the background, and not alone the nerve and vessels, but the macula and periphery.

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Toric Lenses*

Paper read before the annual meeting of the New England Association of Opticians by D. CURRIE DOLEMAN, with Andrew J. Lloyd & Co., Boston, Mass.

What a Toric Lens Is

I may define a toric lens as one having on a single surface two meridians of unequal refraction at right angles to each other, and it is perfectly well known that any form of cylindrical or sphero-cylindrical can readily be transposed to its equivalent toric lens.

The optical advantage of a toric is similar to the optical advantage of a periscopic lens, and that is, that the toric affords a wider range of clear vision without moving the head than the ordinary bi-spherical, (and as the power gets higher, say, above plus 10 dioptries, this advantage of the torics increases considerably) so that when you would get a blurred image at an obliquity of say 45 degrees through a bi-spherical, with the perfectly ground toric you would get a clear image at this angle. Tennis players, golfers, billiardists, sportsmen; in short, all those who have occasion to use their eyes very quickly, will derive a considerable advantage by the use of toric lenses.

Reflection into the Eye

The second advantage is the absence of reflection from the surface next the eye; with the flat or semi-flat surface next the eye, an image of objects slightly behind and to the side of one is reflected into the eye, while with the minus six or greater curve, the reflections are passed to the extreme inner canthus, and are never focused on the retina. To a neurotic, this is a great relief; but you may ask, since pencils of light from an object strike the surface of the lens at all angles, surely some of them will bother. Yet, I think not, as a ray of light to be reflected into the eye, from this deep curve, must strike it nearly perpendicularly, and you see at once the head of the wearer intercepts all such rays. But this meniscus form of toric should be dropped when the power is strong enough to produce a decided bulging forward of the convex element whose surface is exposed to light coming from other directions than that of the desired central incident beam. A person wearing glasses of this character will be annoyed by internal reflection. Prentice has written a very good article on this point. Suppose we have an Rx (cataract case) $+16 \text{ Cyl.} +4 \text{ Cyl.}$. Here the front surface will have a decided bulge if made either in toric meniscus or Sph. \ominus Cyl. If made in toric meniscus with a base curve -6.00 , the curves for the lens would be $-6.00 \text{ Cyl.} -10.00 \text{ inner, plus } 26.00 \text{ outer,}$ — a combination almost impossible; while if made Sph. \ominus Cyl. our greatest curve is 16.00 D. The better form is to grind a plus 10 Sph. inner surface, plus 6 cyl. \ominus plus 10 cyl. outer surface. In this form, we not only place the surfaces as generally placed in the trial frame, but preserve the nodal points of the lens in the spectacle the same as in the lenses of the trial frame, and produce a neat, beautiful lens practically free of internal reflection. Judging from my own experience, the best form of toric lens is the meniscus on a -6.00 base curve to about a $+6.00 \text{ D.}$ on a 3.00 base curve to about $+9.00 \text{ D.}$, and then up in the double form.

A third advantage as related by a customer, was that she dearly loved toric lenses because they protected her eyes so nicely from the wind. One of our customers, (a cup-winner golfer), used to

come a great distance to have his torics adjusted, and to take a great deal of time, telling about many of his strokes that he was able to make with them, and comparing them with his former strokes.

Kind of Glass Purchased

We purchase glass for making toric lenses in slabs of 4 to 10 mm. thick, and as near 50 mm. square as we can get it. This makes abundant thickness for deep curve grinding, and a sufficient surface for a large eye lens. Our next step is to test or index. We have found that glass does not run uniformly to its advertised index, and it is necessary for us to know exactly what curves we must use. We test for index by grinding a 10 D. lens, and then testing the focus of this lens; and from this focus, inasmuch as we know the radius of the tool, we can readily compute the index of the glass. This is necessary in our work on account of the demand for invisible bifocals, which require a close computation of the indices of the glasses used to bring out a perfect lens. We have found a very simple formula for testing glass in the fact that the dioptries of lenses ground on the same tool are to each other as their respective refractive indices, minus one.

First Attempt at Manufacturing

Some fifteen years ago, we had two or three customers who could not wear the ordinary sphero-cylindrical comfortably, and these, by great insistence, obliged us to grind torics for them. This we did on a disk, somewhat resembling a bicycle tire, at a cost very likely, of \$20 each, for which we received, if my recollection is right, about \$10 a pair. It was impossible, under these circumstances, to encourage heartily the use of toric lenses; people liked them, but hated to pay for them. The subject was in our minds a good deal the way an old trunk is in the attic; you see it every time you go up there, and feel that something out to be done about it; so, three or four years ago, one of our employees, a young Englishman, Frank Collinson, invented an automatic toric machine, which we now use. The machine is an admirable one, and we thought that all we had to do now was to sit down and watch it go. The inventor, a very experienced, intelligent and expensive man, took a boy and started three machines. They worked beautifully; at the end of two weeks we had turned out a number of dozen pairs at a low cost per surface, and we were delighted. The boy who worked for him was a bright boy, and the inventor took great pains in educating him. A second week confirmed the experience of the first. The high-priced man, with his low-priced assistant, turned out perfect toric surfaces in satisfactory quantities at low surface cost. The boy had now two weeks of careful rigid training, and it looked safe to turn the machine over to him, which we did. We paid the boy \$6 per week; by the end of the first week the price per toric surface was more than doubled.

The boy blamed the tools; at the end of a fortnight, we were getting no surfaces at all, and the tools were ruined. He could blame anything he wanted to; but we blamed him first, and then ourselves. Since then we have employed a first-class man to grind our torics, and get perfect surfaces at low cost.

Lessons Learned About Toric Machines

Our experience with toric machines seems to point out that in itself a machine is not such a very good thing; but as an instrument for enabling a competent man greatly to increase his productiveness and efficiency, it is magnificent. In other words,

one man and a good boy with eight machines are easily able to accomplish what eight men working by hand could accomplish in the same time. The machines seem to be like fire; a splendid servant to a good master; but a dreadful tyrant to an incompetent one. Of course, I hesitate to offer unsolicited advice, yet I venture to say, that unless you have an abundance of work to keep a thoroughly good man employed to his full capacity with the machine, I think that it would be more economical to purchase toric surfaces as one needs them, rather than to try to grind them. I am sure that it will require the whole attention of a man; and by that I mean, that he cannot sort out, edge, set up and grind torics at the same time even on an automatic machine. He is almost certain to get into the most vexatious difficulties and seriously to clog the work.

Error in Neutralizing

After we grind our toric surfaces, the lenses go to the spherical grinders. Here we found that with perfect tools, the lenses would not absolutely neutralize. If we wished to produce a plus .50 cyl. toric on a 6 D. base curve, we should have to grind $-6.00 \text{ cyl.} \ominus -6.50 \text{ cyl. inside, plus } 6.50 \text{ sph. on opposite side.}$

At first thought, it might easily be supposed that with perfect tools he would get a perfect plus .50 cylindrical, but instead, using glass whose index approaches $1.52\frac{1}{2}$, he would be very likely to get a .56 cyl. and the stronger the required lens, the greater would be the neutralizing variation. Therefore, we found it necessary to make a correction in our tools of .06 for all lenses ground up to 7 curve, and about 0.12 for lenses in the neighborhood of a 9 curve outside; this error increases and in grinding a 20 D. meniscus a correction of about 1 D. is requisite. All this is pointed out with fine clearness by Prentice in his essay on "Why Strong Contra-Generics of Equal Power Fail to Neutralize each Other."* Making these corrections, we found that we produced toric lenses that neutralized; satisfying the requirements of the prescription, and the general practice.

Finishing the Lens After All Surfaces are Ground

From the spherical grinder the lenses now go to the "edger," where they encounter no greater difficulties than the ordinary bi-spherical lenses do; and from these they go to the setters-up. This is a little more difficult than bi-spherical work, but is merely a matter of practice with an experienced man. There are no secrets that we know of, and the men readily become accustomed to the work on torics.

In the factory, therefore, I would sum up by saying, that the production of toric surfaces requires the undivided attention of a first-class man, and of course enough work should be given him to engage his entire time to produce toric surfaces at their proper low cost.

The danger of breaking seems to be no greater than with bi-spherical. A careless man will break them, and a careful man will not. Edging and setting up present no difficulties that a very little experience will not overcome, and the glasses are now ready for the patient.

Almost everybody who wears glasses, especially of the sphero-cylindrical type, thoroughly enjoys toric lenses. Nearly unanimously, they pay tribute to the very comfortable wearing qualities, and most of them have a strong sense of enjoying more accurate vision.

*The full title of Mr. Doleman's paper was "Toric Lenses and Invisible Bifocals." The portion of the paper dealing with invisible bifocals will appear in our next issue.

*This essay is incorporated in the book "Ophthalmic Lenses, Prism Dioptry and Other Papers," by Chas. F. Prentice, M. E., published by THE KEYSTONE, price \$1.50.

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Prism Problems

Paper read by C. H. BROWN, M.D., president of the Philadelphia Optical College, before the annual meeting of the New England Association of Opticians

THE action of prisms may be regarded as both physical and physiological. The geometrical, physical and optical properties of prisms, although most interesting and important, do not concern us tonight. Neither can we stop to consider the several methods of numbering prisms, or to point out the advantages of those systems which take account of the deviating power, rather than the size of the refracting angle. But I wish to-night to take up briefly, and as a consequence imperfectly, a consideration of prisms from a physiological and a clinical standpoint.

Clinical Action of Prisms

The only clinical action a prism has on light is to change the direction of its rays, but this property, seemingly so simple, is prolific in its secondary applications. In monocular vision all objects seen through a prism are made to appear in a different position from that which they actually occupy, the displacement being always in a direction towards the apex of the prism and by an angle that is practically the same as the deviating angle of the prism. In binocular vision, when a prism is placed before one or both eyes, the conditions are not so simple. The object is still displaced towards the apex of the prism, but this displacement is more or less counterbalanced by a rotation of the eyeball, and the result may be one of two conditions, depending on the strength of the prism:

1. The natural desire for single vision causes a turning of the eye by means of which the prism is overcome and binocular vision is maintained.
2. In spite of the instinct for single vision, the prism may be too strong to be overcome by muscular action, and as a consequence diplopia results, the distance between the true and false images varying with every effort to overcome the prism.

Optical Versus Clinical Effects

The optical effect of a prism is invariable, but its clinical or physiological effect depends on the way in which it is used. For instance, the effect on convergence of a pair of prisms, bases out, is least at a distance and becomes greater in near vision.

Another point of difference between the optical and clinical effect of prisms is of interest when we come to prescribe prisms for the correction of hyperphoria. The clinical effect of a prism placed vertically is greater in distance than in near vision, from which fact it follows that a prism which corrects hyperphoria at a distance falls short of a full correction at the reading point. For this reason we assume that a vertical prism is about right if patient says it suits him best in distant vision, and that it is probably a little too strong if it suits him best for near vision.

Familiarity with the clinical action of prisms would be useless without a knowledge of the motility of the eye. I assume that you are all conversant in a general way with this subject, and that you can readily recall the names of the six rotary muscles and the specific action of each.

Ocular Muscles and Nerves

In this connection we cannot consider the eyes separately, because both eyes move together as though they were a single organ. A muscle of one eye cannot be innervated without the transmission of the same impulse to the associated muscle of the other eye. One innervation turns both eyes to the right, and another turns both eyes to the left. This is accomplished by simultaneous convergence of one eye and divergence of the other. The nervous impulse goes to the internal rectus of one eye and at the same time to the external rectus of the other. This association of action is so fixed that it is impossible to turn one eye to the right or left without a corresponding movement of the other eye.

Another innervation turns both eyes upward, and still another innervation both eyes downward. It will be understood that depression or elevation of one eye is always accompanied by a corresponding depression or elevation of the other eye.

By these nervous impulses the visual axes are moved simultaneously in any one direction, but if there was no other innervation, objects would be

seen double. This brings us to the essential feature of binocular vision, which is the function of convergence, associated as it is with the conjugate movements just mentioned.

Convergence is effected by innervation of the two lateral recti muscles, for which there must be a center independent of that which controls the conjugate lateral and vertical movements.

The anatomical position of the eyes when all the muscles are passive, would probably be one of divergence, as shown by the outward deviation of the eyes during sleep, in drunkenness, under chloroform and after death. The act of convergence cannot be regarded as passive, but calls for constant innervation, just the same as the accommodation must be constantly innervated in hypermetropia.

Prisms for Diagnosis

Prisms may be used clinically for diagnostic purposes and for treatment. In diagnosis clinical prisms may be employed to accomplish the following:

1. To measure the power of abduction or divergence, which is determined by the strongest prisms, base in, with which single vision of some distant object can be maintained.
2. To measure the power of adduction or convergence, which is determined by the strongest prisms, bases out, with which single vision of an object at some definite distance can be maintained.



Dr. C. H. Brown

3. To disassociate the functions of convergence and accommodation. When vertical diplopia is produced by a prism before one eye, base up or down, the reflex stimulus to fusion is supposed to be suppressed, and the eyes are left free to assume what has been termed their "position of equilibrium," and any insufficiency of convergence or of divergence would then become manifest.

4. Prisms are used to measure the degree of an existing diplopia, and sometimes it is even possible to measure the amount of strabismus, by finding the weakest prism that will fuse the two images.

5. Prisms may also be used to determine the presence or absence of binocular vision, both objectively and subjectively. In the first instance, by noticing the movements of the eyes when prisms are placed and withdrawn, and in the second case by the patient's answers as to the presence or absence of diplopia.

This leads us to the clinical use of prisms for the purposes of treatment:

1. To relieve excessive convergence, as in esophoria. If this be due to hypermetropia, the natural remedy is convex lenses. In other cases the optometrist must decide whether it is desirable to prescribe prisms, remembering that bases *in* will lessen the innervation of the internal recti.
7. To increase deficient convergence, as in exophoria. Not all of these cases call for special treatment, but if the symptoms are distressing, prisms may seem necessary, in which case we remember that apices *in* increase the innervation of convergence. Neurasthenic subjects, where the muscular equilibrium varies greatly, are not proper cases for prisms.
3. To relieve hyperphoria. This is one of the most useful services that can be rendered by a prism. Many cases could be cited where the

greatest relief has been afforded to eyestrain from hyperphoria, by a vertical prism.

4. To correct diplopia. Other treatment should be instituted, but in the meantime much comfort can be afforded by prisms which will fuse the double images, the bases of the prisms being placed opposite the deviation.

Expenditure of Nervous Energy

Although we see without special volition, and seemingly without effort, yet every moment of vision calls for an expenditure of nervous energy. If the refraction be normal and the rotary muscles balanced, the energy consumed is at a minimum; but in the presence of a refractive error or muscular anomaly the drain on the nervous system will be greatly increased. The act of vision may still be perfect, perhaps even of more than average sharpness, but at the expense of an excessive call upon the nerve centers to form a well-defined image on the retina or to maintain the proper muscular balance.

What will be the result? The whole nervous system will be disturbed because one part of the eye is receiving more than its share, and consequently other functions will be but imperfectly supplied; or the nerve centers may be stimulated to generate an excessive amount of nerve force, which irritable form of nervous derangement will soon wear out life.

The centers are capable of generating only a certain amount of nerve force, which nature distributes in proper proportion to the different organs and functions of the body. Even when normal the eye utilizes a large amount of nerve force, but in the presence of an anomaly the greater demand for nerve force to the eye lessens the supply to some other organ or function.

Testing with Prisms

What method have we to determine the existence of a muscular anomaly? By causing a dissimilarity in the shape and color of the two retinal images, by which means we hope to sidetrack the fusion center, and thus detect a departure from parallelism of the lines of sight. The Maddox rod is the test with which we are perhaps most familiar, and the position of the red streak which it produces may be compared with that of the natural light seen by the other eye.

If the streak appears on the same side as the eye over which the rod is placed, we say esophoria is present. If on the opposite side, we say exophoria, and the prism, base *out* or *in*, that brings the streak through the flame, is the measure of the defect. If the horizontal streak is below the light, we say hyperphoria of this eye is present; if above the light, hyperphoria of the other eye, and the prism, base down or up, that brings streak through, will be the measure of the defect.

In these cases we have been accustomed to attribute the trouble to muscular weakness or insufficiency. In hyperphoria we assumed that the inferior rectus is insufficient to hold the eye down in line; in esophoria that the externals are weak; in exophoria that the internals are weak. In other words, we assume that weakness of a muscle is shown by its antagonist drawing the eye in the opposite direction.

This method of testing seems simple. Many of us have followed it for years and have prescribed prisms in accordance therewith and with a fair degree of success. Perhaps we have come to believe in this as implicitly as in our religion, and hence we might be inclined to regard any doubter as a heretic.

When the Test is Unreliable

But I am compelled to say that this system, by means of which it seems so easy to detect and measure muscular anomalies, is not to be depended upon; and why? Simply because the real defect may be latent, and the manifest condition may not be the true one. I use the word *may* advisedly; I do not wish to be understood as asserting that the manifest condition is the false one in every case. Fortunately for us in some cases the manifest defect is the true one, and then we have no difficulty in detecting and correcting it.

When muscular defects are manifest the symptoms of strain are not marked; but when the defect is latent, it is not only difficult of diagnosis, but the symptoms of strain are very evident.

An impairment of vision in a young person, which is raised to normal by a concave lens, does not prove a true myopia. The manifest condition is one of apparent myopia, and an inexperienced

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Prism Problems

(Continued from page 1011)

optician may fall into the error of prescribing concave lenses when the real condition of the refraction is hypermetropic. This would be a grievous error, and one which has been seized upon by medical men to prove that opticians are not competent to fit glasses.

Now, therefore, if the spasm of accommodation in hypermetropia is frequently so great as not only to neutralize the deficiency of refraction, but to go further and cause a seeming excess of refraction so as to simulate myopia, may not one of the rotary muscles in its effort to overcome a muscular insufficiency, exceed the intention of such effort and turn the eye in a direction towards the weak muscle?

When the right eye deviates upward, it may be due not to weakness of the inferior rectus as being unable to hold it down in line, but to a weakness of the superior rectus which, in its effort to balance with its fellow, goes beyond the desired point through an excess of innervation, and draws the visual line upward, thus falsifying the real condition. Such a condition of spasm of a weak muscle is the most dangerous we have to meet on account of its misleading tendencies.

When Prescribing Prisms The problem we have to decide when we come to prescribe prisms is how they shall be placed, whether base in or out, base up or down, in order to check the abnormal innervation, and in view of what I have just said this becomes a difficult problem.

A condition of excessive convergence, which we call esophoria, is the most deceptive anomaly with which we have to deal, because our usual tests are unreliable as showing its real existence.

On account of their part in the function of convergence, the internal recti are four times as strong as the externals, but this difference in strength does not interfere with perfect parallelism at a distance, probably because the nerve impulse that gives greater strength to the internals is for the time suspended, and there is a relaxation of muscular effort.

But when the eyes are used constantly for near vision from morning until night, day after day and week after week, the innervation of the internals is almost constant, with but little opportunity for relaxation. This may continue for such a length of time and become so fixed that ultimately the ability to suspend it is lost; and then such a pair of eyes under our usual tests will show esophoria. The externals and the internals may be of the proper length, and the condition be one of apparent esophoria.

Spurious Esophoria Esophoria would be expected to appear when the internals are short, but it also appears when the externals are short, in which case it is a reverse manifestation due to spasm, and this is probably the condition in the majority of cases of apparent esophoria.

This demonstrates the unreliability of our usual tests as an indication of the true anatomical condition of the ocular muscles. When esophoria at a distance occurs with exophoria at near point, we may conclude that it is not true esophoria.

Exophoria is very common. It may be due to shortness of the externals, or to spasm as a result of irritation from a defect in some of the other muscles, or it may be a reverse manifestation. When exophoria exist at near, it is more than likely that the real condition at a distance is also one of exophoria.

A greater amount of defect may remain latent in the superior and the inferior recti, for the reason that the optic axes must always remain in the same horizontal plane, while the internals and externals are constantly converging and diverging them. Consequently, innervation to the vertical muscles is more fixed, and their defects are less likely to become manifest.

If one of these muscles is weak, the nerve impulse that is sent to it for months and years to hold it in place, becomes one of routine and the nerve centers continue to send it out automatically without any further stimulus. The eyes are thus maintained in the same horizontal plane even in the face of the usual tests. Although an artificial diplopia is created, the eye does not turn towards the strong muscle because of the fixed impulse to the opposing muscle, and under such conditions it

is useless to expect our usual test to avail. In fact, they often show the opposite condition, as I have already pointed out to you.

The Duction Tests Now, how are we going to determine the actual condition of the muscular equilibrium? In the first place, I would suggest the duction tests. The internals should overcome prisms of 24 to 30 degrees, the externals from 6 to 8, and the verticals from 2 to 3 degrees. In this way a fairly accurate knowledge of the condition of the power of the muscles can be obtained and a departure from the normal standard in any one of them noted.

But why should we not make use of the same principle in spasm of the rotary muscles as we do in spasm of the ciliary? In hypermetropia if we can supplement the diminished refraction by convex lenses, the necessity for excessive innervation of the ciliary is obviated. Therefore, a convex lens favors relaxation of spasm of accommodation. Fogging produces a state of rest, sometimes sleep.

How can we apply the same principles to the rotary muscles? We can diminish the effort of convergence by prisms bases in, and we can increase the effort by prisms bases out. The strain on a superior muscle by prism base up and the spasm of an inferior by base down. The base of a prism relieves strain and relaxes spasm, while innervation follows its apex. Therefore, in esophoria prisms bases *in* will lessen the call for convergence, and turn the nerve impulse to the divergence.

Symptoms Must Guide In the use of prisms in this way, we must be guided by the symptoms. If there be a marked change for the better, we may assume that we are checking the abnormal innervation. Whereas, if the symptoms are aggravated, it is evident that we have been misled in our diagnosis and that we are increasing the abnormal innervation.

If at first we can see little change for the better to assure us that the prism is correctly placed, we may try it in the opposite direction; if this causes aggravation, we are at least assured that this last position is wrong, in which case we return to the first position with more patience.

Suppose a pair of eyes in which one deviates; when in this position of deviation the muscles are balanced and no unnecessary innervation is called for. When such eye is rotated into proper position, one muscle becomes too short and the other too long. In such a case the use of a prism of the proper degree would allow the eye to rotate to the position of rest, and from this position the associated movements of the eyes will require from each muscle only its proportionate share of normal function.

Prisms cut in both directions. They do good or harm as they are properly or improperly placed. Therefore the prescriber should possess well-defined ideas on this subject, otherwise it would be better for him and his patient if prisms were not considered at all. This subject is still in a condition of chaos, but light is breaking, and in view of the advances that have been made in other directions, we may reasonably expect that before many years our knowledge of prisms will be such that we can prescribe them with a certain expectation of definite results.

Iowa State Association of Opticians

The annual meeting of the above association, which will be held in the Chamberlain House, Des Moines, Iowa, on June 13th and 14th, will no doubt be the most important gathering in the history of this association to date. It will have special significance by reason of the fact that the chief topic of discussion will be the progress of the movement for optical legislation in Iowa. The task of drafting a bill to regulate the practice of optometry in that State has been entrusted to the executive committee. Among the speakers at this meeting will be Dr. Charlmers Prentice, Chicago, who will deliver two lectures of practical interest to every progressive optician. Dr. Harry P. Holmes, president of the American Association of Opticians, will again have charge of the clinical programme, and his successful conduct of this feature last year is a sufficient earnest that at the forthcoming meeting it will be no less interesting and valuable. The business will likewise include the election of officers for the coming year.

Canadian Association of Opticians

The following circular, which is self-explanatory, has been mailed to the Canadian opticians:

To the Members of the Canadian Association of Opticians, Greeting:

The annual convention of the association will be held in Montreal, P. Q., on June 30th and July 1st next. These dates have been decided on for the following reasons:

We may expect reasonably fine weather, reduced railway and steamboat fares from all parts of the Dominion.

July 1st being our national holiday, and followed by Sunday, it is thought that it will interfere less than any other date with the business affairs of the general members.

This being the first time the association has convened in Montreal, it is earnestly hoped that all the members will make it a point of duty to be present, and I can confidently refer to all who have attended our meetings in the past that they have enthusiastically felt that "it was good for them to be there," the deliciousness of meeting and shaking hands with those we have not seen for twelve months, the feeling of regret if one is absent, the value of social intercourse, of friendly chat—why, we can solve more "knotty problems" in confidential talk with each other for a couple of days than we can settle by ourselves in a lifetime.

It is the oasis of our worrying refraction journey through life, and we return to our homes and work refreshed with the inspiration gained by communion and the sweet memory of a holiday well spent. I confidently look to a large attendance. An interesting programme of events is being arranged.

Yours fraternally,
SAMUEL S. GRANT, B. O. A.,
President.

Chicago Optical Society

The above society held its regular monthly meeting in the rooms of the Jewelers' Club, 213 State Street, on Thursday evening, May 4th. President Newcomb called the meeting to order, and Secretary Halbe reported the latest developments regarding the fate of the proposed optometry bill. The applications of Miss Theresa Wigfords, and Messrs. E. E. Monroe and Michael Sanvimmer, all of Chicago, for membership in the society, were accepted. There was a general discussion as to the programmes for future meetings. Earl J. Brown, M.D., offered to deliver a series of lectures on the eye, with stereopticon illustrations, provided each attendant would register and, if present at all the lectures, receive a certificate from him. This matter was placed in the hands of a committee.

During June, July and August the society's business will be suspended as usual, and the next meeting will be held on the first Thursday in September.

Rochester Optical Society

The regular meeting of the Rochester Optical Society was held Tuesday evening, May 9th.

President Bestor called the meeting to order and the secretary read the minutes of the previous meeting, which were approved as read.

Mr. Clark moved and Mr. Bissell seconded and it was carried, "that new price-lists be printed and that the code of ethics be included therein, the same to be distributed among the members of the State Society, which is to hold its next meeting in Rochester, June 20th."

Mr. Mincer then moved, Mr. Bissell seconded and it was carried, "that this society furnish the decorations and music for the banquet of the State Optical Society."

Messrs. Arrington, Bausch, Bissell and Clark, appointed as a nominating committee at the last meeting, nominated as follows: President, H. M. Bestor; vice-president, L. L. Mincer; secretary, C. I. Sumeriski; treasurer, H. C. Mielke; executive committee, Edward Benedict, chairman; E. Handy, A. Pellow, A. Bliss and P. Newman.

Mr. Bausch moved "that the secretary cast one ballot for the officers as nominated." Mr. Benedict seconded and the motion was carried.

The meeting then adjourned.

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No. 1075,	" 211 lenses and discs, double-grooved trial frame, space under tray for goods, worth \$55.00	46.00
No. 1052,	" 262 lenses and discs, with triple cell, revolving frame, space for tray for goods, worth \$65.00	54.00
No. 952 1/2,	" 262 lenses and discs with triple-cell revolving trial frame, antique oak case, worth \$60.00	54.00
Climax Folding Case,	Size—8 1/4, 10 1/4, 3 1/2; weight, 5 lbs. 211 lenses and discs, revolving frame, worth \$53.00	38.00
No. 990,	Handsome antique oak case, containing 290 lenses and discs, with Keratoscope, Retinoscope, superior alumino trial frame. Took highest award at Paris Exhibition. Worth \$100.00	77.00
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Utica Optical Club

The annual meeting of the Utica Optical Club was held at the Masonic Club, Masonic Temple, Utica, N. Y., on Monday evening, May 22d, President Richard Perlen in the chair. The respective annual reports of Secretary Evans and Treasurer Clark were read and accepted, and a good deal of routine business was transacted. Plans were discussed for furthering the interests of the club and its members. Many of those present expressed their intention of attending the State convention at Rochester. C. A. Enquest and C. A. Biederman acted as tellers at the election of officers, which resulted in the return of the following, all of whom, with the exception named, were re-elected: President, Richard Perlen; vice-president, G. H. P. Stone; secretary, C. T. Evans; treasurer, B. T. Clark; librarian, N. A. Burrill. A. M. Kenney was elected to succeed G. W. Payne on the executive committee.

E. P. Bevilard was elected a member of the club. Following the business session a banquet was enjoyed. Messrs. Stone and Rix extended an invitation to the club to hold its next meeting at Iliion, which will doubtless be accepted. All present thoroughly enjoyed the meeting, and many expressed the opinion that it was the most successful one which the club had yet held. The Utica Club will gladly welcome to its membership opticians of the vicinity, and the secretary will furnish application blanks and any information desired.

Iowa Association

The following is a nearly complete list of the subjects to be considered at the annual convention of the Iowa State Association of Opticians to meet at the Chamberlain Hotel, Des Moines, June 13th and 14th:

- "Eye Strain," Dr. E. H. Hazen, Des Moines.
- "The Eye in Relation to Health," Dr. Chalmers Prentice, Chicago.
- Talk and blackboard demonstrations, Dr. S. W. Lane, Kansas City.
- "Legislation," Karl D. Fisk, Oph. D., West Union, Iowa.
- Discussion.
- "Latent Brain Strain" (class instruction, open to all), Dr. Chalmers Prentice, Chicago.
- "Study of Anatomy" (dissecting of animals' eyes), conducted by Dr. S. W. Lane, Kansas City.
- "Personal Advertising," W. E. Huston, Oph. D., Kansas City.
- "Muscular Asthenopia," Dr. H. P. Holmes, Oph. D., Des Moines.
- "Question Box," conducted by Geo. L. Goodale, Lenox.

Dr. S. W. Lane, president of the Southwestern Optical College, Kansas City, has offered to lecture, and his offer has been thankfully accepted. To encourage the members of the association, he will give a life scholarship in the Southwestern Optical College for the best paper on "How to fit Glasses with the Trial Case and the Retinoscope, and how to Examine the Eye, Direct and Indirect, with the Ophthalmoscope, for Pathological Conditions," read at the June meeting of the association. The decision will be made by three judges appointed by the president of the State Association. This contest costs nothing, and the prize is worthy of earnest effort.

The programme committee consider themselves especially fortunate in securing men so eminent in the profession as Doctors Chalmers Prentice, S. W. Lane and E. H. Hazen, also W. E. Huston, who has not only had an extensive practice in optometry but a wide experience in advertising as well, having at one time conducted an advertising

agency for the optical profession. We are pleased to announce that Dr. J. F. Kennedy, secretary of the State Board of Health, will be present at some of our sessions, and will give the benefit of his council upon the matter of legislation.

The railroad rates will be one and one-third fare plus twenty-five cents on all roads, on the certificate plan. Special hotel rates will be made to those attending the convention, at the Chamberlain Hotel and Chamberlain Annex.

It is expected that this will be the largest and most successful convention in the history of the association, and will repay attendance.

Indiana Optical Society

The midsummer meeting of the Indiana Optical Society will be held in room 376 of the Denison Hotel, Indianapolis, Ind., on Monday, June 5th. The chair will be taken by John H. Ellis, president of the society. During the forenoon the meeting will receive and discuss reports of the committees having charge of the following questions: Membership, code of ethics, examination papers, legislation. At 11.30 President Ellis will deliver his address, after which there will be an adjournment for lunch. In the afternoon the following papers will be read: "Some of the Diseases Essential for the up-to-date Optometrist to Recognize," C. M. Jenkins; "Is My Work Just to My Patron and Myself?" E. N. Canada; "Our Personal Side," Margaret J. Erisman. The first of these papers will be followed by a discussion. There will also be five-minute talks by H. E. Woodward, I. M. Rowe, David Bixler, etc., and the concluding feature will be general clinical work, subjects for which will be furnished by the Indianapolis optometrists.

The Optical Specialists' Association of America

The second meeting of the above association was opened under its original name: the Ophthalmologists' and Optometrists' Association of America, in the Savery House, Des Moines, Iowa, May 10, 1905. President J. C. Clark, of Sioux City, Iowa, delivered an address, and the secretary's report was read and accepted. This showed a large increase in the membership of the association during the past six months. The treasurer's report was also read and accepted. This report showed that the fund subscribed for the rehearing of the Edmunds case was fully paid, and that the attorney had received his fee in full. The case was set for hearing the first week in May, but for some unknown reason was again postponed. The remainder of the forenoon was given over to a general discussion of many subjects of interest to the association. At the afternoon session the following papers were read: "Latent Eye Defects," Geo. Mayerle, of San Francisco, Cal.; "Detecting Disease by the Ophthalmoscope," Wm. Stranz, Grove City, Pa.; "Advertising," Dr. H. L. Stoaks, of Oskaloosa, Iowa. Mr. Stranz embellished his talk by an exhibition of several colored charts of the retina, drawn by himself.

It was moved and carried that the name of the association be changed to "The Optical Specialists Association of America." It was also moved and carried that the first provision of article II, of the constitution, be eliminated. The election of officers resulted thus: J. C. Clark, Sioux City, Iowa, president; Geo. Mayerle, San Francisco, Cal., vice-president; G. E. Boyce, Waterloo, Iowa, secretary;

D. H. Glenn, Emmetsburg, Iowa, treasurer; board of directors, Dr. Eula L. Harris, Jacksonville, Ill.; Wm. Stranz, Grove City, Pa.; O. H. Myhre, Silver City, New Mexico; board of examiners, Dr. G. S. DeMots, Orange City, Iowa; Dr. H. L. Stoaks, Oskaloosa, Iowa; Dr. G. J. Allen, Marshalltown, Iowa.

It was moved and carried that the next meeting of the association be held in Des Moines, Iowa, during the coming fall.

The Minneapolis Convention

As previously announced, the annual meeting of the American Association of Opticians will be held in Minneapolis, Minn., July 24th to 27th. Among the plans made for the entertainment of visitors by the committee of arrangements are the following:

On the afternoon of Tuesday, the 25th, the members will visit the State Capitol, at St. Paul, where pictures will be taken. Thence the party will proceed on chartered cars to White Bear Lake and Wildwood, where outdoor amusements will be held. On Wednesday, the 26th, cars will be chartered and an excursion made to Minnehaha Falls, and in the pavilion there an outdoor meeting will take place, after which a visit will be made to Fort Snelling. On Thursday, the 27th, the closing day of the convention, the programme provides for a pleasant steamer trip on Lake Minnetonka, one of the most beautiful lakes in the United States. A repast will be served at the hotel in the evening, after which the party will return by rail. It is the plan at present to leave Chicago on the morning of Sunday, the 24th, for Minneapolis, so that the beautiful scenery can be enjoyed on the Chicago, Milwaukee and St. Paul Railroad, which road runs through the beautiful dells of Wisconsin.

The official badge for the convention, which will be furnished by C. A. Wilkinson & Co., of Providence, R. I., the well-known filled-frame manufacturers, will be very handsome and unique. It will be finished in rose gold metal, with a pair of raised eyeglasses in the center. Attached to the rose-gold finished pin on top will be a red ribbon.

The Murine Co., Chicago, manufacturers of the well-known eye remedy, will furnish a beautiful hand mirror to all opticians attending the meeting, as a souvenir of the occasion.

President Holmes informs us that in addition to the speakers already announced for the next convention of the American Association of Opticians, to be held in Minneapolis the latter part of July, that papers will be read by representatives from the New England Association and from the Tennessee, Michigan and Ohio State societies, and also that E. Le Roy Ryer, of the Optical Society of the City of New York, will read a paper on the "New Test for Myopia and Hypermetropia Based upon the Chromatic Properties of an Eye," and Robert Finch, of Denver, Colo., inventor of the "Finch" mounting, will also appear on the programme.

President Holmes writes that he has received quite a number of letters from different sections of the country expressing the desire that the next convention be held in the East, New York City being the selection of most of those who express a preference for any particular place. As the conventions of last year and this have been held in the Northwest, it seems to be the general opinion that it would be wise to hold it in the East next year. Rochester, Buffalo and Philadelphia are also favored by some for the next convention, but New York City seems to be the favorite at this time.

Kentucky State Optical Association

The annual meeting of the Kentucky State Optical Association was held in the court house, Lexington, Ky., on May 16th. The meeting was largely attended and very successful. The following resolution was introduced and adopted by unanimous vote:

We, the members of the Kentucky State Optical Association, convened at Lexington, Ky., May 16, 1905, do most respectfully ask that all *manufacturing opticians in printing Rx blanks furnished to the optometrist*, leave off the title M.D. or Dr.

The report of the tri-State committee, whose object is to bring about an alliance of the three States, Indiana, Ohio and Kentucky, was received, the committee continued, and retiring President J. M. Irmen appointed chairman.

The Kentucky association would like to meet Ohio and Indiana associations in a joint meeting in Cincinnati.

A number of interesting papers were read and much practical instruction ensued. The next meeting of the association will be held in Georgetown, on October 17th.

The election of officers for the coming year resulted as follows: President, L. J. Backus, Louisville, Ky.; first vice-president, J. W. Keller, Georgetown, Ky.; second vice-president, Wm. A. Metzger, Lexington, Ky.; third vice-president, C. H. Bowen, Winchester, Ky.; secretary, A. S. Reeves, Winchester, Ky.; board of directors, Miss M. S. Arnett, Lexington, Ky.; O. R. King, Lexington, Ky.; J. W. Keller, Georgetown, Ky.; J. W. Jones, Mt. Sterling, Ky.; Wm. A. Metzger, Lexington, Ky.; J. M. Irmen, Louisville, Ky.

Following the business meeting a banquet was held, which was much enjoyed.

New York State Optical Society

The tenth annual meeting of the Optical Society of the State of New York, will be held in the Chamber of Commerce Building, Rochester, on June 20th. Two sessions will be held during the day, one at ten in the morning and the other at two in the afternoon. The annual dinner will be served at seven-thirty in the evening. Members will be entertained at this social occasion by the society and local dealers. An address of welcome will be delivered by the Hon. James G. Cutler, mayor of the city, after which the morning session will be given over to reports of committees and executive business. The session in the afternoon will be devoted to the reading and discussion of papers as follows: "Opportunities for the Optometrist," by A. Jay Cross. "The Commercial and Professional in Optometry," by Briggs S. Palmer, of Boston, and "Optical Legislation or the Relations which should exist between Oculist and Optometrist," by Alexander Martin. The reading and discussion of these papers will be followed by the election of officers and trustees.

Rochester is famed for the successful optical meetings held there, and the splendid entertainment which the local dealers always furnish, and the knowledge of this fact always attracts a good attendance to the meetings held in that city, so that a good attendance and successful meeting is anticipated.

Ohio Optical Association

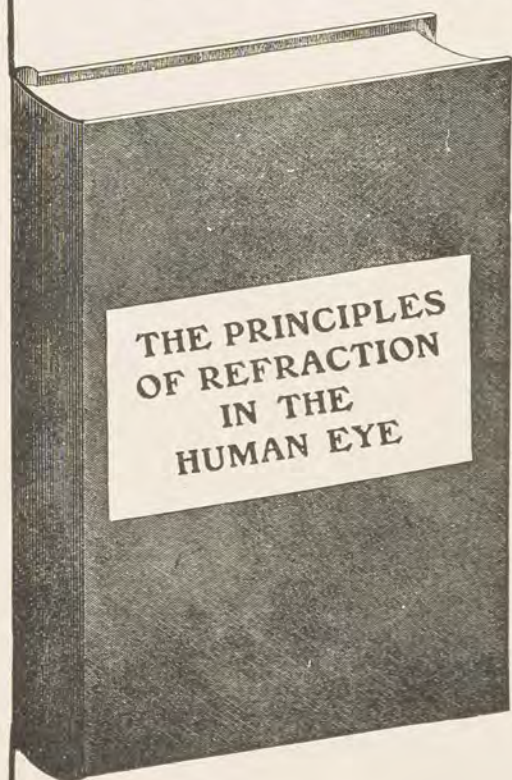
The third annual meeting of the Ohio Optical Association was opened at Columbus, Ohio, on Tuesday, May 23d, and came to a close at 5 P.M. on the following afternoon. Those in attendance remained until the end in order to avail of the course of lectures by Dr. Earl J. Brown on the intra-ocular pathological conditions of the eye. These lectures, which proved such an instructive feature of the meeting, were illustrated by microscopic reproductions and stereopticon views. The meeting was a very gratifying success in all respects and should prove a further stimulus to the organization movement in Ohio.

The officers for the ensuing year are: President, F. W. Wallis, Columbus, Ohio; vice-president, F. P. Barr, Lancaster, Ohio; secretary, Edw. L. Jones, Sandusky, Ohio; executive committee, N. E. Harris, E. Klein, F. S. Stengel; membership committee, A. Zollner, F. W. Burchard, Miss Grace Davis; examining board, Messrs. Eberhardt, Wallis and White.

Bad Eyes in New York Schools

Dr. John J. Cronin, chief of the division of school inspectors of the health department, announces, after careful investigation, that 33 1/2 per cent. of the school children of New York are suffering from defective eyesight. From March 27th to April 28th the inspectors examined 7166 pupils. Of these 1273 had various diseases of the eye and were not able to read the big letters on a chart twenty feet away.

A COMMON EXPLANATION FOR ALL REFRACTIVE PHENOMENA



The optician is wasting much time and gray matter uselessly who does not procure at once a copy of the new simplification of refractive sciences.

The Principles of Refraction in the Human Eye

Based on the Laws of Conjugate Foci

By SWAN M. BURNETT, M.D., Ph.D.

Dr. Burnett's book embodies an exposition of refraction which is absolutely fundamental and remarkably simple. Dr. Hubbell, the eminent oculist, says: It is one of the most important contributions to practical ophthalmology that has appeared in years.

The text is elucidated by 25 original drawings, executed by Chas. F. Prentice, M. E., the eminent optician.

Sent postpaid to any part of the world on receipt of price, **\$1.00** (4s. 2d.)

Published by **THE KEYSTONE**, 19th & Brown Streets, PHILADELPHIA, PA.

Optical Notes

✿ Chas. H. Davis, a well-known optician, of Gold Street, Brooklyn, died May 21st, after a brief illness.

✿ T. S. Jessee, of Valparaiso, Ind., is pursuing the study of optics at one of the Chicago colleges.

✿ About the middle of May, W. J. Jenkins, from Waynesboro, Pa., will open an optical business in Muncie, Ind.

✿ Jas. H. Baber, of Marion, Ind., will examine the eyes and furnish eyeglasses to any woman or child who is not able to pay for them.

✿ Henry Vaillant, O. R., has opened new and handsome optical parlors at 1293 Broadway, New York, and has installed therein an electrical grinding department.

✿ The next meeting of the Indiana Optical Society is scheduled to meet at the Denison Hotel, Indianapolis, on June 5th and 6th. A meeting of much interest and profit is anticipated.

✿ The optometry bill introduced in the Illinois legislature and passed by the senate was sent by the house to the judiciary committee, which returned it with an unfavorable report.

✿ E. Kirstein Sons Co., Rochester, N. Y., have commenced an action against Osborne Gillette and the Red Cross Optical Company, of Boston, Mass., for alleged infringement of patent, by selling eyeglass springs, which, the complainants contend, are duplicates of their Ela Shur-on spring.

✿ The Exchange Optical Co., Produce Exchange Building, Beaver and Whitehall Streets, New York, has been incorporated under the laws of the state of New York. The company will do a general optical business, and its officers are John W. Abrahams, president; C. C. Harrison, treasurer, and H. Butterworth, secretary.

✿ The Boston Optical Co. have again enlarged their quarters at 373 Washington Street, the enlargement being made possible by the new building that has recently been erected as an addition to the Jewelers' Building. This is the second spreading out the firm have done in their five years' existence, the expansions being necessitated by the steady growth of their business.

✿ The Lock-Head Screw Co. is a new optical concern at 78 Fifth Avenue, Brooklyn, N. Y. George A. Griffin, well-known on account of his former connection as traveling salesman for the Julius King Optical Co., and the Meyrowitz Mfg. Co., is the manager of the firm, and patentee of their new lock attachment for eyeglasses to prevent mountings from working loose. The new attachment will soon be exploited to the trade.

✿ Roehm & Son, 184-186 Woodward Avenue, Detroit, Mich., have issued an interesting folder bearing the title "Optical Progression." It exploits "Toric" and "Kryptok" lenses, and also a convenient tourist's lens box, a sample of each of which articles is illustrated. This folder is printed on white enameled paper in maroon ink and enclosed in a stiff red cover. Typographically it is attractive and it should prove of much interest to the spectacle-wearing public.

✿ The Interstate Optical Supply Association is the name of a new concern incorporated under the laws of the State of New York. The capital stock is \$100,000, and the purpose of the association is to conduct a regular jobbing business in

optical goods and supplies for the benefit of the members of the association. The officers of the association are Alexander Martin, New York, president; J. J. MacKeown, New York, treasurer, and C. A. Longstreth, Philadelphia, secretary.

✿ J. H. Hardin, of F. A. Hardy & Co., was one of the visitors at the recent convention of the New England Association of Opticians, held at Boston. This was the first Eastern optical convention Mr. Hardin has attended, and he was impressed with the attendance and character of the meeting. After the convention he ran down to Southbridge and assisted the officers of the American Optical Company in greeting the delegates who visited the factory the next day.

✿ J. J. Bausch, the senior member of the Bausch & Lomb Optical Co., Rochester, N. Y., and Mrs. Bausch sailed for Europe on May 9th on a pleasure trip and visit to relatives abroad. Their sons, William and Edward, and the former's wife, will also be of the party. The wife of Edward Bausch has been abroad for some time past on a health-seeking visit. The trip will mean a pleasant reunion of the heads of this company abroad, as Captain Lomb, of the firm, has been in Europe for some time past.

✿ Adolph E. Kahn and Herman Esaac have bought out the interest of their partner, Henry Kahn, the San Francisco optician, in the New York end of the business, conducted at 194 Broadway, and have changed the firm-name to Kahn & Co. The business will be conducted along the same lines at the old location. Adolph Kahn was formerly connected with the old firm of B. Kahn & Sons, of New York, while Mr. Esaac came from San Francisco a few years ago, when the firm was organized to succeed the old Maiden Lane concern.

✿ Frederick A. Bates, the well-known optical instructor, died May 18th, at the home of his father, in Baltimore, Md. The latter is a member of the firm of Hennegen, Bates & Co., leading jewelers, of that city. Mr. Bates went to New York City several years ago, and after attaining an insight into the science of optics, entered into a partnership with L. L. Ferguson. The firm opened up at 4 Maiden Lane, and later moved around the corner on Broadway. About a year or so later Mr. Bates withdrew from the firm and located up town, where he gave his attention largely to giving instruction in optics and writing for the trade press.

✿ John Wimmer, Indianapolis, has taken a ten-year lease on the Wiley Block, in North Pennsylvania Street, a part of which he now occupies with his optical establishment. The lease provides for the remodeling of the block and costs \$65,000. Work will be begun as soon as present leases on store room occupied by others than Wimmer have expired, which will be some months yet. The first floor will be converted into a model retail optical establishment, while the upper floors will be remodeled to meet the requirements of a large optical goods factory which Mr. Wimmer will add to his present manufacturing plant.

✿ E. Kirstein Sons Co., 202-206 Court Street, Rochester, N. Y., have issued the "Shur-on" catalogue and price-list for 1905. This is a twenty-four page compilation, printed in black ink on white enameled paper. Its dimensions are 10½ x 7 inches, approximately, and it is bound in a fawn cover of substantial material. Its initial pages are devoted to hints on ordering, guarantees, prices, a general talk on Shur-on eyeglasses, and an explanation of the company's system of numbering springs. The mountings and other eyeglass spec-

ialties made by the firm are handsomely illustrated and fully described in the succeeding pages, and there are various and convenient tabulations of numbers, dimensions, prices, etc. A series of attractive illustrations suitable for retail opticians' advertising, constitute another useful and interesting feature.

✿ Louis Kahn, one of the best known men in the optical trade in New York, died May 17th, after a few days' illness. Mr. Kahn was formerly of the firm of B. Kahn & Sons, the oldest optical firm in New York City. He severed his connection with the firm in 1898, and accepted a position with E. Kirstein Sons Co., of Rochester, acting as the firm's New York City agent and also covering near-by points. He has been connected with this firm since that time, with the exception of a year when he handled the optical line of L. W. Levy & Co. Mr. Kahn's three brothers are actively engaged in the optical business, Henry and George at San Francisco and Adolph in New York City. Deceased took an active interest in the Optical Society of the City of New York, and was always ready to yield any service he could to further its aims and work.

California State Association of Opticians

This association held its regular quarterly meeting in the California Hotel, San Francisco, Cal., on Tuesday, May 9th. President Laufer occupied the chair.

F. C. Worrell was admitted to active, and Dr. A. E. Banks to honorary membership. The report of the board of directors embodied the following:

We, the board of directors, through our committee beg to report by submitting correspondence between his excellency, the governor, Mr. Henry S. Cahn and ourselves with reference to the legality of Mr. Cahn's position as a member of the State Board of Examiners in Optometry, and advise that, in view of the fact that Mr. Cahn does practice optometry, it be the sense of the association that the before-mentioned gentleman be declared a legally-qualified member of the board.

After the reading and consideration of some communications it was proposed, seconded and carried unanimously that the report of the board of directors on Mr. Cahn's status as an examiner be adopted.

The treasurer's report showed the finances of the association to be in a healthy condition. Under the head, "Good of the Association," Mr. Kuttner made an earnest appeal to the members to maintain the regular prices, saying: "Every time an optometrist cuts he only cuts into his own income and is, consequently in the end, compelled to offer inferior service or goods, or both."

The participants in the discussion incident to this included Mrs. Handle and Messrs. Lawson, Meyer, Cahn, Kuttner, Chinn, Rinner and W. H. Davis, all of whom appeared to agree that the secretary should incorporate in the report of the meeting the fact that the board of examiners have offered a reward of \$25 for each arrest and conviction under the "Optometry Act." The purpose of this is to induce regularly registered optometrists throughout the State to furnish the association information concerning persons who are practicing optometry without a license. Such information will then be transmitted to the examiners, one of whom will personally conduct the prosecution in whatever part of the State the exigencies of the case may require.

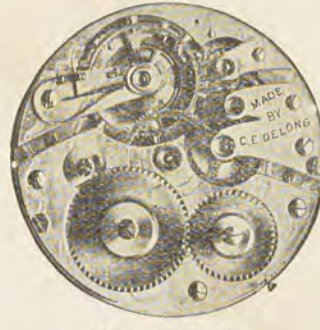
The recording secretary is at all times open to receive such information.



No. 1. Front view, showing indicator hand



No. 1. Rear view



16 Size. 21 Jewels



16 Size. 21 Jewels

ANNOUNCEMENT

Opening of the Southern Horological Institute, Dallas, Texas, June 1, 1905

This new and modern equipped school, with the latest approved methods for the rapid advancement of the young beginner in Jewelry, Watchmaking and Engraving, offers as a special inducement for the enrollment of the **first thirty students only**, a two-third rate of tuition. This special reduction, together with the cheapness at which room and board can be obtained here, would make a saving to the student of at least fifty per cent. on his course, and should be a great inducement to the young man of limited means desirous of learning a good trade.

SOME ADVANTAGES OFFERED

Large, commodious rooms with abundance of light, well ventilated, and all modern conveniences in connection. A large vault at your disposal for the safekeeping of tools or other valuables.

Our equipment of tools and machinery is the best the market affords. We furnish each student with a watchmaker's bench, lathe and complete attachments—foot-wheel, countershaft, vise, etc. Three jobbers of tools and material within two blocks of school.

THE FRIENDLY INN

built and equipped with all modern conveniences for the accommodation of young men **only**, situated on the car line five blocks from the school in best residence part of the city, with beautiful lawns, tennis courts, etc., in connection. Here good room and board is furnished to the student at a nominal cost of \$4.00 per week, accommodation of from 45 to 50 students. We would advise those who contemplate coming here to write us a few days in advance for accommodations.

Mr. C. E. DeLong, formerly instructor in Watchmaking and Engraving in one of the best schools in the United States, and with a practical experience of twenty years at the bench, will be in charge of this department. The accompanying cuts are a few samples of his work and of students under his supervision.

Mr. H. L. Dickson, a manufacturing jeweler of undisputed reputation, with over twenty-five years' experience in the manufacture and repair of Jewelry, Ring Mountings, Stone Setting, Plating, Enameling, etc., will be in charge of this department.

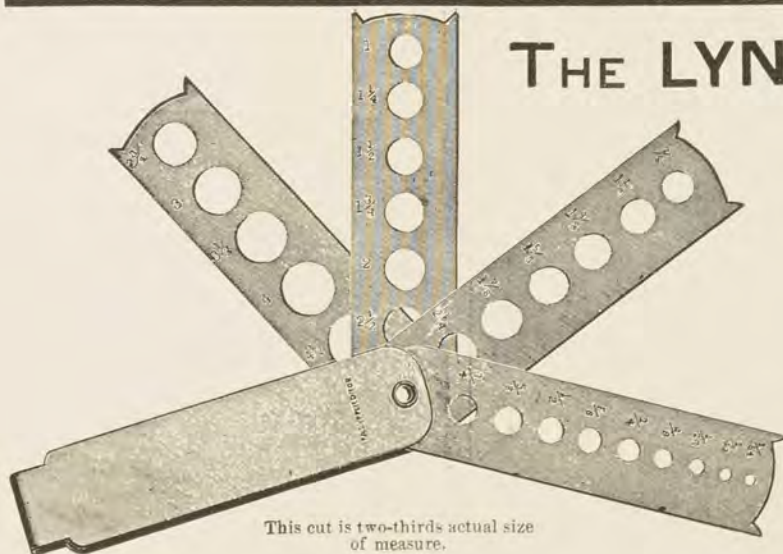
We wish to impress upon the public that our aim is to make this school the Leader. We are both theoretical and practical men, with a reputation at stake, and we can assure every student that attends our school that he will be well rewarded for his time and money spent.

Write for catalogue and particulars.

Very truly yours,

Southern Horological Institute, 253 Main Street, Dallas, Texas

NOTE.—Cut No. 1, calculated for a railroad watch, was designed and made by C. E. DeLong; it contains several valuable improvements not found in other watches of similar type, and is protected by four U. S. patents. It has a balance staff that can be removed and a new one inserted in from one to two minutes without disturbing in the least the hairspring, roller, truth or poise of balance. An indicator hand is located underneath the second-hand, which indicates at all times the exact time elapsed since the watch was wound. It also contains improved banking pins and regulator.



This cut is two-thirds actual size of measure.

THE LYNCH DIAMOND MEASURE

Over Five Thousand (5000) of these Measures have been sold in New York State alone!

The measure consists of four blades and a cover. These blades contain a series of holes with the weights marked opposite. These holes, clearly indicated, are placed over the stones to be measured and when all the part showing out of the top setting, including sides, etc., has been completely covered, you have the proper weight. This Measure, made in both Aluminum and the highest quality of German Silver, is very much superior to all others on the market for the following reasons: It is positively the *only gage* which will measure diamonds mounted in Cluster and Gypsy settings. It is the only gage for the correct measuring of diamonds in every form of setting. It is the only gage which measures with equal facility round, square and oblong-shaped stones.

It is the easiest adjusted gage, taking only a second to measure with. It is the lightest gage, besides being the best looking and the easiest carried—it is no larger than an ordinary pocket knife when closed. It is the cheapest gage by far now on the market.

It can be manufactured at a very moderate price in the form of a Souvenir should you so desire, and will prove highly acceptable to your customers.

Price, \$1.00

For sale by all the Principal Tool and Jobbing Houses

J. D. LYNCH

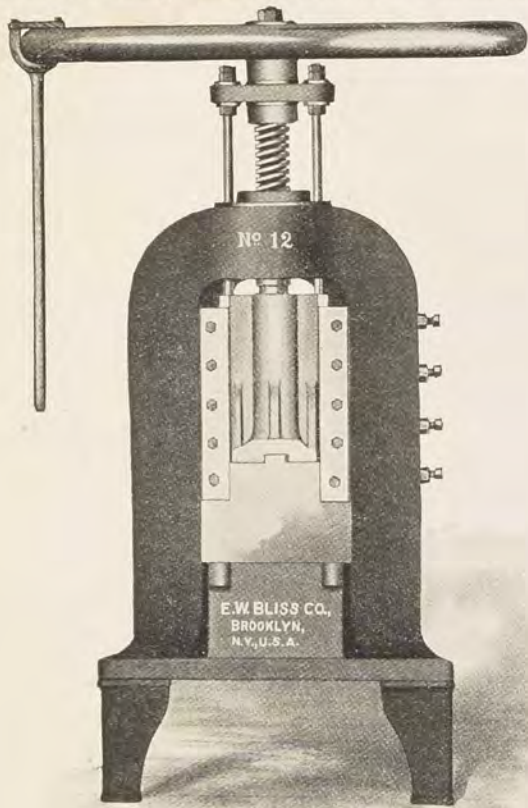
1 Union Square, New York City

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 jeweler and optician thoroughly posted on the very latest and most salable goods, and the workman at the bench equally well posted on the newest inventions and improvements in tools and appliances.]

Improved Press for Jewelry Work

A new press which will commend itself to the jewelry manufacturer is shown in our illustration. It is the product of the E. W. Bliss Co., Brooklyn, N. Y., and is intended for use in the machine shop or in the engraving department for hubbing dies and punches as well as for testing the various



dies used in the manufacture of jewelry. It is also particularly adapted for heavy cutting and stamping; also for embossing in the manufacture of watch cases, medals and other work of like character. The slide is very long, as are also the gibs, which are carefully scraped and fitted, thus insuring accurate guidance of the tools which are operated in the press. The balance wheel weighs 950 pounds; the screw is 4 inches in diameter. The total weight of the press is 5000 pounds.

Safeguarding Device for Fountain Pens

The Ideal clip-cap is the name given to a convenient form of protection for their fountain pens, introduced by



L. E. Waterman Co., New York. As seen in the illustration, the invention consists of a spring, one end of which is firmly secured to the pen and projecting therefrom in a direction parallel with the long axis of the pen and terminating at its free end in a ball point on the side of the spring next the penholder. This ball point of the spring forms one jaw of a clamp of which the penholder forms the other jaw, and this clamp, by the action of the spring, engages the pocket and holds the pen securely therein. Not only does the clip prevent the pen from slipping out of the pocket, but it also prevents it from rolling from the desk. It is made of German silver and is ornamental as well as useful. When specially ordered, it may also be had in 14 K. gold.



New Neck-Chain Catch

The device shown in the accompanying illustration is known as the Bag-Nall catch. This catch is made by Doran, Bagnall & Company, North Attleboro, Mass., and is equally practicable on neck chains, bracelets and other such articles of personal adornment. It is said to be an improvement on snaps, spring rings, locks, etc. It is durably made, not likely to get out of order and pretty in appearance.



Safety Guard for Scarf Pins, Brooches, Etc.

There is always a demand for devices which, while neither cumbersome nor obtrusive in themselves, serve to insure personal jewelry from accidental loss and from the wily dexterity of the light-fingered. One of such devices is shown in the accompanying illustration. It is known as Green's Imperial safety guard and is made by W. Green & Co., 6 Maiden Lane, New York. This guard is neat, simple and efficient in operation. It will fit any size of pin and may be used to secure scarf pins, studs, hat pins, brooches, etc. It is instantaneously adjustable by one turn of the screw with which it is equipped. As a means of obviating anxiety as to the security of one's jewelry wearables, this interesting device seems calculated to appeal strongly to popular favor, especially in this age of dexterous thievery.



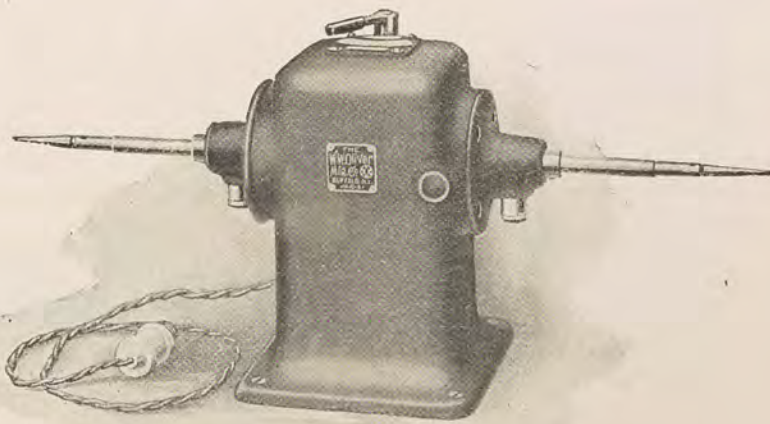
A New Stud Screw Lock Nut

Improvements for the greater comfort of the eyeglass wearer and the better preservation of his glasses are still crowding one another. One of the latest is the Todd stud screw lock nut, which is made by the Kennedy Optical Co., Detroit, Mich. This ingenious device, which our illustration explains, effectively locks the stud screw, keeps it from becoming loose and adds materially to the life of the glasses and satisfaction of the wearer. The Todd invention merits the attention of the trade.



An Electric Polishing Lathe

A valuable addition to the many new electrical devices, is the electric polishing lathe for direct current, shown in our illustration. These lathes are well constructed, embodying all the essential features of efficient, durable machines, and they are ornamental as well as useful, being finished in dark enamel, which, in contrast to the lacquered brass and polished steel



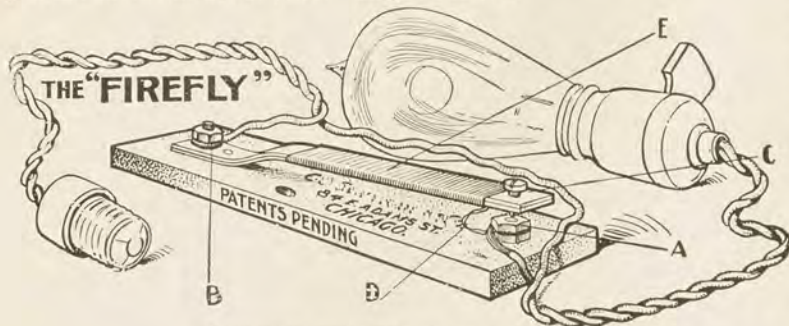
parts, produces a very pleasing effect upon the eye. The frames are of iron of high magnetic permeability and entirely enclose and protect all vital parts from dust, moisture or mechanical injury. The lathes are made by the W. W. Olver Mfg. Co., of Buffalo, N. Y. The armatures are of the slotted or ironclad type and of generous size. The core is built up of thin sheet-iron disks, well insulated from each other, thus reducing heat losses to a minimum. It is then wound, dipped in insulating varnish and baked thoroughly. All other parts are made with like care with a view to maximum efficiency.

(Continued on page 1021)

Do You Want to Improve Business?

Then hustle. WE DO. It pays to advertise

With the new improved genuine platinum disk FIREFLY you can make an outdoor or a window sign that will be a success. Just think how many ways you can fix it up, and how easily you can afford one at our price. **Only \$1.80 Net**



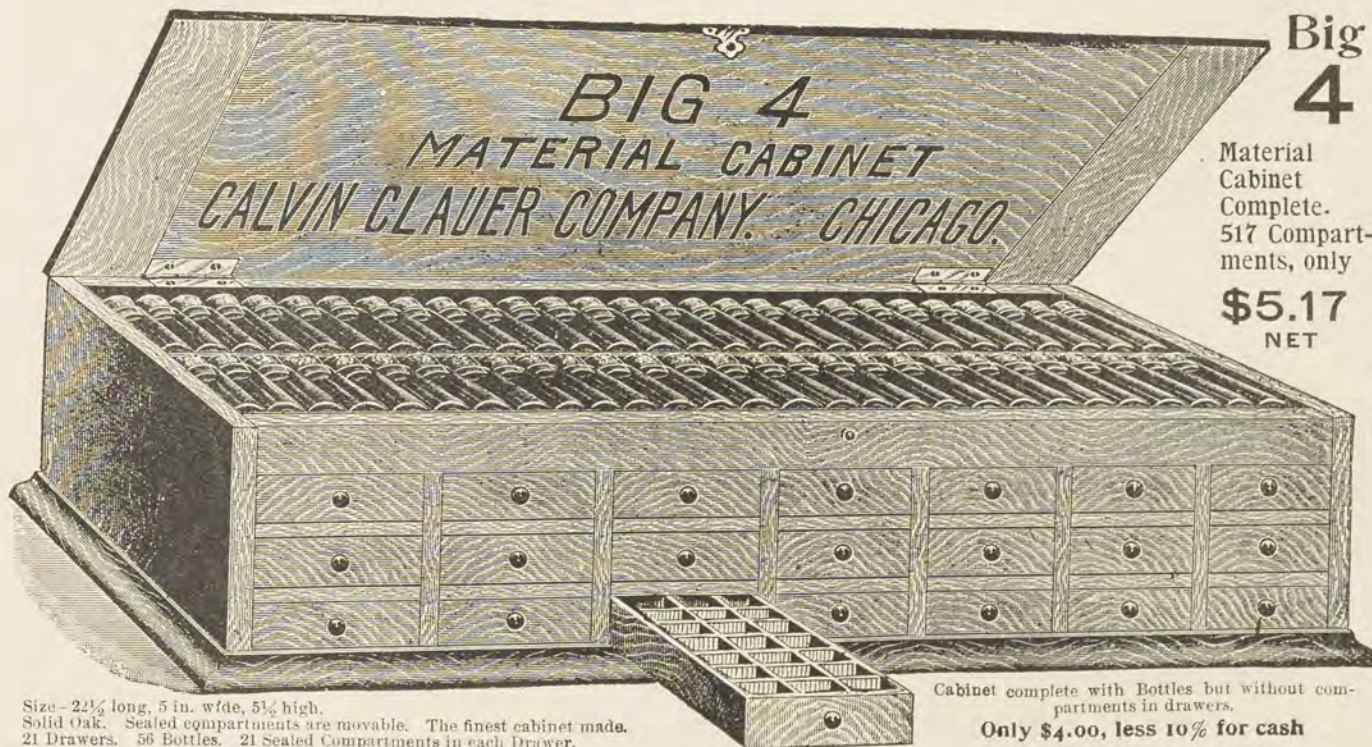
IMPROVED FIREFLY. Old price, \$3.00 each.
Our price, \$1.80 Net
Everybody can buy one or two at this price.

This flasher will operate from one to three 16 candle-power lamps, one to six 8 candle-power lamps, or one to twelve 4 candle-power lamps, on either direct or alternating current. The opening and closing of the circuit is caused by expansion and contraction of metals due to heat produced by the electric current; thus the mechanism is extremely simple and entirely automatic and noiseless in operation. It requires absolutely no attention, and there is nothing to wear or get out of order. The contacts are **heavy platinum** and will wear indefinitely, because the spark is so very slight that it can scarcely be seen. The "Firefly" will light the lamps from 15 to 30 times per minute, and by means of an adjustment screw the interval between flashes can be regulated, thereby materially changing the effect. With this flasher less electricity is consumed than if the lamps were constantly bright. The effect of alternate light and darkness produced in a sign or show window causes an action and animation that will attract much attention.

A Big Bargain in Benches



Roll top, size 44 long, 26 wide, 40 high, with 10-inch curtain.
\$12.40 Net
Plain top, size 40 long, 20 wide, 40 high.
\$7.45 Net
Finished in Oak only.



Big 4

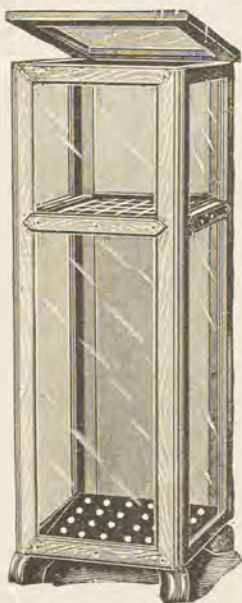
Material Cabinet Complete. 517 Compartments, only **\$5.17 NET**

Size - 22 1/2 long, 5 in. wide, 5 1/2 high. Solid Oak. Sealed compartments are movable. The finest cabinet made. 21 Drawers. 56 Bottles. 21 Sealed Compartments in each Drawer.

Cabinet complete with Bottles but without compartments in drawers.
Only \$4.00, less 10% for cash



LaFave Optician's Table
The most economical operating table in the world. Built of iron, finished in Japan; leather top. Size, 16x24; weight, 35 pounds. Regular price, \$6.50.
Our price, \$5.35

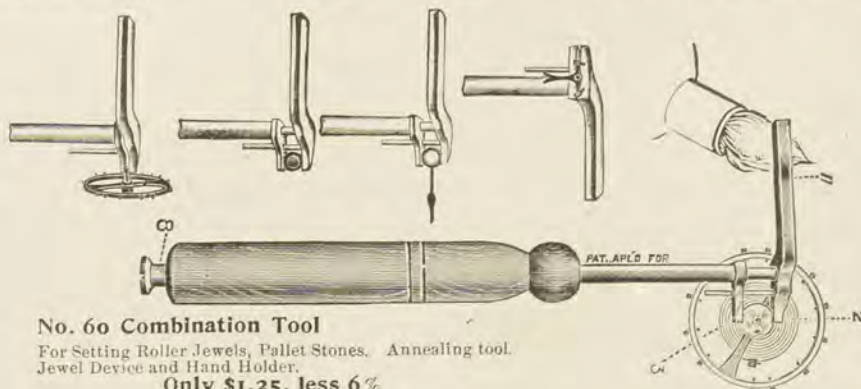


Do You Carry Umbrellas or Canes?

Finest 25-Hole Case on the market. Height, 44 in.; width, 17 in. Oak, Walnut or Cherry finish. Shipped put up ready for use.

Regular price, \$9.00.

Our price, \$6.90 Net

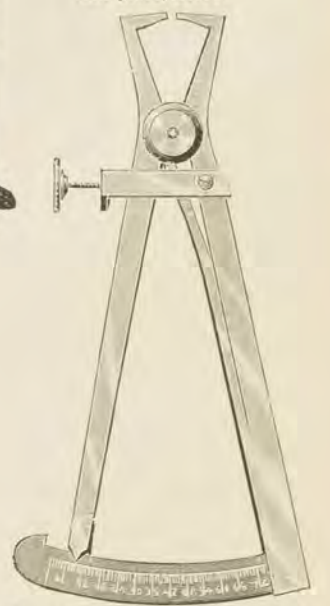


No. 60 Combination Tool
For Setting Roller Jewels, Pallet Stones. Annealing tool. Jewel Device and Hand Holder.
Only \$1.25, less 6%



Latest Improved Jewel Setting Cutter and Burnisher
With this tool you can open any size Jewel Bezel. No. 72. Each, 47 cents net

If you want a House that you can depend upon to fill orders Right, give us a trial; you will find we excel in promptness, carefulness and lowest prices.



Degree Gage No. 30, with set screw

Very convenient when it is desired to keep the gage set to a certain size. Each, 75c.



The New Carborundum Crevice Set as shown, 3 wheels, assorted sizes, and arbor complete. Regular price, 35 cents.
Our price, only 19c. Net

Calvin Clauer Company, WHOLESALE JEWELERS AND WATCHMAKERS' SUPPLIES

151-153 Wabash Avenue, CHICAGO, ILL.

New Goods and Inventions

(Continued from page 1019)

A New Adjustable Bracelet

A welcome variant of the popular adjustable bracelet, suggestively named the Velvet, is the new narrow pattern, shown in our illustration. The trade will be pleased to know that the Velvet, which is adjustable to any wrist, whatever its size or conformation, can now be had in narrow widths and in children's sizes. This bracelet excels in comfort and comeliness as well as security, and is made in rolled-gold plate and sterling silver, either with plain or signet or locket top. The Velvet bracelet is the product of Mason, Howard & Co., of Attleboro, Mass., and will prove a seasonable addition to jewelers' lines.



Machine for Tagging Rings

One of the latest contrivances intended to facilitate the arrangement and classification of the jeweler's stock, is shown in the accompanying illustration. This device takes its name from the function which it is designed to fulfill and, accordingly, is known as "The" machine for tagging rings, etc. It is no less useful, however, for tagging other articles of jewelry. It is one of the conveniences made by the Hold-On Clutch Co., 33 Gold Street, New York, and consists mainly of an eyelet machine, while its accessories include 1000 celluloid tags and bottle of ink. It seems to have the qualities of a time and labor saver.



New German Silver Bags

Among the fashionable novelties of the time are a new line of German silver bags offered to the trade by Codding & Heilborn Co., of North Attleboro, Mass. These bags have many meritorious points in style, construction and finish. The principle upon which they are made obviates rivets, and the tops are not drilled. These bags are made in Roman, silver, gun-metal and old English finish. The linings are of handsome white kid and the sizes are from two to six inches.

New Fountain Pen

The improvement of the fountain pen provides an interesting subject for the exercise of inventive genius. One of the latest products of this kind is the pen shown in the illustration herewith, and known as the Eagle "Flash." This is marketed by M. J. Averbeck, 19 Maiden Lane, New York, and is a practical self-filling pen in every respect, possessing many desirable features, such as cleanliness, convenience and comfort in handling and use. It is filled by pressing a button, therefore requires no glass fillers; nor is there any spilling of ink, clogging or shaking, or loss of cap. These pens are made up in dozen lots, nine plain and three with gold bands.



A New Phoroscope

As our optical readers understand, a phoroscope is an instrument used in exercising the muscles of the eye. In the accompanying illustration we show a new form of phoroscope made and sold by Rhodes Watch Tool Co., Chicago, and for which exceptional merit is claimed. The makers state that the gymnastic exercises that this instrument facilitates are not designed to correct errors of refraction of the eyes nor the so-called muscular



imbalances. The purpose of the exercises is to build up strong physiological power, enabling the eyes, within themselves and by their own spontaneous resources, to carry whatever burden is imposed by the defect with greater ease and comfort. We are told also that the course of exercise stimulates nerve centers that are, normally, never called upon for action, and imbues them with life by giving them work to do. With a little instruction the patient is able to operate the instrument, and all the optometrist requires to do is to change the positions and values of the inserts. If a special space is provided for the exercise, such visits will interfere very little with the regular office practice.

Tile and Mosaic Floors

We occasionally receive letters from merchants who contemplate renovating their stores, asking for information with regard to the cost and durability of tile and mosaic floors. We have inquired among the tile and marble workers of the city and have gotten the following facts:

The cost of tile, the unglazed, of course, being used for floors, is approximately sixty cents per square foot. Properly laid, it will remain intact for about ten years. After that the tiles begin to loosen and it requires occasional repairs.

The tile floor is not so popular now as formerly, the mosaic having largely superseded it. Of the latter there are two kinds, the terrazzo and the roman. The former of these is a mixture of very small chips of marble and cement, is made in laying and afterward polished. A floor of this composition is much more durable than tile and costs about half as much, or about thirty-five cents per square foot.

The roman, the kind generally seen in the better class of stores, is made up of small marble cubes, usually one inch, laid separately in cement. The cost of this kind is from sixty cents to one dollar per square foot, the popular colors of marble being white, black and red. A floor of this kind will last, we are informed, from seventy-five to a hundred years.

Those who have floors of tile or mosaic say that they can be kept clean with much less work and that the idea that these materials retain heat and cold more than wood may be true in fact, but that it is not noticeable in any appreciable degree.

—Apparel Gazette.

DR. LOEB, Professor of Therapeutics of the University of Berlin, made the astounding remark that at least one-fifth of the human organs could be spared." "For example," said the learned physician, the human spleen is of no known use. The appendix is for no other purpose than to give appendicitis," and to demonstrate his theory the doctor submitted himself to a surgical operation for the purpose of having the appendix removed. The human machine is like any other machine, and if we could find a way to get along with one-half of the human machinery, we would be much happier. So we find that in machinery the less complicated the more desirable. *American watch movements* have taken the preference in the world's market on account of their simplicity.

Catches on jewelry boxes are not for ornaments. They are needed to keep the box closed, and yet it does not always stay closed. Very often the box warps, as wood or fibre is apt to do, and becomes a nuisance. This cannot be with our patented metallic jewelry boxes, as they are made of the best tempered steel, hence can never warp. There is no visible catch—the box opens and closes by a slight pull, and it is our *double-action automatic spring that does it*. We cover them in velvets, silks, etc. They are beautiful in appearance, and are to-day the best, the cheapest and the most economical jewelry boxes in the world. If you have not yet had any, get some now, and you will never use others. Ask your neighbor, and he will tell you what he thinks of them.

Our 400 line is a beautiful velvet box. We sell the ring, brooch, dumb-bell, screw earring, including lady's watch, at \$2.85 per dozen. This we most recommend. Our 300 line velvet is a little cheaper. Our 500 is our finest, and of course costs more. We also have our dandy round jewelry boxes, in brooch, watch, etc. These we can give you at any price. It depends how you want them finished.



Our Dandy Box No. D. M. In three sizes 2", 2½" and 3". The box is made of the best tempered steel, without hinge or catch. Lift cover is suitable for watch, brooch, chain, bracelet, etc., known to the trade as handy box. Covered in quality V fancy or plain velvet at \$1.75 per dozen; in good quality velvet, \$2.00; better, \$2.50; and fine quality velvet or fancy silk, \$3.50 per dozen. This is the handsomest and cheapest box for the money in the market.

We Make—We Sell

The Best Jewelry Boxes for Any One's Money on Earth

NOW MAKE US PROVE IT

Last January we sent out our first and only advertisement. Orders came in much faster than we were able to fill. For this we offer due apology and promise that all orders from now on will be filled more promptly. We will not print any first order of less than a dozen, nor less than half-dozen of any one kind. Orders for sample single boxes must be accompanied with pay.



Patentees and Sole Manufacturers of the
EMPIRE AUTOMATIC-SPRING METALLIC JEWELRY BOX

Consult with your exchequer, and find out how much money you want to invest in a Dandy Box; and we will meet you. How will \$1.75 per dozen suit you? Though so cheap, they are very nice. Of course, for \$2.00 they are made of better material.

It is the general satisfaction our boxes have given so far that supplies us with the right vim. We sell everything F. O. B. Buffalo, but will send you any order you may favor us with, with the privilege to return at our expense if not satisfactory. While we will appreciate your trade we want it understood that it is business on business principles we are after. We offer you the best goods of the kind for the least money. We give you quality and price.

The live merchant makes more money in buying than in selling.



No. 400 Ring Box is made of the best tempered steel, and will not shrink nor warp; graceful round top, no unnecessary thickness to its sides, beautiful in appearance, covered in good silk velvet at \$2.85 per dozen.

Nowadays it is all in appearance: goods should be shown in the most appreciative condition. A nice jewelry box will help sell your jewelry.

We have tried to describe our goods the best we know how. The next thing is for you to see them and judge for yourself. In doing so you take no chances. As we have said before: We guarantee our goods to your satisfaction. May we expect to hear from you?



No. 412 Watch Boxes are made of the best tempered steel, covered with a good quality of silk velvet, with our patented automatic spring attachment for opening and closing; will not warp or shrink; have a dome top, round corners, and are beautiful in appearance. Price in 0 and 6 size, \$2.85 per dozen.

EMPIRE JEWELRY CASE CO.

105 Seneca Street, Buffalo, N. Y.



The Canadian Horological Institute, Toronto, Canada, will enter upon its sixteenth year and upon a new term on September 5th. The reputation of this school always insures a large attendance.

F. D. Mears, hitherto in the jewelry business at Greenfield, Iowa, has removed to Vancouver, Wash., and resumed business there. Mr. Mears change of location was primarily for the benefit of his health.

G. J. Daum, the Augusta, Ky., jeweler, makes a specialty of handsome and unique class pins, one of which he presents yearly to every local graduate. This should prove an advertisement such as is calculated to make many future friends for Jeweler Daum's store.

A. B. Swift, for some time watchmaker for J. C. Sipe, 18½ Meridian Street, Indianapolis, Ind., has resigned his position and bought out the watchmaking business of Albert F. Lich, 918 State Life Building, and will make a specialty of watch repairing for the trade.

Andrew Mueller, of Baltimore, Md., designed and made the beautiful past-master's jewel recently presented to Harvey E. Birch, of the Mystic Circle Lodge, A. F. and A. M. The piece was much admired for the beauty of the conception and the excellence of the execution.

F. R. Cross & Co., rooms 513-14 The Wyandotte, Columbus, Ohio, announce that they have started in the wholesale watch, watch material, tool and supply business and that they carry a complete line of the standard makes of watches, watch cases, clocks, findings and jobbing stones, etc.

Arthur S. Ferris, a Norwalk, Conn., jewelry repairer, was severely burned recently by an alcohol lamp. Mr. Ferris had just lighted the lamp when it suddenly exploded, and the blazing alcohol was thrown all over his face, some running down his neck and under his clothing. He screamed for assistance, and a friend who happened to be in the store, succeeded after considerable work in smothering the flames, using his bare hands in the operation.

A. H. Pond & Co., wholesale jewelers, Syracuse, N. Y., have removed their office and sales-rooms from 132 South Salina Street, to larger quarters in the White Memorial Building, at the corner of Salina and East Washington Streets, situated half a block from their former location. Their new home comprises rooms 6, 7 and 8 on the second floor. This increase of space enables them to carry a larger stock, and to better handle their growing trade.

Among the students recently admitted to the Philadelphia College of Horology, are the following: W. C. Flautt, Frederick, Md.; H. B. Jones, Rome, Ga.; C. F. Trunk, Phoenixville, Pa.; J. R. Haldeman, Line Lexington, Pa.; J. Zeeler, Lewisburg, Pa.; H. R. Walter, Lewisburg, Pa.; D. B. Manning, Cortland, N. Y.; C. G. Mackleet, Philadelphia, Pa.; Rose Wolfram, Darlington, S. C.; G. M. Geer, North Concord, Ohio; S. Temerman, Poitsville, Pa.; C. H. Ziegler, Columbiana, Ohio; J. D. Clark, Batavia, N. Y.; Mary Northcraft, Johnstown, Pa.

The board of directors of the New Haven Clock Co., New Haven, Conn., at a specially convened meeting, passed resolutions expressing regret for the sudden death of Frank Stevens, late secretary of the company, and condolence with his bereaved family. Mr. Stevens' untimely end, which resulted from an automobile accident in France, was reported in the May issue of THE KEYSTONE. At another meeting of the board, E. P. Root was elected secretary of the company in succession to deceased.

R. Wallace & Sons Mfg. Co., silversmiths, Wallingford, Conn., have issued catalogue and price-list No. 95, of 1835 R. Wallace silverware. This is a very elaborate compilation, the dimensions being large—13½ x 10½ inches, approximately—permitting of very impressive pictorial and typographical display. The cuts are especially rich and imposing and portray with rare fidelity the artistic patterns of silverware manufactured by this company. The introductory pages contain fine half-tones of the firm's founder and of its present factory, both accompanied by appropriate text. The basic metals and plates used in manufacturing are next dealt with and then follow the goods themselves with explanations of the various styles and qualities and regular price tabulations.

H. E. Heacock, of the firm of H. E. Heacock & Co., of Manila, sailed from San Francisco on May 24th, and is due to arrive home about the 21st of this month. Mr. Heacock has been in this country for several months past purchasing stock for his Manila business. He was formerly of the firm of Heacock & Freer, of San Francisco and Manila, but believing that prospects were so good in the Philippines for a jobbing firm, he sold out his interests at San Francisco to his partner, Mr. Freer, and hereafter will give his whole attention to his business interests in the Philippines. Hereafter his firm will carry complete lines of everything needed by jewelers and opticians. The firm have connections with some of the largest and best manufacturers of this country, and have already built up a fine-growing business in Uncle Sam's far Eastern possessions.

Wm. B. Durgin, president of the Wm. B. Durgin Co., manufacturers of sterling silverware, Concord, N. H., died on Saturday, May 6th, at his home in that city, after a three-weeks' illness from nephritis, aged seventy-two years. His passing marks the close of a career remarkable for initiative, for perseverance and for high integrity. Mr. Durgin was a silversmith with over half a century of practical experience, and to this he united the business instinct indispensable to business growth and especially to the direction of a large enterprise. He was born at Campton, N. H., and served an apprenticeship in the silversmithing shop of Newell, Harding & Co., Boston, Mass., and, as an initial venture for himself, began to make spoons by hand, disposing of his product by personally canvassing the trade. His goods proving reliable, his business steadily grew, and in time he erected a factory at Concord, which, with periodical enlargements and accretions, served the company until last year, when the plant, hitherto somewhat partitioned, was consolidated into a new and finely appointed building, erected by the company at Washington and White Streets. The removal of the company to its new home, and the fiftieth anniversary of the firm's establishment happily synchronized last autumn, and were fittingly celebrated. Mr. Durgin conducted the business in his own name up to 1898, when the present

corporation was formed, and he became its president. His encouragement of artistic silversmithing in Concord was an appreciable service to the community in which the greater part of his life-work was performed.

The Jewelers' Fraternity, of New Orleans, La., signalized its third installation of officers by a breakfast at the City Restaurant on Monday, May 15th. This interesting and enjoyable event was presided over by President Granzin, who, in an appropriate speech, dwelt on the aims of the Fraternity and the achievements of its three years' of existence, especially its influence in bringing the members of the trade into more intimate social, and business relations. Leonard Krower, the well-known New Orleans jobber, sent a telegram wishing success to the fraternity, and T. Hausman & Sons sent a check for the sick members' fund. Both communications were acknowledged by a standing vote of thanks. The most graceful feature of the meeting was the presentation to President Granzin of a loving cup. This unique gift is in the form of a crucible, six inches high. The presentation address was made by Judge Skinner. The cup was filled with wine, and used by the members to pledge the health of the organization. In addition to President Granzin, these officers were elected: Thomas F. Hall, vice-president; Daniel Ramelli, recording secretary; Alphonse Mandot, financial secretary.

Queer Bank Checks

A torn linen collar, a piece of lath, a cuff, and half a dozen other old objects hung above a certain bank clerk's desk in this city, says an exchange.

"My collection of queer checks," the young man said. "Each of those things is a check. Each was duly honored. Each has a story.

"I have been collecting queer checks for three years. That piece of lath started me. A bank honored the lath for \$250. It was made into a check by the owner of a saw mill, who was out at the plant with his son, thirty miles from any house, and totally without paper, let alone a check book. The money was needed to pay off the hands. The saw-miller wrote on the lath just what a check correctly drawn has on it, and he sent his son into the bank to get the money and to explain. The lath check was honored after some discussion among the bank's officers.

"The cuff check was drawn by an actor who had become slightly intoxicated, got into a fight and been arrested. He was treated cavalierly in his cell. They wouldn't give him any paper and he bribed a boy to take the check to a bank. The boy got the money, and with it the actor paid his fine. Otherwise he'd have been jailed for ten days. Thus a cuff check may be said to have saved a man from prison.

"The check written on that linen collar won a bet of \$5. A man bet a woman that a check made on a collar would be cashed, and, of course, he won his bet.

"Your bank, if you carry a good account, will honor the most freaky checks you can draw up. In such monkey business, though, I won't encourage you."

"I can't give up the valuable information which I get from The Keystone, as my thirteen years of successful business was and is largely brought about by adhering to the principles which I have from time to time noticed in your valuable paper."
—G. B. Tilghman, Jeweler, Cape Charles, Virginia.

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for the greatest number of sales made by any single auctioneer; for the largest individual auction sales ever conducted; for the biggest returns obtained for goods sold, and for the swiftest and most successful selling.

MY CLIENTS RUN NO RISKS

In order that the sale may be a success for me, it *must* be a success for you, and in 30 years of auctioneering I have not made a single failure.

MY CREDENTIALS ARE ENDORSED

by hundreds of retail jewelers (many of these the largest in the country), for each of whom I have made from one to half a dozen successful sales. Their names and addresses and opinions of me are yours on request.

MY EXPERIENCE AND ABILITY

have evolved what is now known all over as "**THE MARTIN SALE,**" a new kind of sale which ensures an auction that will not only free the jeweler from financial burdens, but ensure him a good profit on goods sold, help his reputation and increase his patronage. To secure my services, write at once.

S. MARTIN

Jewelers' Auctioneer

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Long Distance Telephone
Number North 245

Milwaukee, Wis.



J. V.
MOROSS

*Jewelers'
Auctioneer*

Bric-a-brac and
Art China

I GUARANTEE
PROFITS ON ALL
SALES

No goods misrepresented. Over twenty years' experience. I thoroughly understand the price of goods without asking, which saves time and money.

NO STOCKS TOO LARGE; NONE TOO SMALL

Have sales dated up to June 20th. Just finishing one of the largest sales ever conducted in the State of Ohio. Best of reference and terms furnished.

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Sales made for the legitimate trade only in any part of the English-speaking world.

Write for booklet containing information relative to Auctions.

This is the time to write and secure a dating for either NOW or this fall.

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Summer Sales Succeed



Don't have a dull summer. People have just as much money to spend during the summer months as in December. It is only a question of knowing how to convert your goods into cash. You cannot do it, perhaps. We can; that's our specialty.

For years we have been at this business of making goods move when proprietors would rather have money than a lot of stock, and when this is done the right way—our way—it works to your future as well as to your present advantage.

Just read the following letter written after we had conducted a successful July and August sale:

Profit of \$2000

"You left me over \$6000 in cash for a stock that invoiced only \$4000."

MRS. L. SCHUETZ,
Olean, N. Y.

Large Following Sale

"As the successor to Mrs. Schuetz, I feel that the auction sale was the best thing that could have happened; the holiday business following the sale was the largest on record."

OTTO MILLER,
Olean, N. Y.

Especial Satisfaction

"These gentlemen make special and constant effort to work off the jeweler's old stock, and our customers report especial satisfaction because of this feature of their work. We cordially commend them to jewelers that desire the services of skilled auctioneers."

NON-RETAILING Co.,
Lancaster, Pa.

Norwich, Conn., Sept. 24, 1904.

MITCHELL & TILLOTSON:

I am pleased to say to all who are thinking of having an auction sale to clean out their old stock that I cannot imagine how anyone can take more interest than you do in cleaning out the old goods. Surely you sold for us some goods that had been in our store for thirty or more years, and in many cases we were extremely surprised at the prices received.

Nobody could have had a greater dread of an auction than we did before the sale, and now I could go through another unhesitatingly.

Best of all is the impression held by the public after the sale. I think that such a sale honestly conducted, as you conduct your sales, helps the reputation of the firm for whom you sell.

I only hope we may be able to secure your services whenever we get ready for another auction.

GEO. W. CROSS,
Manager for J. & G. H. Bliss.

During the so-called dull season, we can sell from \$2000 to \$5000 worth of goods a week for you, and at a splendid profit, too. We do not advocate "cheap goods" sales; we can sell your most expensive stock—get rid of all your old card jewelry, passe rings, shop-keepers in silver hollowware, etc., and all without any misrepresentation and without creating any dissatisfaction on the part of old or new customers.

We can do this for you in June, July or August as well as at any other season. Later on trade will come of its own accord; the summer is the time to force sales. We can make your store a center of interest to others, a money-making entertainment to you.

Let us clear up all your dead stock, build up your bank balance and give you a good start for the fall business. Write at once, telling us the size of your store, the size and character of your stock, whether you or any other jewelers in your town have had sales and when, and how long you have been in your present location. Tell us your money troubles. Your letters will be held in strict confidence, and whether we make an arrangement with you or not, our advice and suggestions will be valuable.

Three Successful Sales

"Mitchell & Tillotson have made three sales for me, each one being more successful than the one preceding it. The result of these sales has been new customers, increased trade and an absolutely clean stock."

WM. GLOVER, JR.,
Hazleton, Pa.

An All 'Round Success

"The sale was a success from every point of view."

A. D. NORTON,
Gloversville, N. Y.

Sold the Chestnuts

"You sold all my 'chestnuts' and averaged nearly thirty-three per cent. profit on the sale. There was nothing in the three-weeks' sale that I was ashamed of, or had reason to apologize for. You are not only successful, but you represent the best type of success."

W. S. QUENCER,
Watertown, N. Y.

Mitchell & Tillotson

37 Maiden Lane, NEW YORK



DEAR SIR:

NEW YORK, May 1, 1905.

We beg to inform you that we have opened a new store at 32 Maiden Lane, this city, in addition to our present quarters at 38 Chrystie Street.

The new store will occupy the entire ground floor of the building and the immense stock will comprise everything in goods, material and equipment required by the watch-makers and jewelers. The lines handled will include:

Watches	Novelties	Optical Goods and
Clocks	Tools	Equipment
Jewelry	Materials	Also Imitation and
Silverware	Supplies	Precious Stones, etc.

The increase in our business which necessitated this proportionate extension of our facilities, is the best proof of the satisfaction given our patrons, and we are now in a position to fill every order, large or small, promptly and satisfactorily, and at rates which will mean a material saving to the trade.

If you contemplate visiting this city, you will find it to your advantage to call and inspect our new store and stock. A hearty welcome awaits you. If you are not already on our list, we extend to you a SPECIAL invitation, feeling that the liberal treatment which has made for us so many friends among the trade will enable us to add you to the number—and much to your advantage.

Hoping for the pleasure of an early visit or a trial order, we are,
Yours very truly,

Korones Bros.**SOMMER CLOCK MFG. CO.**

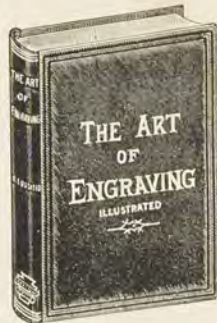
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A knowledge of the escapements is the corner stone, foundation and framework of horology. With this knowledge all else comes easy; without it the watch worker, no matter how clever, is always groping in the dark. The new treatise,

Watch and Clock Escapements

has superseded all other works on the lever, cylinder and chronometer escapements. This book is a complete education on practical horology, and much superior to any correspondence course now available. The text is elucidated by nearly 200 original illustrations.

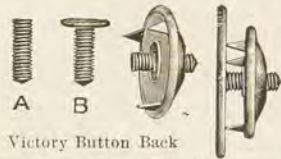
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Elegant in design.
Superior in construction.

The Best Foot-Power Lathes Made

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Our patent fastening on all rings. Can be applied to any ring.

Globe Lever and Globe Link Lever Button Back. For hard soldering Can be applied to any button.

Write for our New Catalogue of Rings

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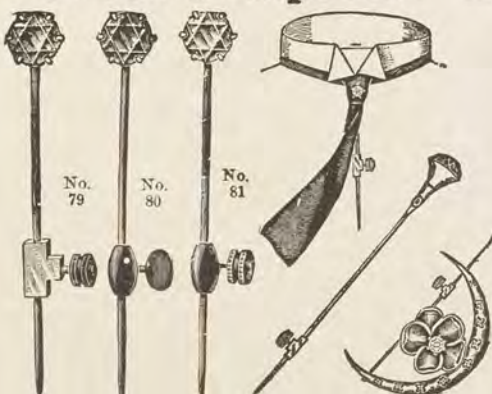
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Instantly Adjusted by one turn of Screw

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	PRICE	Per doz.
No. 79. Gold Plated		\$.85
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Cuts are exact size

Arranged on handsome cards, showing retail price, 25 cents each

For sale by all Wholesale Jewelers or the Manufacturers.

W. GREEN & CO., Manufacturers, 6 Maiden Lane, New York

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suitable for the Jewelry Trade, consisting of Real Lace, Hand-Painted and Richly Spangled Gauze Fans mounted on Ebony, Ivory, Pearl and Bone Mountings.



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Old English and Swiss Cases changed to fit American Stem-Wind Movements

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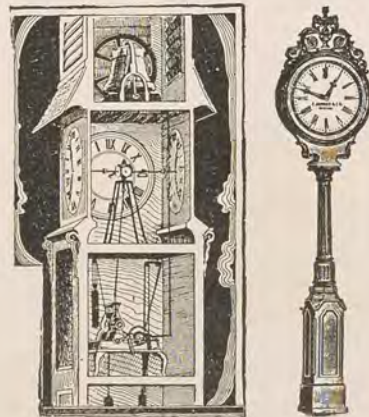
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Director

Established
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Est'd 1842 BOSTON, MASS., U.S.A.

I want you to have our Prospectus, to read it over—especially the testimonials—and we are sure you will be convinced that we have the experience, teachers, methods, tools and appliances to make a thorough, practical and up-to-date Watchmaker, Engraver and Optician of you in a short space of time. Better send for it to-day. See ad. on page 958, this issue.

THE PHILADELPHIA COLLEGE OF HOROLOGY
F. W. Schuler, Principal
Broad and Somerset Sts., Philadelphia, Pa.

TRY THEM! Wells' Perfect Self-Conforming Ring Adjuster, cut from 10 K. gold filled stock. Gold in front twice as thick as on back. Ask your jobber for them, or I will send prepaid at once (only on receipt of price), 1 doz. astd. sizes, gold filled, \$2.00; 1 doz. solid 10 K. gold, astd. sizes, \$3.75; 1 doz. metal, astd. sizes, 85c. For samples, one small and one medium large size gold filled and one metal adjuster, 50c. Address Chester Wells, Jeweler, Meshoppen, Pa.



Souvenir Spoons
of any locality.
Buildings engraved in bowls, \$2.60 per doz.
CHAS. A. STAHL, JR., PROVIDENCE, R. I.

AWARDS FOR H. H. Heinrich's Marine Chronometers
CHICAGO, 1893 PARIS, 1889 BERNE, 1859



THE GEISLER WATCH CO.
Successors to H. H. Heinrich
192 Water Street, NEW YORK

EMILE DREYER
Formerly with Tell A. Beguelin
77 Nassau St. New York City
NEW HOUSE—Prompt Service
Importer of
Watch Material
SPECIALTIES:
E. D. Extra Long 8-Day Mainsprings
Fine assortment of Swiss Watch Material also
W B & Cie Watch Glasses
A TRIAL WILL CONVINCING YOU



G.F. Wadsworth
Watch Case Manufacturer and Repairer
Everything in the line of Watch Case Repairing, Gold and Silver Plating, Satin Finish, Engraving and Engine-Turning
Changing Old English and Swiss Cases to take American 8. W. Movements my specialty.
OLD CASES MADE NEW
Silversmiths' Building, 131-137 Wabash Ave. CHICAGO

Repairer, Engraver and Manufacturing Jeweler FOR THE TRADE
W. E. BECKER
195-199 South Clark Street, Chicago
Old gold and silver taken in exchange for work. Good work, low prices and prompt returns. Send for price-list of repairs.

LOUIS GOTTHOLD
Maker of Fine
HAIR JEWELRY
2345 Eighth Avenue
Send for catalogue NEW YORK

A HEALTHY JEWELER HAS AN APPETITE FOR EVERY GOOD THING

SANGER'S EMERY RING BUFFS
ARE A PURE BUSINESS FOOD AND WILL DO YOU GOOD



F. C. KLEIN EMIL KLEIN
F. C. KLEIN & BRO.
Southwest Corner
State and Madison Streets, CHICAGO

Steam Rapidity
DIAMOND CUTTING
Importers of
Precious and Jobbing Stones

BE A WATCHMAKER.
EARN WHILE YOU LEARN
The Artisan 24-page Illustrated Book, "How to be a Watchmaker" free. STONE'S School of Watchmaking, Globe Building, St. Paul, Minn.

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, and are charged for as part of the advertisement. No display other than two-line initial letter.

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.

If answers are to be forwarded, TEN CENTS in postage stamps must be enclosed.

The real name and address of every advertiser must accompany the copy of the advertisement.

Advertisers who are not subscribers must send 15 cents (special issues 25 cents) if they desire a copy of the paper in which their advertisement appears.

Address,
THE KEYSTONE
19th & Brown Streets, Philadelphia, Pa.

SITUATIONS WANTED

Under 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.

YOUNG man, having lathe and full set of tools, desires a position as watchmaker and engraver. Can give good refs. "Q 986," care Keystone.

OPTICIAN open to engagement; long exp. as refractionist. Can handle successfully the most difficult cases. Able to draw and hold business. Good address, education and habits. Will accept position only with good reliable firm. Salary, or salary and percentage. No objection to Southern States. Address, "H 980," care Keystone.

YOUNG man, 21, as assistant watch and clockmaker; good habits, ref. Owns all small tools. Box 43, Saegertown, Pa.

TRAVELING salesman for either tools or material or general line of jewelry. Married, 29; good refs.; 3 years' exp. at bench and salesman. Address, P. O. box 188, Colchester, Ill.

POSITION as manager of watch dept. in city store, by man of ability and wide exp. Graduate optician, good salesman; systematic and thorough. "P 981," care Keystone.

WATCHMAKER, engraver and jeweler, 15 years' exp.; have my own tools. L. F. Maloney, Ithaca, N. Y.

FIRST-CLASS German jeweler, who has worked 3 years in America, wishes position at once. Address, "D 2," care Keystone.

YOUNG man desires position as watchmaker. Just finished trade. Can do jewelry repairing and wait on trade; graduate optician, own tools. "B 975," care Keystone.

YOUNG lady wants position as optician and saleslady in good establishment—Cleveland pref. Address, "Jeweler," 972 Payne Avenue, Cleveland, Ohio.

POSITION by watchmaker, engraver and optician; exp. in drug store. Iowa or the West pref. Salary, \$15. Frank H. Catlin, Aiden, Iowa.

THE manager of the optical and photographic departments of large Philadelphia house desires a change. New England, New York or the Middle West pref. 30 years old; a first-class refractionist, jewelry and photographic salesman. Capable of taking entire charge of the above lines. "Optician," 1916 N. Thirty-first Street, Philadelphia.

WATCHMAKER, engraver and jeweler; fine tools; age 24, 6 years' exp. Capable of taking charge. Good optician; have trial case, gilt-edge refs. Pacific coast pref. Box 277, Vacaville, Cal.

YOUNG man wants position in store. Can repair clocks, jewelry and plain engraving— anxious to finish trade and learn watch work. Smith, 138 E. Sixth Street, St. Paul, Minn.

WATCHMAKER, jeweler and salesman, 6 years' exp.; very good recommendations. Have my own tools; age 24, single. By July 1, 1905. F. H. Theile, Ferdinand, Dubois Co., Ind.

POSITION as watchmaker, engraver and optician. Have exp. in drug store. Position must be in Western States. "C 973," care Keystone.

REFRACTIONIST. Salary or commission, or both. None but best houses need apply. City 40,000, or larger. Dr. E. F. Smith, ophthalmologist, Phoenix, N. Y.

POSITION as watchmaker, first-class workman; complete set of tools; married; refs. Address, Box 133, Pulteney, N. Y.

YOUNG man, graduate optician, worked 6 years in jewelry store, doing watch, clock and jewelry repairing. Would like situation to gain exp. "E 998," care Keystone.

ASSISTANT watchmaker. Fair engraver, full set tools. Pennsylvania pref. P. O. box 501, Mechanicsburg, Pa.

CAPABLE watchmaker, expert on staff and a jewelry jobs. Young man, good address and habits. "T 997," care Keystone.

SITUATIONS WANTED

CAREFUL watchmaker, 25, married; temperate habits. Thorough knowledge of clock and watch repairing; considerable exp. under competent instructors. Good script and monogram engraver. Ref. Address, "Watchmaker," 1316 Cambria Street, Philadelphia, Pa.

PERMANENT position by first-class watchmaker, thorough and experienced in fine high-grade and complicated watches, capable of taking charge of repair department. Full set tools, best refs. West of Rocky Mountains. S. Snyder, 235 W. Fifth, South, Salt Lake City, Utah.

YOUNG man, engraver and clock repairer, help on jewelry and watch repairing; good salesman and window trimmer. "C. S. C.," 287 E. Erie Street, Chicago.

YOUNG man as watch, clock and jewelry repairer. Good habits. Fred H. Bredbeck, Port Clinton, Ohio.

YOUNG lady, 11 years' exp. at the bench, wants position as assistant in good established business. Own tools. Address, Fannie H. Barron, Wadsworth, Medina County, Ohio.

SINGLE young man, 30 years of age, with refs. as to character, would like responsible position with reliable firm. "D 991," care Keystone.

TEXAS. Expert watchmaker with fine tools and refs., desires change with large city house in Southern States. Don't answer unless you mean business. State salary and hours. "B 992," care Keystone.

POSITION as manager in jewelry and optical store in city of 15,000 to 30,000. Experienced in watch, jewelry repairing and optical work. Address, "C 993," care Keystone.

PRACTICAL, 41 man, middle-aged, seeks situation as salesman and manager of jewelry store. Have been in business over 20 years and thoroughly experienced in every line of the jewelry, silverware and diamond business. "R 994," care Keystone.

WATCHMAKER and engraver. Central States pref. Best refs. State salary, etc., in first letter. C. M. Lindsey, 204 E. Twelfth Street, Kansas City, Mo.

PERMANENT position by watchmaker, engraver, graduate refracting and manufacturing optician and salesman. All-around man; can do edge-grinding and rimless mounting. 18 years' exp. with high-class stores. Married, age 38; gilt-edge refs. Correspondence solicited from first-class firms. "S 995," care Keystone.

WATCHMAKER, American young man, desires position July 1st. Has previous exp. and is a graduate in horology. Steady habits. Address, P. L. Clafin, Lyme, N. H.

POSITION by practical workman, 16 years at bench; clean stockkeeper; not afraid of work. Single. No engraving. Box 90, Bloomfield, Iowa.

MAN, 32 years age, 12 years' exp. at bench, also do engraving and some optics. Best refs. Address, "Jeweler," 202 North Warren Street, Watertown, Wis.

TRAVELING salesman for either tools and material or general line of jewelry. Open for position June or July 1st. Address, "Jeweler," 202 North Warren Street, Watertown, Wis.

STEADY job to finish trade. Have 2 years' bench exp. Understand all watch material, staff, clock and jewelry repairing. Single, sober man. Age 22. State salary. Henry Bromme, Higginsville, Mo.

YOUNG man as watch, clock and jewelry repairer. First-class refs.; age 21. "S 992," care Keystone.

WEST of Mississippi River. Thorough, practical and rapid watchmaker and plain engraver. "J. H. C.," 803 S. Mill Street, Pontiac, Ill.

GOOD watchmaker, engraver, up-to-date optician. Have tools, trial case and refs. State salary. "D 3," care Keystone.

WATCHMAKER, jeweler and engraver. Can do all ordinary watch, jewelry repair work and good engraving. Good refs. as to character. Chas. W. Chase, 52 1/2 W. Fourth Street, St. Paul, Minnesota.

YOUNG American, watch, clock and jewelry repairer, experienced on French clocks, knowledge of optics, now employed, desires change. Rhode Island or Bristol County, Mass. Lathe and tools. "M 5," care Keystone.

POSITION wanted by young man to assist in watch repairing and engraving; own tools, good refs. "W 9," care Keystone.

YOUNG man, situation by thorough, practical watchmaker, experienced in railroad work, \$20 to \$25 weekly, according to locality. "B 10," care Keystone.

GOOD watchmaker, jeweler, salesman and plain engraver. Good set of tools, including lathe; good refs. West or Northwest pref. "P 8," care Keystone.

UNMARRIED, age 22, assistant watchmaker, jewelry repairer and graduate optician; fair engraver, experienced salesman; refs. West pref. A. F. Boyson, 23 Grove Avenue, Elgin, Ill.

POSITION as watchmaker and optician by a man of long exp. and thoroughly competent to take full charge. Address, "K 15," care Keystone.

AS engraver with first-class jewelry house in A West or South, only permanent position considered. 14 years' exp. on monograms, lettering, crests, souvenir spoons, fine ornamental work on watch cases. Best refs. Thos. Arvesen, 1678 N. Spaulding Avenue, Chicago.

SITUATIONS WANTED

WATCHMAKER, jeweler, engraver, 26 years' experience with high-class houses. Good set tools; high-class service rendered; good pay expected; A1 ref. "N 16," care Keystone.

HELP WANTED

TRAVELING jewelry salesman wanted for extreme Northwest. One acquainted in Washington, Oregon, Idaho and Montana pref. Refs. required. Ad., "B 977," care Keystone.

HELP WANTED

WATCHMAKER, who is able to compound drug prescriptions; engraver and optician pref. Must be sober and industrious. State all and send refs. in your first letter. Address, Skidmore Drug Co., Skidmore, Mo.

WANTED

TO buy jewelry store, South or West, doing a cash business of \$20,000 to \$40,000 per year on a capital of \$8000 to \$15,000. "B 19," care Keystone.

FOR SALE

UNDER THIS HEADING THREE CENTS PER WORD

STORES, STOCKS AND BUSINESSES

MY jewelry and stationery store, established 26 years in a prosperous mining town of Northern Michigan. Stock invoices \$6000. Retiring from business, sole reason for selling. Address, "K 895," care Keystone.

FOR SALE

STORES, STOCKS AND BUSINESSES

STOCK of jewelry and fixtures, will invoice about \$3000. Rare opportunity for competent watchmaker, engraver and optician. Town of 6000; very little competition. Reason selling, want to quit business as I cannot stand the confinement. Liberal discount given purchaser. Fixtures all new, clean stock. "L 963," care Keystone.

(Continued on page 1030)

FOR SALE
STORES, STOCKS AND BUSINESSES

(Continued from page 1029)

NEWLY-ESTABLISHED jewelry store in a New York State city of 130,000 pop. in an advantageous location and connections, doing a nice business, at a sacrifice. Stock and fixtures of about \$4000 for \$2200 cash if sold at once. Address, "R 979," care Keystone.

GOOD-PAYING optical business, prominent location; close at 6 p.m. Party must go to higher altitude for health. Also good location for watchmaker and jeweler. Ad., "H. M. S.," care Geneva Optical Co., 63 Washington Street, Chicago.

DESIRABLE jewelry business in growing town. Stock and fixtures, \$3500; can reduce. F. D. Clement, Barton Landing, Vt.

\$2100—In Illinois. Good-paying established jewelry and optical store. As staple as the wheat—principally watches. Can reduce. No opposition—large territory. Don't reply unless you have the cash. "H 20," care Keystone.

MILD climate? Here is your chance. Business is located in very healthy, active, progressive town in Southern Alabama. Splendid agricultural district. My entire stock of jewelry, optical goods, fixtures will be for sale. My price is \$3500, spot cash. Bench pays \$65 per month; income from business is good. If you mean business, answer "D 18," care Keystone.

\$400 BUYS fixtures, or \$900 stock and fixtures. 1000 pop. in Western Iowa. Only jeweler, only watchmaker; a good, profitable business. Address, "Jeweler," care 507 W. Seventh Street, Sioux City, Iowa.

STOCK of watches, clocks, jewelry, cut glass and musical instruments. Will be sold cheap for cash. F. E. Lenhart, Argyle, Minn.

JEWELRY stock and fixtures, invoice \$2300. Will sell at big discount; established 10 years. H. A. Gross, Syracuse, Nebr.

BEST chance ever offered in jewelry business for young man or beginner. Repairs \$1800 per year; sales \$1200. First man with \$550 cash gets it. Have other business. "Wm. K. S.," 606 Dempster, Evanston, Ill.

MY stock of watches, clocks, jewelry, etc., in the town of Warrenton, Mo. County seat, pop. 1200. No competition in the county. Will sell at invoice; investigate this snap. J. F. Baloun, Warrenton, Mo.

RARE chance to buy a good-paying jewelry business in good Illinois town of 13,000. Good reason for selling and will reduce stock to suit. "H 24," care Keystone.

GOOD jewelry store; all new; about \$4000 cash. Don't write unless you mean business. Address, "L 33," care Keystone.

AN exceptional fine opening for a young man in an Iowa town of 15,000 people. A good, clean salable stock; new, modern fixtures—plate glass, oak. Invoice about \$4000. Watch inspector for a large number of railroad men; bench work amounting to over \$100 a month. Sales last year over \$8000. In a good community, having several natural resources which bring large amount of ready money. Must be sold by June 30th; cash only. Best of reasons for selling. "M.," care Swartzchild & Co., Chicago.

SOUTHERN Michigan; pop. 30,000. One of the best towns in the United States. Nearly new stock, fixtures, tools, materials; about \$4000 cash or good security. Other business. "R 959," care Keystone.

PROSPEROUS jewelry store, established 10 years, with watch inspection, in a city of 38,000 in New York State. New stock. Best location for watch, jewelry and optical goods; repairing. Finest opportunity for first-class, practical man. Stock and fixtures, \$1800. Low rent. Near 4 railroads. Business last year, \$3500. Ought to be \$5000. Going South. "K 40," care Keystone.

FOR SALE
UNDER THIS HEADING THREE CENTS PER WORD

MISCELLANEOUS MERCHANDISE AND EQUIPMENT

PIANO and graphophone. Good upright piano, walnut case, used only 1 year, good as new. Cost \$300, will sell for \$165. Going to leave town—must be sold at once. Also \$15 Columbia disk graphophone, with 12 7-inch and 12 10-inch records, \$10. J. C. Koemple, Galema, Ill.

A BARGAIN. Javal ophthalmometer, illuminated Mires; Wall & Ochs table, quartered oak cabinet; few sample frames. "National Engineer," 150 Nassau Street, New York.

ENGRAVING machine, \$12. "C 983," care Keystone.

DOLEY-MOSELEY No. 2 lathe, 49 wire, 12 wheel chucks (genuine) chuck block, face-plate. Best offer takes it. Chas. B. Zink, care Webb C. Ball Co., Cleveland, Ohio.

AMERICAN lathe, cheap; good condition. "H 966," care Keystone.

PIVETT lathe, with attachments, in fine condition. Francis Shaw, Pittsfield, N. H.

HARDY ophthalmometer, good condition, electric attachments, for \$25. W. L. Altenberg, St. Charles, Mich.

ENGRAVING machine, New Century, full nickel on oak cabinet, almost new, for \$50. W. L. Altenberg, St. Charles, Mich.

FOR SALE

MISCELLANEOUS MERCHANDISE AND EQUIPMENT

MOSLER safe, good as new, double doors inside and out. "Jeweler," 202 North Warren St., Watertown, Wis.

COMPLETE set jewelers' tools, regulator, roll-top bench, lathe and chucks, steel sign, crystal cabinet, polishing stand. Nearly new, \$85 cash. Alfred Elbert, Griswold, Iowa.

OPTICAL outfit, including new Hardy electric ophthalmometer, with new batteries and adjustable table. Reduced price; write for terms. T. M. Burrows, Holdrege, Nebr.

3-INCH astronomical telescope (mounted), power 6400 times; good as new. Regular price, \$85; first \$40 takes it. S. A. Weaver, Northville, N. Y.

AN Arnold & Dent marine chronometer making a very close rate. Price, \$75; A. Herring, Hall & Marlon fire and burglar-proof safe, inside dimensions 31 x 21, 14 inches. Best offer takes it. Fred. McIntyre, South McAlester, I. T.

I HAVE a lot of musical goods and sheet music not worth anything to me—what is it worth to you? Write for list of it. W. C. Bonney, Keokuk, Iowa.

AT less than half cost, complete trial case in good condition; about 6 dozen gold and gold filled spectacles and eyeglasses. "P 11," care Keystone.

NEW Duplex engraving block, all attachments; \$4. W. F. Boast, Colby, Kans.

FINE Swiss watch movements, different makers: A. Lange, J. Jurgensen, etc. Fine pocket chronometer movements, Independent 1/4-second movements, 16 size Vacheron, 16 and 18 size American—higher grades, etc. Wm. H. Euhans, 22 Maiden Lane, New York City.

SAFE, medium size, with inside door—Diamond's; \$45 at depot. Winship, Masonic Temple, Chicago.

POLISHING lathe, gas and gasoline jewelers' furnace; Crowell blower—coal; enamel furnace; Crocker-Wheeler 1/2 H. P. motor, 220 volts. Sell cheap. Winship, Masonic Temple, Chicago.

STEHMAN, Jenks & Stehman polishing lathe, with chucks, slide rest, countershaft, foot-wheel, etc. Cost \$65; make offer. E. J. Faust, 723 Hamilton, Allentown, Pa.

WATCHMAKER'S bench; solid cherry, ordinary size, flat top; never used. Good reason for selling. Will sell three-fourths market price. Edward R. Ingham, Lee, Mass.

GENEVA prismometer, \$10; Johnston lens measure, \$2.50; watch glass and cabinet, value \$25, \$15; show cases and tables. Clark Bros., St. Cloud, Minn.

NEW Geneva ophthalmoscope and retinoscope. Address, "R 30," care Keystone.

FOR SALE OR EXCHANGE
UNDER THIS HEADING THREE CENTS PER WORD

GENEVA retinoscope for Eaton & Glover engraving machine. Klein, Connersville, Ind.

FOR sale or exchange for merchandise, 1280 acres Kansas, 1280 acres Texas, city property Denver, Colo. Address, "Owner, L 724," care Keystone.

GOOD-PAYING jewelry business in prosperous city of 5000 for fruit farm and part cash. "P 987," care Keystone.

NICELY-IMPROVED farm of 560 acres in Clay County, Iowa, to exchange for jewelry or a stock of jewelry. F. J. Blake, Fort Dodge, Iowa.

WANTED, pair geared flat rolls, electric polishing lathe, ring bender, ophthalmoscope and retinoscope combined for cash, or trade for large universal lathe, Loring ophthalmoscope, Geneva watch glasses, Reisner lens measure. L. Ehrlich, Lynchburg, Va.

80-ACRE farm in Northern Minnesota; fine timber and hay land. Will exchange for \$1000 jewelry stock. Address, C. E. Skaug, Carpio, N. Dak.

JEWELRY, silverware, china for typewriter or Geneva ophthalmoscope and retinoscope. B. J. Morey, Tama, Iowa.

AN A. Frankfeld, Geneva, minute repeater chronograph with sweep second hand, start, stop and fly-back attachment, finely finished throughout, ruby jeweled and gold train in heavy 18 K. gold case. Will sell cheap or exchange for American watches, diamonds or jeweler's machinery. J. Lowinsohn, Birmingham, Ala.

WILL exchange my jewelry business, established 5 years, in a prosperous health resort of 5000 pop. for fruit farm and part cash. Address, "P 988," care Keystone.

ONE 7-room house and one 4-room house, with barns, on a 44-acre farm. Price \$3500. Will exchange for jewelry store or stock. Edw. F. King, Jasonville, Ind.

WILL exchange 2 city lots in a thriving little city in Alabama for a stock of jewelry or optical goods. Lots cost \$900 each, but will make a great sacrifice as we are now living in Northern State and must have a stock of goods. State what you have to exchange and amount. Address, "B 25," care Keystone.

FOR SALE OR EXCHANGE

Bb CLARINET for C clarinet, at once. L. H. Johnson, Kennett, Mo.

WE have 10 shares stock in one of the finest located peach orchards in Georgia; stock non-assessable, 10,000 trees in bearing, 20,000 more now planted, and which will bear in two seasons. Cotton enough raised to cover all running expenses. A big thing for the man who can wait. We need the money now, and will exchange for a stock of jewelry or optical goods. Address, "B 26," care Keystone.

REMINGTON typewriter for De Zeng's retinoscope and ophthalmoscope, or what have you? Address, "R 31," care Keystone.

GENEVA ophthalmoscope and retinoscope never used. Regina automatic music box or motor bicycle. "F. H. H.," 66 South Main Street, Washington, Pa.

SPECIAL NOTICES

UNDER THIS HEADING THREE CENTS PER WORD

FOR sale or rent—Glass-cutting factory, one of the finest and most complete plants in the country. Three-story brick building, 40 x 100 feet; 31 frames ready to start cutting at once, power costing less than \$5 per month. A rare business opportunity. For particulars address, C. B. Winsor, Jamestown, N. Y.

WE know where, for \$500, a watchmaker can get a good business. Invoices twice amount asked. Write us about it at once. Don't miss this. Bogle Bros., White River Junction, Vt.

A GOOD opportunity is offered to a young man who understands the jewelry business, and is willing to travel part of time, to enter as partner with a firm doing considerable export business. \$2500 cash necessary, and a person familiar with the Spanish language will be preferred. "E 990," care Keystone.

A FINE location for watchmaker and jeweler. Address, A. W. Simmons, druggist, Dorchester, Nebr.

FOR rent. Second or third floor, 808 Chestnut Street, an exceptionally desirable location for wholesale or manufacturing jeweler. Rent reasonable; possession given July 1st. Tenant who can handle our repair work preferred. Harburger Bros., 117 S. Thirteenth Street, Philadelphia.

MONEY loaned to jeweler. Write for information. The Collateral Loan and Banking Co., 143 Euclid Avenue, Cleveland, Ohio.

A LIFE scholarship in our college, including a diploma and highest degree, for only \$7.50. See our advertisement, page 1012, and write for new prospectus. South Bend College of Optics.

PHILADELPHIA staff factory. The best staffs made for fit, teaper and finish. \$1.25 to \$3.50 per dozen. Ten per cent. discount for cash with order.

WANTED—Everyone desirous of improving themselves in watch work, jewelry work and engraving to address Bradley Polytechnic Institute, Peoria, Ill., for one of their latest catalogues. A postal card will get it. See ad. on page 222.

FOR accounts hard to collect we have a printed system with a winning way; results will surprise you. The system complete, by mail, for \$2. It costs more to ignore it. National Adjustment Company, 902 W. North Avenue, Chicago, Ill.

\$1.00 PER week for a few weeks, spending one hour each evening studying our lessons at home, will make you a master of our grand, new system of optical practice, and the recipient of a diploma and degree "Dr. of Optics." A few additional weeks of study will make you master of "Advanced Ophthalmology," and recipient of a diploma. We are regularly chartered and our diplomas are legal documents. If interested, write to Dr. Buschane, secretary, 133 S. Clark St., Chicago.

BUSINESS NOTICES

UNDER THIS HEADING THREE CENTS PER WORD

CASH paid for diamonds, watches, jewelry. Entire stocks bought. Weintraub, 129 South Seventh Street, Philadelphia.

MY ruby and sapphire hole jewels are first quality. You don't get better, no matter how much you pay. W. C. Bonney, 502 Main Street, Keokuk, Iowa.

WHY not send me your watch cases that need repairing? Can replace any part of a case. G. F. Wadsworth, Silversmiths' Bldg., Chicago, Ill.

CAN I send you a sample dozen mainsprings at 96c. per doz.? W. C. Bonney, 502 Main Street, Keokuk, Iowa.

ELGIN Horological School, the oldest and most practical school for watchmakers. Send for catalogue to Elgin Horological School, Elgin, Ill.

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' Bldg., Chicago, Ill.

BUSINESS NOTICES

OPTICIAN! Why not print your own hand test cards? For \$2 we furnish original plate (type mathematically correct) and prepay express charges to any point. Sample of form free. Roberts Optical Company, Chicago.

FOUR different sizes of holes sent in a dozen, unless ordered otherwise, is the way I send them out. W. C. Bonney, 502 Main Street, Keokuk, Iowa.

WE make a specialty of changing old antique watch cases to stem-wind. Something that has been refused by others. Have had 40 years' exp. and can guarantee satisfaction. N. J. Felix, 18 John Street, New York.

GOLD and silver-plating, satin finish, engraving, engine-turning, everything in the line of watch case repairing. G. F. Wadsworth, Silversmiths' Building, Chicago.

RUBY and sapphire balance hole jewels, set in brass for any American watch, \$1 per doz. W. C. Bonney, 502 Main Street, Keokuk, Iowa.

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), 727 Sanson Street, Philadelphia, Pa. Send by mail or express; prompt attention given.

YOU are looking for a good, reliable firm to do your watch work. Here is the place. W. K. Sandberg, watchmaker to the trade, 802 Columbus Memorial Building, Chicago.

BALANCE staffs, 7 jewel grade, \$1 per dozen; 15 jewel grade, \$1.25. W. C. Bonney, Keokuk, Iowa.

THE Omaha Watch Repairing, Engraving and Optical Institute started their school over 10 years ago in a little room with only 2 benches. We now occupy 4 rooms in one of the best blocks in Omaha. Our reputation has been built on merit, and not by using large cuts or showy ads. Jewelers recognize this as the best place to get the most useful knowledge in the shortest possible time of any school in America. This is no cheap fake school, neither do we agree to make practical workmen out of all students in three or four months. Write for particulars. Dr. Tarbox & Gordon.

SITUATIONS WANTED

AN oculist of high qualifications would engage his services to a high-class jewelry and optical house to take charge of optical department. State proposition fully first letter. Only the best need apply. Address, "Dr. Jones 942," 1201 Heyworth Building, Chicago.

BY AI watchmaker, with over 20 years' exp. in Europe and the United States, capable of doing all complicated and railroad work. In the Southwest or Pacific Coast preferred. Best refs. given. Address, "H 35," care Keystone.

BY young man, with tools, to finish under good man. Will start at small wages. "S 36," care Keystone.

YOUNG man, 18, graduate optician, do ordinary watch and clock work, desires position to finish trade. Small wages expected; good ref. L. N. Boone, lock box 264, Marengo, Iowa.

WANT practical bench watch work; 6 months in watchmaking school, registered druggist in Iowa, graduate optician. Work cheap to learn bench work better. "H 37," care Keystone.

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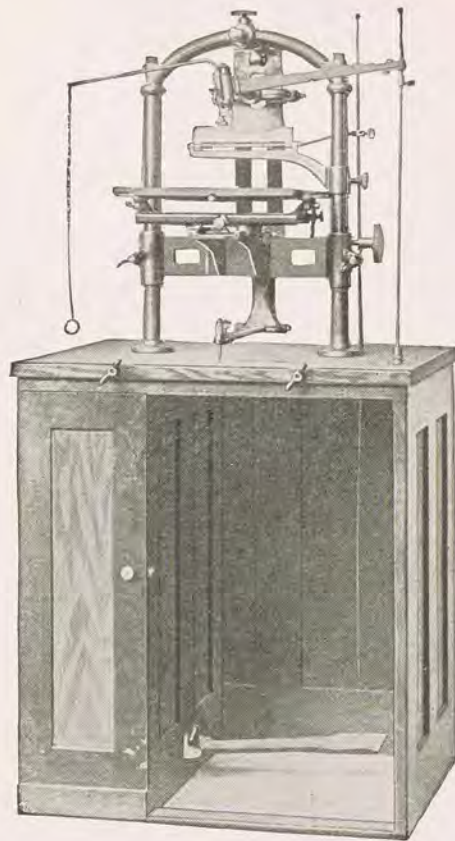
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