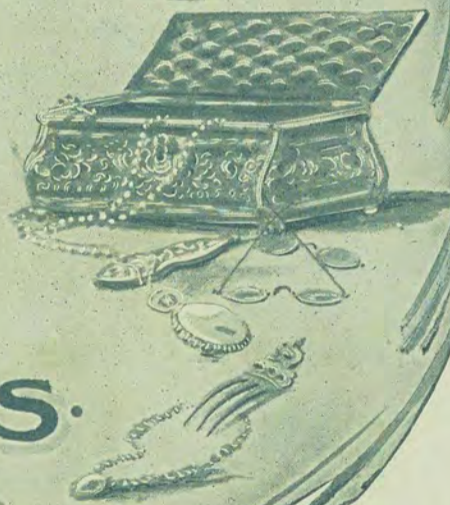


The Keystone

THE ORGAN OF
THE JEWELRY
& OPTICAL
TRADES.



Copyright, 1898, by E. Thorpe, Publisher, 19th & Brown Sts., Phila.

Volume 19

Number 8

August, 1898

Announcement to the Trade

General Offices, Chicago, June 20, 1898.

We beg to announce the issue of our **15 Jeweled, 12 Size Movements.**

NAMELESS—ENGRAVED ELGIN NATL. WATCH CO.

**Three-Quarter Plate, Hunting and Open-Face,
Pendant Setting.**

No. 187, Hunting. No. 191, Open-Face.

Nickel.



15 jewels, 4 pairs settings, compensation balance, Breguet hairspring, exposed pallets, micrometer regulator, gold center wheel, patent safety barrel with spring box rigidly mounted on bridge, display winding work, patent recoiling click, patent self-locking setting device, glass enamel dial, dust ring, damaskeened plates.

Notice is hereby given, that we have in preparation **SEVEN JEWELLED GRADE IN NICKEL**, which will be issued in the very near future.

MANUFACTURED AND GUARANTEED BY THE

ELGIN NATIONAL WATCH CO.

GENERAL OFFICES,
76 MONROE STREET, CHICAGO, ILL.

NEW YORK OFFICE,
11 JOHN STREET.

FACTORIES, ELGIN, ILLINOIS, U. S. A.

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



Queen Victoria

581



The wise, honored and beloved ruler of Great Britain, is to-day the warm friend of the American people. Our **Victoria Pattern**, illustrated here, is a friend indeed for every dealer in silver goods. A line of this pattern will strengthen the stock of any merchant.

The design stands among the best artistic productions of the day. The die work ranks among the best of the die-cutter's art.

The finish is fully equal to our usual high standard of excellence.



DESIGN PATENTED.

The above illustration is $\frac{1}{3}$ size. Everything in the toilet and manicure articles needed are made in this pattern.

We are prepared to help the dealers attract customers by the aid of our beautiful WASHINGTON and JEFFERSON PATTERNS; besides the large line of heavy gold filled and gold-plated BRACELETS, LOCKETS, VEST CHAINS CHAIN MOUNTINGS, GOLD FRONT PINS, EARRINGS and STERLING BRACELETS.

Theodore W. Foster & Bro. Co.

Jewelers and Silversmiths

SUCCESSORS TO
FOSTER & BAILEY

100 RICHMOND ST., PROVIDENCE, R. I.

Our 45th Anniversary

Have you one of our 1898 CALENDARS? Have you one of our

ADOLPH KELLER, HUGO P. KELLER.

AGENTS FOR UNION OUVRIÈRE CELEBRATED SWISS FILES. ESTABLISHED 1853. AGENTS FOR MAIN SPRINGS FOR AMERICAN AND SWISS WATCHES.

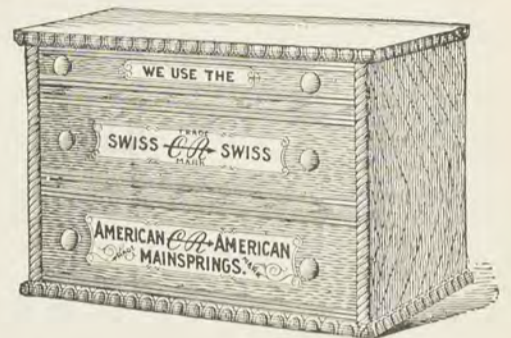
L. H. KELLER & CO.

IMPORTERS & MANUFACTURERS OF FINE WATCH MATERIALS, TOOLS, FILES AND SUPPLIES.

64 NASSAU ST. NEW YORK.

Free of Charge

This Handsome Cabinet



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

1853 Our 45th Anniversary 1898

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

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

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

We would be pleased to have you give us a trial. Orders accurately filled from any Catalogue at lowest market prices.

BARGAIN

We would be pleased to have you give us a trial. We have the best facilities for filling orders promptly.

SPECIAL INDUCEMENT!



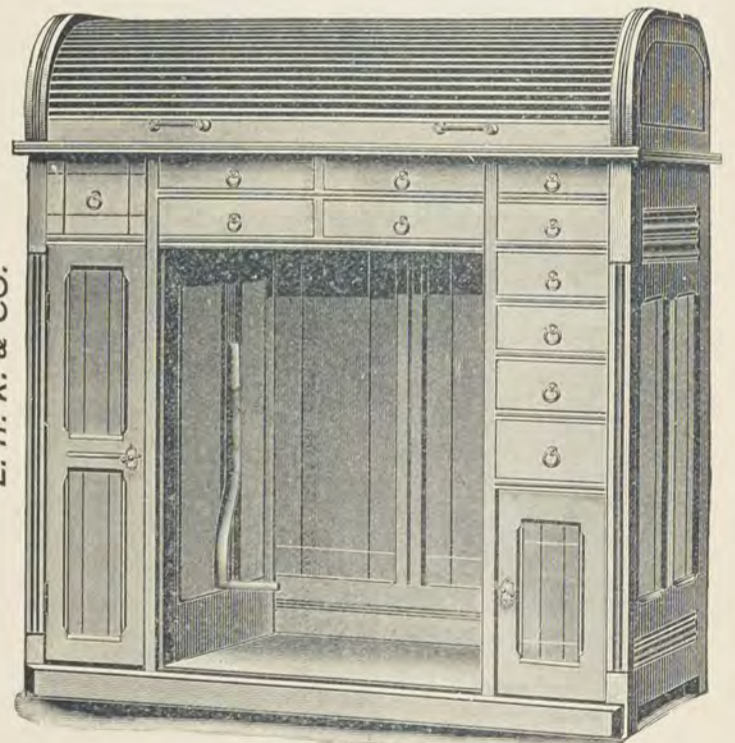
L. H. K. & CO.

L. H. K. & Co.
Latest Improved
Solid Oak
or Walnut
Watchmakers'
Benches.

Warranted in Every Respect.
No Extra Charge for Boxing or Cartage.

Eleven-Drawer Solid Oak or Walnut Plain-Top Benches, Cabinet Finish and Well Polished. One drawer arranged for chucks. Also vice-rest and apron drawer. Has fancy brass knobs. Considering the price, it is the handsomest and best-made bench on the market. Size: 40 inches long, 40 inches high, 21 inches wide, with a parallel moulding all around, stands on casters.

Price, \$9.75, Net, Spot Cash.



L. H. K. & CO.

Twelve-Drawer Solid Oak or Walnut Roll-Top Benches, Cabinet Finish and Well Polished. Drawers locked automatically. One drawer arranged for chucks. Also an apron drawer, chalk hole and vice-rest. Has fancy brass knobs. The handsomest and best-made bench on the market. Size: 44 inches long, 40 inches high, 26 inches wide. More room is gained by lowering the end pieces. Curtain raises 10 inches.

Price, \$16.85, Net, Spot Cash.

L. H. KELLER & CO.,

Importers, Manufacturers and Jobbers of

Fine Watch Materials, Tools, Files and Supplies,

64 Nassau Street, NEW YORK.

Anticipating the increase in demand, which is certain to follow the successful termination of the war and the immense improvement in the industrial conditions in the United States, we have very largely increased our provision in all the lines we carry, and are now showing an extraordinary variety of staple and special patterns in Watches and Chains.

Of Watches we shall tell later. We desire herein to direct attention to our Chain stock, of which our purchases have been more than double in quantity that of any previous season. A bewildering variety of all the best patterns of all the best makes of Lorgnettes is matched by the fullness of our assortment of Gentlemen's Vests. We are able to sell them at the prices made possible by our "quantity" purchases and prompt payment.

We invite requests for selection packages of Chains, specifying the range of quality or price in the goods wanted.

The Non-Retailing Company,

Jobbers in

Watches, Chains and Spectacles,
Lancaster, Pa.

Souvenir Spoons

are staple articles with most jewelers. We make them for any locality.

Spoons for the shore, lake or mountains.

We engrave any view or building in the bowl.

If you are interested, let us hear from you. We can show you some spoons that will sell.

Our prices are right.

Send us a photo and we will submit a sample.

We also make other souvenirs, notably **Souvenir Salve Boxes**, which have proved a great success.

WRITE TO US NOW.



No. 2195.



No. 1375.

CODDING & HEILBORN Co.

Jewelers and Silversmiths,

North Attleboro, Mass.

NEW YORK OFFICE—G. F. Kaiser, 11 Maiden Lane.
SAN FRANCISCO OFFICE—Stanley Glidden, 120 Sutter Street
CHICAGO OFFICE—D. L. How, 807 Masonic Temple.



Open-Face Split Seconds

in Solid Gold 14-Karat Cases (heavy)	\$58
25-Year Filled Cases,	- 36
20-Year " " "	- 32

Only in Jurgensen E. T. Cases. Less 6 per cent. for cash.

ORDER SAMPLES.

Byron L. Strasburger & Co.

Importers of Watches and Makers of Diamond Jewelry. 17 Maiden Lane, New York



COMMANDER SCHLEY'S FLAGSHIP "THE BROOKLYN."

“The Artful Dodger”

does not always win. It is the man or nation that never dodges that wins. This is the reason why our plan of buying old gold and silver always wins when given a trial. Nothing of the “Dodger” about it—only a fair and square proposition from the beginning until the end. It is, if you are not satisfied there is no sale. This means if our estimate of the value of your consignment is not satisfactory it will be returned to you in exactly the same condition as received, and we will pay all charges. This is right treatment surely. Do not take our word in this matter, but send us a trial shipment and see if results do not prove our word as good.

GOLDSMITH BROS.

SMELTERS, REFINERS AND ASSAYERS,

Office—63 and 65 Washington Street,
Works—Cor. 59th and Throop Streets, **Chicago.**



Our Heart Trade-Mark is used to capture the eye of the casual reader, and while we capture your eye, let us also capture your mind with this type, in describing our Prescription Department. All prescription orders are first divided up alphabetically among our bill clerks for entry. Then they are turned over to frame departments, those calling for gold to gold department, the gold filled to that department, the platinum and other soft metal frames to that department, the steel to that department, the gold rimless to that department, and all the other rimless goods are sent to another department. After the frames are made carefully to dimensions given, they are sent to lens department, the spherical lenses being glazed by one set of workmen, while the cylinder, prism and compound lenses are ground and glazed by another set of workmen. The finished goods with prescription orders are then sent to trueing and inspecting departments. After inspection they are returned to bill clerks, when they are turned over to mailing department with manifold bills previously made out. Thus, it will be seen with our system it is almost impossible for mistakes to occur, besides it enables us to turn out a better class of work than can be done in a small shop. Our prescription prices are low. Try us.

JOHNSTON OPTICAL CO., Prescription Opticians, DETROIT, MICH.



No. 29.
Bar Chime.

Hall Clocks

SOLE AGENTS TO THE TRADE FOR

J. J. ELLIOTT,
LONDON.

CELEBRATED CHIME MOVEMENTS.

TRAVELING CLOCKS,
GILT REGULATORS,
CLOCK SETS,
BRONZES, VASES, Etc., Etc.

New importations now arriving.

HARRIS & HARRINGTON,
32 & 34 Vesey St., NEW YORK.

One block from Astor House.



ON EVERY ARTICLE THIS YEAR.

WAVE CREST WARE

(PATENTED OCTOBER 4, 1892)

As a *Wedding* and *Holiday* line

It is the most beautiful and popular on the market. The ware is composed of artistically hand-decorated opal ware, mounted with richly gold-plated trimmings, comprising Jewel, Handkerchief and Glove Boxes, Puffs, etc., Vases, Bric-a-Brac, and all kinds of fancy novelties that are the most appropriate for ladies and gentlemen.

OUR LINE DOUBLED THIS YEAR.

If desiring our *New 1898 Catalogue* write at once, as only a limited number to be issued. Ready for delivery about middle or last of August.

The C. F. Monroe Co.

Manufacturers of

Wedding and Holiday Novelties,

Office and Factory, **MERIDEN, CONN.**

NEW YORK SALESROOMS,
38 Murray Street.



No. 202-Fw. Paper Weight.



SWEEPINGS OUR SPECIALTY.

L. LELONG & BROTHER,

GOLD AND SILVER REFINERS, ASSAYERS AND
Sweep Smelters.

BULLION SOLICITED.

SMELTING FOR THE TRADE.

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

Southwest Corner Halsey and Marshall Streets,
Newark, N. J.



V.T.F.

V.T.F.

Watch Glasses

are used by more watchmakers than all others.

are used by more casemakers than all others.

are made in larger quantities than all others.

cost no more and are better than all others.

for sale by all leading Jobbers.

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

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

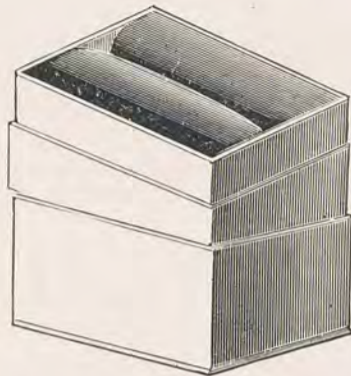
Manufacturers of Beveled-Edged Clock Glasses, all manner of Round Beveled-Edged Glasses, as well as Lenses for Bicycle and other kinds of Lamps. For information, address J. W. Riglander, 35 Maiden Lane, New York.



PLUSH SILVERWARE BOXES.

		Per Dozen.
No. 113.	For single coffee spoon,	\$4.50
" 110.	" six " " " " " " "	7.50
" 117.	" single tea spoon,	4.50
" 114.	" six " " " " " " "	7.50
" 95.	" single butter knife,	6.75
" 94.	" " " " sugar shell,	6.75

All Prices less 6 per cent. for cash.



PAPER RING AND THIMBLE BOXES.

		Per Gross.	Per Gross Printed.
No. 1556.	Fine white baby ring,	\$2.65	\$3.00
" 1554.	" " " medium ring,	2.65	3.00
" 1550.	" " " large " " " "	2.90	3.25
" 1583.	" " " thimble,	2.75	3.10



WATCH BOXES.

		Per Dozen.
No. 76.	Good quality plush,	\$2.75
" 78.	Fine " " large,	4.50
" 91.	Finest " " " " " "	6.00
" 90.	" " " velvet,	9.00
" 77.	Leather, velvet-lined,	3.00
" 190.	Morocco, fine quality,	9.00
" 191.	Silk, fine quality,	6.00



JEWELRY BOXES.

		Per Dozen.
No. 8.	Velvet ring, good quality,	\$4.50
" 8 F.	" " " fine " " " " " "	6.00
" 8 M.	Morocco ring, good quality,	2.50
" 8 F. M.	" " " fine " " " " " "	6.00
" 2.	Plush ring, telescope square,	2.25
" 4.	" " " round,	2.25
" 15.	" " " thimble, " " " " " "	2.25

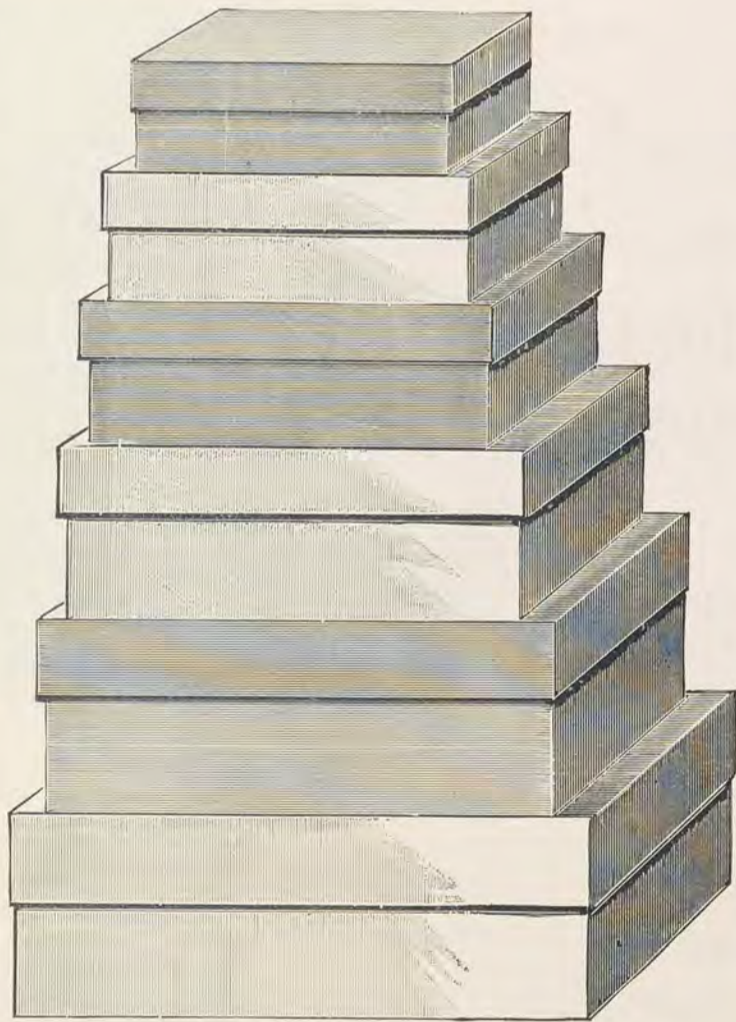
The Marks of An Up-to-Date Jeweler.

HERE are certain points that may nearly always be noticed about the wide-awake, progressive, money-making jeweler:—

1. He sells good goods, to begin with; but that isn't all—he realizes that half of the secret of an attractive store and profitable sales lies in the way the goods are put up and displayed. Therefore,
2. He devotes special attention to his boxes, cards, tags, trays, and the supplies for keeping stock clean, fresh and bright—those "little things" which are such a big thing in running a successful jewelry store.
3. He takes care to find out the best place to get all these important supplies—watch boxes, ring and thimble boxes, plush-lined boxes for silverware, and dainty paper boxes for even the most inexpensive articles; and for this purpose he takes care to provide himself with E. & J. Swigart's Special Box Price-List.
4. And he doesn't wait "until the last horn blows" to order such supplies. The experience of previous holiday seasons is not thrown away on him.

On this page are a few of the pretty new things which the up-to-date jeweler is ordering NOW, from the house which long experience has taught him that he can depend on for all supplies.

P. S.—Orders for Tools and Materials never wait for attention. We know the pressure that jewelers are under to get such goods promptly.



PAPER BOXES.

		Per Gross.	Per Gross Printed.
No. 141.	Fair quality, white boxes, six in nest,	\$1.00	\$1.35
" 1639.	Good " " " " " "	1.40	1.75
" 230.	Fine " " " " " "	1.90	2.25
" 1680.	" " " " " " telescope, six in nest,	3.20	3.55
" 1699.	" " " " " " single tea,	2.40	2.75
" 1678 1/2.	" " " " " " coffee,	3.60	3.95
" 1603.	" " " " " " six tea,	2.00	2.35
" 1603.	" " " " " " scarf-pin,	2.00	2.35

THE best recipe for success in the jewelry business is to keep Swigart's Catalogue of Tools and Materials at your elbow.

E. & J. Swigart,

No. 15 W. Fifth St., Cincinnati, Ohio.

YOUNG MEN, DON'T BE HALF JEWELERS!

HOW WOULD YOU LIKE TO KNOW ALL ABOUT

Watchmaking, Engraving, Jewelry Work and Optics,

AND KNOW IT RIGHT?

YOU CAN

by taking a course at the Philadelphia College of Horology. We teach each branch thoroughly, just as if we only taught one. We only take a limited number of students, and give each student our personal attention.

Can You Stand a Raise in Your Salary?

We can place you in a position to do everything that comes to you, and do it well. A few dollars spent at our college will give you a thorough, practical knowledge of watchmaking; it will make a practical engraver of you and a thorough optician.

WRITE FOR OUR NEW PROSPECTUS, GIVING FULL PARTICULARS.

School open all Summer.

Our Fall term begins September 1st.

Be sure to attend at that time.

PHILADELPHIA COLLEGE OF HOROLOGY,

F. W. SCHULER, Principal.

1213 Filbert Street, PHILADELPHIA, PA.



HERMAN G. BRIGGS

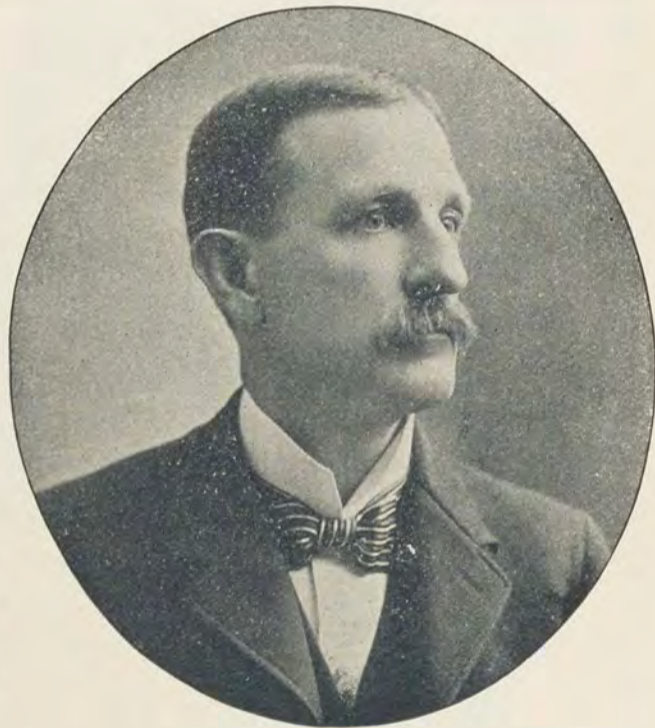
"The best and most gentlemanly auctioneer in America."
—Chicago Times-Herald.

A. M. HILL
DIAMONDS, WATCHES AND JEWELRY
631-635 CANAL STREET 229 ST. CHARLES STREET
UNDER ST. CHARLES HOTEL

Mighty Men O' The Hammer

America's Record Breakers.

In the near future we will issue a book of information in regard to jewelry and art auctions, also giving hundreds of references of unparalleled successful sales, such as are in fact incomparable with the record of other auctioneers.



LOUIS H. DODD

"Without a doubt the most rapid salesman in the country."
—Daily Picayune, New Orleans.

Enthusiastic Commendation

FROM THE TIFFANY OF THE SOUTH.

New Orleans, La., May 14th, 1898.

Having just concluded an auction sale which has been phenomenally successful, I feel it my duty to state the result for the mutual benefit of the gentlemen who made it and the trade. To me it is a task of pleasure to write this letter of recommendation for Messrs. BRIGGS & DODD, who so ably did the work. When first contemplating making the sale I looked carefully over the list of the few great public salesmen, listening to what their friends in Chicago and New York had to say in their behalf, visiting those cities for that purpose. Much depended on the result to me, my stock inventorying over \$300,000. After mature deliberation, I concluded to employ the above gentlemen, and now have substantial reasons for being pleased with my choice. Friends endeavored to persuade me against having a sale; a local auctioneer of good reputation in another line said he would wager any amount that it would be a failure, giving as his reasons that the city had not recovered from the yellow fever epidemic, general depressed condition of business, the great war scare, etc. Under these discouraging conditions the sale opened. The result was the greatest auction of an exclusive jewelry stock ever held in America; it lasted nine weeks; prices obtained beyond my most sanguine expectations. The marvelous skill and ability displayed on the part of Messrs. BRIGGS & DODD, in handling the sale, I have not the use of language to paint a word picture which would in a measure show the resources of these matchless salesmen; each in his own inimitable way pursuing different original methods with the same result. Never in the history of auctioneering jewelry has there been so much talent offered the trade. Finding myself under such great obligations to these gentlemen, will with pleasure answer any letter of inquiry.

Very respectfully,

BRIGGS AND DODD,

334 Dearborn St., Room 1230, Chicago, Ill.

Notice.—We have no connection with other auctioneers, and any one using our names to procure sales will be prosecuted.

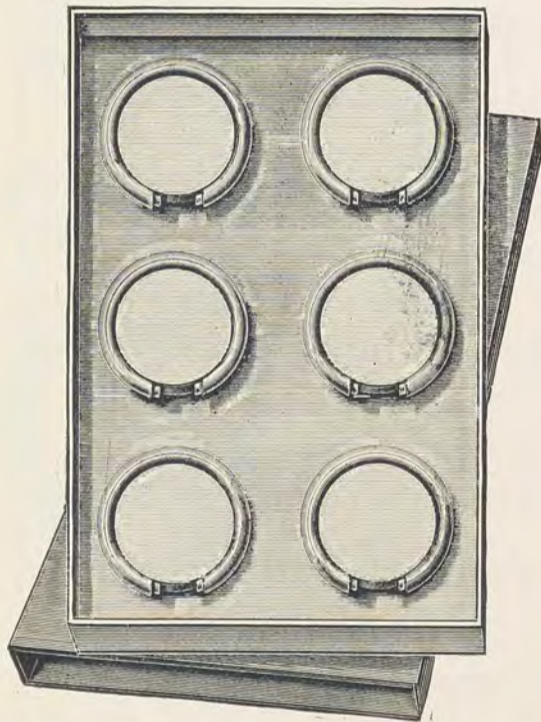
We are now arranging dates for the season '98-'99.
Correspondence Solicited.



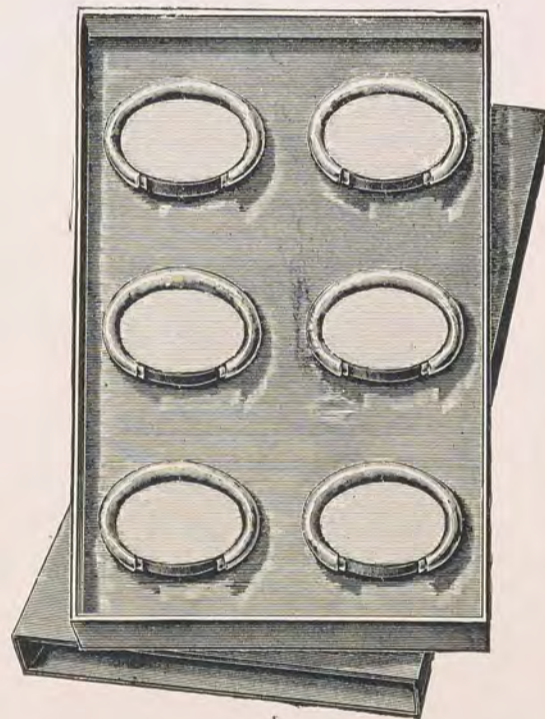
**Crowns, Pendants, Bows, Solders, Springs, Stems,
Pendant-Set Bars and Sleeves, Findings, Etc.**

NOTICE! We beg to call your attention to our new method of Carding Bows, which is an improvement on all styles of carding heretofore in use. Our new method consists of a neat and attractive Box with shouldered caps on which the Bows are mounted, so that one or more can be removed without disturbing the others. The Box has a tight-fitting slide cover to prevent the Bows from getting discolored. Bows can be had in all sizes, both in American and Antique, either in Gold, Seamless Gold Filled, Silver, Silverine and Nickel.

AMERICAN BOWS.



ANTIQUE BOWS.



The Ledos
Improved Method
of Carding
Watch Bows

PATENT APPLIED FOR.

WE manufacture and carry a complete line of **WATCH CASE MATERIALS** for all makes of Cases in Gold, Seamless Gold Filled, Silver, Silverine and Nickel.

ALL OUR MATERIAL SOLD BY THE LEADING JOBBERS.

Combination Set of Improved Sleeve Drivers.

(Containing a set of half dozen in box with handles complete.)



These drivers are flanged as shown in cut, and when driven in handle it is impossible for them to turn. They are made of the best tool steel, hardened and drawn to a temper that will hold its edge and not break, are also very accurately made, and one set will be sufficient for all makes of new and old model pendant set sleeves.

Why Not Sell GRAPHOPHONES?



The Graphophone is the perfected talking machine. Other so-called talking machines reproduce only the records of cut and dried subjects made in laboratories.

The Graphophone not only reproduces the standard musical records made for amusement purposes, but also records music or any sound for instant reproduction.

On the Graphophone one can easily make records of the voice, or of anything audible, and reproduce the records at once and as often as desired.

This power of recording as well as reproducing sound, makes the Graphophone the most entertaining and the most fascinating of inventions.

The interesting point about Graphophones for jewelers is that they are sold rapidly and that they make a most appropriate and profitable side line for an enterprising jeweler. Their exhibition in a store attracts people, and at the same time requires comparatively little space. Many jewelers have taken up the Graphophone with great profit.

Graphophones sell at prices ranging from **\$10** to **\$50**. Liberal discounts offered to dealers can be learned by applying or writing to any of our offices.

Our establishment is manufacturing headquarters of the world for talking machines and talking machine supplies. Manufactured under the patents of Bell, Tainter, Edison and Macdonald.

Write for Catalogue 21.

Columbia Phonograph Company, Dept. 21.

NEW YORK, 143 and 145 Broadway.
Retail Branch, 1155, 1157, 1159 Broadway.
PHILADELPHIA, 1032 Chestnut St.
WASHINGTON, 919 Pennsylvania Ave.
BUFFALO, 313 Main St.

PARIS, 34 Boulevard des Italiens.
CHICAGO, 211 State St.
ST. LOUIS, 720-722 Olive St.
BALTIMORE, 110 E. Baltimore St.
SAN FRANCISCO, 723 Market St.



Use the

"Imperial" Mainsprings

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

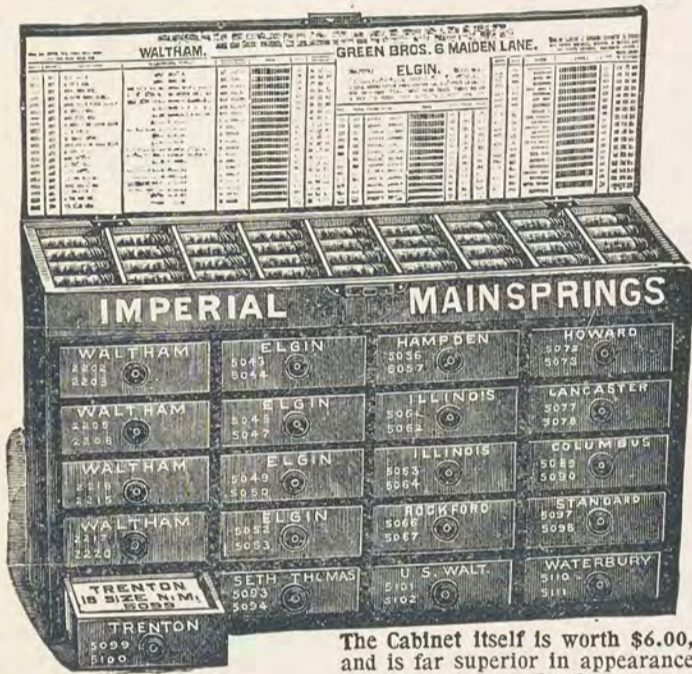
Beware of Imitation !!!



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

Cabinet and a full set of Screw-Top Bottles sent **GRATIS.**

"It is worth securing."

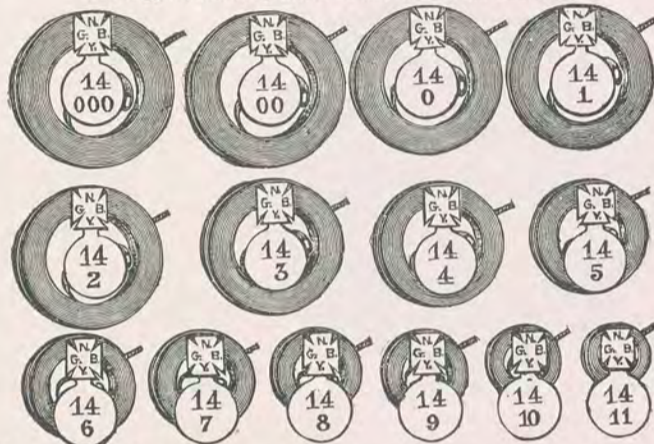


The Cabinet itself is worth \$6.00, and is far superior in appearance than is represented by the cut.

SPECIAL NOTICE.

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

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



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

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



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

GREEN BROS. 6 Maiden Lane, NEW YORK.

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



You pay \$1.00, more or less, to have a Prescription Order filled.
You get the goods.
You see the quality and finish.
You then judge.
You order again.
You become a regular customer.
Thanks!

JOHNSTON OPTICAL CO., Prescription Opticians, DETROIT, MICH.

THE REPUTATION OF Hutchinson's School for Watchmakers, Engravers and Opticians

for INSTRUCTION in the HIGHER BRANCHES of Watchmaking as well as Watch Repairing, also in Engraving and Optics, STANDS FIRST.

It will never be lowered. It is up-to-date in all Departments. Its graduates are successful.
CAN YOU ASK MORE ?

Catalogues on application to **J. L. HUTCHINSON, Supt.**

La Porte Watch School, La Porte, Ind.

When writing to advertisers, kindly mention **The Keystone.**

Proofs of Present and Prospective Prosperity



I.

Prosperity unparalleled, is the confident prediction for the approaching Fall season. The big crops and boom prices of '97 have been followed by still bigger crops this year, with the prospect of continued good prices. Never has the farmer's purse been better worth watching.



II.

The revival in manufacturing is rapidly acquiring the dimensions of a boom, and growing foreign demand for our manufactured products assures a permanence of prosperity for our artisans that they could not rely on heretofore. Our skill has captured the markets of the world, and the future is bright for the mechanic.



III.

In mining there is unprecedented activity, and results are rich beyond expectation. Our newly-acquired territory is not only fertile of soil, but rich in mineral wealth, affording vast new fields for additional trade and employment.



16 Size. Htg., \$9.00 O. F., Jtd., \$8.50

IV.

In foreign trade we now lead the world. Last fiscal year our exports exceeded our imports by over \$600,000,000, balance, of course, paid us in gold. Such, indeed, is our national wealth *in cash* that the recent bond issue of \$200,000,000 was over-subscribed five times on the small inducement of three per cent.!



16 Size. Htg., \$7.50 O. F., Jtd., \$7.00

V.

Farmer, mechanic and laborer being thus favored, an inevitable prosperity must await the retail merchant, for, is not the volume of retail business directly proportional to the spending capability of earners? Why then have any misgiving about laying in a large stock of choice goods?



16 Size. Htg., \$2.50 O. F., Jtd., \$1.50

Prices according to Keystone Key

VI.

In the matter of watch cases you have been accustomed to look to us for Fall trade magnets. Never had you better reason for your faith in us than this year. In number and beauty of styles and patterns we have surpassed all previous efforts. We furnish the watch case ingredient of the trade tonic; it is for you to apply the specific.

See September Keystone for new styles and patterns in all grades of cases—
KEYSTONE Solid Gold, JAS. BOSS 14 K. Filled, JAS. BOSS 10 K. Filled,
CYCLONE Rolled Plate, KEYSTONE Silver and SILVEROID.

Keystone Watch Case Company

19th & Brown Sts., Philadelphia, Pa.

THE NEW ENGLAND WATCH CO.

Salute the Jewelry Trade

The Waterbury Watch Company

ceasing to exist on the 30th day of June,
all watches made by us after that date
will bear the name

The New England Watch Co., U. S. A.

We believe this change will be appreciated by the trade. The protection policy to the retail jeweler will be firmly adhered to. Our catalogue showing new goods will be mailed to all dealers this month. Our line can be purchased either direct from the factory, from Selling Agencies, or Distributing Jobbers. Dealers will suit their own convenience, as prices are the same at all places.

THE NEW ENGLAND WATCH CO.
 WATERBURY, CONN.

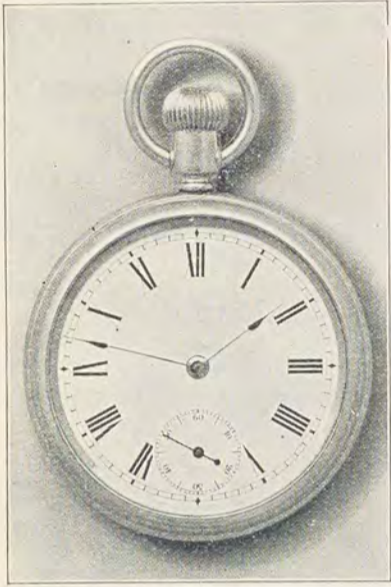
Selling Agencies

TIFFANY & WALES,	Jewelers' Building, Boston, Mass.
JULES H. LACROIX,	Lorsch Building, New York City.
CHARLES LESTER,	Silversmiths' Building, Chicago, Ill.
WM. WEIDLICH,	Fullerton Building, St. Louis, Mo.
HEACOCK & FREER,	Spreckels Building, San Francisco, Cal.

Distributing Jobbers

D. C. PERCIVAL & CO.,	Boston, Mass.
N. H. WHITE & CO.,	New York City.
HAYDEN W. WHEELER & CO.,	New York City.
L. P. WHITE,	Philadelphia, Pa.
G. B. BARRETT & CO.,	Pittsburg, Pa.
OSKAMP, NOLTING & CO.,	Cincinnati, Ohio.
LEONARD KROWER,	New Orleans, La.
OTTO YOUNG & CO.,	Chicago, Ill.
BENJ. ALLEN & CO.,	Chicago, Ill.
B. F. NORRIS, ALISTER & CO.,	Chicago, Ill.

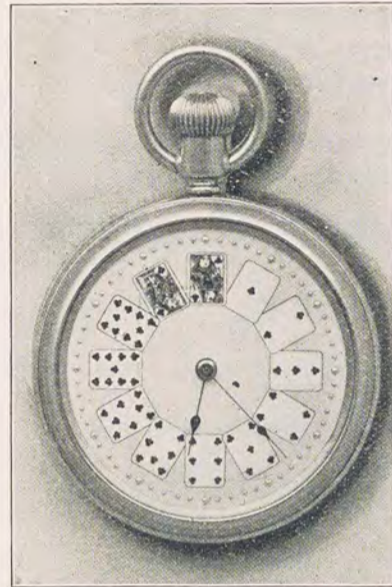
THE NEW ENGLAND WATCH CO.



Letter G. No. 333.
Roman Dial.



Letter G. No. 333.
Side View.



Letter G. No. 333.
Card Dial.

The New FOURTEEN SIZE nickel watch that supersedes the famous old Trump.

The new card dial will be popular, as the price makes it so. It appeals to sportsmen who want a neat timepiece at low cost.

The size will commend it.

The price is the former price of the Trump.

It has every convenient feature of the most expensive watch.

It winds and sets from the stem.

The casings are nickel silver, plain, polished, with close-fitting snap joints.

They are guaranteed in every particular, and show the careful attention to detail that characterizes our work.

They are packed six in a box, and sold only to the jewelry trade.

We advise dealers to place their orders early for future deliveries.

If you have not received a Catalogue, advise us.

THE NEW ENGLAND WATCH CO.



18 Size Open-Face.

THE POPULAR AND BEST AMERICAN-MADE
LOW-PRICED WATCH MOVEMENT

"CENTURY"

18 Size, $\frac{3}{4}$ Plate, 7 Jewel, Quick Train, Stem-Winding and Setting, Nickel Finish Damaskeened, Hard Enamel Dial with Depressed Seconds.
Fit all makes of cases.



18 Size Hunting.

HENRY GINNEL & CO.,
31 Maiden Lane, New York.
LEON HIRSCH,
45 Maiden Lane, New York.
D. C. PERCIVAL & CO., Boston.

FOR SALE BY

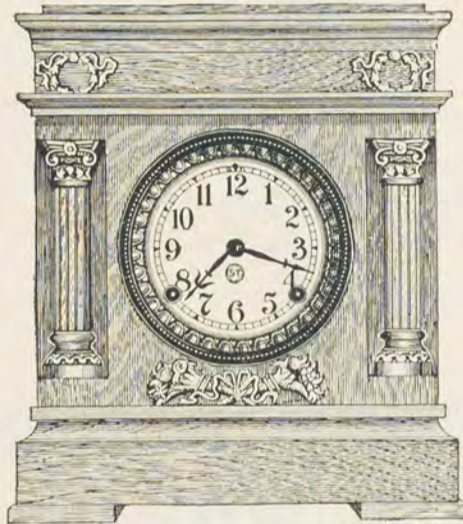
BENJ. ALLEN & CO., Chicago.
LAPP & FLERSHEM, Chicago.
B. F. NORRIS, ALISTER & CO., Chicago.
H. F. HAHN & CO., Chicago.

OSKAMP, NOLTING & CO.,
Cincinnati.
EISENSTADT MFG. CO.,
St. Louis.

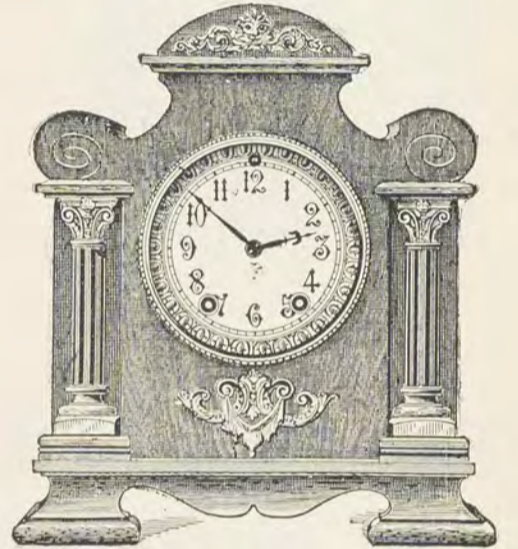
MENTONE.

Height, 11 inches. Base, $9\frac{1}{2}$ inches.

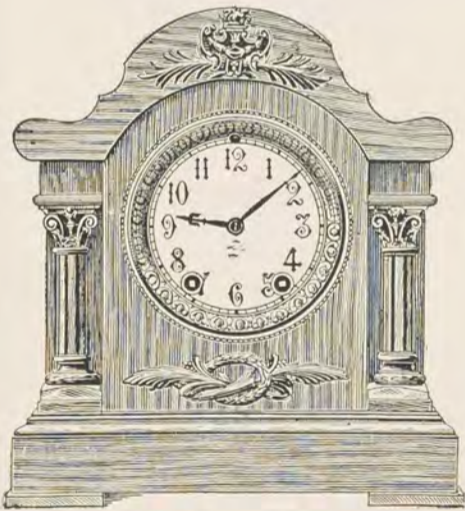
CORDOVA.

Height, $10\frac{3}{4}$ inches. Base, $9\frac{3}{4}$ inches.

SEVILLE.

Height, $11\frac{1}{4}$ inches. Base, 10 inches.

LISBON.

Height, $10\frac{1}{2}$ inches. Base, $9\frac{1}{2}$ inches.

These rich cabinet patterns are made in quartered oak and dark mahogany. Cases piano-finished, trimmed with metal ornaments of old brass finish. Have white porcelain dials with French sashes and beveled glasses.

8-Day Half-Hour Strike Cathedral Bell.

"Fine Goods for Fine Trade."

Seth Thomas Clock Co.

Makers of Clocks, Regulators, Watch Movements and Tower Clocks,

49 Maiden Lane, New York
144 Wabash Ave., Chicago
126 Sutter Street, San Francisco

THE KEYSTONE

VOLUME XIX.

PHILADELPHIA, AUGUST, 1898.

NUMBER 8

THE KEYSTONE

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

B. THORPE, PUBLISHER.

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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. Notices of changes in advertisements should reach us not later than the 20th of the previous month.

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

All communications should be addressed to

THE KEYSTONE,
19TH & BROWN STREETS,
PHILADELPHIA, PA.

CHICAGO OFFICE, 103 STATE ST.

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

GREAT BRITAIN, ANGLO-AMERICAN OPTICAL CO., 94 HATTON GARDEN, LONDON, E. C.

J. RAPHAEL & CO., 51 CLERKENWELL ROAD, LONDON, E. C.

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TO UNWRAP YOUR KEYSTONE, SIMPLY PULL THE STRING

AS many retailers contemplate visiting the large cities this month to purchase stock for fall trade, we direct their attention to the fact that in the case of several of the largest cities they can secure reduced railroad rates through the medium of business organizations in these several cities as told elsewhere in our columns. The advantages of personal negotiations with the heads of the big jobbing houses, and of personal selection from the largest possible stocks are manifest. No doubt the reduced rates will be largely availed of.

Most Successful Bond Issue.

AS predicted in our last issue, the Government bond subscription has been one of the greatest successes on record. When the receiving of subscriptions closed on July 14th, the total applications were for \$1,325,000,000, or over six times the amount of the issue! The most gratifying fact in connection with the loan is that 230,000 people bid for bonds of \$500, or less, and to these small bidders will go bonds to the amount of nearly \$100,000,000, in pursuance of the policy of the Government to give small bidders the preference. This leaves \$100,000,000 for other subscribers, and so numerous are the bids for sums over \$500 and less than \$5000 that it is not likely that subscriptions for more than \$4500 can be accepted. The bonds will be distributed among some 300,000 subscribers, making the loan a popular one to an extent hitherto undreamed of. No better proof could be given of the people's confidence in the country and its permanent financial stability.

per bushel. An especially notable feature of these statistics is the unprecedentedly large increase in our export of corn and oats, which, in 1897-98, exceeded all records, alike in quantity and value: those of corn exceeding the 1897 total by \$19,000,000, while those of oats exceeded the same year by nearly \$12,000,000, or a total of \$31,000,000 increase over 1892, the previous record year. Provisions exports for the fiscal year were the heaviest on record, aggregating \$154,454,074 in value, more than \$17,000,000 in excess of last fiscal year, and more than \$9,000,000 in excess of the record year, 1894.

Progress of the War.



Major-General Shafter.

A Remarkable Fiscal Year.

THE most remarkable year in the trade history of the United States closed with the opening of the past month. Especially remarkable has been the advance in the extension of our foreign commerce and the contraction of our imports. These are eventful times in our commercial history and statistics are no longer dry reading to the American business man. For him they are fraught with most intense interest, for they bear witness to a prosperity and an industrial development such as has seldom been experienced in this or any other country. Figures from the bureau of statistics at Washington, just published, show that we had a trade balance in our favor last year of more than \$600,000,000; that for the first time in our history our exports of manufactured articles last year exceeded our imports; that our stock of gold was increased during the past twelve months more than \$150,000,000, of which amount we ourselves produced from our own mines nearly one-third; and many other facts equally complimentary and gratifying.

For instance, our total exports of breadstuffs were valued at \$324,706,060, an amount larger by \$126,849,000 than in 1897, more than twice the value of those in 1896, nearly three times the value of those of 1895, and exceeding by more than \$25,000,000 the heaviest previous total—that of the record-breaking year, 1892. The total quantity of wheat and flour estimated as wheat, exported during the year just closed, was 215,717,960 bushels, valued at \$212,890,000, a value per bushel in excess of ninety-eight cents. This quantity has never been exceeded but once, and that in 1892, when 225,665,000 bushels were exported, valued at \$236,761,415, or nearly \$1.05

It is safe to predict that the American historian of the future will regard the present year as one of the most eventful since the establishment of our government. With much yet to happen, it is already certain that our achievements, martial and legislative, this year of grace, will mark an epoch, not alone in our military and naval, but also in our political and commercial history. Some months ago, when our people generally were deploring the circumstances that made war inevitable, there were those who refused to regard it as an unmixed calamity, contending that a conflict with Spain would not only prove a blessing to humanity at large, but would, not unlikely, result in the permanent installation of our country in the leadership of nations. Events are rapidly justifying this contention. Sweeping victories by land and sea no longer leave any doubt as to our destined martial pre-eminence among the nations of the earth; our annexation of scattered territory, besides extending to benighted millions the blessings of popular government and an advanced civilization, will immeasurably benefit our foreign commerce, while conflict with a foreign foe and

the repeated triumphs of the flag are acting as a much-needed unifying force at home and most beneficent tonic to the patriotism of our people. Who amongst us to-day does not feel that he is a more worthy citizen of a greater land? As victory follows victory, we are cultivating a more vigorous national spirit, a more self-reliant and assertive manhood, a more inspiring idea of our destiny and a stronger faith in our form of government. All this means much to us. That war is to be deplored is a self-evident truth, yet, on this occasion at least, it would seem to be a blessing in disguise to humanity and our people.

El Caney and San Juan Heights

July has been a memorable month for Old Glory. On the 1st and 2d our troops, perhaps too hastily, advanced to capture El Caney and the fortified heights surrounding Santiago de Cuba, and gave to the world an exhibition of bravery such as is not outshone in the whole bloody history of warfare. Probably never did troops so heavily handicapped deliberately force a decisive conflict. There were less than half the number of men there should have been, and not one-tenth the force of artillery. They fought in a trying climate, in an unknown and roadless country, encumbered by heavy uniforms, soaked by tropical rains and tortured by tropical insects. Short rations and loss of sleep had sapped the physical strength of many, and yet this ill-equipped body of brave men, without adequate artillery to cover their advance, boldly stormed the position of an unknown force of strongly-intrenched, well-armed, well-trained and acclimatized Spanish infantry, fighting with desperation. Terrible slaughter was necessarily the price of victory, but the capture of El Caney and the victorious storming of San Juan Heights will be recorded in history among the most glorious exhibitions of American valor.

Destruction of Cervera's Fleet

Thanks to the victories and sacrifices of the previous two days the morning of July 3d found the city proper of Santiago de Cuba practically beleaguered by nearly 20,000 American troops and the fleet of Cervera still bottled up in the harbor by the vigilant American squadron. The Spaniards now realized to the full the utter hopelessness of the situation, and boastfulness gave place to despair. In their extremity it was decided that Cervera should make a dash from the harbor with the remote possibility of escaping to Havana with a portion, if not all, of his fleet. Vain hope! As if to make the glorious Fourth still more glorious, he made the desperate exit on the previous day, and a few hours later his proud ships were burning wrecks on the coast of Cuba and he himself a prisoner. That Dewey should have destroyed the Manila fleet without the loss of a single life was regarded as miraculous, yet Schley all but repeated the miracle outside the harbor of Santiago, one life being the price of his glorious victory. Ever fertile in excuses,

Spain, in her humiliation, excused the defeat of Cervera by the allegation that he was overwhelmed by a much larger fleet, but, as a matter of fact, the attacking ships were fewer in number than the



Map of Cuba, black portion showing surrendered territory.

attacked. The Spanish fleet numbered six ships, the American fleet five—the *Brooklyn*, *Iowa*, *Texas*, *Oregon* and the converted yacht *Gloucester*. The result of the fight emphasized the overshadowing importance of rapid-fire guns and good gunners, and such a combination of speed and destructive power in battleships as is possessed by the *Oregon*, which, after an exciting chase, ran down and destroyed the swift *Cristobal Colon*. The fight, too, has greatly discredited the much-dreaded torpedo boats, recently sung by Kipling as "Choosers of the Slain." "The doom bolt in the darkness freed," if freed it was, did no destruction, and both Spanish torpedo boats were quickly rendered *hors de combat* by the *Gloucester*, under the gallant Wainwright, of *Maine* fame. In the hands of Americans, torpedo boats may give a different account of themselves, but their reputation is, temporarily, at least, under a cloud.

Fall of Santiago

Cervera's fleet destroyed, General Shafter promptly demanded the surrender of Santiago, pointing out to the Spanish General the utter hopelessness of prolonging the struggle. The Spaniard consented to the opening of negotiations with the American General, but many days of vexatious delay were spent before reaching a definite understanding. Finally, on July 14th, General Toral formally surrendered, the sole condition being that he and his soldiers would be returned to Spain. The more impatient of our people found fault with General Shafter for his alleged dilatoriness, but the bloodless capture of the city has established the wisdom of his course. On July 15th the Stars and Stripes were raised on the government building in Santiago, and another proud chapter was added to our history.

The fall of Santiago constituted the first important success of the land forces during the war. It gave the army complete control of the eastern end of Cuba, comprising an area of about 5000 square miles, the dark portion shown in our illustration. Of the cities included within the district the most important are Santiago de Cuba itself and Guantanamo. The former is the second largest city in Cuba, and has ordinarily about 70,000 population. The harbor of Santiago de Cuba is one of the largest in the West Indies, and is of the greatest importance from a naval and military point of view, for whoever possesses it commands entire Eastern Cuba. There has been already a great revival of trade in the city and harbor, the inhabitants settling down to peaceful pursuits with wonderful celerity. The

Spanish Transatlantic Steamship Company has secured the contract to transport to Spain the 23,000 and over Spanish soldiers, and Europe will be treated to the unique spectacle of Spanish steamers loaded down with Spanish troops and convoyed to Spanish ports by American warships.

A document giving instructions as to the manner in which public affairs will be administered in Santiago, was issued by President McKinley immediately on the fall of the city. This document is intrinsically important, and gains an additional interest from the probability that a similar plan of administering affairs will be put into execution in Porto Rico and the Philippines. Briefly stated, it is government under martial law, but without oppression or despotism—a system of administration born of a military exigency, yet such as will enable the governed to realize at once the advantages and blessings of American free institutions. "We come not to make war on the inhabitants of Cuba," says the President, "nor upon any party or faction among them, but to protect them in their homes, their employments, and their personal and religious rights." The ordinary law of the land will be administered, as before the fall of the city, by the native officials connected with the administration of justice; and peace will be preserved by native established agencies under the supervision of the American Military Governor. This responsible position has been given to Brigadier-General Wood, who formerly commanded the famous "Rough Riders." Should there be an outbreak of lawlessness or insubordination, the Governor can exercise dictatorial powers, substitute such judicial tribunals of his own choosing as he sees fit, and use what other means his judgment may suggest for the purpose of maintaining law and order. The representative of the United States is, in fact, the paramount authority to whom all must submit, whether loyalists, insurgents or neutrals. He will have supreme control over the railways and telegraph lines, which are the property of the State in Santiago, collect and disburse the revenues, and exercise in emergencies all other functions associated with absolute power. It is improbable, however, that Governor Wood will ever have to play the part of dictator, for the



Major-General Miles.

people of Santiago are not incorrigibly hostile to the United States, and American interests there are extensive. A bright and prosperous future is in store for this historic city.

**Campaign
in
Porto Rico**

The scene of active war operations in Atlantic waters has now been shifted to Porto Rico, where General Miles has already effected a landing of his troops under cover of the guns of his convoy of warships. As the island is tolerably well cleared of wild tropical plant life, there are but little facilities for the bush warfare that proved so vexatious and fatal to our troops in Cuba, and regular military operations will prevail. San Juan, the capital of the island, will first be attacked simultaneously by land and sea, and its speedy fall is certain, though the city is strongly fortified and well garrisoned. The fall of San Juan will mean practically the capitulation of the entire island. As our Government does not conceal its intention to hold this island permanently, some facts in regard to the new possession will be of interest.

Porto Rico, though having less than one-tenth the area of Cuba, has nearly one million inhabitants, or almost two-thirds the population of the larger island. It has not been, like Cuba, devastated by warfare, and the climate is said to be very salubrious. In 1896 the foreign trade of the island attained a total value of \$36,624,120, which



Major-General Merritt.

was in excess of all previous records. For the five years ending in 1896, the average annual value of the total imports and exports was \$33,870,535, as compared with \$24,961,217 for the five years preceding. In 1896, also, the exports were slightly in excess of the imports, which was a reversal of the general experience theretofore.

**Foreign Trade
of
Porto Rico**

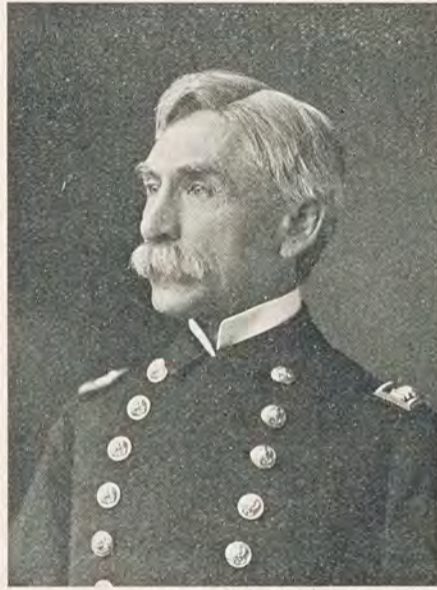
The foreign trade of the island is carried on chiefly with Spain, the United States, Cuba, Germany, the United Kingdom and France. Spain takes the first place, with an average annual trade valued at \$9,888,074, or 28.80 per cent. The United States comes second, with a trade valued at \$6,845,252 a year, or 19.94 per cent. of the whole, and Cuba is third, with an average yearly value of \$4,606,220, or 13.41 per cent. of the whole. Germany's share of the trade with the island amounted to \$3,050,334, that of the United Kingdom was \$2,863,930 and that of France \$2,201,687. Still later returns, giving figures for the year 1897, indicate a falling off in that year from the year preceding as far as the United States is concerned, the value of the trade of the island with this country being given at \$4,169,912. That almost the entire foreign trade

of the island will, in the near future, be with the United States is now a certainty.

The exports from the island are made up almost entirely of agricultural products, coffee and sugar being the most important, and comprising 85 per cent. of all the merchandise sent to foreign markets. Of coffee 40,243,693 pounds, valued at \$9,159,985, and of sugar 132,147,277 pounds, valued at \$3,905,741, were shipped abroad in 1895. The agricultural imports into the island are made up chiefly of rice, wheat flour and hog products, and those of a non-agricultural character of cotton fabrics, fish, wood, leather and tobacco.

**The Situation
in
the Pacific**

An historic event, which is almost certain to take place this month, is the fall of Manila, and simultaneously the United States will become a chief power in the Orient, with immense territorial and trade interests in the Pacific. The Philippines are some 8000 miles from our western coast, but we have already marked the road thereto with the American flag. Two thousand miles off San Francisco, not far from the straight way to Manila, is Honolulu, where the American flag now floats. Wake Island,



Commodore Watson.

in the Anson archipelago, 1800 miles further westward, has been similarly decorated. Twelve hundred miles westerly from Wake the Stars and Stripes are floating over the Ladrone Island of Guam. At the end of another 1200-mile course west from Guam is Manila, 600 miles from Hong Kong. Verily, history is being made rapidly now-a-days. Only six months ago, and none would question the lunacy of him who predicted that in August, '98, the Stars and Stripes would mark for the mariner the way from California to China. The arrival at Manila of Major-General Wesley Merritt, commander of the Philippine expedition, is daily expected.

**Proposed Attack
on the
Spanish Coast**

As our readers are aware, Commodore Watson was selected to command the squadron intended to cross the Atlantic, with the purpose of compelling Spain to sue for peace by attacking her coast cities and destroying the remainder of her fleet. It is now announced that the mission of Watson's squadron will not be undertaken until after the fall of Porto Rico, when a more formidable fleet can be placed at his service. The administration idea now seems to be that when Porto Rico, the Philippines, the

Ladrones, the Carolines and the Pelews are ours by right of conquest, it will then be a fine stroke to conquer peace by worrying Spain on her shores, so that she will be ready to drop Cuba without giving us the trouble and cost of attacking Havana. This seems the most logical and an eminently wise course of procedure. The European powers can then offer no reasonable objection to our attacking the Canaries or the Spanish coast, and Spain will be forced to swallow her pride at the mouth of our naval guns. We hope, however, for a speedier peace.

Hawaii Becomes United States Territory.

THE past month has been made historic no less by our victories in war than by our departure from a revered traditional policy by the annexation of the Hawaiian or Sandwich Islands. These islands, which are now United States territory, are distant over 2000 miles from our shores. Honolulu, the capital city of the islands, is 2100 miles from San Francisco. The group consists of eight islands, Hawaii, the largest, being one hundred miles long, eighty miles wide, and nearly double the area of all the others put together. The population is 109,000, of whom only 3000 are Americans, against 31,000 natives, 21,000 Chinese and over 24,000 Japanese.

Notwithstanding the limited number of Americans on the islands, American financial interests there are very important. In 1890 the value of the Hawaiian sugar plantations was estimated at over \$32,000,000, of which about \$25,000,000 or eighty per cent. was owned by Americans. Some figures compiled by the Hawaiian minister in Washington show that of approximately \$22,000,000 trade in 1896, over \$18,000,000 was carried in American ships. Of the exports of the islands in 1895, \$8,392,196 out of a total of \$8,471,000, or 99 per cent., went to the United States. Of the Hawaiian imports in 1895, \$4,516,319, or nearly eighty per cent., came from the United States. Honolulu, the principal port and largest city, has a population of over 20,000. During the year ended June 30, 1896, the exports declared for the United States from that port alone aggregated over \$10,000,000, and from the four principal islands the total was \$13,822,850. Of these exports, sugar was valued at \$13,606,421.

Important as the Sandwich Islands are commercially as seen from the above figures, they are no less important strategically in view of war developments. They are located on the direct route between the United States and the Philippine Islands, China and Australasia, and this fact, no doubt, accounts for their annexation at this time. That the islands will be admitted to Statehood in the near future is not probable. A scheme of legislation suitable to the inhabitants will be devised by a commission consisting of three commissioners from the United States, appointed by President McKinley, in conjunction with President Dole and Justice Frear, of the Hawaiian Republic. The United States Commissioners are Senator Collum, of Illinois, an experienced and capable legislator, Senator Morgan, of Alabama, who has similar qualifications, and Mr. Hitt, of Illinois, who is noted for his familiarity with international matters. Aided by President Dole's and Justice Frear's thorough knowledge of Hawaiian conditions, these statesmen may be depended on to devise a scheme of legislation that will conduce to the satisfactory government and permanent progress of our new territory.

A Little Primer on Banking.

WE have been asked to explain the functions of a bank. Herewith is the story simply told.

A bank is primarily a place where money is left that it may be kept safely until needed.

The people who leave the money are called depositors.

They comprise all sorts of people—rag-pickers and millionaires, clerks and capitalists, poor old women and rich young men. The large majority are persons of little or moderate means.

In this country there are 10,104,379 depositors, all told, in all the kinds of banks. Of this number, 1,724,000 have less than \$1000 each to their credit. There is on deposit in all the banks \$4,853,138,000.

Everything that hurts a bank hurts all the depositors of the bank.

The man who takes care of the money, the banker, is paid wages for his service, just as a bookkeeper, or a teamster, is paid.

Before people feel safe in putting their money into a bank for safe-keeping, the bank puts some money of its own into the business as a guarantee of good faith. This money is called the *capital* of the bank.

This capital cannot be drawn out, but must take the risk of the business.

The capital of the banks of the United States is furnished by over half a million people—some furnish only a very little; some have very little money to put into anything. They are called the stockholders of the bank; they are the bank itself.

We have said that the bank is expected to keep the depositors' money safely until needed.

One depositor may want some of his money the day after he leaves it. Another may have another sum of money to add to his first deposit on the following day. And so it goes.

Each depositor is liable to want all of his money any minute; but *all* of them will not want *all* of their money in that same minute. A few want part of their money every day; a great many want a little only, once in a great while.

Over three-fourths of all the money on deposit, on the average, is not called for in the daily need.

Now, if the bank undertook to keep the money safe by locking it in a vault until called for, the locked-up money would do no good to the community during the time it was in his hands. The function of a bank is to do good; to be a convenience not only to the depositors, but to those who have temporary need of money; and thus to stimulate the trade of a place.

To do the most good with this three-fourths of the bank's deposits, it must be loaned out at interest; but it must be loaned safely, or the depositors of the bank will lose money.

Almost every solvent trader has need of more cash at times than he has on deposit. This is because of the fact that so large a part of business is done on credit.

A jeweler trusts out to his customers watches and rings and what not.

It is not always convenient for these customers to pay cash. Some receive salaries only at fixed times; some depend on incomes from investments which make dividends only once or twice a year. But they are honest people, and the jeweler knows that they will pay their debts in time.

In the meantime his stock runs down, and needs replenishing. He must get money to pay for new goods.

If he pushes his own customers for payment he may lose their future trade.

It is better for him to borrow the money.

He can do this in two ways: He can ask his customers for notes, on which the bank will lend him money; or he can ask a friend to endorse his own note, and get the money in this way.

The banker looks over the notes and believes that the makers will pay them; if they do not, he knows that the jeweler will; or the jeweler, or his endorser, will pay *that* note; and the jeweler gets his money. He is thus able to pay his bills without embarrassing the customers who owe him, because of the community-convenience of the bank.

The jeweler pays the bank interest for the use of the money borrowed. This interest, with other interest gathered from other borrows, pays the cost of banking—wages, rent, and the like.

If there is more interest received than is needed to pay the expenses of the business, these are *earnings* and belong to the stockholders who constitute the bank.

If they divide these earnings they receive a *dividend*; if they let the earnings accumulate (so as to provide a fund for emergencies—as in case of unexpected losses—that will not oblige the bank to call for more stock-money, or "capital,") the fund is called "the surplus"; or a dividend may be paid and the surplus added to at the same time.

The profits of a bank are not usually very great. "For the past three years the interest earned for all the stockholders in banks all over the United States has been less than six per cent."

The profits of a bank are greater to the people of the community than to the people who own the bank. For the bank enables the merchant, the manufacturer, the farmer and the miner to develop trade and prosperity, by lending its money where otherwise there would be no money to circulate; and as the more money that can be borrowed by healthy business the more labor is employed, it follows that the largest ultimate benefit of good banking is to labor, and to the community as a whole; for the more labor is employed at good wages, the more prosperity there is.

The Waste of Force.

THE average merchant wastes an immense amount of vitality in worry over inconsequential no-account things. A dozen times each day he utters an impatient exclamation over the awkwardness or stupidity of a clerk, or an unreasonable customer, or a piece of annoying news. And each time that he thus loses control over his nerves or his temper, he loses just a fraction of vital nervous force and physical strength, and moves an inch further along the path that leads to invalidism and premature old age.

The average merchant puts too much of himself into the unimportant things that fret a business. He is "just worried sick" over a badly-fitting show-case door; he gets a headache in lending his efforts toward solving the trouble in a smoking lamp. Every such contribution is a direct tax upon the future capital of the merchant's strength, if he *worries* while he contributes.

If men would only learn that it is not work, but worry, that kills! The trouble is that we do not give to each event its just value. We don't discriminate between essentials and non-essentials; we put the same amount of anxiety into determin-

ing the color of a window-curtain that we do in deciding on a policy of business. We are constantly firing our 10-inch rifled cannon, when often a pocket-revolver would be as effective. We go hunting humming-birds with howitzers instead of pea-shooters.

If we exhaust all our reserve forces over the petty affairs, what strength have we left to meet the big problems, the serious trials and perplexities? "If thou hast run with the footmen, and they have wearied thee, then how canst thou contend with horses? And if in the land of peace wherein thou trustedst they wearied thee, then how wilt thou do in the swelling of Jordan?"

Make a War-Book.

DO you wish to profitably employ the idle hours that are sure to come in the dull months of summer? Make a "war-book"!

A "war-book" is a scrap-book composed of miscellaneous clippings which bear upon the current war. These clippings may cover a wide range of subjects—the odds and ends of information recorded in newspapers, in illustrated magazines, etc.; may include samples of war headlines, badges, patriotic emblems, advertisements which have the war as their keynote, and all manner of curious facts which are born of the occasion. Or it may take up a special subject and exhaust its possibilities: as, for instance, to collect all the cartoons and caricatures relating to the "unpleasantness"; or it may be a gathering of articles that relate to a single topic—say, the songs of the war-time, or the deeds of personal bravery, or the navy in the war, or the effects of tropical climate on American troops, or any of a dozen special subjects. The amount of material that can be gathered on any one such special subject of study, from the current newspapers and magazines, is surprising, and the results will prove of absorbing interest in after years.

And not only of interest, but of positive value. The histories which will eventually be written of this war will be the formal chronicle of events viewed from a more or less remote standpoint. It will be written from the "broad view," and as such will relate the large issues and note the things of greatest concern. The *little* things will be lost sight of, as "not worth while."

But it is precisely these little things which are most valuable to the careful student, as showing the spirit and meaning of events. The cut-and-dried relations of facts, the formal and colorless statement, is not that which the inquiring reader seeks. He wishes to be put in touch with the times; to see and feel with the people who were alive during the war; to go back to them in spirit, and share their anxieties, their hopes, their rejoicings. He can do this only by reading the chronicle of their own times, as gathered day by day, with all the varying moods of fear and triumph in which they are written.

It is this which makes Pepy's Diary of such surpassing value as a chronicle of the court and times of Charles the Second. The man who makes best use of his idle hours this summer in the systematic and intelligent collection of data gathered into a "War-Book" will have something that will be of unceasing interest to him in later years, if he keeps it, or that will realize for him a handsome sum if he concludes to sell it to one of many ready buyers in the future, when exact facts are sought by the discriminating student of the Spanish-American War of 1898.

What Would YOU Do?

THE jeweler gave the price and the sale was made. An hour after, he found that a mistake had been made in the marking, and the customer had paid twenty-five per cent. more than the jeweler's regular profit on the line. It was a line in which the jeweler had a practical monopoly in the town. What would *you* have done, under the circumstances?

The guarantee read, "Warranted for ten years." The jeweler had had some painful experience with this line of cases, but he had none of the make in stock that he *knew* would wear ten years, and the customer wanted to catch a train. The customer asked, "Do you advise me to take this watch?" How would *you* have answered?

"Your neighbor, Smith, showed me a watch this morning, guaranteed for twenty-five years, — make, full-jeweled movement of Elgin make, which he offered to me for \$——. Can you do as well? And do you think Smith is reliable?" The price was ten per cent. above net cost. How would *you* have met the problem?

The apprentice stayed five minutes over time, studying the bulletin-board, in his eager quest for the latest news from Santiago. What would have been *your* "remarks," when he finally turned up?

The weather is not too hot to indulge in a little profitable introspection. Suppose certain temptations and trials like to these—how would you meet them? What is your size?

The War, in Current Advertising.

THE war has been scarcely less prominent in the advertising columns of the newspapers, the country over, than in the news columns. The efficient advertiser always keeps in touch with the predominant news topics of the day, as it furnishes the best material for the exercise of his ingenuity. A little while ago, when the Klondike was occupying the thoughts of men, the cotemporary advertisement was headed "Nuggets," or "Rich Strikes," or similar mining catchwords; but the Klondike has been temporarily shelved as an advertising fetish, giving way to the nearer and more pertinent question of the war.

Among the headlines which have come to the notice of the writer in recent newspapers are the following:

- "War on prices."
- "Victory over our competitors."
- "Wanted—10,000 volunteers, to buy our summer suits."
- "Manila has fallen—so have our prices."
- "Bombarding Havana will be an easier matter than fighting our low prices."
- "Remember the Maine! OUR main effort is to maintain the reputation of our high qualities."
- "War is an old story with us. For forty years we have been fighting the dealers in poor, 'cheap' goods."
- "The Maine question is where to buy the best goods for the least money. Try our, etc."

These are but types of a vast number of advertisements that have been printed, with the war as the keynote. Some of the current advertisements show quite a little wit in their framing and matter; a great many show the painful straining of effort which robs them of all charm. An advertisement should run smoothly and easily to attract the best opinion of the reader. The *labored* effort is never pleasing. Hard writing makes hard reading, if the writer does not have the wit to conceal the evidence of effort.

Let us see how advertisers in our line might make profitable use of the present war excitement, in the furtherance of their past success. We submit some suggestions for headlines and complete advertisements.

For an optician:

Says Uncle Sam to Spain, "Git!"
says he!

You will not want to miss a single bit of the stirring war news, at this interesting epoch in American history; but will your eyes stand the tax put upon them by the enormous amount of reading necessary to get "all the news"? Let us examine your eyes and fit glasses to them, if it is necessary, before they suffer permanent injury.

Here is another:

"When Johnnie comes marching home again"

you will want a pair of good Field Glasses to see him from afar off, so as to get your throat ready to welcome him. We have the kind that Dewey used at Manila, and Sampson at Santiago.

Another:

"I see," said Sagasta, "that it's quitting-time!"

If the Spanish Premier had been provided with a pair of our ordinary Spectacles he could have seen that "quitting-time" was sometime ago. With a pair of our *best* glasses he could have seen that quitting-time was a minute before *beginning* time.

Another:

Rejected!

A very large proportion of the rejections among the volunteers who applied for a place in the ranks was based upon defective eyesight. Many a young patriot is lamenting to-day that he neglected his eyes in his youth. Bring your little fellow to me to have his eyes examined, that *he* may not be unhappy in 1920, when allied England and America rub up against Continental Europe on the great Asian battlefield!

The following are adapted to jewelers' use:

Dewey "did" the enemy—so dew WE!

We are turning our broadsides upon the piratical craftsmen, and their poor ammunition and amateur gunners make them easy prey. The armor of GUARANTEE renders us invincible to their weak batteries. We blaze at them with High Qualities, and pepper them with Low Prices!

Watching Their Watches.

When Gen. Shafter had completed the investment of Santiago, word went along the five-mile line of battle, "The attack on the intrenchments will be made at 4.15." At 4.15 every American soldier's hand went to his American watch, and every American patriot on the field said "NOW!" History tells the result.

A good watch is needful in war as in peace. Modern life, whether on the field of battle or in the quiet home, is measured by fractions of minutes. "Pretty near the right time" will not do, in these stirring times. Get one of my American watches and go by it.

The Iron Chains Which Have Bound Cuba

are broken, thanks to a humane nation which intervened in the name of humanity.

We have Chains which are not so easily broken, for they are chains which tell the bondage of love. Chains for Her wrists, in the shape of Bracelets; chains for Her neck, in the form of Watch Guards; chains for Her heart, in divers shapes of fetching Jewelry. Put HER in chains, and be Her slave forever!

Tissue Paper, or Manila?

In years of peace we wrap up packages in fine, soft papers, as befits the character of the goods we sell; but in these days of glorious doings in the Philippines we find more appropriate wrapping material in Manila paper and Manila twine. We celebrate the matchless achievements of that victor in the far East, of whom John Kendrick Bangs wrote,

"The grammar's bad, but O my son,
I wish I'd did as Dewey's done!"

(In connection with the foregoing, send out all your packages to customers wrapped in Manila paper, and tie them up with twine. An added touch that will accent the patriotic spirit will be given if the paper is imprinted with a flag, in colors, and a line or a verse from "The Star-Spangled Banner.")

"O Mamma," said King Alphonso,
"they say that Smith is selling," etc.

Cervera was not in as bad a fix

as the jeweler who has not provided himself with goods that will match mine in quality and price.

In dry dock, for repairs.

A watch needs cleaning, if a ship does. You can't afford to be more careless of your watch than a government is of its ships. Will you put it in my dry dock for a week, for overhauling?

Don't

put last year's jewelry on new cards, and label the exhibit, "Direct from factory;"

economize in the use of fly-paper, nor be the last to subscribe toward the street-sprinkling project;

tell anybody, except the marines, about your "12 karat" and "16 karat" goods;

attempt to hold a \$10.00 clerk to a \$5.00 salary; advertise "Large stock of Bracelets, just received," when your *new* goods in this line are represented by this item on a bill: "1/8 doz. ea. Brac., 5719, 6221, 5426."

put your "card" on a base-ball score-card, or a bicycle-club programme, or a church picnic bulletin, simply because it is "cheap"; talk about the lamentable taste of your competitor in "running after" customers;

resolve that you will not buy So-and-So's goods because the head of the firm has expressed himself in print against your favorite candidate for the Presidency;

try to sell the finicky Miss Jones after you have "had one with the boys," or until you have divorced your breath from the operations of current trade;

discuss the Spanish war with the backwoods customer who reads only the "Monthly American Agriculturist";

be openly scornful of the competitor who *does* these things, but who is nevertheless getting all your best customers.

"Failure," so-called, is often the compliment which effort pays to honesty.

"Success," so-called, is often the echo of the laugh of the devil.

Spain is a sample of the poor advertiser. Every bulletin she issues is a lie on its face. She overrates her goods and her condition. Then when she has to borrow money she pays thirty per cent. for it. It doesn't pay to lie!

The swift way to increase the cost of your goods is to take a drink with the man who sells them to you.

The cost of last year's mistakes ought to figure in next year's profits, or you are not gaining ground.

A half-truth is step-brother to a lie, and the "black sheep" in the family of Deceit.

The value of a guarantee is not in what is said, but in who says it.

New Goods and Inventions.

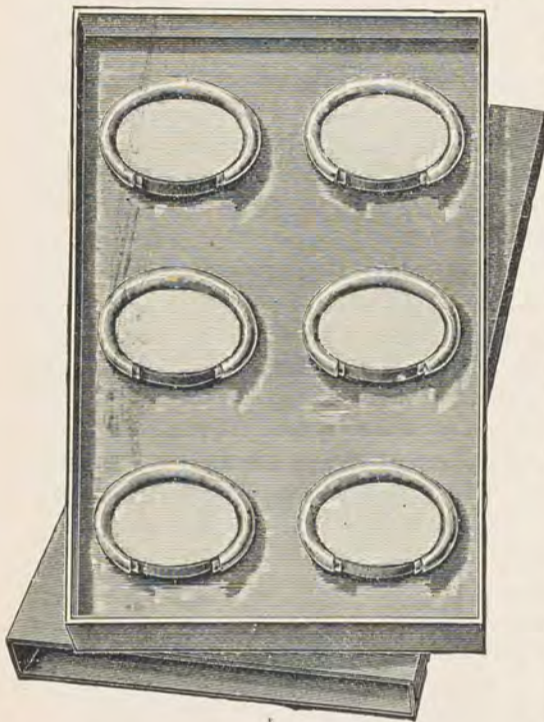
[The illustration and description of new goods and inventions as hereunder is a permanent feature of THE KEYSTONE, our twofold object being to keep the merchant jeweler thoroughly posted on the very latest and most salable goods, and the practical jeweler equally well posted on the newest inventions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

Improvement in Frameless Spectacles and Eye-Glasses.

Our illustrations show an ingenious device that means a new departure in the manufacture of frameless or skeleton spectacles and eye-glasses. It is the property of the Spencer Optical Manufacturing Co., New York, and is known as the "Never-break" strap. It is an evenly balanced symmetrical clamp, with raised projections that engage only the strong part of the lens. There is no contact between the screw-hole and edge, a cause of breakage being thus obviated. The improvement is evidently conducive to increased safety, strength and durability.



Improved Method of Carding Watch Bows.



Our illustration shows a new and most commendable method of carding watch bows, devised by the Ledos Mfg. Co., manufacturers of watch case materials, Newark, N. J. The improvement consists of a neat box with shouldered caps on which the bows are mounted, so that one or more can be removed without disturbing the others. The box has a tight-fitting slide cover to prevent the bows from getting discolored. The convenience and preservative serviceability of this method is apparent, and general trade appreciation of it is assured.

The "Expansible" Spectacle and Eye-Glass.

A new, serviceable and low-priced spectacle and eye-glass that is proving a good seller is known as the "Expansible." Its qualifications are given as solid temples well tempered, no screws to drop out, work loose or rust, re-enforced end pieces and broad swell noses, and can be had with straight or riding bow. Its peculiar construction enables the optician to replace a broken lens with the greatest ease.

Souvenir Spoon of Omaha Exposition.

A beautifully-designed and very handsome spoon is the official souvenir spoon of the Omaha, Neb., Exposition, made by the retail firm of Geo. W. Ryan & Co., Omaha. In the bowl is a well-executed engraving of a bird's-eye view of the Exposition, or of some particular building, with name of same. On the handle is the word "Omaha." On end of handle is a portrait of a composite female head, made from forty-eight photographs. Two of these photographs, representing two of the prettiest young women in his State, were furnished by each of the Governors of the twenty-four Trans-Mississippi States. The die-work is excellent, and the spoon, in its entirety, is very beautiful, a credit to the designers and to the Exposition.



The "Warwick" Pattern.

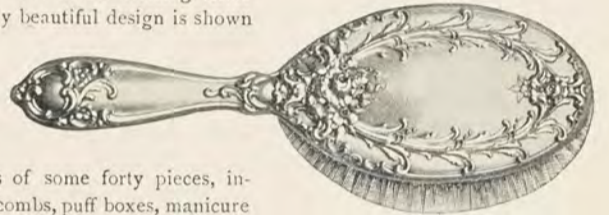
Our Heroes on Ivory in Bronze Frames.

We are not a nation of hero-worshippers, but the liberality of our admiration is proverbial. Every home has the heroes of the war in some form, photographs, pictures, statuettes, etc. A new and most excellent way that will appeal to the people to perpetuate the fame of their favorites, is shown in our illustration. The picture is on ivory, in a bronze frame, with plush matting. The screaming eagle on top completes the patriotic impressiveness of the whole. General Miles, shown above, is but one of a great number of distinguished and historic people that can be had in these goods, imported by Harris & Harrington, 32-34 Vesey Street, New York. These ivory miniatures should prove excellent sellers for the trade. They include President McKinley, Dewey, Sampson, Lee, Sigsbee—in brief, American admirals, generals and statesmen, from Washington down.



Beautiful Sterling Silver Toilet Ware.

A sample piece of a new set of sterling silver toilet ware of exceptionally beautiful design is shown in our illustration. This set is known as the 1000 line of toilet ware, made by the R. Wallace & Sons Mfg. Co., Wallingford, Conn., and consists of some forty pieces, including brushes, mirrors, combs, puff boxes, manicure pieces, etc. The design is one of the most artistic ever executed, and has been universally admired. The more refined of the public are now educated up to a high degree of artistic discrimination in designs, and exceptional beauty in such goods as toilet articles is specially called for. The 1000 line cannot fail to charm the most fastidious, and will be accordingly profitable to handle.



Ladies' Dress Pins.

A universally serviceable and proportionately salable novelty is the ladies' dress pins, here illustrated, the design of which is patented by Geo. Wettstein, Cedar Rapids, Iowa.



The pins are made of seamless filled stock, are very ornamental and are given great strength and durability by the coils in the center, shown in the illustration. They irresistibly appeal to the ladies.

Ladies' Dress Pins.

Seamless Filled

Patent applied for.



MATCH BOXES,
\$6.00 Dozen.
Silver-Plated and Oxidized

Send to us for our 1898 Catalogue of Watches, Diamonds, Jewelry, Silverware, Cut Glass, Clocks, etc.

J. T. SCOTT & CO., 4 Maiden Lane, New York.



The J. D. Bergen Co.



MANUFACTURERS OF

AMERICAN CUT GLASS

OFFICE AND SALESROOM,

38 Murray St., NEW YORK

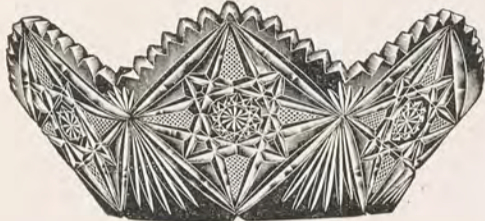
WE ARE UP-TO-DATE PEOPLE in close touch with the trade and the requirements of to-day.

Our specialty is salable goods at POPULAR PRICES.

Send for Illustrated Catalogue. Ready August 1st.



Lakewood.
Bonbon.



Electric.
Salad or Fruit Bowl, 3 sizes.



Premier.
Celery, eleven inches.



Premier.
Bell, 2 sizes.



Premier.
Squat and Regular shape.



Premier.
Water Pitcher, 3 sizes.



Electric.
Seven-inch Plate.



Cornell.
Bonbon.

Never Goes Wrong



AN article of the very highest standing, ROGERS "ANCHOR" BRAND SILVER-PLATED WARE. Dealers who sell it gain and retain the confidence of all people who buy it. Try it. Send for Catalog.

Factories:

Hartford, Conn.
Wallingford, Conn.
Norwich, Conn.
Taunton, Mass.

WM. ROGERS MFG. CO., Hartford, Conn.

New York Office, 149 Church St.
Philadelphia, 506 Commerce St.

Providence and Attleboro.

Hopes are unusually high in this section, and preparations are being made to handle the greatest fall and holiday business in years. The factories are turning out in voluminous quantity, and infinite variety, goods for the fall trade, and there is every reason to believe that it will tax the resources of the manufacturers, great as they are, to supply the expected demand. Even the memory of the depression is fading away, and no cloud now dims the prospect.

At the recent election of officers of the Citizens' Savings Bank, of Providence, John Austin, of John Austin & Son, was elected president. Edwin Lowe, of the Edwin Lowe Gold Plate Co.; Charles F. Irons, of Irons & Russell; Arthur E. Austin, of John Austin & Son, and E. C. Ostby, of the Ostby & Barton Co., were elected directors.

W. & S. Blackinton have installed in their new factory, in the Manufacturers' Building, Providence, entirely new machinery with the latest improvements, and are in a position to fill all orders promptly.

The manufacturers of Attleboro have guaranteed all the expenses of the Young Men's Christian Association tent which will accompany the Fifth Regiment through the war.

William H. Luther & Son, Providence, have renovated and extended their coloring plant, adding a quantity of new and improved machinery.

It is said that a syndicate is about to build a new factory building in North Attleboro.

Englehardt C. Ostby, president of the Ostby & Barton Co., of Providence, accompanied by Mrs. Ostby and one of his sons, is touring in Europe.

The James E. Blake Co., of Attleboro, has been incorporated under the laws of Rhode Island, the incorporators being named as James E. Blake, Lefferts S. Hoffman and William H. Blake. The company is formed for the purpose of manufacturing and dealing in jewelry and silverware, the capital stock being placed at \$100,000.

There are now no "days of grace" in Rhode Island, the new law going into effect last month. All notes are payable at maturity, and those falling due on Saturday or holidays are due the next business day.

The electric line from Attleboro to Norton began running cars on July 4th.

William H. Draper has been elected president and William F. Leeder, of Leeder & Bernkopf, a member of the board of directors of the reorganized Providence Base Ball Club.

Articles of incorporation have been taken out by the J. A. Foster Co., Providence, formerly J. A. Foster & Co. The capital stock, according to the articles of incorporation, is placed at \$275,000, of which \$150,000 is preferred. The incorporators are J. A. Foster, Byron S. Thompson and Frank M. Foster.

The Globe Jewelry Co. was incorporated at Providence last month, with an authorized capital of \$25,000. W. H. Riley, G. Herbert French and Harry L. Allen are the incorporators. The company's business will be located in North Attleboro.

An impressive event in Attleboro was the recent departure for the front of Company I, of the Fifth Regiment, which company is almost wholly recruited from the trade. Captain George H. Sykes is the foreman for Smith & Crosby; First-Lieutenant Charles A. Richardson is in the trade in Mansfield; George E. Crosby, corporal, is a son of A. R. Crosby; Sergeant William H. Goff is with C. M. Robbins. Among the privates is a large contingent of jewelers. The young patriots were treated most generously by their employers, and given a hearty God-speed by a big crowd of Attleboroans.

H. D. Merritt & Co., of North Attleboro, have established a Pacific Coast agency in San Francisco, Cal.

A most successful Fourth of July celebration was held by the citizens of Attleboro. An imposing spectacular parade was held in the forenoon. S. O. Bigney presided over the afternoon exercises in the Opera House, and delivered a patriotic address, which aroused great enthusiasm.

The Ostby & Barton Company, Providence, has purchased the building of the Ladd Watch Case Co., at the corner of Richmond and Clifford Streets, and will move thereto. The Company has outgrown its present quarters at 80 Clifford Street, making an early removal necessary. The new plant will be one of the finest of its kind.

Howard D. Wilcox, of Dutee, Wilcox & Co., Providence, won in the recent tennis tournament of the Elmwood Tennis Club.

Frank T. Pearce, of the firm of F. T. Pearce & Co., Providence, is spending the summer months at his cottage at River View, one of Rhode Island's many pleasure resorts.

Henry E. Smith, of the Standard Seamless Wire Company, Pawtucket, recently returned from an extended trip through the West, and while there he went to Cripple Creek, Col., where he inspected the rich Independence mines, in which he is interested.

T. I. Smith & Co. have purchased four acres of land from the Jesse Richards estate in North Attleboro, and will proceed at once to erect a factory thereon. The factory is to be in the shape of a cross, and the dimensions of the whole structure will be 210 x 37 feet. The wings will each be 60 x 37 feet. The head house will be 45 x 25 feet, two stories high.

George C. Darling, Providence, has been elected a member of the Providence Athletic Association.

The Attleboro Fair will be held August 30th, 31st and September 1st. Three of the five members of the committee of arrangements are G. Herbert French, W. W. Sherman and S. O. Bigney.

The co-partnership under the firm name of Adams & Fisher, Providence, has been dissolved by mutual consent, Nathaniel Fisher retiring. D. F. Adams will continue the business.

H. F. Tingley, formerly in the employ of the Waite, Thresher Co., Providence, is now chief gunner on the U. S. Steamship *Yankee*, which has been so aggressive at Santiago.

William C. Tappan and Charles H. Tappan, of the D. F. Briggs Co., Attleboro, with their families, are summering in Matunuck, R. I.

Through the initiative of William C. Tappan, a subscription of \$375 was raised among the Attleboro concerns whose plants were saved by the efforts of the fire department during the recent conflagration, and this amount was distributed among the firemen.



About fifty members of Bristol Commandery, No. 29, K. T., North Attleboro, proceeded to the State Camp, at South Framingham, on July 9th, to pay a fraternal visit to their Eminent Commander, Geo. H. Sykes, above mentioned, captain of Co. I, Fifth Regt. U. S. A., who was about to leave for the front. Acting Commander Leo A. Heilborn, in behalf of the members of Bristol Commandery, presented Capt. Sykes with a valuable gold watch, chain and charm as a token of their esteem. Capt. Sykes was greatly pleased with the gift and the good fellowship shown, and responded feelingly to the good wishes of the Sir Knights present.

The annual outing of the Jewelry Travelers' Association of New England was held on July 9th. The steam yacht *Skylark*, which had been engaged for the occasion, brought the party to Nahant, where they landed and enjoyed a dinner at the Relay House. After the dinner the party was divided into groups, and amused themselves by bowling and other sports. All enjoyed a pleasant day's outing.

The Codding & Heilborn Company, North Attleboro, recently completed an addition to its factory.

Daggett & Clap, Attleboro, will establish themselves in the Bates steam-power building, from which the James E. Blake Co. have removed.

A. P. Workman, formerly with B. K. Smith & Co., Providence, has gone into business on his own account at 129 Eddy Street.

Charles H. Tappan, of the D. F. Briggs Co., Attleboro, has sold all his race horses, some of which are widely known for their breed and speed. The increase in the business of the D. F. Briggs Co. calls for Mr. Tappan's entire time and attention.

James E. Blake, of the J. E. Blake Co., Attleboro, has purchased the land adjoining his new factory on the south from the Attleboro Episcopal Society.

Horace A. Hall, of Horace A. Hall & Co., Pawtucket, has been elected a license commissioner of that city.

Fargo & Valentine, Attleboro, have dissolved partnership, Clarence L. Valentine retiring, Edward A. Fargo continuing the business.

San Francisco Letter.

The retail jewelry firm of Kittredge & Bond, of Berkeley, have dissolved partnership. Mr. Kittredge is now connected with the California Optical Co.

Wm. H. Rowley has left for Alaska to accept a position with J. Valentine, of Juneau.

M. German, formerly of San Diego, has opened a store on Market Street, this city. He is at present conducting an auction there.

Carl Rappe, Watsonville, has recently newly fitted up his store. His fixtures are of a very striking design, making his store "a thing of beauty," and, we hope, "a joy forever."

B. H. Dawland, formerly of Portland, Oregon, has opened up a watch and assay office at Redding, Cal.

One of the prettiest lines of novelties in the clock line seen this year on the coast, are those made by Phelps & Bartholomew, for whom Phelps & Adams are the Pacific coast agents. All jewelers should make it a point to see this line.

Geo. P. Martin, of Watsonville, can claim the distinction of being the only jeweler on this coast to have been blessed with girl twins. The babes are doing nicely.

Harry Tuckey and Mr. Kline have formed a partnership as manufacturing jewelers at 126 Kearny Street.

Fred. Lezinsky, manufacturers' agent, has returned from a trip to the East. While there he secured the line of Regnell, Bigney & Co., of Attleboro, manufacturers of plated jewelry.

G. Heitkemper, Jr., of Portland, Ore., has accepted a position with Fredrick & Co., Seattle, Wash.

J. Butt, a jeweler of Seattle, has given up his business to become a volunteer. He will go with the next expedition to Manila.

Schleuder Bros. have opened a store at Whatcom, Wash. Owen Jones has entirely recovered from his recent serious illness.

Leon Carrau made a business trip last month to Oregon.

F. M. French, of Albany, Cal., was appointed chairman of the celebration committee on July 4th, held at the above city.

Peter Hoy, of Jamestown, visited this city last month, accompanied by his wife, who is suffering from poor health. They are at present enjoying a pleasure trip of a few weeks' duration to the coast of Alaska.

J. R. Andrews, formerly of Modesto, has opened a new store at Stockton.

H. Entermann, of Entermann & Borst, was in town last month, as a delegate from Los Angeles to the meeting of Turners, held here.

Chas. Weinschenk, of Armer & Weinschenk, has just returned from a trip through the Northwest. He reports big improvements, large crops, and the outlook for fall very good.

Leon Nordman, of Nordman Bros., has just returned from a ten days' vacation in the country, and was as busy as the proverbial bee (when visited by the writer) filling orders.

M. H. Osgood, of San Jose, made an assignment lately in favor of W. P. Morgan. Latest reports were that he effected a settlement with his creditors for 33 1/3 per cent.

Wolinski & Co. are a new firm in this country. They were formerly in business in Sydney, Australia. They have opened a large store at Seattle, Wash.

L. M. Mendelsohn is now on his Northern trip in the interest of his house, the Standard Optical Co. He is doing a good business.

Fred. Davis is at present on the road with a fine stock in the interest of his house, Nordman Bros. His reports are very favorable.

Geo. Greenzweig is now East on a business trip.

A. I. Hall & Son have secured the Pacific coast agency for the large line of cut-glass manufactured by C. Dorflinger & Son, New York. Goods will be sold from samples.

Geo. Paine, representing E. I. Franklin, manufacturer of gold jewelry, was in town last month.

It is reported that Ernest Block, the popular representative for W. & S. Blackinton, Providence, R. I., manufacturers of chains, will not visit the coast this fall as usual.

The following jewelers were in town: Ed. Praet, Woodland, Cal.; A. B. Wilson, Martinez, Cal.; Charles Gamsch, Angels Camp, Cal.; Mr. Ryder, Jr. (of Ryder & Son), San Jose, Cal.; J. H. Pearson, Randsburg, Cal.; Mr. Kuechler, Stockton, Cal.; G. M. Michaelian, Fresno, Cal.; Mr. Studley, San Rafael, Cal.; Chas. Steinmetz, Suisun, Cal.; Mr. Budreau, Modesto, Cal.



HAT BRUSH



LARGE HAIR BRUSH

THE 1000

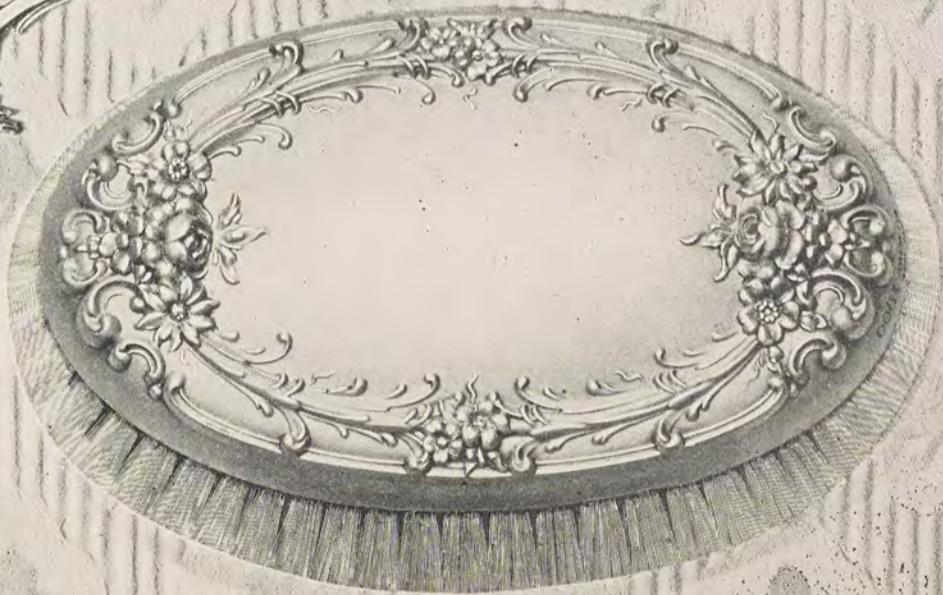
LINE OF TOILET WARE is now ready for delivery.

This line is made in a complete set of over FORTY pieces, including BRUSHES, MIRRORS, COMBS, PUFF BOXES, MANICURE PIECES, and the many other articles which are found in the category of ...TOILET WARE...

R. WALLACE & SONS MFG. CO.
SILVERSMITHS
WALLINGFORD · · · CONN. · · ·
226 FIFTH AVE. · NEW YORK ·
109 WABASH AVE. · CHICAGO ·
120 SUTTER ST., SAN FRANCISCO ·



VELVET BRUSH



MILITARY BRUSH



New York Letter.

The jobbers here are making elaborate preparations for fall trade, which, they expect, will surpass in volume the fall business for full a half dozen years past. Unusually large stocks await the attention of buyers, and all incoming steamships bring big consignments of goods purchased abroad during the summer by representatives of local houses. In view of the abundance of cash among the people, the wholesale trade is making a special effort to place at the disposal of retailers attractive stocks, and of a better class than in recent years.

August is always a busy buying month, but will be especially so this season, on account of the merchants' excursions, the dates for which are here given. Numbers of retail jewelers will undoubtedly take advantage of the cheap railroad rates, for the advantage of personal purchases in so extensive a market as this are apparent. Why not at once become a member of the Merchants' Association, so that you can take advantage of the lower rates? Membership in the association will cost you nothing, and you will be well looked after while in the metropolis.

As an indication of an expected big fall trade, recent statistics of imports at this port, compared with the same period last year, are interesting. The imports of precious stones for the week ending July 16, 1897, were \$11,282, while for the same week this year the imports were \$461,059. This seems almost incredible, but the figures are official.

E. J. Dingee, Jr., with the Gorham Manufacturing Co., is one of the directors of the Ulster Landing Ice Co., of Brooklyn, recently incorporated.

Among the passengers whose lives were lost on *La Bourgogne* was Mrs. Adeline Raimond, wife of a watch-maker living at 224 West Sixteenth Street.

The offices of the R. G. Dun & Co.'s Mercantile Agency were opened last month in the new Dun Building at 290 Broadway.

John Chatellier, for many years with Dominick & Haff, this city, has become a partner in the firm of Stephen Woods & Co., manufacturers of silver novelties, Newark, N. J.

One of the passengers on the Clyde Line steamship *Delaware*, recently burned off Barnegat, N. J., was John H. Mabie, of Mabie, Todd & Bard, gold pen manufacturers, Fulton and Nassau Streets, and his son. Mr. Mabie was on his way to Jacksonville, Fla., to pay a visit to another son, who is a United States volunteer in camp in that city.

Henry H. Jacobson, of Jacobson Bros., 65 Nassau Street, has been to Europe, where he made extensive purchases of diamonds and colored stones.

Adolph Keller, of L. H. Keller & Co., of New York, spent a couple of weeks last month in fishing at Henderson Harbor, this State.

President A. J. G. Hodenpyl, of the New York Jewelers' Board of Trade, accompanied by his wife, sailed last month on a seven weeks' trip to Paris, London, Antwerp and other cities of Europe.

R. L. & M. Friedlander, of 30 Maiden Lane, have in their window a flag made of genuine diamonds, rubies and sapphires that attracts considerable attention. It was constructed by the head designer of Chester Billings & Son, and is a beautiful piece of work. During the noon hour, when all the workmen of Maiden Lane—diamond setters in particular—are enjoying their recess, they cluster about the window and note the exact outlines, the perfect wave and creases of this flag. Commendation from these men, who know what they are judging, is what gives the members of the firm, as well as the designer, great pleasure. The price of the flag is \$1800.

Ludwig Nissen, a well-known dealer in precious stones, who went to Europe the latter part of June, to buy stones, is expected back the middle of this month. He has written home that he has secured some choice goods. Mr. Nissen is recognized as one of the most expert judges of stones in this market, and makes a specialty of dealing in goods of extra fine quality.

Tiffany & Co., will exhibit several Spanish battle flags captured by Admiral Dewey in Manila during his famous naval fight.

The trial of Albert F. Jammes and Charles K. Duchenes for violation of the sterling silver stamping law has been again postponed, and is not likely to be heard until October.

The Ansonia Clock Co. sustained considerable loss a few weeks ago by a destructive fire in their store-room at 19 and 21 Cliff Street. Besides the loss of the clocks kept in the store-room, the company sustained much additional loss from the water with which its showrooms were drenched while the fire was being brought under control.

The Paris office of Sussfeld, Lorsch & Co. has been removed to 21 Rue de l'Echiquier, where they have much more desirable quarters.

George C. White, of Rogers & Brother, has been receiving the congratulations of his numerous friends on his marriage to Mrs. Henrietta Boyd. The ceremony was performed at the home of the bride in Brooklyn.

Codding & Heilborn Co., North Attleboro, Mass., have moved their offices in this city into the new Gill Building at 11 Maiden Lane. The office is in charge of G. F. Kaiser, who will take much pleasure in showing samples to the trade.

J. B. Werther, traveling salesman for Hayden W. Wheeler & Co., died recently at his home in Jersey City, N. J. Consumption was the fatal malady. Mr. Werther resigned his place last January and went South in the hope of regaining his health. He had been in the employ of Hayden W. Wheeler & Co. three years, and was formerly connected with Albert Lorsch & Co. He was well known among the Southern trade.

Henry Kohn & Sons, of Hartford, Conn., have opened a branch wholesale office in the Gill Building at 9 to 13 Maiden Lane. The office will be in charge of Oscar W. Kohn and Edmund P. Kohn, the younger sons of the head of the firm.

E. Goldschmidt recently bought out the interest of James Steel in the corporation of the Steel & Taylor Co., silver-smiths, 55 West Sixteenth Street, and has succeeded him as president of the company. O. Gundlach has succeeded Henry Freund as vice-president of the same company.

R. L. & M. Friedlander, 30 Maiden Lane, New York, have opened a European office at 97 Hatton Garden, London, England. R. Friedlander, of this firm, has been in Europe for some weeks making extensive purchases of goods.

Tiffany & Co. contributed \$100 to the fund of the Red Cross Society for the relief of distress in Cuba.

Among the killed in the battle near Santiago de Cuba was a son of the late David Keller, of this city.

The George L. Vose Manufacturing Co. has removed its office in this city to 21 Maiden Lane.

I. M. Berinstein, manufacturer of diamond mountings, of 54 Maiden Lane, has retired from business.

Judge Lacombe, of the United States Circuit Court, recently rendered a decision in favor of the plaintiff in the suit of the Regina Music Box Co., against Alfred E. Paillard. The suit was for an alleged infringement of a patent on an improvement in music boxes. It was alleged that the Regina Music Box Co. owned patents for a winding mechanism for its music boxes, and that Mr. Paillard had incorporated the same device into boxes of his production. A perpetual injunction was granted.

Assistant Secretary Howell, of the Treasury Department, has informed the importers that stamps are required only on original custom house entries and not on duplicates or triplicates under the act of June 13, 1898; also that merchandise entered at exterior ports for warehouse and transportation is subject to the stamp tax imposed by the act of June 13, 1898, on entry for consumption or re-warehouse at interior ports.

The employees of Tiffany & Co., in their Forest Hill factory, with the co-operation of the firm, presented last month to Edward Lester, who completed his fiftieth year in the service of his employers, a beautiful silver pitcher. The pitcher was designed and made specially for Mr. Lester, who himself executed the handsome repousse decoration unaware of the intentions of his factory friends.

Aikin, Lambert & Co. announce a reduction in prices on their mercantile fountain pen. S. N. Jenkins, representing this company, is visiting his customers in the Northwest. Messrs. C. G. Megrue, A. S. Riley, Charles Melchor and R. W. Hunt, with the same firm, are also out with a full line of samples, visiting the trade in their respective territories. D. G. Stites and C. C. Wakefield are about to call on their customers for the Aikin-Lambert Jewelry Co., and they will also carry samples from Aikin, Lambert & Co., as heretofore.

William T. Church was appointed receiver for the George W. Church Co., jobbers and importers of watch-makers' tools and machinery, of 183 Greenwich Street, on the application of a majority of the directors for a voluntary dissolution of the corporation. The liabilities are \$8,182 and the assets are \$7000. The company was organized in January, 1898, with a capital of \$10,000.

Thos. Le Boutellier, of Le Boutellier & Co., returned from England, July 9th. While abroad he secured a number of novelties for the fall trade. One of them, a Dewey plate, promises to have an unusually heavy sale. It is made of Worcester ware, dark blue in color, with an excellent likeness of the hero of Manila Bay in the center, and a number of historical events symbolized by various designs around the edge.

Trade Excursions to New York

Under Auspices of the Merchants' Association.

Following are the dates of the excursions arranged by the Merchants' Association of New York to afford special facilities for the merchants in the districts named to visit the metropolis for their annual fall purchases:

In Central Passenger territory, including that section of the country between Buffalo, Pittsburg and contiguous points as far West as Chicago and St. Louis, south of the Ohio River, and running north into Canada, August 7th to 10th, and August 27th to 31st, both dates inclusive.

In Trunk Line territory, east of and including Buffalo, Pittsburg and adjacent places, south to the Ohio and Potomac Rivers, and north into Canada, September 1st to 4th, and September 10th to 14th, both inclusive.

Conditions: Fare—One and one-third rate for round trip; tickets good for thirty days from Central Passenger territory, and fifteen days in Trunk Line territory. These are furnished on the certificate plan, and must be identified and countersigned by the Merchants' Association.

The Merchants' Association has also succeeded in obtaining reduced rates from the Southwestern Passenger Bureau, which has charge of the affairs of the railroads west of the Mississippi River, and southwest of St. Louis, taking in all of Texas.

Leonard Krower, of New Orleans, La., made extensive purchases in this city last month.

We are pleased to learn that H. H. Heinrich, of 102 Fulton Street (late 14 John Street), the expert on marine chronometers and fine watches, is recovering from his accident and is now able to give his personal attention to all branches of his business.

J. W. Riglander, of Hammel, Riglander & Co., returned from Europe recently, after a three months' stay, most of which was spent at the firm's factory. Mr. Riglander stated that our war was affecting business somewhat on the other side, and that trade is not as brisk over there as it was a year ago, when he was over. Like other travelers, he found sentiment on the Continent as favoring Spain, while the English were strongly in sympathy with us. He brings word of big improvements in their factory, especially in the lens department, which branch is continually increasing its volume of business.

One of the finest ring catalogues ever compiled for the use of the trade is now in preparation by L. Kaufman & Co., ring manufacturers, of this city, and will be mailed during the present month. It will contain between four and five hundred illustrations that can each be made in from six to eight different combinations, affording about three thousand ring designs. The book can be had on application to the company's office at 54 Maiden Lane.

J. Feinberg, of 48 Vernon Avenue, Long Island City, has opened a branch store at 259 Steinway Avenue, near Broadway, this city.

Kayton & Kramer, importers and jobbers of jewelers' tools and materials, have dissolved partnership. Henry S. Kramer will continue the business.



Cheap-Rate Buyers' Excursions to New York City

Reduced Railroad Rates for Retail Jewelers

The stock-buying season is here, and the great stock-buying center is New York City. It has most wholesale houses, largest stocks, best opportunity for selection of goods, best prices.

New York is the Lowest-Priced Market in America.

A TRIP TO NEW YORK COSTS NEXT TO NOTHING.

By becoming a member of the Merchants' Association of New York (cost absolutely nothing, membership being obtained by filling out application blank furnished by the Association or any of the firms mentioned below) the Retail Jeweler gains all the great privileges this organization furnishes. Beautiful headquarters in heart of business district, with complete facilities for correspondence, etc., and exceptional opportunities to meet experienced merchants, contact with whom must increase one's commercial knowledge. Round trip costs members but one and one-third the single fare from your city or town. (That is if round trip at regular rate is \$12, the membership rate will be \$8.)

A TRIP TO NEW YORK IS A POST GRADUATE COURSE IN BUSINESS.

DATES OF REDUCED FARE:

August 7th to August 10th inclusive,	}	Tickets good for 30 days from date of sale.
“ 27th to “ 31st “		
September 1st to September 4th inclusive,	}	Tickets good for 15 days from date of sale.
“ 10th to “ 14th “		

SEND FOR APPLICATION BLANKS TO

THE MERCHANTS' ASSOCIATION OF NEW YORK,

346 Broadway, Cor. Leonard St., NEW YORK, or any of the following members:

HAYDEN W. WHEELER & Co.,
2 Maiden Lane.

J. B. BOWDEN & CO.,
3 Maiden Lane.

LUDWIG NISSEN & CO.,
18 John Street.

MOUNT & WOODHULL,
26 Maiden Lane.

C. G. ALFORD & CO.,
195-197 Broadway.

CROSS & BEGUELIN,
17 Maiden Lane.

N. H. WHITE & CO.,
21-23 Maiden Lane.

AIKIN, LAMBERT & CO.,
19 Maiden Lane.

GORHAM MFG. CO.,
Broadway & 19th Street.

HARRIS & HARRINGTON,
32-34 Vesey Street.

SPENCER OPTICAL MFG. CO.,
15 Maiden Lane.

WM. L. GILBERT CLOCK CO.,
37-39 Maiden Lane.

St. Louis Letter.

The retail organizations in St. Louis, and in fact throughout this State, are determined to have a change in the exemption law at the next session of our State Legislature. Under the present exemption laws it is almost impossible for a merchant to collect an account by process of law, as the debtors always take refuge under the exemption act. In Illinois the retail dealers have been able to get a change in the exemption law, which gives them an opportunity to collect what is due them, and yet at the same time enough exemption is allowed to satisfy an honest individual. As a mere matter of justice the retailers should succeed in their efforts to change the exemption law of this State, which, as it now stands, is a refuge for the dead beats.

The question of an Exposition for 1903 is receiving considerable attention in St. Louis just now. Steps have already been taken for the proper celebration of the acquisition of Louisiana by President Jefferson in 1803. This territory now constitutes what may be denominated the Great Southwest, and is one of the most flourishing and valuable portions of the United States. It is the intention of those who are agitating the matter to hold a great exposition in St. Louis in 1903, which will be commemorative of the 100th anniversary of the acquisition of the territory of Louisiana. As the leading city in this territory, St. Louis is pre-eminently fit as the place for such an exposition. This city has never had an exposition of national importance, but the undertakings which she has had in this direction have all proved greatly successful. The St. Louis Exposition is noted the world over as being the most successful of all local expositions. The people of St. Louis have had ample experience in entertaining large crowds of people, and we have plenty of men who are perfectly capable of managing an exposition of the size of the one under consideration. A meeting was held, the early part of last month, of prominent citizens to consider this question, and a committee of fifty was appointed to devise a plan of operations. If such an exposition is organized there can be no doubt of its success, not only on account of the capabilities of St. Louis, but also on account of the event which it celebrates. The States of the Great Southwest will be especially interested in such an exposition, and liberal aid may be expected from them as well as from other States in the Union. The great manufacturing East will be particularly interested in the Great Southwest, and would be anxious to do what it could to assist in the success of such a celebration.

Fred. L. Steiner, secretary of the St. Louis Clock and Silverware Co., has recently returned from Elkhart Lake, Wis., where he had been enjoying a two weeks' outing with his family.

Meyer Bauman, president of the L. Bauman Co., has just returned from a six weeks' trip to Europe, where he was combining business with pleasure. Mr. Bauman made larger purchases of diamonds and other precious stones for his firm's fall trade than for several seasons past. He says the jobbing business is not so good in the East as farther West. The Western jobber is becoming a strong competitor of the Eastern wholesaler. He also feels that the West will enjoy an unusually prosperous fall business this season.

Ed. Massa, of the Bauman-Massa Co., and Fred. Steiner, of the St. Louis Clock and Silverware Co., are now out on a six weeks' trip through Southern territory.

J. M. Friede was the last man of the traveling force of the Eisenstadt Co. to go out. He left, July 16th, for Texas and the South on his early fall trip. The above firm's travelers got off unusually early with their complete fall lines this season. They are anticipating a prosperous trade from now on to the holidays, and the Eisenstadt Co. propose to get their share of the pie.

Ben. Sanfelder takes Julius Newman's territory for the L. Bauman Co., and is now out on his initial trip.

C. E. Randall was in St. Louis last month, purchasing an opening stock for a new store he has just opened up at Hillsborough, Ill.

Charles Bretz has bought out the business of J. J. Withington, on the Manchester Road.

H. W. Foerste, horological student, has established himself in business at Okawville, Ill.

The Brooks Optical Co. have recently been incorporated and are now organized for business. The new firm will succeed to the business of A. R. Brooks, in the Globe-Democrat Building. The officers are: A. R. Brooks, president and treasurer; Theo. Rassieur, vice-president, and G. I. Brooks, secretary. Their object will be to enlarge the optical branch of the business as at present constituted, and reduce other lines.

Work on the new building of the Mermod & Jaccard Co. is progressing finely. The firm expect to get into their new store sometime in November, in good time for their holiday business.

The Southwestern railroads are building, this season, an aggregate of 1200 miles between the Rio Grande and the Missouri. This renewed activity in railroad construction means the development of a lot of new territory and the beginning of an era of prosperity in the territory through which the new lines pass which has never been known before. It will undoubtedly open up new fields for our St. Louis wholesale houses.

John Haberman, formerly president of the Haberman Jewelry Co., has begun business as a diamond broker in the Holland Building.

W. H. Carmen, formerly in business at Sorento, Ill., has again opened up at the above point. He bought his stock here.

C. Holderle, of Salisbury, Mo., was a recent trade visitor here.

Paul Ramser, of Arizona, bought an opening bill here last month.

C. A. Wilmes has bought the wholesale material stock of Geo. H. Kettman & Co., Holland Building.

W. H. Gray, horological student, bought an opening bill here recently for the new store he is opening up at Cotton Plant, Ark.

The Retail Jewelers' Association of Missouri held a meeting the early part of last month at 509 Franklin Avenue, with O. H. Kortkamp, the president, in the chair. There was a good attendance and various subjects of interest to the trade were discussed. Two applications for membership were received and referred to the appropriate committee. It was decided that the annual outing and games should be held at Fern Glen, Sunday, August 30th. The members and several wholesale houses have agreed to contribute valuable prizes for the athletic contests. It was decided to give a supper at the quarterly meeting to be held July 23rd.



Pittsburg and Vicinity.

The intense July heat and the general exodus of the jewelry-buying public of this city are two situations which have their effect on trade. There is a quietness pervading trade atmosphere at present which is the usual one at this season of the year. Despite this to-be-expected state of affairs, there is a cheerful anticipation for fall. There can't help but be a buoyant aspect to business when one thinks of the enormous amount of money which must soon be put into circulation right in this locality. Government orders have been largely placed in local mills, which have been busy turning out armor plate and projectiles ever since the first rumors of war. There have been no strikes, furnaces are going full blast, and there is every indication of an exceptionally good fall and holiday season. The usual croakers and looking-thro'-the-glass-darkly people are few and far between.

July has had its share of robberies and flim flams, and, as a consequence, police have notified the jewelers to do away with placing of valuable jewelry and silverware in the show windows at night, as it is a mode of putting temptation in the way of thieves. That the dealers are obeying this second warning of the police, is most evident in the night displays as observed by THE KEYSTONE correspondent during the past two weeks. Save for cut-glass exhibits—and what midnight marauder wants to run off with a cut glass punch bowl?—the windows are practically bare of any valuables. Belts and waist sets, ponderous bronzes and cut-glass goods predominate.

The matrimonial engagement of Harry Bauer, of Diamond Street, to Miss Caroline Lippert, is announced. The marriage will occur this summer.

Klein, Kraus & Co. were the successful bidders for the contract to furnish thirty-nine medals for the Fourth of July sports at Schenley Park. Thirteen were to be gold, thirteen silver, and thirteen bronze, representing respectively first, second and third places in the events. The price amounted to \$650.

Schmidt Bros., of New Castle, Pa., have found that to look at Buffalo Bill's street parade cost them just \$3000. The men in the store were watching the parade from the front door, while thieves, at the rear door, pulled the bar from the screen door, entered and took all the watches, rings and four papers of diamonds from the cases. The store is on North Mill Street and the rear is on an alley, this situation making it easier for the robbers. Though detectives went to work at once on the case, there is no clue.

There has been an exceptional demand in the two cities for good watchmakers, and inquiries as to the reason of this deficit, developed the fact that excellent wages and continued employment as offered by the Westinghouse Electric and Manufacturing Co., of East Pittsburg, in their meter shops, have proved sufficiently alluring to entice the watchmakers of the cities from their benches. Clock work and small lathe work are required in the construction of these meters.

H. Fullerton, a young man who hailed from Butler, and who said he "hadn't been in Pittsburg long," succeeded in stealing from John A. Studer, Ira E. Reidenbach, of Allegheny, and from J. W. Best, 131 Sixth Street, and Ernest Blank, 1206 Penn Avenue. A Roman nose and a gold-filled tooth were marks of identification which succeeded in landing the young man from the country in the county jail, to await trial by court.

W. J. Johnston, of W. J. Johnston & Co., was a New York visitor for two weeks during the month. Mr. Johnston did his fall purchasing while East.

Charles O'Brien, with the above named firm, accompanied by Mrs. O'Brien, is at present at Atlantic City, N. J.

B. Engel, of Wilkesbarre, Pa., opened a new store on Carson Street, between Fifteenth and Sixteenth Streets. Mr. Engel had contemplated locating at New Castle, Pa., but finally decided that Pittsburg is the place to make money.

Heeren Bros. & Co. were awarded the contract for 1000 medals for the Patriotic League, an organization which is the outgrowth of the war, and is composed of the leading business men of the city. Among the jewelers who have joined the League are William Heeren, Steele F. Roberts, W. W. Wattles, William Hoffman, Colonel Sheaffer, Charles Roberts, Kingsbacher Bros. and Optician J. Kornblum.

The local jewelers who enjoyed their vacations during July were: Al. Andrews and Emil Geilfuss, of Heeren Bros. & Co., at Atlantic City; William Hoffman, at Chautauqua; James R. Brown, with G. B. Barrett & Co., at Sewickley, Pa.; William Harrison, with G. B. Barrett & Co., at Wheeling, W. Va.; and Jacob Grafner, Great Lakes.

J. T. Nicholson, Monongahela City, Pa., was recently appointed postmaster at that place. This is Mr. Nicholson's second term as postmaster.

Buchbinder & Shempf, Penn Avenue, and D. T. Reed, Sixth Street, have repainted their stores.

In a disastrous fire which occurred in Allegheny City on the night of July 10th, the stores of Ira E. Reidenbach, Chicago Optical Company, and the Quick Repair Jewelry Co. were completely destroyed. Losses, \$5000, \$1000 and \$5000 respectively. Mr. Reidenbach reopened that same week on Federal Street, opposite the Fort Wayne station.

R. E. Prosser, formerly with William Ryan, Philadelphia, is now with W. E. Stieren. W. E. Stieren has recently got out a quantity of large thermometers and barometers for advertising purposes.

Samuel Sipe sailed on the *Amsterdam* to be absent for six weeks. J. Harvey Wattles and E. M. Quimby sailed on the *Laba* to visit the art and jewelry centers of Europe.

Visiting jewelers in the city during the past month were: A. W. Bishop, Connellsville; Alfred Watson, Monongahela; Harvey Wallace, Smith's Ferry; J. T. Murphy, Dawson; W. W. Mather, New Castle; Walter Kennerdell, Verona; Robert Wolf, Smithton; H. Tepletz, McKeesport; H. H. Weylman, Kittanning; J. W. Kimple, Bennett; E. Grieb, Butler; Wm. Hunt, Uniontown; A. F. Poole, Washington; Leo Furtwangler, Greensburg; J. Z. Simpson, Blairsville; A. Schmidt, Braddock; John Linnenbrink, Rochester; H. B. Cabbison, New Castle; James McKean, Charleroi; A. Winter, Zelenople; Frank Hayes, Washington; A. Kurtz, Dawson; A. Fisher, Greensburg; J. C. Rhodes, Homestead; Charles Loughman, McKee's Rocks; G. A. Boss, McKee's Rocks; A. Merz, Sewickley; F. H. Kufns, Sharpsburg; E. A. Blosser, New Kensington; J. B. Bruce, Burgettstown; Gus. Spies, Irwin; F. F. Robinson, Saltsburg—all of Pennsylvania; A. C. Thomas, Sistersville, W. Va.; J. F. Surratt, Steubenville, Ohio.

A PROBLEM

$$\frac{5 \times 6 \times 150}{18000} = \frac{4500}{18000} = \frac{1}{4}$$

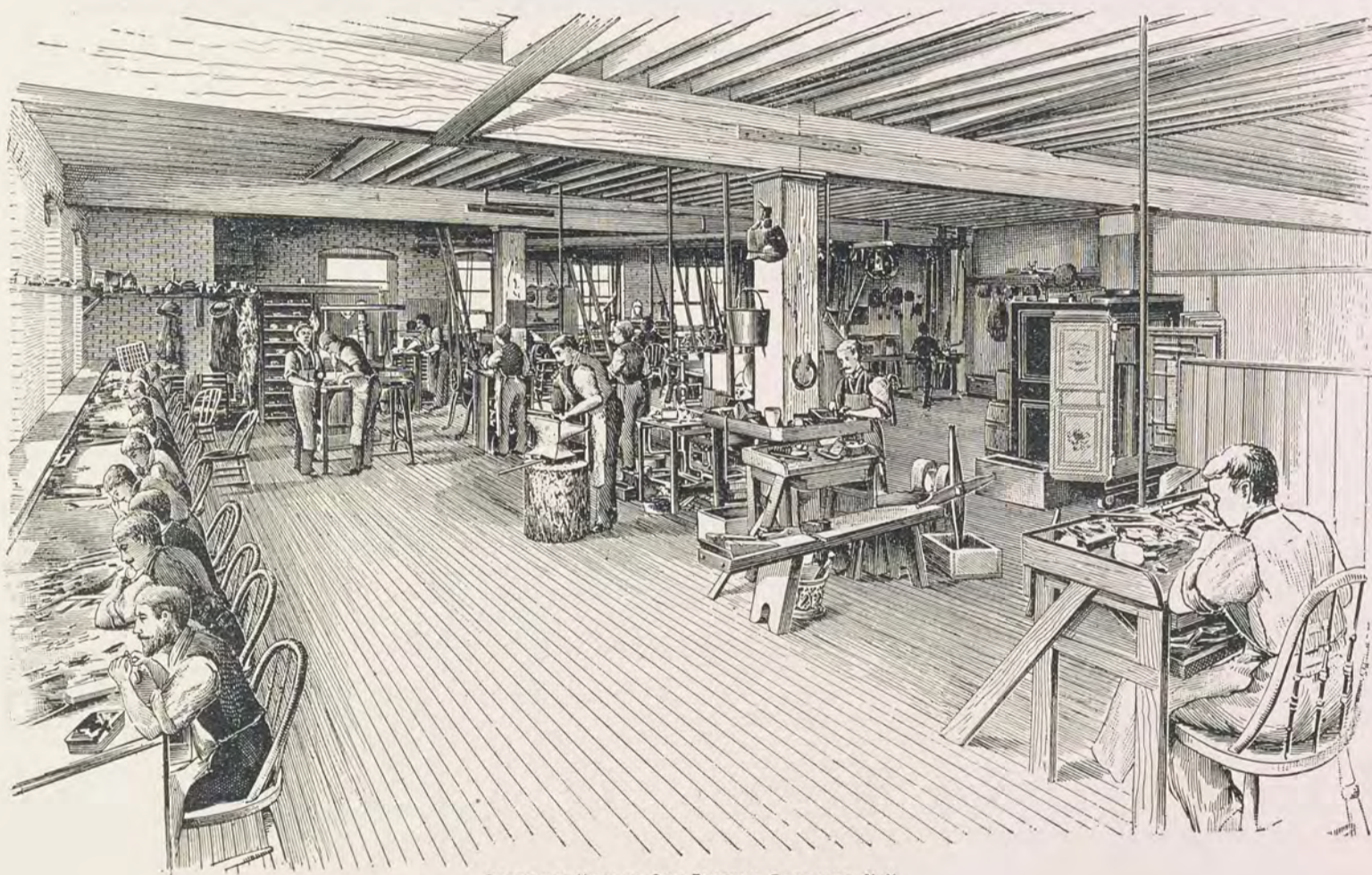
Why Pertinent?

Our **5 Travelers** can average calling upon
6 Dealers a day during the
150 Days of the Fall season; there are
18000 Jewelers in the country, the
 $\frac{1}{4}$ represents the fraction they are able to call upon.

These 4500 are favored partly by selection, but to a large extent by accident; in so important a matter as purchasing the *right rings* at the *right prices*, it would be folly to trust to chance.

Which shall it be

*a visit from one of our travelers,
 or a selection package?
 We await your pleasure.*



SECTIONAL VIEW OF OUR FACTORY, BROOKLYN, N. Y.

2500 Varieties of Set Rings

LOUIS KAUFMAN & Co.

ESTABLISHED 1885.

Offices: { 54 Maiden Lane, } New York.
 { Fahys Building, }

RING MAKERS



FINE ARTS BUILDING, TRANS-MISSISSIPPI AND INTERNATIONAL EXPOSITION.

Omaha Letter.



OUR correspondent has it upon good authority that the Exposition receipts have slightly exceeded the expenditures thus far. The officials claim that large crowds will be in attendance from the middle of August to the close of November 1st. The big show is now complete and well worth seeing—the electrical illuminations at night being far in advance of the World's Fair; the exhibits, while not half so numerous and extensive, are shown in excellent shape. The exhibit of the United States Government is far in advance of the one at Chicago, and of itself is worth a long trip to see. Omaha certainly deserves great credit for carrying to completion such an exposition, and were it not that the great dailies all over the country devoted so much space to war news, the Exposition would certainly receive, as it deserves, much more advertising than has been given it.

Omaha jewelers seem to be doing some business, but none seem to be very enthusiastic over the amount that the Exposition will bring them, if the past few months can be looked upon as a criterion.

Geo. W. Ryan & Co. are making a specialty of souvenir spoons, and with their booths at the Exposition grounds and their store down town, are selling large quantities of the official Exposition souvenir spoon. The firm are doing a nice business, and look for a large trade later in the season.

Reichenberg-Smith Company, wholesale, report their business as being very satisfactory; they have a fine booth at the grounds which is greatly admired by jewelers who visit the Exposition.

You ask, "What will a week at the Omaha Exposition cost you?" It is natural that this should be the first consideration with most people who contemplate a visit to the Trans-Mississippi Exposition. To the few, "money is no object"; to the many, it may be said that the cost of a visit to our Exposition is moderate and reasonable. In the first place, the railroads have granted exceedingly low rates, especially to the territory near by. Rooms can be obtained at moderate cost in any part of the city, in some cases including board; and those to whom time is money, should remember that the compactness of the Exposition buildings and the accessibility from the center of the city, makes it possible to "see the sights" in much less time than was required at the Columbian Exposition at Chicago. One day spent in each of the main buildings, with two or three days for the State buildings and other attractions, will occupy about two weeks; but a good general idea of the fair can be obtained in half that time. Visitors should communicate, immediately on their arrival in the city, with the Official Information Bureau, 1319 Farnham Street. Baggage can be checked direct to this address at a charge of twenty-five cents, to cover the cost of hauling from the depot. The Bureau is under contract with the Exposition management to furnish free reliable information in regard to rooms, board, transportation, carriages, baggage, messenger service, etc. The Bureau has on its books some 5000 rooms, mostly in private residences, to which visitors can be referred entirely without charge. Comfortable rooms can be obtained either near the Exposition grounds or near the business part of the city, for \$1.00 a night or \$5.00 a week for single person, and for \$1.50 a night or \$8.00 a week for two. In some cases a light breakfast is included in these prices. There are also rooms at higher or lower figures in all parts of the city. The hotels also furnish the usual

accommodations at the usual prices. In some cases, board can be obtained in the same house, and in every case the Information Bureau will give information as to the distance from any one of the rooms on its list to the nearest restaurant or boarding house. Good board can be had for \$5.00 a week for each person, or at usual prices at restaurants all over the city. Plenty of good dining halls and lunch counters are in operation in close proximity to the grounds, at which visitors will be fairly and liberally treated. There are a dozen restaurants on the Exposition grounds, besides about two dozen lunch counters, tea gardens, ice cream stands, etc., at all of which prices are reasonable. At most of these the usual charges are five cents for tea and coffee, pie, etc., ten cents for sandwiches, and other things at corresponding prices. Admission to the grounds is fifty cents for each person above twelve years of age; children between five and twelve years, twenty-five cents. These figures include everything within the fences, except the amusement features on the Midway, which are in the hands of individual concessionaries. Paying \$5.00 a week for room, another \$5.00 for board, and fifty cents a day for general admission to the grounds, makes the cost of a week at the Exposition about \$15.00.

E. H. Snow, of the office force of Woodstock, Hoefler & Co., Kansas City, spent a week last month in looking over our big show. Mr. Snow was loud in his praises of Omaha and her Exposition, and thought the week spent here as most enjoyable and interesting. Mr. S. E. Woodstock, head of the above firm, was here for a week during June, accompanied by Mrs. Woodstock. They were taking in the Exposition together, and were delighted with the fair. As an example of Western push and enterprise, Mr. Woodstock thought it a wonderful exhibition.

The attendance at the Exposition on the Fourth was something over 45,000, with about 38,000 paid admissions. That is a pretty good crowd, and the ground was pretty well occupied. It was the general opinion that the number on the grounds largely exceeded the report, some placing their estimate as high as 100,000. The crowd seemed to enjoy itself and general good feeling prevailed.

We wish to repeat, and put it in italics that the Omaha Exposition is great in every sense of the word. Every man, woman and child who possibly can do so should not miss the education such a display will give them. The best in music, art and mechanics, and amusement to suit everybody's bent.

Mr. Andrews, one of E. A. Dayton & Co.'s travelers, is in town filling up his trunks and preparing to get out on the road about August 1st.

Henry Copley reports his business as being excellent. Mr. Copley is nicely situated, and his show-windows are dressed in superb taste.

Geo. W. Ryan & Co., opposite the post-office, have a neat and attractive store, and do a nice business.

C. S. Raymond Jewelry Company are having an auction sale, which is being conducted by auctioneer P. J. Burroughs, of Chicago.

One of the Exposition Buildings most admired by visitors, is the Fine Arts Building, shown above. It is in shape a parallelogram 246 feet long and 130 feet wide. It consists of two separate, symmetrical, domed buildings, connected by a peristyle or open court surrounded by colonnades. The building rests on a balustraded terrace, and is approached from the Plaza by flights of steps, and also from the avenue bordering the canal, between it and the building.

Come to the Exposition.

WE BUY OLD GOLD FOR CASH VALUE.

611

WE desire to call the attention of the Trade to the fact that all our plain rings are made by our own improved and patented process, of *One Piece of Gold*. They are *SEAMLESS* and contain *NO SOLDER*. They are perfect in shape and finish, and *CAN BE ALTERED TO ANY SIZE, Smaller or Larger*, without any danger of breaking or spoiling the shape, which cannot be done with *soldered* or *cast* rings.



The prices of our rings are no higher than those of inferior goods.

GIVE us a *SAMPLE ORDER*, and we will refund the money if goods do not prove satisfactory.

No Charge for *Special Stamp* on orders of 100 dwts. and over.

We will make our seamless plain rings from the *raw gold* to the *finished* in the presence of any of our customers.



ESTABLISHED 1849.

PECKHAM SEAMLESS RING MFG. CO.

Manufacturers of Solid Gold Plain and Engraved Rings,

OFFICE, 30 Maiden Lane.

NEW YORK.

FACTORY, 131 Liberty Street.

REORGANIZED 1892.

Business is Beginning to Boom!

Order your SEAMLESS WIRE and TUBING Now, to avoid delay.

Standard Seamless Wire Co.,

381 North Main Street, Pawtucket, R. I.

We have made Special Effort

to complete our Fall sample line to show Jewelers who will visit this city on the Special Excursions arranged by the New York Merchants' Association. We are now ready for you.

We have the largest line of Silver Novelties and Staple Jewelry in New York City.

Averbeck & Averbeck,

16 & 18 Maiden Lane, New York.



FLAG GOODS

of every description.

LOWEST prices.
HIGHEST quality.

Factory—Newark, N. J.

“Remember the _____”

fact, that our line of *DIAMOND JEWELRY, RINGS, NOVELTIES, ETC.*, during the coming season, will comprise a great many attractive and original designs, which it will be to your advantage to inspect before placing your *fall orders*.

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

CONSULT THE BECK ENGRAVING COMPANY

SUCCESSORS TO PHILA. PHOTO-ENGRAVING CO

147-51 NTH 10TH ST.

PHILA.



CONCERNING

DESIGNS
ILLUSTRATIONS
AND

ENGRAVINGS

ARTISTIC EXECUTION REASONABLE PRICES OF EVERY DESCRIPTION

Among the Trade.

Arkansas.

R. C. Northum has gone out of the jewelry business in Stephens.

California.

T. M. Besson has opened a repair shop at Tehachapi.
J. J. Wilson has moved his jewelry stock from Roseburg, Oregon, to Sisson, this State.
E. F. Heath has succeeded to the business of Heath & Ekstrom, of Santa Rosa.
W. A. Pierpont, of Tucson, Ariz., has begun business in Santa Barbara, this State.

Colorado.

C. W. Thomas, of Florence, has moved into more desirable quarters.
Charles H. Leppla, a jeweler doing business at 828 Sixteenth Street, Denver, recently captured a thief in the act of stealing a diamond. Leppla, noticing a diamond ring absent from a tray which the thief had been examining, ran to the back end of the store and got a revolver, at the same time calling to two clerks to guard the front door. The jeweler pointed the revolver at the thief, who capitulated, and was turned over to the deputy sheriff.
C. E. Glessner has moved from Grand Junction to Ouray.

Connecticut.

A. R. Patton, of Thompsonville, has sold his business to Thomas H. Bowen, lately of Binghamton, N. Y.
C. H. Case & Co., of Hartford, will soon begin extensive alterations in their store on Main Street.
B. J. Banks, former manager of the Greenwich Jewelry Store, Greenwich, has resigned his position to accept one as drummer for Colgate & Co. J. H. Barrett, for the past three years head watchmaker for the Greenwich Jewelry Store, fills the vacancy.

Florida.

Henry Pomar, lately in charge of the branch store of the Greenleaf & Crosby Co., in St. Augustine, is now in the company's main store in Jacksonville.
C. F. Sulzner, St. Augustine, has bought a lot at the corner of Twelfth Street and Avenue C, Miami, Florida, for a business building.

Georgia.

E. W. Blue, Atlanta, a retailer well known to the trade throughout the country, died last month. The remains were taken to Cincinnati, Ohio, for interment. Mr. Blue planned the funeral arrangements before his death, and even wrote the notice of his demise.
V. W. Skiff, of Athens, is beautifying and improving his store.

Idaho.

E. H. Hendricks has again opened his jewelry store in Hailey.

Indiana.

Winfield S. O'Brien, lately of Fairmount, has begun business in South Bend.
The jewelry store of Richard Muinch, of South Bend, recently suffered about \$175 loss by burglars, who pryed open a rear window with an iron bar.
Eugene Wilson, of Waynetown, has moved into new quarters in the Zuck Block.
How Brothers, LaPorte, are noted as well for the excellence of their advertisements as for the excellence of their stock. Their advertisements in the local newspapers are original, attractive and trade-bringing.

Illinois.

M. L. Levin, formerly of Milwaukee, Wis., has begun business as a retailer in Murphysboro, this State.
Theo. Schottle, New Madrid, Mo., has bought out Fred. Pfano, Jr., Metropolis, this State, where he will permanently locate.
Emil Despres, West and Northwestern man for H. F. Hahn & Co., left Chicago for his early fall trip the latter part of July. He expects and is prepared for a bumper trade this fall.
Harry Holloway has opened a jewelry store at Hersher.

Iowa.

W. E. Downie will open another jewelry store in the Hicks Block, Decorah.

A. G. Lietsch has purchased the store of J. Scales, Mt. Union, and moved his stock of jewelry thereto.

Rheines & Sliter have succeeded F. W. Rheines, of Lamont.

J. H. Crane, lately of New London, has moved to Mount Pleasant.

Chris. Christianson has removed his business from Jewell to Hubbard.

H. Kirkpatrick has sold out his stock of jewelry in Battle Creek to Louis Derr.

George H. Phelps, formerly of Galesburg, Ill., has purchased the stock of F. R. Kay, of Creston, this State, and will continue the business.

L. H. Toops has opened a jewelry store in West Point.

The Monroe Jewelry Company has been incorporated in Monroe by Tony Benninger, Daniel R. Norris and Andrew J. Herring. Mr. Benninger was formerly with the T. O. Brewer Company. The capital stock of the corporation is \$20,000, and it will open a store in the new Bernhardt Building on De Siard Street.

C. W. Norton has gone out of the jewelry business in Waterloo.

B. F. Humphrey, of Ottumwa, has sold his stock by auction and will move to Centerville.

W. M. Garretson has opened a store in De Soto.

Kansas.

W. N. Southern, Jr., has purchased the business of B. Lowe, of Independence.

W. F. Sappe has opened a store in Galena.

Wuerth & Son, of Leavenworth, have greatly improved their store, and have provided separate apartments for their diamond, watchmaking and optical departments.

Kentucky.

In a competition for making a pin design for the graduates of the Louisville Girls' High School, Rogers & Pottinger, of that city, were the successful competitors. They designed a pin which resembles a torpedo boat, and the design successfully appealed to the war spirit of the times.

Mrs. C. P. Barnes, jeweler, of Louisville, was recently elected auditor of the Kentucky Federation of Women.

J. H. Bovard, of New Castle, will soon occupy an attractive new store.

W. K. Burke, who recently moved from Middlesboro to Tazewell, has returned to Middlesboro and will re-engage in business in that place.

Jule Steinau, Louisville, has handsomely repapered and repainted his store, making his quarters one of the neatest in the city. Mr. Steinau has been making a special display of diamonds.

Louisiana.

W. J. Manboules has removed from Franklin to Rayne.

Maine.

Lewis Poor has begun business in Freedom.

Abiel Carter, of the Carter Bros. Co., of Portland, died on July 3d. He had been in business in Portland since 1864. The concern has long been one of the leading jewelry establishments in Maine.

James F. Burgess, lately of Searsmont, has begun business in the Herald Building, Camden.

James E. Butterfield has opened a store at Peak's Island.

O. A. Johnson, of Presque Isle, has moved into more desirable quarters.

Maryland.

John N. H. Menger has succeeded Menger & Wagner, of Baltimore.

Massachusetts.

William L. Morrow has begun business in Haverhill.
C. F. Godspeed has succeeded S. W. Hall, of Wareham.
Geo. A. Read has begun business as a repairer in Manchester.

Arthur L. Kingston has begun business as a repairer in Beverly.

W. G. Loring has begun business as a repairer and optician in Woburn.

John R. Gleason has begun business as a repairer in Revere.

B. E. Cook, Northampton, was recently appointed a receiver for the defunct Hampshire County Bank.

H. W. Coye, of Cottage City, has moved into better quarters at 126 Circuit Avenue.

The citizens of Waltham subscribed over \$1,000 as a contribution to Company F of the Fifth Regiment of the Massachusetts Volunteers, known as the Watch Factory Company.

J. Edward Wilson, has succeeded Wilson Brothers, Boston. A settlement with the creditors of the old firm was recently effected for 35 per cent. in cash and in notes for 32½ per cent., payable in one year, and for 32½ per cent., payable in two years. The notes are indorsed by Henry F. Smith, cashier of the Market National Bank, of Boston. Mr. Wilson has extensively improved the store.

A. D. Cairns and Irving Smith, of Boston, have dissolved partnership and the business is being continued under the old firm name of A. D. Cairns & Co., by Mr. Cairns.

Mr. Parker, lately of Christy, Parker & Co., of Wrentham, has re-engaged in business in that city.

Ernest E. Small has begun business as a repairer in Winthrop.

A. C. Tucker has opened a store in Whitman.

S. R. Drake has opened a watch repairing store at Concord.

A prospering jewelry firm is that of Wetherell & Hollister, Westfield. They started three years and a half ago in a room 10 x 20 feet, and their present handsome quarters are 20 x 80 feet, elegantly fixtured and well stocked. They have a workshop 25 x 30 feet with the most modern equipment. Mr. Wetherell has charge of the watch repair work, and Mr. Hollister of the optical department.

Captain L. E. Hanson, Company G, Fifth Massachusetts Regiment, U. S. Volunteers, is a Woburn jeweler.

Alden Webb, at Beverly, had recently on exhibition in his window a number of Spanish bullets that were sent him by a friend in the Second Massachusetts Regiment, now at Santiago.

George L. Kerr & Co., Malden, are selling their stock at auction.

Michigan.

L. M. Bennett, of Traverse City, has removed his business into the room partly occupied by the post office.

A. E. Job, formerly of Wilkesbarre, Pa., has opened up a jewelry business in Dundee, this State.

H. Koester & Co., Detroit, are now installed in their new quarters on Woodward Ave.

A. F. Ragatz, of Vineland, Ind., and Alvin P. Kinebes, of South Coloma, Mich., have formed a partnership and will start in business in Coloma, this State.

Walter Mason is a new jeweler at Mt. Clemens.

E. R. VanDuser and William Barston have purchased the business of A. B. Scattergood, of Ithaca. The name of the new firm will be Van Duser & Barston.

Ragatz & Kneibus have opened a store in G. Sawatzki's building, Benton Harbor.

O. O. Black has succeeded O. O. Black & Co., of Alpena.

Col. G. A. Loud, of Detroit, was paymaster on the U. S. S. *McCulloch*, and took part in the battle of Manila. After the battle he collected many interesting relics, which were recently placed on exhibition in the show windows of Wright, Kay & Co. Among them was the capstan from the sunken Spanish cruiser *Antonio de Ullao*.

Minnesota.

P. F. Egan has opened a jewelry store at St. Paul.
McGuire & Calhoun, of Northfield, have moved into their new store on Division Street, and now boast of one of the handsomest jewelry establishments in Southern Minnesota.

Thomas O. Rye has sold his business in Austin to Arnold Johnson.

H. F. Ahlstrand, of Duluth, has opened a store in Sparta.

C. A. Sherdahl, of Montevideo, has equipped his store with an acetylene gas plant.

C. F. Warner, formerly in business in Cloquet, has moved to Two Harbors.

Julius Schleuder, Le Sueur, recently shipped his entire stock and store fixtures to New Whatcom, Wash., where he will locate permanently.

W. J. Warner, of Grand Rapids, has added magazines, periodicals and stationery to his stock.

J. E. Reid, of Rochester, has installed a 10-horse power steam engine to furnish power for his manufacturing department.

Carl Hansen and Dr. Knudson have formed a partnership in Tyler and have purchased the Cox stock of jewelry and drugs. They will enlarge and improve the store.

(Continued on page 614.)

HERMAN KECK MFG. CO. ⁶¹³

DIAMOND CUTTERS

CINCINNATI

take pleasure in announcing to the trade that the recent large purchases of **ROUGH DIAMONDS** by their Mr. Herman Keck, who has just returned from a trip to the diamond marts of Europe, enable them to offer original lots of skillfully cut diamonds in all desirable grades at prices that will interest close buyers. Our stock is already complete from goods cut in our own factory, and is ready for your inspection.



ACANTHUS TEA SPOON.


KING TEA SPOON.

RAPHAEL TEA SPOON.

MONARCH TEA SPOON.

CROWN HAMILTON

THE HIGHEST GRADE SILVER-PLATED FLAT WARE
EVER MANUFACTURED

Trade-Mark.
 HAMILTON.
Patented 1886.

BRANCH OFFICES:
NEW YORK—Postal Telegraph Building,
253 Broadway.
CHICAGO—Silversmiths' Building,
131-137 Wabash Ave.
PHILADELPHIA—722 Chestnut Street.
BALTIMORE—13 South Charles Street.
SAN FRANCISCO—18 Fremont Street.

MADE BY
THE ROGERS & HAMILTON CO.
FACTORY AND MAIN OFFICE,
WATERBURY, CONN.

SEND FOR CROWN HAMILTON ILLUSTRATED CATALOGUE No. 98.

Among the Trade.

(Continued from page 612.)

Minnesota.

Jeweler J. B. Blickle, of Rochester, knows how to get up a patriotic window display. Travelers who have recently visited his town say that his window is the finest they have run across this season. They also say that the display has to be seen to be appreciated. The design used was a memorial to the sunken battleship, the "Maine." The sides were all trimmed with crepe tissue in representation of the American flag. In the center was the ship with her port holes and other parts of the vessel covered with red tissue and lighted from within by electricity. The list of the dead was sunk in from the level of the picture. The general effect was something fine and it was a great drawing card.

Frank Stewart has opened a store in Edgerton.

The Minneapolis jewelers' ten mile bicycle race took place last month at Minnehaha Driving Park. The contestants represented the various manufacturing, wholesale and retail jewelers of that city. Prizes were donated to the value of \$200. Of the twelve entries five were scratch men, the seven starting first having time allowance of 3½ minutes. The finish was very close, the scratch men being bunched within ten feet. Harry Weatherwax, of Jacobs & Co., winning first time prize.

F. Zimmerman has opened a jewelry store at Hammond.

Missouri.

J. W. Phillips, of Maitland, is looking for a location in a large town.

Montana.

D. J. Meagher has withdrawn from the Helena Lapidary Co., at Helena.

Nebraska.

Joseph Kohetzky, of Crete, has been succeeded by Mark M. Hertzstein.

F. Lane has purchased the business of Harry B. Hauser, of Neligh.

New Hampshire.

C. M. Hoffman, Lebanon, has moved into larger and more suitable quarters.

C. D. Strang, Gorham, has been appointed local watch inspector for the Grand Trunk Railway.

D. Whittier, Raymond, has greatly improved his store.

N. S. Daniels, of Concord, has sold his business to H. S. Howe, formerly his manager.

New Jersey.

While marching through the streets in Jersey City, a few weeks ago, with his company, private Alfred Forensen, a jeweler, caught sight of Alevia Andersen, his sweetheart, standing on the sidewalk. He left the ranks, was married to the young woman and rejoined his regiment before it reached the Pennsylvania Depot. Forensen is a member of Company D, of the Fourth New Jersey Volunteers. May good luck attend the young couple.

R. S. Schindel, of Lakewood, has opened a summer store in Asbury Park.

Jeweler Cornelius, of Ocean Grove, has moved into a handsome new store on Cookman Avenue.

Alexander Gouley, lately of Kensington, Pa., has re-engaged in business in Mount Holly, this State.

John W. Fern, Jr., son of Jeweler John Fern, Had-donfield, was one of the wounded of the Third United States Cavalry in the recent engagement at Santiago.

New York.

Michael Stern has succeeded Stern & Blum, of Port Chester.

The George E. Wheelhouse Co., of Utica, has moved into a new store in the Harvey Building, at 221 Genesee Street.

George Knapp has begun business as a repairer in Fly Creek.

Irving H. McConkey, lately with W. B. Greenland, of Johnstown, has begun business as a repairer at 14 North Market Street, same city.

F. E. Hull has opened a store at Saranac Lake.

C. V. L. Pitts & Son, Kingston, have placed an electric clock in their jewelry store. The clock is looked upon as somewhat of a curiosity because it has neither weights nor springs.

Edward Fisher has removed from Port Jervis to Decker-town, where he has opened a jewelry store.

S. C. Tappin, of Troy, supplied the gold watch and chain presented some weeks ago to ex-Deputy Postmaster Cleary, of that city.

Judson K. Wiggins and Charles E. Goldsmith, of Middletown, have formed a co-partnership in the jewelry business, and have opened at 67 North Street, corner Oregon Street, under the firm name of Wiggins & Goldsmith.

D. C. McKee, Corning, has removed to a store located near the Erie Railroad Station.

M. A. Ruger, Elmira, has removed to a neatly fitted up store at 144 South Water Street.

Eugene Ferris, Mount Morris, has greatly improved his store, adding much to its attractiveness.

C. L. Stouter, New Rochelle, has removed to a new location on Mechanic Street.

I. Susman, of Nyack, has moved into a new store.

Abraham Shaw, of Newport, has moved into better quarters on Main Street.

Frank Lewis, senior partner of Lewis & Dimmick, Norwich, died recently. Mr. Lewis was born in Orangeville, in 1832. In 1878 he began business as a druggist and jeweler in Warsaw, N. Y., and five years later his store was moved to Norwich, where he has since lived.

Decker & Bungay are a new jewelry and crockery firm at Owego.

O. J. J. Werley, formerly watchmaker and salesman for D. C. Dusenberry & Son, of Middletown, will start in business for himself.

Abraham Shaw, of Newport, has moved into better quarters on Main Street.

H. N. Clark, for several years with Van Deren & Persons, Oberlin, O., will go into business for himself at Cazenovia, this State, his former home.

The M. S. Benedict Manufacturing Co., East Syracuse, last month moved from Syracuse the entire machinery and tools of the Onondaga Silverware Co., which started up about two years ago and only run about one month's time. In order to accommodate the new machinery, the company are erecting an addition to their plant, and are also putting up a large new seventy-five foot brick chimney.

North Dakota.

N. C. Pabst, of Fargo, has moved his store from 510 to 604 Front Street.

Ohio.

C. J. Wurst, who recently was graduated from the Waltham Horological School, has opened a store in Elyria, this State.

G. R. Patterson has purchased the interest of Mr. Walfer in the business of Patterson & Walfer, of East Liverpool. Mr. Walfer has permanently retired from the jewelry business.

W. E. Widdlefield's jewelry store, at Payne, was recently damaged by fire.

Frank Rigney, lately with Dufeu & Co., of Chillicothe, has opened a store at 284 East Main Street, same city.

Oregon.

M. C. Lyon, formerly in business in Portland, has returned and taken a position in the jewelry store of A. Feldenheimer.

G. Heitkemper, formerly in charge of the engraving department in his father's store in Portland, is now employed in a Seattle, Wash., store.

O. L. Sharrick, formerly of Tacoma, Wash., has purchased handsome fixtures in Portland, this State, for his new jewelry store in Juneau, Alaska.

Pennsylvania.

B. Engel, of Wilkesbarre, has opened a new store on Carson Street, between Fifteenth and Sixteenth Streets.

Mrs. N. J. Bennett, of Wellsboro, has removed her store into the old Wellsboro National Bank Building.

C. K. Kaplan has opened a jewelry and pawnbroking store at 26 East Market Street, York.

J. B. Alexander, formerly with Samuel Logan, Mercer, has enlisted in the Sixteenth Regiment, Company K, and is enjoying camp life at Fort Sheridan, Va.

W. Wm. Appel, Lancaster, has purchased a tobacco store adjoining his place of business. The additional space thus afforded will be added to his jewelry store.

W. G. Atherholt, of Chester, has greatly improved his store.

C. H. Kaiser, Hanover, has removed his jewelry store from the southwest to the northeast angle of Center Square.

Rhode Island.

Jacob Beringer, of Westerly, has opened a summer store at Watch Hill.

A Mr. Cobell has started in business in the Hazard Block, Wakefield.

South Carolina.

Ed. Scholtz, of Newberry, has moved into letter quarters on Main Street.

D. C. Cowell & Bro., Spartansburg, have dissolved by mutual consent, W. C. Cowell selling out to his brother, D. C. Cowell.

Texas.

J. C. Saunders & Co. have succeeded Jules E. Muchert, of Bonham.

R. C. Bogusch, Llano, is serving his country at the front. May he return hale, hearty and glorious.

Arnold Johnson, Austin, has purchased the store of T. O. Rye, and will continue the business.

Silberberg Brothers, El Paso, have moved to the City of Mexico.

J. W. Jenkins has succeeded E. G. & J. W. Jenkins, of Caldwell.

F. Turner has purchased the business of J. B. A. Darche, of Cleburne.

Utah.

In the recent fire in Park City, Utah, which destroyed over 200 business houses and dwellings, the jewelry stores of L. E. Hubbard and F. A. McCarty were burned out. The loss to Mr. Hubbard is placed at \$6,000, and that to Mr. McCarty \$3,000. Both will resume business as soon as possible.

Vermont.

Earl Lawrence has opened a jewelry store in the City Block, Montpelier.

Thomas H. Wade has established a gold, silver and nickel-plating business in Burlington.

Virginia.

We learn that there is a good opening for a watchmaker and jeweler in Smithville, the county town of Charlotte County, this State. There is no regular jeweler in the county at present.

Washington.

John Johnson has opened a new store in Rosalia, in a building erected for the purpose.

M. S. Burnett, Chehalis, is an orthodox believer in the trade-bringing potentiality of advertising, and his success proves that his faith is well founded. His quarter and half-page announcements in his local papers are always well written, prominently displayed and aptly illustrated.

A. B. McMillan has opened a jewelry store at Auburn.

West Virginia.

W. M. Walters, of Ripley, has greatly improved his store.

Wisconsin.

R. Seidel recently opened his new store at Grand Avenue and Second Street, Milwaukee, and every lady attending the opening day received a Dewey souvenir spoon.

J. Mednikow, Milwaukee, has moved from 130 Reed Street to 379 Grove Street. On the opening days, July 15th and 16th, every visitor was presented with a handsome "Maine" souvenir spoon, showing in the bowl the wreck of the "Maine," with the date, and over it the American Eagle with spread wings in the act of screaming. The handle was a Maxim rapid-fire gun, on the upper part of which Uncle Sam was shown giving President McKinley fifty million dollars for defense on March 9, 1898.

W. W. Winchester has opened a store in Amery.

Fred. Hubbell, of Viroqua, has opened a store in La Farge.

William Hellfach, of Keokuk, Iowa, has opened a jewelry store at 501 Main Street, La Crosse, this State.

The interior of A. Maschaal's jewelry store at Green Bay is being newly painted.

Wyoming.

A recent statement in THE KEYSTONE to the effect that the largest geyser in the world was in Colorado, is pronounced erroneous by one of our subscribers, Otto Georg, Milwaukee, Wis., who, we believe correctly, claims the distinction for Wyoming.

EISENSTADT

MFG CO. ST. LOUIS

GOLDSMITHS
AND JEWEL SETTERS

You Can't Do Better.

WE KNOW IT.

Why? We make it our business to know what is going on in the jewelry world—what is latest in style and finish. We keep posted, and with our factory and skilled artisans we can produce the finest and most satisfactory special order work and repairs in the world for the money. Our fall lines in jewelry and watches, novelties and diamond goods are strictly up-to-date also, and are worthy of the inspection of all careful buyers. We will verify what we say if you will give us a chance with your orders.

Eisenstadt Manufacturing Company,
ST. LOUIS.



THE GOLD AND SILVER QUESTION SOLVED

After experimenting for a number of years, we have succeeded in making a line of Jewelry, the composition of which is Solid Gold and Sterling Silver.

The following is a list of goods we make :

Dress Pins,	\$4.00 per doz. pair.
Cuff Buttons,	9.00 per doz. pair.
Waist Sets,	15.00 per doz. sets.
Baby Pins,	3.00 per doz.
Baby Pins, with Chain,	9.00 per doz. sets.
Baby Buttons, with Chain,	9.00 per doz. sets.
Hat Pins,	from 6.00 per doz. up.
Scarf Pins,	from 4.00 per doz. up.
Studs, Pipe Stems, or Separable Backs,	2.00 per doz.
Scarf Pins, set with Real Opal,	6.00 per doz. up.

EACH PIECE OF ABOVE STAMPED **G. S.**

SAMPLES SENT ON APPLICATION.

Are you tired of selling low-karat gold goods, and having them returned to you black as coal? You can positively guarantee goods stamped **G. S.** never to turn black, as they are a combination of Solid Gold and Sterling Silver. No base metal whatever used in their composition.

A GUARANTEE CARD SENT WITH EACH ORDER, which, when placed in a tray, is a better salesman than a \$30.00 clerk behind low-karat gold goods.

WM. LOEB & CO.,
PROVIDENCE, R. I.

Owing to the extraordinary number of orders received upon these goods from our last advertisement, we have decided to defer our announcement respecting **G. S. RINGS** for another month. Watch for it! It will interest you.



You want the kind of machine that will do ALL KINDS of

Fine Engraving.

The only machine that will do it, is **The Eaton-Engle.** Send us your name and address on a penny postal card, and get our fully illustrated Catalog.

Eaton & Glover,
111 Nassau St., NEW YORK.

Points About Traveling Men.

The traveling force of L. Kaufman & Co., ring makers, New York City, started out last month on their first fall trip, most of which will last right up to the holidays. The various sections are covered as follows: Jos. L. Herzog, the Pacific coast and far Western States; Lee Hirst, Southern States; Norman L. Straus, Missouri, Kansas, Nebraska and Iowa; J. W. D. Block, Pennsylvania, New Jersey, Ohio, Indiana and Virginia; M. Franklin, West and Northwestern States. The new lines taken out are reported to be larger than any ever before carried, and they are quite too extensively known to need particular mention.



J. L. Cater.

J. L. Cater, one of the young and rising jewelry salesmen of the West, meets all our readers face to face. It is a good face, too; bright and pleasing; one of the kind you like to meet with. J. L. Cater was born in Barnestown, Ohio, December 18, 1871. He attended the public schools until he was sixteen

years of age. Soon after leaving he conceived a liking for the jewelry business and entered the store of J. M. Irmen, Atlantic, Iowa, to learn watchmaking. Here he remained for two years, when his employer established a branch store at Anita, Iowa, and put him in charge of it. In 1890 he was given an interest in the business under the firm name of Cater & Irmen. Mr. Cater remained at Anita four years, where he built up a successful retail business, when he sold out to take a position with Fred. Hooker, of Des Moines, as a traveling salesman. In July, '97, he made an engagement with T. R. J. Ayres & Sons, the well-known jobbers of Keokuk, to cover Northern Iowa, Southern Minnesota and South Dakota. His first year has been so successful that his house gladly renewed the engagement for another year. Mr. Cater attributes his success to the friends he has made and his ability to hold his friends and keep their patronage. Personally, he is a capable, energetic, brisk young fellow, honest to the core, and is destined to make his mark in the world. Agreeable in manners, he easily makes friends and has rapidly won his way to the front as a popular and competent salesman.

P. F. Courvoisier, representing J. T. Scott & Co., New York, started on his fall trip last month to the South and Southwest, after spending a well-earned vacation of several weeks.

Green Bros., material jobbers of New York City, started two of their travelers off on fall trips last month. L. Weber returns to the Eastern territory, covering New England and New York State. This was Mr. Weber's original territory, but this spring he made an extra trip South. He is glad, however, to get back to the Eastern States, where he is well known and previously built up a good trade. The Southern States will be well taken care of by E. Kant, an old material traveler. Mr. Kant will make a three months' trip through Pennsylvania and the Southern States, covering the territory originally made by Asher Green, of the firm, who will confine his labors chiefly at headquarters, as the firm's growing business requires the attention of both members of the firm at home.

E. C. Ellis represents Averbeck & Averbeck, of New York City, in New York and the New England States, in place of Edson Adams, who is now at the firm's headquarters, 16 and 18 Maiden Lane.

A commercial traveler follows his vocation for a living. He also proposes to hold on to his trade, year in and year out, and to increase its volume if possible. It stands, therefore, to reason that he can't afford to effect sales through misrepresentation of goods and lying.

M. E. Rowley is now out with the line of F. L. Shepardson & Co., of North Attleboro, Mass., and will cover Indiana, Illinois, Kentucky, Missouri and Iowa. He succeeds Charles A. Berkey, who has recently accepted a traveling position with the Eugene Deimel Company, of Detroit.

Max Gluck, who covers Iowa and Nebraska for Otto Young & Co., has been spending his vacation in Chicago the past month. He starts out early in the present month on an extended fall trip.

J. C. Moreland, the veteran Western traveler for Lapp & Flershem, was in Chicago a part of last month getting ready for his fall trip. He left the latter part of the month for an extended trip over his territory.

W. H. Creveling, for years with the Reed-Bennett Co., of Minneapolis, was married to Miss Sophia Johnson, of Moorhead, Minn., on July 2nd. Mr. Creveling is well known to the trade in the Northwest, having represented the above firm on the road for a number of years.

B. F. Simpson, Northwestern traveler for Otto Young & Co., enjoyed his summer vacation in Chicago during July. Mr. Simpson talks enthusiastically over fall prospects in his territory, and believes that general trade, and the jewelry business in particular, will be better than for years past.

The traveling force of the Chicago office of the Meriden Britannia Co. left headquarters July 25th for their regular fall trips. The force includes C. A. Barnum, W. C. Wood and Kent H. Clark, and they are all out in their regular territories for the present month.

The travelers from the Western office of Simpson, Hall, Miller & Co., left Chicago the middle of July to cover their respective routes: H. E. Vincent for the South; W. F. Adams for the Northwest; H. L. Sherman for the East as far as Pittsburg; C. L. Stone in Illinois and Michigan; J. H. White in Iowa, Kansas and Missouri; and B. H. Westervilt in Colorado and the mountain States.

J. Reed Elliott, of the Eisenstadt Manufacturing Co., St. Louis, believes in the old adage, "the early bird catches the worm." He started out on his early fall trip the first week in July with his full fall line. Mr. Elliott is nothing if not a hustler.

James M. Scott, whose portrait is here-with presented, is a well-known member of the traveling fraternity in Southwestern Iowa, Nebraska and Northern Kansas, where he has represented Woodstock, Hoefler & Co., of Kansas City, for three years past. Mr. Scott made his entry into the jewelry business as book-keeper for G. W. Marquardt & Sons, about a dozen years ago, at Des Moines. He spent five years with this firm in the house and on the road. Later he and Mr. J. L. Teeters, who had also traveled for the firm, formed a partnership under the firm name of Teeters & Scott, and embarked in the wholesale jewelry business at Lincoln, Neb. Three years ago he sold out to his partner and joined the traveling force of Woodstock, Hoefler & Co., in the territory above mentioned. Mr. Scott is a popular and hard-working road man. He always refers to himself as a plain, everyday traveling man, having no business interests aside from those connected with his position. He attributes his success to straightforward methods—pluck, energy and perseverance. He is courteous, polite and unassuming, and always obliging; he has a host of friends in the trade who wish him well and believe he is entitled to much credit for the record he has made for himself.



James M. Scott.

Mark Bachman, Western traveler for B. F. Norris, Alister & Co., left Chicago on his early fall trip the middle of July.

Charles Swigart, of E. & J. Swigart, Cincinnati, is out among his customers this month after a pleasant summer vacation.

J. H. Crawford, of Lapp & Flershem, left Chicago for a trip over his Missouri, Kansas and Nebraska territory the middle of last month.

At a meeting of the jewelers of St. Louis, held since the sudden and untimely death of James D. Underwood, a full account of which appeared in our last issue, the following resolutions were adopted:

WHEREAS, It has pleased Almighty God to remove from our midst by death our most esteemed friend, James D. Underwood; and,

WHEREAS, In his death we deplore the loss of a real friend, his mother and sister a true and affectionate son and brother; therefore, be it

Resolved, That we tender our heartfelt sympathy to the bereaved mother and sister in their hour of grief for their irreparable loss; and be it further

Resolved, that a copy of these resolutions, suitably engrossed, be tendered to the bereaved mother and sister, and a copy thereof be published in the jewelry trade journals.

F. W. BAIER, } Committee.
F. W. DROSTEN, }
W. F. KEMPER, }



Alex. Madsen.

Alex. Madsen, the young man whose face we present here, is deserving of recognition by reason of the ability and industry he has shown in surmounting difficulties which, to most men under like conditions, would prove insurmountable. Alex. Madsen arrived in

America five years ago at the age of twenty. He could not speak a word of the English language. About the first thing he did after his arrival here was to begin the study of our language—he soon mastered it—and within a year had advanced far enough so that in conversation you would not know but what he had been brought up in this country. He first located at Winnipeg, Manitoba, where he worked a short time as watchmaker for one of the leading firms in that city, and then went to Park River, N. Dak., as watchmaker for jeweler Andrew Anderson. He remained there about a year when he started in business for himself at North Branch, Minn.; sold out within a few months to good advantage and then accepted a position as advance agent for a lecture bureau. The two years he occupied this position proved a splendid business schooling for him, as during this time he visited nearly every county in the United States, which gave him a large experience in meeting and handling people. Two years ago Mr. Madsen returned to his first love, having received a tempting offer to go on the road for the Reed-Bennett Company, the well-known wholesale jewelry firm of Minneapolis. He soon proved himself a successful salesman, covering Wisconsin, Minnesota, North and South Dakota, where he has made many friends in the trade. Mr. Madsen is extremely energetic as a salesman, and is the possessor of an exceptionally bright mind. He is the master of four languages, all of which he speaks and writes fluently. This accomplishment has proven one of his strong points as a salesman, as a large portion of the jewelers throughout the northwestern country are foreign-born, and they like to deal with travelers who speak their language. This young man is to be congratulated upon the record he has made for himself, and THE KEYSTONE takes pleasure in joining in with his friends in the trade in wishing him a still greater degree of success in the future than he has had in the past.

Who in Kansas, Nebraska, or Western Missouri does not know the genial representative of the Edwards & Sloane Jewelry Co., of Kansas City, Mr. W. E. Hoefler, or as he is more familiarly called, Will Hoefler? Mr. Hoefler is a native of Appleton, Wis., and has represented the Edwards & Sloane Co. for the

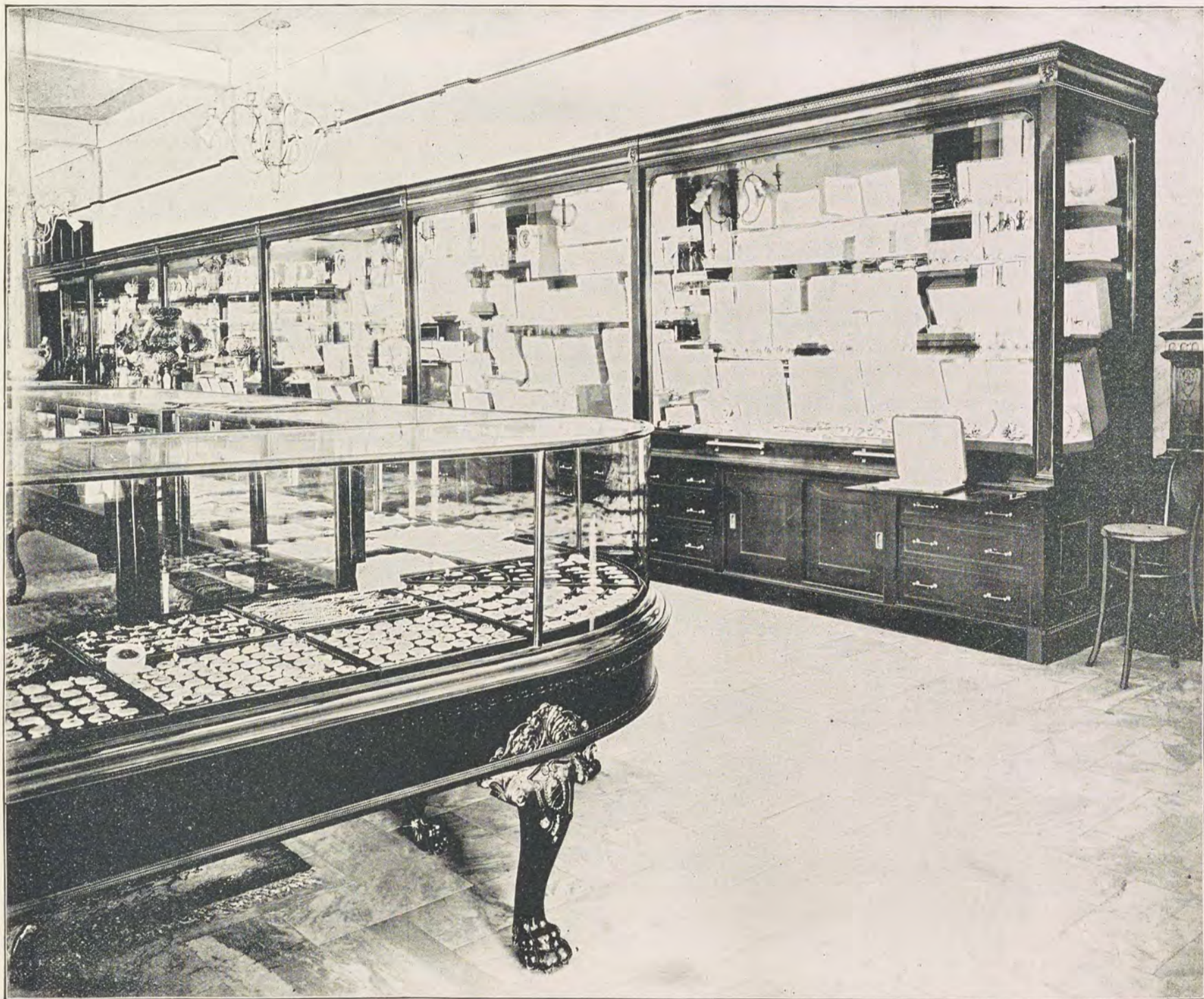


Will E. Hoefler.

past three years in the above territory. In fact, he began his career as a traveling salesman when he made his first trip for his present firm. Some men are born drummers; others attain the greatness of this perambulating profession, and there are others who must have the laurel wreath of "representative traveling men" actually thrust upon them. The majority, however, are "made" travelers. It is the proud boast of Will Hoefler that he is no "made" traveling salesman, because, he says, he came of a race of travelers. He is a nephew of those two princes among salesmen, Charles C. Hoefler, of the well-known jobbing firm of Woodstock, Hoefler & Co., Kansas City, and Thomas J. Hoefler, the widely-known traveler for M. A. Mead & Co., of Chicago, and comes by his love for a traveler's life naturally. Will Hoefler has many friends among the jewelers of the Trans-Mississippi country because of the fact that he has very little ostentation, and still, in his own peculiar quiet way has "get there" qualities which crop out in any business or social intercourse. He is the sort of a man who lasts longer than some who make more noise than he does. Young Hoefler certainly has a promising future.

A. H. REVELL & CO.

431 to 437 Fifth Avenue, Chicago



Interior view of one of the many stores lately completed by Alexander H. Revell & Co.

We are practical and original designers, and have originated many practical features in the line of jewelers' fixtures, that others have vainly tried to imitate. We guarantee satisfaction in designs, workmanship and materials, and prices will always be reasonable for strictly first-class work. Our advice to you is to correspond with first-class houses only, who have had long experience in the jewelry fixture business.

We shall be pleased to answer all correspondence from jewelers, whether you expect to purchase goods now or not.

For full particulars and prices address our factory direct. Write for Our New No. 8 Catalogue.

Alexander H. Revell & Co., 431 to 437 Fifth Ave., CHICAGO.

News from the Northwest.

In this section there is nothing but good news to write about. The retail trade has been a good average for the season. Our main crop is now ready for harvesting, and in the Southern portions it is being cut. Prospects are for a good crop, both in quantity and quality. The past few weeks have been a little dry, but plenty of rain early in the season left the ground in good condition. Prospects for a good fall business were never brighter, and everybody seems to have an extra amount of enthusiasm on hand, possibly caused partly by the glorious news from the seat of war.

Jobbers report business satisfactory and better than any July for some years. August 1st will see all travelers out after their vacations, and all promise to have the best trade for years. Their stocks have all the new things, and if the year does not prove the best of the last ten years it will be caused by some calamity we are not able to foresee. Collections have been good for the season. War novelties are at present leaders in sales, but the best sign is that the trade are calling for a better class of goods, saying their customers have become tired of five cent goods and want something better. This is also noticeable in other lines. Better goods mean higher prices, whereas, in the past, not quality but how cheap they could be furnished, was the consideration.

Ben. Marx, of D. Marx & Son, St. Paul, has become quite an expert with the Kodak, and has some elegant souvenirs of his last fishing trip.

Geo. P. Tuthill, St. Paul, who has been under the weather a few days the past month, is again at business.

M. Siemenstad, Northwood, N. Dak., was married last month to Miss Laura Lien.

C. J. Hill, lately at New Rockford, N. Dak., is now at Minnewaukon, N. Dak.

W. H. Bullard and family, St. Paul, are spending their vacation at Chisago Lakes, Minn.

Charles H. Winter, of S. H. Clausin & Co., Minneapolis, is spending his vacation at his old home, Faribault, Minn.

The Egan Jewelry Co., P. F. Egan, manager, St. Paul, are now ready for business in their new store.

Frank Stewart is the new jeweler at Edgerton, Minn. Sischo & Beard, St. Paul, report their new optical department in good working order, with plenty of demand for its services.

Henry Birkenhauer, Minneapolis, spent a few days last month in Southern Minnesota.

Jake Marx and Luke R. Keating, of D. Marx & Son, St. Paul, have started out on their fall trips.

Guy Torley, with Emil Geist, St. Paul, has a hobby on trick bicycle riding, and has established quite a reputation in this line. Guy claims to be the champion trick rider of Minnesota.

A. H. Simon, St. Paul, took a week's lay off from business cares last month.

F. M. Andrews, Stewartville, Minn., is reported sold out.

J. L. Lacroft, of Landon & Burchard, Plainview, Minn., is out camping.

A number of St. Paul brokers and jewelers were swindled last month by a man and woman giving the names of Mr. and Mrs. McCumber, selling their wedding rings for \$4 to \$4.50, which stood the acid tests, etc., but were composed of silver with a heavy gold shell outside. The parties were arrested, but could not be held. The same trick has been turned in Minneapolis and Eastern cities to the tune of \$500 per week.

H. E. Murdock, Minneapolis, has returned from a three weeks' trip East, buying goods and enjoying himself.

L. R. Bunker, of Sischo & Beard, St. Paul, reports trade in the Southern section excellent.

John F. Lawrence, of Bullard Bros., St. Paul, has been keeping bachelor's hall the past two weeks, his family being at Center City, Minn.

A. E. Paegel, Minneapolis, is quite an enthusiast with the shot gun, and is gathering together a nice lot of gold medals, which prove his excellency.

Harry Paschly, St. Paul, was compelled to lose a few days' work last month, the result of an accident while wheeling. Harry does not blame the "other fellow" for it any more than to say if he had not been there there would have been no smash up.

Charles Behner, lately with Anthony Huebsch, St. Charles, Minn., has gone to Brockton, Iowa.

E. E. Finch, for several years with Chas. F. Winter, River Falls, Wis., is now with S. B. Abeles, Minneapolis.

E. S. Houghton, Cannon Falls, Minn., reports himself not succeeded by Houghton & Follet; says the deal fell through at the last minute.

Chas. Clausin, of S. H. Clausin & Co., Minneapolis, spent his vacation taking in the Exposition at Omaha, Neb.

H. F. Ahlstrand, Duluth, Minn., is now at Sparta, Minn.

Jeweler Wm. Wetzel, Tomah, Wis., is dead.

C. A. Sherdahl, Montevideo, Minn., is now lighting his store with acetylene gas.

A. W. Ager, Le Sueur Center, Minn., has added a line of optical goods.

Carl T. Gansel and wife, Fairmont, Minn., spent a few days in the Twin Cities last month. Carl's shadow does not seem to grow any smaller since being married.

The jewelers of St. Paul have challenged the Minneapolis members of the craft to a day's sports—base ball, bicycle races, shooting, or anything that will be of interest. The promoters desire to make this an annual occurrence, to promote a more social feeling among the trade, and expect a good time will be had, as they are assured of being met more than half way by the hospitable brethren of the Mill City.

John Martinson, for several years with Fred. Willman, Stillwater, Minn., has opened a repair shop at Gary, S. Dak.

We are pleased to announce an error in our June letter, when it was reported that A. J. Cox, Tyler, Minn., had died. The Dr. believes himself to be very much alive, and reports his watchmaker having died at the time, hence the error in report. We are sorry it happened, and will promise him not to write his obituary again until he does pass on, which we hope will not be for a long time yet.



H. Zalkin, for some time with Guinand Bros., Ashland, Wis., has started in business for himself there.

St. Paul jewelers will celebrate Labor Day by a base ball game between jobbers and retailers.

Fred. H. Harm, St. Paul, spent the Fourth at St. Peter, Minn., visiting his parents.

R. Patterson, Barnesville, Minn., spent his vacation rustivating at the lakes.

C. P. Frederickson is the new jeweler at St. Francis, Minn.

W. W. Winchester, Amery, Wis., was in the Twin Cities last month, buying goods for his new store there.

Fred. A. Defiel, St. Paul, has repapered his store, thereby increasing its beauty.

Lawrence Hope, St. Paul, has returned from a three weeks' trip through the Northwestern country to the Pacific coast. He pronounces it a grand country.

John Fenton, Willow River, Minn., has moved to South Stillwater, Minn.

Wm. Weinke, St. Paul, has grown a foot the past month—cause, a girl, the first born, at home.

Wm. H. Creveling, of The Reed-Bennett Co., Minneapolis, was married, July 2d, to Miss S. H. Johnson, at Moorhead, Minn. Crev's customers will now expect to see him coming with an assistant to carry his grips. Success to you.

Visitors to Twin City jobbers the past month were: Carl T. Gansel, Fairmont, Minn.; W. W. Winchester, Amery, Wis.; Clyde B. Ayers, Osceola, Wis.; Geo. Haenstein, Redwing, Minn.; Henry Hillesheim, Madelia, Minn.; John C. Marx, Shakopee, Minn.; A. J. Lee, Hudson, Wis.; E. I. Houghton, Cannon Falls, Minn.; John Saxine, Prescott, Wis.; F. Shapera, Little Falls, Minn.; Emil Wetzel, Montevideo, Minn.; Herman Fredell, Center City, Minn.; Lucien Diacon, Chaska, Minn.; Lee Schaefer, Shakopee, Minn.; S. B. Millard, Litchfield, Minn.; Mr. Calhoun, Northfield, Minn.; L. O. Hulberg, Two Harbors, Minn.; Chas. Sieberg, Worthington, Minn.; Martin Johnson, Carver, Minn.; M. C. Working, Northfield, Minn.; J. Romdenne, Elk River, Minn.; Fred. Willman, Stillwater, Minn.; A. W. Ager, Le Sueur Center, Minn.

Columbus Letter.

The dull season of the year is upon us with a vengeance. While there is little complaint, there is less business, and, consequently, fewer sales for the jobbers and wholesale houses. But at this time such a condition is to be expected, and dealers are simply taking a rest. Those who have not left the city are taking matters easy, with the expectation of something better for the fall and winter months. People in all lines of business are confident that the financial condition of the country will be much better this fall, and are making preparations for a better trade than they have had for the past five or six years.

Crops in this State are good, and are bringing a fair figure, which is at least a good indication. It is expected that a good part of the money secured on the war bonds will be in circulation within a short time, and this will cause a great improvement. Altogether, the indications are now considered quite favorable.

The suit of the Hallwood Cash Register Co. against the National Cash Register Co., for using unlawful means of competition, in the way of intimidating and bribing the employees and salesmen of the Hallwood Co., is now being argued in the Supreme Court. The suit is for \$200,000 damages and is considered quite important, as the questions involved are rather novel. The Hallwood Co.'s machine is made by the Columbus Watch Co.

A miniature model of the *Maine*, made by prisoners in the Ohio Penitentiary, now on display in Oger Bros.' window, is attracting great attention. It is almost perfect, and gives a splendid idea of the ill-fated battleship.

The casket hardware department of the Fairpoint Manufacturing Co., New Bedford, Mass., has been purchased by the Springfield Silver Plate Co., Springfield, Ohio. The capital stock of this company will be increased to \$200,000, and the new business will be conducted in connection with that already established at Springfield. The company will now employ about two hundred persons.

In his answer to the petition of Philip Bruch, receiver of the old Columbus Watch Co., William J. Savage says he has not been paid \$17,666.25 from his late father's estate, as alleged, but that he has received only \$12,666.25. He says he was indebted to Elizabeth J. Savage \$10,703.78, and that he assigned to her his portion of his father's estate. He claims to have paid her \$5,000, and still owes \$7,900. The estate, according to his estimate, is worth only \$25,000, of which he is to receive one-fourth. He asks that the injunction be dissolved.

E. M. Blauvelt, of this city, and Miss Margaret J. Elliott, a former employee of his store, have been licensed to wed.

C. H. Harris, a Portsmouth jeweler, was swindled by a man who came to his store and inquired for him in his absence. On being informed that he was out, the man told the clerk he had been talking to Mr. Harris about purchasing a fine watch, and asked to take it to his home, on Fourth Street, for his wife to see. He was granted the privilege, but never returned with the timepiece. Another man whom he swindled, traced him to his home near Ravenswood, W. Va., and found that he paraded there as a respectable and well-to-do citizen, and has an interesting family and home. He will, in all probability, be brought back to Ohio for trial.

Some one broke a glass in Kleeman Bros. show window, one night about the middle of July, and took a few articles. The porter, Joe Smith, saw them, but did not know they had done any damage until morning.

Jewelers of Lancaster, Ohio, will close their stores at 5:30, standard time, during August, except on Saturday evenings.

Charles Needham, formerly in the jewelry business at Gallipolis, Ohio, is with the Seventh O. V. I. at Camp Alger, Va.

J. P. Hall has purchased the business of Daller & Hall, Lima, O.

Frank F. Bonnet and family are spending several weeks on Indian River, Michigan. This is a great resort for Columbus people.

Reliable Reading and Advertising.

SILVER HILL, ONT., July 4, 1898.

EDITOR KEYSTONE:—Enclosed please find renewal of my subscription. I am well pleased with THE KEYSTONE and do not want to miss it. What dealing I have had with your advertisers I have found all as represented, and can rely upon them. It is up-to-date in everything.

I am, yours truly, U. K. SMITH.

GOOD ADVICE

can be given, taken and used without spoiling it. Just as good after using as before; and it makes no difference how many use it, it is good always. The best advice we can give the Jewelers of the West is to send us their mail orders, and to be sure to see our new Fall lines when they visit the Chicago market.

C. H. KNIGHTS & CO.

Diamond Merchants and Wholesale Jewelers

COLUMBUS MEMORIAL BUILDING

CHICAGO

Clocks.

CXXVIII.

Different Forms of Gravity Escapements.



WE will now describe some of the forms in which the so-called gravity escapement has assumed practical shape. As stated in a former article, the first gravity escapement that was received by the trade as without doubt as to the certainty in its action, was the double three legged escapement, by E. B. Denison, for the British house of parliament. After this came Thwaite's and Reed's six legged gravity escapement. About the same time came out a single three legged gravity escapement by Dr. Waldo and Prof. Lyman. Following these appeared the four legged gravity escapement applied to precision clocks, showing seconds and this is the gravity escapement we shall describe in detail, giving sizes and proportions of all the several parts.

It is no more than natural that our readers should like to know the principles and actions of the Denison escapement as it first appeared. This escapement is shown at Fig. 1, and really consists of an escape wheel of six teeth, but in construction the escape wheel is a compound wheel made up of two wheels of three teeth, and the wheels so set as to act at equal angular intervals. The

"legs," or long escape wheel teeth, are shown at *III* and *HHH*. The legs *I* are shown in shaded lines, and are supposed to be back of the legs *H* by a space sufficient to permit the free action of the pallets *CC'*. The legs *I* and *H* are usually cut from plates of thin tempered steel, like saw blades, but spring brass will answer every requirement.

How the Legs are Made

The general form of the legs *I* and *H* will be got from the cut at Fig. 1. It is the usual practice to square the hole in these legs where they go on the arbor on which they are placed, but this mode of fitting is quite unnecessary, as they are joined by means of three screws, shown at *sss*, which firmly unite the two sets of legs. These screws perform another function, which is to lift the pallets *CC*. The effect of the two sets of legs is to allow the arbor of the escape wheel at each escape to move through an angle of 60° .

There is a practical impediment to setting the legs on a square arbor in the fact, that we require some device to hold the legs apart. A very simple

and yet secure method of setting the legs is to mount them on a hub, as shown at Fig. 2, where *G* shows the hub and *I* *H* the legs. The cut at Fig. 2 shows a portion of Fig. 1 seen in the direction of the arrow *v*. The back leg *I* is first secured to the hub *G* by screws other than those shown at *s*. The arrangement will be better understood by inspecting Fig. 3, which shows a view of Fig. 2 with the front legs *H* removed. The screws *nnn* serve to attach the back legs *I* to the hub *G*. The hub *G* has a slight step, or seat, turned on it, against which the outer leg *H* rests, in which position it is held by the screws *s*. It will be seen that the wide face of the hub *G*,

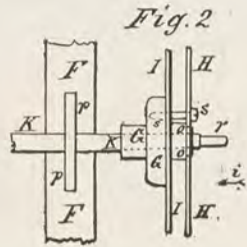
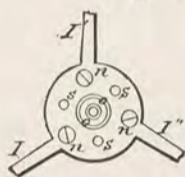


Fig. 3



against which the legs *I* rest, insures their running true in the flat, and the screws *s* enable us to bring the legs *H* parallel. The length of the hub *G* gives ample assurance for the security of the attachment between it and the arbor *K*. To prevent too great acceleration of the train after the legs are unlocked from the pallets *xw*, a fly is placed on the arbor *K*, as shown at *F*, Figs. 1 and 2. This fly is in every respect like those employed in the striking trains of clocks, except being more carefully made and adjusted. By adjusted, we mean the friction spring *p*, Fig. 2, set so that it produces a friction about twenty-five per cent. in excess of the power of the train. We would say that the escapement we are describing was designed especially for tower clocks, the driving power of which was many times in excess of what was required to propel the clock itself.

About Tower Clocks

We are all aware of the vicissitudes to which the hands of a tower clock are exposed, high winds and loads of ice forming on the hands demand a propelling power ample for all occasions, and still such inequality of driving power producing but little or no effect on the power employed to propel the pendulum. The fly *F* as applied to precision clocks is very much modified, and only exerts a very trifling influence. The pendulums of tower clocks are usually of such length (156 56") as make but thirty vibrations in a minute, and are proportionately heavy. At this point it is well to say to those who would like to construct a timepiece which is equivalent to a tower clock, that is, one which will show the time on a large dial, that it is not necessary that a pendulum should beat to even seconds, or fractions of a second; all that is required is to get one wheel which we will revolve in exactly one hour. This secured, it is easy to arrange hour and minute wheels which will show the time correctly.

The idea of the gravity escapement we are considering is, the limbs, levers, arms *AB* and *A'B'*, or whatever we please to term them, press against the pendulum rod *D* during a certain portion of vibration. To bring about this result let us study the construction of these parts. As shown at Fig. 1, the leg *H* is locked on the piece *z*. Now, as the pendulum rod swings in the direction of the arrow *m* it strikes the pin *u* in the arm *B'*, and carrying said arm *B'* outward to our right, relieving the leg *H* from the locking at *z*. The pin *u* stays in contact with the pendulum rod *D*, while it slightly extends its excursion to the right, and

continues to do so on its return vibration until the upper arm *A* strikes the banking pin *y*. We must now go back to the time the locking piece *z* was released from the leg *H*. When the leg *H* was freed from *z* the double three-legged escape wheel revolved in the direction of the arrow *t*, and the leg *I* comes in contact with the stop *w* until the pendulum rod *R*, swinging in the direction of the arrow *m*, releases the tooth *I*.

Now that War is Here.

Mr. Scareasy Gives a Few Hints on Economy—Mrs. Scareasy Makes Some Impossible Suggestions to Her Husband.

"I tell you, Mary, this war business is going to bring the price of everything away up, and we've simply got to economize," said Mr. Scareasy to his wife. "I'm willing to humble my pride and do a good many things I haven't felt I could do or need to do before business got so bad."

"Well, if you feel that way, and I'm glad you do, you might as well go out and help Jane beat and shake the carpet I've got out on the line. It would save—"

"Not much, I don't! I'm willing to economize in a good many ways, but when it comes to whacking away at an old carpet before all the neighbors, I'm not there!"

"Well, the grass needs mowing, and if you'd do it yourself this year in your spare time, and not send for a man to do it every time, it would save—"

"I don't care what it would save! Hanged if I cut the grass! Next to a furnace, there's nothing on earth I hate as I hate a lawn mower! I'll not cut my own grass if flour goes up to \$48 a barrel!"

"Very well. The cellar needs a thorough cleaning, and I was going to tell the washerwoman to send her husband around to do it. He'd probably charge a dollar and a half for it, and if you want to save—"

"No, thank you! I don't want to save in that way. I'd see America licked by the Spaniards before I'd put on a lot of old togs and dig and delve around in a dirty old cellar! No cellar cleaning for me!"

"Well, then, why not paint the laundry woodwork yourself. It's got to be done, and you could do it as easy as not, and save—"

"The last time I tried to paint anything I swore by the nine gods I'd never touch a paint brush again on earth, and I'm going to keep my word if coal goes up to \$35.62 a ton."

"I suppose I could make the table a good deal plainer."

"But you shan't do it, by George! I'm going to have what I want to eat as long as I work and earn it. It's about all a fellow can get in this life, and I'll be hanged if I'll starve myself, war or no war!"

"Why can't you cut down a little on your clothes? You dress—"

"Yes, and I'm going to keep right on dressing as a gentleman should dress, by cracky! A fellow's got to dress well nowadays to fill any sort of a position creditably, and I'm going to wear good clothes if the country goes to ruin and I have to mortgage the house to pay for it. What? You'd like to know how I'm going to economize? Don't you worry. You just economize as much as I do and we won't go to the wall right away. It's time I was off! Shucks? my cigar box is empty and I wanted a couple to smoke riding into the city. I'll have to order another hundred to-day. Remember, I'm going to bring three of the boys home to dinner with me this evening and you get up a dandy good dinner and I'll give you the \$10 you want for your hat to-morrow. All the same, we've got to economize. No question about that!" —Detroit Free Press.

A. E. Standen, a converted traveling salesman, who has given up his place in order to do religious work, has raised about \$30,000 in order to carry out the ideas of the Universal Text Display Association, the headquarters of which is in Chicago. The idea is that if certain texts of the Bible are "artistically" displayed on billboards, many people will thereby be converted. The aim of those behind the scheme is to display Bible texts in every city in a very sensational way without transcending the limits of propriety. If this is done they think that crowds will be continually standing in front of the Bible billboards, so that in time stage soubrettes who want to gain a billboard fame will stipulate that their pictures be placed "next to pure reading matter."

Diamond-Set Cases

Our line is most complete. Our prices are as low as they consistently can be for quality of cases and stones.

WARRANTED 10 K., U. S. ASSAY.



A 81. 10 K. solid gold, 9 brilliant-cut rose diamonds, \$13.50.



A 82. 10 K. solid gold, 5 fine rose diamonds, \$13.50.



A 83. 10 K. solid gold, with 9 brilliant rose cut diamonds, \$13.50.



A 84. 10 K. solid gold, with 7 genuine rose cut diamonds and 2 rubies, \$13.50.



A 85. 5 brilliant rose diamonds, 13 rubies and 5 sapphires, \$18.50.

WARRANTED 14 K., U. S. ASSAY.



A 91. 14 K. solid gold, with 1 fine white brilliant, \$16.75.



A 92. 14 K. solid gold, with 8 fine white brilliants, \$30.00.



A 94. 14 K. solid gold, with 9 fine brilliant diamonds, \$35.00.



A 96. 14 K. solid gold, with 15 fine white diamonds, \$92.00.



A 98. 15 white brilliant cut diamonds, 21 extra oriental rubies, and 9 beautiful sapphires, \$55.00.

A 93. Same as A 92, with 5 brilliants, \$26.00.

A 95. Same as A 94, with 6 fine white brilliants, \$27.00.

A 97. Same as A 96, with 7 fine white brilliants, \$35.00.

We have Diamond-Set Cases from \$12.50 up.



Diamonds

I'll be pleased at any time to send you an assortment of DIAMONDS on approval, from which to make selections. Choose those you want and keep them and return the balance. The assortment will be varied and choice. The prices will be under the market every time. WRITE FOR AN ASSORTMENT TO-DAY—ANY DAY.

We carry all makes of
Movements and Cases.

Orders for Keystone Cases illustrated in this issue, filled same day as received.

Wm. S. Rose & Co.

19 Maiden Lane, New York

Cincinnati Letter.

The wheat harvest is now closed up in Ohio and throughout Cincinnati's immediate territory. The results are very gratifying to the producers, considering the discouraging prospect presented early in the season. The condition of wheat over the whole State at the time of harvest was estimated at eighty-six per cent. of an average crop. The result of threshing may not fully realize this estimate, because of the light and shriveled grain reported from many sections of the State, but it is not likely that this will damage the outcome to any great extent. Rust is reported from some counties, and many fields are difficult to harvest, as the wheat is badly fallen. There is an increase in the acreage of corn as compared with 1897, the increase being about ten thousand acres. The present condition is ninety per cent., as compared with an average. Conditions vary in different sections of the State, owing to the late planting of many fields. There is some small corn yet, but much of the crop is up well and making steady advancement. Unless some serious set back occurs there will be a large crop this fall. There is a very good hay crop, and the fields are exceptionally free from weeds. Hay-press men consider this a good point in their favor, and look for some good trade on baling-presses as soon as harvest is over. The condition of oats is ninety per cent. when compared with an average crop. The plant is ripening, and will be ready for harvest about the first of August. On the whole, all crops, including fruits and vegetables, are in first-class condition and will all yield well.

"We are certainly of the opinion," said F. E. Jack, of the Queen City Silver Co., "that prospects for fall trade are extremely flattering. Business continues to be fair, gradually growing better, we think, in all lines. The volume of the business of the first six months will stand comparison and will be found encouraging. Should war be brought to a sudden termination by overtures for peace, which is among the probabilities, there will be the largest fall trade result that we have seen in years."

"Trade continues good," said Eugene Swigart, of E. & J. Swigart, "and the outlook for the continuation of the same is flattering. Harvest is now about over and shows that the wheat and hay crop have turned out well. Corn promises well, with the 'marketing crop' above the average. In fact, crops in all directions have come on nicely, and the average tiller of the soil is more than satisfied. Some of our Ohio farmers contracted their wheat at one dollar per bushel as soon as it is threshed. It looks now as though it was well sold; but we think wheat will bring one dollar without any trouble later on. We are looking for busy times from this time on, as all indications tend that way."

Weakly Ruth, of J. W. Ruth & Son, of Shelbyville, Tenn., was a welcome trade caller here last month.

President Joseph T. Homan, of the Homan Silver Plate Co., is summering with his family at Cape May, N. J.

Joseph Noterman and J. B. Osthoff, of Jos. Noterman & Co., have recently returned from a trip to Chickamauga Park, where they visited Paul Noterman, son of the former gentleman, and corporal of Company A, Second Kentucky Regiment.

The Herman Keck Manufacturing Co. have removed their office to the Duhme Co. Building, where all business is transacted. As soon as the lease expires at their old place, about September, they will move their diamond cutting works and their manufacturing department to the same location.

Herman Keck has just returned from his European trip. He visited the diamond marts, where he made large purchases of the rough, which they will cut into brilliants at their works in good time for the fall trade.

J. A. Petty, of Ravenswood, W. Va., was in this market last month on a purchasing trip.

Phister Bros., of Dunkirk, Ind., were represented in this market recently.

J. L. Schweizer, the well and favorably known jeweler of Selma, Ala., spent several days in Cincinnati the early part of July and met with a warm welcome. Mr. Schweizer was shown around among the trade by Jacob Dorst, of Dorst & Co., who is an old-time friend. Mr. Schweizer thinks the outlook encouraging for business in the South, and is very hopeful over the trade situation.

Loring Andrews, of the retail house of Loring Andrews & Co., left the early part of July for a six-weeks' tour in Europe.

Eugene Swigart, of E. & J. Swigart, spent the first half of July among the Michigan resorts. He was accompanied by his family.

George Simper, one of our well-known retail dealers, has moved down town and opened up a bright and attractive store at 717 Vine Street. Mr. Simper is already much gratified with the move he has made, and feels encouraged with the outlook for business this fall.

Solomon Fox, of Fox Bros. & Co., returns this month from a purchasing trip to the European diamond marts.

Joseph Mehmert, material jobber, has recently returned from a purchasing trip among the Eastern cities.

Louis Gutmann, jobber, is a great fisherman. He enjoyed a short outing last month up in the Virginia mountains, where he found plenty of his favorite sport.

Frank Besse and Willie Zeitler, both with jeweler J. F. Zeitler, of St. Louis, spent their vacations in Cincinnati, spending two weeks here visiting friends.

Chris. Neeb, of Dayton, Ohio, was among the visiting dealers in town last month.

Oscar Keck, of the Keck Manufacturing Co., is again at his desk, after a severe siege of sickness.

Dorst & Co. are making preparations to welcome and entertain the members of the G. A. R. during their stay in the city, and announce themselves as headquarters for the veterans.

Frank S. Smith, of the firm of G. E. Smith & Sons, Parkersburg, W. Va., was in Cincinnati for a few days the middle of last month. Mr. Smith had just been appointed a paymaster of West Virginia Volunteers and was on his way to the front.

W. G. Helmick, of Springville, Ala., was calling on the jobbing trade in this market last month.

C. A. Blume, of Marietta, Ohio, was in Cincinnati last month on a business trip.

I. N. Biddle, of Midway, Ky., was a trade visitor in Cincinnati recently.

"Enclosed find one dollar for the renewal of The Keystone. I certainly could not get along without it. I look forward to its coming as I would to a dear old friend. It has been the keystone of my success in the watch repairing business."—Frank Tingler, jeweler, Dresden, Ohio.

Cleveland and Northern Ohio.

The prospects are excellent for a fine business in all jewelry and kindred lines this fall. So far this month there has been a splendid trade, which is quite unusual for the mid-summer month. The jewelers report the sale of many watches and large pieces set with the precious stones. To all appearances, there is a good healthy revival in all lines in this section, due to several causes, such as the demands of war, the immense crops of cereals, etc. In many of our neighboring cities, the manufacturing of farming implements is carried on, and as the result of the many millions of additional acreage in the West devoted to cereals this year, splendid business is being done, all of which indirectly aids the dealers in luxuries.

A. T. Hubbard has returned from a month's outing on the St. Lawrence.

Frank J. Patton, who has been suffering for the past month with a chronic trouble, is now seeking rest and health at one of our near-by cities.

Adolph Nunvar, salesman with Sigler Bros. Co., is one of the latest recruits to the war. He is in the Engineering Corps, Fifth Ohio.

C. H. Wood, who, for some time, has been representing a Chicago surgical instrument company, is in town for a few days, calling on old friends.

C. A. Gager, optician, Colonial Arcade, has added a De Zeng refractometer to his outfit. He is highly pleased with its performance.

C. J. Wurst & Co., have opened a new store in Elyria, Ohio.

The affairs of C. H. Thomas & Co., the Arcade opticians, have been closed up by the sale of the stock, fixtures, lease, etc., to the Arcade Optical Co., composed of Mr. Klein, formerly with the Solomonson Optical Co., and Mr. Alard, a manufacturing optician at 54 Euclid Avenue.

Chas. Groth, bookkeeper, Bowler & Burdick Co., is enjoying a few days' vacation in Buffalo and Niagara Falls.

"Solly" Nusbaum is visiting in Detroit and other Michigan cities on the lakes. He was recently presented with a parrot which has been said to ask, "Solly, want a cracker?"

The genial traveler for Sigler Bros. Co., Will H. Kennon, was married last month to one of our most popular young ladies. A trip to Eastern cities was taken. THE KEYSTONE extends best wishes and congratulations.

Will J. Davies, formerly with Charles Kretschmar, manufacturing jeweler, is now with Sigler Bros. Co. as salesman.

P. Meinke, a jeweler and watchmaker on Quincy Street, died last month at the Cleveland General Hospital, as a result of an operation for appendicitis.

An important decision concerning the liability of a railway company for baggage, was handed down recently by the Supreme Court of Ohio. It has a far reaching effect, as this case establishes a precedent in this State. The case was, The Bowler & Burdick Co. vs. Toledo & Ohio Central R. R. The suit was brought to recover the value of the contents of a trunk destroyed by a railroad wreck, March 16, 1893. The Common Pleas Court decided the first trial in favor of defendants. Being carried to a higher court, the Circuit Court reversed the decision and gave verdict to plaintiffs, which decision is now confirmed by the Supreme Court, which is the highest in the State. The court ordered the case to the lower court and judgment to the plaintiffs, which has been done. The Bowler & Burdick Co. receive about \$5000. This case has been made a test case, as the railroad company based their lack of obligation on the stipulation which is printed on all contracts for transportation, that the railroad company obligates itself to \$150 only for baggage. The court held this contract to be void, as it is compulsory and, further, not allowed by any law in the State.

Geo. Beattie, jeweler in the Arcade, spent a few days in Detroit and vicinity the last of the month.

Arnstine Bros. & Mier are showing in their show rooms a patriotic emblem, which has considerable more value than the many cheap ones with which the town is now flooded. It is an American flag, one-half by one-quarter inch, with enamel body, and rubies and diamonds for the stripes. Its value is about \$50.

E. H. Dutter, buyer for Webb C. Ball Co., is in the East after the latest novelties that the markets show. Mr. Dutter is a believer in the old saying, "The early bird," etc.

E. E. Critz, Elyria, Ohio, was found in the jobbing houses last month.

F. F. Beckwith was in town the middle of the month, buying such goods as the summer season requires. Mr. Beckwith is building a new home in Oberlin, into which he will move September 1st.

Chas. Smith, Collinwood, Ohio, was a buyer recently in this market. He reports a very good trade so far this summer.

A. C. House, Painesville, Ohio, was a buyer the last of the month.

Mr. Oberholtzer, Lorain, Ohio, was in town a few days ago, buying a few needed articles.

C. M. Wilson, Salem, Ohio, called on the trade the middle of the month.

J. O. McClintock, Chagrin Falls, Ohio, was a recent trade visitor.

The firm of Scribner & Lochr have recently been appointed official watch inspectors for the Cleveland Terminal and Valley Railroad Co. The first inspection has been ordered, and includes all engineers, conductors, firemen, flagmen, yardmasters and assistants. The minimum grade is placed at seventeen jewels, three-position adjustment, and temperature and isochronism adjustments. The B. W. Raymond, of the Elgin; Appleton, Tracy & Co., of the Waltham; New Railway, of the Hampden, being representative minimum grades. The firm are being congratulated on their fairness in conducting this examination by the employees of the road.



HAVEN'T YOU LONG FELT
THE NEED OF JUST SUCH
A DISPLAY STAND?



HEIGHT 10½ INCHES PAT. PEND.

WE HAVE JUST PATENTED THE ABOVE
USEFUL AND MOST ATTRACTIVE
THIMBLE DISPLAY STAND—IT IS MADE
IN TWO SIZES—EBONY FINISH—
'T WILL BE A HANDSOME ADDITION
TO YOUR SHOW CASE.

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TOUCH AND

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LARGE SIZE, 10½ INCHES HIGH
HOLDS 153 THIMBLES
PRICE, \$10.00

SMALL SIZE, 6½ INCHES HIGH
HOLDS 71 THIMBLES
PRICE, \$5.00



No. 129

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NEW DESIGNS NOW READY.



No. 36. Traveler's Clock.

Send for special catalogue of

Mexican Hand-Carved Goods.

A desirable line for Jewelers.

*Sterling Mounted Pocket Books,
Photo. Frames, Etc.*

ESTABLISHED
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C. F. RUMPP & SONS,



Fifth and Cherry Streets,
Philadelphia.

Fine Leather Goods.

New York Salesroom,
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MIDSUMMER SELLERS.

All made of Sterling (heavy) Silver, and enameled
in correct colors.



No. 8317.
\$12.00 per dozen.



No. 1521.
\$2.25 per dozen.

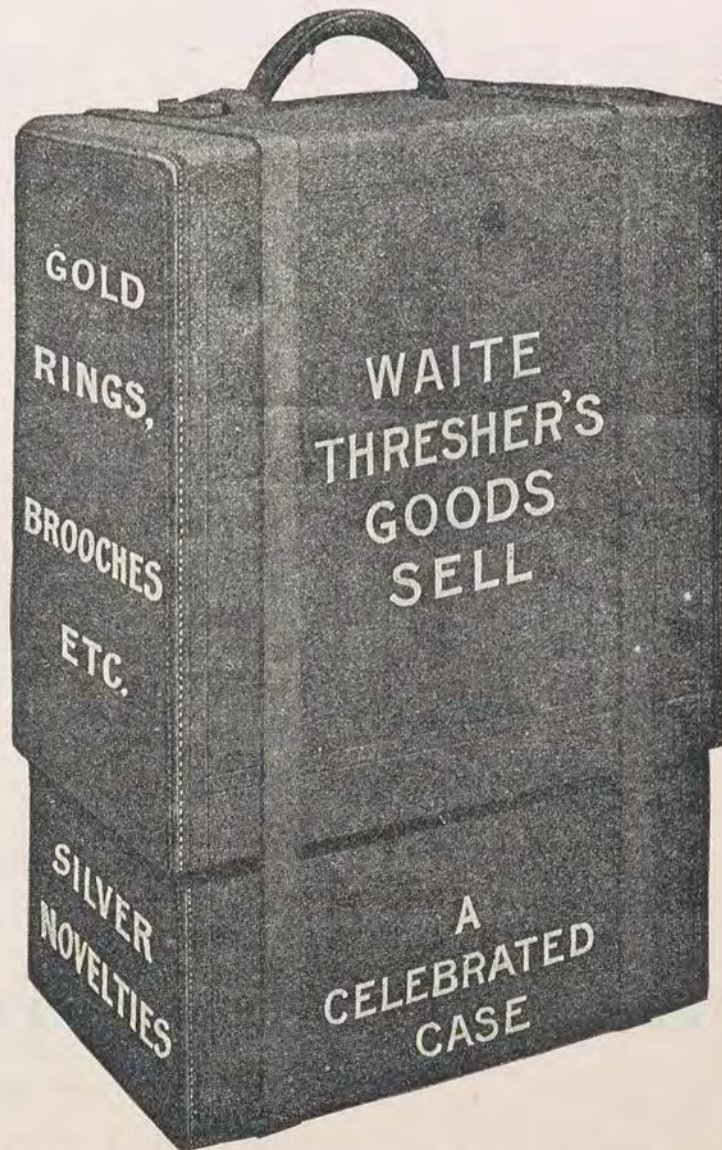


No. 1536.
\$2.00 per dozen.

ANGLO-AMERICAN FLAGS.

CHAS. M. ROBBINS, Manufacturing Jeweler and
Maker of Everything in Flag Pins,

ATTLEBORO, MASS.



OUR NEW LINE is now in the stock of all
leading Jobbers. Ask to see it.

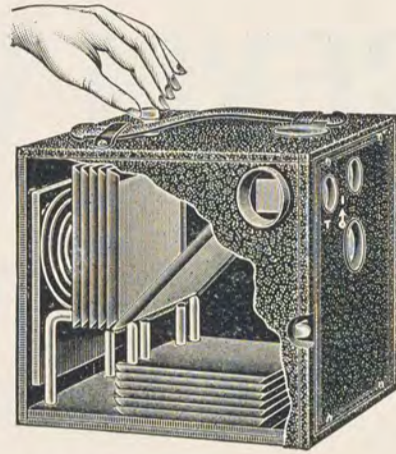
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The Silversmiths' Building,

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CAREFUL ATTENTION GIVEN TO PRESCRIPTION WORK.

JUERGENS & ANDERSEN COMPANY

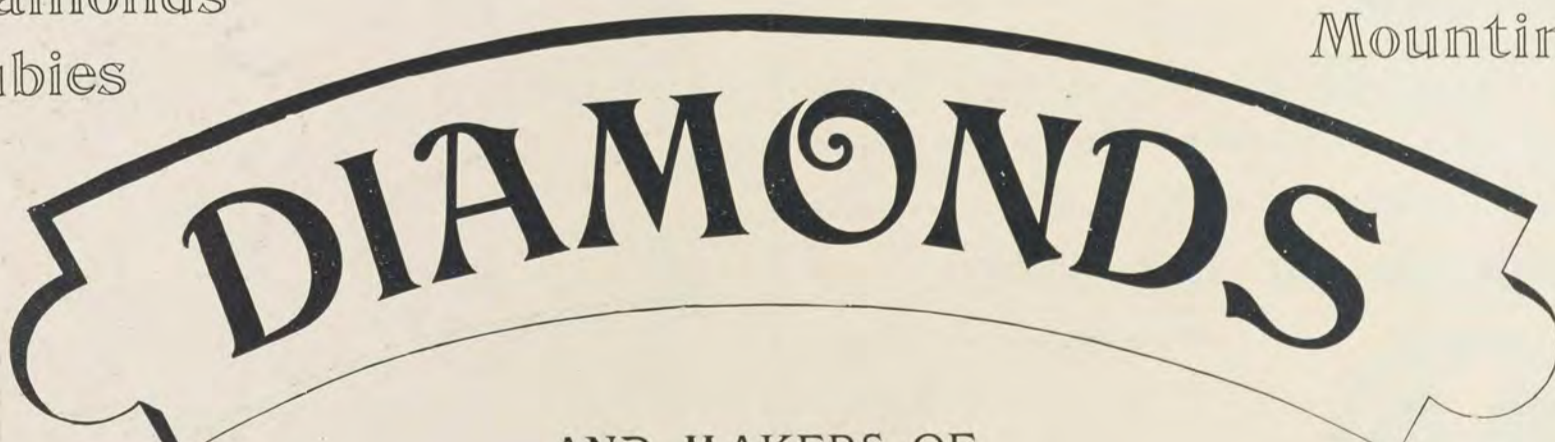
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FINE JEWELRY

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WESTERN BUREAU OF THE KEYSTONE,
ROOM 311, COLUMBUS MEMORIAL BUILDING.

CHICAGO, July 25, 1898.

It is pleasant to report a fairly good business in the middle of what is often called a dull period. July is usually the duldest summer month; probably this July will prove no exception to the general rule when the footings are made out; however that may be, there has been a good trade doing the past ten days. July is usually the month when most of the traveling men are off the road but it is different this year, as a majority of them have taken ten to fifteen days' earlier start than usual, so that a majority of the Chicago travelers are already out among their customers waging a war for business. Crops are maturing all over the West and Northwest, at least up to average years; in many localities much better than usual. In fact, these sections are the favored ones this year. The Great West never looked upon a more splendid prospect of abundance and commercial activity. To-day the prospects in the West may be said to be the brightest they have been for years. Our wheat has no superior in the world, and our corn crop is annually increasing in importance. Trade in all merchandise lines has averaged exceptionally well the past months in all the territory tributary to this market, and our jobbers will find enough to do to handle the fall trade. This fall will be the jewelers' harvest time. The dealer who furnishes what the people want will be the popular and thriving man the coming season.

Here is a fine opportunity for jewelers to visit Chicago at reduced rates. The fall meeting dates of the National Association of Merchants and Travelers have been announced as follows: August meeting—Dates for buying tickets, August 6th to 12th. Good returning, August 10th to 21st. September meeting—Dates for buying tickets, September 10th to 16th, good September 14th to 24th. November meeting—Dates for buying tickets, October 29th to November 4th. Good returning November 2d to 12th. For these meetings the Western Passenger Association has granted one and one-fifth fare. Similar rates have been applied for from the Central and Southwestern Passenger Associations. Full details as to territory covered will be sent out soon by the secretary, Mr. C. S. Tomlinson, 233 Fifth Avenue. Write him if interested. Subject for discussion at the August meeting, "Annexation and National Expansion."

By the time this issue of THE KEYSTONE reaches our readers the wheat harvest throughout the country will be over. Reports for the current month from the wheat-growing sections of the United States indicate that there may be a falling off of, perhaps, ten per cent. from the June estimates of the season's yield. Rust, drought and insect ravages are credited with damage to the amount of 100,000,000 bushels. Even then, however, the wheat crop will be much larger than last year. The July estimate of the Agricultural Department, at Washington, places it at 675,000,000 bushels. The surplus from last

season's crop is placed at 19,000,000 bushels, the smallest in many years. Last year it was 35,000,000 bushels. Foreign estimates of the world's wheat yield for the present year indicate 2,544,000,000 bushels, or an excess of 320,000,000 bushels over last year. The world's surplus, however, is estimated to be 56,000,000 bushels less than last year, so that the actual increase in the supply this year would be but 264,000,000 bushels. But even that does not furnish a very encouraging prospect for the maintenance of present prices for the grain, unless the war demand shall be great enough to absorb the added 264,000,000 bushels, a contingency hardly certain enough to be reckoned upon with any degree of assurance. There are many contingencies, however, which may yet arise to improve the position from the farmer's point of view. In any event, he may console himself with the fact that the abundance of his crop will make up for any slight decrease in the price which may possibly occur.

Personal Mention.

The trade regrets to hear of two recent deaths in the family of Herman F. Hahn, head of the house of H. F. Hahn & Co.; also, one in the family of his partner, J. M. Joseph. John Hahn, his venerable father, passed away June 28th, at the residence of his son, 3626 Grand Boulevard. The funeral services occurred Thursday afternoon, June 30th, and were conducted by Dr. Emil G. Hirsch, and interment was at Rose Hill Cemetery. Mr. Hahn was a native of Germany, born in Eppelsheim October, 28, 1816. He came to the United States when thirty-three years old, settling in Philadelphia. Subsequently he moved to Portage County, Ohio, where he engaged in the mercantile business. In 1865 he retired from active business, moving to Washington, where he lived for twenty-one years. He came to Chicago six years ago to reside with his son, H. F. Hahn. His son and a daughter, Mrs. M. Joseph, 481 Bowen Avenue, are the only children who survive him. The second death was that of Mrs. Hahn's father, Marx Joseph, who died at Cleveland, Ohio, July 12th, at the age of eighty-two years. He was also the father of Mr. Joseph. Seven daughters, three sons and a widow survive him. Mr. Joseph, Sr., was among the pioneer German settlers of Northern Ohio, locating at Massillon, in 1842, and engaging in merchandising. He afterwards lived at Uniontown. Thirty-six years ago he moved to Cleveland, where he has since lived, honored, respected and successful. Few men in that section were better known in mercantile centers than he.

J. N. Mulford, the well-known jeweler of Memphis, Tenn., has been in town for a month past making up his catalogue and superintending the printing of the same. Mr. Mulford is of the opinion that the South will enjoy prosperous times this fall, and that trade will be good in consequence. He also expressed the belief that the better and finer grade of goods would be in more demand than heretofore.

Dainty cards received at this office the early part of the week announce the marriage of George Arkwright, the well known jeweler of Beatrice, Neb., extensive traveler and correspondent, to Miss Marie Oppermann, on June 25th, at All Saints Church, Oakleigh Park, a suburb of London. Mr. Arkwright's friends in America will now understand his frequent trips to old England—there was something more to them than his mere bent for travel or his love for his native hills and dales. We congratulate our friend upon the consummation of a romance of his early manhood.—congratulations to Mrs. Arkwright as well. Mr. and Mrs. Arkwright were in Chicago July 14th on their way to Beatrice, and dropped in at KEYSTONE headquarters for a pleasant call. THE KEYSTONE joins in with Mr. Arkwright's host of friends in wishing he and his bride all kinds of good luck in their new relation.

Alfred H. Wittstein, of Theodore Schrader & Co., is at his desk again after enjoying a ten-day outing at Mackinaw.

W. G. Rattray, in charge of the diamond department at B. F. Norris, Alister & Co.'s, spent the first two weeks of July with his family up among the wilds of Lake Superior, fishing and boating. Mr. Rattray says they enjoyed an ideal vacation and thinks it has done him a lot of good.

W. W. Browne, Chicago manager for the Holmes & Edwards Silver Co., is at his desk again after a pleasant outing at Lake Geneva.

A. C. Bard, in charge of the diamond department at Otto Young & Co.'s, is at work again after a fortnight's enjoyable vacation.

Grant Marquardt, of G. W. Marquardt & Sons, and family, are enjoying a month's outing at their old home, Des Moines, Iowa, where they are guests at the home of Mr. Marquardt's parents.

W. H. Vogel, Chicago manager for Alfred H. Smith & Co., is spending July with his family up among the Wisconsin lakes.

Monte Gluck, house salesman for Otto Young & Co., returned early in the month from a two week's vacation spent in Colorado and the West. Mr. Gluck stopped off at Dodge City, Kan., where his father has been a leading jeweler for twenty years. He tells us that he never saw Western Kansas looking better or the people more hopeful. From what he could learn, the wheat harvest was turning out better than had been expected, and that if nothing happened to the corn, the yield would be enormous.

Geo. Gordon, of Gordon & Morrison, with his family, have taken up their residence in Evanston for the summer.

Schleuder Bros., are a new firm of jewelers and opticians who have recently opened up in New Whatcom, Wash. They are well known in this market from their long connection with their father's business at St. Peter, Minn. Their friends here will be glad to hear that they are well pleased with their new home in the Pacific Northwest, and that they are already doing a nice business.

John H. Hardin, manager at F. A. Hardy & Co.'s, is in the East on a three week's jaunt, combining business and pleasure.

Wm. H. Upmeyer, of the well-known retail house of Bunde & Upmeyer, Milwaukee, was in Chicago last week looking after the fixtures for their new store. THE KEYSTONE was mistaken in a recent issue, when it said this firm would occupy their new store July 1st, as they do not expect to get located in the new establishment, which, by the way, will be one of the finest in the West, before September 1st.

James K. Caldwell, Chicago manager for the Rogers & Hamilton Co., is again at his desk after enjoying a brief outing among the Michigan resorts. He covered himself with glory as a fisherman, if the local press are to be relied upon. They speak highly of his skill as an angler.

P. H. Danner, formerly with L. C. Reiser & Co., Lancaster, Pa., has accepted a position as salesman with Hermann & Co., in the Masonic Temple.

Frank Shinn, of S. H. Clausin & Co., Minneapolis, is in town to-day calling on his friends among the trade.

J. J. Cohn, leather goods manufacturer, New York, has opened a Chicago office on the tenth floor of the Silversmiths' Building, with Adolph Weiss in charge.

Hugo Kuehl, who went out to Omaha three months ago to install the exhibit of his brother, Geo. L. Kuehl, the Randolph Street importer, who has a remarkably interesting exhibition of cuckoo clocks and barometers at the Trans-Mississippi Exposition, recently returned to Chicago and reports the Omaha show as an unqualified success. He returns sometime during next month to again take charge of the exhibit.

The Bohm-Bristol Co., one of Denver's leading retail houses, was represented in this market recently by Mr. Bristol.

C. F. Livermore, Chicago manager for the Middletown Plate Co., has just returned from a Western trip, going as far as Denver. Mr. Livermore is of the opinion that the Trans-Mississippi country will be strictly in it when it comes to good business this fall.

News has reached the trade that O. O. Black & Co., jewelers, at Alpena, Mich., sold their stock and have gone out of business.

Max Ellbogen, of the Stein & Ellbogen Co., will return from his European trip August 1st. Mr. Ellbogen made liberal purchases of the rough for their diamond-cutting works, in anticipation of a lively demand for fine goods this fall. This firm enjoys the distinction of operating the only distinctively diamond-cutting works in Chicago.

Sam. H. Clausin, of S. H. Clausin & Co., jobbers, Minneapolis, was in the city for several days last month. Mr. Clausin was en route home from a two weeks' outing spent in the East. When asked about trade prospects in the Northwest, he said, so far they were excellent, and that the agricultural outlook could not be more favorable. That if the weather continued seasonable until after harvest there would be a bumper crop, which undoubtedly would make fine business this fall.

Ed. A. Inskeep, of Chambers, Inskeep & Co., enjoyed a pleasant two weeks' vacation the early part of the month, spent at Delavan Lake, Wis.

Carl Weibezan, who travels in the Northwest for C. K. Landon, has been spending his vacation in Chicago during most of July. He started out, however, the last week with his full line for an extended trip over his territory.

(Continued on page 620 h.)

21 GOOD ONES—CHEAP

Assorted, good-selling designs.

Made and guaranteed by well-known manufacturers.

PRICES ARE SUBJECT TO KEYSTONE AND CASH DISCOUNTS.



Assorted Engravings.
No. 806. O size Hunting, 14 K. Gold Filled Case. Guaranteed 5 years. **\$4.90**
No. 807. O size Hunting, 10 K. Gold Filled Case. Guaranteed 10 years. **\$4.70**



No. 808. O size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$7.98**



Assorted Engravings.
No. 809. O size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$8.84**
No. 810. O size Hunting, 14 K. Gold Filled Case. Guaranteed 25 years. **\$11.54**



Diamond-Set.
No. 811. O size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$11.18**



Raised Gold Ornamented.
No. 812. O size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$13.30**



Assorted Engravings.
No. 813. 6 size Hunting, 14 K. Gold Filled Case. Guaranteed 5 years. **\$5.10**



Assorted Engravings.
No. 814. 6 size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$9.48**



Assorted Engravings.
No. 815. 6 size Hunting, 14 K. Gold Filled Case. Guaranteed 21 years. **\$11.50**
No. 816. 6 size Hunting, 14 K. Gold Filled Case. Guaranteed 25 years. **\$11.70**



Raised Gold Ornamented.
No. 817. 6 size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$14.90**



Assorted Engravings.
No. 818. 16 and 18 size Hunting, 14 K. Gold Filled Case. Guaranteed 5 years. **\$5.74**
No. 819. 18 size Open-Face Screw, 14 K. Gold Filled Case. Guaranteed 5 years. **\$4.90**



Assorted Engravings.
No. 820. 16 and 18 size Hunting, 14 K. Gold Filled Case. Guaranteed 20 years. **\$11.92**
No. 821. 18 size Open-Face Hinge, 14 K. Gold Filled Case. Guaranteed 20 years. **\$10.86**



Assorted Engravings.
No. 822. 16 and 18 size Hunting, 14 K. Gold Filled Case. Guaranteed 25 years. **\$16.20**
No. 823. 18 size Open-Face Hinge, 14 K. Gold Filled Case. Guaranteed 25 years. **\$15.12**

PRICES ARE SUBJECT TO KEYSTONE AND CASH DISCOUNTS.

Order an assortment, and if not as represented, you don't have to keep 'em.
Write for our prices on Movements.

Sproehnle & Co.

Established 1880.

Chicago.

Watch Jobbers.

Stewart Building,

Cor. State & Washington Sts.

LISTEN!

When you are in need of highly finished, originally designed, attractive Chains, which will wear well, sell well and give **PERFECT** satisfaction, whisper to your jobber that you want the above kind and he will recommend

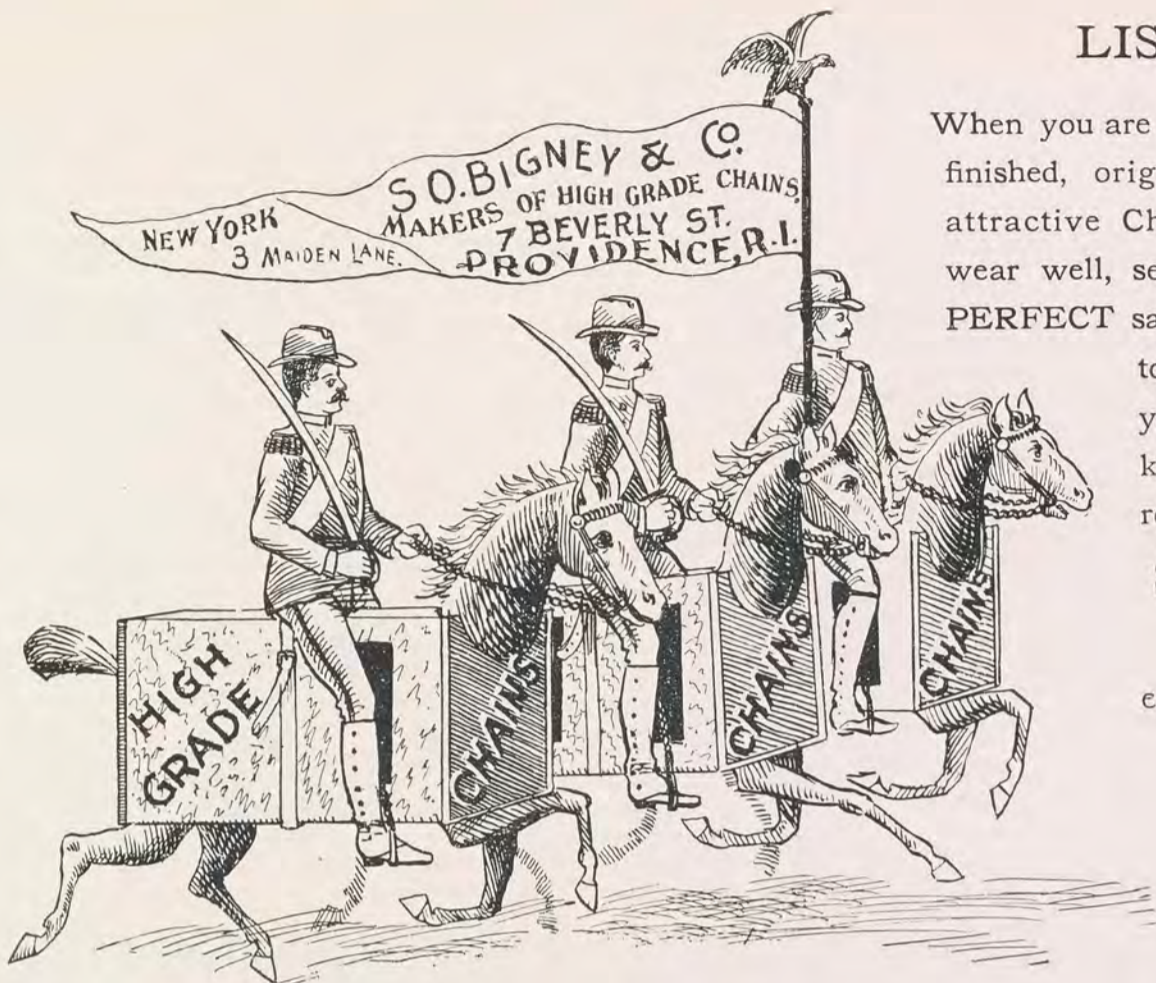
S. O. Bigney & Co.'s

every time.

We use genuine

Opals,
Pearls
and
Diamonds
in our
Slides.

Not imitations.



BIGNEY'S MARCH TO VICTORY.

TUNE:—"MARCHING THROUGH GEORGIA."

Our banner in the front rank waves, as we go marching on;
Our High Grade Gold Filled Chains they lead the army of the strong;
In Finish, Style and Quality they meet and conquer all,
As we go marching on to victory.

Hurrah! hurrah! for Bigney's Chains they lead;
Hurrah! hurrah! for they're the style we need;
They sell at sight and wear all right, and stand the test you know,
As we go marching on to victory.

A Special Midsummer Drive of Every-Day Sellers

SETH THOMAS MOVEMENTS.

PRICES NET CASH.

Finely Finished in Gold and Nickel, Elaborately Damaskeened, 11-Jeweled, (18 size comes in settings), Compensation Balances, Safety Pinions, Fine Hard Enamel Dials. Guaranteed reliable timekeepers.



No. 10. Hunting, \$3.52.
No. 9. Open-Face,
 Fitted complete in case:
G 5. 20-year, 10 K. filled, S. B. & B., \$7.00.
G 3. 20-year, 14 K. filled, Hunting, 8.65.
G 28. 5-year, 10 K. " 5.85.
G 15. 2 1/2 oz. nickel, S. B. & B., 3.90.
2 oz. Nickel, snap back and bezel, 3.68.

No. 8. Hunting, 6-size, \$4.00.
 Fitted complete in case:
No. G 38. 20-year, 14 K. filled, Hunting, \$8.20.
No. G 39. 10-year, 14 K. " 7.35.
No. G 40. 5-year, 14 K. " 6.25.
No. G 35. Nickel, engraved or E. T., 4.85.



GLOVE SCENT BOTTLES.

Cut glass; sterling silver tops. Put up half dozen, assorted, on card as per cut.
No. G 38. Price, per half dozen bottles, \$3.50.
Illustration full size.

(Shield in position.)

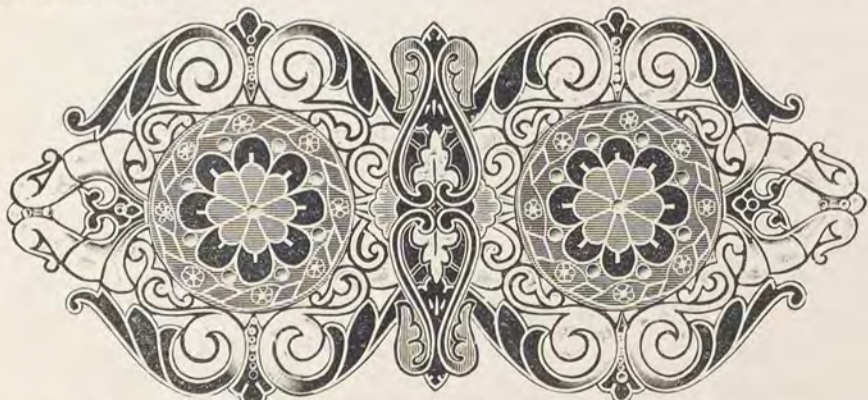
THE DEWEY CELLULOID EYE-SHIELD.

Guaranteed perfect fit and against dust, rain, snow, sleet hail and sun. Comes in the following shades: Smoke, blue, green, amber and clear natural color. Used by wheelmen, street car men, stone-cutters, teamsters, navigators, farmers—in fact, all who are exposed to the inclemency of the weather.

No. G 37. Price, per dozen, \$1.40.



Pat. applied for.



LADIES' BELT BUCKLE, FRENCH. Gold-plated, beautifully enameled in colors.
No. G 36. Price, each, 75 cents.

A. C. BECKEN, Manufacturer of Paillard Non-Magnetic Watches, 103 State Street, Chicago, Ill.

Chicago News.

(Continued from page 620 c.)

Robert Slade, Jr., manager of the watch department at Lapp & Flerhem's, is at his desk again, after an enjoyable two weeks' vacation spent at Sheboygan, Wis.

The three travelers from the Chicago branch of the Gorham Manufacturing Co., H. S. Willis, W. H. Burton and T. G. Jewett, returned last week from a short stay in the East, visiting the factory and going over new designs in preparation for their fall trips. They leave next week for their regular territories.

Dr. H. A. Thomson, president of the South Bend College of Optics, is an occasional visitor in this market, and was met in one of our wholesale establishments recently. Dr. Thomson reports his school as in a flourishing condition, and says he believes the practice of optics, as a side line for the jeweler, is growing more popular right along.

Keil & Hettick, retail, now occupy the entire store at 94 State Street.

Out-of-Town Visitors.

K. B. Dennis, of Williamsport, Ind., was a trade caller here last week.

Theo. Mauch, formerly in business at Waukon, Ia., was in the city last week selecting a stock of goods for his new store, which he is just opening at Yazoo City, Miss.

Ervin Homrighaus, of Shelbyville, Ill., was in Chicago last week on a purchasing trip.

H. Kirkpatrick, of Battle Creek, Ia., was in the city last week and dropped in at the Chicago headquarters of THE KEYSTONE. Mr. Kirkpatrick tells us that he will remove to Lamars, Ia., and open a store there August 1st. He was here selecting goods for the new store. Louis Derr succeeds to the business of Mr. Kirkpatrick at Battle Creek.

N. S. Plank, formerly of the firm of Plank Bros., Iowa City, Ia., was in the city last week selecting a stock for the new store he is just opening at Davenport, Ia. Mr. Plank was a caller at KEYSTONE headquarters during his stay in town.

Jeweler H. W. Klopff, of Neilsville, Wis., who was mustered into the United States army about three months ago, and went to the front as a lieutenant in the Third Wisconsin Regiment, was in town last week en route home. He has been stationed at Tampa for ten weeks, where he was taken down with pneumonia and laid up for some little time. Mr. Klopff came home on leave of absence to recuperate.

Mr. Trask, of Trask & Plain, Galesburg, Ill., was a pleasant caller recently at Chicago headquarters of THE KEYSTONE.

I. O. Glazier, jeweler and optician, Greeley, Colo., was in Chicago last week on a purchasing trip.

The well-known jewelry and optical firm, the Wilbur-Lanphear Company, of Galesburg, Ill., were represented in this market recently by Mr. Lanphear.

Jeweler Geo. M. Howe, of Wichita, Kan., spent a week in Chicago the early part of the month, accompanied by Mrs. Howe.

P. N. Davis, optician, Elkhorn, Wis., was in the city the early part of the month, making purchases from our jobbers.

Clark, Giddings & Co., of Sterling, Ill., were represented in this market recently by Mr. Clark.

R. P. Kiep, of Joliet, Ill., bought goods here recently. The well-known jewelry firm of Noyes & Huber, Paris, Tex., was represented in this market recently by Mr. Noyes, who was a liberal buyer.

F. C. Bahning with the A. Graves Co., Memphis, Tenn., spent a few days in Chicago recently.

Ed. B. Leckie, of Eagle Grove, Ia., spent several days in Chicago recently, accompanied by Mrs. Leckie.

W. R. Percy, of Glenn, Mich., was a trade caller here last week.

John Lindahl, of Moline, Ill., was a welcome trade visitor here recently.

H. B. Clark, of Rantoul, Ill., was in the city last week on a business trip.

N. C. Larson, of Batavia, Ill., was a buyer in this market recently.

A. F. Zegzda, of Spring Valley, Ill., was in this city recently on a purchasing trip.

Will J. Gamm, of Smith & Gamm, Madison, Wis., was in this market recently making a selection of new fall novelties for the home store.

E. H. Lane, of Geneva, Ill., was a recent trade visitor here.

Miss May Spencer, of the firm of John Spencer & Daughter, jewelers and opticians, Edgerton, Wis., has been in the city the past two weeks, a guest at the home of C. K. Landon. Miss Spencer is pursuing a course on optics at the McCormick Optical College.

Fred Stein, one of the old-time jewelers of Illinois, having been located at Geneseo for forty years, was in town recently calling on his friends in the trade. Mr. Stein has lately moved into a new store in which he takes a pardonable pride, and well he may, for he is a most worthy man and richly deserves his success.

W. R. Cooper, of S. H. Clausin & Co., jobbers, Minneapolis, enjoyed his vacation in Chicago during the early part of the month.

Brainard Lemon, of the old-established jewelry house of Jas. K. Lemon & Son, Louisville, Ky., was in Chicago for a day this week. He bought liberally while here.

Walter Starke, of Junction City, Kan., was in the city for a few days last week.

J. W. Van Doren, of Minonk, Ill., was met in one of our wholesale stores last week. Mr. Van Doren said that the indications were that they would have a bountiful harvest in his section. Should it turn out all right, they would enjoy a fine trade this fall in consequence.

W. E. Burkenbuel, of La Salle, Ill., was a welcome trade visitor here last week.

Mark M. Hertstein, of Crete, Neb., has been in Chicago the past week on a business trip.

Mr. Goldsmith, manager for Mrs. T. Kircher, of Davenport, Ia., was in the city a few days last week on a purchasing trip.

Paul Goetchins, manager of the L. G. Goodspeed estate, Colorado Springs, Colo., was a welcome trade visitor in Chicago last week.

C. F. Artes, Jr., of Evansville, Ind., was in town recently calling on the trade.

Jeweler Geo. E. Trorey, of Vancouver, British Columbia, was in the city the early part of the month, and made a pleasant call at THE KEYSTONE'S Chicago headquarters. He remarked that Vancouver had enjoyed considerable prosperity the past year, and that business was still good there.

N. E. Benoit, of Rockford, Ill., was met in one of our wholesale offices recently. He said that trade was fairly good in his home town, and that it now looked as though they would have a fine fall business.

Henry J. Garrison, a well-known Illinois watchmaker and jeweler, for the past two years located at Bloomington, has been a highly interested member of the mid-summer class at the Chicago Ophthalmic College.

J. F. Ingalls, of Waukegan, Ill., was a recent trade visitor in this market.

N. B. Winter, of Lexington, Ky., was in the city the early part of the month on business.

C. F. W. Marquardt, of Norfolk, Neb., was in Chicago on a purchasing trip the early part of the month.

Gossip Among the Trade.

Among the recent incorporations in Illinois, was the Johnston Optical Institute and College of Ophthalmology at Chicago, for educational purposes. The incorporators were J. Milton Johnston, George S. Johnston and J. S. Johnston. Their office is in the Masonic Temple.

The Seth Thomas Clock Company recently finished the construction of tower clocks on the Home National Bank, Fort Wayne, Ind., and the court houses in Luverne and Andalusia, Miss., and has been awarded the contract for a tower clock for the court house in Lancaster, Mo.

J. W. Forsinger, jobber, on the third floor of the Columbus Memorial Building, is having his salesroom doubled in size this week. The workmen are at work moving the partition on the west side of his quarters eighteen feet to the west. The additional space will give Mr. Forsinger more vault room and better office and shipping room facilities, all of which he has felt the need of for sometime; in fact, the demands of his constantly increasing business made his present move imperative. The career of Mr. Forsinger in the jobbing business has been quite a successful one. Beginning in a small way July 1, 1893, his business has paid from the start. His policy has been an aggressive one, especially in the handling of watches, until now he is considered quite a factor in the watch business.

Geo. E. Marshall has leased the room on the fourth floor of the Columbus Memorial Building, formerly occupied by G. W. Marquardt & Sons, and later by Simons, Bro. & Co., and will move during the coming week. The space occupied by Mr. Marshall on the third floor will be used by A. C. Becken as additional to that now occupied by him.

Simons, Bro. & Co. are moving their Chicago office to-day from the fourth to the seventh floor of the Columbus Memorial Building, in room 702. The move is made so as to accommodate Mr. Geo. E. Marshall, whose business required that he should have more room.

The Geneva Optical Co. moved the first week in July to the larger storeroom across the hall from their former location, their new numbers being 63 and 65 Washington street, where they now have a modern salesroom, office and factory, all on the same floor. The improvement is a noticeable one in every way. It gives them one-third more floor space and a much better opportunity for the arrangement of their goods, which they have improved to good advantage. Their facilities are now first-class and right up-to-date. There need be no confusion in finding them, as their street number and elevator is the same as in the past; customers will simply turn to the right instead of the left. The move on the part of the Geneva Co. was made necessary by their constantly increasing business, which has shown a splendid increase for the past two years.

Homan Silver Plate Co. will transfer their Chicago house to New York, August 1st. Charles J. Jacobs, for nine years in charge of their branch house here, will take charge of the New York salesrooms. The location of the New York house is at 32 Park Place.

"Enclosed find one dollar for renewal of our subscription to The Keystone. Dollars are very scarce, but we cannot afford to miss the opportunity of getting more than 12 to 1. We think it 16 to 1, and something to spare."—Peacock Bros., jewelers and opticians, Clinton, Tennessee.

Dunning on Postal Cards.

IN our May issue, we made the statement that postal card duns are mailable provided a threat of placing the account in a collector's hands does not accompany them. For instance, the following is mailable:

Please call and settle account, which is long past due, and for which our collector has called several times, and oblige.

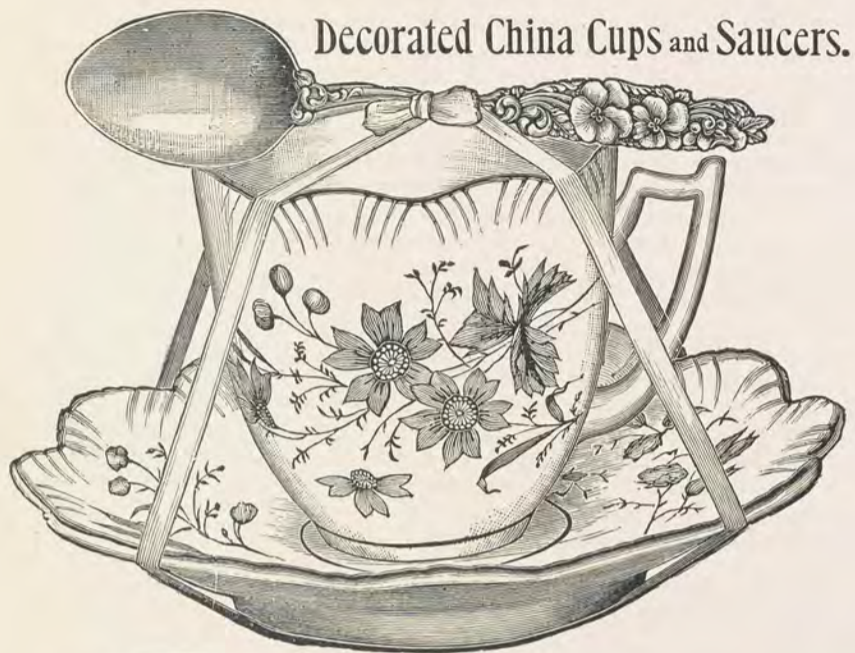
And the following is unmailable:

You owe us \$1.50. We have called several times for same. If not paid at once we shall place with our law agency for collection.

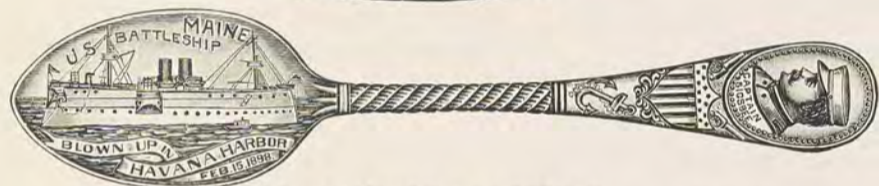
Rightly relying on the accuracy of THE KEYSTONE, one of our subscribers copied the wording of the mailable sample above-mentioned, which exactly suited his case, and sent the dun on a postal to a delinquent patron. In reply came a formidable letter from a lawyer apprising the jeweler of the illegality of his act, and stating the penalty to which he laid himself open by mailing such a postal.

We repeat that our subscriber was within his legal right in using the postal as he did, as is evident from the decision in the case of United States vs. Bayle, 40 Federal Reporter, 664. The United States statutes make unmailable such postal cards as have printed or written on them any language which is of a "libellous, defamatory or threatening character, or calculated by the terms or manner or style of display, and obviously intended, to reflect injuriously upon the character or conduct of another." The wording on the mailable sample above-mentioned, and which was used by the jeweler, is not libellous, defamatory or threatening, but care should be taken that the matter is written or printed in the ordinary way, and not boldly underscored or otherwise prominently displayed, as such unusual prominence of display would be *prima facie* evidence of an intention on the part of the sender to attract to the dun the notice of other than the person addressed, which is not permitted by law. Of course, where legal distinctions are so fine, it is the part of wisdom to avoid all possible risk. Law is a fickle arbiter, and the safe side is always the best.

We Would Like to C-U-B-A Customer of Ours.



Decorated China Cups and Saucers.



CUPS, SAUCERS and SPOONS.

No. 7131 With Maine-Sigsbee and Olympia-Dewey Plated Spoons,
No. 7132 With Sterling Silver Spoon, as shown on cup,

Per doz. sets.
\$2.00
4.50

REDUCED PRICE ON "JEWEL" CAMERA.

This we are enabled to do by placing a large order for this desirable Camera.



Takes pictures 3 1/2 x 3 1/2.
Price, \$4.00.

THIS is our popular price camera for 1898, and, as its name implies, it is a *Jewel* in the field of the \$4.00 cameras. Handsome in appearance and finely finished, it produces results equal to others costing double its price. The supplies are less expensive than for larger size cameras (which point will be appreciated by the beginner), and the picture it makes is of a desirable size.

Outside dimensions, 4 1/2 x 5 1/2 x 7 inches, covered with fine black morocco embossed leather; round corners and edges; jet black metal trimmings; large brilliant square finder, centered over lens, and universal tripod socket. New style improved shutter, very

easy and convenient to manipulate for either "time" or "snap shot" exposures. The lens being the most important feature of a camera, we have been particular to obtain one for the "Jewel" that would cut clear to the corners of the plate, and otherwise give nothing but the best results. The "Jewel" is exclusively a plate camera, and is supplied with one featherweight light proof *double* plate holder. In the magazine can be carried two extra of these holders, which enables a person to carry six plates in the camera.

NET PRICE. 6 per cent. for cash.

"Jewel" Camera complete, with one Double Plate Holder, reduced to **\$2.50**
Extra Featherweight Double Plate Holders, each, **.68**

Catalogue of Cameras and Supplies sent on application.

SPECIAL PRICES

on a small lot of
Filled 14 K. 25-Year Guaranteed Cases.
Well-known reliable make. All nice,
attractive patterns.



Assorted Designs.

No. 0800. 18 Size Hunting,	\$8.50
No. 0801. 16 " "	8.50
No. 0802. 6 " "	6.00
No. 0803. 0 " "	5.50

Reduced from \$10.00, \$7.00 and \$6.50.
Above prices continue only as long as the lot lasts.

Seth Thomas "Banner" Movements.

LIMITED QUANTITY ONLY.

Be wise now and put in a few for future needs, as 7-jewel movements will positively be almost unable to get during the entire fall season. You can use "Banners" instead, to good advantage.

Beautifully Damaskened in Gold and Nickel, 11 Jewels, Settings, Compensation Balance, Safety Pinion, Fine Sunk Second Dial, Guaranteed Reliable Time-keepers.



No. 10. Hunting, 18 Size, } \$3.75
No. 9. Open-Face, 18 Size, }

COMPLETE WATCHES.

No. 10 Movement in Filled, 5-year, Hunting Case, \$6.00
No. 9 Movement in Filled, 5-year, Screw Case, 5.50
No. 9 Movement in Nickel, Snap Back, Jointed Bezel Case, 3.35



No. 8. Hunting, 6 Size, \$4.25

Write for our special price on half dozen, or more, assorted.

COMPLETE WATCH.

No. 8 Movement in Filled, 5-year, Hunting Case, \$6.00
No. 8 Movement in Nickel, Open-Face, Jointed Case, with inside cap, 4.00

Above prices are net. Less 6 per cent. cash discount.

Lots of New Goods

in all lines are being received by us. If coming to the city, call and see us.

Job Lots.

We have goods in all lines which we are closing out at a big reduction to make room for Fall purchases. Come and see us and take advantage of same.

Busiest House in America 1898 Catalogue.

Contains illustrations and prices of good-selling goods. Consult it, and send us your orders.

Special Diamond Catalogue

Size, 6 1/2 x 7 inches. Cloth bound. 64 pages of Diamonds and Gold Jewelry only. Will help you sell such goods. Sent to retail jewelers on application.

Wholesalers of Everything
Needed by Jewelers.

Large Stock. Lowest Prices.

LAPP & FLERSHEM,

195, 197, 199 State St., CHICAGO.

Kansas City and the Great Southwest.

Business in this territory is still keeping up nicely, and jobbers are feeling exultant over the outlook. Railroads centering here have begun to refuse to allow their cars to go to foreign lines, owing to the fact that all will be needed to move the immense grain crops in Kansas and Oklahoma. We are now the greatest railroad center in the world, the coming of the St. Joe and Grand Island, and St. Louis and San Francisco putting us one road ahead of Chicago. The St. Joe and Grand Island will give us entrance into a territory with which Kansas City has had hitherto no direct intercourse. The St. Louis and San Francisco opens up a new territory to Kansas City jobbers in Missouri, which has in the past practically been held by St. Louis. This all only shows that railroad magnates recognize Kansas City as a great commercial center, and the old saying, "All roads lead to Rome," as being literally true.

Ed. Campbell, of Campbell Bros., East Twelfth Street, is happy over a new girl arrival at his home.

E. G. Alber, formerly located at 1411 Grand Avenue, has moved to 1319, same street, where he now has a room to himself and the handsomest store on Grand Avenue.

E. J. Evans, for a number of years in the book and jewelry business at Horton, Kan., under the firm name of Evans & Diss, but for some months past a resident of this city, died very suddenly last week in Topeka, Kan., from heart failure. Mr. Evans was well known to the jewelry trade at large, and was very popular with all he came in contact with.

Several out-of-town jewelers were in town celebrating the Fourth of July and the destruction of the Spanish fleet, among them being E. R. Matters, Neosho, Mo.; M. Truby, Independence, Kan.; H. K. Herbert, Eldorado, Kan.; J. J. Stott, Paola, Kan.; W. K. Grady, Slater, Mo.; and R. J. Carruth, Herington, Kan. The above-named gentlemen all took in the ball game.

Roy Herbert, son of F. A. Herbert, Garnett, Kan., recently made a trip on his wheel through Southern Kansas and reports having an excellent and enjoyable trip. Roy spent a week with his uncle, Jeweler H. K. Herbert, of Eldorado, Kan.

W. B. Vail, of Norfolk, Neb., besides being up in his profession as a watchmaker and jeweler, owns and drives some fast horses. Mr. Vail is a great admirer of blooded stock.

E. L. McDowell and wife, Arkansas City, Kan., were callers last month, being on their way to the Omaha Exposition.

G. W. Kates, Florence, Kan., returned home from Milwaukee last week, where he was called by the death of his mother. Less than two months ago, Mr. Kates made the same trip, his father dying at that time.

The death of the wife of Jeweler Geo. Porth, of Jefferson City, is announced.

F. C. Boasen, of Douglass, Kan., a recent graduate of a Peoria horological school, has opened a store at Perry, Oklahoma.

J. R. Hughes, of Strong City, Kan., has been on the sick list for some weeks, but is now improving.

W. D. Brotchie, Jamestown, Kan., was a visitor last month.

C. L. Frost, formerly in the jewelry business at Odessa, Mo., has been appointed postmaster in that town.

Frank Gardner, of O'Neil & Gardner, Lincoln, Neb., is smiling and happy. A new boy arrived at his home some days ago.

J. M. Ditto, formerly located at Neodesha, Kan., has removed from that town and located in Nebraska City, Neb., where he will open a new store.

G. M. Howe and wife, Wichita, Kan., are now on an extended Eastern trip.

Geo. L. Edwards, of Wichita, Kan., is now a "Batch," his wife being out of town for the summer.

Frank Six and wife, of Winfield, Kan., have gone to Colorado for several weeks, where they will rough it in the mountains. We hope Mr. Six's health will be greatly benefited by the trip.

Floyd Bassett, of Henton & Bassett, Anthony, Kan., is on his ranch in the Indian Territory, where he is busy harvesting the large crop that the country in general is blessed with.

W. T. Brown, of Sterling, Kan., was married to Miss Callie Smith, the first of the month. Among their wedding presents was a house and lot and a large-sized check. Our best wishes are theirs for a happy future.

That genial, jolly and good-natured "Pete" Doherty, Ellinwood, Kansas, only jeweler, has just returned from his ranch in the Indian Territory, where he has been spending several weeks.

Jeweler Otto Burklund was in town last week on his usual monthly visit, buying goods.

D. Heald, of Burlington Junction, Mo., besides running a jewelry business, is also engaged in farming, and many travelers who expect to see him have to take a trip in the country. One told me a few days ago of being in that town and having to ride out in the country, where he found Mr. Heald directing a party of men in making hay, and working as hard as any of them.

George Lerew has opened up a new store in Hamburg, Iowa. He is still running a store at Sidney.

L. R. Vanderzee, Pella, Iowa, has moved into a new store and has the room all to himself.

E. O. Douglass was a visitor here last month. Mr. Douglass left for Kansas, where he will hunt up a location.

I. M. Greer, Harrisonville, Mo., was in town last month buying goods and taking in the ball games.

F. C. Brace, Worthington, Minn., has been on the sick list.

W. C. Sellers, the affable jeweler of Medicine Lodge, Kan., spent a week with us first of the month, buying goods and taking in almost everything in sight.

B. H. Beatte, Sterling, Kan., was in town on a little visit last month. This was the first time in two years that we have seen the gentleman, and while Mr. Beatte must be getting along in years, his heart is as young and his action and move all remind one of a boy of twenty.

H. O. Newkirk, of Armourdale, Kan., one of Kansas City's suburbs, was married recently.

F. C. Buchan, of F. C. Buchan & Co., Aurora, Neb., is spending his time this summer in the capacity of a traveling optician.

Geo. Brodfuehrer, son of A. Brodfuehrer, Columbus, Neb., has enlisted and gone with the boys in blue.

N. Nielsen, Harlan, Iowa, has added a fine lot of new fixtures to his store. Mr. Nielsen is very popular in his town, and enjoys an excellent trade.

E. A. Polley, for fifteen years in active business at Seward, Neb., is closing out, preparatory to retiring from business, no doubt with lots of money.

D. A. Curtis, Knoxville, Iowa, has moved into the room formerly occupied by G. A. Strong.

P. F. O'Connell, Atlantic, Iowa, will soon begin the erection of a new brick storeroom.

M. T. Kohler, the "hustling" jeweler, of Parsons, Kan., was in the city last month making purchases.

L. T. Grimm, the "bachelor" jeweler, of Lebanon, Kan., showed himself for a day in our city last month.

Jaccards will move from 1034 to 1032 Main Street, where they will have a much larger room and will occupy the three stories. The building is now being put in order.

F. W. Meyer, being in need of more room for his ever-increasing business, is building an addition to the rear of his store, which, when completed, will make his room one of the nicest in town.

F. W. Meyer and wife, accompanied by a party of St. Louis ladies, will leave first of the month for Omaha, where they will "do" the Exposition.

L. Meyer, of the Meyer Jewelry Co., lost a friend, Lieut. Sater, at the battle of Santiago. He was killed in the first day's fight.

Wm. Walsh, of the Meyer Jewelry Co., is of late mixing quite freely in politics, the last honor conferred on him being Democratic delegate to the county convention.

Frank Woodington and family returned from an outing spent in the woods of Southern Missouri.

Bert Chapman, watchmaker at Mercer's, recently put in a few days doing the Omaha Exposition.

Herbert Copley, of the Meyer Jewelry Co., is visiting friends at Chanute, Kan.

Fred. M. Chamberlin and wife returned from their honeymoon, which was spent in Northern Michigan.

Clarence Pitts, formerly watchmaker for J. R. Mercer, is now located in Hutchinson, Kan.

R. J. Sine, of Buffalo, N. Y., has accepted a position with the C. L. Merry Optical Co.

J. L. Grady, of St. Louis, Mo., was a visitor in the city last month.

K. H. Clarke, of the Meriden Britannia Co., was calling on the trade during the past month.

Shirey Bros., Joplin, Mo., have just had an auction and discontinued business.

W. W. Whiteside, Liberty, Mo., passed through on his way to the Trans-Mississippi Exposition, at Omaha.

J. W. Edmonds, Atwood, Kan., who has been taking optical lessons in the city for some weeks past, made big purchases and has left for home.

Walter Jaccard is in St. Louis on business.

H. B. Carswell, who at the time hostilities commenced with Spain was in charge of the watch department at Jaccards, and left for the front, is still at Camp Alger, where he is doing his usual amount of kicking because he cannot have a crack at the Spaniards. It may come sooner than you want it, Harry.

C. A. Kiger is out on the road and reports fair business.

Harry Williams has taken charge of the watch department at Jaccards.

J. W. Wilkinson, Fort Worth, Tex., was in town last month, buying goods and renewing acquaintances.

Miss Collins, cashier at J. R. Mercer's, had the misfortune to lose her diamond brooch last month, and about the same time Miss Penfold, stenographer at the C. L. Merry Optical Co., gave a street car conductor a five-dollar gold piece for a nickel. They are both still in mourning.

W. C. Kern, the popular jeweler and proprietor of The Lincoln Museum, Pawnee City, Neb., is in the East. Mr. Kern is visiting in Baltimore, Washington, Philadelphia, New York, and will also spend some time at his old home in Bethlehem, Pa., and at Mount Joy, Pa., where his parents reside, and whom he has not seen for a number of years.

C. A. Clement, Springfield, Mo., was in the city last month with his family, on their way to Colorado, where they will spend several weeks in the mountains.

G. N. Moses, of Great Bend, Kan., has received the Republican nomination for State Representative for Barton County.

J. B. Hayden, Topeka, Kan., was a buyer in the city last month.

E. A. Douglass, formerly of Boulder, Colo., is now located at Guthrie, Oklahoma.

Isaac Leh-Henlein von Klein Landheim, a recent emigrant from Turkey, has opened a repair shop in Osawatotie, Kan.

The firm of Pickrell & Baremore have dissolved, Mr. Pickrell continuing the business.

E. F. Harrington, Sheldon, Iowa, has completed his new two-story brick building, and will occupy part of it with his horological and optical school.

Buyers in the city last week were: C. E. Dale, Bennington, Kan.; W. H. Meyer, Lawson, Mo.; G. A. Young, Kearney, Mo.; J. W. Phillips, Maitland, Mo.; W. A. Harrison, St. Francis, Kan.



The American Flag.

When Freedom, from her mountain height,

Unfurled her standard to the air,

She tore the azure robe of night,

And set the stars of glory there!

She mingled with its glorious dyes

The milky baldric of the skies,

And striped its pure, celestial white

With streaking of the morning light,

Then, from her mansion in the sun,

She called her eagle-bearer down,

And gave into his mighty hand,

The symbol of her chosen land!

Majestic monarch of the cloud!

Who rear'st aloft the regal form,

To hear the tempest-trumpets loud,

And see the lightning glances driven,

When strive the warriors of the storm,

And rolls the thunder-drum of heaven—

Child of the sun! to thee 'tis given

To guard the banner of the free,

To hover in the sulphur smoke,

To ward away the battle-stroke,

And bid its blendings shine afar,

Like rainbows on the cloud of war,

The harbingers of victory!

Flag of the brave! thy folds shall fly,

The sign of hope and triumph high!

When speaks the signal-trumpet tone,

And the long line comes gleaming on.

Ere yet the life-blood, warm and wet,

Has dimmed the glistening bayonet,

Each soldier's eye shall brightly turn

To where the sky-born glories burn,

And, as his springing steps advance,

Catch war and vengeance from the glance,

And when the cannon-mouths loud

Heave in wild wreaths the battle shroud.

—Joseph Rodman Drake.

The Latest Watch News from THE Watch House

ANOTHER PURCHASE WORTH MENTIONING

From the Elgin National Watch Company, TWO THOUSAND (all they had or will have).
Sixteen Size Old Model, Fifteen Jewel Gilt Movements, both Open-Face and Hunting.

No. 138, O. F., fifteen jewels, four pairs settings, compensation balance, etc.

Skilled workers in metal, ARTISTS, have been constructing cases for these faultless time keepers for the past three months. The result of their labor is pleasing to us and will be to you. The prices of the complete watches need no comment. Here are some of them:

Coin Silver Open-Face, screw back and bezel, antique pendant, gold crown, engine turned only, **\$7.45.**

Open-Face, 20-year filled, screw back and bezel, antique pendant, engraved and engine turned, **\$9.20**

Open-Face, 20-year filled, joint back, antique pendant, engraved and engine turned, **\$11.40.**

Open-Face, 25-year filled, screw back and bezel, engraved and engine turned, **\$11.95.**

Open-Face, 25-year filled, joint back, engraved and engine turned, **\$13.45.**

No. 135 Hunting, fifteen jewels, four pairs settings, compensation balance, etc.

Hunting, coin silver, very thin model, **\$8.65.**

Hunting, special 10-year filled, antique pendant, engine turned only (nothing like it), made exclusively for us, **\$9.30.**

Hunting, 20-year filled, antique pendant, engraved and engine turned, **\$11.85.**

Hunting, 25-year filled, antique pendant, engraved and engine turned, **\$13.85.**

THESE PRICES SUBJECT TO CASH DISCOUNT.

Prices for these movements without cases upon application.

We also have Seven Jewel Movements, same size and model, both Open-Face and Hunting. No. 114 Hunting, No. 104 Open-Face.

Careful buyers who come to New York, and the many patrons visited by our seven representatives, will readily see that we are working on broad lines, and that our talks to you through "The Keystone" DO MEAN that you can



to your profit.

Every convenience for your comfort in our spacious office.

C. G. ALFORD & CO.

Western Union Building, 195 & 197 Broadway, NEW YORK.

August, 1898.

To Wide-Awake Jewelers!

Anticipating the early opening of a prosperous season, we have prepared for an unusually great demand for goods, by personally selecting a stock that will, undoubtedly, insure large sales and increased profits to our customers.

The importations will comprise a rare selection of Bisques, Porcelain Statues, Bronzes, Clocks and Art Goods, Leather Productions of all kinds, and Manicure and Toilet Articles in infinite variety, covering a wide range of prices. Every well-known make of American Clocks will also be represented.

MR. KROWER is now in the East conferring with the leading and most enterprising manufacturers of gold and silver jewelry, and is having specially made the finest stock ever gathered together for the Southern trade. It is almost unnecessary to suggest the advisability of seeing these goods before buying elsewhere.

Other important announcements will shortly follow.

LEONARD KROWER

IMPORTING AND MANUFACTURING JEWELER

122 Chartres St., New Orleans, La.

Special Agent for the New England Watch Co. (formerly the Waterbury Watch Co.)

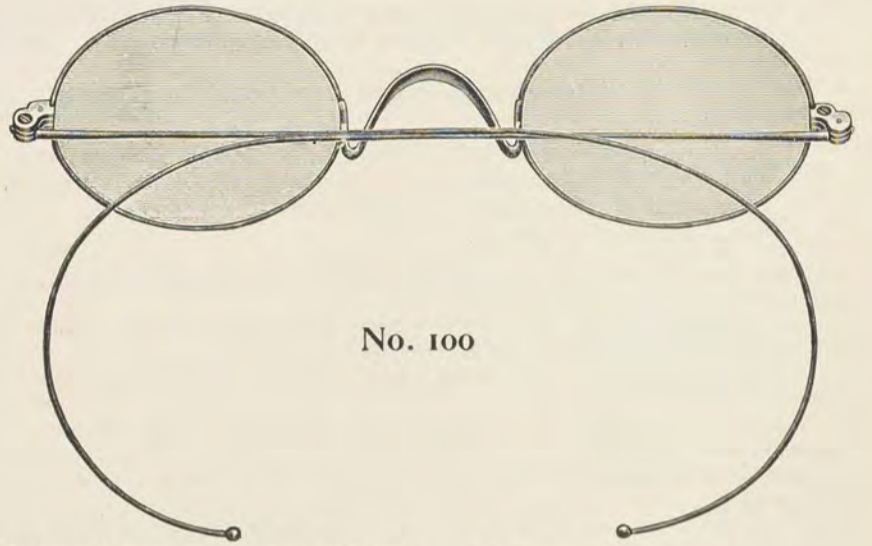
THE B. A. & CO. GOLD FILLED SPECTACLES

All Frames have the letter **A** stamped in bridge.



10 K. Gold Filled.
WARRANTED.
 We will replace this frame with a new one should it fail to give entire satisfaction.
Benj. Allen & Co.

Fac-simile of Guarantee Tag that accompanies each Spectacle.



No. 100

All have the Double Screw End Piece.

No. 100.	Gold Filled Frames,	Riding Bow,	per dozen,	\$12.00
" 101.	" " "	Straight Temple,	" " "	14.00
" 102.	" " "	Cable	" " "	18.00

PRICES SUBJECT TO OUR JEWELRY CATALOGUE DISCOUNTS.

SPECIAL ATTENTION GIVEN TO PRESCRIPTION WORK.

BENJ. ALLEN & Co., WHOLESALE JEWELERS AND OPTICIANS,
 The Silversmiths' Building, 131 to 137 Wabash Ave., CHICAGO



Our Registered Trade-Mark is a Guarantee.

STAMPED ON SWIVEL AND LINK OF EVERY CHAIN.

Hamilton & Hamilton, Jr.
 Providence, R. I.



OUR CHAINS LEAD THE WORLD

"Busiest Jewelry Plant in 45 States"

An Unsolicited Testimonial!

A jobber writes us:

DEAR SIR:—It may interest you to know that the result of a recent test by one of our best customers of your **King Filled Stock Chains**, against those of another prominent manufacturer, proves beyond doubt that your Chains are so greatly superior that there is practically no comparison. Accept our congratulations.

OUR CHAINS

have always been in the front rank, and still hold their place.

They are the standard of quality.

In style, quality and finish we challenge comparison at the same price.

OUR GOODS SELL.

Do not need to be put out on consignment. Send for quotations through your jobber.

MAIN OFFICE, Providence, R. I.

BRANCH OFFICES: New York, Chicago, San Francisco, London.

ADDRESS ALL COMMUNICATIONS TO MAIN OFFICE.

GOODS YOU NEED AT PRICES TO SUIT.

SOLE AGENTS FOR THE
"Regent" Adjustable Hand-Remover.
 The best tool for Removing Watch Hands ever made.
NEW. PRACTICAL. LOW PRICED.



Patent applied for **ITS ADVANTAGES:** Price, 50c. each.
 The hands do not fly away as with using cutting pliers or other kinds of hand-removing tools.
 The hands may be ever so hard set they must come off by using this tool.
 The dial never breaks, as the pressure comes even from both sides of the dial.
 It can also be used for removing second hands.
 The price is low enough to enable every good watchmaker to have one.
FOR SALE BY ALL JOBBERS.

Our celebrated **"REGENT BRAND"** of specialties are still in great demand, and our guarantee to refund money in any case of dissatisfaction is unquestionable. Send us your orders and try them.

"REGENT BRAND"		Per Gross.	Per Doz.
" Mainsprings for American Watches,	\$10.50,	\$1.00	
" " " Swiss " "	10.50,	1.00	
" Balance Staffs for American Watches,	7.50,	.75	
" Balance Jewels " "	7.50,	.75	
" Roller Jewels " "	1.50,	.15	
" H and M Hands " "	2.00,	.20	
" Second Hands " "	1.00,	.10	
" Gilt Hat-Pin Stems, for Military Buttons,		.25	
" Silver-Plate " "		.25	
" Rolled-Plate Dumb-Bell Button Backs,		.75	
" Roman-Plate " "		.85	
" Solid Silver " "		1.00	
" Aluminum Screwdrivers, set of five, per set,	35 cts.		
" Grooved Ring Gauges, . . . each,	75 cts.		

All of the above prices subject to 6 per cent. off for cash.



60 Metal Top Vials, \$1.50 extra.

Agents for the Hamilton Watch Co.'s Movements.

This handsome solid oak Cabinet **FREE** with your first order for One Gross of "Regent" Mainsprings.

Send for our { Pocket Price-List of **TOOLS** and **MATERIAL** for 1898.
 Pocket Price-List of **WATCHES**. Monthly.
SILVER NOVELTY Catalogue.
 Send for **ANYTHING** and **EVERYTHING** in the Watch or Jewelry line.

CROSS & BEGUELIN, Importers, Exporters and Manufacturers, Watches, Diamonds, Jewelry, Silver-Plated Ware, Etc., 17 Maiden Lane, New York.

ORDER A SELECTION PACKAGE OF Our Original Ladies' Beauty Pin

and if it is not satisfactory, you can return it to us at our expense.

INFERIOR GOODS

are being offered by others which will not bear comparison.

THE GOLD FRONT FLAT-WIRE

Pins are our own exclusive, and they are the handsomest and quickest sellers offered. We can furnish them to the trade in three styles, 2, 6 or 12 pins on a handsome card, or 6 or 12 doz. on a handsome white satin pad.

PRICES.

The Gold Front flat-wire, on card or pad,	\$4.50 per gross pin.
The Gold Plate round " " " "	3.75 " " "
The Black Enameled, mat finish, on card or pad,	4.50 " " "

ORDER A SELECTION

of **MILITARY** and **FLAG HAT-PINS** to retail at **5** and **10 cents** each, as a flyer; Fancy Buckle Sets, Mounted Side and Back Combs, Waist Sets, etc. We carry the latest designs at lowest prices.

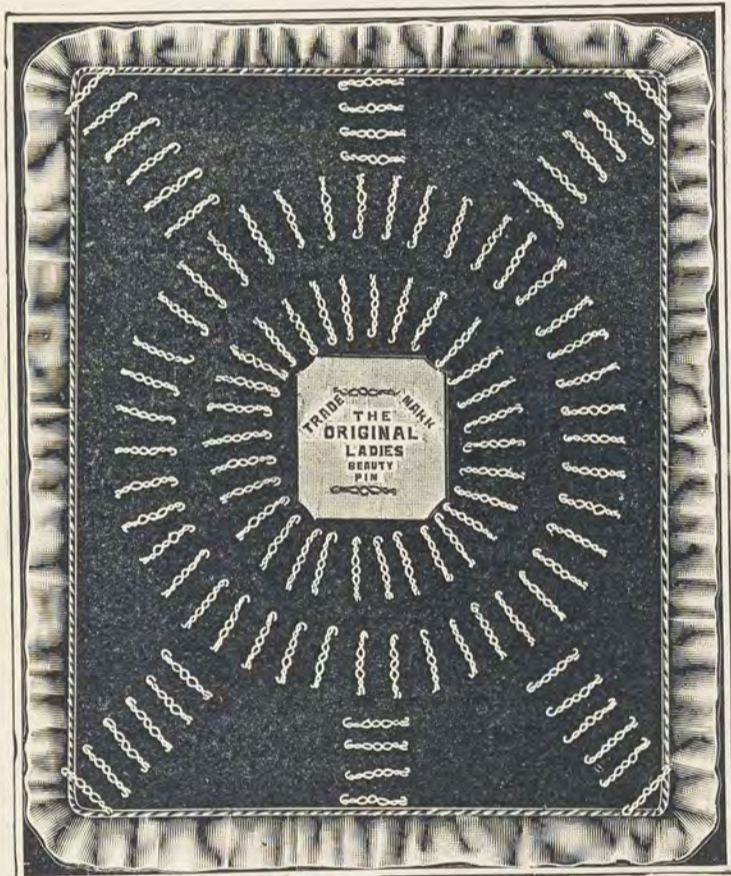
J. Floersheim, Kunstadter & Co., Importers and Manufacturers of Jewelry, Novelties in Belts, Girdles, Etc.

S. W. Cor. Jackson and Market Streets, CHICAGO.

Established 1872—26 Years of Uninterrupted Success.

When ordering, please mention THE KEYSTONE.

Send for a Descriptive Circular of our War Novelties, or Sample Package.



CAN YOU DO BETTER?

Advertise yourself for one cent per day.

A CHRONOMETER

is the best advertisement you can use, either in the window or on the counter case.

We have a large stock to select from, reduced to net cash prices to the trade.

RIGGS & BROTHER,

310 Market Street, PHILADELPHIA, PA.

Write us before purchasing.



CHICAGO WATCH REPAIR CO
 WORK DONE BY EXPERT SWISS WATCHMAKERS
 WHO MAKE SPECIALTIES IN COMPLICATED WATCHES.
 SEND FOR PRICE LIST. 67 WABASH AVE, CHICAGO



What you are looking for.

- A Prescription House that carries everything optical.
- A Prescription House that sends what you order.
- A Prescription House that fills your orders accurately.
- A Prescription House that does first-class work only.
- A Prescription House that is prompt.
- A Prescription House that guarantees against breakage.
- A Prescription House with all requirements.

We claim to be such a House. Try us.

JOHNSTON OPTICAL CO., Prescription Opticians, DETROIT, MICH.



Philadelphia Notes.

There has been the usual mid-summer lull in local trade, owing to the absence from town of a large proportion of the jewelry buying population. The vacation season with its money-spending possibilities always detrimentally affects the jewelry business, and this year has been no exception. All, however, have sanguine hopes of a compensating fall business.

The summer series of excursions to this city and nearby seaside resorts for merchants and their families, from points within the commercial territory of Philadelphia, began last month. These excursions have been arranged by the Trades League, on the same lines as the excursions given last year, when more than 10,000 people were brought to this city from the surrounding States, and immense benefit was realized by the local merchants and wholesale business houses. The Pennsylvania, Reading and Baltimore & Ohio Railroads have each made rate reductions, and the railroad officials as well as the Trades League's committee confidently expect that over 30,000 people will be carried on the excursions this season. The excursions are made especially attractive by reason of the fact that the tickets are made good to Atlantic City and other seaside resorts, and return, with stop-over privileges in this city, on the going trip. Merchants bring their families, sending them through to the shore, while they stop off in Philadelphia for business purposes. The excursion rates fixed by the railroads are very low, half-rates or less, for the round trip. These excursions will continue to be given this month, the last being on August 25th, and afford a good opportunity for retailers to come to the city to purchase stock for fall trade.

The tower of the restored Independence Hall will have no clock, and its place will be taken by windows of the original design. Clocks will be placed in the east and west walls instead. The State House proper was built in 1733 and the tower was added to it in 1750. There was no clock in the State House up to the time of the erection of the tower. At that time a large clock was placed in the east and west end of Independence Hall, why not in the tower does not seem to be very clear. After these clocks were sold in 1830, the tower was selected as the best place for a new clock. From 1750 to 1830, a period of eighty years, the clock was on the east and west walls of the building, and from 1830 to 1898, a period of sixty-eight years, it has been in the tower. Its removal from the tower is a restoration feature the public regret.

Councils granted permission to H. Muhr's Sons, to erect a clock in front of their new store at 1110 Chestnut Street, on condition that no advertisement be placed on the clock.

The cup won by the wielders of the willow of the Jewelers' Club, in the base ball game with their New York brethren, was exhibited in the window of J. Warner Hutchin's store on North Eighth Street, and was much admired.

Ferdinand Haschka, the vice-president, and George S. Cullen, a member of the executive committee of the Philadelphia Horological Society, made a long bicycle trip last month. From this city they headed for New York, stopping at points for necessary rest. They there took the Fall River boat, and thence wheeled to Boston, where they remained six days, visiting all places of historic or scenic interest. Returned to New York by train, and wheeled to Philadelphia. They are justly proud of their achievement.

Francis Pritty and Chas. A. Bonnaffon, of the wholesale firm of Pritty, Bonnaffon & Pfeiffer, have purchased the interest of Fredrick P. Pfeiffer, Jr., and the business will henceforth be conducted as heretofore under the name of Pritty & Bonnaffon.

Robert Leusch, 2113 North Front Street, says: "It is hard to give any suggestions for improvement of THE KEYSTONE, as it is the best trade paper we have to day." Some 12,000 of your brethren have the same opinion, Mr. Leusch.

On July 25th an unprotected gas jet set fire to some decorations in the bulk window of Herman Donath's jewelry store, 1420 Germantown Avenue. The blaze spread into the store and caused damage amounting to \$250 before it was extinguished. The loss is covered by insurance.

E. Bailey, in whose store at 43 South Eighth Street, improvements and alterations are being made, is temporarily located in quarters at 716 Chestnut Street. He will return to his old store when the alterations are completed.

Walter H. Podesta, of Walter H. Podesta & Co., opticians, will spend the remainder of the summer in Europe.

William J. Davis, of Simons, Brother & Co., and William G. Earle went on a yachting trip during their vacation, and feel invigorated by their short "life on the ocean wave" with its healthful ozone.

James L. Pequignot, son of L. L. Pequignot, the Chestnut Street jeweler, has entered upon a journalistic career as a member of the staff of the *Evening Bulletin*. He is a young man of many accomplishments, and was the winner of the first prize medal for elocution at the St. Joseph College commencement.

Wm. H. Long, of J. A. Caldwell & Co., president of the Jewelers' Club, has been on a vacation trip, taking in the Thousand Islands, Lake Geneva, Lake Champlain, and other resorts of scenic beauty.

William F. Engelhart and family, are occupying a cottage at Atlantic City for the summer.

Edward W. Schurmann, for nearly forty years a watchmaker and jeweler at 147 North Sixth Street, died last month. Mr. Schurmann was born in Germany in 1831, and came to this country when a young man, connecting himself with Caldwell & Co., of this city, where he remained seven years. About 1860 he started in business with an elder brother, who died in a few years, since which time Edward Schurmann conducted the business alone, working up a large trade. He was well-known and respected, and was prominently connected with the various industrial, beneficial and social organizations.

M. Zineman & Bro., opticians, formerly on South Ninth Street, have moved to more desirable and handsomely furnished quarters at 1106 Market Street. Increase in business necessitated the removal.

Items of Interest.

S. C. Morgan, formerly of Girard, Kan., is now located in Longmont, Colo.

Mr. Webster, formerly a journeyman watchmaker, has located at Dardanelle, Ark.

George H. Stinson, of Camden, Ark., died a short time ago. Mr. Stinson was one of the pioneer jewelers of the State.

"Jule" Lancaster, a watchmaker at Dardanelle, Ark., has taken charge of a bench in the store of Cotton Bros., of that place.

Jeweler Hemenway, of North Adams, Mass., was recently called to Pittsfield, Mass., by the death of his brother by drowning.

W. H. Schramm, for the past six years with E. M. Dickinson, North Adams, Mass., has accepted a position with W. F. Anteman & Son, Albany, New York.

O. E. Wilkins, formerly watchmaker for Bigelow, Kennard & Co., Boston, Mass., now represents the Hoyt Security Cash Register Co. in the New England States.

W. E. Fenstermacher, Solomon, Kan., has sold his residence, store, stock and business to G. M. and A. S. Spaulding. Mr. Fenstermacher is looking up a new location.

A recent special issue of a Somerville, Tenn., journal, contained a portrait and sketch of the life of Fred. Goosman, who has been in the jewelry business there for twenty-five years.

Jeweler T. E. Towell, of Clarksville, Ark., was married recently to Miss Archie McKinnon, daughter of Hon. A. S. McKinnon, of Dawes' Indian Commission. Best wishes.

Nelson Hagnauer, of the Eisenstadt Manufacturing Co., St. Louis, Mo., got an early start on his fall trip over Illinois and Iowa territory, leaving home July 10th with his full fall line.

E. L. Cuendet, manufacturer of the Olympia music boxes, of New York City, has opened up a branch store at Saratoga Springs, where he will carry a fine line of music boxes and art goods.

F. A. Bayliss, President Bayliss Jewelry Co., wholesale and retail dealers, Conway, Ark., was married July 10th, at Carlisle, Ark., to Miss Irba, the accomplished daughter of Mrs. Addie Young. We extend congratulations.

The Vosburgh Co., Allegan, Mich., use on their advertising matter, a cut of their high-bred little cocker spaniel, Fritz II. The cute picture of this pretty little animal of elongated blue-blood pedigree certainly attracts attention.

H. J. Whitley, of Spring Street, Los Angeles, Cal., has leased the entire building in which his present quarters are located, and in the increased space will fit up a handsome up-to-date store, with a large and carefully selected stock.

On July 28th was celebrated the marriage of Ernest E. Muller, jeweler, of Malone, New York, and Miss Sabra A. Delong. Mr. Muller is one of Malone's most popular and wide-awake young business men and Miss Delong one of the town's most highly respected young ladies. THE KEYSTONE extends congratulations.

A. P. Honer the well-known jeweler at 410 Central Avenue, Cincinnati, Ohio, has put a new front in his store, and refitted the interior with new fixtures and decorations. Mr. Honer, in view of the meeting of the Grand Army in Cincinnati in September, has just received a fine selection of Grand Army goods, also everything in the jewelry line.

The next school year of the Canadian Horological Institute, Toronto, Ont., begins September 1st, and the reputation of the school justifies the hope of an unusually large number of pupils. A handsomely illustrated catalogue, giving all necessary information as to the institution, has just been issued, and will be sent free on request to intending pupils.

On July 21st The Henneman Jewellery Store, Spartanburg, S. C., sold out their entire stock to Doctors George R. Dean, George W. Heinitch and L. J. Blake, who will increase the stock and continue the business under the firm name of The Henneman Jewelry Co. John H. Hill, who has had seven years' experience in the retail jewelry business, will be manager of the business.

Waite, Thresher & Co., Providence, R. I., have added a new line of colored glass viniagrettes to their line. Besides the regular white glass goods, this firm has imported colored glasses in four shades, hand decorated, with raised ornamentation and gilt enameling. The firm has patented these colored glasses, so that they control this special line, which is already having a very large sale.

R., L. & M. Friedlander, the Maiden Lane, N. Y., importers and jobbers, have opened a European office at 97 Hatton Garden, London, England, where all foreign communications should be addressed. R. Friedlander, of the firm, who went abroad some time back, has made extensive purchases of diamonds and other precious stones. The firm is now receiving some of these purchases.

The Williams Typewriter that we illustrate in this issue is easily a winner, even in these days of sharp competition and rivalry. Wherever one travels by land or by sea, this favorite machine has found its way. It was on the *Raleigh* at Manila; again with the Rough Riders in Cuba. Anywhere that the U. S. Navy sails or the U. S. Army camps the Williams will "bob up serenely." It commends itself not alone for its easy adjustment, its simple but perfect mechanism, visible writing, direct inking, and tabulating facilities, but also for its compactness and portability. *

The Beutell Manufacturing Co., Atlanta, Ga., manufacturers of high-grade store fixtures and commercial furniture generally, has been reorganized. W. T. Crenshaw is now president and general manager, and John M. Green is secretary and treasurer. Mr. Crenshaw is a man of varied enterprise, and is very prominent in business circles. He is local agent of the Phenix Insurance Co., of Brooklyn, N. Y., is Southern representative of the Remington Typewriter Co., of New York, and has a large office in the Lowndes Building. Formerly he represented the Fidelity and Casualty Company, of New York.

A quantity of old and broken jewelry sent by mail from Jamaica to R., L. & M. Friedlander, of New York was classified at the post office as parts of jewelry and assessed accordingly. Messrs. Friedlander claimed its free admission as bullion. Finally, accepting the representations of the firm, the jewelry was broken up by the customs officials and admitted without duty. It was stated by the collector's legal adviser, however, that the case must not be taken as a precedent. If jewelers wish to send old jewelry into this country as bullion, he said, they must see to it that the articles are broken up in such a way as to make it impossible for them to be repaired or again put into condition as jewelry; otherwise the goods will be assessed at 60 per cent. In the second place, the merchandise must be shipped in the regular way and not sent by mail, as even bullion should not go through the post office.

THE

WARWICK

6200



Our New Pattern in
Sterling Silver.

These pieces are
now ready.



Simpson, Hall, Miller & Co.

Silversmiths

Wallingford, Conn., U. S. A.

*Manufacturers of Sterling Silver and Fine Electro-Plated Ware;
also Wm. Rogers Eagle Brand of Flat Ware.*

NEW YORK CITY—36 East Fourteenth Street, Union Square.

CHICAGO, ILL.—131-137 Wabash Avenue.

MONTREAL, CANADA—1794 Notre Dame Street.

GEO. WETTSTEIN,



**G. W. 14 K. Seamless Filled
Chains and Lorgnettes.**

We have sold this make of Chains for over twenty years, and know there is no better chain made. We put our own initials **G. W.** on every swivel, not because we consider our reputation better than the manufacturer, but in order that if a chain should come back we want to give a new chain for it, and so our customer will know what jobber he bought it from.

We have adopted **G. W.** as our trade-mark, and will work hard to build up a reputation for **G. W.** goods as being of the highest standard of excellency.



THE BEST AND NICEST OF THEM ALL.

In order to prevent these popular little pins from getting into the dry goods stores, we have had this design patented. **Notice the coils in center.** It makes them stronger where all the others are weakest.

SOLD TO JEWELERS ONLY.

Price { Seamless or Sterling Silver, \$6.00 gross.
Gold, 10 K., 5.50 dozen.
LESS 6 PER CENT.

MADE OF FINEST QUALITY SEAMLESS WIRE.

Sample dozen sent to any part of United States upon receipt of 50 cents.

CEDAR RAPIDS, IOWA.

Just Received

from our MR. RICHARD FRIEDLANDER, who is now in Europe, and who for six weeks has been making extensive purchases, a large invoice of

Diamonds

comprising m \acute{e} l \acute{e} and also stones varying from $\frac{1}{2}$ to 3 carats each.

We are also having cut a large quantity of Rough, which will be ready for the market August 15th.

Memorandum Packages of Loose Diamonds or Diamond Mounted Jewelry sent to Jewelers upon request. Parties unknown to us must send New York references.

R., L. & M. FRIEDLANDER

30 Maiden Lane, NEW YORK.

97 Hatton Garden, LONDON.

Importers and Cutters of Diamonds,
Jobbers in American Watches, Jewelry.

THE QUEEN CITY SILVER CO.

MAKERS OF
**Silver-Plated
Hollow Ware**
FOR
PROGRESSIVE
JEWELERS

933 TO 941 FILLMORE ST.
CINCINNATI

Trans-Mississippi Official Souvenir Spoon.



The Omaha Exposition is now on and is bound to attract a large attendance from all parts of the country. We have the concession for the Official Souvenir Spoon, a cut of which we give herewith. It is a beautiful spoon, and we believe jewelers will find them in demand before our great show ends the first of November, next. These spoons come in two sizes—tea and coffee, with gold bowl—and are made from Sterling Silver. The following are list prices for these spoons:

TEA SIZE.		COFFEE SIZE.	
	Each.		Each.
Plain bowl,	\$1.75	Plain bowl,	\$1.25
Gilt bowl,	2.00	Gilt bowl,	1.50
All gilt,	2.25	All gilt,	1.75
Bird's-eye view,	2.25	Bird's-eye view,	1.75
Engraved building in gilt bowl,	2.50	Engraved building in gilt bowl,	2.00
Engraved building, all gilt,	3.00	Engraved building, all gilt,	2.25

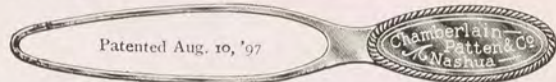
WRITE US FOR DISCOUNTS.

Geo. W. Ryan & Co., 109 South Sixteenth Street, OMAHA, NEB.

GLOVE BUTTONER SOUVENIR for advertising.

Never thrown away.

To be given to customers.
Help you sell jewel glove buttons.



As cheap as good printing and more effective.

Name and address on one or both sides.

Any short adv. on the other.

Made of steel in one piece, nickel-plated.



STAPLE AND STRICTLY RELIABLE

Clark's Celebrated Loop Watch Keys.

Bicycle Sundries, Manicures, Tweezers, Key Rings, etc.

Send for samples and prices.

A. N. Clark & Son
Plainville, Conn.

New Goods

Now is the time for manufacturing jewelers to add NEW SAMPLES to their LINE for Fall trade.

Our new production of

HAT PIN ORNAMENTS

are of entirely NEW ORIGIN.

FANCY WIRES, TUBE SETTINGS, CONTINUOUS SETTING, STRIP STOCK and PATENT CLUSTER SETTINGS are always in demand.

Send for samples and see what we make.

PIN-STEMS CUT AND POINTED TO ORDER.

HEIMBERGER & LIND

Manufacturers of Jewelers' Findings,

158 Pine St., PROVIDENCE, R. I.

To the Jobbing Trade Only

THE BEST IS THE CHEAPEST.

Buy the **Genuine Gold Tipped Waltham Resilient Mainsprings**. Every Spring is guaranteed. The tips and braces are made of a composition metal that will not rust and which is more tenacious than soft steel.

Sole Agents, **HENRY ZIMMERN & CO.,**

Importers of Watchmakers' and Jewelers' Supplies.

47 Maiden Lane, NEW YORK.

Sole Agents for the Celebrated

U. S. American Mainsprings and Ajax Insulators.



We have the sole agency for the celebrated

Fleming's Patent Corrugated Case Springs

Made of the best steel and easy to fit. A trial will convince you.

Geneva Optical Company

Announcement!

We beg to advise our customers and the trade generally that we are now located in new quarters, much larger and more convenient than heretofore, in the larger salesroom just across the hall from our former location. The move was made necessary by the demands of our constantly increasing business and the desire upon our part to have our factory and salesroom on the same floor, so that we might serve our customers more promptly and more effectively. In our new quarters we have increased our floor space one-third, giving us ample room; we have better light, better arrangement and display of our goods, and in every way we now have first-class, modern facilities for the prompt handling of everything in our line.

We congratulate ourselves upon the fact that we are now better than ever prepared to take care of new trade, which we respectfully solicit. We also wish to take this occasion to thank our friends and customers for their liberal patronage in the past and to assure them that we will constantly strive to merit their continued favors.

63 & 65 Washington Street, **Chicago**

OPTICAL DEPARTMENT

Reviews of Current American and English Ophthalmological Literature.

The Normal and Abnormal Positions of the Vertical Meridians of the Retina.

Within the last year considerable attention has been paid to the position of the retinal meridians of the human eye. This is quite in agreement with the development of this branch of ophthalmology; for the movements of the eyes may be analyzed according to three axes, as has been done in the works of physiology. These three axes are: first, the vertical one, which determines the outward and inward movements of the eyeball (abduction and adduction); second, the horizontal axis around which rotations upwards and downwards occur, and, third, the antero-posterior axis, the movements around which are called torsions. With regard to the abnormal conditions of binocular vision, we therefore distinguish those in reference to the vertical axis, called *eso-* and *exo-phoria*; those referring to the horizontal axis, called *hyper-* and *hypo-phoria*; and, finally, those related to the antero-posterior axis. The former two classes have been studied for a good many years, while the third class is just being studied. There is no recognized name as yet for the abnormal tendencies around the antero-posterior axis of the eye, but a good name, in agreement with the demands of philology, would be *cyclophoria* for the tendency to, and *cyclotropia* for the expressed condition of an inclination of the vertical meridians to each other. The word is already used by some authors. The *cyclophoria* might then be further determined by the words *right* or *left*, and *nasal* or *temporal*, according to whether the right or left vertical meridian was inclined with its *upper* end towards the nose or towards the temple; so that, for example, a *right temporal cyclophoria* would indicate a tendency to a declination of the vertical meridian of the right eye to the temporal side.*

Dr. G. T. Stevens, of New York, who has done so much for the study of the different phorias before, is also foremost in the study of the abnormal inclination of the vertical retinal meridians. He invented for that purpose his clinoscope, a full description of which has been given in *THE KEYSTONE*, September, 1897. With this he can quickly and easily determine the presence of any leaning of the vertical meridians, either through disease or through physiological causes. He says that the easy and certain detection of such leaning has enabled him to discover the essential element in many cases which were otherwise obscure and troublesome functional disturbances of the eyes and to find a remedy. He then continues as follows (*Ophthalmic Record*, May, 1898):

It is the class of cases of leaning from physiological causes which appears to me to be of by far the greatest interest, and I find that the number of such in which the adjustment of the eye muscles is such as to deflect the vertical meridian materially toward one side or the other, thus causing an excessive demand upon the torsional muscles, is much larger than I had expected.

The subject then passes beyond the domain of merely physiological research, to which it seemed to belong, and becomes one of much practical importance.

*One might be tempted to form a word *clinophoria* in analogy with Stevens' word *clinoscope*. But such a word, though correct philologically, would have a different meaning, because *clino*, from the Greek *kline*, can only mean *bed*, but not *inclination*. The word *clinoscope*, therefore, would not seem to be very expressive, as it can only signify an instrument for viewing and examining a *bed*, which, of course is not meant by its author. The Greek word for inclination is *klima* or *klinis*, and either of these might have been used. *Cyclophoria*, however, is derived from *kyklos*, meaning a circle or wheel, and is, therefore, quite expressive for a tendency of the eye to rotate like a wheel.

Recognizing this, I became interested in the search for methods of examination which might become general.

The clinoscope is doubtless more perfectly adapted for these examinations than any other form of instrument which we are likely to possess; but it is an instrument which requires space, and which, since several later improvements have been added to it, has become somewhat expensive.

So far as my search has extended, I do not think that any substitute which I am about to describe can take the place of the tubular clinoscope first described and since improved. But at least one of the devices, which I shall presently mention, may be of material service to those who would prefer the use of a simple and comparatively inexpensive instrument to using none at all.

My first experiments in this direction were commenced in September last with a pair of disks, each containing a series of glass rods, such as was suggested by Dr. Aiken as a modification of the Maddox rod.

The result was an instrument very interesting, but not very satisfactory. The disks are placed in a frame like the trial frame of the Nachet trial case. It is designed to hang upon the slide of the phorometer, the prisms of which, when placed with their bases in, serve to separate the images seen through the series of rods. A milled head with cogs rotates each disk, and a scale and pointer indicate the extent of rotation. (See Fig. 1.)

The instrument being hung upon the phorometer slide, and the arm of the phorometer being brought to the horizontal position, the image of the candle flame at the other side of the room is seen as two long streaks of light. The disks are rotated until the streaks are as nearly as possible vertical, and therefore parallel. I have said "as nearly as possible vertical and parallel," for these lines are always curved, and this curvature renders it difficult to determine when they would otherwise be parallel and vertical. A still more important disadvantage is found in the changes in the directions of the lines due to the position of each eye in regard to one of the rods. If, for example, one eye looks through the lower border of a rod and the other through the upper border of another, the position of the lines is quite different from what it would be if both eyes were looking through corresponding parts of two rods in the same horizontal plane. In order to eliminate some of the difficulties, I had small plates of glass cut with a series of prisms, fifteen prisms extending from one side to the other of a plate three-quarters of an inch square, and substituted these plates for the series of rods.

The bending of the streaks of light was somewhat less, but the variations in the positions of the lines were not overcome.

After I had experimented with this instrument for some time, I learned that Doctor E. P. Brewer had had one constructed on the principle of using the double series of rods but with quite different mechanism from that described, and that his instrument antedates my own. I have not seen a description of the Doctor Brewer's device, and do not know whether he has overcome the difficulties which I have encountered. For the purpose of exercising the torsional muscles, this instrument may be used without the prisms of the phorometer. The two lines then unite, and by rotating the disks the effort to hold them in union is drawn forth. Two such disks held in the hands will, however, serve an equally good purpose.

The second device which I have made appears to be more successful, and it is possible that with some slight modifications it may prove a very satisfactory instrument.

It consists of two oculars, made each in the form of the ocular of the tropometer. Each consists of a magnifying system with a concave and convex lens, and of a glass screen on which is drawn one part of a haploscopic diagram. When seen with the two eyes these parts of the diagram unite, as in case of the stereoscope. The lens system can be focused on the diagram so that the latter may be clearly seen by persons with different refractions.

These two oculars are fitted to a frame which is to be placed on the arm of the phorometer (not on the slide). An endless screw causes them to approach or to recede from each other, thus adjusting the two small openings to the pupillary distance of the observer. (See Fig. 2.)

The glass on which the diagram is drawn rotates by means of a cog-wheel, and a pointer indicates, on a scale above, the declination of the diagram.

The necessity of seeing through the two small openings at the same time insures a level for the two eyes, and the strong magnifying property of the oculars makes the lines of the diagram appear of a length which enables the person examined to determine with ease when the lines appear vertical.

There is, in using the instrument, neither convergence nor accommodation demanded, and there would seem to be no theoretical reason why there should be a leaning of the lines so long as the line of vision passes through the exact center of the lens. Of course, if the line of sight does not correspond with the axis of the lens system, a declination of the image will be induced.

In using the instrument myself I find a perfect uniformity of results and a correspondence with the results by the clinoscope. Many of my patients also find the same results. There is, however, a certain small proportion,

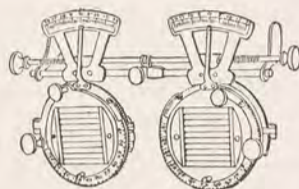


FIG. 1.

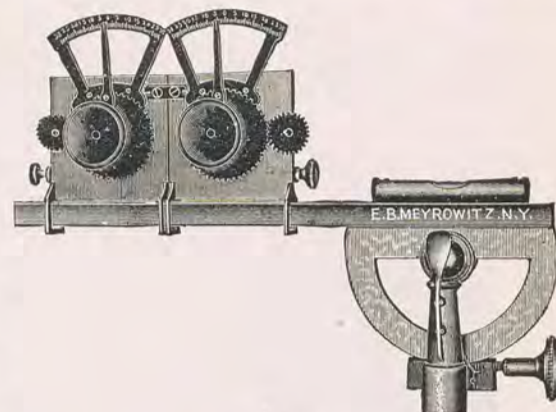


FIG. 2.

who, although they reach uniform results with the clinoscope, do not do so with this, which I may call the *lens clinoscope*. In a new model, now in process of construction, I am endeavoring, with a reasonable hope of success, to remove this difficulty, which probably arises from a false direction of the line of sight.

With slight modification the instrument constitutes a beautifully compact stereoscope, in which pictures of less than one-fourth of an inch in diameter appear of the usual size employed for stereoscopic figures. The two images blend without the aid of a prism, such as is necessary in the ordinary form of stereoscope.

In the foregoing lines Dr. Stevens refers to the work of Dr. E. P. Brewer, of Norwich, Conn., and mentions an instrument of this gentleman which the latter describes in the same number of the *Ophthalmic Record* as follows:

After extended observations, I have devised an instrument which, with nearly two years' use, has proven of such value and interest that I have decided to place it before the profession. My instrument—the torsionmeter (Fig. 3)—offers a ready and accurate means of determining the positions of the vertical and horizontal meridians while the eye is at rest, and of measuring the torsional power of the eyes.

It consists of a plate containing two groups of Maddox rods mounted on a projecting arm of a tripod stand, the various parts of the stand and arm being adjustable. Each group of rods is secured to a rotating disk, which is moved by an endless screw. Attached to the disk is a pointer registering the rotary movements of the disk. Adopting the excellent nomenclature of Dr. Geo. T. Stevens, the movement of the pointer from the center is termed the *plus*

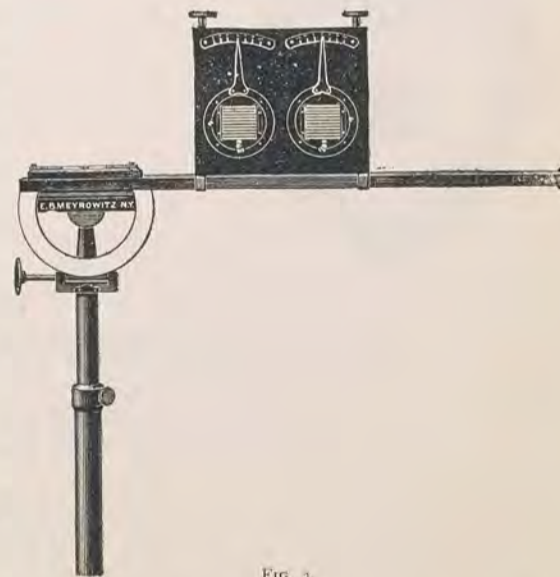


FIG. 3.

torsion, and toward the center the *minus* torsion. The groups of rods may be rapidly changed from the vertical to the horizontal position without disturbing the pointer, so that when the rods are either exactly vertical or horizontal the pointer is always at 0. On the reverse side are clips to hold prisms or other lenses. To measure the position of the apparent vertical meridians while the eyes are at rest, the patient is placed in a room with a candle ten or twenty feet away, as may be more convenient, and with no

(Continued on page 627.)

A Competent Ophthalmologist

is something more than an oculist or an optician, because he understands the fundamental principles of his business.

He knows how to form a good opinion of the nature of the error of refraction from the external symptoms and the patient's story, before beginning the test.

He understands the nervous and muscular systems, and how to calculate the amount of strain upon them in normal and abnormal conditions, and can tell by his tests of those systems exactly how much damage has been done by any error of refraction.

He knows muscles are merely the mediums through which nerve force is applied, and hence looks deeper than

others for the cause of muscular difficulties and effects cures by removing the causes of trouble.

He uses the ophthalmoscope for the rational purpose of discovering conditions of the interior of the eye and thus assists himself to diagnose organic diseases and functional disorders.

He uses other instruments as auxiliaries to the trial lenses, for the purpose of saving time and keeping up with the progress of ophthalmic science.

He believes in subjective tests as generally best, but accords recognition to the objective tests.

He joins optical societies and studies.

He is not afraid to be quizzed.

He believes in advertising honestly, and paying the printer, instead of seeking free advertising according to a silly code of ethics.

He believes in knowing his business so well that instead of "looking wise and saying nothing" he inspires confidence in his patients by telling them all about their errors and the effects his correction will have, thus securing the aid which implicitly following his directions is sure to bring.

OUR GRADUATES ARE OPHTHALMOLOGISTS.

McCormick Optical College, (Incorporated,) 84 Adams St., Chicago.



CAMERAS From \$2.50 to \$50.00.

Also Plates, Papers, Developers; in fact, everything required to make and finish photographs complete. The best goods at manufacturers' prices. Send for catalogue.

We are manufacturers, importers and trade agents, AND SUPPLY DEALERS AT LOWEST RATES.

WHOLESALE ONLY.

JAS. H. SMITH & CO.,
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Chicago College of Optics

Skill in his profession resulting from knowledge and practical experience are the sure cards to success for the optician. They make his work a pleasure. We offer, in

Our New Correspondence Courses,

the simplest, most complete and most scientific method of becoming a skillful operator. Do not be deceived by high sounding names and flourishes.

1. A Shorter Course (for experienced opticians).
2. A Practical Course (for beginners).
3. A Professional Course (for physicians).
4. An Advanced Course (for oculists).

WRITE FOR PROSPECTUS.

DR. G. A. ROGERS,

215 Dearborn St., Chicago, Ill.

PRESIDENT.



THE EYES HAVE IT

By a very large majority our ARTIFICIAL EYES have the market. Why not?

\$2.00 each; \$15.00 per doz.

GEO. MAYER & CO.,
134 SOUTH EIGHTH ST.,
PHILADELPHIA, PA.



The New Koenen Case for OFFSET Eye-Glasses.

Made of the same material, STEEL and ALUMINUM, as the Shell Case, which has gained such favor among the opticians and their patrons. It is COMPACT, HANDY and DURABLE, offering a perfect protection to the eye-glass.

Manufactured by
A. KOENEN & BRO.,
81 NASSAU STREET, NEW YORK
Sold by Jobbing Trade.

Patent applied for.



We make a specialty of Prescription Orders, consequently we handle or make everything asked for. Don't you think it will pay you to deal with such a house?

Our prices are low.

JOHNSTON OPTICAL CO., Prescription Opticians,
DETROIT, MICH.

INTERESTING TO ALL OPTICIANS

Have you been seeking for something that you could conscientiously recommend to your patients to be used in all local inflammation of the eyes?

We believe you have, and we think we can aid you. After four years of close application and experiment to produce a reliable, soluble and antiseptic tablet, with pronounced curative powers, MR. H. M. GOODHUE now offers through us to the world a remedy that is strongly recommended by the leading eye specialists in this country, and which is meeting with the most enthusiastic endorsement of the leading opticians and the public in general.

In Catarrhal Conjunctivitis, (Pink Eye) such as our circular describes, we recommend it as a positive cure.

There are ten tablets in every vial, and they retail at 50 cents per vial.

Five times as much "eye drops" can be made from these ten tablets as are usually sold for 50 cents, and the drops produced are always fresh, pleasant to use, and a pleasure to recommend. They are strongly endorsed by Edwin E. Calder, A. M., Professor of Chemistry in Boston University, whose testimonial we will be pleased to mail you upon application, as well as name special prices to dealers.

Should you be interested, we will supply you with liberal advertising matter with your name printed thereon.

GOODHUE'S EYE TABLETS make friends wherever sold.

They come packed in an attractive stand, containing one dozen vials, and will prove a great money-maker.

For Sale by Jobbers.

H. M. GOODHUE,
SOLE PROPRIETOR.

THE SHEPARD COMPANY, AGENTS U. S. A.,
PROVIDENCE, R. I.



The Optician's Manual.

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

The first ten chapters of "The Optician's Manual," as published in THE KEYSTONE from May, 1896, to November, 1896, in the order mentioned hereunder, have been republished in book form with additional matter, illustrations and colored plates. A copy of the book will be sent, prepaid, from this office on receipt of \$2.00.

CHAPTER I.	—INTRODUCTORY REMARKS.
CHAPTER II.	—THE EYE ANATOMICALLY.
CHAPTER III.	—THE EYE OPTICALLY; OR, THE PHYSIOLOGY OF VISION.
CHAPTER IV.	—OPTICS.
CHAPTER V.	—LENSES.
CHAPTER VI.	—NUMBERING OF LENSES.
CHAPTER VII.	—THE USE AND VALUE OF GLASSES.
CHAPTER VIII.	—DEFECTS REQUIRED.
CHAPTER IX.	—METHOD OF EXAMINATION.
CHAPTER X.	—PRESBYOPIA.
CHAPTER XI.	—HYPERMETROPIA.

CHAPTER XII. (Continued.)

MYOPIA.

2. Emmetropia was comparatively rare, but the percentage of those eyes which most nearly approached this condition remained almost uniform throughout school life.

3. Myopia was entirely absent, or very rare, before the commencement of school life, and was found to increase steadily in percentage with the progress of the pupils in the schools, while the percentage of hypermetropia diminished in approximately the same degree. Not only does the number of myopic scholars increase from the lowest to the highest schools, but the increase is in direct proportion to the length of time devoted to the strain of school life.

We can not burden this chapter with the statistics compiled by the various European and American observers, but as Prof. Cohn's work was the most extensive and most notable, and stands as the representative of all the others, we give his figures as follows:

Primary schools,	-	1.4	per cent. of myopia.
Elementary schools,	-	6.7	" "
Intermediate schools,	-	10.3	" "
High schools,	-	19.7	" "
Gymnasias,	-	26.2	" "
Universities,	-	59.5	" "

The fact that in the universities fifty-nine students out of every hundred are myopic is an appalling one, and when contrasted with the small percentage in the primary schools (only one out of every hundred), there is certainly abundant food for the most serious thought, which appeals however more to those engaged in the education of children, than to us as opticians.

GENESIS OF MYOPIA.

The manner in which abnormal circumstances act in causing an elongation of the axis of the eye, which is the physical condition present in myopia, has been well described by Fenner in the following graphic words:

"As a nation or community becomes wealthy, refined and elevated in social position, the inhabitants are more inclined to cultivate the intellectual faculties; hence they spend much time in close study, requiring a great and prolonged tension of accommodation in reading, writing, etc. They usually sit bending over a desk in a stooping position, the abdominal organs are compressed, preventing the free return of the blood from the head.

"The insufficient illumination at many schools and colleges necessitates the bringing of the eyes very near the book, so as to obtain a larger visual angle, and as the book usually rests on a desk or table, the head has to be bent over; this posture produces an increased flow of blood to the eyes, whilst the higher degree of convergence necessary causes an increased pressure of the lateral recti muscles on the equator of the globe, thus increasing the intra-ocular pressure.

"The congestion of the fundus oculi causes softening of the scleral tissue, which gives way under the increased pressure, and the organ is elongated backward (a condition of posterior staphyloma); the other portions of the sclerotic coat are supported by the broad muscles. The retina is then pushed backwards behind the focus of the dioptric apparatus.

"When this condition once commences, all the causes which first gave rise to it, act with in-

creased force. There is a greater stooping posture necessary, because the eyes have to be brought still nearer the object; an increased convergence is demanded, and the congestion of the fundus oculi increases; consequently the softening processes progressively augment, causing the posterior portion of the sclerotic to yield more and more. Hence myopia is usually progressive, particularly in its higher grades.

"There is greater tendency to the development of this condition of the eye in youth from the causes above mentioned, because then the scleral tissues are softer and consequently more yielding than in later life. With the increase of age this coat hardens, becomes firmer and better able to withstand intra-ocular pressure; hence it is rare that the posterior staphyloma giving rise to near-sightedness commences after the twentieth year."

WHY CHILDREN ARE MORE PRONE TO MYOPIA.

From the foregoing statements that the development of myopia depends upon a daily and continuous use of the eyes upon small objects close at hand, accompanied by strong convergence and with the patient in a stooping posture, it might naturally be expected to find this error of refraction of frequent occurrence among tailors, seamstresses, embroiderers and lace makers, and all artisans whose trades require accurate near-vision.

But the fact is myopia is much more rare among these people, than in the wealthier and more intellectual classes. This apparent paradox can be explained as follows: these working people do not engage in their occupations until they are of adult size, when the tissues of the sclerotic and the other coats of the eye have become sufficiently firm to resist the disturbing influences which their work engenders. While in the case of the higher classes, the eyes are exposed to the dangers of myopia at the tender age at which these children are usually placed at school.

In addition to the difference in the ages of these two sets of people, there is probably another factor that is brought into action, and that is the well-known fact that when the mind is actively engaged in study, an increased quantity of blood flows through the brain, causing a temporary congestion, which is shared by the eye on account of its proximity, thus adding to the previous plethora of the fundus of this organ.

ANATOMICAL CHANGES IN THE FUNDUS OF THE MYOPIC EYE.

In view of what has been said, that myopia means staphyloma and that the degree of myopia corresponds to the amount of extension of the fundus, it follows that myopia and posterior staphyloma are almost synonymous terms, and it is evident that the *myopic eye is essentially a diseased eye*, more so than any other error of refraction. The invention of the ophthalmoscope places in our hands the means of observing the changes taking place in the fundus of the eye upon which the production of myopia depends, and of noting the progress of the morbid processes.

The extension of the globe of the eye is at the expense of the sclerotic coat, which grows thinner and thinner, until in high degrees of myopia it becomes transparent, and sometimes when the eye is turned inwards, the dark pigment of the choroid becomes visible through it. As the property of the dense and firm sclerotic coat is to give the eye its form and to support its interior structure, it naturally follows if this protecting coat be stretched at any part, the contents of the eye-ball lying adjacent to this will suffer a corresponding change in position.

Thus it happens that the choroid coat also becomes extended and atrophied, particularly on the outside of the optic disc, as well as in the region of the yellow spot.

THE MYOPIC CRESCENT.

The choroid attains its greatest thinness around the outer edge of the optic disc, where it forms a white, shining concentric disc, resembling a meniscus in shape. The dark pigment cells are obliterated, the small capillary blood-vessels no longer carry the red blood, and there remains the marble-white, crescent-shaped patch of atrophy.

If the distension extends entirely around the disc, the atrophic portion becomes annular in shape.

The ophthalmoscope admits of careful observation of these changes. Some remains of pigment are often seen about the convex border of the crescent. Although the atrophy usually assumes the crescentic form, yet it may vary, sometimes forming a complete ring around the disc as already stated, or extending outwards in an irregular patch. This increase in atrophic surface around the optic nerve, enlarges the size of the normal blind spot.

The presence of the crescent just described depends largely upon the degree of myopia; in slight cases in young persons it may be entirely absent, but in cases of 6. D. and over, in adult persons it is almost invariably present.

The position of the yellow spot may also be changed; it approaches the posterior pole of the eye-ball until the visual line almost corresponds with the optic axis. In very high degrees of the defect, it may even pass to the inside of the axis of the ball.

HEREDITY.

Myopia is regarded as an hereditary disease, and there is a universal popular impression that the defect is handed down from parent to child. When a myopic patient is questioned, he can usually name some other members of his family as being similarly affected, perhaps a parent or grandparent, an uncle or aunt, a brother or sister.

But there are many difficulties that stand in the way of a thorough investigation of hereditary influence, and perhaps all that can be claimed is that a *predisposition to myopia* is often transmitted to posterity, and not the disease itself. So that it may be regarded as an established fact that myopia rarely develops in an emmetropic eye, and never in a hypermetropic eye, without a predisposition to it derived from ancestors.

PREVENTIVE MEASURES.

Whatever an ounce of prevention may be to other members of the body, it certainly is worth many pounds of cure to the eye. This delicate organ will stand a great deal of use, and not a little abuse, but when once thrown off its balance, it very rarely can be brought back to its original perfection of action, and it becomes liable ever after to a return of disability of function.

On this account and from the fact that modern civilization has imposed upon the eye an ever-increasing amount of strain, one might suppose that the greatest precautions would be observed to maintain the organ in a condition of health. And yet it is safe to say that there is no organ in the body, the welfare of which is so persistently neglected as the eye.

It is not uncommon, and certainly not improper, to have the first teeth of children four and five years of age, filled instead of extracted; while the eye, the most intellectual, the most apprehensive, and the most discriminating of all our organs, receives scarcely a passing thought, much less an examination.

HOW THE CHILD SUFFERS.

It seems never to occur to parents that the principal agent in acquiring an education is the eye. The child is placed in school without the slightest inquiry on the part of either parent or teacher, as to whether it has the normal amount of sight, whether it be near-sighted or far-sighted, whether vision is clear or blurred, whether it sees with one eye or two eyes, or whether the act of vision is accomplished at the expense of an unnatural strain upon the nervous system.

It has been truthfully said, and cannot be repeated too often, that "a near-sighted eye is a sick eye," and it not infrequently happens that a near-sighted child is a sick child, the reason for which is as follows: a myopic boy is unable to successfully compete with his school-mates in their usual games, for the reason that most of them lie beyond the range of his vision. Subjected to ridicule on the part of his companions for clumsiness and inaptitude, due to a defect of which neither he nor they are aware, he relinquishes in disgust one by one of the health-giving sports in which he can never hope to excel, and takes to books until reading becomes a passion.

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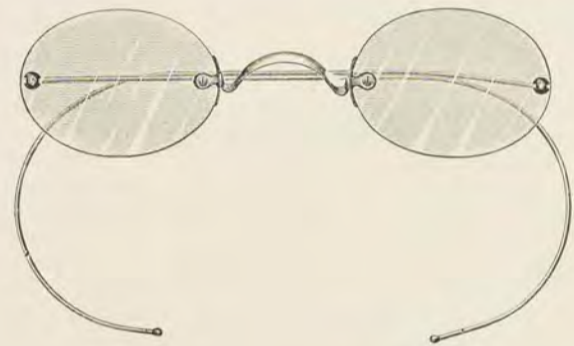
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Respectfully yours,
(Signed) D. G. GALLET, Graduate Optician.

Fort Madison, Iowa, Feb. 7, 1898.
THE MURINE CO., Masonic Temple, Chicago.
Dear Sirs: Some time since I sent you an order for Murine, and as the results are satisfactory, I shall continue its use.
Respectfully yours,
(Signed) J. EDISON, M. D.

Pikeville, Ky., March 15, 1898.
THE MURINE CO., Chicago.
Find enclosed order for six doz. Murine with money order for same. Send via Adams Express. I have now had opportunities for testing the merits of Murine and find it does its work so promptly and satisfactorily that I shall continue to sell and recommend it as a safe and reliable eye remedy.
J. H. RUTTROFF, Graduate Optician.

Junction City, Kansas, March 7, 1898.
THE MURINE CO., Chicago Ill.
Gentlemen: In great haste I order two dozen bottles Murine, same as ordered Feb. 7th. I am entirely out of Murine, and the demand is awful. I will not run out again.
Yours truly,
REINHOLD STARCKE, Optician.

Salem, Oregon, May 16, 1898.
MURINE COMPANY, Chicago.
Yours received. Enclosed find draft in full for last two bills. Send me one gross Murine by freight; also three electrotypes so I can advertise Murine with my optical and jewelry business. I am now curing a man who has had sore eyes for ten years. Murine is the people's eye remedy.
JOHN G. BARR,
Optician and Jeweler, 118 State St.

Chicago, Ill., May 20, 1898.
THE MURINE CO., City.
Gentlemen: I have been troubled for the past twenty years with granulated and inflamed eyelids. Have consulted leading eye specialists, and tried different remedies, finding no relief. Your Murine was recommended to me; used one bottle and was immediately relieved. Am now on my second bottle, which I think will be all that is necessary to effect a permanent cure.
I cheerfully indorse Murine Eye Cure for all eye troubles.
Respectfully yours,
WILLIAM CRUM, 623 Fulton Street.

Bessemer, Mich., Feb. 17, 1898.
THE MURINE CO., Masonic Temple, Chicago.
The Murine is a good remedy. I have had the opportunity to try it often, and am now using it in a case where the eye was struck by a piece of wood (in chopping wood) cutting the conjunctiva. The eye was very sore and bleeding, and highly inflamed and swollen, but after only a few drops of Murine had been applied the eye began to be better, and is now healing nicely. I will not be without the remedy in my practice.
Yours very truly,
A. L. NORRBERG, Optician.

Taylorsville, N. C., July 12th.
MURINE COMPANY, Chicago, Ill.
Gentlemen: Please send me by express two dozen Murine. After a thorough test I have found Murine to do all you claim for it; it is the only eye remedy I have ever seen that you can see the good effects from the first application. In my experience it has never failed to cure.
Yours truly,
DR. W. P. HEDRICK, Optician.

The Murine Company, Masonic Temple,
CHICAGO.

The Normal and Abnormal Positions of the Vertical Meridians of the Retina.

(Continued from page 623.)

other source of light in front of the patient. If considerable ametropia exists, it should be duly corrected. The torsionmeter is placed in front of the patient so that a series of horizontal rods is in front of each eye. The eyes are then disassociated by placing a nine-degree prism in one of the clips, base inward. Two long upright bands of light are visible to the patient, which are exactly plumb and parallel if the eyes are normal in balance and the pointers are at *O*. It is well to study the lines separately, attention being first directed to the right line, and if not erect, the thumb-screw moving the rods should be turned in a direction to secure an erect effect. The left line should be likewise adjusted to appear erect. The lines may be then compared and corrected by the intervening space, and any difference in the width of the space top and bottom corrected. If when so adjusted the pointers are at *O*, the balance is normal, and the apparent vertical meridians will register. If torsion exists, it will be recorded in degrees of arc, on the scale. Control measurements may be made by turning one set of rods to an upright position, thus securing a horizontal bar of light which, in the absence of torsion, is at right angle to the vertical line when the pointers are at *O*. The methods may be again varied by placing both bars of light in the horizontal position and, after disassociating them by a suitable prism, adjusted each in turn to an exact horizontal position and parallel. In every position the pointer will be at *O* if the "longitudinal meridians" are parallel, the latter being always at right angle to the apparent vertical meridians.

We may next measure the torsional power of the eyes. For this purpose the rods are turned to a horizontal position and a vertical bar of light secured. No prism is used and the pointers are at *O*. The thumb-screw of the right disk is revolved to turn the pointer outward, or plus. This movement is continued until the lines slightly separate at the very top—Fig. 4 (which is the case in orthophoria); the motion is then reversed and the lines just united so that a reversal of the motion will throw them apart if it amounts to 1°. The pointer will then



FIG. 4. FIG. 5.

record what is called the plus torsion of the right eye, and betrays the limit to follow in concert with its fellow a line moving outward from the center at the top and inward toward the center at the bottom, the direction of the line being upwards and outwards. The right disk is then rotated inward until two lines are seen at the bottom (Fig. 5), when the motion must be reversed and a single line secured, the direction of the line being upwards and inward. The greatest rotation compatible with the maintenance of a single line indicates the minus torsional power. Placing the right pointer at *O*, the left eye may be tested in the same manner. In measuring the right eye the pointer of the left is maintained at *O*, and in measuring the left the right pointer is at *O*. Turning the rods to an erect position, the resulting horizontal bar of light may be utilized in the same manner to measure the horizontal torsional power.

The vertical torsional power varies greatly. The highest torsion yet observed is plus 26°, and minus 10°. In each of the cases there was a general disturbance in the muscular balance. In eyes with inconsiderable errors, refractive or accommodative, I find the plus torsion about 5° and the minus 3°. The horizontal torsion is about 2° plus, and 1° minus. It may be reduced or absent, but it is seldom increased.

The distance of the source of light is quite immaterial as far as effecting the torsional error, for in thousands of examinations I have never detected the slightest difference in the torsional error, whether measured at one foot, or at twenty feet. It is important, however, to secure a very narrow and distinct bar of light, and unless the Maddox rods are quite small, the source of light must be at a distance. In cases with a material reduction of visual acuity, the distant source of light must be reduced for obvious reasons.

All muscular errors seriously disturb the torsional power, and some the parallelism of the retinal meridians. In hyperphoria, especially of two or more degrees, the vertical meridians are tilted outward, the direction being upwards and outwards. The degree of the plus torsional defect may be but one or two degrees or seventeen degrees, as I have seen in one case, but in every case, even of only 1° hyperphoria, the minus torsional power is reduced. It is not unusual to find only 1° of minus torsional power, and in scores of cases I have found it entirely absent, the vertical meridians scarcely registering. In most cases there is a marked increase in the plus torsional power, especially if associated with esophoria, but this is not so constant as the reduction in the minus torsion.

In cases of esophoria of 7° or more, the meridional parallelism is commonly disturbed and associated, as far as my observations now go, with plus errors. In simple exophoria the meridional parallelism is less frequently disturbed, and then more frequently upward and inward (minus), but the variation is commonly inconsiderable, seldom exceeding 2°. I have not yet seen a minus vertical error unassociated with exophoria. In cases of hyperexophoria the meridional parallelism may be either minus or plus, generally the latter, for the tendency of all cases of hyper-

phoria is to plus errors, and its influence may dominate; yet in all cases the minus torsional powers will be well preserved, and may surpass the normal. If more extended study shall establish these observations, we have a therapeutic hint of no small value.

We have given a great deal of space to this subject in order to enable our readers to understand this latest phase in the development of this branch of ophthalmology. The reviewer is convinced that many of the conclusions, just given by the two authors, will be materially modified not only by larger experience but also by a better understanding of the meaning of the observed facts. Many of the premises from which these writers start would seem to be untenable. Let us take, for example, the first sentences of Dr. Brewer's article (*loco citato*). He says: "Operative binocular vision is obtained only when the image is pictured on identical points of the retina. To realize this, not only must the point of fixation be the same, but the meridians must exactly register. The normal position of the so-called 'apparent vertical meridians' (Helmholtz) is nearly vertical and always parallel." Now this is not correct. In ordinary binocular vision, as is well shown by Le Conte, the images necessarily must fall on non-identical points of the two retinæ in order to produce a stereoscopic effect; and, further, the normal position of the apparent vertical meridians need not always be parallel, as may be proved by the two great physiologists, Helmholtz and Volkman, whose two vertical retinal meridians were inclined temporally, but whose visual power and endurance was extraordinary.

But even admitting the pathological significance of such a declination (cyclophoria), would we have to resort to complicated tenotomies to give relief to the patients? Dr. G. T. Stevens, indeed, is an extreme advocate of such operative measures; but the reviewer believes that it would be much wiser to try exercise of the ocular muscles, such as might be performed with Dr. Brewer's torsionmeter, or with a little instrument of Helmholtz, invented, more than thirty years ago. ("Helmh. Physiol. Optics.") However that may be, we advise our readers to first get acquainted with the facts, as may be done by putting into the trial-frame two high cylinders (+ 20. D. each), axis horizontal, and a ten-degree prism, base in, in front of one eye. Then by looking at a point of light they will observe two vertical bright lines, which they can now study and experiment with as indicated in the article by Dr. Brewer.

Optical History.

ED. OPTICAL DEPARTMENT.

Dear Sir:—An article in your valued journal of June, 1898, p. 467, lecture by Geo. Lindsay Johnson, M. A., M. D., F. R. C. S., induces me to write a few words in regard to some errors in the same, which, I think, should not be allowed to get footing in the history of optic science.

It is not the intention to claim a knowledge superior to that of the estimable Dr. Johnson, but merely my good luck to have run across a few proven facts, which induces me to write these lines.

Johann Baptista Porta (1538-1615), although he describes in his "Magia Naturalis" the camera and the beautiful effect produced with the same, does not claim the inventorship of it. The first one who described it, so far as is known at this time, was Leonardo da Vinci (1452-1519). See J. B. Venturi, "Essai sur les Ouvrages Physica—Mathematiques de Leonard de Vinci, etc." (1797). In the year 1521, two years after Leonardo's death and seventeen years before Porta's birth, Cesare Casariano, in Como, published an Italian translation of the Latin work of Vetrivisio. This work contains, on page 306, a complete description of the camera obscura, and refers to a monk, Don Papnuto, as the constructor. If he, or Leonardo da Vinci, or either of them, is the real inventor cannot be proven. See Mauthner, "Die Optischen Fehler des Auges."

In regard to the invention of the ophthalmoscope by Chas. Babbage, in the year 1847. It seems that the brain of the great mathematician and mechanic, Chas. Babbage, would at once have grasped the idea of the importance of such an invention. It might be that he has seen the red reflex of the fundus, as many have observed without the use of a reflector, but as far as we know, has nobody before v. Helmholtz (1851) explained the red appearance of the pupil and constructed an instrument to explore the internal eye? I hope to herewith induce a further study of this question.

It is also wrong to credit one Fitzgerald, of Dublin (1880), as the first who practiced retinoscopy. Jackson, in his "Sciascopy," tells us that in 1873 Cuignet published a full account of the test as a method of diagnosis of refrac-

tion; and before the publication of Jackson's book, Dimmer, in his "Die Ophthalmoscopische Diagnostik," tells us the same. In Germany this method is sometimes called "Cuignet's method." Let us bestow the honor of an invention always upon him who discovers it rightfully.

J. F. E. WEILAND, Fremont, Neb.

We are very glad that our esteemed correspondent calls our attention to these points, which, in one case, namely, that of skiascopy, had escaped our notice. It is true that Leonardo da Vinci described the camera before Porta, and that Don Papnuto antedated even Leonardo da Vinci. Although this circumstance does not prove that Leonardo or Porta did not reinvent the camera (and, indeed, Helmholtz, in his "Phys. Optik," p. 109, calls Porta the inventor of the camera), still it is always necessary to trace an invention to its earliest stage, even if it should be proven that this earlier invention got entirely lost and had no influence on the later inventor.

With regard to the ophthalmoscope, however, we must regard Babbage as first having invented the simplest form of an ophthalmoscope, for Wharton Jones mentions that Babbage showed him a glass mirror of whose reflecting surface a small portion had been removed, in order to look through this opening into the eye. Helmholtz himself says about this instrument: "This reminds me strongly of the ophthalmoscope of Coccius; but as Babbage does not appear to have used lenses with his mirror, he only exceptionally could see the details of the fundus, and for this reason may not have published his invention at that time" (1847). But, of course, Babbage must stand far in the background if we compare him with Helmholtz, who gave to the world a complete theory of the whole subject and invented a complete, though now obsolete, instrument for the examination of the interior of the eye.

As regards the subject of retinoscopy or skiascopy, we can still go a step further, although Cuignet, in 1873, first published a full account of this new subject in the "Rec. d'Ophthalm." and must be given full credit. It seems that Bowman made the first observation in this direction, as he informed Donders that "he has been sometimes led to the discovery of regular astigmatism of the cornea and the direction of the chief meridians by using the mirror of the ophthalmoscope much in the same way as for slight degrees of conical cornea. The observation is more easy if the optic disk is in the line of sight and the pupil large. The mirror is to be held at two feet distance and its inclination rapidly varied, so as to throw the light on the eye at small angles to the perpendicular, and from opposite sides in succession, in successive meridians. The area of the pupil then exhibits a somewhat linear shadow in some meridians rather than in others." Bowman, therefore, in some cases, practiced skiascopy, and this occurred before 1864, as Donders reports this fact in the English edition of his "Anomalies of Accommodation and Refraction," which appeared in that year.

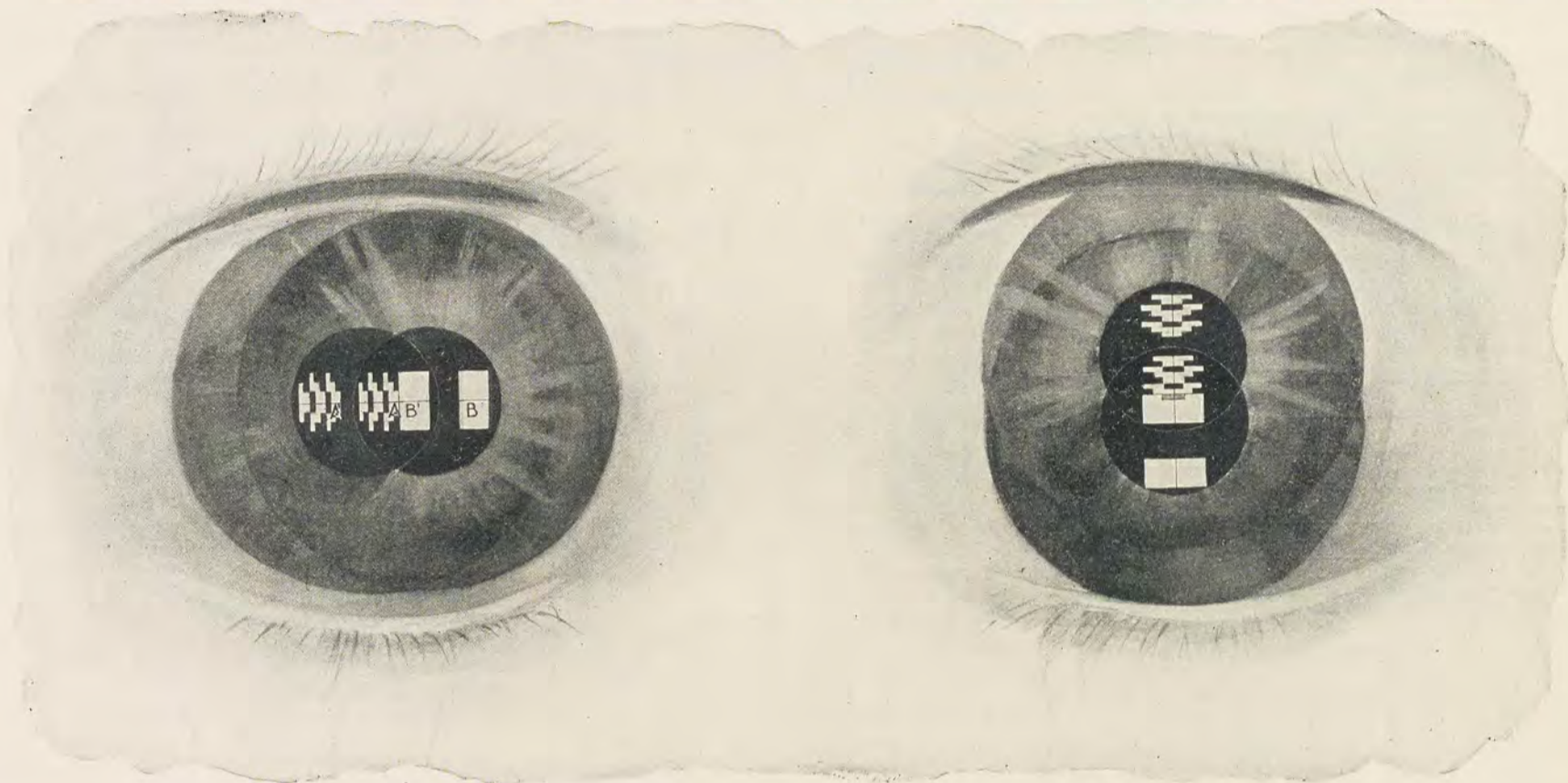
— The annual meeting of the stockholders of the Globe Optical Co., of Boston, incorporated under the laws of Maine, was held in Portland, Me., on July 9th. President E. P. Wells and Mrs. Wells, Mr. and Mrs. W. T. Almy, Mr. and Mrs. A. G. Barber and John W. Sanborn went from Boston to attend the meeting. Officers were elected and routine business transacted. After the business of the meeting had been disposed of, all of the members of the party, with the exception of Mr. Sanborn, who returned to Boston, left for a trip to the mountains, where they spent a few days recreating.

— John L. Borsch, the well known Philadelphia, Pa., optician, narrowly escaped being a passenger on the ill fated *La Bourgogne*. He, with his wife and daughter, had made all arrangements to sail on the doomed steamship with the object of being present when his son, who is chief physician of the De Wecker Eye Hospital at Paris, would be given the medal of the Legion of Honor, which distinction was conferred on him on July 14th. Before the date of sailing Mrs. Borsch saw in a dream with startling reality the calamity that was to befall the doomed ship, and the trip was postponed in consequence. The event proved that the presentiment was strangely vivid and accurate.

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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.

F. M. W.—I have bought spectacle lenses from two well-known firms, and upon testing them find that the strength does not correspond with the numbers on the tag in many cases. Is not this many times the reason for glasses not giving satisfaction? I make a practice of going through my new lenses.

It may frequently happen that lenses are incorrectly marked as the result of carelessness on the part of the employees through whose hands they pass. Such occasional errors must be overlooked, but that should not constitute a valid reason why glasses fail to afford satisfaction in certain cases. No optician should use this as a shield for himself: he must invariably measure every pair of glasses he sends out of his store; he should never depend on the number marked on the tag. An error of this kind by an expert optician would be inexcusable.

W. F. L.—In testing eyes I find parties say with + 1.00 D. the 90th meridian appears clear, the 180° blurred. I place a — Cyl. axis 180°; they then claim that 130° or 45° clear, and all others, including 90°, are blurred. Please explain.

If a + 1. blurs the horizontal lines and clears the vertical lines, the inference is that the horizontal meridian of the eye is hypermetropic, and the correcting cylinder is placed axis vertical. This is correct as far as it goes, but it does not necessarily follow that this indicates at once the proper glass to prescribe. The measurement of astigmatism calls for considerable skill and the employment and repetition of various methods of examination. In testing with cylinders the custom is to rotate the lens until the proper meridian is found, which will make all the radiating lines equally plain, and afford the greatest acuteness of vision; and such an examination should be repeated two or three times on as many different days, until the optician feels sure the lens is correctly adjusted.

J. H. M.—In McCormick's "Practical Optics," page 41, he has a case which requires for correction the following cross cylinder, + 2.00 Cyl. ax. 135° ⊖ — 3.50 Cyl. ax. 180°, and then says that this could be changed to a spherocylinder as follows: + 1.25 S. ⊖ — 4.00 Cyl. ax. 15°. I cannot understand how he gets this, also how to transfer cross cylinders to spherocylinders where the two axes are not at right angles to each other.

In mixed astigmatism the meridians of least and greatest curvature are supposed to be at right angles to each other, and consequently the cross-cylinder that is required to correct it, is composed of a convex and a concave cylinder combined with their axes also at right angles to each other. When the convex and the concave cylinders have their axes at a greater or less angle, it is fair to conclude that the method of the operator is at fault. In the case mentioned a careful examination would indicate the following cross-cylinder: + 1.25 Cyl. axis 105° ⊖ — 2.75 Cyl. axis 15°, the reduction of which to a spherocylinder is a simple matter, as has been frequently explained on these pages.

W. B. A.—Can not a low degree of astigmatism oftentimes be more correctly determined both as to amount and axis after using atropine than without its use?
2d, Mrs. F. W. A., aged twenty-two years, never wore glasses, complains of severe pain in the eye-balls, and itching and smarting of lids, with inflammation at times on lids. Has used an eye wash that affords some relief. She does considerable needle work, and at night R. E. = 1/16 — 25 ax. 180 gives improvement; L. E. 1/8 poorly — 25 + 50 ax. 90 gives greatest improvement. Neither will accept more +. Maddox rod test shows 1° exophoria. Made but one test, but have no doubt about above defects. I have ordered correction for astigmatism only, expecting to watch the results before doing anything with prism. Did I do right?

Yes, the amount of astigmatism and the position for the axis of cylinder can usually be more correctly determined by the use of atropine; but this is not an invariable statement, and besides, in any case, a little extra care and patience will compensate for the non-use of the drug and allow of just as satisfactory an adjustment.

The symptoms in this case indicate hypermetropia or hypermetropic astigmatism, and it is probable that the correction of the error of refraction will afford the desired relief, and that the slight degree of exophoria can be safely ignored. We would suggest R. + .25 Cyl. axis 90°; L. + .50 Cyl. axis 90°, as more likely to prove satisfactory than the formula mentioned by our correspondent, which includes concave lenses.

J. A. S.—Man, aged fifty-five years; never wore glasses for distance. I made a daily test for three days. The three tests made no material difference, except increase in hypermetropia manifest, was + 0.37 D. S. more in R. E. V., R. E. 1/8, partly; L. E. 1/8, without glasses. With the following, R. E. + .67 D. S. ⊖ + 1.00 D. Cyl. ax. 90°, L. E. + 1.25 D. Cyl. ax. 90°. Can read 1/8, most of it. The trouble is binocular vision. Monocular is all right, but binocular vision puts him to sleep and would have trouble in wearing glasses. What is the cause of it, and would he overcome it in a short time after wearing glasses? I have not ordered them yet.

We have here a repetition of the same old story, viz., the difficulty of a middle-aged person becoming accustomed to glasses which should have been worn thirty or forty years previously. If the glasses are correctly fitted, it is reasonable to expect that the eyes will gradually adapt themselves, but it may take so long a time and cause so much annoyance, that the formula may have to be modified. As these glasses have not yet been ordered, we would suggest that the cylinders be lessened somewhat as follows: R. E. + .75 ⊖ + .50 Cyl. axis 90°; L. E. + .75 Cyl. axis 90°. In the reading glasses perhaps our correspondent may find it advisable to omit the cylinders altogether.

H. Z.—Little girl, aged fifteen years; never had any trouble with her eyes, except that she could not see at a distance. Visual acuteness 3/8 both eyes. With — 3.50 ⊖ — 1.25, axis 160 for R. E., and — 2.00 ⊖ — 1.50, axis 40 L. E., vision 1/8. Could bring it up to 1/8, but thought it advisable to under-correct. Tried her at two different times and got the same result. With the above she was well pleased, but the part that puzzles me is that she could read at fourteen inches small type without glasses, and with glasses (as per my test) she has to hold it at arm's length to see well. Her mother says she has always enjoyed good health.

In the treatment of myopia the rule is to give the weakest possible glass, and hence our correspondent did the proper thing in under-correcting his case. In mild cases of near-sightedness the glasses greatly improve distant vision, but are usually not necessary for reading. The object of reading glasses in this defect is to increase the reading distance, and as this girl can already read at fourteen inches there is no occasion for an increase on this; in fact, we are told the glasses cause the reading to be held at arm's length. It is probable, as the eyes become accustomed to the glasses, that she will be able to read closer, but it will be at the expense of a tax upon the accommodation, and therefore we would suggest that weaker sphericals be substituted in the reading glasses, or perhaps the cylinders alone.

A. C. C.—Lady, aged thirty-five years. V. = 3/8; no muscular trouble and no astigmatism. I prescribed R. E. — 3.00; L. E. — 2.50. With this she can see 1/8. After wearing a few days she returned, and said they were too strong, saying the refraction of the lens hurt her eyes. Now, as they are the weakest — lenses that she can see 1/8 with, I am sure they are not too strong. She tried them two weeks, but can't overcome the refraction from the lenses. I have now given her — 1.75 in both eyes, which is better than the naked eye, and she says refracting symptoms are not there. Don't you think a light tint in my first prescription would remove the trouble?

The first question that occurs in the consideration of this case is, has this lady ever worn glasses before? We presume the case is one of simple myopia, although the fact that vision is only 3/8 with the correcting lenses raises a suspicion of some other complication, unless these lenses are purposely an under-correction. Concave lenses impose a tax upon the accommodation, which, in myopia, is naturally weak, and in a patient of this age, still weaker on account of the approach of the presbyopic period of life; therefore, when such glasses are placed upon such a person there is apt to be some trouble, and especially if the eyes are unaccustomed to the wearing of glasses.

When concave glasses are placed upon a young person the wonderful adaptability of nature shows itself, the accommodation is stimulated into action and is by this means strengthened, and there is very little cause for complaint. So that it makes a vast difference at what age the glasses are first worn. In this case, of course, the glasses are prescribed only for distance. If it is simple myopia she is able to read comfortably without glasses. The weakest glasses should be ordered with which the eyes feel comfortable, to be increased gradually, from time to time, provided the eyes will allow of such increase. We would not suggest a tint in the glasses without knowing more of the condition of the eyes.

V. A. H.—In which of The Keystones is a full description of the use of the Hardy ophthalmometer given? Is there any other cheaper that will answer the same purpose? Can you correct compound astigmatism with it, or do you have to resort to the chart test to find the sphere required?

A full description of the Hardy ophthalmometer was published in the December, 1897, KEYSTONE.

There is another model of ophthalmometer, Satterlee's model, made by The Buffalo Ophthalmometer Co., Buffalo, N. Y., information about which can be had from the makers.

The use of the ophthalmometer is to measure, by means of reflections from its surface, the curvature of the cornea; to determine if there is any difference in the refraction of any two meridians, and if so, to locate the meridians of least and greatest curvature. For spherical correction it is of no value, because myopia and hypermetropia depend on the position of the retina with reference to the focus of the dioptric apparatus.

W. B. A.—Gentleman, aged forty-five years. Has been wearing — 1 D. lenses about five years, but complains that vision is very indistinct. Test gave following: R. V. 1/8 — 2.25 D. = 1/8 ⊖ + 1.50 D. Cyl. ax. 0° = 3/8; L. V. 1/8 — 1.75 D. = 1/8 ⊖ + 1.00 D. Cyl. ax. 0° = 3/8. Accommodation, R. V. + .50 D. ⊖ + .88 Cyl. ax. 0° = 12; L. V., + .50 D. ⊖ + .62 Cyl. ax. 0° = 12. No muscular insufficiency. I prescribed the following:

R. V. — 1.75 ⊖ + 1.50 Cyl. ax. 0°
+ .50 ⊖ + .88 Cyl. ax. 0° } Perfection
L. V. — 1.75 ⊖ + 1.00 Cyl. ax. 0° } Bifocals
+ .50 ⊖ + .62 Cyl. ax. 0° } 00 eye

When they reached me, patient put them on and vision was excellent, but whenever the head was turned from side to side everything seen through them appeared to change position, to rapidly rise and fall, and indeed the aberration was so disagreeable he could not even try to wear them. This trouble was confined to distance lens, the reading lens being all right. I suspected that the lenses were too strong, and made another test to try how weak a glass could be used. I verified and ordered R. V. — 1.25 ⊖ + 1 Cyl. ax. 0°; L. V. — 1.25 ⊖ + .75 Cyl. ax. 0°, for distance, retaining the same reading glass, which is entirely satisfactory. Still the patient complains of the same aberration; not so much as at first, but too uncomfortable to be endured. What is the trouble, and what will be the remedy?

This case furnishes still another illustration of the difficulties that follow the correction of astigmatism when delayed until middle age. This gentleman has certainly been injuring his eyes by wearing the concave glasses, and we are impelled to the belief that the person who fitted him scarcely understands his business. The irritation caused by the unsuitable glasses may have a great deal to do with the annoyances produced by the new pair.

If the second formula affords a normal acuteness of vision, it would be proper to prescribe it, but as this is a case of mixed astigmatism and somewhat difficult to correct, the examination should be repeated two or three times, so that there may be some degree of assurance that the glasses as finally fitted are nearly right.

This case is complicated with presbyopia, and the rule in such conditions is first to correct the error of refraction and then the error of accommodation. In accordance with which if bifocal lenses are desired, the proper distance glasses should be ordered with a segment of about + 1. D. spherical cemented on. Or if the lower segment is entirely separate, the formulae must correspond, and if there is 1.50 D. of hypermetropic astigmatism in the vertical meridian for distance, there can not be any less for close vision. It should be borne in mind that bifocal glasses are oftentimes unsatisfactory, although much can be accomplished by perseverance in their use.

Leads All Journals.

TROY, N. Y., July 6, 1898.

EDITOR KEYSTONE.

The Optical Department of THE KEYSTONE is worth its weight in gold. It is better than all the other journals I know of, as the contents are always newsy, up-to-date, and it contains more and better articles than all other journals put together. Your Optical Department is really worth all the praise anyone can bestow upon it. I enjoy it immensely, having read it for years.

Yours very truly,
DR. M. MECKLENBURG, Optician,
With Timpane & Jackson.

Prospect of a Million Dollar Fee.

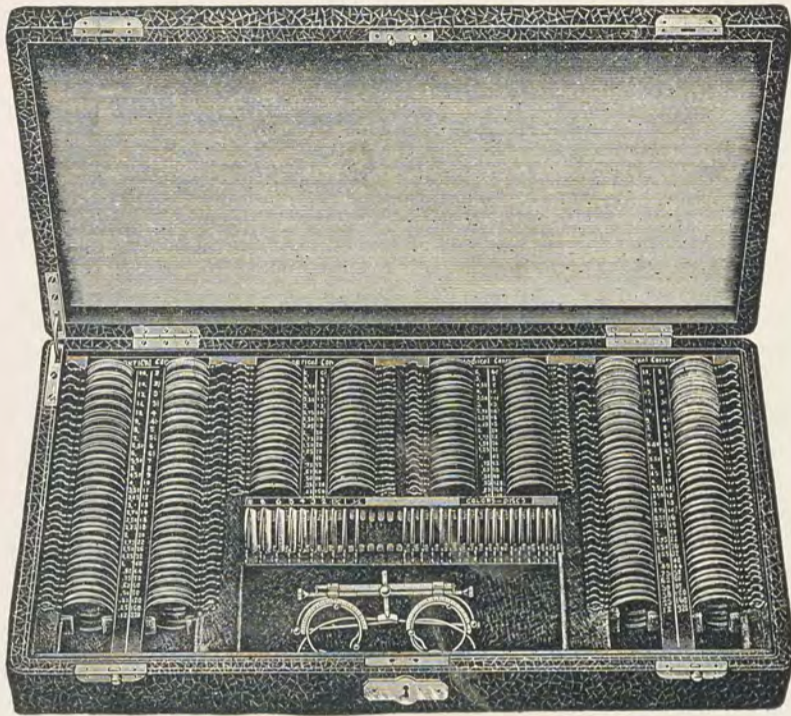
Charles Broadway Rous, a New York millionaire, who is blind, has a standing offer of \$1,000,000 to anyone who restores his sight. For some years he has been paying John Martin, who is similarly afflicted, six dollars per week for permitting himself to be experimented upon by all who claim to be able to cure him. It is now said that Martin is recovering his sight under the treatment of a New York physician, who uses a medicated gas. On a recent occasion he was able to describe the clothes worn by reporters who visited him, and at a distance of three feet he distinguished on one man light trousers, black coat, colored shirt, white collar and tan shoes. He is pronounced now to have 3-100 of normal sight. The man's system has been nearly wrecked by the drugs he has taken from various specialists. Various are the ways of earning a living.

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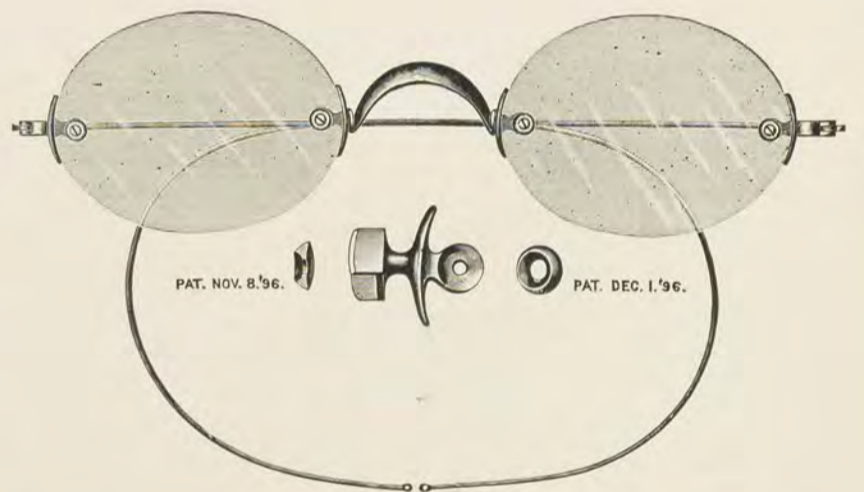
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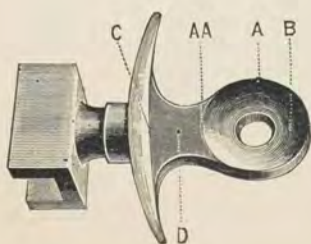


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The "Fogging" Method of Measuring Errors of Refraction.

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The *Fogging* system of using the trial lenses is the only one which affords at once simplicity, speed, accuracy, opportunity to test binocular vision, accommodation, the muscles and reduces the necessity for the use of mydriatics to emergency cases.

It should be remembered "fogging" involves a principle, and, to make it a success, the broad scope of that principle must be understood thoroughly.

Rules for Procedure.

First.—Question the patient. This means the general health, special ills of the past and present, such as headaches, indigestion, constipation, piles, loss of appetite, female disorders, hysteria, nervous debility, etc., all are factors which assist in the diagnosis of cases.

Second.—Examine the retina with the ophthalmoscope, by the direct method, which affords a view of the real article, not a picture of it, as is seen by the indirect method.

Third.—Adjust the trial frame so the pupils are perfectly centered therein, cover each eye, alternately, with the black disc, and direct the patient to read aloud the letters on the trial card, which should be at a distance of fifteen or twenty feet. The lines on the card are all numbered and the figures over each line indicate the distance in feet (or metres) at which that line is read by the normal eye. Therefore if a patient is seated fifteen feet from the card and the smallest line which can be read correctly with ease is the one numbered thirty, the acuteness of vision with that eye is expressed thus, $\frac{15}{30}$. If patient is twenty feet away, and reads the same line, it would be expressed $\frac{20}{30}$. If the metric system is used on the card the twenty feet line will be numbered 6 and the thirty feet line 9, so the acuteness would be expressed $\frac{6}{9}$. By either system such a result would indicate only two-thirds of the normal acuteness is present.

Fourth.—If there be a difference in the acuteness of the two, correct the best one first, because, it, having been accustomed to doing the most work, will accept the proceeding more intelligently, and thus, by way of the brain, aid in securing the best results on its fellow. Permit no one in the operating room but yourself and the patient. Begin the test by placing in the *front cell* of frame a + sphere of sufficient strength to fog or blur vision so patient cannot see better than 200, or the largest type on the card. Direct that constant attention be paid to keeping the eyes fixed toward the card, because if they are turned upon nearer objects it stimulates action of the accommodation and interferes with the work.

Now begin with —.25 and —.50 spheres, holding one in each hand. Stand at patient's right, with the left hand resting lightly on the forehead, the right, with handle of lens between the thumb and first finger, while the second and third fingers touch the cheek just enough to enable you to hold the lens steady. Try the weaker one first, then the stronger. Of course the last one will be the best, then replace the —.25 in the case, retaining the —.50 and take a —.75. Compare them as before, making the change from one to the other quickly after patient has shown what line can be read, then if the —.75 is best, put the —.50 in the case and get —1.00 for comparison with the —.75. When a decided improvement is shown by the patient reading three or four lines it is good practice to take two lenses of the same power, say

two —.75s and compare them in the manner described, as the improvement shown by the second lens at each comparison has taught patient to expect it, and the effect of this is to aid in coaxing the nerve supply of the accommodation to cease acting. In other words the patient is deceived by the trick, which should be repeated as often as benefit is shown, only increasing the strength of the — lens .25 at a time as needed until vision is *almost as good* as it was with the naked eye. If + 3.00 is the fogging lens, and by our test we find — 1.75 held in front of it

is *corrected*, and the one corresponding to the black lines is the *uncorrected* one. This seems paradoxical to the beginner, and I have heard "oculists" say they knew it to be a fact but could not tell why. Anyone can solve the problem quickly by noting that the action of a + cylinder on light is to converge it to a line corresponding to the axis. It is the curvature in the opposite meridian which does this, and the same is true of any irregular dioptric system, including the eye. To correct the astigmatism take — cylinders, —.25 and —.50, as in the former proceeding with spheres, and hold them in front of the eye, axis at right-angles to the black lines, until one is found which makes all the figures of the chart appear equally distinct the instant the lens is in position, taking care to use the weakest cylinder which has the desired effect.

Another method of measuring the astigmatism is: After getting the spherical part of the correction, place the stenopaic (slotted) disk in the front cell, with the slot horizontal, have patient read the lettered chart as before, then turn the slot to various positions and if vision is better at one place than at others it proves astigmatism. After noting the acuteness of vision in the *best* meridian turn the slot to the position at right angles to it, and proceed with — spheres, holding them in front as before, until one is found which makes vision *almost* as good as it was with the slot in the first position. The weakest lens which will do this, gives the power of cylinder required. Laying the sphere aside, take a — cylinder of corresponding strength and put it in place of the slot, with its axis on the meridian where the slot first stood, this gives the power in the desired meridian.

Sixth.—Test the other eye in the same manner.

Seventh.—Leaving the correction before both eyes, cover each alternately, that patient may compare vision, and, if there is any difference, correct it.

Eighth.—Test the power of accommodation, by having patient see how close to his face he can read a line of ordinary newspaper print. If this near point is less than six inches, and the patient has never worn glasses constantly, those prescribed for distance, according to the prescription written from the contents of the frame, will be sufficient for all purposes.

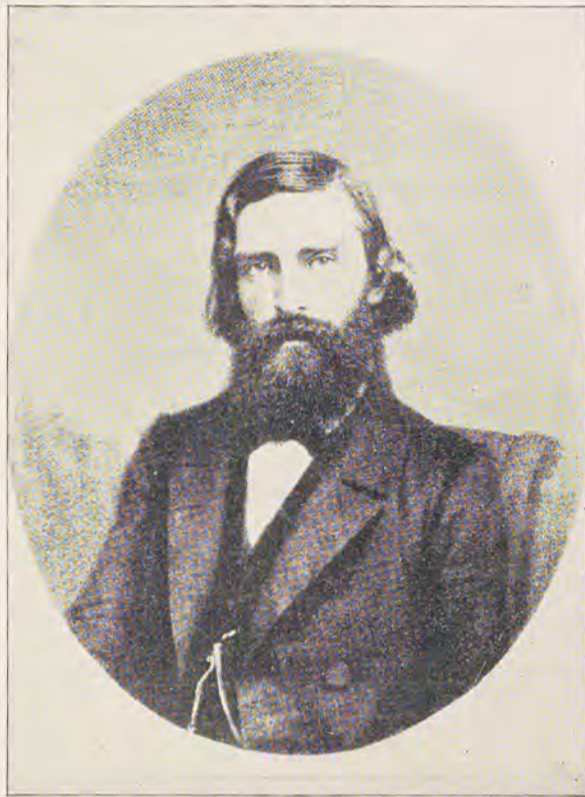
Ninth.—If the near point is farther away than six inches, or, if the patient has been wearing glasses constantly, and complains that the eyes tire when reading, have the paper held at the greatest distance the individual expects to hold near work, and apply + spheres, (the same strength for each eye), to both eyes at once, in front of the distance correction already in the frame. Begin with + 3.00 and change them for weaker ones until a pair is found which permits comfortable vision. These will be the "addition for reading," and if patient desires bifocals, so state in your prescription. If two pairs are wanted, say so. The optician who fills your prescription will do

the rest.

Tenth.—Test the muscles. The simplest method is to place before one eye a double prism, and before the other a plane red glass, covering it with the dark disk. Direct attention to a light placed about twenty feet distant, and rotate the double prism until two white lights are seen, one directly above the other. Then uncover the other eye, and if the muscles are normal (orthophoria) the red light will appear in line with and half way between them. If they are out of position it is heterophoria (abnormal). If the deviation is to right and left from the center, it is exophoria if the lights separate, and esophoria if they cross over. *The eyes in muscular insufficiencies always deviate the same way the lights do.* If the devia-

(Continued on page 633.)

From our Gallery of Optical Celebrities.



ALBRECHT VON GRAEFE.

Albrecht von Graefe was born in Berlin in 1828, and early distinguished himself by his great talent for mathematics and natural sciences. After having passed the medical State Board of Prussia, when only twenty years of age, he went to Prague, Vienna, Paris, London, Dublin and Edinburgh; everywhere being brought in intimate contact with the greatest ophthalmologists of that time, like Arlt, Jaeger, Desmarres and Sichel, who induced him to make the eye his special study. In the beginning of the fifties he established himself at Berlin as an ophthalmologist, and soon gained European reputation by his brilliant successes. He first clinically employed the ophthalmoscope, just invented by Helmholtz, and cleared up many diseases of the eye, hitherto entirely misunderstood. Especially with regard to glaucoma he has won unperishable laurels, for he first showed the direct pathology of this dreadful disease and proposed iridectomy, thereby in his and other hands saving many eyes otherwise lost forever. He founded the celebrated *Archives of Ophthalmology*, which later he edited together with Arlt and Donders, and in which his elaborate articles appeared. He was one of the greatest ophthalmologists the world has ever seen, and he was also a great and benevolent man. He died in 1870.

permits $\frac{20}{30}$ dimly when vision was $\frac{30}{30}$ plainly with the naked eye, it is time to stop. Now the differences between + 3.00 and — 1.75 is + 1.25 which is the spherical part of the correction. Therefore, put + 1.25 in the rear cell of frame before removing the fogging lens

Fifth.—Search for astigmatism by directing attention to astigmatic charts comprising various designs, figures or letters, formed by lines arranged at different angles in the several figures. If all appear equally distinct the astigmatism is, at most, very slight. If some of the figures appear plain while others appear blurred it proves astigmatism, and the two principal meridians of the eye are: one corresponding to the black lines and the other at exactly right-angles to it. The meridian at right-angles to the black lines is the one which

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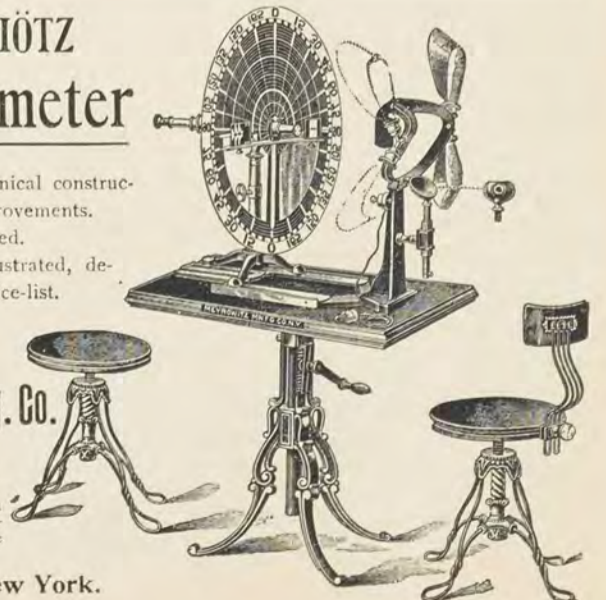
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The "Fogging" Method of Measuring Errors of Refraction.

(Continued from page 631.)

tion is up or down and out, it is hyperexophoria, and if up or down and in, it is hyperesophoria. To measure the amount of trouble, prisms must be held in front of one eye (it makes no difference which) until one is found which brings all three lights in normal position. If the base of the prism is toward the nose it proves the internal recti are too active. If the base is the other way, the internal recti are too weak. The cause of the first is excessive strain upon the nerves which supply the muscles of accommodation and the internal recti; the result is a contraction of the latter and the eyes are pulled out of equilibrium. The cause of the second is a weakness of the same nerve from the strain upon it, and this conclusion is further established by an accompanying weakness of the accommodative power. If the base of prism is up or down it signifies weakness of the superior rectus in one eye or the inferior in the other. If it is in an angular position, it shows several muscles are involved. The weak muscles are always under the apex of the prism. *Prisms to be worn constantly should never be prescribed for these troubles. Correct the errors of refraction and prescribe rest for a week or so, and Nature will cure the muscle trouble.*

Deviations from the Rules.

There are some extraordinary cases, in the treatment of which it will be found necessary to deviate from these rules, because of intermittent nerve force, which enables the patient to see well through the slot one moment and fail to see anything clearly an instant later; or, the patient's idiosyncrasies may interfere with the strict application of any rules; or, the error of refraction may be so great, and of such a character, (as a high degree of astigmatism), that only the general principles implied by the rules can be utilized. Hence the necessity for a clear comprehension of the principles.

If, after fogging a patient whose vision is very poor, say $\frac{1}{20}$, with the naked eye, the fogging lens must be entirely neutralized before vision returns to $\frac{1}{20}$, it proves + spheres will not be of benefit, so it is proper to remove the fogging lens and try the slot alone in the several meridians according to rule five, and if one meridian is worse than the other it will, of course, be corrected with a + or - cylinder. Then if vision is still below $\frac{2}{30}$ it may be improved with - spheres held in front of the cylinder.

Again, vision may be very poor and no sphere will be accepted, nor can the slot be used successfully. They try cylinders, beginning with quite a strong +, say + 3.00, rotate it slowly before the eye and if it improves vision at one point and makes it worse at another, it proves astigmatism. Place the axis at the point where it gives best vision and proceed to increase or decrease its power, if vision is improved thereby, until the best results are obtained.

It should be remembered it is not always possible to improve vision to $\frac{2}{30}$, and sometimes it is not possible to improve it at all. But when this is the case it is something more than an error of refraction.

Another case may have poor vision, $\frac{2}{30}$, and no spheres or cylinders will be of service, but when the slot is placed in one position there is marked improvement, $\frac{2}{40}$. When the slot is turned to the other meridian vision is dim and nothing will improve it. In such cases it is proper to prescribe the slot, which can be made of brass or vulcanized rubber. The necessity for this peculiar device for aiding vision is irregular astigmatism, in which one meridian has a symmetrical curvature while the other has not, and consequently cannot be corrected. In this instance the good meridian was emmetropic, but it might have been hyperopic or myopic, and the correcting lens combined with a slot, in which case the proper lens would have to be frosted or shellaced, except at the opening, which is usually about one millimetre wide and ten to twenty millimetres long. It is possible for two principal meridians to be of regular curvature and all others uneven, requiring

a cross-slot, and this might be combined with correcting glasses for those two meridians.

If spheres, and cylinders, and slots all fail, sometimes the pin-hole disc, which shuts out all but the axial rays, affords such improvement that the patient is very happy to wear it constantly. Of course the hole would be made as large as possible and good vision maintained.

Caution.

If a patient comes complaining of headache or other symptoms of hyperopia, and, by the test seems to be a myope of less than 1.00 D., do not prescribe - lenses without first atropizing the patient, because it is very likely that the case is one of hyperopia with a *tonic spasm* of accommodation, which is a permanent involuntary cramp of the sphincter muscles of the ciliary processes.

If - lenses are required to fit a patient, always use the weakest which will give the results desired. A good rule, in this connection, is to give the weakest lenses which will give $\frac{2}{30}$ vision and then steal from the spherical part of the correction .25 or .50 D. to reduce vision to $\frac{2}{30}$.

As long as a patient can see as well through a + lens as without it, it is not too strong.

As long as a patient sees as well without - lenses as with them, never prescribe them.

If - .50 ax. 90 gives $\frac{2}{30}$ vision, prescribe + .50 ax. 90 if it gives $\frac{2}{30}$ vision, even if the first was found under a mydriatic. And if - 200 ax. 180, or any other strong - cylinder gives $\frac{2}{30}$, and the patient still has accommodation, prescribe + .25 or + .50 sphere in connection with the cylinder and reduce vision to $\frac{2}{30}$. It saves a little nerve strain when coming up to the reading point, but the chief idea in this precaution is to avoid overcorrecting myopia.

If, in testing, vision is quite good one moment and the next is not so good by several lines on the test card, it indicates *clonic spasm* of accommodation (an involuntary and intermittent action), and to overcome it, the patient must be secluded from the presence of others who, by talking might interfere with the control of his nervous system. But, if vision is good when the patient begins to read a line, and it gradually fades away before him, it is the optic nerve which is affected, and absolute rest must be ordered, to be continued several days. Or, by atropizing, the 3d nerve supply may be shut off entirely, leaving a greater force for the 2d or optic nerves.

Clinical Hints.

If the patient, with the naked eye, sees some of the lines of the astigmatic charts more plainly than others, it *proves* astigmatism, but it does not prove what kind. Ordinarily if the vertical lines are plainest it indicates myopic astigmatism, and if the horizontal lines are plainest it indicates hyperopic astigmatism, but it is by no means certain that such is the case. Only the test will tell. The *best* meridian of the eye is always at right angles to the plain lines.

After correcting a high degree of myopia in children, it will, often, be found necessary to add + for reading, but the constant wearing of the correction will develop the accommodation so that after a few weeks or months the + will be no longer needed.

The wearing of glasses for hyperopia has, often, wonderful cosmetic effects. Ladies, whose faces have become rough and wrinkled prematurely from the constant effort to overcome the hyperopia, will find both defects have disappeared in a short time. The reason for this is that the contraction of the nervous system prevented the free circulation of nerve force, the blood supply was diminished, and the function of the lymphatics was practically cut off. After correction all these are restored and the complexion improves.

The contraction of the sphincter muscles throughout the body, in the effort to overcome hyperopia by accommodation, causes menstrual difficulties in females, and piles in both males and females. Hence it follows that the correcting glasses will remove the cause and Nature will restore normal conditions, unless the trouble has existed too long.

Epilepsy is a nervous disease, and very often finds its origin in hyperopia, the full correction of

which sometimes acts with almost miraculous promptness.

If a patient is in a debilitated condition and needs different glasses for distance and near work, insist upon two pairs, instead of bifocals. Or "grab fronts" may be used for reading.

The correcting glasses in hyperopia often improve the hearing of persons partially deaf, by permitting additional nerve supply to be sent to the auditory nerves.

Correcting glasses often make patients sick at the stomach, because the entire nervous system has to adapt itself to the new conditions. Energy which has been demanded for the eyes is now left in the chief nerve center, and it, being unaccustomed to such a liberal supply, goes into hysterics, if you please, and, like a child with a new toy, requires several days to restore its equilibrium; in the meantime it sends nerve force in every direction to see if some function is in need of it. It sometimes surprises the stomach so that vomiting occurs. Do not be frightened by the old "spook" that such incidents mean the patient will not "tolerate" the correction. Explain the situation and tell patient to stick to it, and all will be well.

Sometimes, in a high degree of hyperopia, the accommodation will be so completely exhausted that, when corrected, the patient will not be able to read. In persons under thirty years, or thereabout, the accommodation will be all right in a few weeks.

If a patient reads $\frac{2}{30}$ with the naked eye it only proves he is not a myope and that he has no disease which affects the eye.

If he cannot read $\frac{2}{30}$, he may be a hyperope, or a myope, or an emmetrope with diseased eyes.

If he reads better than $\frac{2}{30}$ it *proves* he is a hyperope, and it is not uncommon to find as much as 1.00 or 1.50 D.

Tinted glass should not be used for lenses intended for constant wear. In cases of *Photophobia* (an aversion to light), the cause is an error of refraction or a disease which has affected the retina, making it hypersensitive and the tinted glass only aggravates the trouble. Correct the error and give constitutional treatment.

Colored glasses without focus should not be prescribed save for exceptional cases, such as excursions on snow or water, or when the eyes are diseased so that it is imperative some protection be afforded. Then prescribe plane smoke. Never use the coquills, they have - cylindrical effects.

Anyone with an error of refraction should wear glasses constantly; the hyperope to relieve nerve strain, and, incidentally, to improve vision if it is below normal; the myope to improve vision and permit coordinate action of the muscles of accommodation and convergence.

After the eye has matured, which is at about the age of eight or ten years, if the correction is equal to the error no change of lenses will ever be needed. When presbyopia comes, at forty or thereabout, additional spherical power will be needed for near work only. This will be increased from time to time, as accommodation fails, until + 3.00 is reached, which will be all that will be needed, unless the individual desires to work on objects nearer than thirteen inches.

A chapter taken from "Optical Truths," the new book on optics, by Charles McCormick, M. D. The price of the book is \$2.00, and it will be supplied by THE KEYSTONE, on receipt of this amount.

Faith in Your Business.

Opticians, to command success, must always bear in mind the age they live in. It is an age which uses and abuses its eyes more than any age that went before. The close work of reading, clerking and manufacturing absorbs the energies of a very large, and a still increasing, proportion of modern men and women. This means, of course, that defective eyesight is increasing, and with it the dire need for corrective glasses. Consequently there never was a time when the optician's existence was more amply justified and more emphatically needed. Not one of the fraternity but is in a position to take heart of grace and admire the prospect. There are many people with poor eyesight who think they do not need glasses: it is the optician's duty to convince them that they do. And there are many people whose shallow pockets make them shrink from the expense of a good pair of glasses: it is the optician's duty to cater for and capture these folk too.

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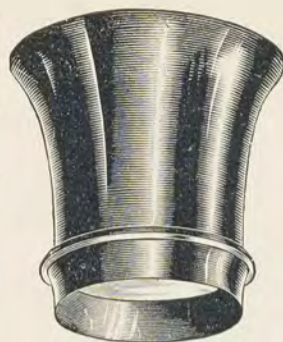
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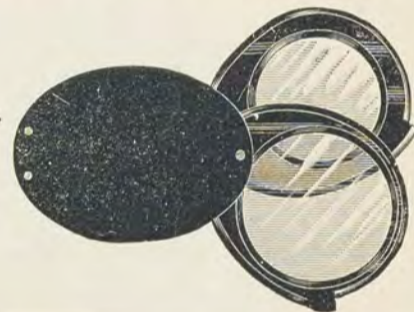
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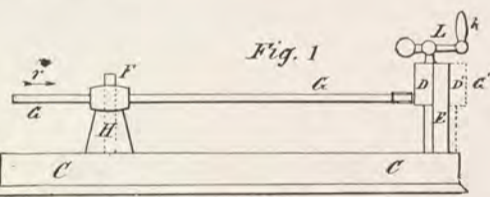
XXXI.

Combining Details.

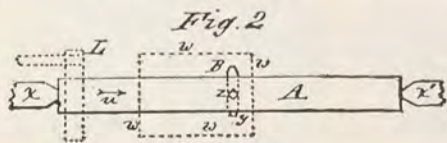


E now invite the reader to refer to page 215, March, 1898, KEYSTONE, where we described in detail several portions of the planing apparatus for producing laps for grinding cylindrical lenses, and also made a sort of *resume* of the entire device. Since then we have been giving the details of construction of one of the most important parts, to wit, the turret slide on which the laps for grinding both + and - cylindrical lenses were planed. The proper construction of this part of our machine for producing laps for grinding cylindrical lenses was so much out of the usual routine of machine shop practice that we saw it was our duty to give special instructions for producing such turret head. The turret to which we refer was first described and illustrated on page 51, January, 1898, KEYSTONE.

Without taking all the care and precautions we have pointed out, we could not secure the accuracy which we have insisted upon throughout this series of articles. We would here beg permission to say, that if the various devices we have described for lens grinding for the optician's use are conscientiously carried out, lenses can be produced which will fully rival in excellence those employed in fine telescopes, and it is no more than justice to say the day is close to us when the optician will demand and receive from ten to fifteen dollars for a pair of prescription lenses which represent the highest excellence of optical art. For the sake of ready reference we reproduce Fig. 3, of page 51, January, 1898, KEYSTONE, at Fig. 1.



The turret head to which we refer is shown at DE, Fig. 1. As we have previously explained, it is imperatively demanded that this turret head shall stand at right angles to the plane of the upper surface of the bed C, Fig. 1. The stud H, on which the bar G swings, does not demand such extreme accuracy. The method of fitting up this stud was described on page 215, March, 1898, KEYSTONE. We might say in addition to what was there said, that the boring out of the double sleeve shown at Figs. 2 and 3 should be done with a boring bar, and not by placing the double sleeve in a chuck attached to the face plate of the lathe. How a boring bar is properly worked will be understood by inspecting Fig. 2. In this cut the

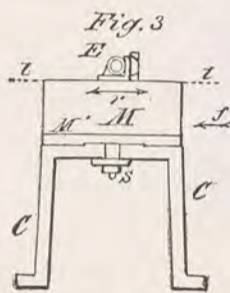


bar A is a piece of round iron somewhat smaller than the hole to be bored out, and more than twice the length of said hole.

The bar A is mounted between the lathe centers x x, and is driven by a dog, or carrier, shown

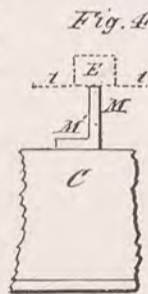
in dotted outline at L. The position of the piece to be bored out is indicated at the dotted outline w. Said piece is securely attached to the carriage of the lathe, and is moved back and forth by the feed screw of the lathe while the boring bar A revolves. The boring tool B is shaped like an ordinary turning tool, and is manipulated by two set screws shown at z y. The set screw z simply holds the tool B rigid while the screw y forces the tool B forward, as the hole in w is enlarged. The screw z is slacked up a little before the tool B is set forward by the screw y, after which the screw z is set up hard.

Near the close of the third paragraph on page 215, March, 1898, KEYSTONE, we speak of a support placed underneath the end of the swinging bar G, Fig. 1. The purpose and position of this bar is explained in the paragraph just referred to. This support is an L-shaped piece of cast iron bolted to the base C and rising under the tool holder E, shown at Fig. 4 of the page and issue of the KEYSTONE just referred to. We show a side



view of such a support at M, Fig. 3. The upper edge of M is made smooth and straight and also parallel with the top of the bed C. The idea is, the piece E slides back and forth on the edge of M as the swinging arm G oscillates back and forth as indicated by the double-headed arrow r. There is no force exerted to hold the cutter head E down, except its own weight and the weight of the bar.

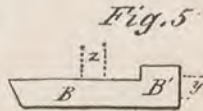
We show at Fig. 4 a side view of a portion of the base, or bed C, Fig. 3, as if seen in the direction of the arrow f. This view also shows the L-shaped piece seen endwise.



How Cylindrical Laps are Made

The reader should read carefully the article on page 215, March, 1898, KEYSTONE, in connection with this. There is no doubt but the workman could, by grasping the bar G, swing it back and forth by hand and plane up a concave lap, said lap being attached to the slide D, Fig. 1. As the arm G was swung back and forth the lap, which is attached to the slide D, Fig. 1, is moved up or down by the hand screw L. In actual practice the oscillation of G should be produced by a crank, said crank being connected by a pitman with the cutter head E. On the screw L, Fig. 1, is placed a ratchet wheel not shown in the cut, but will be described in our next article of this series, as also will be the crank motion for moving the cutter head E back and forth. We will also describe an automatic feed for the ratchet wheel placed on the screw L.

By employing an automatic feed for the screw L, Fig. 1, we will be able to produce much more regularity in the surface of the lap attached to the slide D, and being planed up; we would say a few additional words about boring out with a boring bar, as illustrated at Fig. 2. The boring out tool B is made of 1/2" round drill rod, shaped, if seen in the direction of the arrow u, Fig. 2, as shown at Fig. 5. Such a boring bar is the only correct method for boring out hollow cylinders. They are not very popular with the average machinist, being classed as special tools. We advise



any of our readers who may have such a machine as we are describing made, to insist on having the double sleeve for the swinging bar G bored out with a boring bar as described.

"I consider the Optical Department of The Keystone superior to anything else I read on optics."—M. J. Hoppeck, optician, Frankfort, Mich.

An Interesting Case.

EDITOR OPTICAL DEPARTMENT:

Recently I have met with a case remarkable enough to report it.

I omit here the correction of the small refractive error. A man, fifty-six years, showed a manifest insufficiency in balance of ocular muscles of 18-20°, and attributes it to an accidental poisoning by fly paper ten years ago. He describes the incident in such manner that it can hardly be doubted that the accident has caused his trouble, which, after the other evil effects had passed away, has remained permanent until now. I have no knowledge of the effect of such poisons as arsenic or cobalt upon the ocular muscles. I combined his correction with 7° prisms on each eye, and he has worn the glasses with a great deal of comfort for three months; does not complain of any chromatic aberration even. I intend, as soon as his eyes will stand it, to gradually reduce his prisms.

A spasm of the internal recti would not have allowed immediate and lasting relief upon placing the strong prisms in the trial frame, being insured that they produced binocular vision; while it is certainly singular that a partial paralysis of the externi, from whatever cause it may be, would not have affected the muscles of the lid belonging to the same nerve center, this paralysis being as permanent as it is.

As the man claims and appears to be in very good health, I have been inclined to attribute to the same poisoning a decreased circulation in the vascular system of his eyes, manifesting itself by improporionately large and very dark views, which are running straighter than normal. Papilla red, pigmentation of chorioidal structure, appearing rather clear and strongly pronounced at some distance from macula. V. R. After three months no material change of appearance. Veins probably slightly lighter in color than at first examination.

Yours truly,
J. F. E. W.

Such cases are not unusual in the practice of the ophthalmologist, who sometimes finds such high insufficiencies due to a slight paralysis or paresis of one of the external recti muscles. Isolated paralysis of the rectus externus may be due to lead poisoning, syphilis, etc., and may also be the forerunner of locomotor-ataxia. Of course, it is impossible to indicate the cause of the trouble in this special case, as only a careful medical examination could reveal that. Our correspondent, however, is mistaken if he expects the muscles of the lids to be affected at the same time, for the muscles of the lids are supplied by the third and seventh nerves, whilst the external recti are innervated by a separate nerve, called the sixth. The ocular treatment given by our correspondent is certainly good, but we would advise to send the patient to a good physician for a medical opinion and perhaps medical treatment, especially if the pupil should give the Argyll-Roberston sign, that is, if it should react to accommodation but not to light.

His Irish Iris.

CADIZ, OHIO, July 20, 1898,

EDITOR KEYSTONE:

Dear Sir:--Inclosed find check for one dollar for my renewal of THE KEYSTONE, to which you are very welcome.

The following little incident a few days ago, afforded us a good laugh:

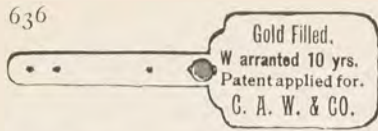
The customer was an Irishman, the pupil of whose eye was very irregular in outline, and after examining which the optician said:

"The trouble is with the iris;" to which the customer replied:

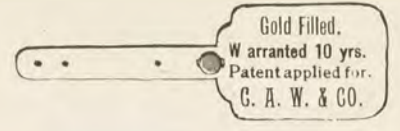
"I beg your pardon, sir; you'll have to find some other cause than that. It never came from any trouble with the Irish."

It would be difficult for a city optician to understand how valuable the Optical Notes in THE KEYSTONE are to one in a country town.

Very respectfully,
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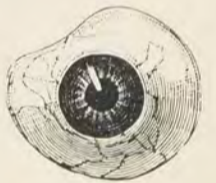
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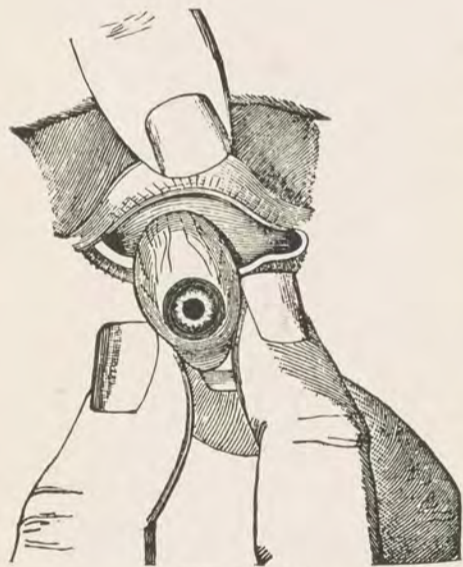
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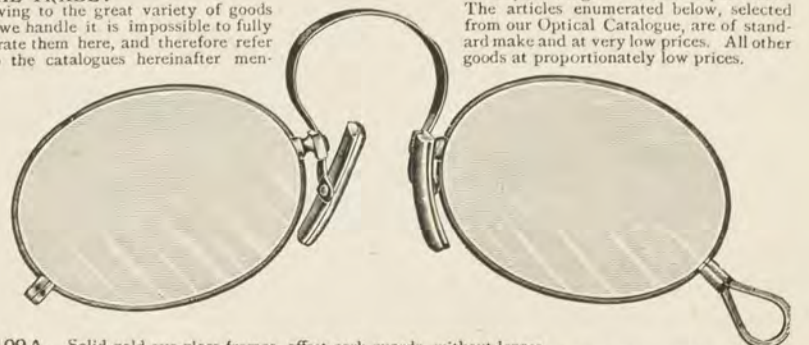
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Opticians' Leagues.

A Practical Scheme of Organization—Assuring Protection and Unity of Action.

THE organization of the opticians of the various States, now proceeding so vigorously and successfully, has revived the idea of a national association of opticians or optical societies. The project of such a national association was first suggested by W. Bohne, of New Orleans, La., some years ago, and its feasibility has since been discussed by the officers of various optical societies with more or less undecided results. A scheme for a national association, recently exploited, is to enroll a great number of opticians and jeweler-opticians from all sections of the country, under a constitution of the most general and liberal character, with nominal dues, the members to hold yearly meetings, the chief features of which would be lectures on various subjects and an exhibition of optical goods by various manufacturers. Among the advantages claimed for such an association are, that it would bring together a large number of the trade and strengthen trade interests by social and business intercourse; that it would interest the manufacturing interests in the well-being of the retailers, and afford the latter an opportunity to become acquainted with the products and methods used in the manufacture of the goods of the leading factories.

MANY objections, however, are urged against the project. It is contended that the time is not ripe for a national association. That what is needed more urgently is healthy State societies in every State of the Union; that when these are organized, a national society will easily

and naturally follow. Again it is urged the plan proposed does not offer sufficient advantages to merit the support needed to make it successful; that it is not properly mapped out to accomplish anything worth while, and that the chances of failure are so great as to endanger and delay the formation of a well-ordered association when the conditions warrant such an organization. It is urged that, with the single exception of a meeting to be held in New York City, a large attendance could not be mustered for a meeting on even the plan now proposed; and if held in New York, the whole of the Middle, Western and Southern trade would be unrepresented, as the necessary expense would far outweigh any advantages that might be offered by attending such a meeting. Some who are inclined to favor the plan proposed in the hope that it might develop into something better, hold that the only way it could succeed would be to hold two meetings—one in New York and the other in Chicago. To those who would join the proposed association and who would be unable to attend the annual meeting (and they would likely be a majority of the membership, if the society would be in any sense a national one,) the only advantage held out is that they would be furnished a printed copy of the proceedings of the meeting. This, however, would be placed in the hands of the whole trade, non-members as well as members, by the enterprising trade press, if the proceedings at all warranted it, and if they did not, the matter would be of little value to anyone.

Much more might be urged for and against the proposed plan, but we have merely given an outline of the arguments on each side as they have come to us. THE KEYSTONE is eager to assist in any and every way possible any project looking to the welfare of the opticians. It was the first of the trade journals to devote its energies and space to the advancement of the science of optics and to safeguard the various interests of the optical trade; and it has striven, with some success, to meet the growing wants of the body of men (and women) whose business it is to "treat light" and correct optically impaired vision.

THE present discussion, however, has brought to the surface a plan for State and National organization that seems to us of greater practical value than any yet proposed. It has been proposed by one of the most eminent opticians in this country and a man prominent in an official capacity in the work done during the recent past by one of the most active State organizations, and, therefore, familiar with the conditions that must be met; and, moreover, with high aspirations as to what an optical society should accomplish to warrant its existence. The ideas have had careful consideration for some time and are the outgrowth of practical experience in the work of State societies. The plan embraces the formation of organizations in every State, as far as possible, of what should be known as "Opticians' Leagues," and when a sufficient number of States are so organized, the formation of a national league. These State leagues might not differ much, if desired, from the plan of the present State optical societies, excepting that they would effect their all-important purpose—the furnishing of means of protecting the inherent rights of the optician. The "Opticians' League," therefore, would be primarily a protective organization. In such an organization the principal part of the revenue would go into the treasury, for protection against anything that would assail the vested rights of the membership. Such a State league

could also maintain the best features of the present State societies, such as instructive lectures and scientific papers, to be delivered at the annual or semi-annual meetings, proper examinations as to qualification for membership, etc., if this is deemed advisable. State leagues could be formed and maintained, however, without all of the committees and work carried on by some of the present State societies. The usual officials and an executive committee being all that would be needful for properly conducting all necessary business. A nucleus is already in the field, in the various State optical societies, that could readily be turned into State "Leagues" with slight changes in the constitution and by-laws.

As remarked, the main idea being a protective one, arrangement would be needed whereby say four-fifths of the entire revenue would go into the treasury for protective purposes, which would, in the course of a very few years, put the opticians in each State in a position to effectually defend and assert their rights whenever assailed, and at the same time afford an organization that could accomplish much in the way of educational advancement for its members and establish a code of ethics that would soon place the calling of the optician in the plane it properly belongs, but which, unfortunately, it does not enjoy to-day.

A minor suggestion is that every State league would issue to each member an emblematic button that would be worthy to be worn as representing a principle. Membership in such a league would thus establish a trade fraternity that would stimulate the best efforts in its membership in elevating its ethics.

In relation to the optical leagues which may be formed, it has been wisely suggested that they issue to members handsomely designed certificates of membership, which may be framed and placed in a conspicuous part of the store or office. Such certificates would be accepted by the public as evidence of the optician's competency and professional status, endorsement by brother opticians being the best form of professional recognition.

In our efforts to aid we would suggest that all opticians about to form societies, or to whom the idea of the "Opticians' Leagues" appeal, should communicate with us, and we shall help, as best we can, in the formation of such organizations.

Doings of the Optical Societies.

Pennsylvania Optical Society.

The regular monthly meeting of the executive committee of the Pennsylvania Optical Society was held at 128 South Eleventh Street, on Tuesday, July 12th, at 8 P. M.

The treasurer's report was read, which showed the finances of the association to be in a very satisfactory condition, he having paid all the bills, and having a balance in bank.

The committee having charge of the conference at Hotel Walton, on June 21st, reported that it had been held, with discussions on the topics proposed, all present taking part, and the evening was felt by every one to have been very profitable and interesting.


The attention of the committee was directed to an advertisement which appeared in the last issue of one of our leading optical journals, trumpeting the virtues of a certain fake instrument, by the use of which "sight is restored, spectacles rendered useless, and the blind may see." The vendors of this nostrum publish a pamphlet setting forth a few truths and more untruths carefully stated to deceive the unwary, and relieve them of their ten-dollar bills. As these instruments are frauds, utterly unable to accomplish what is promised, and as this periodical so advertising practically endorses them, yet claims to be the official organ of the various optical associations, the secretary was directed to write and remonstrate with the pub-


(Continued on page 636 c.)

Right in front of their eyes, on the faces of contented people

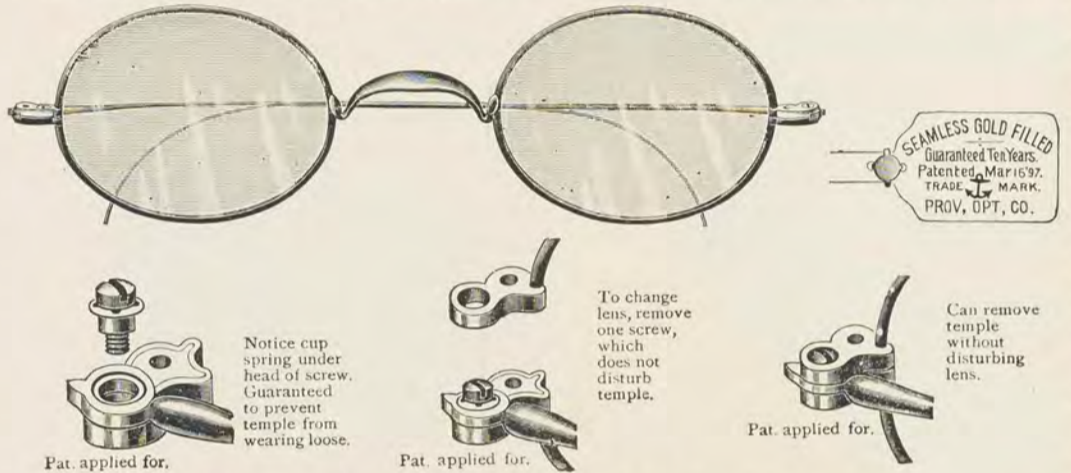
A striking feature of the optical goods market, in its latest development, is the increasing demand for gold filled spectacles and eye-glasses. These handsome goods have recently been making rapid strides in popular favor, and the trade are unanimous as to the satisfaction and profit of handling them. Gold is, of course, the elect of metals for any article worn on the person. But the price of the solid article has been a barrier to popular possession. The gold filled article, on the other hand, can be sold at a price which places it within reach of the majority of purchasers, while it is practically solid gold as far as appearance, beauty and wear are concerned. The seller of gold filled spectacles, therefore, can push sales with all the arguments that apply to solid gold goods, and the moderate price, in nine cases out of ten, clinches the deal.

Care should be taken to explain to the public that the gold filled goods are neither electroplated nor "washed." They are made of an external plate of solid gold of varying thickness, with a composition metal in the center to take the place of the gold that would be hidden away. This hidden gold serves no special purpose of ornament or wear, while adding greatly to the cost. The composition metal that takes its place makes the frames stronger, while not detracting from their solid gold appearance or capability to wear. In fact, these goods when made with all exposed parts covered with rolled gold, quality and thickness of gold taken into consideration, there should be no risk run by the dealer in handling them, particularly as some manufacturers attach a guarantee to each pair.

P. O.  **Gold Filled Frames can always be found.**

Recommend Gold Filled Frames to your customers. They expect you to fit them out with **stylish face ornaments.** About **one in ten** can afford solid gold frames. The other **nine** want their faces dressed stylish also. Sell them **P. O.**  **guaranteed gold filled frames.** **RESULT—Everybody is satisfied.**

OUR NEW ENGLISH JOINT FRAME.
Extra Gold Finish, Beveled End-Piece. Very Handsome, Substantial and Desirable.



Providence Optical Company,

NEW YORK—9 Maiden Lane, Gill Building.

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UNDENIABLY

Our Gold Filled Spectacles and Eye-Glasses are, all points considered, the best ever produced. Upon application a sample will be mailed FREE to any retail Optician in the United States.

MARTIN, COPELAND & CO.

SABIN AND ABORN STREETS,

PROVIDENCE, R. I.



TRADE

MARK.

ALL OUR GOLD FILLED
GOODS ARE STAMPED WITH
ABOVE TRADE-MARK.

Our business is done exclusively through the Jobbers, but we want the retail trade, who are the distributors of Spectacles and Eye-Glasses, to know that we make one of the best lines on the market, and in order to convince them of the fact, and that they may become familiar with our make, we will send to any retail dealer a line of our Gold Filled Spectacles and Eye-Glasses, postage prepaid, on memorandum, for their inspection.

We Guarantee all Gold Filled Spectacles and E. G. of our make bearing our Trade Mark, and will replace with new goods at any time should gold wear through.

National Optical Co., Inc.,

Eleventh and Mifflin Streets, PHILADELPHIA, PA.

Pennsylvania Optical Society.

(Continued from page 636a.)

lisher of that paper, as thereby the profession of the optician is lowered among physicians and the public at large. Yours, C. A. LONGSTRETH, Secretary.

[Our readers will readily understand that the journal above referred to is not THE KEYSTONE. No announcement of a theory, an instrument, or other optical matter, appears in our columns except such as are sanctioned by our editorial staff, who are rigorously exact in excluding everything in the nature of a fake or imposition on the trade.—ED]

Optical Organization in Kansas.

A Topeka, Kan., optician sends us the following notice, to which we gladly give space:

To Kansas Opticians—

There should be in Kansas an organization similar to those in some of the Eastern States. Let us hear from all who favor such a move, at once. If a sufficient number respond, steps will be taken to organize.

Address, "Sunflower Optician," care The Keystone.

Optical Organization in Illinois.

In regard to organization in this State we are pleased to say that the notice inserted in the July number was liberally responded to, every mail bringing responses from opticians in different parts of the State. The leaders of the movement inform us that a call for a meeting to perfect the organization will be made as soon as possible, through THE KEYSTONE.

Optical Organization in Ohio.

Our correspondent in Columbus, Ohio, informs us that it is probable that a State Association of opticians will be formed soon. "The association," he writes, "may consist of local associations, organized in the various cities of the State. This plan, it is thought, will prove very efficient in securing the proper interest from all the more prominent opticians of the Buckeye State.

Bifocal Lenses and Decentration.

With regard to the subject of bifocal lenses, discussed in the last number of THE KEYSTONE, we received the following communication:

I notice in the Optical Department of the June issue, in the column devoted to reviews, Dr. Bennett's table giving the prismatic effect of a given amount of decentration of a given power of lens. I would like to ask the optical editor

if this table agrees with his method of calculation. I have worked from the rule that 1. D. decentered 10 mm. produces 1° prism, and if I am not mistaken this rule is from the editor's own formula; anyhow, I have used it with satisfactory accurate results. Possibly Dr. Bennett's rule may apply to the old system of prismatic measurements, and not to the dioptric system.

In the column of table above referred to, giving the prismatic power of 1. D. decentered 9 mm., the figures are .67. This is no doubt an error, by placing the figure 9 upside down, so as to read .67 instead of .97.

The comment on bifocals is a good one, and I hope it will open the eyes of a great many opticians. Too many of them look only at the work and not at the true qualities of a lens. If the glass is there, nicely shaped, nicely mounted, nicely edged, "that's a good job;" and perhaps in the horizontal meridian of the reading portion of the lens there is hardly any approach to an optical center or meridian. If opticians were more particular about such things there would be quite a hubbub in some of our job shops where cheap work is done. It's so handy to cut a wafer in two and place it on so it looks nice, especially in the case of spherocyl. bifocals, where the saving of a wafer counts in the expense. The writer has lost custom in job work before he would make bifocals as above, to compete in price with those who make bifocals with utter disregard for optical centers. Of course it is not necessary in every case to use two wafers, but the cheap job-shopman makes no discrimination.

RE-COMMENT.

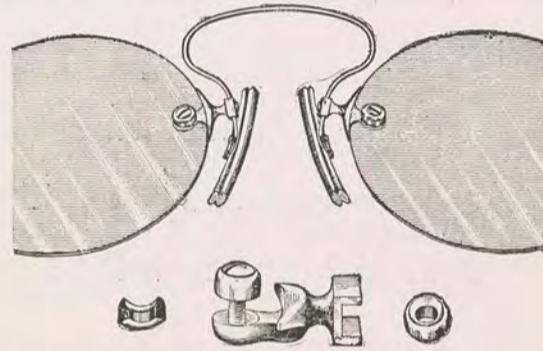
In response to the first question, the editor of the optical review columns must say that Dr. Bennett's table agrees perfectly with his own calculations. Dr. Bennett does not say what formula he used in his calculations, but the editor obtains his results by the formula $P = \frac{D \times d}{9.25}$, which is correct for the usual index of refraction (1.53) and gives results quite in agreement with Dr. Bennett's table. A derivation of this formula, in which D stands for the lens expressed in dioptries, d for the number of millimeters, the lens is displaced, and P for the prism degree obtained by the decentration, was given by the editor in the "Archives of Ophthalmology," Vol. xxii., No. 4, p. 448, in 1893. Our correspondent, therefore, is not quite correct in assuming that a 1. D. lens, decentered 10 mm., produces the effect of a 1° prism, as in reality it produces a little higher prismatic effect; but the difference is so slight that for practical purposes, with lenses not higher than 6. or 7. D., and no more than 10 mm. decentration, it may be neglected altogether, and our correspondent may therefore go on as before. For higher lenses our formula ought to be used, because the difference

becomes appreciable; as, for example, a 15 D. lens, decentered by 10 mm., produces in reality a prismatic effect of a little more than 16 degrees, while according to our correspondent's rule this same decentration would amount to a prism of only 15 degrees.

As the prismatic effect of a 1. D. lens, decentered 9 mm., is according to our formula 0.97°, it follows that 0.67° is wrong; but as it is only a typographical error, it needs no further comment. We are very glad, however, that our correspondent observed this misprint, as it shows us how carefully he read the article.

"I am always trying to get something up to date and experiment by trying to get new things, and I never lose an opportunity to try and persuade a craftsman to send for The Keystone."—C. H. Hinges, optician, Salem, Oregon.

The manufacturers of the Ajax clamp rimless spectacle and eye-glass mountings have recently made a number of improvements that add greatly to the desirability of these fittings. In the construction of the strap, the recessing is made shallower, leaving more threading. The screws are now made to a uniform standard, preventing their backing out or loosening up. This, in the earlier construction, was an objection, but it has been entirely overcome by the recent changes. These mountings are now



being handled by all leading jobbing houses, and are made by the three leading American factories, which is a guarantee of their quality. The retail trade is rapidly getting to appreciate the advantages of this mounting. The distinctive features are: thorough interchangeability, exceptional strength, and that one fitting answers for all thicknesses of lenses. A few mountings and one assortment of drilled lenses gives the dealer a stock.

A
Modern
Eye Clinic
at
Tokio, Japan.

From the
Ophthalmic Record.





Owing to the fact that we are filling hundreds of Prescription Orders every day, we can run our Prescription Department at the lowest minimum cost, and we are giving our customers the benefit by furnishing the best finished goods at the lowest price possible.

JOHNSTON OPTICAL CO., Prescription Opticians,
DETROIT, MICH.

The Anchor Guard Patents Sustained

In the United States Circuit Court, Judge Lacombe decided the validity of the Anchor Guard Patents, controlled by the Julius King Optical Co., and a permanent injunction has been granted.

Persons selling or offering for sale infringing guards will be held liable.

JULIUS KING OPTICAL CO.

2 Maiden Lane,

NEW YORK.

126 State St.,

CHICAGO.



The Best place in New England
for Prescription Work.

TRY OUR PRICES } AND YOU WILL
TRY OUR WORK } HAVE
NO OTHER.

J. Ouimette, Jr.,

Manufacturing and Wholesale Optician,
SOUTHBRIDGE, MASS.

F. W. H. SCHMIDT,

100 State Street, CHICAGO, ILL.

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Watchmakers', Jewelers',
Engravers', Opticians' Tools,
Materials and General Supplies
of all kinds.

Alumnic, Gold Filled and Gold Frames.

SILK, WHITE METAL, FIRE GILT,
ROLLED-PLATED CHAINS.

Watch and Jewelry Repairing for the Trade.

Prompt and careful attention to mail orders.

The Kansas City Optical College



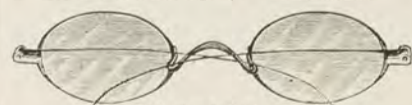
has THE REPUTATION
of being the best EXCLUSIVE
OPTICAL SCHOOL
in the United States. Every
graduate has employment.
Next course October 12th.
Write for catalogue.

10th & Walnut Sts., Kansas City, Missouri.

ASK TO SEE THE PATENT EXPANSIBLE SPECTACLES AND EYE-GLASSES.

BEST WEARING QUALITIES FOR THE LEAST MONEY.

1. Solid Temple.
2. No screws to rust.
3. No solder on joints.
4. Non-breakable spring.
5. Interchangeable.
6. Superior finish.



Made In Nickel Silver and Goldoin Two Metals

Nickel Silver—A white metal; high lustre; will not tarnish or rust.

Goldoin—A combination of metals resembling 14 K. gold and their combinations.

PRICES SPECTACLES, \$15.00 to \$24.00 Gross.
EYE-GLASSES, \$24.00 to \$30.00 "

TO BE HAD FROM JOBBERS ONLY.



THIS MOUNTING has come to stay. It is winning favor every day. No rivets or screws. No cork or rubber facing. It stays by suction just the same. Properly adjusted, it will not pinch. If it pinches, it will not stay on.

Send two-cent stamp for booklet and leaflet.

The T. M. Heard Optical Co.,
Cleveland, Ohio.

WE ARE NOW LOCATED in our new quarters in the Jewelers' Building, where we would be pleased to receive or hear from our patrons. A complete stock of OPTICAL GOODS and our own SPECIALTIES constantly on hand.

H. L. HOUGHTON,

MANUFACTURER OF

Optical Goods and Specialties,

ROOM 28, JEWELERS' BUILDING.

373 Washington St., BOSTON, MASS.
COR. BROMFIELD ST.

THE Great French



EYE WATER

The Best Remedy Known for Weak or Inflamed EYES, Granular or Scaly Eyelids, Etc.

IT CURES

Once used, recommends itself.

\$18.00 per Gross.

Ask your Jobber for it or send \$1.50 for a sample dozen to the manufacturer.

F. A. UPHAM,
111 E. Seventh St.
St. Paul, Minn.

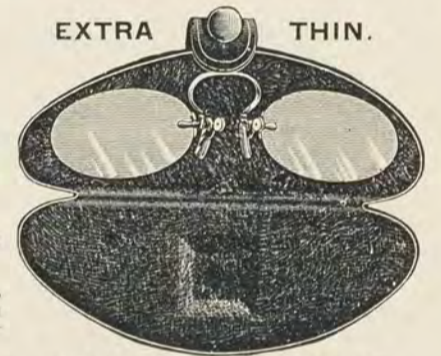


Koenen's Improved Shell Case

FOR OFFSET EYE-GLASSES.

Made in STEEL and ALUMINUM, being the lightest, strongest and best case made. Covered with the finest grade of leather. Manufactured and patented by

A. KOENEN & BRO.,
Sold by the Jobbing trade. 81 Nassau St., NEW YORK.



EXTRA THIN.

IN TWO SIZES, THIN AND STRONG.

IMPORTANT!

Those intending taking a course of study in **Skiascopy** and **Ophthalmoscopy** are reminded that appointments must be made in advance, as only a limited number of open dates are available. Terms, \$30.00. Address

L. L. FERGUSON,
32 Maiden Lane, New York.

KELLAM & MOORE'S
College of Optics (Incorporated)
ATLANTA, GA.

Two Courses—
Attendance and Correspondence.

These Courses embrace instruction in
Anatomy of the Eye,
Physiology of Sight,
Physical Optics, and
Anomalies of Refraction and
of the Muscles of the Eye.

Our diploma insures thorough qualification.
Address **Kellam & Moore's College of Optics,**
Atlanta, Ga.

Klein School of Optics,

2 Rutland Street,
BOSTON, MASS.

Special Courses During the Summer Months.

Short courses of two and four weeks will be given.

Subjects: Practical Work in Setting up Spectacles and Lens Grinding, Use of Test Case, Practical Instructions on the Use of the Ophthalmoscope, Ophthalmometer, Retinoscope, Refractometer. A certificate for attendance will be given which will certify that the student has taken part of the studies given in the regular course.

The regular school year begins October 1st.

For particulars, address

KLEIN SCHOOL OF OPTICS,
2 RUTLAND STREET,
BOSTON, MASS.

THE OPTICIAN'S MANUAL

is acknowledged by optical teachers and practising opticians to be the most practical work on optical science. It contains 406 pages, is bound in cloth and copiously illustrated. Price, \$2.00.

THE KEYSTONE, 19th & Brown Sts., Philadelphia, Pa.

Among the Opticians.

- J. E. Downs has opened an optical store at Lynn, Mass.
- D. B. Butcher will open an optical office at Joplin, Missouri.
- Walter G. Loring has opened an optical store at Woburn, Mass.
- C. O. Robbins, optician, is now with W. E. Parish, Columbus, Ohio.
- A. O. Elliott, Savanna, Ill., has taken a course in optics in Chicago.
- A. Burtson, optician, of Natick, Mass., has discontinued his business.
- John J. Burt, optician, has discontinued his business in Haverhill, Mass.
- F. C. Clement, optician, Lansing, Mich., has removed to Traverse City.
- A. E. Campbell, optician, of Worcester, Mass., has discontinued his business.
- Thomas J. Milner, a well-known optician of Big Rapids, Mich., died recently.
- N. T. Worthley, Jr., has opened a branch optical store in Jamaica Plain, Mass.
- Charles H. Barrington, optician, Meriden, Conn., has moved into larger quarters.
- R. D. Humphrey has begun business as an optician at Crescent Beach, Mass.
- Mrs. M. H. Swift, jeweler, of Turner, Ill., has taken a course in optics in Chicago.
- Arthur L. Phillips, optician, of Bangor, Me., has been visiting friends in Waltham, Mass.
- W. E. Hicks, optician, of Lowell, Mass., has recovered from his recent serious illness.
- The King Optical Co., of Spokane, Wash., has moved into better quarters in the Hyde Block.
- Peter Nerney, of the Bay State Optical Company, Attleboro, recently spent a brief vacation in Maine.
- Sischo & Beard, of St. Paul, Minn., have placed their optical department in charge of Eugene Roddy.
- Dr. H. M. Martin, principal of the Chicago Ophthalmic College, is having a summer class this year.
- Miss May Spencer, of Edgerton, Wis., has taken a course in optics at the McCormick Optical College, Chicago.
- The Chessman Optical Co., Limited, of Allegheny Pa., have added a new shop, and repainted fixtures and in erior.
- W. E. Stieren, of Pittsburg, Pa., is installing an electric light plant to furnish light and power for the store and shop.
- Caruss & Campbell, opticians, Stamford, Conn., have dissolved partnership. Mr. Campbell will continue the business.
- Jaccards, of Kansas City, Mo., have still further improved their optical department, which is now a model in every respect.
- C. E. Tilton, a recent graduate of the Klein Optical School, of Boston, Mass., will engage in business in Reading, Mass.
- The stock of the Chicago Optical Co., Allegheny, Pa., was destroyed by the recent big fire in the World's Theatre Building.
- H. E. Murdock, optician, of Portland, Me., has moved into a new store in the Young Men's Christian Association Block.
- Adolph P. Schweizer, who graduated last month from the Klein Optical School, in Boston, will start in business in Selma, Ala.
- Robt. Gester, of the East End, Pittsburg, Pa., has begun a special course in optics with the Rodney Pierce Optical Company, of that city.
- A. H. Wenning, who has charge of the manufacturing and optical departments of the B. H. Stief Jewelry Co., of Nashville, Tenn., recently took a course of instruction in optics with the Julius King Optical Co., New York City.
- Horace Spear, formerly with Andrew J. Lloyd & Co., of Boston, has entered the employ of the Globe Optical Co., of the same city.
- Dr. H. A. Thomson, of the South Bend, Ind., College of Optics, has been on a business trip to Chicago. His wife accompanied him.
- R. J. Cushing, optician, of Bangor, Me., narrowly escaped drowning, some weeks ago, by the overturning of his boat in the Penobscot River.
- A. A. Barr, in charge of the optical department of A. N. Wright's jewelry store, Portland, Ore., returned last month from a visit to the Eastern States.
- H. W. Leggette, in charge of the optical department of J. N. Mulford, of Memphis, Tenn., has taken the Julius King post-graduate course in retinoscopy.
- The San Francisco opticians reaped a harvest on the sale of field glasses to the troops bound for Manila. For a time, uniformed customers were in the majority.
- Miss Cornwall, daughter of one of the leading oculists of San Francisco, Cal., is with the Standard Optical Co., taking a course of instructions in applied optics.
- Hugh W. Hunter, optician, Hackensack, N. J., who was for many years located in New York City, died recently. He enjoyed an excellent professional reputation.
- Thomas McNary, recently in charge of the optical department at Millard F. Davis' store, Wilmington, Del., will engage in the wholesale optical business in New York.
- S. L. McKee, Wilmington, Del., who has been in California for his health, has returned, and has resumed his position as optician with Millard F. Davis, of that city.
- A student of statistics has discovered that Spain has more blind men than any other nation in Western Europe. The proportion is said to be 148 to every 100,000 inhabitants.
- Notices have been sent to the members of the Optical Society of the City of New York, announcing that the next meeting of the Society will be held September 14th in the Fifth Avenue Hotel.
- Wm. F. Dielschneider, McMinnville, Oregon, recently took a course of instructions in optics with the Standard Optical Co., San Francisco, and is now fitting a dark room in his store at McMinnville.
- Leo Brown, of Linesville, Pa., recently took a course on the trial-case and retinoscopy, from M. Loeb, Erie, Pa. He is now adding a dark room to his jewelry store, and will make refraction a specialty.
- The Shepard Co., of Providence, R. I., are sending to the trade, on application, neat show cards to hang in the store and window, advertising their Goodhue Eye Tablets, which are having a large sale.
- L. A. Berteling has withdrawn from the Berteling Optical Co., San Francisco, Cal., Joseph Nordman, of Nordman Bros., having purchased his interest, and having also been elected president of the company.
- The family of Albert G. Barber, of the Globe Optical Co., Boston, is summering at Lake View, Framingham, Mass., and the family of Edwin P. Wells, of the same Company, is summering at Cottage City.
- J. W. Weiss, with P. T. Ives, of Wallingford, Conn., has completed a course of instruction in optics in the Spencer Optical Institute, of New York, and hereafter will have charge of Mr. Ives' optical department.
- The Canadian Ophthalmic College, in connection with Cohen Bros., manufacturing opticians, Toronto, Ont., is giving optical courses, lasting two weeks, once a month, under the instruction of Lionel G. Amsden. They are said to be well attended.
- C. D. Waugh, secretary and treasurer of E. Kirstein's Sons Co., Rochester, N. V., will renew acquaintance in the East by adding New England to his territory. Mr. Foster, who recently represented this firm in New England, is no longer connected with the house.
- The Hofman Supply Co., Columbus, Ohio, now has a complete optical department, which is in charge of Mr. C. A. Graves, a graduate of the College of Optics, South Bend, Ind. Mr. Graves has all the modern appliances, and is making a record for himself in his chosen profession. Since the first of the year he has fitted more than six hundred pair of glasses, besides doing a large amount of other work which naturally comes into his hands.
- The optical business of Thomas Allan & Co., of Montreal, having greatly increased, Miss Sleret, of Ohio, has been engaged to assist in that line.
- The Northwestern Association of Opticians is the name of an optical school started in St. Paul, Minn. G. D. Bruce Tudor is secretary and treasurer. The first course began July 12th, and new classes will begin the second Tuesday of each month.
- The distribution of optical illusion cards at county fairs or elsewhere is a cheap and effective way for opticians to advertise. Some excellent cards of this variety are gotten up by Wm. M. Updegrave, Johnstown, Pa., and are being extensively used by the trade.
- The King-Stanton Optical Co., that formerly occupied the premises at 94 State Street jointly with Keil & Hettick, has dissolved and gone out of business as a firm. Mr. Stanton has taken charge of the optical department of the Keil & Hettick store.
- Arthur N. Sanford, lately of New York, and Geo. A. Brown, recently a traveling salesman in the employ of A. I. Hall & Son, of San Francisco, have formed a partnership under the name of A. N. Sanford & Co., and will start in business as opticians, at 22 George Street, San Francisco.
- The Bay State Optical Co., Attleboro, Mass., have now their new factory in complete working order, and new and improved machinery enables them to turn out a product of unsurpassed excellence. Their Phoenix-like recovery from the effects of the great Attleboro fire is a tribute to their enterprise.
- The action in the United States Circuit Court, New York, by the Julius King Optical Co. against the New York Mutual Optical Co., involving the right of the latter concern to make and sell eye-glasses and eye-glass guards alleged to be infringements of patents held by the complainants, has been ended by a decree of Judge Lacombe in favor of the Julius King Optical Co. The court held that the New York Optical Co. infringed patents which were the property of the plaintiff, and enjoined the defendants from further infringements.
- John H. Hardin, the genial vice-president of F. A. Hardy & Co., Chicago, accompanied by the firm's popular traveler, J. C. Hutson, spent several days with the American Optical Co., at Southbridge, Mass., last month. Mr. Hardin also visited several of the other optical manufacturers while in the East. The return trip was made by way of the Great Lakes. They were accompanied by Albert B. Wells, of the American Optical Co., who goes West to spend his vacation. While at Chicago he will be the guest of Mr. Hardin.

Iowa Optical Society.

The Iowa Optical Society promises to become one of the largest of the State optical societies. It was recently organized with thirty seven charter members, and a membership of one hundred is expected in the not distant future. We printed in a recent issue a portrait and sketch of the life of H. P. Holmes, of Des Moines, the energetic president. We here show the portrait of J. C. Clark, Sioux City, the efficient secretary of the organization. Mr. Clark was born in Highland, Oakland County, Mich., in 1855, and received his early education at Milford. He graduated at the State Normal School, of Ypsilanti, in 1878, commenced work for a railroad company as telegraph operator and agent, and in 1883 took up the study of optics. He is a graduate of Chicago and Detroit Optical Colleges, and took a post graduate course in Chicago, receiving degree of doctor of optometry. He is president of the Sioux City Ophthalmic Institute, is prosperous in his profession, and is an enthusiast on the matter of optical organization. Mr. Clark is recognized as an optician of high scientific attainments and skill and enjoys to an unusual degree the confidence of his patrons.



J. C. Clark.

WITHOUT A PEER!

THE HOROLOGICAL DEPARTMENT OF THE BRADLEY POLYTECHNIC INSTITUTE

Undoubtedly the finest building,
and is the largest and best-equipped watch school in the world.

A few illustrations of the many movements and models that have been made from time to time. A great deal has been said by certain schools regarding the fine movements they are making, ("which no other school has ever attempted"), among them is a Tourbillon escapement, we do not think this escapement more difficult than some others, however, we illustrate one of several of this kind which was made by one of our students some years ago. Being the first to start a school for watchmakers in this country, we naturally took the lead and have always kept it.

We had made many fine movements before any other watch school started. We not only have a **thoroughly practical man** at the head of our Horological Department, but have several assistants who are experts, and for any one man to claim that he has the only correct ideas, etc., shows he is over estimating himself.

We do not require students to remain two years to graduate unless it is necessary, but we do require them to remain long enough to become thorough workmen before graduating, if it takes ten years. This gives to those who have had considerable experience, and those who have more than common ability (and wish to work hard), a chance to graduate without waiting for the drones, as one man will do more in one year than some others would do in five years; for this reason we have thought it best not to require one to stay two years, when it was only necessary to remain one year, but to give diplomas on the merit of work, and not on the length of time they attend school.



No. 2



No. 1



No. 3



No. 5



No. 13



No. 10



No. 4



No. 12



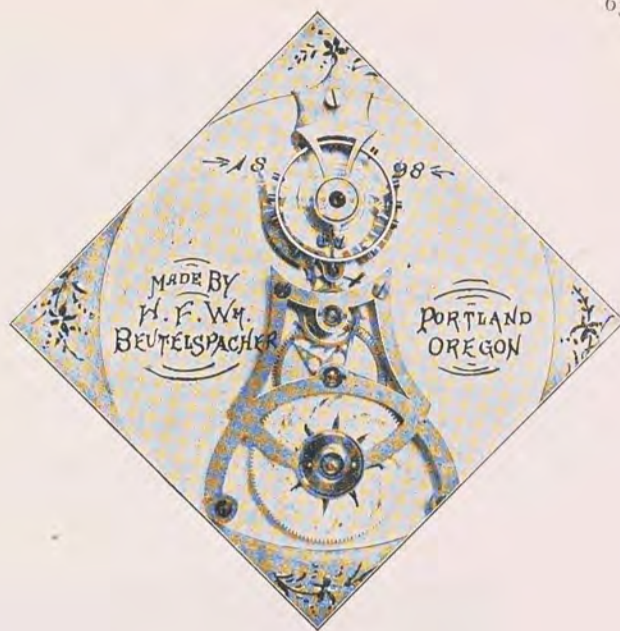
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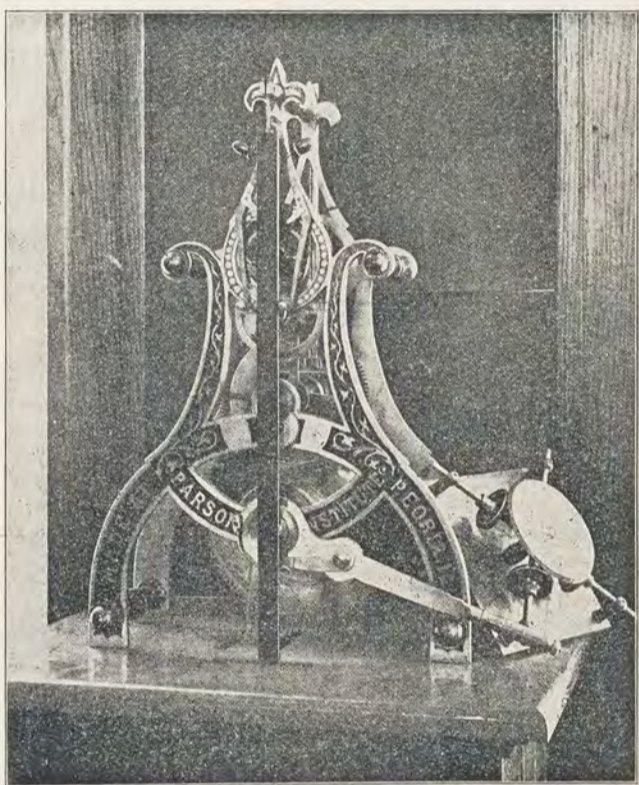
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No. 16



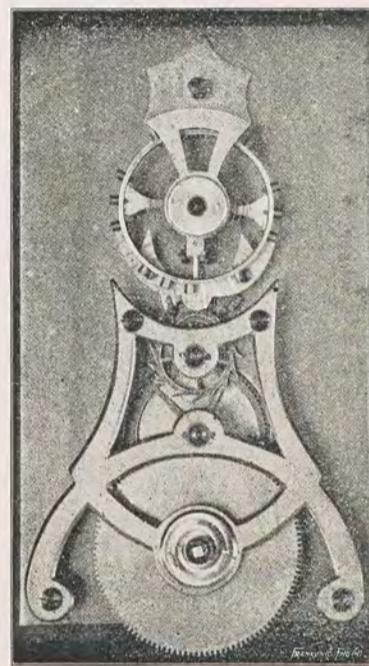
No. 6



No. 17



No. 9



No. 7

The thin model 16 size chronometer movements, shown on these pages, were made by the parties whose names appear opposite the number. The one description covering movements No. 1, 2, 3, 4 and 5.

These movements are pocket chronometers in small size, nickel plates, gold wheels, pigeon blood rubies in raised gold settings, hardened and tempered Breguet hairsprings, adjusted to isochronism, heat, cold and six positions. All were made by hand with the aid of an ordinary American lathe and one of Parsons' wheel cutters, or one of a similar make.

The wheels and pinions, and stem wind wheels, were cut on ordinary lathe. These movements are stem wind and pendant set, of our own design, and are very simple, and in some ways we think quite an improvement.

No. 1. CHAS. E. DeLONG, Peoria, Ill.

" 2. A. B. MACDONALD, Peoria, Ill.

No. 3. L. E. DEWEY, 120 Michigan Ave., Chicago, Ill.

" 4. GUY S. CALDWELL, Cortland, Ohio.

No. 5. H. H. SMITH, Pontiac, Ill.

Nos. 6, 7, 8 and 9 are escapements made for practical work in learning the train and escapement, and are made by the following young men:

No. 6. H. F. WM. BEUTELSPACHER, Portland, Oregon.

" 7. ELMO NEELY, Shipshewana, Ind.

No. 8. N. W. TAYLOR, Delphos, Ohio.

" 9. G. W. MARVIN.

Nos. 10, 11, 12 and 13 are model escapements made large expressly for the study of the different escapements. The escape wheels are one and one-fourth inches in diameter; this makes the escapement large enough so that they can be seen and understood much easier. These escapements run twenty-four hours with one winding.

No. 16 is a Tourbillon escapement made by Robert Joos, of Peoria, Ills., in 1894, and is a very fine chronometer escapement; unlike other escapements, in this respect, the entire escapement moves around the fourth wheel, changing its position every minute, giving the escapement two movements at the same time, similar to that of the earth, so that no adjusting to position is necessary.

These movements are said by some to be the most accurate timepieces made.

No. 17 represents a small tower clock with gravity escapement, which was built at the Parsons' Institute in 1895, and passed through the fire of October, 1896, being rebuilt in 1897, and now occupies a prominent place in our main office. It is a very fine timepiece and affords a good study of the gravity escapement.

In sending for catalogue, please state where you saw our ad. Address

Horological Department, Bradley Polytechnic Institute, Peoria Ill.

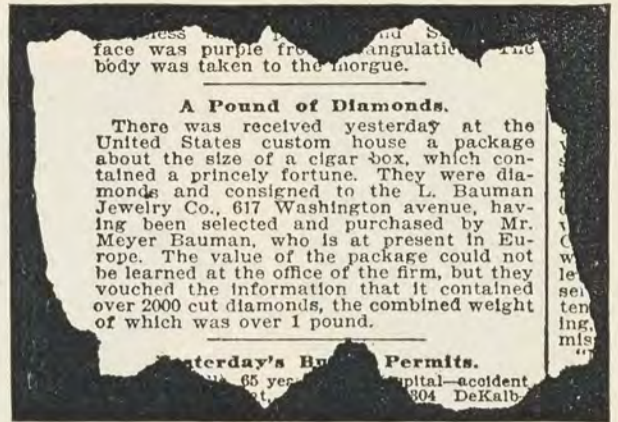
DIAMONDS

Having just received a large importation of Diamonds from the Holland markets, we are now enabled to fill your orders in this line.

Being our own importers, we claim to be able to undersell all competitors, whether you desire an original lot or a single stone.

Our mounted stock is also complete, and we can fill orders from any catalogue at a saving to you, of from 5 per cent. to 15 per cent., or more.

Selection packages sent to responsible parties.



(From St. Louis Globe-Democrat, July 15, 1898.)

LOOSE DIAMONDS

◉ 1/16	◉ 1/8	◉ 1/4	◉ 3/8	◉ 1/2	◉ 5/8	◉ 3/4	◉ 7/8	◉ 1 Kt	
<h2 style="margin: 0;">L. BAUMAN JEWELRY CO.</h2> <p style="margin: 0;">617 Washington Ave. ST. LOUIS, MO.</p>									
◉ 2 1/4	◉ 2 1/2	◉ 1 1/8	◉ 1 1/4	◉ 1 3/8	◉ 1 1/2	◉ 1 5/8	◉ 1 3/4	◉ 1 7/8	
◉ 2 3/4	◉ 3 Kt	◉ 2 Kt							◉ 2 Kt

MOUNTED DIAMONDS

To the Trade

If you wish the *Best* watch made for the money—

“Buy the Omega.”

If you wish to make a fair profit on watches—**“Buy the Omega”**—as these are sold *only* to legitimate Jewelers.

No stock complete without **“the Omega.”**

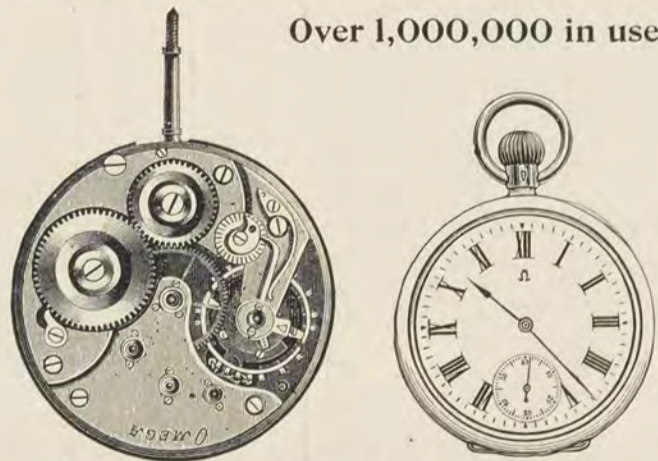
EDMOND E. ROBERT,
3 Maiden Lane, NEW YORK.
CROSS & BEGUELIN,
17 Maiden Lane, NEW YORK.

SOLE
SELLING
AGENTS.

Send for Price-List.

Omega Watches

Over 1,000,000 in use



The “Omega” are pendant-set, fit O and 16 size Waltham cases, and are made in 5 different grades as follows:

- 7 Jewels, Expansion Balance, Double Roller, Nickelized.
- 15 Jewels, Expansion Balance, Double Roller, Nickelized.
- 15 Jewels, Expansion Balance, Double Roller, Nickel Pat. Reg.
- 17 Jewels, Expansion Balance, Double Roller, Nickel, Pat. Reg., adjusted.
- 17 Jewels, Expansion Balance, Double Roller, Nickel, adjusted to 5 positions.

WARRANTED FINE TIMEPIECES.

ALL PARTS INTERCHANGEABLE.
Above made to order with dealer's name if desired.

SUBJECT TO REGULAR DISCOUNT.

Arts Allied to the Jewelry Trade.

XCIX.

Something New in Screw-Cutting Lathes.

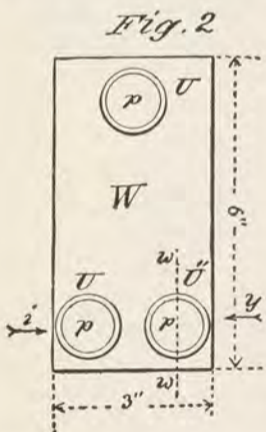


SETTING up a slide rest after the conventional type is something which requires a metal planer or a milling tool, or, in lieu of such conveniences, a great deal of painstaking labor. In this day a slide rest for a hand lathe can be bought for a few dollars, which can be added to such a lathe and enable us to turn cones and tapers. The slide rest we propose to describe in connection with our lathe, is built on the principle of the swing jewelry rest of the watch factories, and is a cheaply made and satisfactory attachment, requiring but a little labor and scarcely any expense to make.

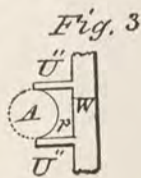
The slide, or carriage, on the ways *AA* of our lathe, is based on the application of an old idea, which, by the way, can be said of nine-tenths of so-called new inventions. We show at Fig. 1 the ways *AA'* and supports *BC* described



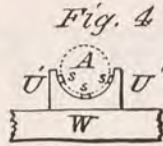
in former articles, and also at the dotted outlines *v z* the sliding carriage and feed screw. The bed of the carriage represented by the dotted outline *v*, is an oblong piece of cast iron 3" wide, 6" long and 1/2" thick. Of course, this piece of cast iron is made from a wood pattern fashioned from a piece of 1/2" board of the size named above. On the lower side of this carriage are placed what we might call three short pieces of tubing, although they are cast fast to the piece *W*. We show at



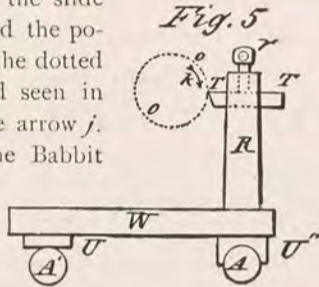
made 1/8" or less, they chill in casting and become so hard a file will not touch them. The concave shown in Fig. 3, should come within 1/4" of the slide *W*. The short tubes *U' U''* are not to be fitted to the bars *AA'*, as they are to be Babbitted; that is, have Babbit metal cast in the recess to make a perfect fit. We would say to those who are not situated so as to readily get the genuine Babbit metal, that type-metal can be substituted. The kind required can be bought of any printer as old type-metal, making use only of small-sized type, as such type is of a harder alloy, having more antimony in the composition. There is some practical mechanical skill and dexterity required in making a success of casting Babbit metal in such bearings. We show at Fig. 4 a side



view of the tube *U'* seen in the direction of the arrow *i*, Fig. 2. The three small projections *s s s* are pieces of brass wire driven into holes drilled into the curved recess in *U'*. These pins project but slightly—say 3/32"—and serve merely to hold the bar *A* from contact with the iron while the melted Babbit metal is poured into the recess in the tubes *U' U''*.



The tube at *U* is practically a blind, being provided with a flat brass or gun-metal surface, which slides on the back bar *A'* of the ways. The correct idea will be got from inspecting Fig. 5, which is a view of the slide *W*, as if it occupied the position indicated by the dotted lines *v*, Fig. 1, and seen in the direction of the arrow *j*. When casting in the Babbit metal, the parts shown in Fig. 5 are bound together with strong binding wire in the relations shown, and then turned bottom up; that is, so the short tubes *U' U''* extend upward and allow the Babbit metal to be poured in to fill the space between the tubes *U' U''* and bar *A*. To prevent the fluid metal from flowing out at the opening formed by the pins *s s s*, Fig. 4, we pack the joint between *U'* and *A* with stiff putty or rye bread chewed into a plastic mass, but not too wet, as the steam would cause the hot metal to fly.



After all the parts are fitted as described, the piece *W* and bar *A* should be heated up to the melting point of lead, or about 600° F., and the melted Babbit, or the substitute type-metal, poured in between *A* and the bearings (tubes) *U' U''*. We could easily have made the bearings *U' U''* so as to have enclosed the bar *A* and slide on it, but such policy would soon cause side shake in the bearing, and we should then have to provide means to take up such side shake. We could also have fitted a concave or hollow in the third projection *U*, Fig. 2, to slide on the back bar *A'*. Now, while such a plan would seem desirable, still it would require greater accuracy of fitting than would be liable to be bestowed upon it. Neither is such accuracy to be recommended.

The reader will remember that throughout the entire construction of our lathe the fitting has been directed toward making the front bar of the bed, or shears *AA'*, the base of measurements and the guide, as far as accuracy was concerned, for the entire lathe. This idea properly carried out ensures us of a very high degree of accuracy for a moderate degree of care. For holding the carriage or slide *W* rigid, we employ a weight suspended from the lower side. Now, let us understand the advantages and also the disadvantages of employing a weight to ensure stability. In illustration and explanation we refer to Fig. 5; where we show an imaginary tool-post at *v*. In this tool-post is inserted a turning tool, shown at *T*, said tool is supposed to be acting on a piece to be turned, and represented by the dotted circle *o*. Now it is evident that the chief stress exerted on the tool *T* will be downward on the bearings resting on the bar *A*.

"Enclosed find one dollar. I can truthfully say that *The Keystone* is the best paper in the world for information pertaining to the retail jewelry trade."—A. E. Job, jeweler, Dundee, Mich.

Attract the Public.

One of the essentials in the establishment and success of a business is the ability to conduct it so that the support of the public becomes assured. The best means by which this can be done is to appeal to the self-interest of the purchasing portion of it. As an example one could refer to the general store where it will be found that when goods of similar quality to those in other stores can be bought for a lower price than in the store which attracts most trade. When this economy in price is also made more attractive by greater conveniences in buying and more courtesy and attention on the part of the clerks, the popularity of the store becomes greatly enhanced. If people will take the time to consider the origin and growth of a successful business concern, they will find that the manager of it was a man who possessed great forethought, judgment, common sense, tact and individuality; he possessed a clearness of vision which his competitors lacked, and which enabled him to look ahead and forestall any unpleasant contingency or take advantage of good opportunities. This is about all any successful merchant has to do; it sounds very easy; but it is very difficult to do; unless nature has kindly bestowed the fortunate temperament which assures and secures this happy combination of circumstances. At the bottom of all solid, lasting success must be sound sense—no wandering off into irrelevant matters, but a fixed intention of working with a singleness of purpose which will attain its end if it is united with ability and intelligence. —Stoves and Hardware Reporter.

A Source of Complaint.

Merchants often have good reason for complaining about the way bills are made out. They are sometimes so illegible that it is well-nigh impossible to decipher either name, quantity, or cost of some items. This is due to carelessness and extreme haste on the part of those who make out the bills. Another form of thoughtlessness is the neglect in stating terms on the bills. The universal tendency to take it for granted that the terms are known causes many almost irreparable mistakes and misunderstandings. Vague statements in cases like this cause a great deal of trouble to those who have to settle the bills during the year. It is a difficult task to bring about a reform in this matter, as such habitual negligence cannot easily be done away with. Still it should be impressed upon the minds of those who are given to making such errors that they cause much vexation and loss of time when goods are billed in this way; though should a refusal be made to purchase goods from a house which employed such objectionable methods it may not always be politic, for in some instances it might be the one from which goods could be the most advantageously bought. There is at least one method by which the problem could be solved and that is to make a note of the terms in a memorandum of the order which is left by the traveling man, or in other cases where the goods are bought at the house the buyer could make a memorandum of the terms. As a rule, goods are generally billed on regular or net bills, according to the class to which they belong, and only where special terms are allowed would it be essential to do this —Ex.

"Jewel Stealing."

"It is not unusual now-a-days," writes a KEYSTONE subscriber, "to hear a man say, 'I believe that jeweler stole all the jewels out of my watch, and put in cheap glass jewels instead.' I think this fallacy is most prevalent in the old countries, but this country is not free from it, and it causes much trouble and annoyance to the skilled watch-repairer. Some jewelers propagate the fallacy to impose on the ignorance of the public, others to get gain and 'down' their fellow jewelers by telling their customers that the other jeweler stole all the jewels out of their watches, and charge them from \$5.00 up for pretending to put in new jewels. It is also an injury to the public, as it causes people to carry their watches often until they are worn out, instead of having them cleaned every twelve or eighteen months. A great many customers will stand and watch the jeweler all day, if necessary, to make sure he does not 'steal the jewels which are worth \$5.00 apiece,' and the poor ignorant customer does not know that the jewels only cost five to fifteen cents apiece, and that their value is in properly fitting and setting them in the watch.

"I think it would be a wise plan for all honest jewelers to watch along this line, and if they find any jewelers using this 'jewel stealing gag,' either for gain or injury to their fellow jewelers, to prosecute the offender to the extent of the law."

To Secure a **CONTENTED CUSTOMER**



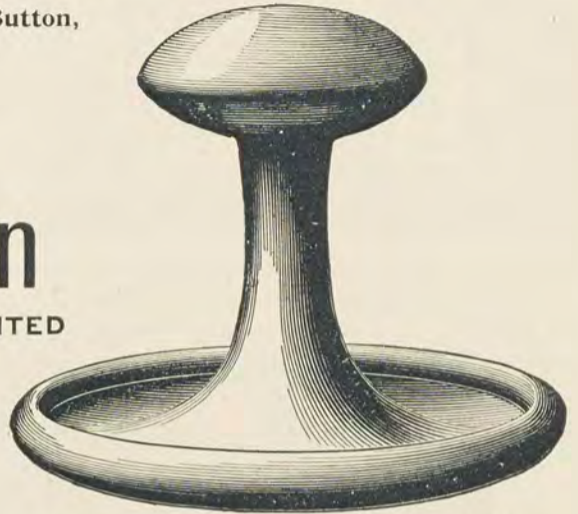
Sell him a **Krementz One-Piece Collar Button**, for dress shirts, as represented by cut.

KREMENTZ ONE-PIECE DRESS SHIRT Collar Button

PATENT SUSTAINED BY THE U. S. SUPREME COURT.

PATENTED

Made in **3** sizes, known as **7^L, 8^L AND 9^L**



The Standard American Collar Button.
Extra Long Post. Extra Width of Back.

Guarantee: If from **ANY CAUSE** one should get damaged, either in the hands of the **DEALER** or **WEARER**, a new button will be **GIVEN IN EXCHANGE**.

SOLVES ALL COLLAR BUTTON PROBLEMS.

- 1—One piece.
- 2—Never break.
- 3—Head right shape.

- 4—Post right length.
- 5—Easiest to button.
- 6—Stays buttoned.

- 7—Easiest to unbutton.
- 8—No lever or twist to bother.
- 9—No repairs; customer gets new for old one without charge in case of accident of any kind.

18 K., 14 K., 10 K. GOLD, STERLING SILVER AND OWN MAKE 14 K. ROLLED-PLATE.

KREMENTZ & Co.,

49 CHESTNUT ST.,
NEWARK, N. J.



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THE TRUE BLUE



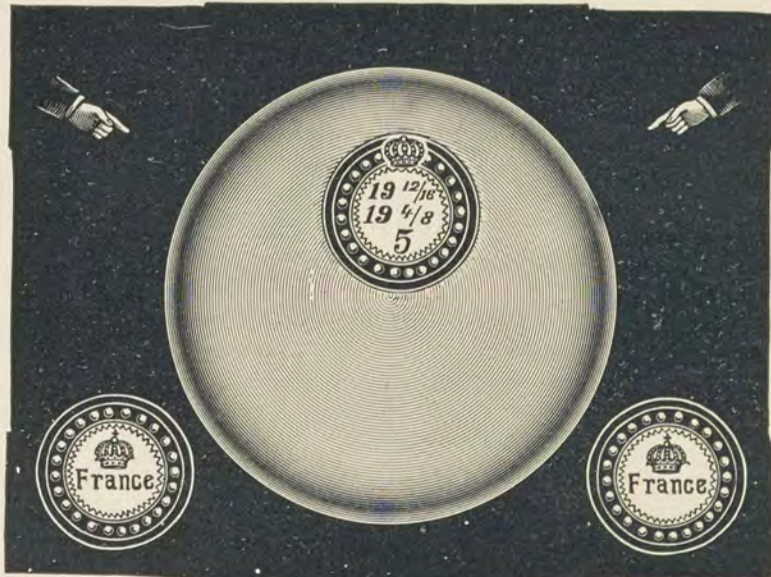
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ASK YOUR JOBBER FOR THEM.

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LORSCH BUILDING,
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NEW YORK.

Electro-Metallurgy.

VI.

Watch Case Gilding.



THE "dodge" we described at the close of the last preceding article in this series is much on the same order as "re-inforcing" silver plating on spoon bowls, which we shall consider a little later on. Careful thought given to such matters in connection with our suggestions, will enable the workman to apply the plan of thickening certain parts of an electro deposit to great advantage. Any person who has had any experience in handling plated cases need not be told where such cases wear through first, and these are the places to give such thickness of plating.

The pendant bow should be gilded by itself in order to receive a much heavier deposit than any other portion of the case. In conjunction with this idea of thickening certain portions subject to excessive wear, we should call attention to the fact that replating in gilt cases we might just as well remove all the old gilding as to leave it on, because it will in no way aid in enhancing the wear of the new deposit. This removal is very similar to the process of removing fire coat, except it requires more time and care.

In stripping gilded watch cases, it is seldom we would find one with less than three-fourths of a pennyweight of useless gold upon it which might to advantage be removed. This gold has sufficient value to be worth looking to, and inasmuch as it in no way adds to the durability of the new gilding, can as well be taken off. For such operations a storage cell is the proper thing to use, especially as it will require some little time to best remove the gilding. The low voltage of a storage cell is no objection to the stripping process. Such use of storage cells is particularly recommended when a hand-power dynamo is employed, as three or four cells can be charged at one time and each cell used separately for stripping.

When using a storage cell for stripping or removing the old gilding, it is well to put a slight resistance in the circuit to make the process rather a slow one. This course as a rule gives a smoother ground for the gold deposit. Gilding for making money requires to be conducted in such a way that the operator has no waste time on his hands. As for illustration, when he has a lot of cases in the process of stripping, he should arrange to have other work laid out to occupy him while the operation is going on.

After the gold is all removed, the case is usually not in the best possible condition for gilding, because as a rule the surface is more or less scratched or pitted by wear. If the case in hand is a perfectly smooth one, all that has to be done is to repolish it, but if it is engraved, the operation must be more carefully conducted. Of all the polishing tools employed to smooth and polish metal, brushes and soft buffs are to be avoided in polishing an engraved case before regilding, because they give the edges of the incised lines a rounded, worn look. Hard leather buffs are the kind to employ, working across the lines of the engraving as much as possible.

Burnishing can in many instances be resorted to good advantage in preparing a watch case for

regilding. In burnishing, the action of the burnish should be such as to avoid rounding the edges of the lines of the engraving. We should be careful to avoid any burnish marks showing on the work. After a burnish has been used, the hard buff should be employed to remove every trace of the burnish. Book binders' calf skin makes excellent hard buffs for hand use. In many instances such buffs are the better for not having a wood back. An excellent plan is to attach strips of such leather only at the ends to wood blocks, said blocks being attached to a bit of smooth lath, which serve to keep the leather drawn flat and tight. Such leather buffs should be made from leather which has been plunged in boiling water to harden it.

Abrasive materials of different degrees of fineness can be employed on these buffs. For a buff for smoothing a watch case prior to regilding, we do not want one to polish, but rather one to produce a surface so smooth that no lines on it will show through the gilding. The underlying idea of the action of such buffs is, they will adapt themselves to the larger curvatures, and still will have but little tendency to round the edges of engraved lines.

Tallow with a little rosin added is about the best material for holding abrasion material on to buffs of this kind. Endless belts worked by power made of such material do extremely well, but for watch case and jeweler's work should be quite short, say the driving pulleys two inches in diameter, and twelve inches apart from center to center. The belt for this purpose should be about two-and-half inches wide, and the pulleys quite convex in the center. Such belts will be found a great adjunct in preparing watch cases for regilding.

"Your letter of notification to hand, and glad you sent it, as I would not miss a number of The Keystone for twice the subscription price; and find enclosed one dollar for the continuance of the same."—S. Dickson, Fortuna California.

The Energy of Cannon-Balls.

An interesting comparison was recently made by *The American Machinist* for the purpose of giving its readers an accurate idea of the tremendous force developed by big cannon nowadays. The largest guns used on naval vessels to-day have a thirteen-inch bore. The projectile for a gun like this weighs 1,100 pounds, and a charge of powder amounting to 500 pounds is ignited behind it. The shot acquires a muzzle velocity of about 2,000 feet per second. Few people have any notion of the energy that is here represented.

Our contemporary asks its readers to think of a locomotive engine weighing 100,000 pounds. This is fifty tons. Now if the locomotive were moving at the rate of forty miles an hour its energy would be scarcely more than one thirteenth that of the cannon-ball. In other words, if thirteen locomotives were to smash up against a stone wall all at once, the blow which they would deliver would be no more severe than that of one shot from the thirteen-inch gun, assuming that the muzzle of the latter was placed only a few inches from the same wall. Inasmuch as the projectile would be small it would concentrate its action on one spot, and do more harm, apparently, than the thirteen engines. But the amount of energy would be the same.

In one case there would be a small mass and a high velocity, and in the other a large mass and a comparatively low velocity. Forty miles an hour is a pretty good speed for a locomotive, but not for a cannon-ball. The momentum of a moving object is computed by multiplying the weight by the velocity, and this was done in the very suggestive and surprising calculation here quoted.

It has been estimated by ordnance experts that if a shot from a thirteen-inch gun should strike an armor plate only a few inches from the muzzle of the gun, it would pierce twenty-six inches of Harveyized nickel steel.

The above calculations will give our readers some idea of the almost incredible force of the projectiles now used with such destructive effect by our warships.

The Principals of Buying.

Times have certainly changed since the period when it was the custom to buy goods twice a year in sufficient quantities to last several seasons. The practice is almost completely changed now and selections in the early season are often confined to specialties and some novelties, which are manufactured in a more or less limited quantity and give a choice in designs and different makes. The conservative retailer also purchases an amount of staple goods which will answer his customer's needs. While doing this he exercises precaution not to overstock in any particular line, nor does he place orders for larger quantities than he is almost certain he can dispose of in a manner which will enable him to avail himself of the most favorable cash discounts. When it is needful, with this foundation stock on hand, he can replenish as often as he desires. By the exercise of prudence and forethought, his stock is kept so well in hand that he is thus in a position to take advantage of any offer which may prove beneficial to himself. These are frequently made by various wholesale houses during the mid-season. There is an additional advantage connected with this method of buying, and that is the merchant has a new and fresh line of goods always in stock to show his customers.

When bills are distributed in this way by frequent buying he has no trouble in meeting them at the proper time. If purchases are thus made by the retailer as the current demand may fluctuate, he will have no reason to complain if weather is bad and trade is not so good. In cultivating caution and care the dealer will have fewer old goods in stock and that which he does possess will be cleaner in every sense of the term. In this progressive age a well assorted stock is necessary in smaller towns as well as larger cities. With this in mind it would be well for the merchant to comprehend that it is not entirely a matter of the size of his business, but the number of times it is turned during the year that makes the successful merchant. —Ex.

The Value of Character.

Did you ever examine and consider the blank issued by The Mercantile Agency—R. G. Dun & Co.—for the purpose of obtaining information as to the responsibility of merchants? Do you know the nature of these questions and how they are arranged?

The first questions are such as any one would ask in prosecuting an inquiry of the kind indicated: The name of the firm, the nature of the business, the full names of the partners, whether they are married or single, their ages, how long they have been in the business, whom they succeeded, where they come from, and their former occupation.

After this routine has been gone through one would naturally expect that the next and most important questions would be: How much capital is invested? How much of it is borrowed? What amount of stock is carried? What is the amount of the outstanding accounts? Are there any chattel mortgages or judgments? What real estate is owned by the firm? Whose name is it in? And so on.

But, no. The first question asked is not as to the possessions of the firm, but as to the character, habits and ability of its members. And the first of these is character. That is to say—before money, before ability and before everything else, this mercantile agency, after years of experience in arriving at the assets of a concern, places character. And still before capital comes ability. Character and ability are therefore decided by the best judges to be the factors in a merchant's success.

This fact should offer the greatest encouragement, not only to merchants who may be fighting a hard fight, but to the clerk who, as he regards his weekly salary, is apt to feel it impossible that he shall ever get into a position where he can have a business of his own. But let him just think, "It is not so much money, it is not so much ability, that is necessary, but character," and hope cannot but revive in his heart. "The acquisition of money seems impossible," he can say to himself. "Ability? Well, I have my share, but I do not believe I have enough of it to set the world on fire. But character is within my grasp, and as it appears that character is the first essential to the obtaining of credit, why, let me cultivate character."

And he will find, if he cultivates character, ability will come with it, for there is no man of character who is not diligent—the sticking everlastingly to it—is in ninety-nine cases out of a hundred equal to all the ability in the world.

First build up your character. That will bring you ability; and ability and character will bring you credit; and do not forget that practically all the great businesses of to-day were begun on the smallest possible scale, and many of them with borrowed capital. —Dry Goods Economist.

AIKIN, LAMBERT & CO.,

Manufacturers of Fine Gold Pens; Holders in Pearl, Silver, Gold, Shell, Agate, Ivory, Ebony and Gold Plate; Pencil Cases, Tooth and Ear Picks, Glove Buttoners, Match Boxes, Paper Cutters and Silver Novelties.



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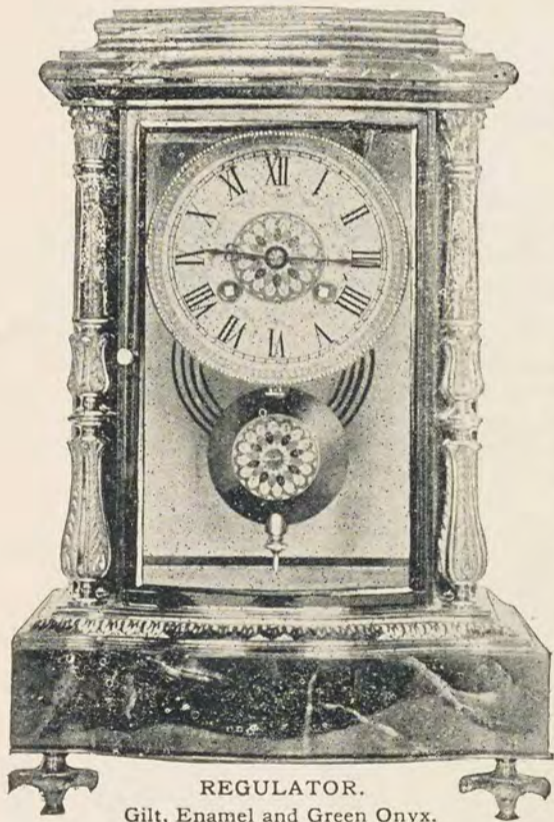


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Junghans' quarter-strike Mantel Clocks are controlled by us. In Oak, Walnut and Mahogany Cases—Mantle chiming Clocks, the Westminster Chime on four gongs, and the Wittington Chime on eight gongs. A fine new line.

"ELITE" Weight Chiming Movements—the best in value and quality.

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MAKERS OF ALL
KINDS OF

CHAINS

Ten Miles from an Inkstand.

BY JOHN TWEezer.

I am writing from a camp in the woods, with the stump of a pencil which I opportunely found in the fob-pocket of a disreputable pair of trousers, saved from the rag-bag for this outing. I am ten miles from an inkstand and a postage-stamp, and from the things otherwise considered essential to human happiness according to the cult of up-to-date civilization.

In the past few days I find myself growing skeptical as to these "essentials." I begin to think, with the hero of Bret Harte's verse, that civilization is "played out"; and in this "forest primeval, the murmuring pines and the hemlocks" are whispering heresies concerning the rational way of living. And they are old enough to have observed a great deal, and seem given to profound thinking.

Here are two dozen good fellows who have run away from the world for ten days. They are living for the time on a little plateau on a mountain-side, in tents. Great forest trees stand sentinel all around them, against the encroachment of civilization upon their seclusion. A wild, rocky river rushes by, two hundred feet below, and their morning ablutions are made in its shining depths. On its thickly-spread black boulders they sit to wile the wary bass and cozen the wicked pike. A great spring gushes out of a near-by rock, to woo the thirst of throats tamed to artificial drink. A constant breeze fans the sun-browned cheek, the cool nights invite to "sweet sleep, and health, and quiet breathing," and the tonic properties of the surroundings stimulate "that good digestion which waits on appetite." A black eagle, rounding into the blue over the tree-tops, is the type of the freedom from convention of this eyrie on the mountain-side, an expression of the spirit of this sanctuary.

The score or more of men here are busy folk when at home. They fill various important places in their several communities—in mercantile, professional and official life. A number could write their wealth in six figures. Yet in this congenial company, and in the midst of these surroundings of untamed nature, the campers are attired like tramps. Clothes are the last question. The first, the fundamental thought, is the joy of mere living. Every other matter is secondary and no-account.

And no thought of the morrow harasses the pleasure of to-day. The office or the store might be on another planet, as far as our consciousness tells us under these trees. The problems which vex and disturb were left behind with our starched shirts. Care cannot float its burden down this rock-bound, noisy river, nor climb these fern-clad steps. The mind empties itself of all forebodings, and with new insight

"Finds tongues in trees,
Books in the running brooks,
Sermons in stones, and good in everything."

I am sure that we do not often enough put ourselves into intimate communion with nature. There is no better "medicine for the soul," or for the mind. All the operations of civilized society are more or less artificial. We grow up in an atmosphere of veneer. We inherit habits of thought and take our beliefs at second hand. It is well for us on occasion to unmask our natures—to reveal ourselves to ourselves. We cannot easily do this among our familiar surroundings—the influences of convention are too strong to permit us to break through the shell of habit. But wild, untamed Nature offers asylum to our burdened

minds and souls. The old trees are the best confessor; the wide stretch of untracked river lures our inner speech to strange unburdenings. If we put ourselves close to the Great Mother and reveal to her the sense of our insufficiency, she will counsel and strengthen as in the days of the old mythology, when men believed that they were strengthened by simply throwing themselves on the earth. We need more of this contact with the elemental powers. We need to realize the limitations of code and tradition in the making of character, and the tonic properties of unconventional nature—the strengthening and life-giving properties in wood and stream and naked hill. They speak to our inner consciousness in unfamiliar plainness of speech, and our horizon of thought and concept broadens. We come to distinguish between the fundamental and the non-essential: between the real thing and the make-believe. And Nature always "speaks true"; she "never hath deceived the heart that loves her."

Some such outing as this makes the best use of any ten summer days for the busy man. It is the complete *change* which brings about the complete rest. It is no wasting of money, for we will be better able to make money hereafter from the timely spending now. It is no waste of time, for we live a year in the ten days. And you take into your life such store of vital energy, gathered from the intimate communing with Nature, so much abundance of material for the aftermath of pleasant remembrance of your contact with your fellow-men when you came upon them stripped of their pretensions and in their primitive simplicity of soul, that the outing is justified from the standpoint of investment, if from no other.

In ten days I shall be back to my inkstand and shall take my place in the complicated train of machinery which is called modern civilization; but these trees, and the rushing river below, hold me in thrall in the meanwhile, and they charge me to take to tired jewelers, the country over, the invitation of Nature to "loaf, and invite your soul."

A Suggestive Fact.

At Santiago a Spanish fleet of splendid war vessels, equipped with powerful guns, was utterly destroyed, with great loss of life, while not a single one of the attacking battleships was injured and only one person killed. At Manila another Spanish fleet was destroyed, with no injury to the Americans in ships or men. How was it possible.

The answer is found in the fact that the modern Spaniard is a combination of pride and laziness. Rampant aristocracy joins to a universal conviction among the plebian people that labor is degrading. The result is national incapacity to compete in war or in peace with nations who exploit the dignity of labor.

There is no modern nation which places so high a prestige upon mere birth as does Spain. One-fifteenth of her men are "nobles"; and these "noble" gentlemen would rather die than fail to keep up appearances. Two things are more important to him than food and drink—he must show himself on the Prado at a certain hour in the day in a carriage, and at night at the opera. For the rest, how he lives, nobody knows and nobody cares. On his return from the drive he may partake of a dinner of the meanest food, and nobody is the wiser; there is a national proverb which says, "The stomach has no windows; what a man wears everybody sees, but what he eats nobody sees."

These nobles are nearly all pensioned by the government, for imaginary services; or they are given official places where they can pilfer, and they universally do so. The turbulent paupers at one end of the line are not as serious a menace to the nation as the arrogant aristocracy at the other end. A nation whose proudest boast is her long list of pensioned dignitaries is hopelessly handicapped when her poor people are committed to the principle that manual labor is the badge of degradation. Between the two strata of the rich-proud and the poor-proud, the decadent nation exhibits the results of the besetting sin of laziness, in soldiers who have not learned to shoot and citizens who are unable to provide.

Such a nation, at war with another which believes in the dignity of manhood and the dignity of labor, must inevitably give place in the end; for it undertakes to subvert the fundamental law of national growth and development, as written in the history of all peoples of all times, "Labor conquers all things."

The Clock-Tinker in the Kitchen.

I recently made a discovery of new danger to the prosperity of the watchmaker of the future. The revelation came about through my colored cook.

Dinner was late, and I was in a hurry to attend a committee meeting. My wife was not in call, so I sought old Sarah, to see if matters could not be hurried. "Deed, I's awful sorry, boss, that dinner's late, but the clock giv out, and I had to fix it." I looked up at the mantel, and the nickel clock wasn't visible. "What did you do with the clock, Sarah?" "Why, boss, the old thing wouldn't go—s'pose it was duhty, or somethin'—so I just thought I'd put it in ohder. It'll be all right by breakfast time."

Here was a clear usurpation of my prerogatives as the head of the house, and a watchmaker to boot, but I held my peace, curious to learn the ways of amateur clock-repairing and the mechanical inspiration of an Ethiopian cook. So I inquired, not without some misgivings, "How did you fix it, Sarah?" He ebony countenance took on the expression of the sense of duty done as she answered, with exultant self-approval, "Why, boss, I *biled* it?"

"You what?—BOILED it?"

"Deed I did, Mistab,—biled her good. Reckon I'll get all the duht out of her, so we don't have no more late dinners 'roun' heah. I biled her good, sure. It's settin' outside the kitchen doah, dryin' in the sun. I thought ef I put it on the stove it moight dry too rapid and spite the works."

I appreciated the nice consideration for the "adjustment to temperature," but I knew that the clock was irretrievably ruined, of course—"butchered to make an Ethiope's holiday." I made a note of it to bring another nickel clock from the office in the morning.

But in the morning I didn't do anything of the kind—nor have I done so to this day; for the old clock is going ahead with a new lease of life, and my visions of rust and "general cussedness," as the result of the "biling," never were realized. The cook *had* "fixed" the clock, to the confusion of all my notions.

Is our occupation gone, indeed? Are we to yield place to The Clock-Tinker in the Kitchen? Shall Sarah and Biddy, by swift "biling," deprive us of the slower operations of our brushes and cyanide? The future is dark with foreboding.

J. T.

A Grand Success

is the **SILENT SALESMAN** case in any well-conducted jewelry store. It leads to rapid selling. We are putting them in many of the modern stores. Write for catalogue and any information desired.

IT COSTS YOU NOTHING.

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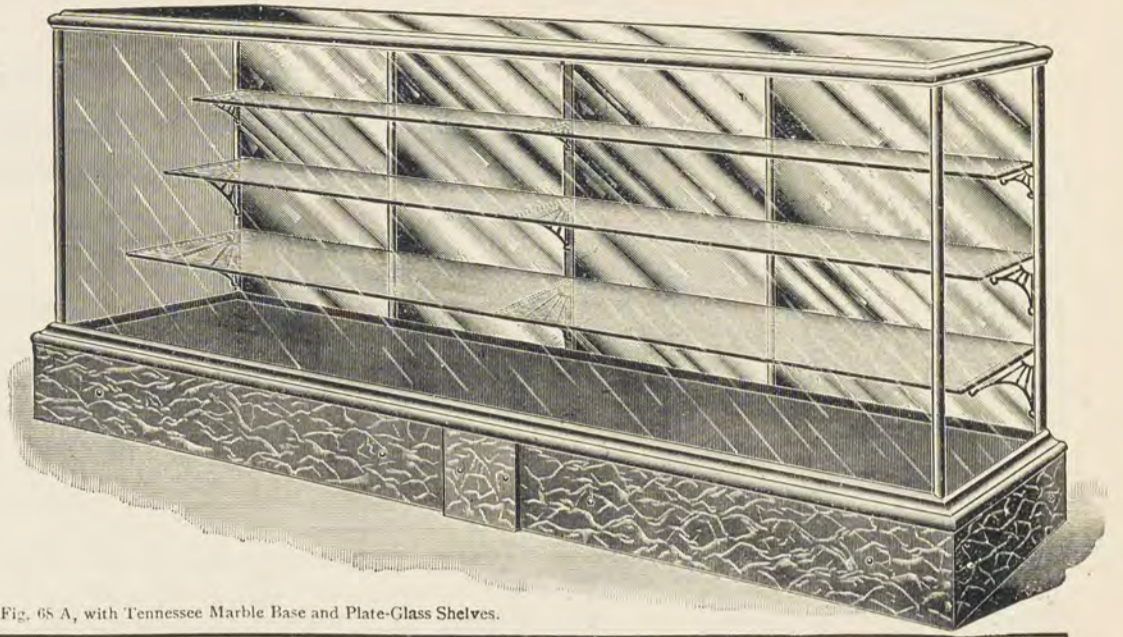


Fig. 68 A, with Tennessee Marble Base and Plate-Glass Shelves.



Success on the Sea

is due to exactly the same cause as success at the work-bench, viz., intelligent practical teaching by masters of the art. In the whole horological field there is one notable institution where the instruction of the pupil in watchmaking is so thorough that his success is positively

assured. The watchmaking world knows that this institution is the

Waltham Horological School

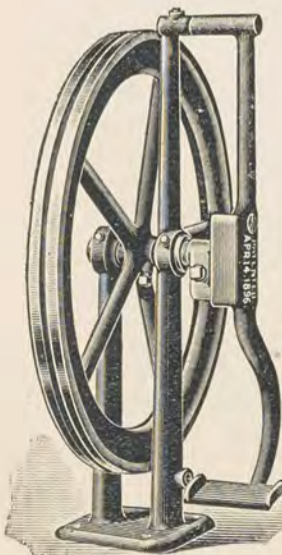
which is the oldest and has the best equipment and instructors.

Thorough instruction given in *Horology, Engraving and Ophthalmology.*

Every pupil has the privilege of making a watch while here, and owning it when finished, without extra cost.

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SOUVENIR COFFEE SPOONS.
\$9.00 dozen.

LIEUT. HOBSON,	ADM. DEWEY,
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and any of our Country's Battleships or Cruisers.

The above Spoons will be sold in any quantity. Any other portraits at same price, but in dozen lots only.



No. 1320.



No. 5671. "RABBIT'S FOOT" CHARM.
Admiral Dewey had one at Manila, May 1, 1898.
\$1.50 dozen; \$16.50 gross.



No. 2046.

No. 2046. CREAM JARS.
\$1.25 dozen; \$13.50 gross.

All goods Sterling Silver $\frac{225}{1000}$ fine.

TERMS—3 per cent. 10 days; 30 days net.

SIMMONS & PAYE,

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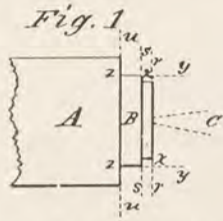
Watchmakers' Tools, and How to Use Them.

CX.

Setting Plate Jewels in Gold Settings.



THE operation of turning a jewel-setting when cemented to the end of a cement brass must be conducted in a very careful manner or the setting will break loose. The idea will, perhaps, be better understood by inspecting Fig. 1, where we show at *A* a portion of a cement brass and the jewel-setting at *B*. When carefully considering the details of the last operation of turning a jewel-setting, we should bear in mind the fact that we are now only ensuring the centrality of the hole in the jewel. We are aware that many workmen assert that this extra care is uncalled for and unnecessary, but we insist that it is absolutely demanded in watches which make any pretense to accuracy of construction.

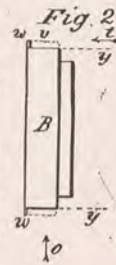


All workmen who have given proper attention to the subject of epicycloidal gear wheels know that such wheels require very accurate depths, or all the care and trouble taken to shape the addendum or ogives of the teeth of such wheels is thrown away. Now, to obtain accurate depths, it is imperative that we start with absolutely perfect centers in the plates and cocks, and then maintain such perfection through all subsequent operations. The point we have in view now, is to set a jewel so that the hole in said jewel is exactly concentric to the outside of the setting. To do this we resort to the cement chuck process for securing final accuracy. We are well aware of the claim being made that if the jewel is true and we set it true, that is all that is required.

We all know that many claims as to accuracy in mechanical matters are in a great degree mere claims and without just grounds of foundation. It will occur to any person who will give the matter careful thought, that there are many possibilities which can occur in setting jewels which will lead to the incorporation of errors and inaccuracies; but by the use of the cement chuck such errors can be eliminated. In turning a jewel-setting, as shown at Fig. 1, we first, as already stated, true the set jewel *B* on the cement brass *A* by means of the hole in the jewel, and pegwood *C*. As the jewel now stands, the hole is exactly central, and the problem in hand is to turn off the outer side on the lines *y y*, which represent the diameter of the sink in which the jewel-setting is to go.

As stated in a former article, the chief trouble in turning a setting like *B*, when cemented to a cement brass, is the liability of its breaking loose. To prevent this, the setting *B* should be turned to as near the required size as possible, and still leave enough metal to turn away to bring the setting absolutely true with the hole in the jewel. It is well to know that the critical point in turning a setting lies in cleaning out the angle at *z*. The cement will hold to do a considerable turning on *B* until the tool approaches the angle, and then a thin filament of metal forms and forces the setting away from the cement brass. This will be better understood by inspecting

Fig. 2, where we show an enlarged view of the jewel-setting by itself. In this cut the dotted line *v* represents the portion of the jewel-setting to be turned away.



Of course, as shown in the cut, the portion of metal to be turned away is exaggerated for the purpose of illustrating the action. Now the point to be shown is, that as we turn back in the direction of the arrow *t*, a feather-edge forms at *w*, which gradually forces the jewel-setting away from the cement fastening. We can not abandon the cement plan which has, so far, been devised for the purpose. By knowing exactly what not to do, we can avoid the difficulty to a great extent. In turning down *B*, as before directed, we must go slow, and not carry the turning forward in the direction of the arrow *t* until the face of the cement brass is reached, but leave a flange of sensible thickness at *w* to be removed at a subsequent operation.

In the original measurements the portion of the setting between the lines *u s*, Fig. 1, is in excess—that is, the setting is too thick. To make the matter better understood, we refer to

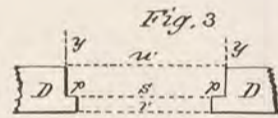


Fig. 3, where we show a vertical section of the movement plate *D*, in which the jewel setting *B* is ultimately to go. It is to be understood that if the setting *B* was placed in the sink *p*, in the plate *D*, the surface of the setting *B* would rise above the plate, as shown at the dotted line *u*. This excess in thickness need be but little, say $\frac{1}{1000}$ " or $\frac{3}{1000}$ ". It is to be remembered that the measurements as regards the height of the step *x*, was turned to absolute measurement while the setting *B* was attached to the chuck, secured by soft solder. The measurement for the height of the step *x* is best determined by means of a height-gauge. It is also to be remembered that the space between the lines *s r* governs the end shake of the arbor.

The measurement for the diameter of the outside of the jewel-setting can be determined by measuring the old setting with a well-made douzieme gauge, and turning the new setting to match. After the setting *B* is turned to fit the sink *p*, in the plate *D*, Fig. 3, the little flange *w* is turned away by approaching the graver in the direction of the arrow *o*. If the operation is conducted carefully there is but little danger of breaking the setting loose. It will be remembered that our setting was left a little thick, and our next care is to remove this excess, which can usually best be done by rubbing the setting on a new pivot file, holding the setting on the end of the fingers. This operation should still leave the setting a very little flush of the plate, this last excess to be removed in the subsequent polishing. In our next article we will tell how to sink for the screws and polish the setting.

Speaker Reed's Jocular Telegram.

Speaker Reed recently wished to see a political friend on some very important business, and telegraphed him to come at once to Washington. The friend took the first train but a washout on the road soon stopped him. Going to a telegraph office, he sent this message:—"Washout on the line; can't come," to which in due time he received the following reply from the Maine statesman: "Buy a new shirt, and come anyway."

Men Who Succeed in Life.

It is only the best who climb to the top in business to-day. And it is demanded that the best of to-day shall be a great deal better than were those who were thus termed yesterday. This is in keeping with the spirit of the times, which demands a higher standard of qualification for everything, except, perhaps, politics. Best is not the gift of genius. It is the product of the will. Every one, therefore, who has the will can earn a place in the ranks of the best. Of course, the man who has no adaptation for business can hardly be expected to qualify high for that which Nature never intended him. We are presuming that there is adaptation. The foundation of success in whatsoever avocation a man may engage is education. There is, first of all, the knowledge to be acquired that will enable him to read, write and figure. And then there are the elementary lessons in the business, or any other calling in which he engages, to be mastered. The great majority of the failures in business to-day are due to the fact that there are so many engaged in it who have had no training for it. And the trouble is that a good many of those thus situated know everything. They know so much that they do not even require a trade paper. In the sphere which it has pleased themselves to call themselves they twirl around for a while and twirl out of it again, sadder if not wiser men. Training is needed for the shop every bit as much as it is for the bar or the surgery, and the sooner this is recognized the sooner will there be a better class of business men and a healthier business done.

Be Observant.

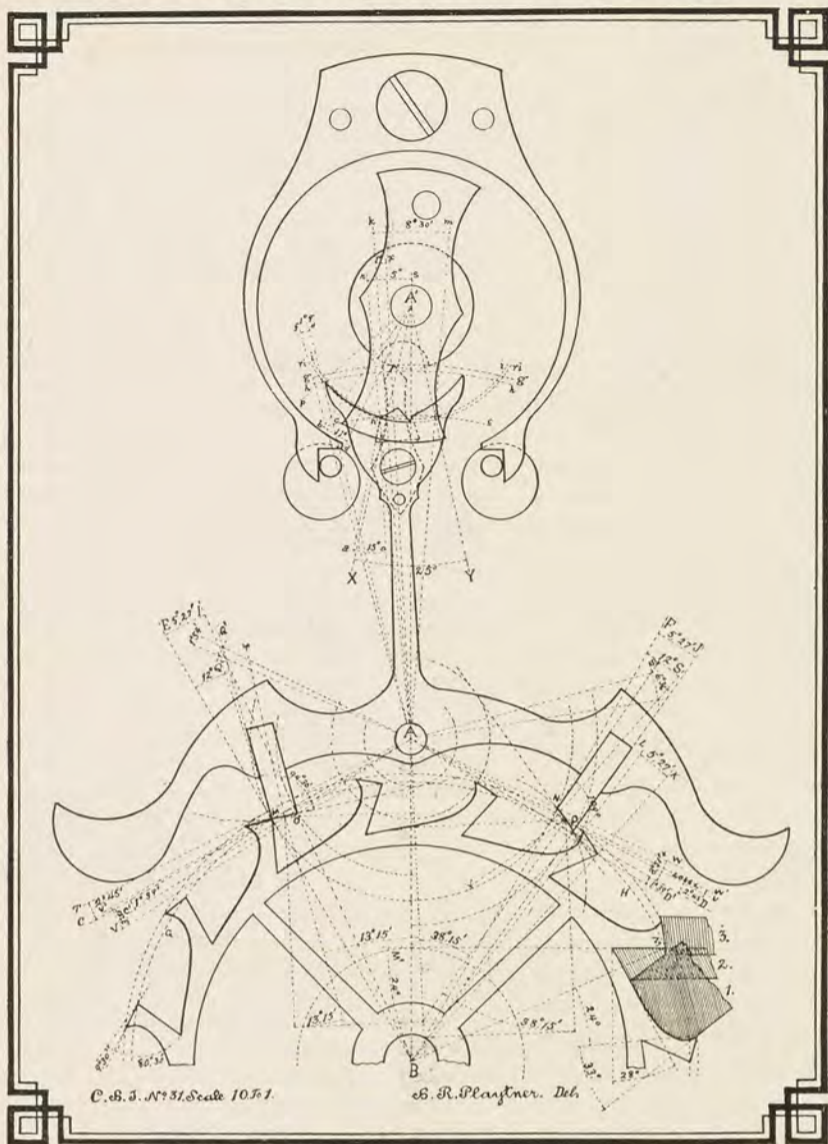
There is no sound reason why a progressive retailer should hesitate to adopt the bargain table feature as a means of disposing of odd sizes, broken pairs, and last year's shapes, for the dullest mind can understand that the successful retailer wants to be rid of remnants, no matter what the kind, and that it is reasonable that considerably reduced prices should be put upon them to accomplish his end. And so the bargain table becomes a magnet. And it illustrates an important truth in connection with successful advertising methods, in that the statement, to be a drawing one—a magnet, as already observed—must be a plausible, reasonable one. The bright advertiser catches up every point that will appeal to the public as giving a reason for better prices or for quick coming, and the success of his work is then half assured.

"Enclosed find one dollar. In the struggle for existence and survival of the fittest, or the preservation of favored horological journals by means of natural selection, I venture to make the prediction that The Keystone will exist as long as any journal of the kind now extant."
—C. O. Wilder, jeweler, Wilmington, Vermont.

Use Proper Stationery.

Use good stationery, for a man is judged by his stationery. If you desire to secure goods on credit from some jobber, be sure to write to him on a good quality of paper, for the impression made upon the jobber is the one that is created by your first letter. You want that impression to be "right." Proper stationery doesn't cost much. Indeed, it costs so very little more than a cheap kind that there is no comparison between the two when the good results that follow the use of presentable stationery are considered. Let no country job printer do your work. It too often happens that a retailer forms sort of reciprocal relationship with the printer of the village, furnishes him with the wording and leaves it to his entire judgment as to what style, stock, etc., be used. After the job has been delivered the retailer naturally finds that he does not like it, but does not know where the fault is. He uses it, anyway.

A story is told of a prosperous Denver merchant who to-day credits a life-long use of neat stationery as being one of the principal factors in his success. In his earlier days, while struggling for recognition, he wrote to a manufacturer for credit, asking leave to open an account that required good rating to sanction. The rating obtained from the commercial agencies was not sufficient from a financial standpoint to warrant extending the credit, and the credit man handed the letter, with the ratings attached, over to the head of the firm, who was an old gentleman of great shrewdness and observation. The latter read the letter and rating and then looked at the letter-head, and finally, after putting "O. K." to it, remarked: "A man who displays such good taste in his letter-heads can have credit here." Retailers who use a rubber stamp for printing letter-heads, and probably the cheapest quality of writing paper, should note this incident.



What's in a Name?

Surely that the one appended to this engraving stands for real merit in horological training.

Only one technical school for watchmakers on the continent could originate such drafts—it is rightly known as the “**ONE HOROLOGICAL SCHOOL**”—its teachings are years in advance of other **SO-NAMED** horological schools.

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**The new school year—the ninth
—and opening of the new term
begins on September 1st. Kindly
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XCV.

How to Drill Central and Straight.

TO ensure accuracy in drilling with a back rest we must be sure the jaws hold the work central. If we have two bell centers for our lathe this is easy enough, we place one of these centers in the head-stock spindle and one in the tail stock and then bring the jaws of the back rest against the piece to be drilled. This will be perfectly understood by referring to Figs. 1 and 2. At Fig. 1 we show a side view of a pair of bell centers at *B B'* with the piece to be drilled at *A*. The position of the back rest is indicated at the dotted outline shown at *C*. At Fig. 2 we show an end view of the piece *A* seen in the direction of the arrow *z*. This view also shows the back rest in full outline.

The back rest as shown has the jaws *D* loose at the time the bell centers are closed up on the piece *A*, and while so held the jaws *D* are brought up against *A* and the screws which hold the jaws *D* set up firm. If we were going to drill *A* with a drill held in the hand, we would center *A* with a graver, letting the graver rest on the T-rest, in fact, center the same as for drilling for a pivot. The central hole of the ordinary wire chuck for an American lathe, say a Rivett or Whitcomb, is only a trifle more than 1" deep and .186" and .162" diameter in the order named. For nice drilling, no drill equals a carefully made flat drill, which goes into the cone center of the taper chuck.

To make such a drill we take a piece of drill rod of the proper size for the drill, place one end in a wire chuck and turn the outer end to fit the taper chuck. For a wire chuck for a Rivett lathe we should take a drill rod which fits a No. 10 chuck, and for a Whitcomb a No. 40 chuck. The piece of drill rod for a drill for drilling for a Rivett wire chuck should be 1 1/2" long. We turn a taper on one end 5/8" long to go into the taper chuck. The piece of drill rod is now shaped as shown at *E*, Fig. 3, and goes into the taper chuck up to the dotted line *y*. The bit of drill rod is next placed in the taper chuck and the point turned to a perfect cone of an angle of 90°, as shown at Fig. 4.

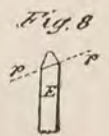
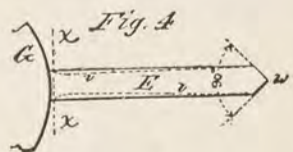
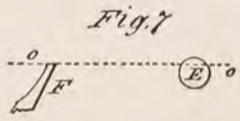
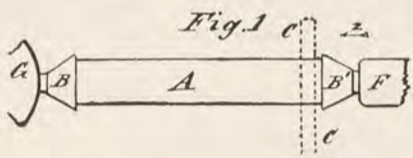
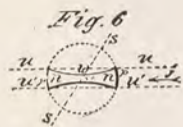
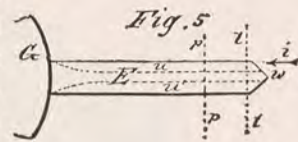
The drill is turned to the form shown at the dotted lines *vv* to give clearance. The drill is next filed flat to about the form indicated by the dotted lines *uu'*, Fig. 5. The point is left rather thick in proportion, as shown,

but to remedy this the sides are filed concave, as shown at Fig. 6, which shows a transverse section on the line *l*, Fig. 5, and seen in the direction of the arrow *i*. Filing a drill concave on the sides as shown produces a very strong tool, and one which does not require much pressure to cause it to cut. The thickness of the central web of a drill of this kind need not be more than one-eighth or one-ninth the outside diameter of the drill—that is, the web of the drill at the point *w*, Fig. 6, need not be more than .02 in thickness.

Turning a blank for a drill to a perfect cone is a great aid in the subsequent shaping—thus in the flattening operation, as shown at the dotted lines *uu'*, Fig. 5, the extreme tip of the cone point is a guide as to when the sides are flattened alike. The true policy to pursue when we desire to make our best drill is to flatten by measurement. In explanation, suppose we are making a drill of the largest size mentioned above, that is, .186" in diameter. We divide .186" by four, which determines the thickness of the blade of the drill between the lines *uu'*, Figs. 5 and 6. Now the metal we must file away above the *u* is equal to one and a-half times the thickness of the blade of the drill, that is, the space between the lines *uu'*. The thickness of the blade (one-fourth of .186") being .046", and the thickness of the part to be filed away one and a-half this amount, or .069".

While the blank for the drill is in the taper chuck we file away one side so that the blank for the drill measures .115". The best tool for such filing is the ordinary "filing fixtures" for winding squares. But in absence of such facilities, we set the T-rest to near the same height as the piece to be filed, and let this serve as a guide for filing flat. The idea will be got from inspection of Fig. 7, where *E* represents the drill blank to be filed, *F* the T-rest and *oo* the face of the file. A little practice will enable one to file and not actually touch the T-rest, which only serves as a guide. After one side has the proper amount of metal removed the blank is turned half over and the opposite side filed so the blade of the drill is of the proper thickness.

After the sides are flattened we must concave the blade as shown in Fig. 6. This concavity does not extend far up the blade of the drill—say to the line *p*, Fig. 5. In filing these concaves, leave the drill in the lathe and file toward the head-stock. About the best guide for filing these concaves is the eye, filing so the extreme point of cone is equi-distant between the concaves and the web at the point *w*, about 1/30" thick. To bevel off the point of the drill, leave it in the taper chuck and use the drawing-in spindle as a handle. The cutting edge is filed to about the angle shown at the line *p*, Fig. 8. The flattening which forms the cutting edges of the drill is so done that the angle which terminates these flattened surfaces *nn*, shown at Fig. 6, meet on the central line *ss*. The perfect shaping of the drill point should be done with



a file before hardening—using a new pivot file for the final touches. Do no sharpening with a stone—let the drill be perfect before hardening. Harden only up to about the line *p*, Fig. 5. Temper to a dark straw color.

"For the enclosed one dollar please renew my subscription for one year. I have an idea that you could get along better without the dollar than I could without The Keystone. This will make about my eighth year, and haven't missed a copy.—L. Yauslin, jeweler, Axtell, Kan.

An Illogical Statement.

A number of small retailers have remarked to the writer from time to time in the past that they haven't twenty dollars a week to spend for advertising purposes, like some of the large stores, nor the means with which to employ an advertising man to write catchy ads. for them, and therefore they are unable to follow out the same system and methods as those employed by the big fellows and thus get rich quickly. There is very little of logic in such an argument, for if a man has not twenty dollars a week to spare for advertising nor a specialist to write his ads. he should simply be all the more careful to make what little he does spend for publicity go just as far and be just as effective as possible. The very reasons which are oftenest urged by these small retailers in excuse for their lack of intelligent and progressive methods are those which most convincingly prove the necessity of such methods.

In other words, a small man can in proportion to his resources employ the same system and methods which are in vogue in the large establishment. His window, of course, may be small and old-fashioned, but it should be as carefully trimmed as though it were of plate glass and larger than the front of his store. His stock may be limited and cheap, but for these very reasons unusual effort to arrange it tastefully should be made. The fixtures may be antiquated and common, but that only calls for a more vigorous use of duster, polish and paint pot.

Study Customers' Wants.

One of the most important requisites which should assist in forming the successful merchant, is an accurate knowledge of what people want, and the ability to provide it for them. Where a merchant becomes too independent or arbitrary, and gratifies his own tastes rather than those of his customers, he is liable to come to grief and at a very early day. It is as much the especial business of the merchant to know what is wanted, as to procure that which will gratify individual tastes.

It is not intended by this that a merchant's work be made an irksome task of catering to crotchets or that he may thus be prevented from exercising his own special prerogative of getting what he fancies, but it is absolutely necessary that a merchant should consider his patrons' inclinations before his own.

There are merchants who do not take the trouble to ascertain what is new in style or pattern, and who buy the same designs in goods year after year. They never vary their stock to any noticeable degree, or change some of its chief characteristics by new things. A great error is made when changes in styles are disregarded and stocks confined entirely to staples which gives them a commonplace, monotonous appearance. Both the untried novelties and well-known conventional lines have their respective places; to err in the purchase of either in too great excess is a mistake. A dealer may imagine, if he lives in a smaller town, that his customers would not care for new designs; yet it is just this principle which urges people to make purchases in large towns, and often leave the merchant in the village in the lurch. They go to the metropolitan stores for what is new and up-to-date.

It is well for a merchant to keep himself informed in regard to what is in the market and what is available for his trade; he should keep up with the changes in styles and in order to do this he must read the trade papers assiduously. An energetic, ambitious merchant will endeavor by this means to learn what is to be had before he goes to the jobbing houses; he will be able to originate some ideas and not leave his selections to the seller of goods, who may not be as well enlightened on the subject as one could desire. By pursuing such a policy, it will afford the merchant greater pleasure to buy and it will also facilitate trade in a marked degree.

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SHIELD B

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.

"Vacuum Holder."—A valued contributor sends us, as he claims, an improvement on the device described in March, 1898, Keystone, for holding watch glasses. The diagram at Fig. 1 is a longitudinal section of the device. The part C is a cylinder of wood with a recess at a. Across the recess a is stretched a piece of thin rubber, which is tied down outside of the block C. Attached to the sheet rubber a is a rubber button shown at b, said rubber button being attached to the brass rod d, which extends through and beyond the block C. Between the end of the block C and the button g, attached to the rod d, is a strong spiral spring shown at e. It will be seen that by pressing down on the button g the thin rubber drum head will be flattened. If now we place a watch glass against a, so said glass rests on the outer edges of C, and then release the button g, the action of the spiral spring e will, by the aid of the rubber tympanum, produce a vacuum back of the glass clamping it to c.—[Our correspondent fails to inform us how the piece b is attached to the thin rubber sheet a. We would suggest a cement formed by dissolving masticated rubber in naphtha. We are always thankful for suggestions of this kind. Our correspondent adds that he has made a bicycle-foot-power lathe on the lines described in our articles "Arts Allied to the Jewelry Trade," and says he would not exchange it for anything he ever saw.—Ed.]

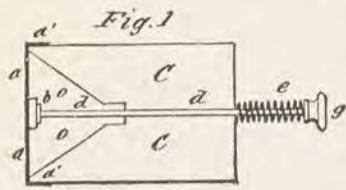
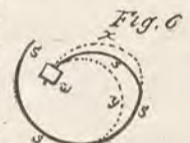
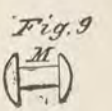
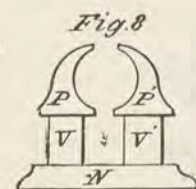


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"Mainspring."—Kindly state the cause, or causes, of a watch losing time on the first half of the mainspring and gaining during the last twelve hours?—The probable cause is the watch is not adjusted to isochronism, and the long vibrations of the balance are the slow ones. To correct this, if the hairspring is one of the Breguet type, change by bending the form of the overcoil. This will be understood by inspecting Fig. 6. In the cut the heavy lines s represents the outer coil of a Breguet hairspring, which will, as an average result, give isochronal vibrations, that is, the long and short vibrations will be alike in duration. Now by bending the overcoil to the form shown at the dotted arc x we quicken the long vibrations, and by bending to the form shown at the dotted curve y we quicken the short vibrations. If the hairspring is an ordinary flat spring we can do but little with it except the points of attach are in line; that is, when the balance stands at rest the point where the hairspring is pinned into the collet, and the point where it is pinned into the stud, is in line with the center of the balance-staff; then we can, by moving the point where the hairspring is pinned into the stud, change the ratio of rate between the long and short vibrations. In illustration let us suppose the hairspring is pinned in so the points of attach is in line as above. Now, if we let out the hairspring a little, although the watch will run slow, we will usually find the long vibrations are relatively quickened, and by putting timing washers under a couple of the screws the watch will come to time and be brought nearer to isochronal adjustment. We say "usually," because isochronism in flat springs has to be brought about by many dodges, and the policy which succeeds with one watch may be a rank failure in another. If the "dodge" suggested above fails, the best course to pursue is to throw away the old spring and put in a new one. With the long hairspring of many coils, as is mostly used in American watches, the long and short vibrations are on an average very nearly isochronal.



"Key-Hole."—(1) I want to build a fan motor to run on an electric light line of 104 volts. What size of wire must I use on my fields and also on the armature? The castings I have are of the over type and the armature of the H or girder pattern as shown at Figs. 8 and 9.—It is hardly practicable to build a small motor to run on a line of such high voltage. Theoretically, it would require enough fine wire wound on the field and armature to cut the current down to about one ampere, which would give approximately one-eighth of a horse-power. The usual plan is to introduce resistance coils to reduce the amperage, but it costs as much, and more, to run the resistance coils as it does to run the motor. See our reply to "Dynamo" in another column.



(2) How can I reduce the electric light current of 104 volts down to say 50, or even lower if I want to?—It is not practicable to reduce the voltage of a direct current to any great extent. There is what is termed "a drop" in the voltage of a few volts in light lines, but nothing like what you require. In dealing with alternating currents a transformer will reduce to almost any voltage.

(3) How can I change a small dynamo to a motor?—Send an electric current through the dynamo such as it would produce if run as a dynamo, and the counter electromotive force will make a motor of it. To further explain suppose a dynamo gives a current of ten volts and fifteen amperes, if you return a current of the same number of volts and amperes through it you transform your dynamo into a motor. As a dynamo the machine converts mechanical force into electrical energy, and as a motor the same machine converts electrical energy into mechanical force.

(4) How is the best way to make a demagnetizer to run on a 104-volt light line?—Procure four pounds of No. 25 double cotton-covered magnet wire and wind a helix 3" internal diameter and 4" long. If you have an alternating current you need only to mount your helix on a base board and, after placing the helix in the electrical circuit, introduce the watch into the helix and withdraw it slowly. If your current is a direct one you will need an alternator to send the current in reverse directions through the helix. Usually, with devices for reversing the current the reversals are not rapid enough to give good results. The reversals in the current should be as high as from 150 to 200 times per second, that is, commence quite slow and run up to this speed. An alternator is readily made from old brass clock wheels; the winding arbor having a crank attached to turn it by. Two wheels and two pinions are enough; they are arranged as shown at Fig. 10 in side elevation. In arranging the parts of a demagnetizer it is well to place them on a base board as shown at Fig. 11, where E represents the base board, D the helix, and G the alternator. To make such an alternator procure an eight-day spring clock movement, and take out the first three wheels of the train, counting from the main wheel. To aid in our explanation we will suppose that we use a new Seth Thomas clock movement catalogued as No. 40, and remove for making our alternator three wheels as stated above. We next provide two pieces of No. 12 sheet brass, 2" by 2 1/2". We show a side view of such piece at F, Fig. 12, with the pivot holes x y for the wheels A B, and also the pinion z, arranged in a straight line 1/4" below the upper edge. The central distance between the holes x y is 1.14", and between y and z .91". The plates F, Fig. 12, can be placed flatwise together, and the pivot holes drilled in both at one operation. These plates are attached on each side of a block of hard wood 3" long, 1 1/2" wide and 1" thick, said block being attached edgewise to the base board E by two screws passing up from below. We show a top view of the plates F F' and block G as if seen in the direction of the arrow w, Fig. 12 at Fig. 13. The pinion z should be removed from the arbor on which it is set when in the clock, and placed on the new arbor H, which is 3" long, between the shoulders. We show this new arbor separate at Fig. 14. This new arbor is provided for mounting the commutators upon, which transforms the direct current of the light line into an alternating one in the helix D. The alternator is made up of three copper ferules, 3/4" in diameter and 5/8" long, mounted on vulcanite fibre cylinders placed on the arbor H. These copper ferules are shown at I, J, K, Fig. 14. The ferules J K are simply cylindrical rings attached to a vulcanite fibre hub on the arbor H. The ferule I is split into two segments as shown at s s, Fig. 15, which is an end view of the arbor H and the two-segment commutator seen in the direction of the arrow t. Underneath the arbor H and alternator, J, K is placed another block (R) somewhat similar to G, except it does not rise but 3/4" above the base board E. At the back end of R rises a plate of brass 3/4" wide, and high enough to form a support for the pivot f, Fig. 14. For reversing the current in the helix D four commutator brushes are provided as shown at m m' n n', Fig. 14. The brushes n n' rest on the copper rings J K. These brushes are connected by wires passing down and underneath the board E to the binding posts l k, Fig. 11. The terminals of the wire forming the helix D extend to two binding posts, said posts being attached to the wooden heads of the spool on which the wire forming the helix D is wound. We show the helix D separate at Fig. 16, in which o o' represent the wooden heads and g g' the binding screws just referred to. The spool on which the helix D is wound consists of a paper tube 4 1/2" long and 3" internal diameter. Said tube is made by glueing together several thicknesses of strong paper wrapped around a wood core, said core being subsequently removed. The wooden ends o o' are made of two square pieces of 1/2" board measuring 5" on the sides. The copper rings J K are each attached to the segments I I'; that is, one ring is attached to one

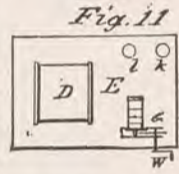
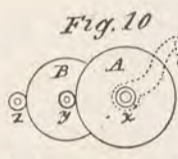
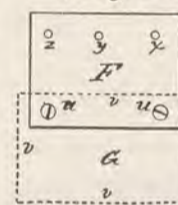
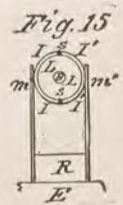
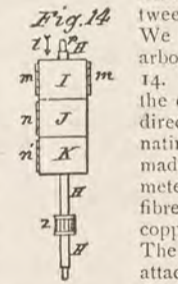
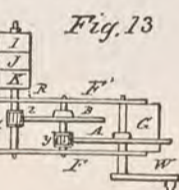


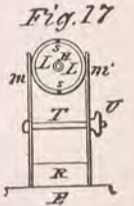
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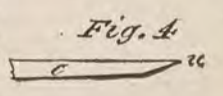
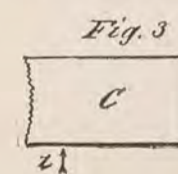
wide and 1" thick, said block being attached edgewise to the base board E by two screws passing up from below. We show a top view of the plates F F' and block G as if seen in the direction of the arrow w, Fig. 12 at Fig. 13. The pinion z should be removed from the arbor on which it is set when in the clock, and placed on the new arbor H, which is 3" long, between the shoulders. We show this new arbor separate at Fig. 14. This new arbor is provided for mounting the commutators upon, which transforms the direct current of the light line into an alternating one in the helix D. The alternator is made up of three copper ferules, 3/4" in diameter and 5/8" long, mounted on vulcanite fibre cylinders placed on the arbor H. These copper ferules are shown at I, J, K, Fig. 14. The ferules J K are simply cylindrical rings attached to a vulcanite fibre hub on the arbor H. The ferule I is split into two segments as shown at s s, Fig. 15, which is an end view of the arbor H and the two-segment commutator seen in the direction of the arrow t. Underneath the arbor H and alternator, J, K is placed another block (R) somewhat similar to G, except it does not rise but 3/4" above the base board E. At the back end of R rises a plate of brass 3/4" wide, and high enough to form a support for the pivot f, Fig. 14. For reversing the current in the helix D four commutator brushes are provided as shown at m m' n n', Fig. 14. The brushes n n' rest on the copper rings J K. These brushes are connected by wires passing down and underneath the board E to the binding posts l k, Fig. 11. The terminals of the wire forming the helix D extend to two binding posts, said posts being attached to the wooden heads of the spool on which the wire forming the helix D is wound. We show the helix D separate at Fig. 16, in which o o' represent the wooden heads and g g' the binding screws just referred to. The spool on which the helix D is wound consists of a paper tube 4 1/2" long and 3" internal diameter. Said tube is made by glueing together several thicknesses of strong paper wrapped around a wood core, said core being subsequently removed. The wooden ends o o' are made of two square pieces of 1/2" board measuring 5" on the sides. The copper rings J K are each attached to the segments I I'; that is, one ring is attached to one



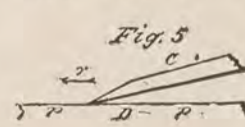
segment, as for instance the ring J is attached to the segment I and ring K to the segment I'. Great care must be observed to preserve perfect insulation between the rings J K and segments I I', or there will be a short circuit formed and burn out your fuse in your light line. The separations s s' between the segments I I' should be fully 1/8" wide and the opening packed with mica to avoid any possibility of the brushes m m' forming a connection between the two sections in short circuit. To use such a demagnetizer it is only necessary to switch on the current, then turn the crank slowly, say to produce fifteen or twenty reversals per second, then introduce whatever is to be demagnetized into the helix D, and then the speed of the reversals is increased up to 150 or 200 per second, after which the piece to be treated is slowly removed from the helix without reducing the speed of the reversals. We wish here to call the attention of the trade to a fact pertaining to demagnetizers that we have never seen noticed or spoken of. The fact to which we refer can be illustrated by citing the complaint we so frequently hear made of demagnetizers: "They do not remove all the magnetism, they leave some of it in." Now the fact of the matter is, the demagnetizer is not perfectly balanced, but a domination of one polarity is allowed to exist. In explanation let us conceive that the commutator and brushes were set in such a way that the electric current producing north polarity was allowed to act for only 1/100th of a second in excess of the reverse current producing south polarity. It is evident that there would be an influence in excess toward producing north polarity. Such results can be neutralized by making the brushes adjustable as shown at Fig. 17. Here the brushes m m' are bent in at the top, when fitted. To correct this we place the adjusting screw T as shown, when, by means of the nut U, the brushes can be made to close in on the lower side of the commutator until by trial we find that, say, a magnetized sewing needle on being put through the process of demagnetization comes out of the helix perfectly neutral and free of magnetism. Before a demagnetizer is used for practical work it should be tested to determine if the brushes m m' are perfectly adjusted for neutrality. This can be done by putting in, say, a sewing needle which is entirely free of magnetism, and see if the demagnetizer does not magnetize it; if it does, correct by the screw T and nut U. Of course, in constructing a demagnetizer to work on a 104-volt circuit, we should have the workmanship as thorough as possible, and should employ only the best material. The wire of which the helix D is made should be double cotton-covered and new wire—not old wire full of kinks and short bends, with the insulation chopped and slid to one side. It is no more than safe to run such wire through melted paraffine, or to give it a coating of shellac dissolved in alcohol. It may not be amiss to say that such insulation would be safe and secure with currents of low voltage would not answer at all under an electrical pressure of 104 volts. Brush contacts must also be closely watched to ensure perfect connections. The brushes m m' n n' are best split into four parts as shown.



"Badges."—I often have police and firemen's badges to repair, and do not know how to fill in the letters with black; can you give me any information on this work?—There are a great variety of substances employed for filling in engraved letters. Some workmen use a composition known among shoemakers as heel-ball. This substance is simply rubbed over the engraved letters until the lines are full. Another favorite substance is asphaltum varnish painted into the engraved lines and allowed to dry. The drying can be expedited by baking in a stove-oven. The heat should not be allowed to rise above 350° F. An alloy of two parts of lead and three parts of tin melts at 334° F. You can tell by the melting of such an alloy when the oven is hot enough. The best filling for such engraving is the ordinary lathe cement, made by melting together four ounces of best shellac and one-quarter ounce of ultramarine blue. This composition is the ordinary wax chuck cement, and black in color although a blue pigment is employed. To use this cement heat the engraved article up to the fusing point of the cement, and rub a stick of this substance over the surface, which, of course, fills the engraved lines. To remove the cement from the surface, except the engraved lines, make a chisel of ivory or bone—the large bone of an ox's leg makes a good one. We show at Fig. 3 a flat side view of such a bone chisel with an edge view or as it seen in the direction of t at Fig. 4. The chisels should vary in width from 3/4" to 1 1/2". The method of using will be got from inspecting Fig. 5, where C represent the bone chisel and the line p p the engraved surface coated with lathe cement. While the plate is still hot the bone chisel is pushed forward in the direction of the arrow r and scrapes off the coating of lathe cement except what is in the incised lines. A little practice and experience will enable one to remove almost perfectly the cement. A rag moistened with alcohol will clear the surface perfectly. The action of the alcohol will dim the gloss on the cement in the lines, but this can be restored by heating after the alcohol has perfectly evaporated. This filling is very hard, does not crack or drop out.



The method of using will be got from inspecting Fig. 5, where C represent the bone chisel and the line p p the engraved surface coated



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Solid Gold.
Solid Silver.
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Solid Silver.
Seamless Filled.
Silverine.



250
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.

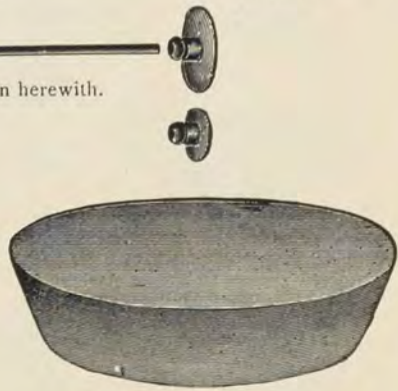


255
Solid Gold.
Solid Silver.
Seamless Filled.
Silverine.



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



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

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Workshop Notes.

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

"Precious Stones."—What color of paper do they use for holding precious stones, diamonds, rubies, emeralds, sapphires, etc.? Pure white, to allow the color of the stones to not be affected by the color of the paper.

"Pickle."—(1) What is the best cement for cementing stones in rings? There is no cement to be relied on for this purpose. The only sure plan is to make the setting hold the stone.

(2) What is the best flux for silver solder? I have trouble when I use borax. Borax is the best flux so far discovered in the arts. The operation of hard soldering should be conducted with care to insure clean surfaces where the solder is to flow, and over such surfaces spread a coating of thin borax paste, formed by grinding a lump of borax on a piece of glass roughened by grinding with coarse sand or emery. A small slate is generally used, but the slate being soft grinds up, to a certain extent, with the borax. Every little pellet of solder should also be coated with the borax paste. It is also essential that the joint to be soldered should be as hot as the melted solder. You cannot make silver solder flow on a surface not heated to the melting point of the solder.

(3) What is the matter with my pickle when, after soldering a gold ring, and throwing it into the pickle, it leaves a silver color which I cannot remove with scrubbing or all the acids I can think of?—It is the natural result you should expect from the ordinary pickle. You can remove this "green coat" by placing the gold article you have soldered for a few seconds in a porcelain dish containing strong sulphuric acid and a few crystals of saltpeter. The acid mixture should be heated to a little above the boiling point of water. The mixture will not keep, as the strong sulphuric acid attracts moisture from the air.

"Dynamo."—I have the castings for a five-light dynamo, of which I enclose you a cut. Please tell me what size of wire to use on the armature and on the fields. I wish to make a disk armature, and desire to know what size slots to cut in the disks. Would further like to know if the commencing of one wire of the armature and the end of another are connected to a segment of the commutator?—We reproduce the essential features of the cut and hand drawing our correspondent sent us at Figs. 1 and 2. The general form of the dynamo electrical engineers term the "Alliance" type, and was first introduced in England ten or twelve years ago. We will make no attempt to answer our correspondent in detail for two very important reasons: First, he does not state the voltage of the lamps he wishes to use; second, we would not advise the use of any dynamo for a less number of lights than ten or sixteen—

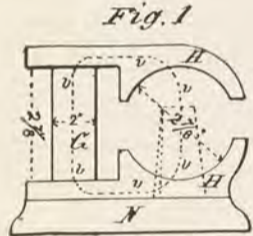


Fig. 1 and 2. The general form of the dynamo electrical engineers term the "Alliance" type, and was first introduced in England ten or twelve years ago. We will make no attempt to answer our correspondent in detail for two very important reasons: First, he does not state the voltage of the lamps he wishes to use; second, we would not advise the use of any dynamo for a less number of lights than ten or sixteen—

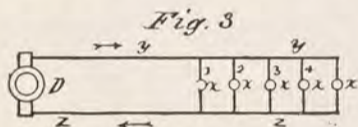
Fig. 2: A diagram showing a cross-section of a dynamo core. It features a central shaft with a commutator and armature. The core is made of iron plates. Labels include 'N' for North pole, 'S' for South pole, 'A' for armature, and 'H' for field magnet. Dimensions are given as 3 1/2 inches for the core diameter and 4 inches for the armature diameter.

In building a dynamo, first decide on the number of lights and the candle-power of such lights. Next, settle on the voltage to be used. Experience has decided that less than fifty volts is not economical. After deciding on the voltage and number of lights we desire, we have a fixed basis to work upon. For every volt required we must have a yard of active wire on the armature. By active wire we mean wire which passes through the magnetic field of the pole pieces. In drum armatures the wire at the ends of the armature is dead; that is, it is not subject to magnetic influence. In the Gramme ring armature the return wire inside the ring is also dead or idle. The usual rule is to allow two yards of wire for each volt, but in small dynamos, say of those less than thirty lights, two and a half yards will be near what is required. Hence we multiply the number of volts we are to use by 2.5, and obtain the number of yards of wire to place on the armature. If we employ fifty-volt lamps we will require 2 1/2 times this number of yards of wire, or 125 yards. The next factor in the problem is the number of lights we are to use. The answer to this determines the size of wire to employ, because each lamp will require a certain quantity of electric current to light it properly. Thus a sixteen-candle, fifty-volt lamp will require 1.2 amperes to light it. If we employ 100 volts current, we will require but half this amperage, or .6

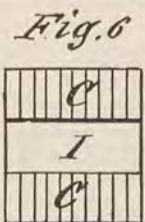
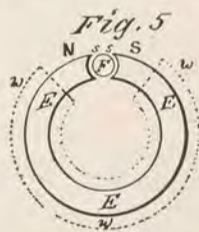
ampere. Now every lamp we use requires this quantity of current, that is, say we have ten lamps requiring .6 amperes each, we consequently need six amperes current for the ten lamps. This calculation is based on the idea that we build our dynamo to give 100 volts. If we employ fifty volts electrical pressure we will require twice six, or twelve amperes of current. In selecting the wire we must employ wire large enough to carry the current without excessive heating. The rule adopted by electrical engineers is 2000 amperes for each square inch of sectional area. To avoid the bother of making the necessary calculation, tables are furnished by wire manufacturers giving the carrying capacity of wire of the different numbers. We give below such a table, showing the safe carrying capacity of wire by American wire gauge from No. 8 to 20.

Size.	Amperes.	Resistance feet per ohm.
No. 8	25.6	1529.69
No. 9	21	1213.22
No. 10	17	961.91
No. 11	13.2	762.93
No. 12	10.6	605.93
No. 13	8	479.80
No. 14	6.2	380.51
No. 15	4.8	301.75
No. 16	3.6	239.32
No. 17	3	189.78
No. 18	2.5	150.50
No. 19	2	116.05
No. 20	1.7	94.65

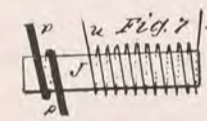
In using our table we should bear in mind the fact that the number of volts of electrical pressure which drives the current through the wire is not a factor in the problem. The point to be considered is how many amperes are required to light the number of lights desired. In your case the number of lights are five, and to have tangible facts to deal with we will assume we employ fifty volts. Now, to allow for drop in the leads it is usual to allow from five to ten volts extra; consequently, the voltage of a dynamo for a fifty-volt circuit is fifty-five volts, and for a 100-volt circuit 110 volts. As previously stated, a fifty-volt lamp requires 1.2 amperes; consequently, for five lamps we will require 6 amperes of current. For better explanation we refer to Fig. 3



where we show the dynamo D and lamp circuit y x z. It is evident that inasmuch as 1.2 amperes pass through each lamp we have an aggregate current in the line wires y z of 6 amperes. In all drum and ring armatures there are two paths open for the electric current generated in the armature to travel by, consequently we can use wire on our armature which will safely carry only three amperes. By referring to the table we see that No. 17 wire has this capacity. If, as supposed above, we wind our armature for fifty-five volts, we multiply this number by 2.5 to find the number of yards of wire to place on the armature. By computation we ascertain that we will require 137.5 yards of No. 17 wire. The next operation is to decide on the size of armature, which should be as small as will take this amount of wire and not have the layers of wire more than four deep. As to the winding of a drum armature see our reply to "Drum Armature" in another column. As regards the field magnets, these should be no larger than will encompass on each side about one-third the armature. The form of these fields makes but little difference; the true result to aim at in devising field magnets is to have the magnetic circuit as short as possible. What we mean is, the magnetic circuit is represented by the dotted line v, Fig. 1. A magnetic circuit is different from an electric circuit, inasmuch as it will, of itself, bridge a gap as illustrated in Fig. 4, where we show an ordinary U-magnet with the magnetic circuit shown at v. Now, the closer the poles N S are together the more intense does the magnetic current circulate. If we place an armature between the poles N S the iron of the armature helps to bridge the broken magnetic circuit and increase the magnetic activity, hence we make the gaps between the armature and fields as thin as possible. We show at Fig. 5 something approximating the ideal magnetic field for a dynamo. It consists of the ring E of soft wrought iron with an opening for the armature F. Now, it is of great importance that the gaps or spaces s s should, as stated above, be as thin as possible; hence, we stated above that we should not employ more than four layers of wire. The dotted lines at w, Fig. 5, represent the wire wound on the magnetic core E. While in theory such a magnet as we show at F is highly desirable, still there are several mechanical drawbacks that prevent its practical use. The diameter of the field waist like G, Fig. 1, should contain about the same sectional area as the core of the drum. We show at Fig. 6 a longitudinal section of the core of a drum armature through the iron disks of which it is made up. To show how we get at the sectional area let us suppose the armature core is 4 inches long and 3 inches in diameter, and the wood or vulcanite center at I is 1 1/2 inches diameter and 4 inches long, we multiply four by three which gives the area of the entire armature, and subtract the area of the wood core, which is determined



by multiplying four by one and a half, which gives six square inches; this subtracted from twelve gives us six square inches as the superficial area of the transverse section of the field waist. As the armature is usually of wrought iron, and the field magnets of cast-iron, we can add one-third, as there is about this difference in the permeability of wrought and cast-iron to the magnetic lines of force. In practical construction we make the field waist of the size just determined, and of such length as will receive the wire for exciting it electrically. An approximate rule for determining the size of wire for the fields is, to take wire four numbers larger than is used on the armature, and as we will use No. 13 on the field, and use such length as will give two-thirds of the resistance of the armature. By referring to the wire table above we find that No. 17 wire has a resistance of one ohm for 150.5 feet, and No. 13 wire has one ohm resistance for 479.8 feet. On the armature we are considering we have 137.5 yards, or 412.5 feet of No. 17 wire, which has a resistance of one ohm for 150.5 feet. We divide 412.5 by 150.5, and find that the resistance of the entire length of wire is 2.74 ohms. As we explained above, in a drum armature there are two outlets; hence, we can only count one-fourth the resistance of the entire length of the wire as the resistance of the armature. Consequently, we divide 2.74 by four to determine the actual resistance of the armature. We find by arithmetical process that the true resistance of the armature is .68 of an ohm. Now we have it at our option to make our dynamo a series or shunt machine. By a series dynamo is meant one in which the entire current generated in the armature passes through the wire on the field magnet. In such series machine it is the practice to make the resistance of the wire on the field two-thirds of the resistance of the armature. In our case this would be two-thirds of .68 of an ohm, or .45 of an ohm. To simplify the computation we say 480 feet of an ohm resistance. On referring to our wire table we find that it requires 479.8 feet of such wire to offer one ohm resistance. To simplify the computation we say 480 feet, and make statement in proportion thus: 1 : 280 :: .55. This arithmetical question worked out gives us 264 feet of No. 13 wire as what we must wind on the field. It is a law in magnetic excitement produced by electrical action that a certain number of ampere turns will produce a given number of lines of magnetic force in a helix of insulated copper wire. This phenomenon is best illustrated by means of wrapping copper magnet wire around a soft wrought iron bar. In explanation we refer to Fig. 7, where J represents a soft wrought iron bar, around which is wrapped ten coils of wire as shown at u, also a single coil shown at p. These coils are made so they can readily be slipped on or off of the bar J. Now, we wish to establish, experimentally, the fact that a current of one ampere through the ten coils u will produce the magnetic influence as if ten amperes passed through the single coil. This experiment establishes the basis on which the shunt-wound dynamo is built. To make the explanation somewhat plainer we will recapitulate a little and say: A series-wound dynamo has the entire volume of the current pass around the field, while the shunt-wound machine has only a portion of the current pass around the field through a longer and finer wire. The rule generally adopted is to make the resistance of the shunt coils for a five-light dynamo ten times the resistance of the armature. A ten-light dynamo twenty times the resistance of the armature. A twenty-five light 100 times the resistance of the armature. A hundred, and all above, 400 times the armature resistance. We have now given a complete expose of the principles involved in dynamo construction, and the man who reads and completely masters the facts set forth, has the basis on which all dynamos are constructed. There are no definite sizes for commutators, the diameter varying according to the number of bars.



"Chronometer Detent."—Will you oblige me by telling how to make a spring detent to a chronometer? Is there any book giving details of the process?—You will find the whole operation described on page 139, February, 1894, KEYSTONE. Saunier, in his "Modern Horology," gives details of making a chronometer detent, but they are of but little use to the practical repair workman.

"Acetylene Gas."—(1) We learn so much from The Keystone that we think you must know everything, and, consequently, come to you for information: We are much interested in acetylene gas, and presume to think many others of the trade are likewise. We think we could make a generator which would work nicely if we understood the process of scouring or purifying the gas after generating before burning. Is it necessary to purify the gas before using? We would like very much to have the judgment of your expert on this matter.—We do not think acetylene gas produced from calcium carbide needs any purifying for illuminating purposes. One of the great obstacles to overcome in using this gas is to burn it without smoking. We think the practical consumption of this gas for illuminating purposes can only be considered in the experimental state, and we would advise all persons using it to be extremely careful, not only to guard against accident, but to ascertain if they are not violating their insurance.

(2) Can you give us any way of soldering a cable twist gold temple to make a good job of it?—We would have to see the job before we could give advice of any value.

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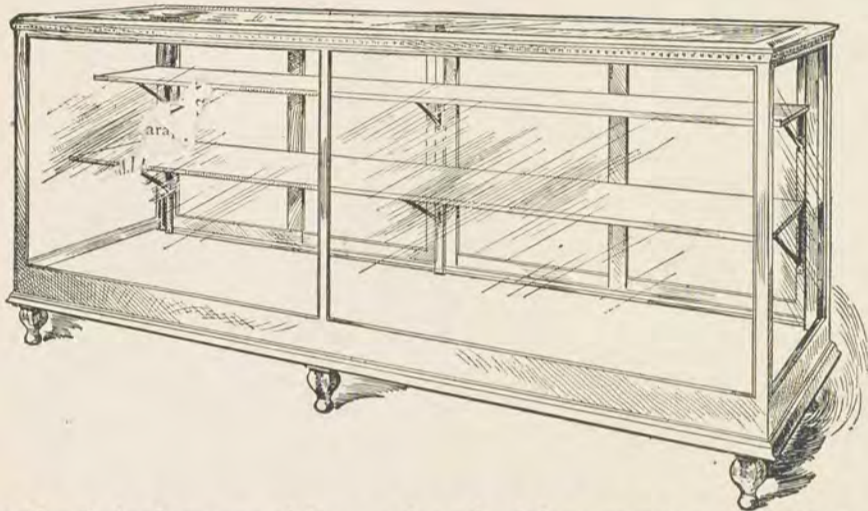
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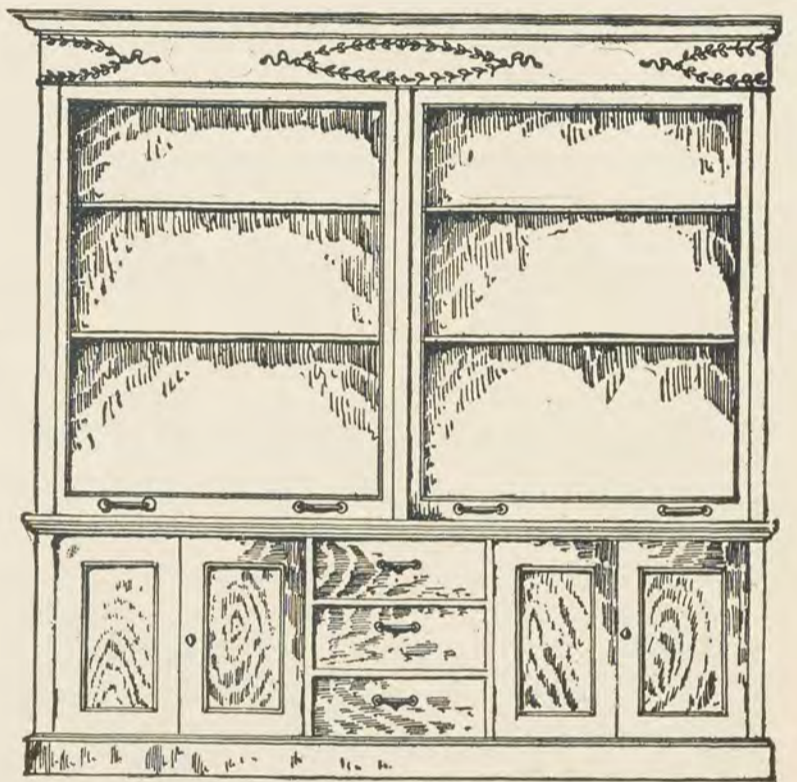
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IN THE FUTURE, AS IN THE PAST, OUR GOODS ARE OFFERED FOR SALE TO THE LEGITIMATE JEWELERS ONLY.

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.

"Fritz."—(1) On page 873, November, 1897, *Keystone*, you speak of a transparent "fritz," will you please explain what that is, or where it can be purchased?—Fritz, in enamel-workers' parlance, is the name for a kind of clear glass, that is mixed and fused with metallic oxides to form the various colored enamels used in their art. There are several of these frits, each of which possesses certain characteristics which fit them for being the medium of different colored enamels. We give below the composition of three kinds of frit: No. 1. Red lead ten parts, flint glass six parts, saltpeter two parts, borax two parts. Fuse mixture in clay crucible for some time, then pour into water. Collect and grind in agate mortar. No. 2. Broken crystal goblets, twelve parts, calcined borax four parts, glass of antimony two parts, saltpeter one part. Melt and throw into water as before. No. 3. Flint glass, powdered, sixteen parts, pearl-ash six parts, common salt two parts, calcined borax one part.

(2) You also speak of dial-painters' black, will you please inform us where such black can be purchased?—We are unable to give the address of dealers in dial-painters' black. We presume the Elgin people would give the information. Enamel-painters' black, in dry powder, can be had of Weber & Co., 1125 Chestnut Street, Philadelphia. The proper color, if this kind is used, is the *Lacroix noir* (black) for underglaze. It sells for forty-five cents per ounce.

"Music-Box."—(1) What kind of cement is used for filling the inside cylinders of music-boxes, how can it be removed and how replaced?—The cement is usually gum shellac, which is applied by heating the cylinder and rubbing the inside of the cylinder shell with a ball of the gum attached to a stick. The shellac can be removed by heating to fuse the shellac, after which it can be wiped away. When all the shellac which can be conveniently wiped away is removed, the cylinder is placed in a vessel of alcohol to dissolve what still adheres.

(2) The pins are of steel, and some are broken off close to the cylinder. How would you remove them? I would like to replace them all, and put in new ones, after which I would grind them off in a traverse grinder.—The pins are inserted by pushing them into the holes in the cylinder drilled previous to the shellac being placed in it. The cylinder is heated to soften the shellac and cause it to adhere to the pins. Setting cylinder pins is like many other mechanical operations—quickly done after the technical skill is acquired. In replacing single pins in repairing, it is the common practice to push the broken pin into the cylinder by means of a fine-pointed punch. The new pin is pushed in place, cut off and stoned to the proper length.

(3) Where can I obtain wire for pins and other parts of music-boxes?—Steel wire for making pins comes in coils, and can be had of importers of music-boxes; they also handle other materials used in repair. We presume you can get any material you desire of Jacot, 39 Union Square, New York.

(4) One of the bass notes is broken from the comb, could I put in a new one and turn it successfully?—We described in detail how to put in new teeth of this kind on page 387, May, 1896, *KEYSTONE*.

(5) Could I use pieces of heavy watch hairsprings for dampers on the comb teeth?—Yes, the hairsprings for old verge watches are well adapted for the purpose.

"Silver Solution."—(1) I have a silver solution which has stood two or three years, most of the time in the light, and there is a gray powder in the bottom of the jar; is it silver, and if so, how can I recover it?—There is more or less uncertainty about the decomposition of a cyanide plating solution. Probably your best way would be to put your solution in an open glass or earthen vessel, and set it out of doors; then add hydrochloric acid as long as any gas is given off. Be careful about breathing this gas (cyanogen) as it is highly poisonous. The silver will be found as an insoluble chloride in the bottom of the vessel. Pour off the supernatant fluid, pour on pure water, stir well, let settle and again pour off the fluid, repeat the operation three or four times to wash the precipitated chloride of silver. Such chloride can be mixed with carbonate of potash, and fused into a metal button of pure silver, or it can be redissolved by adding of a solution of cyanide of potassium until the chloride of silver is dissolved. This makes a good plating solution, giving a very white deposit, but is apt to strip under the burnish.

(2) What relation should the anode and cathode bear to each other, and what distance apart in the act of plating?—The anodes and cathodes should be placed in such relations to each other as will best facilitate electrical circulation between them. The greater the distance apart they are, the greater the resistance of the solution. It should always be borne in mind in electro-deposition that the quantity in amperes of electric current which passes between the anode and cathode controls the weight of metal deposited. There can be no certain rules given as regards the distance between anode and cathode. Good judgment and experience, aided by an ammeter to regulate the quantity of

the current proportionate to the surface to be deposited upon. The usual practice is to employ a current of three-tenths ampere to fifteen square inches of surface.

(3) I have some Leclanche cells; can I use them for silver-plating, and how many would I require for small work like chains and watch cases?—Leclanche cells are not adapted for silver, or any other kind of plating; the Bunsen battery, with internal porous cup, is the kind to employ. One Bunsen of a quart capacity will answer for small silver-plating jobs.

(4) What is the reading on the little taper slot pivot gauges, one side of which reads from 1 to 8, and the other from 1 to 48?—The sizes 1 to 8 are supposed to relate to the Jacot lathe, the sizes corresponding to the notches or grooves in the tailstock; the side reading from 1 to 48 were supposed to be duodecimals of the old French inch.

"Guard-Pin."—I have an eighteen-size, fifteen-jeweled, Waltham movement, which seems to be in good order and keeps good time, but if, from any cause, the action of the train is reversed, the guard-pin will butt against the roller and stop, and the lever will not leave the roller unless forcibly made to do so. The watch will not overbank. I have tried to widen the bankings and bent the guard-pin forward toward the roller, but still the same old story. What is the remedy?—A lever-escapement properly made and adjusted could not act as you state. We do not mean by this that your statement is untrue, the idea we wish to convey is, there is something radically wrong with the escapement, and probably with the fork and roller action. It is a well-known property of a properly constructed lever-escapement that if, at any time, the guard-pin is forcibly brought in contact with the roller, the action of the "draw" of the escape-wheel tooth on the locking-face of the pallet will pull the guard-pin away from the roller. A catch and bind such as you describe must be caused by some imperfection of the escapement. Now let us analyze the situation and reason out some of the causes which could produce such a result. The guard-pin standing too far away from the roller could do it, but in the present instance this can not be the case, as you say you have tried bending the guard-pin forward. Another cause may produce such result, viz.: A rough spot or nick on the roller, but this is not probably the cause. The conditions as you describe them point to one of two causes: (a) A shallow depth between the fork and jewel-pin; (b) A shallow depth between the escape-wheel and pallets. In some of the Waltham watches the fork is held by two screws to permit of its being moved forward or back from the roller to remedy just such defects as you describe. The Elgin people accomplish the same result by discriminating in the size of rollers. Now, we will consider cause (b), that is, too shallow depth between the escape-wheel and pallets. In explanation suppose we push back one of the pallet stones until the lock is very slight, so slight, in fact, that when the guard-pin is pressed to the roller the escape-wheel tooth, which should remain on the locking-face of the pallet, passes off of such locking-face and begins to act on the impulse-face of the pallet; you see the result would be to draw the guard-pin firm against the roller. In either of these instances, that is, shallow depth between fork and roller, or shallow depth of pallets and escape-wheel can be corrected by setting the jewel-pin to carry the fork through a longer arc of action. Of course, we would have to bend the guard-pin forward to control the safety action so as to prevent engaged tooth from passing off of the locking-face and acting on the impulse face as above noticed. Usually, the jewel-pin can be "set wide," that is, a trifle further out from the balance-staff. A roller a trifle larger would produce the desired result, so also would setting the fork forward toward the roller. In old time practice, when the trade had to do chiefly with English and Swiss watches, stretching the fork was considered the proper course to pursue. In dealing with American watches, the workman should be so familiar with the correct action of the lever-escapement as to decide at a glance, in such instances as you cite, where the fault lies. We will even suppose the fault is really a shallow depth of the pallet action, and pulling forward one of the pallet stones would correct the trouble, still most workmen hesitate about moving a pallet stone, as such change involves other complications. Usually, setting a jewel-pin out from the center a very few *milims* will correct such an error. Reasoning on the lines we have pointed out will soon give a workman the key to such mysteries.

"Setting Pallet Stones."—I have *The Keystone* for the last ten years, and have read the articles on "The Detached Lever Escapement" through the entire series, but cannot find what I want to suit my case. I have a fifteen-jeweled watch movement from which I removed the balance and moved the lever back and forth from one banking to the other. When I have the lever against the banking-pin on the side which engages the receiving pallet, and I move the lever over, it escapes all right; but if the lever rests against the banking-pin on the side which engages the discharging pallet, the lever, when moved over, flies back, failing to lock. Now, when the roller is in the proper place, and no power on the train, the pallet-staff, roller (jewel-pin) and balance-staff are in line. If I bring the escape-wheel up to the discharging pallet the tooth strikes at about the center of the impulse-face. The escape-wheel when brought in contact with the receiving (entrance) pallet, a tooth strikes a little past the center of the stone. I drew out the receiving stone, but it did not stop the flying back of the lever. Now I want to know what is wrong. I do not believe some of the theories in the lectures in *The Keystone* are going to work in practice.

I was taught to have the pallets set so the tooth would strike about the center of each pallet, when the pallet-staff, roller and balance-staff were in line. Now I want to know if I don't know anything about it, or if there is anything to go by in regard to setting pallet stones. The watch runs all right, but what I want to know is why the lever flies back from one banking, and pulling out the pallet stone does not stop it?—Just such puzzles are what destroy the confidence of many workmen in theories based on profound calculations, and upheld by years of experience of our best manufacturers of watches. There are no theories advanced in our articles on "The Detached Lever Escapement" which have not been tested and tried in our American factories, and not only in one watch but tens of thousands of them. The reasons for the lever flying back as you instance are probably due to two causes: (a) Insufficient "draw"; (b) the resiliency of the banking-pin which gave a bounce or recoil to the lever, and there being no draw to the locking-face of the pallet, the tooth passed off of the locking-face and the engaged tooth slid down the impulse-face, and of course carried the lever to the other bank. We have seen repeated instances of watches in which the recoil from the banks was enough to cause the watch to run down, the escapement acting in all respects like a recoiling-beat verge to an ordinary Yankee clock. In the instance you cite—as you say, the watch runs all right—the probabilities are, there was a slight draw of the locking-face, in fact, enough to hold the lever against the bank except under the influence of the "bounce" of the lever from the banking-pin. In our instructions for testing the lever-escapement, in the articles to which you refer, we make special mention of trying the draw by placing a tinsel spring under the rim of the balance and turning the balance enough so the jewel-pin passes out of the fork on one side. It is to be understood that there is power on the train. We now, with some light instrument like an oiling tool, touch the lever so as to bring the guard-pin against the roller. Now if the draw is all right the action of the tooth on the locking-face of the pallet will draw the lever back to the banking-pin. In the instance you give, probably if you had tried it in this way, there would not have been much if any tendency to draw the lever to the bank. The guard-pin should have but very little play between it and the roller, about half a degree of angular motion of the lever, the entire lock being one degree. Grossmann, in his work on the "Lever Escapement," says one and one-half, but one degree is enough in well-constructed lever-escapements. After one side has been tried we should try the opposite side in the same way. A very good method of testing a lever-escapement is to remove the balance as you did, but to vary the trial from your method place, say, an oiling tool in the fork, move the lever over toward the opposite bank and notice carefully how far you have to move the lever to unlock the tooth. If you have to move the lever more than one-fifth of the distance across to the opposite bank the escapement has too much lock. Now, too much apparent lock does not necessarily mean that you should push back the pallet, because the angle of the impulse-face of the pallet may be wrong. Let us suppose, in illustration, that we have apparently too much lock on the entrance pallet, but before we make any change let us make some experimental tests. We first move the lever over to the opposite bank, we do not let it fly back, but move it over slowly and try if exit pallet locks securely, that is, when the tooth engaged on entrance pallet drops, the tooth to engage the exit pallet strikes the locking-face above the angle formed at the meeting of the locking and the impulse faces. If this condition exists, it is the worst thing we can do to draw out the pallet stone. The real fault in this case is in the form of the pallet stone. This will be understood by inspecting Fig. 1, where we show a pallet stone by itself. Now the reason why we have apparently too much lock is because the impulse-face of the pallet is not ground to the proper angle; it should have been ground to the line *v*. One of the first things a young workman should do is to disabuse himself of the idea that all the parts of so-called interchangeable watches are alike. This remark applies particularly to escapement parts. The skillful workman should so master the subject that he knows, after a very brief examination, what is the trouble with a faulty escapement. If we move a pallet stone to the position indicated by the dotted line *x* we have made exactly the correction your faulty pallet stone seemed to demand. But such change would involve a good many complications, as for instance it would make the pallets too "wide outside," that is, the pallets would not go in between three teeth. Or, in other words, the tooth engaging the exit pallet could not drop, because the tooth next engaged struck the locking-face of the entrance pallet. Such result can be avoided by grinding the slot in the pallet arm as indicated by the dotted line *s*, Fig. 2.

Fig. 1.



We do not wish it to be understood that we indorse such radical changes on any and all occasions, because in nine instances out of ten the concern which made the watch knows better how it should be than he who is called upon to repair it; still mistakes will occur in all sorts of high places, and a mistake is a mistake no matter who makes it. Let the workman perfectly master the theory of the lever-escapement as set forth in our articles under this title, and he will be able to detect a fault, and know just exactly how to remedy it.

Fig. 2.



"Enclosed find renewal of my subscription. We wish to again tender our best wishes for your future success. We consider *The Keystone* the brightest trade journal that comes to our store."—A. A. Shute, jeweler, Fredericton, N. B.

Workshop Notes.

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"Aluminum."—How can I gild aluminum? I have tried to copper it first and then gild; also tried gilding direct, but in all instances the metallic coating comes off in scratch brushing.—It is said that by dipping the aluminum in a dilute solution of hydrochloric acid until gas bubbles are formed on the surface, and then thoroughly rinsing with water, this metal will receive and hold a copper deposit from an alkaline bath of this metal. Gilding or silver-plating can now be done on the copper surface.

"Torsion."—Where can I procure springs for torsion balances such as druggists use? How are such springs put in? I notice they are soft-soldered together, and are very tight around the square frame that holds them. Can this be done without special tools?—You can probably obtain such springs of H. Troemner, Market Street above Fifth, Philadelphia, as he is a large manufacturer of such instruments. Our advice would be to not tamper with such a balance if broken or out of order, but send it to some reputable concern to be put in order.

"Thermometer."—I have a thermometer in which the mercury column is divided. I have tried shaking it without success. What can I do to make the column unite?—The cause of such separation is there is a very little air left in the tube. To remedy the trouble heat the thermometer until the column of mercury entirely fills the glass tube leaving no space—you can tell this when the broken column unites. On cooling, the column of mercury will be found united. Care must be taken not to heat the bulb too hot, or the expansion of the mercury after the tube is perfectly filled will break the tube.

"Gold."—(1) Is there any chemical process which will render gold soft like putty, and then become hard when dry?—We know of no such process, nor do we believe it possible.

(2) How is the white filling for teeth prepared?—Take of zinc oxide 200 parts; silica, 8 parts; borax, 4 parts; powdered glass, 5 parts. The ingredients above named are ground fine and mixed, then sifted through a fine hair sieve and placed in a well-corked bottle for use. When the cement is to be used, the above compound is mixed with enough strong solution of chloride of zinc to form a paste with which the hollow tooth is filled. The mixture hardens in about ten minutes.

"Balance."—I notice that some workmen get a very high polish on the entire balance-wheel when the watch is sent them to be cleaned. Please explain how they do it?—Remove the hairspring and dip the balance in a solution formed by dissolving one-half of an ounce of cyanide of potassium in a pint of water; after dipping rinse in pure water and dry in sawdust. To produce a polish lay the balance on a cork placed in the bench-vice and buff it with a rouge buff, being very careful not to bend the balance in any way. For polishing the screws, and the balance rim between the screws, procure a weak whalebone bow the same as workmen used to employ for the Jacot pivot lathe, and instead of using a horsehair to string it with, cut a narrow strip of chamois skin about 1/8" wide and long enough so the whalebone bow will draw it fairly tight. The ends of the bow should enter holes in the end of the chamois leather string. Split this string nearly the whole length so as to form two narrow shreds of chamois skin. These shreds are given a coating of rouge and alcohol, and are then drawn back and forth over the rim and between the screws of the balance and produce a polish like an ordinary rouge buff.

"Black Rubber."—(1) How can I restore the color of black rubber pen-holders which have changed color to a dirty greenish hue?—The rubber is black beneath the surface, and to restore the color the outer coating must be removed and the surface repolished. To do this any fine abrasive can be used to remove the discolored coating—fine emery paper and oil will do it—after which the polish can be given by rubbing with a woolen rag and oil with fine rotten-stone powder. Pulverized pumice stone and a rag moistened with water will also remove the discolored coating, after which the polish is restored by rotten stone and oil applied with a cloth.

How can white enamel letters best be cemented to glass? Dry white lead and varnish is usually employed, but I have no success with it.—A mixture of linseed oil boiled until as thick as honey, and mixed with equal weights of plaster of paris and litharge, makes a strong cement for attaching metal to glass.

"Iowa."—Will you give a formula for fastening pictures to glass without showing the adhesive substance?—Our correspondent does not say what kind of pictures he wishes to fasten to glass. For transferring, as the process is usually termed, ordinary engravings or lithographs some kind of varnish is employed. The varnish usually selected for this purpose is prepared by dissolving gum mastic in spirits of turpentine. Such varnish dries exceedingly sticky, and the engraving is pressed, with the face side down, into this varnish. To cause the printers' ink which produces

the picture to part more readily from the paper the print is wet with alcohol in which a stick of caustic potash is placed for a day or two before the alcohol is applied to the paper. After wetting with such caustic potash solution in alcohol the paper is blotted off with blotting paper, and the printed side pressed and rubbed into the tacky surface of the varnish. The transferred print is allowed to dry and harden for several days. The next operation is to remove the paper which is done with lukewarm water and a sponge, gradually working the fibre of the paper away, leaving the printed lines or dots of the printers' ink secured in the varnish. For transferring photographic pictures, the best process seems to be to make a collodion positive picture and transfer this to a plate of glass coated with plain collodion.

"Thunder and Lightning."—Having had my electric motor injured three times last summer by lightning, which cost me considerable money, I wish to take such accidents by the forelock and put in some kind of a lightning arrester. I see the lightning arrester at the power house is made with coils of wire, and it is said that when lightning starts to run on it it jumps the coils and makes a report like a pistol, and goes into the ground. I can buy a lightning arrester for twelve dollars, and I need two, but thought, perhaps, that with your assistance I might be able to make one and save some expense.—The principles on which lightning arresters are made, is by placing coils of wire in proximity to the wire conveying the current to the motor, thus a path of low resistance is opened for the atmospheric electricity to reach the earth, which it does by jumping the space between the wire leading to the motor and the one leading to the ground. Currents of electricity usually employed for motors are of such low voltage as to require actual metallic contact to insure conduction. The trouble which usually attends the efforts of people who attempt to substitute some device of their own for a device gotten up by experts in such matters is, they leave out or add something which defeats their plans, and the scheme is a failure. In your case, it seems to us that it would be your best plan to pay a little more and be safe, because usually those people who put in such arresters guarantee against accidents.

"Embossed Printing."—Can you give me a formula for a size for preparing silk, satin or leather for gold or silver embossed printing?—Embossed printing usually includes two or three operations. Where the printing is in gold or silver leaf, the surface of the silk or leather is dusted with a "dry size" composed of some gum or rosin which is softened by heat. A favorite process being to employ white of an egg beat up to a froth and then allowed to dry. This dried glair (gelatin) is made into an impalpable powder and dusted on the surface which is to be printed with gold or silver leaf—only the merest trace of the powder being placed on the surface. Many methods are employed to accomplish the "dusting on" process, among which is the "pounce bag," in which the dried white of an egg is tied up in a piece of Swiss muslin and shaken over or struck on the surface to be printed up. On this dusted surface the gold or silver leaf is placed, and then subjected to an impression of heated copper type which causes the metallic leaf to adhere to the exact form of the type. The superfluous gold or silver leaf is next brushed away with a hare's foot or a soft camel's-hair brush. The embossing is next performed by means of a heated copper die in relief. This copper die acts against an intaglio impression in an alloy composed of lead, tin and bismuth. This last operation produces the embossing. Much of the so-called gold and silver embossing is done by printing in bronze powders, after which the embossing is produced as above described.

"Clock Varnish."—What kind of varnish shall I use for revarnishing old clock cases which I repair? I have tried turpentine demar varnish, but it requires too much time to dry. Would demar varnish with alcohol be better? The proper varnish for such jobs is coach painters' rubbing varnish, to which a tablespoonful of japan dryer is added for every pint of varnish. The addition of a little spirits of turpentine thins the varnish and makes it work more freely, but such addition reduces the gloss. A good copal furniture varnish does well for varnishing clock cases, but it is extremely difficult to procure copal furniture varnish, as the main thing in a furniture varnish seems to be to have it cheap. A good coach painters' rubbing varnish will cost three dollars a gallon, and furniture varnish costs from seventy-five cents to two dollars—at the latter price you should get a very good quality of copal furniture varnish. We have no furniture varnish except copal which dries hard and will stand service. A very satisfactory gloss can be given to old clock cases by dissolving half an ounce of camphor gum in a half pint of olive oil. Moisten a soft woolen rag, like a piece of an old red flannel shirt with such camphorated oil and rub the case, using a considerable friction, and a wonderful newness of look can be given; in fact, a better appearance than can be obtained with a badly applied coat of varnish. Very few people, except professional varnishers, ever learn to apply varnish properly. Demar gum does not dissolve well in alcohol, and besides this gum is not a hard rosin.

"Photographer."—(1) I have a Vivi No. 1 camera, and want to take my baby's picture at 40" so as to get a larger one than the camera naturally gives. What lens shall I use in front of the camera lens for that distance?—You cannot place another single lens in front of the one belonging to the camera without destroying the achromatic combination. The policy for you to pursue is to place your camera lens in a wooden tube, said tube extending out toward the object to be photographed. This arrangement

will have the same effect as a "long bellows" camera for enlargements. Paper can be used, but wood will be found the most practical. You do not state the focus of your lens, consequently we cannot give the length of the tube. Probably, a tube 2' long will answer; if you find this too long, which can be determined by your having to bring the baby closer than 40", you can cut off some of the tube. Paint the wooden tube black, inside and out, with a black paint.

(2) How can I determine when the development is carried far enough? Watch the negative as you rock it in the developing dish, and when the picture seems to sink out of sight stop the process as it is complete. Perhaps we might add to advantage a little explanation. To say—let the picture sink out of sight would better apply to the fixing process than to the developing. We can perhaps give a better idea by saying a few words relating to the chemistry of photography, which has been aptly termed the chemistry of *ie to ou*s. In developing a negative the developer acts on the silver in the film just in proportion as the light has effected a chemical change in it. We will notice first where the strong lights as they passed through the lens and struck the plate begin to darken. As the process of developing continues we will see portions of the plate less affected by the light also begin to darken. The portions of a negative last to be affected by the developer are objects in partial shadow. By keeping a sharp watch we can tell when the yellowish surface of the negative in the shadows begin to darken and cease to show details, and should stop the developing. Over-developing produces flatness.

(3) Is there any danger of over-developing?—Answered above.

(4) Will you explain the method of retouching a negative?—The process of retouching a negative would require too long an explanation for this department. You can procure a book on this subject of H. T. Antony & Co., 591 Broadway, New York. As a rule, amateur photographers should avoid attempting to retouch a negative. The ruling idea with amateurs should be to produce negatives so perfect as not to require retouching.

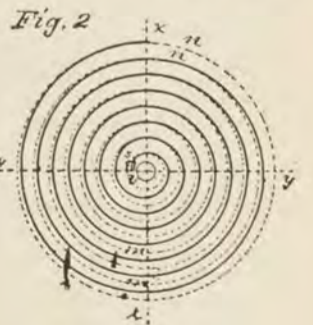
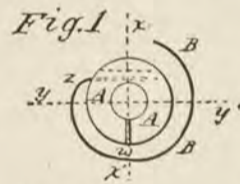
(5) Will you recommend a good work on photography for beginners?—There are many good cheap works on the subject. Your better plan will be to write to the firm named above for a catalogue of books on photography, and then order such as you think will best suit your purpose.

(6) Please give formula for developing and clearing negatives.—In every package of negative plates you will find a formula for fixing and clearing negatives best adapted for that make of plates.

"Hairspring Truing," alias "Subscriber."—(1) What is the best way to true a hairspring both in the round and in the flat?—Make for yourself a pair of truing callipers such as we show at Fig. 1, page 231, March, 1898, KEYSTONE, and fit a short center such as is there described. In making the bends for truing, let all bends be in the first quarter of the inner coil both for truing in the round and in the flat. This will be understood by inspecting Fig. 1, where we show the collet and inner coil of a hairspring. In the cut the heavy curved line B represents a portion of the inner coil of a hairspring magnified many times. Now, the point we wish to strongly impress on such readers as desire to make themselves

proficient in springing is, that all the bends required in truing a hairspring can be made between the points formed by the intersections of the horizontal lines *y* and *x*, that is, between the elbow bend at *z* and the intersection of the hairspring with the vertical line *x* at *w*. If a hairspring is true in the flat from the outer end up to the elbow at *z*, a very slight bend at *z* to affect the hairspring in either or both the meridians *y y'* or *x x'* must bring said hairspring true in the flat. As regards truing in the round, if a hairspring is a true spiral, bending the inner coil between the points *z* and *w* will bring it to absolute truth. It is rather a difficult matter to explain by mere words how a bend at one point will effect so much, but the result claimed can in every instance be obtained if we understand how to work and go about the matter intelligently. A good plan to get at the proper method is to paste a piece of white paper on a piece of thin board and sweep some circles on it as shown at Fig. 2. We next provide ourselves with one of the old style hairsprings for an octagon lever clock. Such a spring for our purpose should be about 1/4" in diameter. We sweep the circles *n*, in Fig. 2, so they are the same distance apart as the coils of the hairspring. Near the center of the circles *n* we drive in a piece of brass wire as shown at *v*. In this piece of brass wire is drilled a hole so we can pin the inner end of the hairspring into it. The dotted curve shows the hairspring as it lies just free of the paper—say 1/6". Such a device, and a few experiments, will do more to instruct a learner than a week of mere verbal explanations.

(2) How to prevent a ball forming in your staff when drilling for pivots?—There is no ball which forms; it is a glossy condition which both the drill and hole assume. Read our reply to "Pivot Drill," page 409, May, 1898, KEYSTONE.



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Remember our lowest price on this wheel was **\$31.00** net cash, and we are closing them out, *cash with order*, for **\$27.50**. When these are sold there will be no more at this *low price*.



FOR THE FINEST WHEEL PRODUCED. NONE BETTER. GUARANTEED IN ALL RESPECTS.

NOTE.—Our Special Skirt Guard on all Ladies' El Dorado Wheels, unique and practical.

WE DEFY COMPETITION.

A FEW GOOD THINGS IN WATCHES.



\$5.50

No. 200.

No. 201.

\$5.50 net cash buys a 14 K. Gold Filled Case, Guaranteed 25 Years.

No. 202.

\$7.41 buys 14-karat, 25-year case, fitted with 7-jeweled Sun Dial movement.

No. 203.

9.11 buys 14-karat, 25-year case, fitted with 11-jeweled nickel and gilt damasked Seth Thomas movement.

No. 204.

7.88 buys 25-year, 14-karat case, fitted with 7-jeweled nickel and gilt damasked Seth Thomas movement.

STANDARD
GOODS.

NEW
SHAPES.

COMPLETE
WATCHES



\$2.50

No. 205.

Assorted Patterns.

No. 206.

Assorted Patterns.

\$2.50 net cash buys a 14 K. Gold Filled Case, Guaranteed 5 Years.

No. 207.

\$4.51 buys 5-year case, fitted with Sun Dial movement.

No. 208.

4.79 buys 5-year case, fitted with 7-jeweled Seth Thomas movement.

No. 209.

5.98 buys 5-year case, fitted with 11-jeweled Seth Thomas movement.

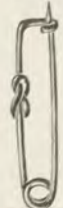
ONLY A FEW OF THIS LOT LEFT.
\$7.75 net cash.

BEAUTY PINS.

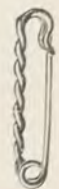
ASSORTED PATTERNS.

\$2.00 Cross.

21 cts. Dozen.



No. 211.



No. 212.

Good Quality.

An immense stock on hand; can fill orders without delay.

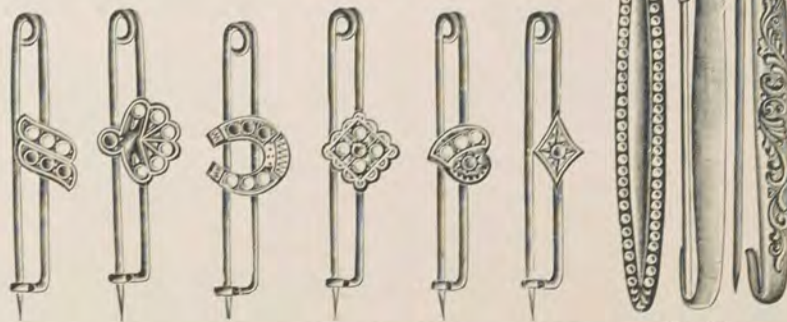


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No. 210. 14-size, Hunting, 14 K. gold filled case, guaranteed 21 years, with Monarch movement. Complete, **\$7.75** net cash.

ASCOT TIE PINS.

Get some of our up-to-date goods.
Novelties that will sell.



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Turquoise and Pearl Settings.

\$5.63 doz.

No. 214.

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Opal and Pearl Settings.

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No. 217.

Opal and Pearl Settings.

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Opal Setting.

\$3.38 doz.

No. 219.

Assorted Patterns. Rolled Plate and Sterling Silver.

\$1.00 doz.

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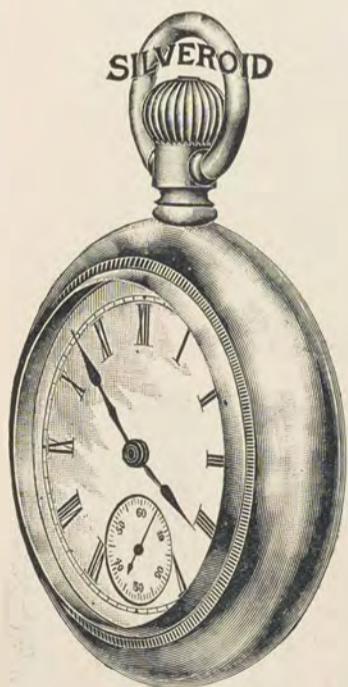
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Price That Fits Every Purse



"Can Buy a Watch at Last."

Time was when only a small proportion of the public were watch buyers; now all are—none excepted. The extreme in low prices in watch cases is represented in our



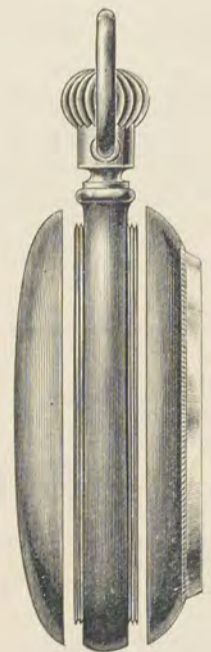
151
PRICE, \$2.00
PRICE ACCORDING TO KEYSTONE KEY

NEW 3-OUNCE SCREW SILVEROID

WITH
SCREW BACK AND BEZEL

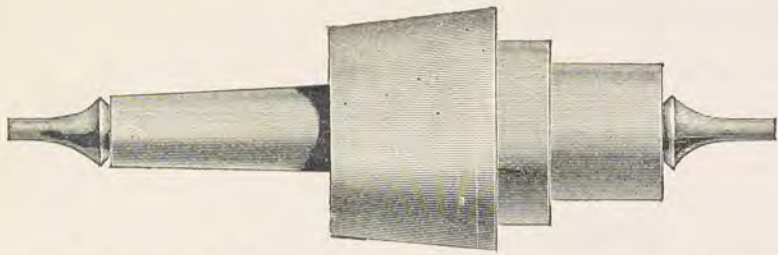
It is not made with center and bezel in one piece as formerly. Center and bezel are two separate pieces, as in all screw cases now made by us.

The Screw Silveroid is perfect in construction, graceful in form, very strong and durable, with a lasting silver color. With cheap movements they sell on sight, and are very profitable to handle.



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These STAFFS and JEWELS are superior to any in the market for the money.

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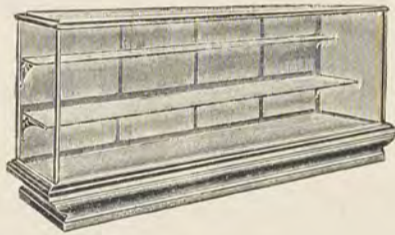
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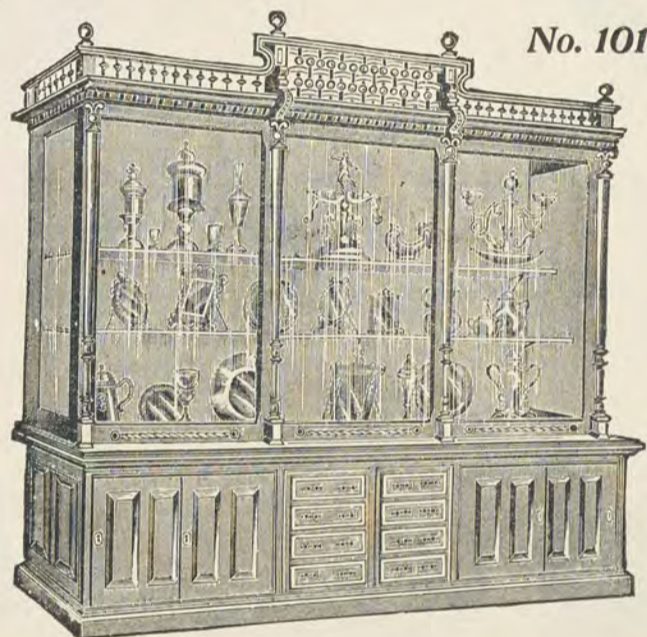
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These goods are made from **EXTRA HEAVY SEAMLESS FILLED STOCK.**

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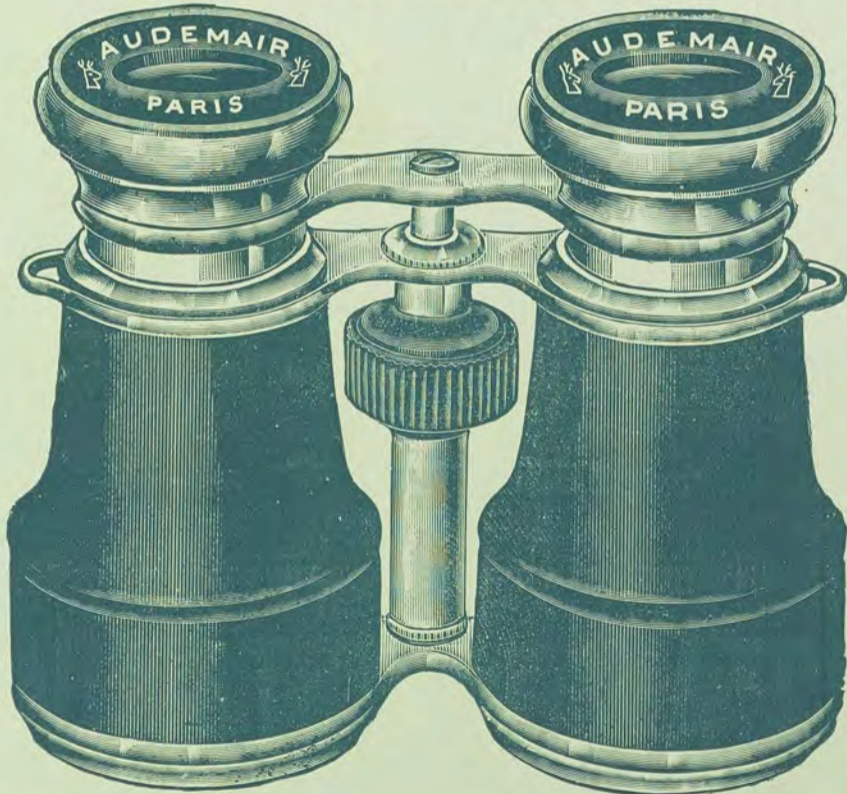
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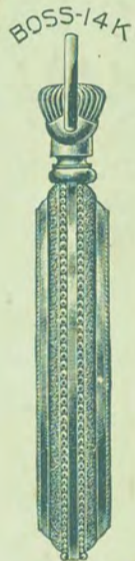
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Cuts entirely fail to do justice to the beauty of these cases. They are even thinner and more compact in appearance than shown in above edge views, and are remarkable for their unique grace of outline and prettiness of finish. They are now in the hands of jobbers, and each can be had with many entirely new and exquisite patterns of engraving.

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