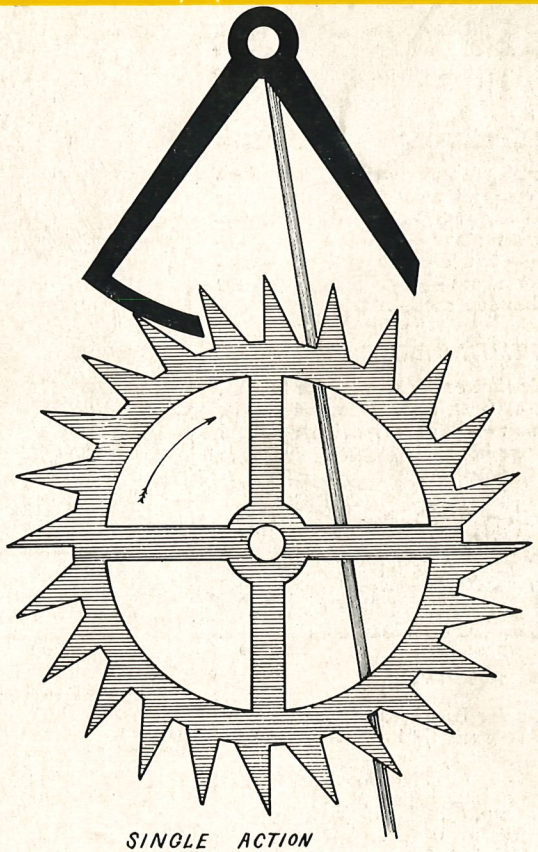
The H·I·A Journal

FICIAL PUBLICATION OF THE HOROLOGICAL INSTITUTE OF AMERICA.



SINGLE ACTION
PALLET AND DETENT ESCAPEMENT.
ANTOINE THIOUT.
1692 -1767
PARIS.

PP 20

MAY 1949

Work In Comfort

It's easy as ABC

A #2134-16. DAZOR TWIN TUBE FLOURESCENT BENCH LAMP . . . $23.50*

#L22A. TWO FLOURESCENT TUBES TO FIT LAMP $1.40

A c-o-o-l clear light any place on your bench top with a touch of your hand. Saves your eyes and adds to your comfort during the hot summer months.

B #L27. LAB ALUMINUM BENCH . $76.95

A lifetime bench with every conceivable feature for the comfort and efficiency of the watchmaker. Non-magnetic aluminum — 18 drawers with stops — solid oak top — canvas apron — two electric outlets — catalog and chart space — available in either right or left-handed model.

C #L1027. ARTILITY COMFORT CHAIR $21.50

A posture chair that easily adjusts for height, depth, and fit of back rest. Has full swivel. Saves your back — your disposition — and ten years of your life!

NO CARRYING CHARGE

$33.35 down, bal. $10.00 a month

BUYS ALL THREE

CLIP COUPON FOR COMFORT

H-549

Send items checked below:

☐ Send contract for bench, chair, and lamp @ $33.35 down and $10.00 per month.*

☐ #L27. Bench. ☐ #L1027. Chair.

☐ #2134-16. Lamp. ☐ #L22A. Twin Tubes.

Note: We will be glad to quote payment plan terms on above items separately on request.

Name_____

Address_____

City_____ State_____

* Dazor lamps are fair traded. Payment plan down payment includes remittance in full for Dazor lamp.

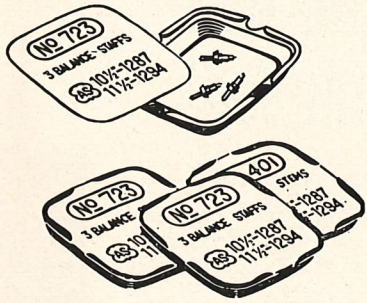
BURTON M. REID SONS INC.

1st and Washington — *"The House of Friendly Service"* — Springfield, Illinois

. . . Bulletin from The Watchmakers of Switzerland

Soon Available!

Staffs and Stems in the new Official Package for Swiss Watch Repair Parts



This New Package Simplifies Your Repair Work!

1. *You're sure to get the right part in factory-perfect condition—one that will fit the movement.*
2. *The heavy foil package helps protect the parts against moisture, corrosion, and damage.*
3. *It's completely labeled for quick, easy identification—in accordance with the system set up by the Official Catalogue of Swiss Watch Repair Parts.*

Here are the facts on the new Official Package for Swiss Watch Repair Parts

Staffs and stems for the most widely used Ebauches movements are the first parts to be packaged. Later on it is planned to have *all* Swiss watch parts packaged.

You may get some unpackaged staffs and stems for a while, because of the time required to get full national distribution of the packaged staffs and stems. Be sure that you place orders through your regular supplier, for that is the fastest way of getting these newly packaged parts.

This new Official Package for Swiss Watch Repair Parts is approved by The Watch Materials Distributors Association of America. And, a vote of thanks is due the United States trade and horological associations, importers and wholesalers for their fine cooperation in making possible the introduction of the new Official Swiss Parts Package.

Be sure to use the Official Catalogue of Swiss Watch Repair Parts (Part I) for identifying and ordering *all* Swiss watch repair parts. The new standardized system set up by the Catalogue has been accepted from coast to coast for identifying and ordering all Swiss watch repair parts. And it is the *only* system used in labelling the *packaged* Swiss Watch Repair Parts.

Remember that all genuine Swiss watch repair parts are factory tested to meet rigid specifications. The use of the package is an additional guarantee to you that the part you get will be in perfect condition—and will fit the movement for which it was ordered.

If you have any questions about the Repair Parts Program, or about watch repair—get in touch with the official Swiss Watch Repair Parts Information Bureau at 730 Fifth Avenue, New York City. And, if you have a talk to give, why not tell about the repair program. Just write to the Information Bureau for one of the new Speaker's Kits containing instructions, display material, easel presentations and slides.

See the next pages for more news

The WATCHMAKERS OF SWITZERLAND

. . . Bulletin from The Watchmakers of Switzerland (cont.)

This is YOUR June ad—No. 14 in the great watch-selling series sponsored by The Watchmakers of Switzerland

May and June can be an "Extra Xmas" for You!

YES, there's a great deal of business to be had during the next two months. And, The Watchmakers of Switzerland are ready to help you get your share—and more! Here's how . . .

First with advertising! During late May and early June, the ad on the opposite page will talk to millions of customers . . . selling them on the importance and appropriateness of quality Swiss jeweled lever watches as gifts. It will help you sell *up* watches as *the* gift for Anniversaries, Weddings, Graduations, Father's Day and birthdays.

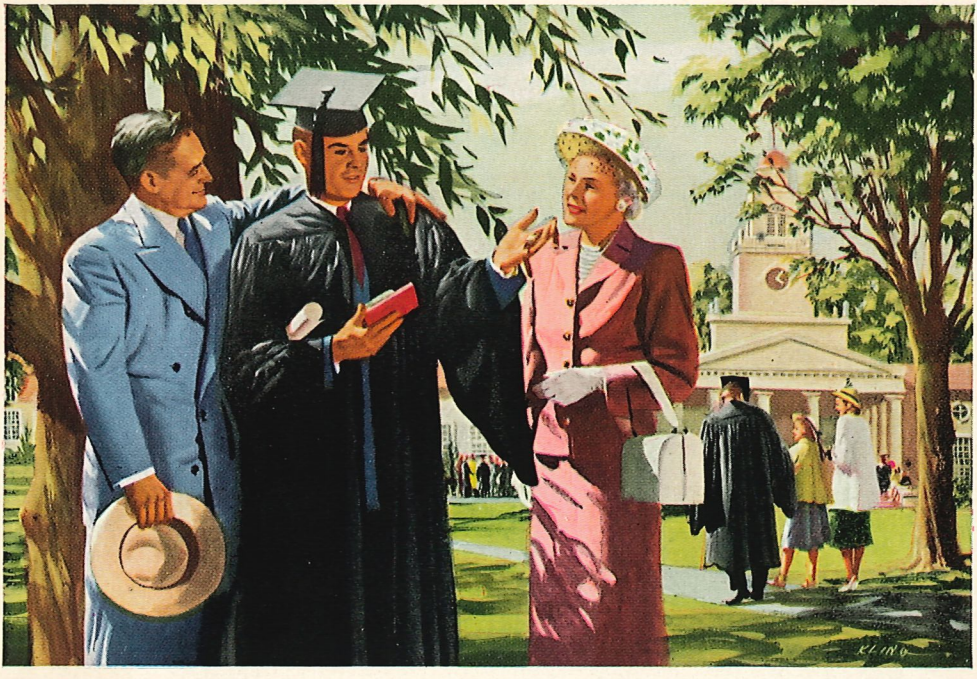
Second with merchandising. Have you heard about the complete, hard-hitting graduation promotion package? It' includes window displays, newspaper and radio advertising ideas, plus other display and sales suggestions for getting more of the gift business in your town during May and June. This merchandising package ties up with the advertising *and* this early summer season gift-buying time to offer you a real sales opportunity . . . a real "Extra Xmas".

Remember to stress this slogan that appears in every ad . . .

For the gifts you'll give with pride—
let your jeweler be your guide

The WATCHMAKERS OF SWITZERLAND

DURING MAY AND JUNE, THIS AD WILL MAKE 86,786,222 READER-IMPRESSIONS IN LIFE, LOOK, SATURDAY EVENING POST, TIME, NATIONAL GEOGRAPHIC AND FARM JOURNAL.

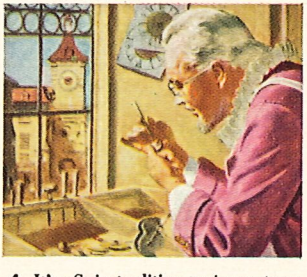


1. It's as traditional as a diploma – to give a watch to a boy or girl who's graduating. For no gift has more meaning than the precious gift of time. Let your dependable jeweler help you select a smart watch with a quality Swiss jeweled lever movement – a watch that will be in style and give fine service for years to come.

How to buy the perfect June gift . . .

2. When you shop for Dad for Father's Day, be sure to see the new water-repellent and shock-resistant watches, calendar watches, automatic self-winding watches, chronographs – and other achievements of Swiss craftsmanship.

3. If your gift is for a girl or woman, remember that Swiss watchmakers lead the world with new unusual watch styles. *And just as important as style, are the works and workmanship inside.* Be sure you get a quality Swiss jeweled lever movement.



4. It's a Swiss tradition to give you more for your money. It isn't enough just to have jewels in a watch; they must be cut, polished and set with fine precision. A watch with a quality Swiss jeweled lever movement is engineered throughout for long service.

5. Today, thanks to the new Official Swiss Watch Repair Parts Program and to the cooperation of U. S. importers, wholesalers and retail jewelers, you can always have your Swiss watch serviced economically and promptly.

For the gifts you'll give with pride – let your jeweler be your guide

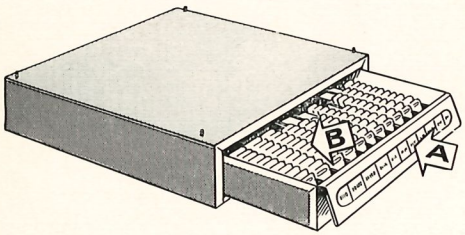
The WATCHMAKERS OF SWITZERLAND

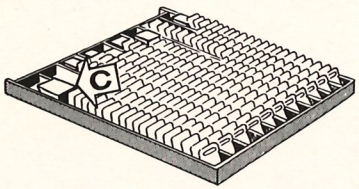
. . . Bulletin from The Watchmakers of Switzerland (cont.)

NOW!

A CABINET THAT KEEPS TRACK OF WATCH REPAIR PARTS!

The new Official Cabinet for Swiss Watch Repair Parts





A The drawer carries its own index listings.

B The drawer-tray insert is specially slotted to hold the New Official Swiss Parts Packages in an easy to get at, easy to see position.

C To hold unpackaged parts, it is planned to have removable bins that fit the tray slots.

- This new cabinet is the standard size approved by the W.M.D.A.A. (13¼" x 10⅛" x 2⅛"). Cabinet and drawers are made of steel, in mahogany color. Drawer tray inserts are of molded bakelite.
- Special tray—adapter flanges will be available so that you can buy the tray insert alone, and use it in the cabinet you now have.

This is the only Official Cabinet for Swiss Watch Repair Parts. It's based on a design that was contributed by The Watchmakers of Switzerland; but the actual production and selling of the cabinet is strictly a U. S. operation.

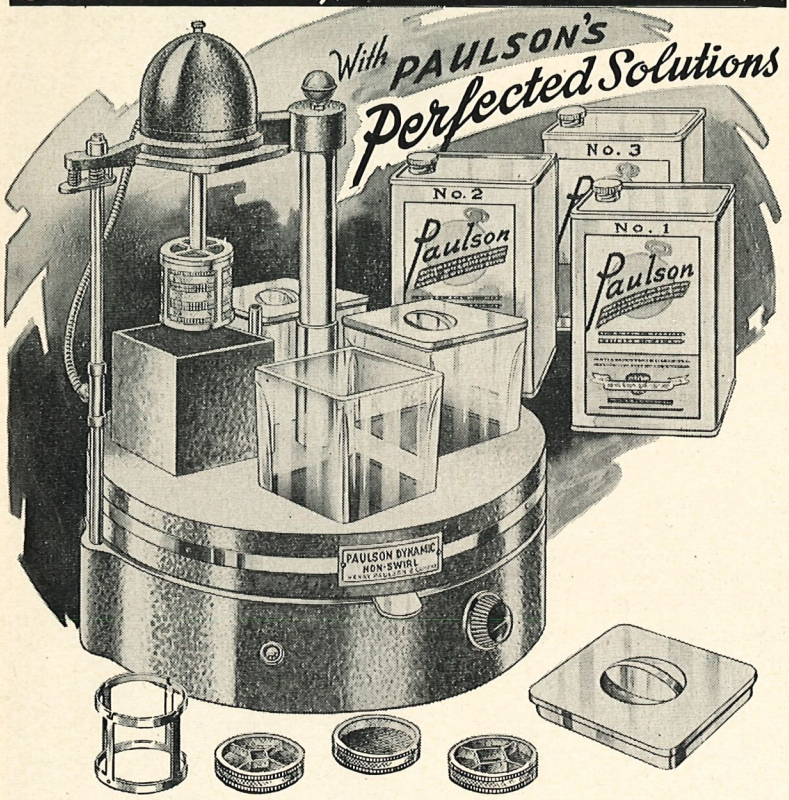
Order the new Official Cabinet for Swiss Watch Repair Parts from your regular source of supply. You can buy the cabinet complete, including the drawer, and drawer-tray insert. Later on, it will be possible to buy the tray insert separately with a special flange to make the tray fit the cabinet you now have.

The introduction of this new Official Cabinet for Swiss Watch Repair Parts is a cooperative step, involving much time, thought and effort on the part of United States horological and trade associations, importers and wholesalers. Thanks and congratulations are due to all for their efforts in making possible the introduction of the new cabinet.

Any questions? The official Swiss Watch Repair Parts Information Bureau is ready to answer them, or to help you with repair problems. Just write to the Bureau at 730 Fifth Avenue, New York City, N. Y.

The WATCHMAKERS OF SWITZERLAND

Cleaned 50,000 WATCHES Writes A.D. CALKINS LADYSMITH, WISC.



NEW MODEL PAULSON DYNAMIC WATCH CLEANER

NOTE THESE

AUTOMATIC FEATURES

The basket automatically starts revolving when lowered into the solution and stops when raised. Eliminating at least six manual operations, and the possibility of the solution spattering your work bench.

Diameter
12½ Inches
Height
17 Inches

The Only Patented Non-Swirl Watch Cleaner

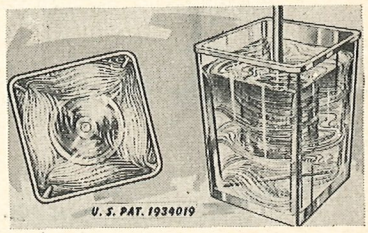
Paulson Dynamic Watch Cleaner

Paulson DYNAMIC, Non-Swirl Cleaning Machine, Unequaled, Effective, Double Action Cleaning Power.
The square jars with patented flanges in the corners stops the solution from following the revolving basket, giving double action cleaning power. This constant forceful stream ricochet from the flanges in the corners of the jars so the solution can enter the basket from all possible sides. This produces a double or even treble washing and cleaning value unheard of with any other cleaning method to this day, either by hand or by machine.

PATENTED FLANGED JARS

OLD METHOD

Ordinary Swirling, Solution action follows basket, rising on the sides of the jars, leaves a hole in the center of the jar, little resistance.



NEW NON-SWIRL METHOD

Patented jars with corner flanges creates a Non-swirling action which more than doubles the resistance and keeps the solution level for greater cleaning power.

USE THIS HANDY COUPON

HENRY PAULSON & CO.
131 S. Wabash Ave., Chicago 3, Ill.

Please Send:
No. 5500 Paulson New Model Dynamic Watch Cleaning Machine, complete with Paulson's solutions, ready to use, and guaranteed to give you complete satisfaction.....

Name .....

Address .....

City..... State.....

HENRY PAULSON & CO.

131 S. Wabash Ave.
CHICAGO 3, ILLINOIS

HAMILTON

calls them "747"...

WITHOUT fanfare, without extravagant claims, Hamilton introduced the Grade 747 eighteen months ago. Since then, thousands of jewelers and satisfied customers have given this new movement enthusiastic acclaim.

The Grade 747 is sweeping the country because it is accurate, dependable and easy to service when servicing is necessary. Hamilton Grade 747 and its companion, Grade 748 with sweep seconds hand, are now available in seventeen popular case and dial combinations. Order them through your Hamilton wholesaler.

HAMILTON WATCH COMPANY
LANCASTER, PA.

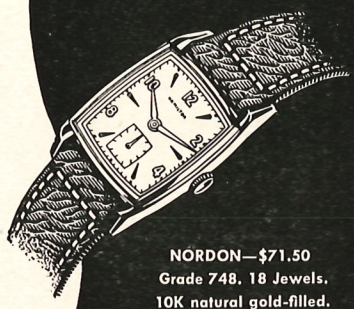
CUSTOMERS

call them marvelous!

LANGDON—$66.00
Grade 747. 17 Jewels.
10K natural gold-filled.
18K AGN-dot or luminous dial.
14K gold—$150.00

FORBES—$71.50
Grade 747. 17 Jewels.
14K natural gold-filled case
with gold-filled bracelet.

DUNHAM—$60.50
Grade 747. 17 Jewels.
14K natural gold-filled.
18K AGN-marker dial.

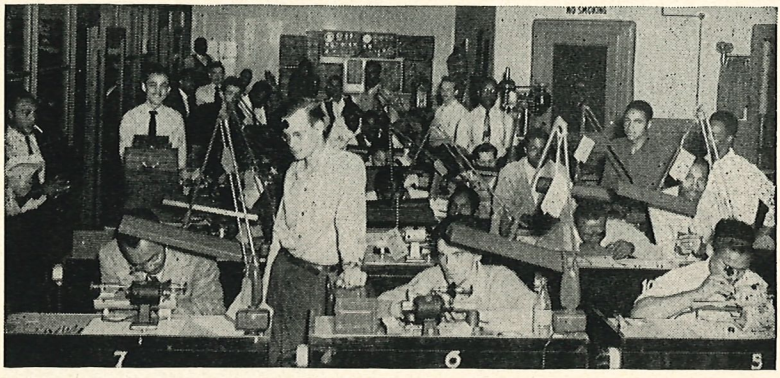


NORDON—$71.50
Grade 748. 18 Jewels.
10K natural gold-filled.
Luminous or 18K AGN-marker dial.
14K gold—$160.00

Morgan Vocational Schools

BALTIMORE, MD. and RIDGELEY, W. VA.

"Certified Schools for Certified Watchmakers"



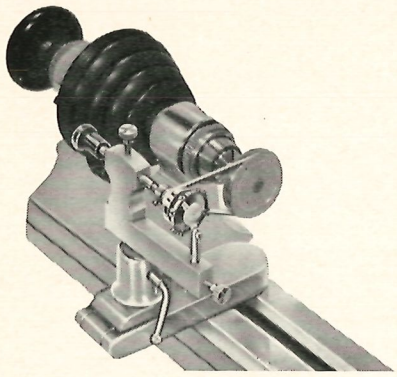
School at Baltimore, Maryland

School at Ridgeley, W. Va.

Courses offered in
Horology, Precision, Mathematics, Machine Work and Mechanical Drawing

P. K. MORGAN, Owner of the Schools

The FAMOUS MOSELEY
PIVOT POLISHER
at a
NEW LOW PRICE



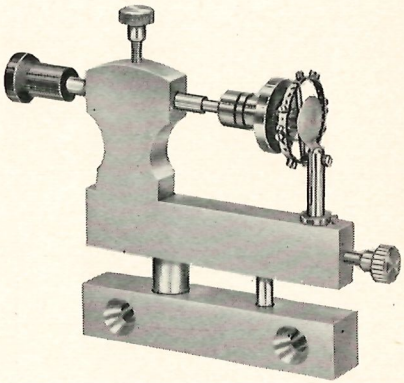
$9.75 No. 39669 complete

We can now lower the price because of the great demand for this tool. Ever since it was first announced, more and more wise watchmakers have insisted on the Moseley. That means longer production runs in our factory . . . new economies made possible by these longer runs. AND WE PASS THE SAVINGS ON TO YOU. This is the same fine Moseley Pivot Polisher that was a tremendous value at $13.50 . . . now only $9.50.

As far as we know, the Moseley is the only Pivot Polisher that operates as this one does. Can be used on any standard lathe or on the bench with a fiddlebow. Has smooth belt drive . . . NOT A FRICTION DRIVE. That means an even flow of power because you control the speed with a rheostat in connection with your lathe motor.

To use on lathe, mount the Moseley Pivot Polisher on any standard lathe by removing the T-Rest and inserting large guide pin of polisher. Fiddlebow can be used by mounting on bench with bar we supply. The combination of large and small guide pins holds polisher firmly on workbench. Perfect alignment of plate and jewel bearing assured by collar which can be locked in position. Will polish all pivots from smallest baguette to largest pocket watch.

Be sure to specify make of lathe or size of opening in T-Rest when ordering.



COMPARE . . .
Features—Quality—Price

- DIRECT BELT DRIVE . . . NOT FRICTION
- FIDDLEBOW NOT NECESSARY BUT CAN BE USED ON BENCH
- RUBY JEWEL PIVOT BEARING
- 3 INTERCHANGEABLE PLATES

C. & E. MARSHALL COMPANY
FAMOUS FOR QUALITY THROUGHOUT THE WATCHMAKING INDUSTRY
Box 7737, Chicago 80, and Principal Cities

THE H. I. A. JOURNAL

DEDICATED TO THE PROGRESS AND DEVELOPMENT OF HOROLOGY IN AMERICA

Published monthly as the official publication of The Horological Institute of America, Inc.

Volume V | May, 1949 | Number 2

TABLE OF CONTENTS

—O—

Subscription Price of H. I. A. Journal

The subscription of the H. I. A. Journal, single copy, is 25 cents. It is mailed free to members of the Horological Institute of America. The subscription price to individual members of State Horological Associations and/or Guilds (Certification of membership MUST be made by Secretary), is $2.00 per year, which includes Institute membership. The subscription price to all others is $3.00 per year. Checks are to be made payable to: "The Horological Institute of America, Inc.," and should be mailed to: "RALPH E. GOULD, Secretary, Washington 12, D. C.

Acorn Clocks

By Brooks Palmer

(Editor's Note—Mr. Brooks Palmer, a member of the National Association of Watch and Clock Collectors, is a specialist in American clocks. He is well known for his articles on clocks and has contributed to several well known magazines. He has recently completed the section on clocks and watches for the new Collier Encyclopedia. Horologists and collectors will be interested in his history and description of acorn clocks. We wish to acknowledge our gratitude to the magazine ANTIQUES for their permission to reprint Mr. Palmer's article "Acorn Clocks.")

Where the design of acorn clocks came from is a puzzle. They do not seem to be obvious descendants of any earlier clock, though their shape bears some relation to that of the Empire lyre clocks. The name is derived from the acorn-shaped turnings of the side finials, and from the fact that the top part of the clock is also acorn-shaped. These unique examples of clock design present something of a mystery.

It is at least established that they were made in Bristol, Conn., by Jonathan Clark Brown (1807-1872). His name—or the firm name he used at intervals, Forestville Manufacturing Company—appears on almost all acorn clocks. The case design is by tradition credited to him.

As for their date, it seems that acorns could not have been made before 1845, despite earlier dates that have been credited to them, because of the mechanical aspects involved. Cases of this shape could not have been used with the weightdriven movement of earlier clocks. It was necessary to wait for the development of an inexpensive coiled spring, which freed American designers of clock cases from the need of space for the fall of weights. In 1838, one of the Ives family got a patent on a brass spring attachment for the winding arbors of wooden movements. Silas Burnham Terry and others had been working on a coiled spring. Joseph Ives' wagon-spring clocks were already in existence. Some clocks with brass springs were made by E. C. Brewster and Company (1840-1843). Then around 1845 coiled springs of New England make became available at about 75 cents or less. Imported springs had been known before this, but they were considered too expensive for use in low-priced, mass-produced clocks. The coiled spring, attached to wooden spools, or fuzees, provided reasonable accuracy. The acorn shape then became a possibility.

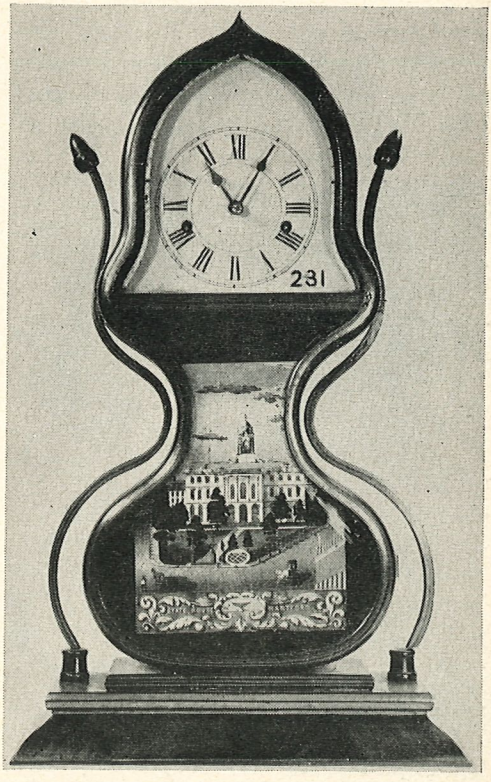


FIG. 1—Acorn Clock—Type I. Tablet shows the State House in Hartford, (Conn.) from a contemporary print. From the collection of Peter Mitchell. Photo, courtesy Mr. "Barny."

Help in dating acorn clocks may be found in the fact that a picture of Jonathan Brown's home, which he bought by deed on March 20, 1847, appears on the lower part of the case in some examples.

All of the shelf acorns strike the hour. Some of them are not too satisfactory time tellers, presumably because the case shrinks and expands with the weather.

In 1835, Brown and five others started a factory known as The Forestville Manufacturing Company at Forestville, about two miles east of Bristol. Their product was an eight-day weight-driven brass movement shelf clock in an Empire case. In 1840, the name was changed to Hills Brown & Co., but in 1842, Brown bought out Hills and operated from 1842 to 1850 under the name of J. C. Brown & Co., Associated with him for at least a part of that period, probably from 1845 to 1847, were Chauncey Goodrich and Samuel B. Smith, who later ran a successful clock business in Bristol under the name of Smith & Goodrich (1847-52). In the late 1840's, the old

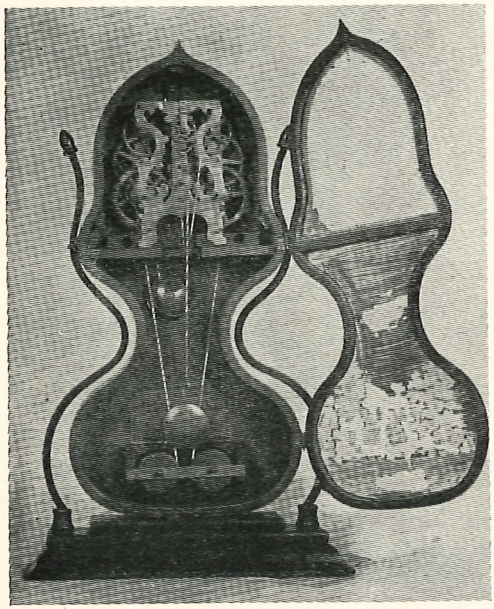


FIG. 3—Acorn Clock—Type I. Interior view showing the complete mechanism including fuzees (the two cylinders at the base of the clock). Photos courtesy of Edward Ingerham.

FIG. 2—Acorn Clock—Type II. The use of the square base has saved construction cost.

name, Forestville Manufacturing Company, was revived by Brown. In 1850, it was changed again, this time to Forestville Clock Manufactory, J. C. Brown, president. Confusion in dating acorn clocks has been partly due to Brown's occasional use of the old firm name, Forestville Manufacturing Company, as well as his own, in the 1842-1850 period. Apparently acorns were not made after 1850. An advertisement of the Forestville Clock Manufactory in the 1851 Connecticut business directory listing the clocks then made, makes no mention of acorns.

Type I acorns have the wind holes at 8.15 and 3.45 on the dial. The case is 24 inches tall, made of laminated wood of six thin plies, each about an eighth of an inch thick, with rosewood or mahogany veneer, over pine, neatly joined at the top. The back is of pine. The depth of these clocks, from front to back, is 3 inches. The base, included in the 24-inch heighth, is 2 inches thick and 101/2 inches wide at the lowest part. Plain glass covers the dial, and a

tablet (painted or etched glass) the lower part.

Some examples of Type I have no printed label inside, but only the piece of light blue paper which served as a dust block. In others there is a printed label reading: "Eight Day/ Spring Clocks/ Manufactured by/ J. C. Brown/ Bristol, Conn. Either the name J. C. Brown or Forestville Manufacturing Company name appear in script lettering on the dial.

Type II acorns have the winding holes at 9 and 3 on the dial. The base is 3 inches shorter than that of Type I, with a square bottom. It is 21 inches high and 3½ inches deep, with a base 9½ inches at the widest point. The side posts are thicker, but in typical examples they are capped with the same turned acorn finials. The power is provided by metal fuzee springs mounted on an inverted sleighbed piece of metal, attached directly to the bottom of the movement, an arrangement calling to mind certain leverages used by Joseph Ives in his wagon-spring movement. The catgut cord travels only a short distance from the attached fuzees to the movement, instead of over half the height of the case in the first type. A printed label in black ink on dark blue paper reads, "Eight Day Brass Clocks/ by the Forestville Manufacturing Company/ J. C. Brown, Bristol, Conn./ press of J. G. Wells—26 State St., along with the usual directions given by clockmakers.

Catch, Joint and Pinstem

By H. W. SCHAEFER

Every retail jewelry store is called upon to repair the small jobs as well as the large ones. Some of these so-called "small jobs" usually turn out to require more skill and patience than many of the larger ones. I refer to soldering on a catch and/or joint and the replacement of pinstems.

Experience and judgment are prime requisites in estimating the costs of soldering a replacement part to an article of jewelry.

The principle points to observe before giving the customer an estimated cost for the repairs are:

(a) Is the article to be repaired, solid gold, solder or wax reinforced, gold-filled, gold-plated, white or "Britania" metal construction?

(b) Is the replacement part to be hard or gold soldered or soft soldered?

(c) Does the article to be repaired contain "sets" or "pearls" which will be necessary to remove before the soldering job can be done, and be replaced after the job is finished?

(d) Will it require "refinishing" to restore its original finish?

The above check-up will enable you to quote a fair and equitable price that will permit a skilled workmanship job at a reasonable profit.

Many costume jewelry articles, so popular today, are made of low "fusing" metal, such as lead, white or "Britania" metals, making extreme caution a MUST to avoid over-heating, which may damage the article sufficiently to destroy its value as an ornament. Many costume jewelry pieces contain "sets" which must be removed before joints and/or catches can be replaced, and, of course, a knowledge of what "heats" the different metals will stand without damaging the articles, is essential.

If the brooch or bar pin is "plain," (without stones) then the soft soldering of a joint and/or catch is not so difficult

as "hard" or gold soldering. However, skill and experience is still necessary to avoid discoloring of the article (if gold-plated) and to prevent the soft solder from "spreading" beyond the actual need for a satisfactory solder union.

As previously stated, it is necessary to REMOVE "sets," including pearls, or imitation, from some articles before even soft soldering, and, in all cases, where "hard" or gold soldering job is to be done. However, there are cases where it will be necessary to remove "only" such "sets" as may appear in the immediate vicinity of the heat contact point.

It will be necessary to DESTROY the "sets" on some articles in order to remove them and this should be noted in making your ESTIMATES on the work.

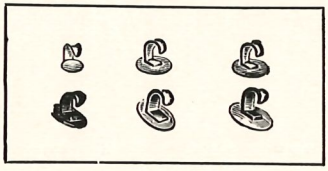


Fig. 1

Your attention is called to the joints and catches shown in Fig. 1. You will notice these have cup-shaped "patches" on the bottom. This type replacement is used for soft soldering as these patches provide additional solder contact surface, which is necessary for a satisfactory soft-soldering job. These soft-solder "findings" may also be purchased "pre-solder filled," requiring only a small application of soft-solder "flux" to the "patch" and then heated. These pre-solder filled findings may be secured from your watch material and jewelers supply houses, in various sizes, at a small increase in cost.

Solid gold articles, such as brooches, bar pins, etc., should always be hard or gold-

Fig. 2-3

soldered. Gold "ball" joints and safety catches (Fig. 2-3) should always be used for replacement on solid-gold articles.

Your attention is called to the absence of "solder patches" on this type findings. In using "hard" or gold solders as a "union," the solder will "flow" between the part and the article being joined, making a perfect union, and as substantial as the article itself.

PROCEDURE—SOFT SOLDERING:

In order to secure a satisfactory "soft-solder" joint, it is necessary to have the surface to which the finding is to be attached, as well as the finding itself, thoroughly "clean." This is usually done by "scraping" the contact point of the finding and the article. NOTE: Remove "sets" near the solder heat contact point, if any appear on the article.

(a) Select a join and/or catch in proper proportion to the article on which it is to be placed.

(b) Clean "cup" patch and point on article where the "finding" is to be placed.

(c) With the "cup" side up place sufficient amount of "soft-solder" in the "cup" to fill the "cup" when melted. NOTE: Do not over-fill as this will cause the solder to "flow" outside the "patch" when heated, making a "botched" job.

(d) Apply a small amount of soft solder flux to the cup and hold over a small alcohol flame. Remove instantly when the solder has completely "flowed."

(e) Apply a small amount of "flux" to the patch and the point where it is to be soldered to the article. NOTE: In my opinion, "Schwerters" soft soldering "flux" is ideal and can be secured from any jewelers supply house.

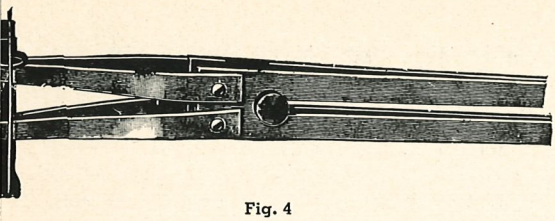


Fig. 4

(f) Place finding at the point where it is to be permanently located.

(g) Hold securely in place with a pair of old discarded tweezers. NOTE: You will find it is most convenient to use the patented soldering tweezer shown in Fig. 4.

(h) Apply light heat with a mouth blow-pipe or hold over a low alcohol flame until the solder flows, and immediately remove and let cool before removing the soldering tweezer.

(i) Clean article by "scrubbing" with a stiff "washout" brush with a weak solution of ammonia and soap, rinsing in water and/or alcohol, drying in sawdust.

NOTE: If the article is to be polished after soldering, use a soft rouged cotton buff and clean, as suggested above.

Hard or gold soldering requires more experience and skill to do a satisfactory job than does soft soldering. It is important that the parts to be soldered should be CLEAN before attempting to solder.

PROCEDURE—HARD OR GOLD SOLDERING:

(a) Select a solid gold hard solder joint and/or catch of appropriate size.

(b) Clean both the base of the "finding" and the point on the article where the joint and/or catch is to be soldered.

(c) Place a small piece of gold solder at the point where the finding is to be soldered.

(d) Bind joint or catch securely in place with small jewelers binding wire. NOTE: See that the finding being soldered is in alignment with its component part and is "square" with the surface of the article being soldered.

(e) Dip article in a saturated solution of boracic acid and alcohol.

(f) Heat over alcohol flame until a "glaze" is formed over the article. Let cool.

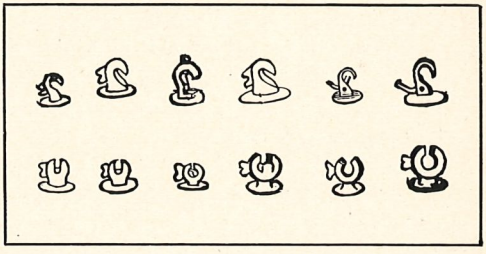
(g) Form a hard soldering "flux" by mixing a small amount of powdered borax (20 mule team) with a few drops of water until a consistency of "paste" is formed.

NOTE: See that the borax is free of any foreign matter if best results are to be obtained.

(h) Apply a small amount of "flux" around the joint.

(i) Attach the article to an asbestos soldering block with "finding" up, by common iron household pins, if the article is a large one. If the article is small it can be laid on the asbestos soldering pad or held in place with a pair of soldering tweezers.

(j) Apply heat evenly to the point where the "findings" and the article join. (Solder flows to the hottest point). Gradually increase the heat until the solder flows and presents a silvery appearance. Immediately cease heat; further heating may cause the article to "melt."



Soft Solder Safety Catches

(k) If, upon inspection, the parts are found to be satisfactorily "fused," place the article in a copper "pickle-pan," cover with a sulphuric acid and boil. This will remove the boracic acid "glaze" and the

article should come out nice and clean. If the article was originally a "bright" finish, a little buffing with a soft rouge buff is all that is necessary to restore its original finish.

(l) After polishing, scrub the article with a stiff "washout" brush, using a weak solution of ammonia and soap.

(m) Rinse in water and then in alcohol, placing in jeweler's sawdust to dry.

NOTE: If the article is "English," rose, roman, sand-blasted or butler finished, special treatment will be found necessary to restore the original finish. However, many smaller retail jewelers are not equipped to do this type of work. A solution to this problem would be to soft-solder the "finding" on the article.

It is well to remember that soft solder on solid gold articles should never be used if it can be avoided because hard or gold solder cannot be applied until every trace of soft solder has been removed. This is quite a troublesome operation requiring considerable time to do satisfactorily.

As previously stated, experience is required to judge the amount of heat an article will stand before melting. Some solid gold articles are filled with lead, shellac, to give the thin gold "shell" strength and gold articles so constructed will not stand as hot a heat as objects which are entirely solid gold. Again experience is essential in judging the amount of heat the various types of jewelry will stand.

Fitting the pinstem is a simple matter, requiring little practice. NOTE: The point should be long, sharp, and if necessary to repoint to required length, the pin stem should be burnished smooth. This is done by rotating it with a pin vise, on the wooden bench pin, while being filed. A burnishing file will then smooth out the file marks.

A tapered pin should be filed up to fit the joint. A little filing here and there will make the pin work in the joint smoothly. Cut off the wire close to each side of the joint—rivet by tapping lightly on each side. A beading tool will make a nice finish to both sides of the rivet.

FIRST CHRONOGRAPH SHOWING TO BE IN CHICAGO, MAY 17-18

Final arrangements have been made for the world's first Esembl-O-Graf Chronograph "premiere" to be held in Chicago, May 17 and 18, according to William C. Smith, president of the Western Pennsylvania Horological Institute.

The two-day exhibit will be staged at the Hotel Sherman to demonstrate the new Esembl-O-Graf method of chronograph repairing. Invitations have been extended to horological school directors, watch distributors, importers, business paper editors and watchmakers to attend the two-day event.

The exhibit will be arranged in connection with the U. H. A. A. and N. A. H. A. convention to be held in Chicago.

Speakers scheduled for the two-day conference and exhibit will include Eugene M. Bauman, president of the Aristo Import Co., Inc.; Charles Purdom, known as "Watchmaster Charlie," of the American Time Products Company; Charles H. Fetters, president of the American Time Products Company; and Anton Feigel of the Henri Stern Watch Agency, Inc.

Mr. Smith has returned to the United States after a six weeks' trip to visit Swiss Watchmakers, where he demonstrated the Esembl-O-Graf chronograph repairing. He reported that Swiss officials and watchmakers were enthusiastic about the Esembl-O-Graf method.

Major points of agreement established by Mr. Smith will facilitate early publication of Esembl-O-Graf manuals for newly developed chronographs, he reported.

H. I. A. PRESIDENT HONORED BY THE SOCIÉTÉ SUISSE DE CHRONOMÉTRIE

President A. S. Rowe received the following communication from President Eugene Jaquet, of the Société Suisse De Chronométrie, Geneva Switzerland: (Translation)

Geneva, March 22, 1949.

My dear Mr. President:

The Swiss Society of Chronometry is organizing this year, on the occasion of its 25th anniversary, an International Congress of Chronometry. It is the first time that such an "international" congress will be held in Switzerland.

The organization of this affair is placed under the presidency of M. Georges Tiercy, director of the Observatory and rector of the University of Geneva. The Congress will be held in Geneva the last week in August.

Your association being the one most nearly like our Swiss Society of Chronometry, we take this opportunity of asking you to be so kind as to accept being a member of the Honorary Committee of this Congress.

Counting upon a favorable response from you, we beg you to accept, Mr. President, the assurance of our highest esteem.

EUGENE JAQUET,
Former director of the
School of Horology (retired)
Honorary Conservator of the
Museum of Horology at the
Museum of Art and History
of Geneva.

Aquatic-wise Timepieces — Jewelers from Missouri — and other parts of the United States—please note! A watch importer on New York's Fifth Avenue keeps this aquarium in his showroom to demonstrate his waterproof timepieces. Bette George dunks several jeweled-lever Swiss watches, two of which are automatic self-winding models, as proof. The watch on the bottom of the tank is kept under water each day, removed at night.

P. S. It hasn't missed a second in months.

PAROLEE ROBS SHOP

The retail jewelry store and watch repair shop of Marcus Furstenberg, 601 Odd Fellow Building, Indianapolis, Ind., was robbed recently of $250 worth of new watches by Sam Lockett, age 49, a parolee of the Indiana State Prison, who was under sentence for grand larceny. The robbery occurred while Mr. Furstenberg's attention was diverted by Lockett.

However, with the excellent work of Detectives George Hubbard and George Correll, of the Indianapolis police force, Lockett was apprehended before he had the opportunity to dispose of the loot, and Municipal Judge Alex M. Clark sentenced Lockett to 180 days on the Indiana State Farm.

BURR: On a pivot, a "head" formed on the end of a balance pivot by a violent thrust against a cap jewel, due to a fall or blow suffered by the watch.

Mobile Horos Meet

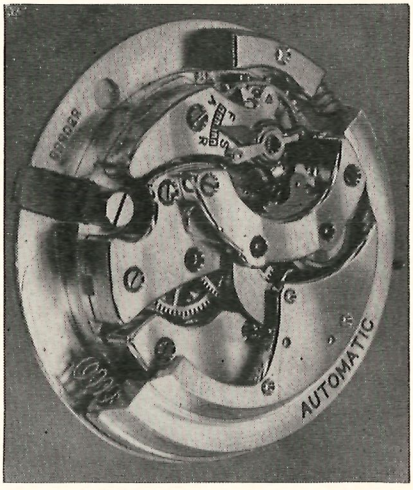
Senator Joe Langham of Alabama, who was the principal speaker at the annual convention of the Mobile Watchmakers Guild, held May 9 and 10 in the Admiral Semmes Hotel in Mobile, urged members to maintain the high ideals of the watchmakers' profession. In his talk, Senator Langham traced the history of the guild movement in Europe. Students of the Jones County Junior College in Mississippi were among those who attended the convention. Watchmakers from all sections of Alabama attended the gathering.

William O. Smith, president of Western Pennsylvania Horological Institute, and Mrs. Smith at Scheidegg, resort spot high in the Swiss Alps. The Smiths made the 4-hour trip from Bienne after Mr. Smith concluded his discussions with Swiss chronograph manufacturers.

NEW SWISS "AUTOMATIC WATCH" NOW ON MARKET

Swiss watchmakers have perfected "the watch of the future," an automatic watch which can be wound by the movement of the wearer's arm, rather than by a hand-operated stem.

A small bar, called a "hammer," weighing only a half-ounce, slides easily back and forth around the watch movement as the wearer's arm moves, turning a wheel which winds the mainspring of the watch.



This complex mechanism comprises the movement of the automatic watch—watch of the future. The hammer, that part of the illustrated movement marked "automatic," slides easily back and forth around the watch movement as the wearer's arm moves, and turns a wheel which winds the mainspring of the watch.

Horological experts claim that the new "automatic" watch is more accurate than the non-automatic watch, since the automatic device keeps the mainspring under "constant tension" and thus is able to deliver "power" to the watch movement, increasing its efficiency.

It has been pointed out that the "constant tension" on the spring means a faster and more powerful swing of the watch's balance wheel, which regulates the movement and determines the final accuracy of the watch.

NEW JERSEY HOROS HELD APRIL MEETING

Members of the Watchmakers' Association of New Jersey, Inc., held their regular meeting on April 12 at the Ivanhoe in Irvington, N. J. Featured at the meeting was a demonstration of wheel cutting by Emil Haller, a veteran watchmaker, with fifty years of experience.

Mr. Haller, one of the oldest members of the association is still active as a watchmaker in New Jersey and has been a trustee of the organization for many years.

Several sound films on "Lever Escapement," produced by the Bulova Watch Company, were also shown at the meeting.

Preliminary reports on revision of the Constitution and By-Laws will be made at a meeting prior to the June meeting, when members will vote on adoption of suggested changes.

The attendance was unusually good at the April meeting and discussions covered many phases of the watchmaking field in New Jersey. "Price cutting" came in for discussion and members were urged to cooperate in adopting high ethical standards.

"The watchmaker who does a good job and is fair with his customers will be able to maintain a steady business with the goodwill he builds up," President Hayenga asserted at the meeting. "Let us all strive to turn out good, honest work with absolute fairness to the customer."

L. H. Hayenga is president of the Association. Other officers are Thomas J. Buckner, vice-president; Saul Stanoch, secretary, and Robert Halpern, treasurer.

WATCH RESTRICTIONS WILL HARM TRADE SETUP

Paul Tschudin, director of the Swiss Watch Repair Parts Information Bureau, has declared that further legislative restrictions on the importation of Swiss watches and movements into the United States would serve to effect adversely the present favorable balance of trade which this country has with Switzerland.

Mr. Tschudin pointed out that Switzerland is this country's best European cash customer, spending $2.65 here for every dollar that the United States spends for Swiss products. He said that a reduction in Swiss sales here ultimately must be reflected in less buying because of fewer dollars available there.

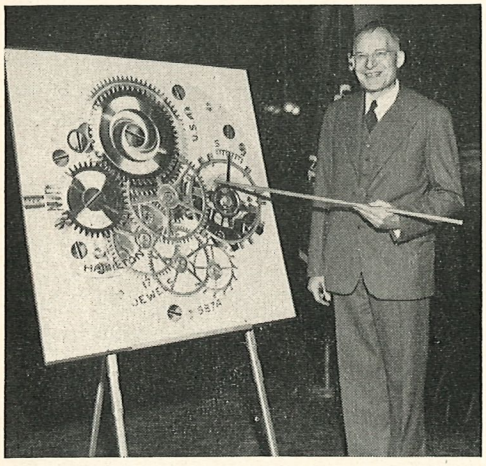
He also pointed out that 90 per cent of the Swiss watch imports into this country are in the form of movements, and that the assembling and sale of these constitute a multi-million dollar American industry.

"Only twelve cents out of every dollar received from the sale of the average Swiss watch goes back to Switzerland," Mr. Tschudin stated.

The American market is large enough to absorb the production of Swiss imports as well as domestic firms, he asserted. He pointed out that heads of national jewelers associations have gone on record as opposing any change in trade relations with Switzerland, since the Swiss watch imports comprise a large segment of the retail jewelry industry's annual business.

HAMILTON OFFICIAL GIVES LECTURE AT NEW YORK UNIVERSITY

"Developments in Portable Timepieces" was the subject of a lecture presented by George P. Luckey, vice-president in charge of manufacturing, Hamilton Watch Co., at New York University, Thursday, April 7, 1949. Mr. Luckey's talk was the twelfth in an annual series under the auspices of the James Arthur Foundation on the general theme, "Time and Its Mysteries."



Using enlarged photographs like this, in addition to 50 and 100 time size transparent models of watch parts, George P. Luckey, vice-president in charge of manufacturing, Hamilton Watch Co., pointed out modern development in fine watch manufacturing for the audience attending the twelfth annual James Arthur Lecture at New York University, April 7th.

Speaking in Gould Memorial Auditorium, Mr. Luckey contrasted today's watchmaking methods with those of some of the earlier specimens in the Arthur Collection of Clocks and Watches at the University. He pointed out that the making of a fine watch has definitely passed from the domain of the artisan, working with easily procurable materials and tools, into a domain where the skilled worker is assisted by the engineer and scientist, where new materials and specialized machines and tools are developed to meet the requirement of each individual part.

Electronic devices to measure the accuracy of a watch even before it is assembled; steel furnaces which smelt alloys in batches of pounds instead of tons; and lubricating oils so fine that one drop will oil 1,066 bearings, were among the manufacturing miracles described by Mr. Luckey in his speech.

The lecture series was established in 1932 under the will of James Arthur, Scottish-born engineer and author who donated his famous collection of rare Timepieces to New York University twenty-three years ago. The Collection, housed in Gould Memorial Library, was originally valued at more than $150,000 and has since been supplemented by many rare and valuable specimens.

"CORRECTION, PLEASE"

On page 35 of the APRIL issue of The H. I. A. JOURNAL, under the heading PREMIER SHOWING OF "ESEMBL - O - GRAF" PLANNED, at the close of the third paragraph, . . . "making possible the cleaning of chronograph watches in one and a half to two and a half MINUTES." This should have read . . . "making possible the cleaning of chronograph watches in one and a half to two and a half HOURS."

We know that "The Esembl-O-Graf" books, compiled under the direction of William O. Smith, president of the Western Pennsylvania Horological Institute, have revolutionized the servicing and repairing of complicated watches, but not that fast! We apologize to Mr. Smith and our readers for a severe attack of "dead-lineitis."

THE EDITOR.

Pioneer New York Material and Tool Importer Completes New Time Saving System

B. Jadow, Inc., is now rapidly carrying to completion the program it has pioneered since it first introduced watch repair materials in protective envelopes many years ago. There are now almost 2,000 different numbers in the BESTFIT line available in protective and identifying envelopes. It can now be reported that, with the approach to its goal, B. Jadow is able to offer complete assurance of accuracy and genuine quality to the watchmaker, through the jobber.

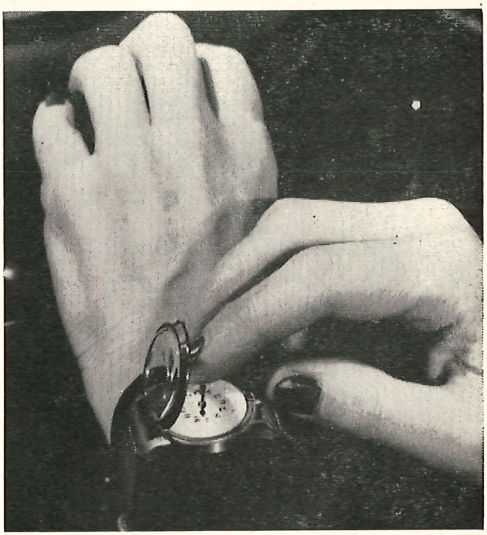
This campaign to eliminate error and to protect material by means of packaging, is in keeping with the general modern trend in merchandising. The old fashioned cracker barrels and milk cans that were so traditional with the local grocery stores could not have been replaced by modern sterilized bottles and attractive packages without the myriad advantages these improvements had to offer both the seller and the consumer. These same advantages of reliability which accompany BESTFIT packaged material are what have aided so immeasurably in projecting the B. Jadow program of packaged materials so swiftly toward its goal.

Today, almost 2,000 numbers are enveloped, including almost 700 numbers of staffs; close to five hundred numbers of stems, 400 numbers in genuine Seitz Jewels; full assortments of yellow, white, and pink crowns; and all types and sizes of hour, minute and second hands in blue and gilt, and in Thinstick Leaf, Index, Railroad Index, Cathedral, Moon and other popular patterns.

Every element that enters into the manufacture of a BESTFIT packaging envelope must meet standards far above the margin of safety that the packaging requires; the most rigid tests are applied and the most modern scientific techniques employed in preliminary research. The distinguishing colored envelopes which assure quick identification of staffs, stems, hands, crowns, jewels, etc.; the clear printing which supplies detailed descriptions of the packaged contents; in fact, every conceivable factor that goes into the packaging is subjected to various processes of experimentation which make it seem that BESTFIT packaging actually improves rather than merely protects BESTFIT material.

Unrelaxed efforts such as these, coupled with the immediate application of new improvements in packaging provide the watchmaker with certainty that he is always getting the best protection in BESTFIT envelopes . . . protection not only of the material in the envelope, but against error in count or selection of that material.

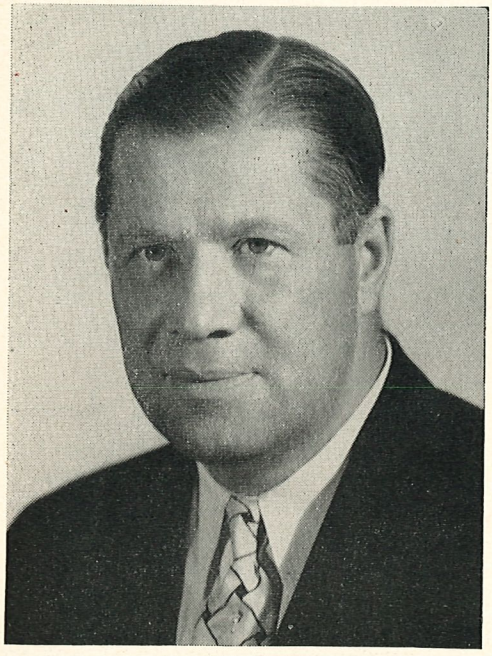
The B. Jadow program of BESTFIT packaging has been enthusiastically welcomed by jobbers, who find that it simplifies the wholesalers extremely difficult task of stock keeping and stock taking, and lightens the problem of filling orders rapidly and accurately.



The Braille wristwatch with its plastic cover is a recent development of Swiss designers. The distinguishing features of this type are three-raised dots at the numerals "12," and two dots at the "3," "6" and "9."

FRANK E. LAINE*

Horologists who can turn in a pinion, make a chronometer detent or replace any of the parts of a timepiece accurately, finishing the same with the perfection of the Old Masters are rare. Such a one was Frank Laine whose beautiful 'magnum opus' is reproduced here.



FRANK E. LAINE

With deep regret we record his untimely sudden death in his 60th year on the ship that was bringing him back to his adopted country and his business in Wollaston, Mass., after a visit to his native Finland where, as a lad, he had learned his craft from his father. He was a man of many gifts and excelled not only as an exceptional workman but as a business man as well. He had worked in Denmark, Germany, Switzerland and gained experience of chronometer work while with the famous firm of Pavel Bure and August Ericson in, what was then called, St. Petersburg, doing such work for the Russian navy. However, the New World called him from the Old and, coming to Canada in 1924, he worked in Montreal first for Mappin & Webb and then with Henry Birks & Sons, leaving for New York in 1930 where he worked for Tiffany & Co. for eleven years. In 1941 he opened a store of his own in Wollaston which was an immediate success. Upon the marine chonometer, his masterpiece, he spent some 3,000 hours, yet he also found time to make a fine pocket chronometer besides attending to his business and looking after his home!

Mr. H. B. Fried, Executive Secretary of the Horological Society of New York, has this to say of Mr. Laine:

"He was a member of the Society for almost fifteen years and was often consulted as a member of our technical committee. When he moved to another state we regretted it because of his warmth and ever-ready flow of advice to the younger members."

Mrs. Laine, who is carrying on the business, and a son survive. Mr. Laine was born at Helsingfors on March the 2nd, 1888, and died on August the 28th, 1948.

*Contributed by George V. White, 36 Cummings Ave., Wollaston, Mass.

BUSHING: Repairing a worn pivot hole in a metal bearing; essentially, lining the hole, after enlarging it for the purpose, with new metal in which a hole is drilled to fit the pivot correctly.

ELGIN MAKES MILLIONTH WATCH IN LINCOLN, NEB.

The millionth watch was recently produced by the Elgin National Watch Company in its Lincoln, Neb., plant. The plant, established in Lincoln immediately after the war and employing 1,800 skilled craftsmen, has produced almost enough watches to equip every person in Nebraska. It is the only watchmaking plant located west of the Mississippi River.

The "millionth" watch, an Elgin National 17-jewel movement, will not be placed on sale, but will be presented to some member of the organization.

The company officials selected Lincoln, Neb., for the site of the plant, after a survey had been made of scores of cities of the nation, because of its large reservoir of available personnel adapted to the watchmaking art.

The company was founded 85 years ago at Elgin, Ill., maintains two plants in that city and also a plant at Aurora, Ill. The new plant is a part of the postwar expansion program of the company.

The May Cover Story

The single action pallet detent escapement shown on the front cover of this month's issue is credited to Antoine Theout, a French horologist of the early 18th century. He was born in 1692 and died in Paris in 1767.

Antoine Theout evidently was one of the more progressive horologists of his day, as evidenced by the numerous escapements he either invented or improved upon.

In Major Paul M. Chamberlain's interesting book, "IT'S ABOUT TIME," is listed 14 models of escapements which Theout is credited with introducing or with their improvement.

HAMILTON ELECTS OFFICERS

R. M. Kant, Re-elected President.

Lowell F. Halligan, sales and merchandising manager, Hamilton Watch Co., was elected assistant secretary of the company at a directors reorganization meeting following the regular annual stockholders meeting in Lancaster, April 12th. Mr. Halligan will continue his managerial duties in Hamilton's sales division.

The stockholders re-elected the following twelve directors: W. Ross Atkinson, C. J. Backstrand, J. W. B. Bausman, Jr., Frank C. Beckwith, R. M. Kant, Calvin M. Kendig, George P. Luckey, Frank K. Sener, William Shand, Charles C. Smith; Col. J. Hale Steinman and Charles G. Watt.

At the directors reorganization session, Calvin M. Kendig was renamed chairman of the board and R. M. Kant was renamed president. Other officers who were re-elected were Charles C. Smith, vice-president in charge of finance, and secretary; W. Ross Atkinson, vice-president in charge of sales; George P. Luckey, vice-president in charge of manufacturing; Harry R. Lawrence, treasurer, and Robert B. Thompson, comptroller.

TECHNICAL AND STYLE ADVANCES TO SHARE SWISS WATCH FAIR SPOTLIGHT

Technical advances will share the spotlight with new styling in jeweled-lever timepieces at the forthcoming Swiss Watchmaking Fair, a special exhibit at the 33rd Swiss Industries Fair, to be held in Basle, Switzerland, May 7 to 17.

Although the more than 150 manufacturers of watches and jewelry have been closely guarding the new models that will be displayed at this world-famous horological exhibit, a survey of leaders in the Swiss industry indicates that a number of features not previously offered to the trade will be introduced for the first time.

In addition to the classic dress models to be shown, exhibitors will include a wide variety of automatics, chronographs, and calendar watches among their displays.

The automatics are expected to play a leading part in the Fair, with a number of lines offering startling innovations. One model to be exhibited will be an automatic calendar watch, while other automatics to be shown will include models equipped with an indicator showing the amount of reserve tension left in the mainspring. The all-position automatic also will be prominently displayed.

The calendar watch also will play a leading part in the exhibit. Although styling will continue to be stressed, two exciting calendar departures that are expected to draw strong attention will be a new and larger date indicator, and a centered sweep-second hand. In addition, several models will be equipped with an invisible, although practical and accessible, date adjustment. It is understood that several chronograph manufacturers also have adapted this feature.

The circular slide-rule, first classified by some as a novelty, has found definite acceptance among engineers, statisticians, and architects. As a result, an increased number of calendar and chronograph models will feature it in an improved form at the coming Fair.

The previous trend toward novel, eccentric design is expected to be a thing of the past, with the round, classic shape finding added favor among additional firms. Some manufacturers, however, will show preference for the square case, especially for men's dress watches. Although a number of be-jeweled cased women's timepieces will be continued by some firms—particularly those catering to the carriage trade—designs will be primarily concentrated along classic lines.

Describing this year's exhibits as the finest in 400 years of Swiss watchmaking, Dr. Theodor Brogle, Fair Director, declared:

"In view of Switzerland's complete lack of natural resources, the products we show at the Fair, including those in the horological group, are dependent on quality workmanship. We are proud of our Fair, because it is a show window demonstrating to the world what we do with our heads and hands, and how this supports the highest standard of living in Europe in a true democracy."

"Switzerland today is America's largest cash customer in Europe, buying from the United States more than twice as much as she sells her."

First held in 1917, this year's Fair will be the largest in its history.

BEEHLER ADDRESSED N. Y. HORO SOCIETY

At the April meeting of the Horological Society of New York, an invitation to enroll in free-trade extension training was made to over the 250 present, following a talk by Howard L. Beehler, who discussed "The Benefits of Trade Extension Training." Andrew Park, president of the society, was chairman of the evening's program. A report on legislation, a lecture on the Paulson electronic timing unit and a film showing of "Hairspring Truing" were also features of the program.

Mr. Beehler told of the necessity of self improvement as a means of successfully meeting competition. He also pointed out the benefits of self-improvement to the younger watchmakers and stressed the importance of this formal training to the older watchmakers. A "showing of hands" indicated an overwhelming response to the question of who would like to take such a training.

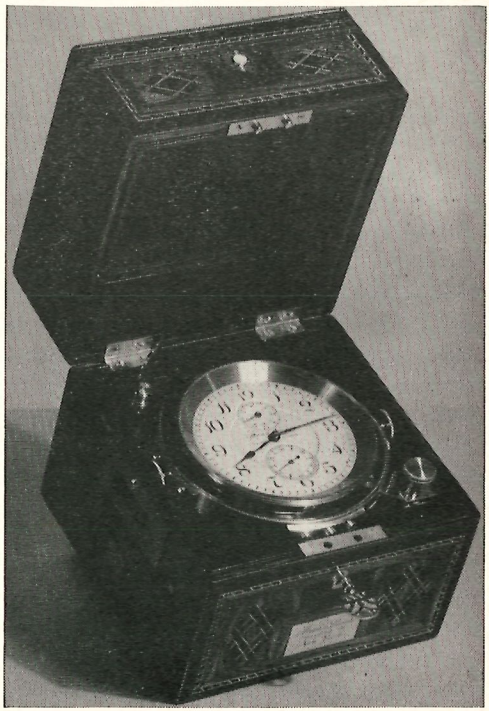
H. B. Fried, executive secretary, reviewed the results of the legislative efforts to enact a New York watchmaker registration law. Mr. Fried spoke of the strides made through introduction of such a bill and its reasons for failing to become a law. He said that efforts will soon be made to bring together leaders of all allied state and local organizations in an effort to draft a bill that would be successful in becoming law. He stressed the needs for additional funds to finance such measures.

Constitutional amendments were offered which reframed the requirements for membership and types of membership. Mr. Park referred this and other measures to committee for study and action.

Barney Goldstein spoke of plans for the June meeting.

Ernest Kramer, assisted by electronics engineer Adolph Suchy and Mr. Story of Chicago set up cathode tube oscillioscopic equipment in conjunction with a lecture he gave on the Paulson Time-O-Graf. He pointed out the qualities of this machine as compared to other similar devices. He also held a clinic for the individual watchmaker and gave advice on individual problems.

The evening's program ended with a showing of two sound-films, "Hairspring Truing," which showed the methods of staking the colleted spring to the balance, the use of truing calipers and various methods of truing and correcting an out-of-round and out-of-flat hairspring.



A marine chronometer and case built by the late Frank E. Laine of Wollaston, Mass.

OFFICIAL SWISS PARTS CABINET NOW BEING DISTRIBUTED

The new official cabinet for Swiss watch repair parts is now being distributed through regular materials suppliers in this country, it has been announced by Paul Tschudin, director of the Official Swiss Watch Repair Parts Information Bureau, New York City.

The cabinet, manufactured entirely in the United States, is made of steel, in a mahogany color. Designed to hold both genuine packaged and unpackaged Swiss parts, it is compact enough—$13\frac{1}{4}$"x$10\frac{1}{8}$"x$2\frac{1}{8}$"—to meet the needs of the smallest working area. Its size has the approval of the Watch Material Distributors Association of America.

The new Official Cabinet of Swiss Watch Repair Parts, specially designed to hold both official packaged and unpackaged parts, is now being distributed through regular materials suppliers.

The contained tray is made of molded plastic, with slots evenly spaced throughout to accommodate the handy parts packages now being made available. Small bins that can hold unpackaged parts also fit the provided slots.

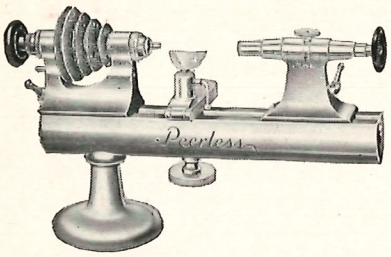
The trays, although accompanying all cabinets, can be purchased separately, since special flanges make it possible to use the trays in the cabinets already employed by the watchmaker and jeweler.

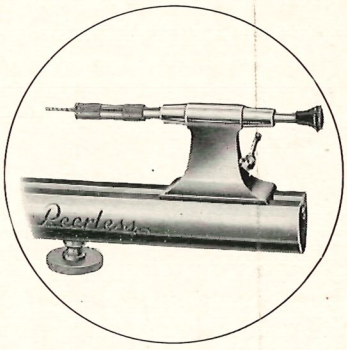
Packaged staffs and stems are now arriving at the offices of parts importers in this country, according to Mr. Tschudin, who pointed out that these items will be reaching the materials jobbers—and ultimately, the retailers—in the near future. He pointed out that due to distribution problems, watchmakers may receive genuine unpackaged stems and staffs from their suppliers for a while. These, he stated, should be accepted until present stocks are exhausted, since all genuine Swiss watch repair parts are factory-tested to meet rigid specifications.

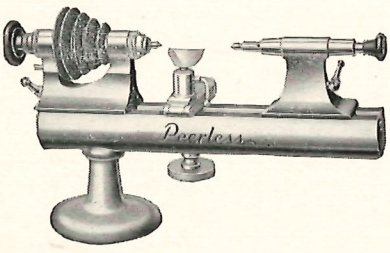
Correction

Page 17, April issue H. I. A. JOURNAL, paragraph (b) under "HOW TO MAKE APPLICATION FOR H. I. A. CERTIFICATION" SHOULD READ "Fill in the Application Blank complete, enclosing your remittance of $12.50 (not $10) made payable to the Horological Institute of America, Inc."

"WHEN NAMES MEAN





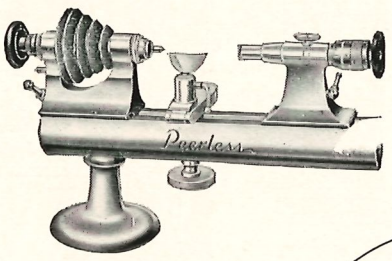


PEERLESS

$107 and up

WRITE FOR DETAILS

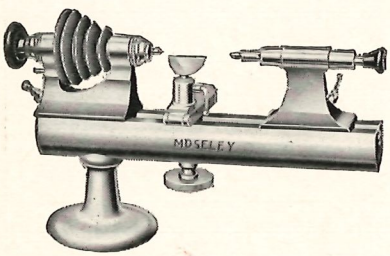
MARSHALL LATHES HAVE **HARDENED** and **GROUND STEEL BEARINGS** Individually LAPPED

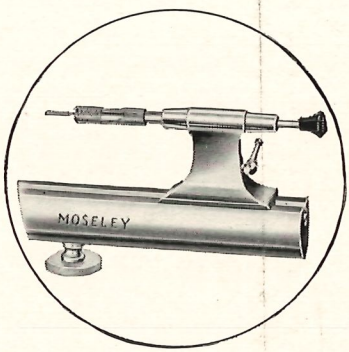


MOSELEY

$114 and up

WRITE FOR DETAILS





C. & E. MARSH

SOMETHING TO YOU"

When you are about to buy a lathe, does the use and endorsement of more than 90% of leading horologists in the United States mean anything? They have insisted on names they know . . . MOSELEY AND PEERLESS. They know the lathes are dependable. If the lathes were not dependable, THEY . . . AND YOU . . . WOULD NOT KNOW THE NAMES BECAUSE THE NAMES WOULD NOT HAVE BEEN ESTABLISHED. (The names of some of these outstanding horologists are available on request).

THE FIRST LATHE EVER BUILT WAS A MOSELEY

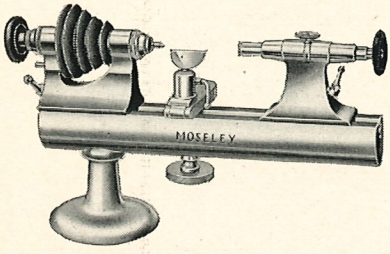
And the world's finest lathes still bear the same name. . . . MOSELEY . . . after almost 100 years. This is proved performance. And Moseley and Peerless lathes are manufactured only by C. & E. Marshall Company. A manufacturer YOU KNOW and CAN WRITE if you wish.

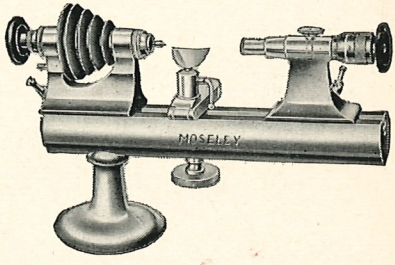
WHEN YOU BUY A "NAME BRAND" . . .

Genuine Attachments and parts are always available. Perhaps you will not buy a full set of chucks now. But you will always know that Genuine Moseley and Peerless Chucks will be available whenever you want them. Or perhaps you will want a slide rest . . . a 3-jawed chuck . . . a face plate or some other attachment. You know you can get them at any time. . .. GENUINE PARTS AND ATTACHMENTS . . . made only by C. & E. MARSHALL CO. for Moseley and Peerless lathes You can buy either of these lathes complete with any one of the 4 tailstocks shown on these pages. Pick the type you want from illustrations.

C. & E. Marshall Co. has the highest financial credit rating it is possible for any company to get . . . a dependable company. C. & E. Marshall Co. manufactured about 95% of all lathes used by the U. S. Government during the war. Every one of these lathes was inspected by an industrial technician . . . working for the U. S. Government . . . as it came off the production line NOT ONE LATHE WAS REJECTED.

ALL LATHES COMPLETE WITH TAILSTOCK.





ALL CO.

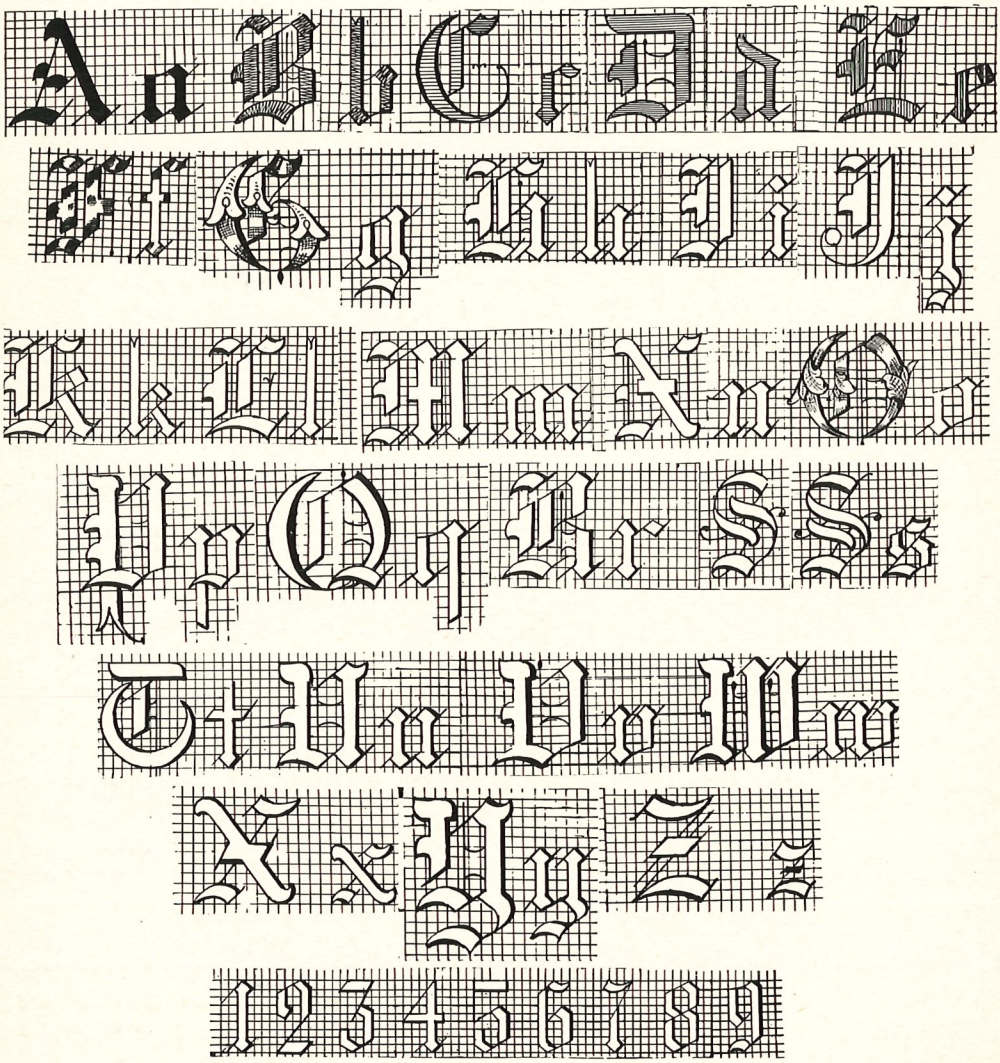
BOX 7737, CHICAGO 80
AND PRINCIPAL CITIES

A Practical Training Program for The Engraver-Beginner

EDITOR'S NOTE: *Engraving is both an art and a craft, and it is not the intention of this added training feature to create artists but to develop and apply the watchmakers and their apprentices' craftsmanship ability along mechanical lines to produce in a more or less mechanical way, a passable artistic effort or "a reasonable facsimile."*

It does not always hold true that an artist makes the most successful engraver, or is always true that a beautiful hand-writer makes a successful letter engraver. However, it is true that the outstanding engravers are a combination of both.

Therefore, this and the following series of instructions will be based on mechanical rather than artistic lines. A little practice each day, a little determination, and in a reasonable length of time you will be in position to do the simpler forms of engraving.



SIMPLIFIED OLD ENGLISH

The simplified Old English text shown above is perhaps the most simple to design and easiest to cut of the various styles of Old English, and will satisfy the average retail jewelry customer.

The method of cutting the style shown by "A" ("solid" or bright-cut), will prove attractive when used on soft metals with "dull" or satin-finished surfaces.

The vertical "body" lines are cut "solid" with a highly-polished flat graver.

The angle and receding curve lines are also "solid" cut with a flat graver. However, a graver one or two widths wider than the one used to cut the vertical "body" lines should be used.

The connecting lines are cut with a square graver.

CAUTION—Be sure that the gravers are *sharp* and are highly polished.

(a) Select a "flat" graver for the vertical "body-cuts" of proportionate width to the size of the letter designed to fit the engraving space. NOTE—The "body-cut" in Old English "A" is cut on an angle (FIG. 1) while the "body-lines" of the lower case "a" are vertical.

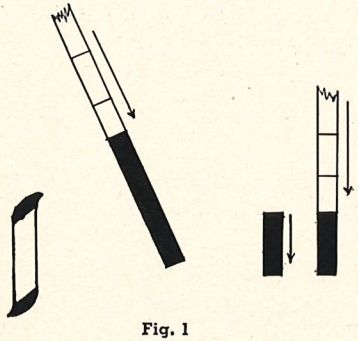


Fig. 1

(b) Start at the top and cut down. As the graver naturally will "cut" a trifle deeper as the graver travels, it is easier to end the cut at the desired point. (Time is saved by completing all the cuts to be made with the same width graver before changing gravers.)

(c) Having completed all the vertical or "body"-cuts, select a flat graver, one or two widths wider than the one used for the "body" cuts. (FIG. 2.) Make all your angle cuts towards and into the "body" cuts.

(d) The receding "curve" cuts are made in the direction of the arrows as shown in Figure 2.

(e) The connecting lines are made with a square graver, completing the letter as shown in the above.

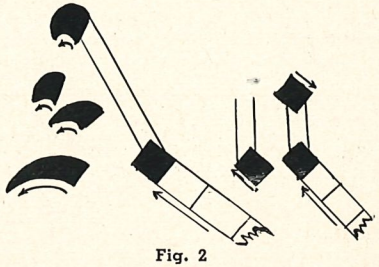


Fig. 2

"WRIGGLED" STYLE

The "wriggle" style, as illustrated in Old English "B," is perhaps the most popular of the various styles of Old English.

On pages 26-27 of the February issue of the H. I. A. JOURNAL is described the method of "wriggle-cutting" of Old English. This style of cutting is desirable where speed is desired and usually used on bright finished surfaces, with hard metal bases, i.e., knives, forks, spoons, etc., and, on less expensive jewelry articles.

The same general procedure, as to the gravers used in "solid" or bright cutting (previously described), should be used in "wriggle" cutting.

FIGURE 1 (FEBRUARY issue) shows the vertical or "body-wriggle" cut made with a flat graver. FIGURE 2 shows the angle wriggle cut. FIGURE 5 shows the receding curve "wriggle" cut. FIGURE 3 shows the connecting finish cut which is made with a square graver.

This style cutting offers a variety of finishes, i. e. The "body-lines" can be bright cut and the angle and receding curve-cuts can be "wriggled." Or the angle and re-

ceding curve cuts can be cut "solid" and the "body" cuts "wriggled." The Old English "B" is self-explanatory.

On curve cuts like "C"—"G"—"O"—"Q," these are made with either a square or a flat graver. If the latter is used, the cut is started at the top in a hair-line with the inside cutting edge of the flat graver—proceed the same as in using the square graver.

The vertical body lines can present a more artistic appearance by "curving" the top and bottom as shown above.

The "finishing" of the letters C—D—E—F—G and O will be taken up at a future date when the "engraver-beginner" has advanced to a point where he is better qualified by experience, with cutting and designing of more decorative letters.

WATCH ASSEMBLERS' ASSN. FAVOR SWISS AGREEMENT

The American Watch Assemblers' Association have issued a memo to the American jewelry industry favoring extension of trade reciprocal trade agreement with Switzerland.

In the "memo," the Association insists that domestic manufacturers have not been hurt by the trade agreement with Switzerland, but have "prospered" in double sales volume. It is pointed out that in 1947, the total domestic production reached 2,200,000 units, as compared with 900,000 units in 1931-35, the years prior to the present trade agreement with Switzerland.

The cost of production of a domestic jeweled watch movement of quality and a Swiss jeweled watch movement is "substantially equalized" by the present duty assessed, the "memo" states.

The "memo" quotes Secretary of National Defense Forrestal to the effect that Swiss imports have not hurt the domestic industry's war potential.

"The facts show that the United States—industry, worker and farmer alike — has benefitted substantially through the trade agreement with Switzerland," the statement says.

"In 1948, Switzerland bought and paid for United States goods worth 954,300,000 Swiss francs, chiefly food, textiles, minerals, coal, oil, steel and machinery. Swiss exports to the United States totaled 456,000,000 Swiss francs, giving the United States a very favorable trade balance. During 1947, the U. S. Treasury collected $52,418,000 in duties and excise taxes on Swiss watch movements."

93 ADDITIONAL WATCHMAKERS CERTIFIED

During the months of January and February, 1949, the following watchmakers have been granted certificates by the *Horological Institute of America* after having passed all the requirements of the prescribed examinations.

Certified Watchmakers

Name	*Address*	*Employed by*
J. Carl Faulconer, Jr.	Charlottesville, Va.	Faulconer's Jewelers
James A. George	Gadsden, Ala.	C. F. Hoffman & Sons
W. Robert Geisler	Lancaster, Pa.	Hamilton Watch Co.
Edward C. Gordon	Kansas City, Mo.	Rockhill Jewelry
Harold B. Neill	Houston, Texas	Self
Albert G. Plante	Manchester, N. H.	Joseph L. Desjardina
James E. Speece	Fairview, Okla.	Jon Gard
Garland L. Stotts	Channelview, Texas	Self
Charles R. Tarnowski	Minneapolis, Minn.	Becklund Jewelers
R. V. Williams	Levelland, Texas	O. L. Beach, Jewelry

Student at Amarillo Watchmaking Institute, Amarillo, Texas

William T. Wafford ..... Amarillo, Texas

Students at Baronian School, Philadelphia, Pa.

Bolis V. Antonitis ..... Philadelphia, Pa.
Richard D. Poe ..... Allentown, Pa.
Hiroshi Thomas Shigetomi ..... Philadelphia, Pa.
Earl E. Thalwitzer ..... Centerton, N. J.

Student at Beehler School of Watchmaking, Chebeague Island, Maine

Edward Lam ..... Chebeague Island, Maine

Student at Bowman Technical School, Lancaster, Pa.

Lee C. Krause ..... Lancaster, Pa.

Students at Bradley University, Peoria, Ill.

William J. Brown ..... Peoria, Ill.
Herbert D. McBride ..... Peoria, Ill.
Lawrence J. Redig ..... Peoria, Ill.
Joe R. Staudt ..... Peoria, Ill.

Students at Joseph Bulova School of Watchmaking, Woodside, N. Y.

Nicholas L. Cipu ..... Woodside, N. Y.
Walter M. Collins ..... Woodside, N. Y.
G. W. Evans ..... Woodside, N. Y.
Cecil W. Hocklander ..... Woodside, N. Y.
Irving G. Hutchinson ..... Woodside, N. Y.
Daniel W. Merrill ..... Woodside, N. Y.
Anthony Vetrone ..... Glen Cave, N. Y.

Students at Elgin Watchmakers College, Elgin, Illinois

Roy A. Benedict ..... Marengo, Ill.
Francis Laurayne Eastman ..... Elgin, Ill.
Tetsuo Onouye ..... Elgin, Ill.
Doyne G. Sunderman ..... Elgin, Ill.
John E. Taylor ..... Elgin, Ill.
James E. Taylor ..... Madison, Wis.

Student at Emily Griffith Opportunity School, Denver, Colorado

George Helgeth ..... Denver, Colo.

Students at George Westinghouse Vocational High School, Brooklyn, N. Y.

Patsy Dentale ..... Brooklyn, N. Y.
Walter Kowalsky ..... Brooklyn, N. Y.
Louis Linsalto ..... Brooklyn, N. Y.
Theodore Piltz ..... New York, N. Y.
Ernest Ploetzke ..... College Point, N. Y.
Fred Quinn ..... Brooklyn, N. Y.

Students at Greensboro School of Watchmaking, Greensboro, N. C.

Ralph Ray Fitch.....Greensboro, N. C.
Wilmot S. Holmes.....Greensboro, N. C.
Charles Philip Sherrill.....Greensboro, N. C.

Students at Gruen Watchmaking Institute, Cincinnati, Ohio

Ralph L. Hittle.....Covington, Ohio
Frederick A. Lipp.....Cincinnati, Ohio
Richard F. Schmitt.....Cincinnati, Ohio

Student at Houston Technical College, Houston, Texas

Elmer E. Kitchen.....Houston, Texas

Students at Jewelry Training Service, Chicago, Illinois

Charles A. Framburg, Jr.....River Forest, Ill.
Robert S. Romano.....Chicago, Ill.

Student at Los Angeles School of Watchmaking, Los Angeles, Calif.

Wallace C. Miller.....Los Angeles, Calif.

Students at Miller Vocational High School, Minneapolis, Minn.

Arnold W. Johnson.....Deerwood, Minn.
Harvey E. Schulz.....Minneapolis, Minn.
Gordon P. Seibel.....Minneapolis, Minn.

Student at National Jewelry and Instrument Training School, Columbus, Ohio

Louis C. Conrad.....Marysville, Ohio

Students at Oregon Vocational High School, Klamath Falls, Oregon

Don E. Davis.....Klamath Falls, Ore.
Ray G. Kaster.....Klamath Falls, Ore.
Wilbur Ivan Nichols.....Klamath Falls, Ore.
Raymond Harold Potts.....Klamath Falls, Ore.
Ralph M. Van Noy.....Klamath Falls, Ore.
Elmer H. Zeller.....Klamath Falls, Ore.

Students at Peters School, Washington, D. C.

Forrest E. Peters.....Washington, D. C.
Melvin Shaw.....Washington, D. C.
Charles J. Zeller.....Washington, D. C.

Students at Southern Watchmaking School, Ensley, Ala.

Sylvester W. Castleberry.....Birmingham, Ala.
Jessie E. Glisson.....Ensley, Ala.
William B. Patterson.....Birmingham, Ala.
Joe E. Sanders.....Tarrant, Ala.
Hubert Edison Self.....Birmingham, Ala.
Henry A. Tatum, Jr.....Birmingham, Ala.
John R. Ulman.....Manson, Iowa
Benjamin C. Walker.....Ensley, Ala.
James C. Woodard.....Birmingham, Ala.

Students at Taus School of Watchmaking, New York, N. Y.

Henry J. Frank.....Jackson Heights, N. Y.
Ralph W. Kuhn, Sr.....Armonk, N. Y.
Enoch Sawahata.....New York, N. Y.

Students at Waltham School of Watchmaking, Waltham, Mass.

Norman F. Farah (omitted from list published in Mar.) Lowell, Mass.
Charles Lapinskas.....Waltham, Mass.
Benoit M. Levesgue.....Fort Kent, Maine
Theodore W. Menard.....Whitman, Mass.
Eric A. Robichaud.....Fitchburg, Mass.
Anthony P. Scbieach.....Sunderland, Mass.
Sidney Stolzman.....Morristown, N. J.
Arthur C. Weinert.....Webster, Mass.

Student at Washington Technical School, Washington, D. C.

Domenico Nicoli .....Washington, D. C.

Certified Master Watchmakers

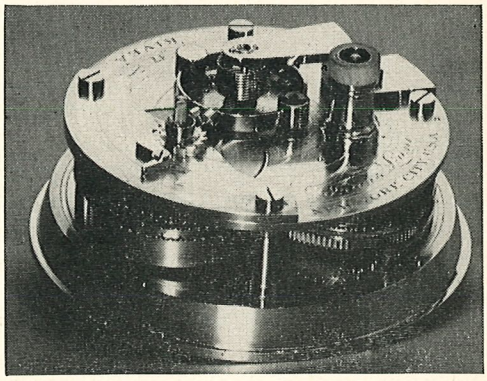
Name	*Address*	*Employed by*
Frederick W. Day	Sutton, Quebec, Canada	Waltham School
Fred Henry Dressman	La Vale, Maryland	Morgan Vocational School
Dren M. Duffy	Houston, Texas	L. Lechenger
Miller McCraw, Jr.	Houston, Texas	Student—Houston Tech. Sch.
Dan Harold Hall	Houston, Texas	Young, The Jeweler
George F. St. Pierre	Lancaster, Pa.	Student—Bowman Tech. Sch.
Bernard Jerome Sullivan	Omaha, Neb.	Zales Jewelry
Daniel C. Wickenheiser	Lancaster, Pa.	Bowman Tech. School

IMPROVED MAINSPRINGS FEATURED IN SWARTCHILD'S SUMMER SALE

Each summer, just in advance of the season of greatest mainspring replacements, Swartchild & Company has procured for the trade a specially imported assortment of mainsprings carefully selected to service the watches that experience shows will comprise the biggest part of mainspring replacements.

This year's mainsprings are exceptionally good quality, reverse type with *beveled* riveted tongue ends. Each spring is in individual aluminum cup and in a numbered envelope; the entire assortment is put up in a reinforced leatherette covered cabinet. The assortment sells for only $8.95 and the company advertises it as a typical Swartchild value. (See the ad on page 6).

Swartchild & Company, serving Watchmakers and Jewelers since 1890, is located at 29 E. Madison Street, Chicago 2, Illinois, with branches in Dallas, New York, Denver, Buffalo, Atlanta and Boston.



Masterpiece of horologists' skill, a marine chronometer, built by the late Frank C. Laine, of Wollaston, Mass.

Your Questions Answered Here!

By "The Professor"

EDITOR'S NOTE: *A nationally renowned professor—who prefers to remain anonymous—has consented to answer questions from our readers pertaining to the science of horology and its various practical applications in the field of watch repair. Simply address your questions to the editor, H. I. A. Journal, 921 State Life Building, Indianapolis 4, Indiana. It will be our pleasant duty to forward all questions received to "The Professor" for a prompt reply and publishing in these columns every month.*

Dear Professor:

I must disagree with your answer in the April issue of the H. I. A. Journal pertaining to the oiling of the Center staff.

I have found many minute wheels stripped and Cannon pinions "Frozen" from lack of oil. I am of the opinion that the Center post MUST be oiled lightly.

I would like to have my opinion published and invite discussion from other readers.

W. R. K., Chattanooga, Tenn.

Dear "Professor":

I've two watches that I have recently put in condition so that they may be used for display purpose. If possible, could you give me an approximate date of manufacture and perhaps some data on the manufacturers. The movements are without cases and I really don't know how to get the information from another source.

Question (1) Manufacturer — G. W. Benedict No. 14671—Wall St., New York, 15 Jewels—Fusee—Regulator. Jeweled Lever. Balance Cock is engraved and has word "Patent." Barrell Bridge is engraved. 140 Beats per minute. Solid Balance Wheel (3 spokes).

Question (2) Manufacturer—Jos. Johnson, No. 3059—Liverpool. 17 Jewels—Fusee—Regulator. Balance Cock is engraved and has round glass crystal over hairspring stud section. Barrel bridge is engraved, 130 beats per minute. Compensating Balance Jeweled Lever. Both are approximately 18-s.

D. E. W., Cantonsville, Maryland

ANSWER: (1) Haven't you miscopied the initial "G?" We believe this should be S; S. W. Benedict was in business on Wall Street, New York City, from 1819 to 1835. He had most of the watches he sold made in England. The description your letter

gives sounds like an English-made watch. The dates of Benedict's career would figure the age of your watch as between 114 and 130 years. The watch has no particular value as a collector's specimen. It would be a watch of medium "commercial" grade; not the work of one of the "old masters," whose product forms the group of watches among which are found most of the rare and valuable pieces in collections today.

(2) Joseph Johnson was in business in Liverpool, England, at various addresses, from 1796 to 1830. If there is a street address engraved on your movement, write us what it is, and we could then give you the age of the watch more definitely than just from the address "Liverpool." Johnson sent many thousands of watches into the American market. So many of these are in existance now, that they are usually worth only the value of the metal in their cases; and movements uncased have no value in the collector's market.

'THE PROFESSOR"

Dear "Professor":

I have been reading your fine column in the H. I. A. Journal for some time, and I would like to impose on your kindness to ask the following information of you.

I recently acquired a small group of finely made wheel and pinion cutters, of dubious origination. I suspect they are for a particular size of watch, possibly around a 16 size, since some of the cutters bear a fairly close resemblence to the train of a 16 Size Waltham. I would like to know if it is possible to lay out a theoretical train by the markings on the faces of these cutters, since I believe these cutters are related. They are marked as follows:

(326 12)	(M2425 80)	(M0138 80)	(028 70)
(215 10)	(M2225 80)	(M 012 64)	(025)
(170 10)	(M 19 84)	(M 8 60)	(036)
(128 8)	(M 015 75)	(M 95 64)	

I would also like to know where I could obtain some nickel-silver, suitable for watch plates.

J. F. W., Woonsocket, R. I.

ANSWER:

The largest producer of nickel in any alloys needed for specific purposes, is The International Nickel Co., Inc., 69 Wall St., New York 5, N. Y. This firm has mills or plants in many different locations, and if you will write to their headquarters address above, describing exactly what you propose to use metal for, they would tell you where to write, to obtain it; if the order would be for a small quantity, you would probably be referred to some metals dealer, instead of to buy directly from one of the mills.

About laying out a train for markings on cutters, we believe this would be in reverse of the right procedure, which is to design a train for the intended use; then select cutters to match the gearing indicated by the design.

"THE PROFESSOR"

Dear "Professor":

Am enclosing a self-addressed and stamped envelope and would the Professor please answer the following questions. Where do I address letters for parts to the Seth Thomas Clock Co.? And, we have an old clock, which has been in the family, at least 70 years, and have always thought it was a Seth Thomas, but upon close inspection can find no numbers and only the name N. Pomeroy, Bristol, CT." It is put together with wedge pins.

Will you please give me what information you can about this clock?

If you do not send personal answers, please answer in H. I. A. JOURNAL. Thanks in advance.

Mrs. W. F. F., Oxford, Kansas

ANSWER: (1) Inquiries about parts for Seth Thomas clocks should be addressed to: Seth Thomas Clocks, Thomaston, Conn. This is the present firm-name of the business founded by Seth Thomas in 1812, and the original village name of Plymouth Hollow where the industry was

started, was changed to Thomaston, its present name.

(2) The "N. Pomeroy" who made your other clock was Noah Pomeroy, who was a partner or stockholder in many of the clock factories in Bristol, Connecticut, during the first half of the past century. In fact, his name is connected with so many factories, over so long a time, that in order to form any opinion about the approximate age of your clock, or whether it has any particular value, we ought to see a set of clear photographs of it, showing every detail possible of the movement (the "works") and of the outside, the case and dial. If you wish to send us these pictures, they should be large and clear enough to give us an idea of the clock as nearly as possible equal to what we could get from examining the clock itself. Of these old Connecticut clocks, there were many thousands made; many thousands of them are still in existance, and to identify or judge much about them, we need more data than just a mention of the maker's name.

"THE PROFESSOR"

Dear "Professor:"

I have three things to seek advice about.

First, how are the holes recessed in the brass Jewel bushings so as to accept the screw head which securely holds the Jewel and bushing? I have been unsuccessful in attempts to make neat, clean holes by hand.

Second, if when a watch is otherwise, in near perfect condition, checks good in all positions with one narrow black line on Watchmaster, and motion is 1½ turns, the balance can, by using care, be stopped on both sides of line of center, drawn from balance to escape wheel, what is most likely the trouble, and how would you correct it? I have checked the roller Jewel and found it secure and not leaning. The Jewel is not binding in the fork horn when balance is in stopped position and it seems to me that the lock is not too deep, yet the tooth will rest on the impulse face of the stone in either position.

Finally, I was given a set of Jewel Bezel Openers and Closers. Explain in detail the use of these tools.

D. G., Jr. Toccoa, Ga.

ANSWER: (1) This is done by using jewel-screw countersinks, purchasable of all dealers in watchmaker's supplies. These should be of the type having a pin in center of the toothed cutter-head, to keep the cutting from "wandering" and botching the work.

(2) Check every imaginable thing that could produce excessive friction or binding of any of the moving parts of balance assembly or escapement. This, rather than guesswork on our part, should discover the fault or faults.

(3) These are for removing and replacing train hole jewels. Push out any broken pieces of a jewel. Then select one of the male adjustable tools, of diameter when closed that will come nearest to matching the diameter of the recess wherein the jewel had been set. Insert the tool fully into the recess; slowly adjust the jaws until they press the "bezel" of the setting outward a little; rotate the tool; adjust jaws to a little more diameter; repeat until the bezel is fully opened. Fit the new jewel to fit the recess. Select a suitable size of the other form of tool (concave face jaws); press against the top edge of the bezel; rotate tool until the bezel is pressed down to form a secure setting for the new jewel.

"THE PROFESSOR"

Dear "Professor":

I have recently acquired a watch movement No. 5816, by George and John Bold, 37 Anne St., Liverpool. The watch has a fuse chain, a 3-spoke balance wheel, and is key wound.

The watch is jeweled but the jewels are so large I am of the opinion that they are glass.

I would appreciate any information that you can give me of the history and age of this movement.

I do not have the case in my possession

so cannot furnish any information about that.

Please keep up the good work in making your column so interesting.

N. K., Baltimore

ANSWER: The firm whose name is on your old English watch movement, George & John Bold, of 37 Anne St., Liverpool, was in business approximately between 1800 and 1825, so the watch is somewhere between 124 and 149 years old. For two reasons the movement has no particular value as a collector's specimen. Its case is missing; and it is of the average "commercial" grade of its period, not of the exceptional quality of workmanship that adds value to old watches.

You mention that the plate jewels "are so large" that you believe that "they are made of glass." These jewels are no doubt made of the variety of olivine that was called chrysolite in England when this watch was made. It is comparatively soft, about the same as garnet.

KANSAS JOINT CONVENTION WAS SUCCESS

All former attendance records were broken at the joint convention of the Kansas Retail Jewelers and Kansas Watchmakers Association, held April 2-3-4 in the Lassen and Allis Hotels in Wichita, Kan. More than 500 attended the three-day convention.

New officers of the Kansas Retail Jewelers Association named are: P. E. Loomis of Newton, Kan., president; Al Regan of Garden City, Kan., first vice-president; R. H. Riley, Jr., of Wellington, Kan., second vice-president; and Heim W. Resnic of Wichita, Kan., secretary-treasurer.

Members of the Board of Directors are: Vern A. Webster of Salina, Kan., chairman; Frank Pfeifer of Parsons, Kan.; Andrew H. Wehling of Wichita, Kan.; I. M. Cassidy, of Topeka, Kan.; Eugene G. Coombs of Wichita, Kan.; Vane C. Meador of Hutchinson, Kan.; O. J. Wilkins of Liberal, Kan.; W. J. Glick of Junction City, Kan.; Dale Bertelson of Dodge City, Kan.; and Ed. Marshall of Anthony, Kan.

H. L. "Nick" Carter of Kansas City, Mo., regional vice-president, A. N. R. J. A., was one of the featured speakers on the convention program, talking on "The Road Ahead." Other speakers were: President Loomis, Vance C. Meador, Kan Matsumoto of Cincinnati, and Armin Friedman, sales executive of the American Weekly Magazine.

At the annual banquet, "Stuttering Sam of Texas," "brought down the house" with his humor and wit. The Downtown Kiwanis Quartet sang.

The convention honored the late W. B. "Bill" Brasfield, veteran secretary-treasurer of the K. R. J. A.

"The Half-Century Club"

MR. EMIL HALLER

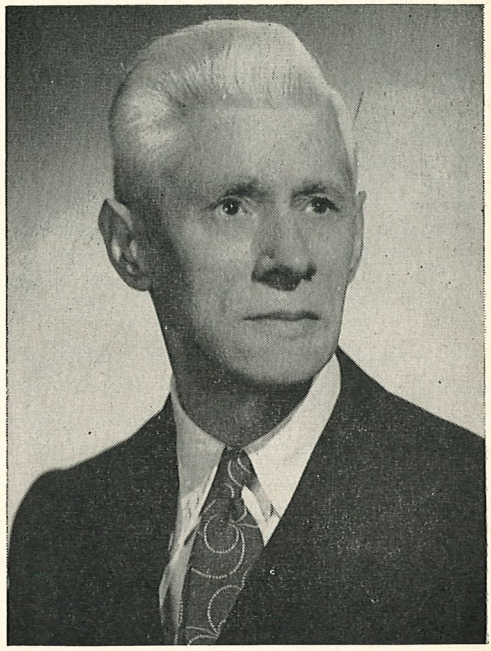
Mr. Haller was born in Schwenningen, Wurtemberg, Germany. This village was located in the Black Forest and the entire village was composed of watchmakers and their families. In 1896 at the age of 14, he was already engaged in making parts for clocks.

In 1914 he came to America and was employed by Kienzle Clock Co., Park Place, New York City. Later he was employed by Strawbridge and Clothier, Philadelphia, and the Lowell Clock Co. He also was employed by Wanamakers in New York, and Bambergers in Newark, N. J.

Mr. Haller has also taught watchmaking at the school in Astoria, Long Island, N. Y.

He now has his own shop in Roselle, N.J.

He was one of the founders of the watchmakers' Association of New Jersey and is still active in it. He has served as trustee for many years.



MR. EMIL HALLER

HAIRSPRING DIRGE

ROBERT W. MAINS

Trainee at Gruen Watchmaking Institute

Here lies a hairspring—bent, twisted and worn.
It gave me so much trouble—all day from early morn
I twisted, pulled and pinched it, to level and circle, you know,
But the more I worked and sweated—the other way it would go.
I'd get it perfectly round—and think, well, that is that—
But to my dismay, the other way was always out of flat.
I came to school this morning, with a smile upon my face,
But this was the day, oh, happy day, that the hairspring left this place.
I worked with a worried frenzy, I tried my level best,
I stretched him out an inch or so, and twisted up the rest.
Then I got really mad, not knowing what I was doing—
I pulled and jerked and pounded him, till he lost all shape of truing.
Then a fiendish thought struck me, and I reached into my tray,
I got a pair of nippers and crazily hacked away.
Nor Mr. Hairspring, with his proud and majestic overcoil,
Will never make me fret again, or make my anger boil;
For he is all in pieces, that naughty little spring,
Content now in my straight jacket, I once again can sing.

A Training Program for Apprenticed Watchmakers

EDITOR'S NOTE: *Those apprentices who expect to find satisfactory repairing and servicing of timepieces an easy profession to master are doomed to disappointment and unless this erroneous impression is corrected they will find themselves in the "Tinker" classification. It requires little skill or training to make a timepiece "tick"; but to make it "keep time" requires knowledge and skill. Successful servicing and repairing timepieces requires unusual mechanical aptitude; a thorough understanding of the theory of horology and its practical applications; long and exacting training in the skillful application of the various tools and equipment of the profession, before one is capable of satisfactorily restoring timepieces to their original timekeeping condition.*

THE HAIRSPRING

The timekeeping accuracy of a watch depends, to a great degree, on the strength and length of hairspring, its relation to weight of the balance (vibrating); the "trueness" of the coils in the "flat" and "round."

The apprentice will find that the time spent in perfecting his skill in the manipulation of the hairspring is time well invested, and will enable him to do a more satisfactory timekeeping repair job with fewer "come-backs."

The function of the hairspring is to return the balance assembly to its impulse rereceiving (unlocking) position after the balance has reached the limit of its impulse "swing." In a pendulum clock, this function is performed by "gravity."

What mechanical form the early horologists used to return the balance to its "unlocking" position is not recorded; however, the legend of the "Boar's Bristles" for this purpose may have some basis of fact, and it is possible that this mechanical means of returning the balance to its "unlocking" position was responsible for the portable timepiece.

In the middle of the 17th century, four noted horologists made claim to the invention of the steel hairspring, Jean d' Hautefeuille (Abbe' Rene-Just) a French physicist; Christian Huygens, a Dutch mathematician and astrologer, who applied Galileo's principle of the "swinging pendulum" to clocks; Jacques Thuret, a French horologist, and Dr. Robert Hooke, an English mathematician, astrologer, physicist, and horologist. The rightful claim for the invention of the "coiled" hairspring has never been definitely decided.

On page 59 of Major Paul M. Chamberlain's interesting and informative book *"It's About Time"* is shown a drawing of what might have been the "Rack Lever" escapement used by Jean d'Hautefeuille. The drawing shows a thin steel bar anchored to the fork, and extending loosely through a sliding bar which is connected into the arm of the balance wheel. This device regulated the active length of the straight hairspring for "regulation" purposes.

It is evident that the early horologists had discovered that the longer and thinner the "returning spring," the longer the balance swing and more accurate the timekeeping results. However, at that early stage of developing a portable timepiece, it was apparent that there was a practical length and space limit at which a straight hairspring could properly function and if a longer and thinner spring was to be used some other designed spring must be found which would meet the length, thickness and space requirements. The flat coiled hairspring solved this problem.

On page 294 of Major Chamberlain's book is shown a drawing of an escapement showing a "coiled" hairspring attached to a balance staff. This was a drawing by Christian Huygens, which was published in the

"Journal Des Scavans," Paris, February, 1675.

As the horologists continued to improve the timekeeping efficiency of portable timepieces, more coils were added to the hairspring until the most efficient length and strength, in relation to the weight of the balance wheel, was established.

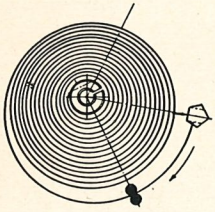


Fig. 1a. Wound

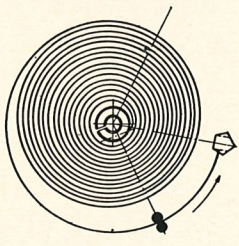


Fig. 1b. Unwound

The eccentric motion of the flat hairspring forces the balance pivots away from the "stud" when "winding up" (Fig. 2a) and towards the "stud" when unwinding (Fig. 2b) therefore increasing the side friction on the balance pivots in both actions.

Abraham-Louis Brequet, a noted Swiss French horologist, introduced the "overcoil" hairspring, which permitted the coils of the spring to expand and contract evenly, in "winding" and "unwinding," (Fig. 1a—1b), which was not possible with the flat hairspring, thus increasing the timekeeping accuracy of the watch. (Fig. 2a—2b.)

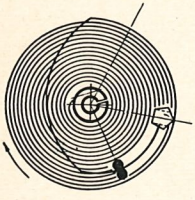


Fig. 2a. Wound

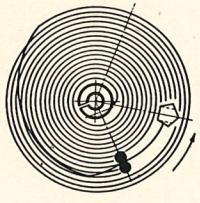


Fig. 2b. Unwound

In 1869 Edouard Phillips, a French mathematician, compiled an extensive report on the results of his investigations on the inner "pinning" of the hairspring as it affected the isochronical errors in "rate." He, with the assistance of famous horologists, designed what is commonly called the "Phillips Coil" or the "inner-terminal" hairspring. (Fig. 3.) However, this type

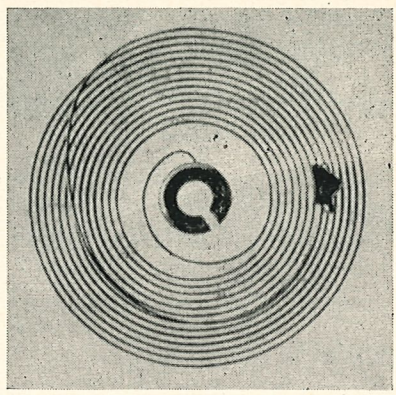


Fig. 3

of inner "pinning" of the hairspring was not popular with American watch manufacturers. The Waltham Watch Company used this type hairspring in a few of their watches, but discontinued their use after a short time.

THE IMPORTANCE OF A HAIRSPRING

For a watch to keep satisfactory time, the hairspring should be of the proper "strength" and length in relation to the weight of the balance. In other words, vibrated to 18,000 "beats" per hour. (a) It must be "true on the collect"; (b) the "body" coils of the hairspring must be equally distanced or spaced when expanding and contracting and free from "kinks" or "jumps," when looking straight down on the hairspring while rotating in your balance caliper; (c) another test is to locate an imaginary point on the inner coil, turning your balance in the caliper, and follow this imaginery "spot" as it "travels" outward to the beginning of the overcoil. If, at some point, the hairspring coil you are following appears to "jump," that is the point where it is out of round. However, if the coil appears to "flow" smoothly outward in a "screw-like" motion, you can safely assume that the coils are true in the "round" and evenly spaced; (d) if the spring has a "wave-like" appearance, it is out of "true" in the "both round and flat"; (e) if the hairspring is "true in the flat, but out of

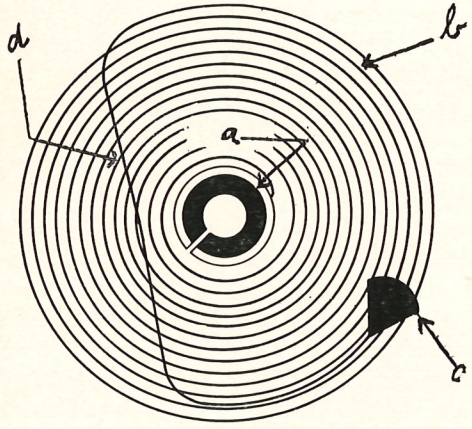
level," raise or lower the spring at a point near its "pinning" point.

BRINGING THE WATCH TO RATE WITHOUT THE REGULATOR

The regulator is a convenient accessory for the quick regulation of a watch and can be dispensed with if the watchmaker cares to spend the time required to make the time "error" correction on the balance.

PROCEDURE:

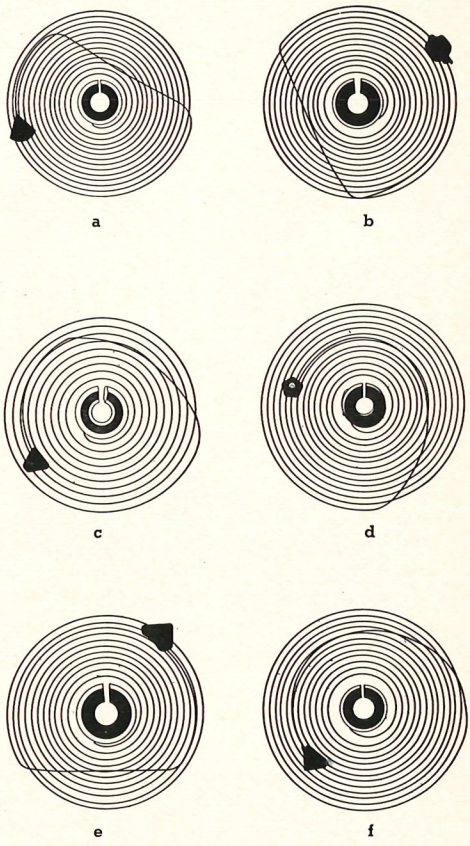
1. Badly rusted or mutilated hairsprings should be replaced by a new one. However, if it is not too rusted, in *extreme emergency* cases, the rust can be removed by boiling the hairspring in *"finoil"* to approximately the "flashing" point and quickly dropping the hairspring into a tin material box lid containing benzol. CAUTION: Keep the benzol away from the flame. This procedure will stop the rust and also increase the hardness of the hairspring which will compensate, to some extent, the "thinness" of the spring at the rust spot.



NOMENCLATURE OF THE HAIRSPRING ASSEMBLY

The hairspring shown above is the overcoil or "BREQUET" type of hairspring. (a) the collet, (b) the body, (c) the stud, (d) the overcoil.

However, different watch manufacturers use different type overcoils on their products.

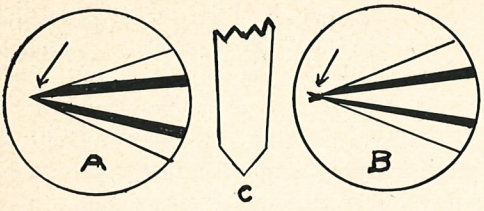


STANDARD OVERCOILS

FIG. a—ELGIN. FIG. b—BULOVA. FIG. c—HAMILTON wrist. FIG. d—HAMILTON pocket. FIG. e—WALTHAM wrist watch. FIG. f—WALTHAM pocket watch.

HAIRSPRING TRUING PRACTICE

As the hairspring of a watch is delicate, it is suggested that apprentices practice on discarded hairsprings until they have become sufficiently skilled to satisfactorily true the hairspring on the collet, in the round; flat; as well as "circling" the overcoil, before attempting to "true" the hairspring in a customer's watch.



MANIPULATION OF THE HAIRSPRINGS

The correct manipulation of the hairspring requires a "keen" mechanically-trained eye for symmetry; steady nerves; a delicate "touch" in the manipulation of the hairspring tweezers; concentration and practice.

It is of utmost importance that the correct shaped tweezers be used for this operation only. The points of the tweezers should be of equal length and the size and touching at the *points* only when pressure is applied. (FIG.a) — not diverging or "spreading" at the points, as shown in FIG. b. Protect the points from damage by inserting in a cork when not in use. Many professional Hairspring Truers use the "C" type tweezers. (FIG. c.). This type tweezer has a stiff, angle point, which eliminates all tweezer "spring" when "pinching."

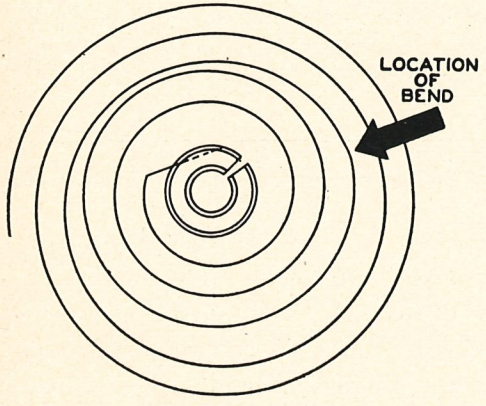


Fig. 4

"TRUING IN THE ROUND"

This term is used when referring to the spacing between hairspring coils. If the coils are slightly unevenly spaced (out of true in the "round") (FIG. 4), the correction can be made without removing the hairspring from the staff. However, if the hairspring shows considerable damage it is better to remove it from the balance staff.

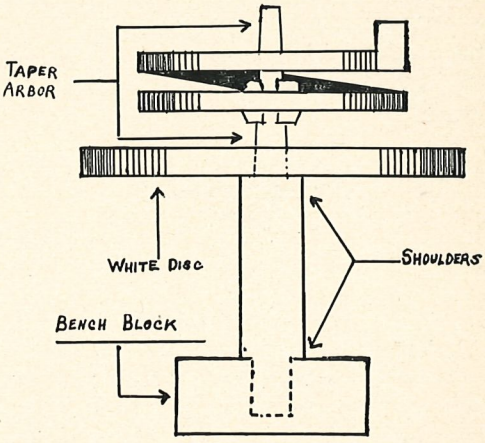


Fig. 5

A most convenient tool for holding the hairspring while truing in the "round," can be made with little effort. A set of tapered arbors to accommodate various size collets can be "turned" out of round brass "stock" in a short time. (FIG. 5.) A small white enameled disc, about the size of the "second bit" on an 18s watch dial, or a "frosted" glass disc of approximately the same diameter, will provide an ideal contrasting background against the blue-black hairspring coils, and will enable the apprentice to quickly locate the out of "true" coil or coils. The "frosted" glass disc background is the better of the two as it permits light to enter from the underneath side, making the contrast even more noticeable. A shoulder on the lower end of the tool will permit its insertion into a bench "block" or anvil, for convenient handling.

PROCEDURE:

(a) Locate the point where the out of "true" condition of the coil originates. This is important. If the correction is attempted at the wrong point, additional bending will be necessary, and complicating the desired

results. (b) Where the coils are too close together, 90 degrees to the right or left will locate the out of "true" point of the coil. (FIG. 4.) (c) At the out of "true" point of the coil, gently "pinch" the spring, thus "throwing" the close coil to its "true" arc. NOTE: In a badly damaged spring, it may be necessary to first bend the spring out and then in, or vice-versa, as the condition demands.

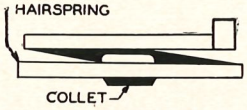


Fig. 6

"TRUING IN THE FLAT"

This term refers to placing all "body" coils on the same plane. This, of course, does not refer to hairspring overcoil, which must be parallel to the body of the spring, and on the same horizontal plane as the collet. (FIG. 6.)

PROCEDURE:

(a) Locate the point where the coil starts it upward or downward bend; (b) at a point directly opposite the high or low "spot," raise or lower the coil, as the condition requires, until it is on the same body plane as the adjoining coils.

"TRUING ON THE COLLET"

This term is used to designate the adjusting the inner coil of the Hairspring. (FIG. 7.) CAUTION: The manipulation of the hairspring must be confined to within the first $\frac{1}{4}$ arc of the innercoil.

The importance of correctly "circling" of the hairspring cannot be under-estimated. The space between the "pinning point," the inner coil and the "collet" varies slightly by different manufacturers. However, in general construction, the principles remain the same.

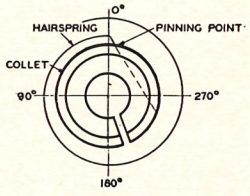


Fig. 7

(a) Before attempting to "circle" the inner coil, the body of the hairspring should be on the same horizontal plane as the collet at the "pinning point." (FIG. 7.)

(b) Starting at the "pinning point" of the hairspring to the collet, each 90° arc the space between the coil will be increased 25 percent beyond the periphery of a true circle. (See page 52, APRIL issue, H. I. A. JOURNAL). EXAMPLE: The distance between two coils being 0.008" at a point 90° from the pinning point—the distance increases 0.002"; at 180°, 0.004"; at 370°,

0.006″; and at 360° opposite the starting point, the diameter of the spring has increased 0.008″. This degree of increase in length continues to the outer terminal of a flat hairspring, and to the point of "rise" in the overcoil.

As there are no practical gauges by which the apprentice can measure the "expanding" lengths of the hairspring coils, it is therefore essential that he train his "eye" to detect any "distortions" in the periphery of the arc. To acquire this ability requires long and exacting practice.

CIRCLING THE OVERCOIL

The "overcoil" of the hairspring should be correctly formed, and "raised" above the "body" of the hairspring approximately $2\frac{1}{2}$ times the width of the spring and parallel to the body of the spring. (FIG. 6.) The height of the overcoil may vary some. However, there must be safe clearance between the under-side of the balance cock and the overcoil. (a) The overcoil should have some radius curve as the regulator indicator arm in which the regulator pins are "set."

Check outer overcoil for correct radius circle. a—place regulator index finger midway between "fast" and "slow.". b—Place hairspring in position on the balance cock. NOTE: Looking down through the collet, the upper balance pivot hole should be in the exact center of the collet. c—Move regulator index finger to extreme "slow." d—Check to see if collet remains centered with balance pivot hole, if the collet is not centered with the pivot hole. The outer coil of the overcoil is not correctly circled. d—Move regulator index to the extreme "fast" and check as outlined in "c." NOTE: If the regulator can be moved from "fast" to slow without throwing the collet off center with the balance pivot hole, when the regulator pins are correctly closed, you can assume that the overcoil is correctly "circled."

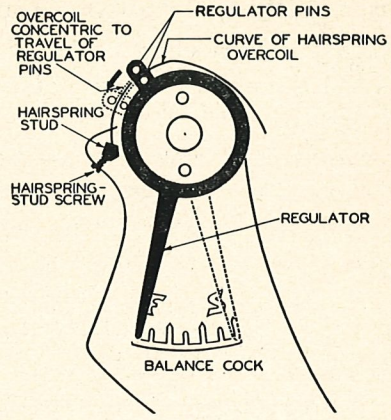


FIG. 8. The function of the regulator or "curb" pins, as they are sometimes called, are to act as movable hairspring "studs" increasing or decreasing the "active" length of the hairspring, by the moving of the regulator index "finger."

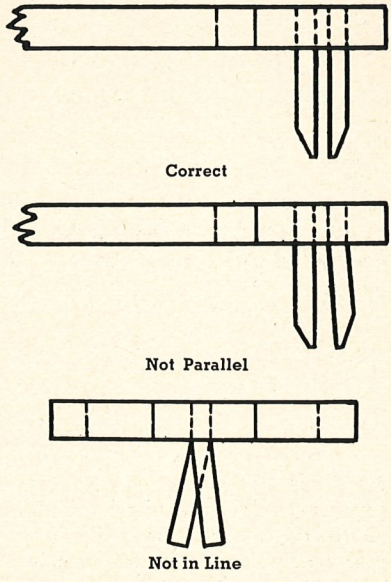


Fig. 8

Check carefully the regulator pins for (a) perpendicular, (b) parallel, (c) alinement, (d) smoothness of the "reg.-pins" where the hairspring contacts the pins, (e) clean off oil or gum.

If the regulator pins are not perpendicular (FIG. 8) and in alinement, more or less space will result between the hairspring

and the regulator "pins," in dial up and dial down positions, depending on the "angle" of the "pins," causing a variation of "rate" in these positions. If the "reg.-pins" are too open, the "active" terminal length of the hairspring will be extended to the "stud."

As previously mentioned, the regulator assembly acts as adjustable hairspring "studs." It is therefore necessary that the "reg.-pins" be "closed" to a point where the hairspring can just be seen "vibrating" between the pins by the use of a double eyeglass. Some watchmakers have a rule that the space between the hairspring and the regulator or "curb" pins should be $\frac{1}{2}$ the thickness of the hairspring.

It is a generally accepted practice that the "reg.pins" should be adjusted as close to the hairspring as safety permits. This is why it is of such importance that the "circle" coil of the overcoil be of the same degree of "arc" as the regulator pins. (FIG. 8.) If the outer coil of the "overcoil" does not have the same "circle" radius as the "pins," the "pins" will "pinch" the hairspring when the regulator index "finger" is moved, thus throwing the entire hairspring out of "true" as well as producing a sharp bend or "kink" in the "outer" coil of the overcoil.

FINAL CHECK-UP ON HAIRSPRING

1. See that the "body" of the spring is level and on the same plane as the balance arms. 2. That the space between the "body" coils are equal and true. 3. That the regulator pins are properly positioned and correctly closed. 4. That the hairspring vibrates equally between the "pins." 5. That the overcoil is parallel with the "body" of the spring. 6. That the overcoil is correctly positioned to prevent rubbing the underneath side of the balance cock.

MICHIGAN HOROS NAME FISCHER AS PRESIDENT

Charles Fischer of Detroit, Mich., is the new president of the Michigan Horological Association. He was elected head of the Association at the eighth annual convention held March 6 in the Hotel Pantlind in Grand Rapids, Mich.

Other new officers are: Ray Herrick of Petoskey, Mich., vice-president; Richard Brook of Kalamazoo, Mich., secretary-treasurer.

T. F. Barnes of Grand Rapids, who served eight terms as president, was named chairman of the board of directors. Other members of the board are: Stanley Gaver of Grand Rapids, Mich., former secretary for nine terms; Walter Jaquith of Kalamazoo, Mich.; Herman Gruininger of Detroit, and C. C. Jenks of Ypsilanti, Mich.

Speakers at the convention included Howard Schrantz, H. I. A. Regional vice-president, and chief time inspector of the Ball Time Inspection Service Company of Cleveland, Ohio, who discussed repair department management problems; John Palm of Elgin, Ill., representative of the Elgin National Watch Company, who talked on Elgin production methods; J. Slaugh, head watchmaker of Hamilton Watch Company; and Charles Fischer, who discussed general horological problems.

Over 350 members of the Association attended the convention. The annual banquet was held in the ballroom of the Hotel Pantlind.

CENTER OF OSCILLATION: A point on the length of the pendulum, the distance of which from the center of suspension, equals the length of a simple or theoretical pendulum, both beating the same time. The center of the oscillation is always somewhat below the center of gravity of the pendulum.

ELGIN ANNOUNCES NEW ADVERTISING PROGRAMS

The Elgin National Watch Company will launch an intensive, nationwide advertising campaign, according to an announcement by Gordon Howard, advertising manager. Advertising in color and black and white will appear in a number of national magazines and in 69 college and university newspapers throughout the country, Mr. Howard stated.

Watch dealers will be given sales-aid portfolios, "My Turn for an Elgin," direct mail pieces, car cards, outdoor posters, radio announcements, dealer ads and other material to advance 1949 business.

Elgin announced net sales of $28,478,-155 for 1949, compared to $22,157,658 for 1947. James G. Shennan, president, in a letter to stockholders, pointed out that difficulty in training large numbers of new employees held back production in 1948.

With the company's Lincoln and Aurora plants now in full production and with employment problems "leveling out," Mr. Shennan anticipated greater production of Elgins and stronger customer demands in 1949.

Strong competition from foreign-made watch movements growing out of World War II years when domestic manufacturers were working on full-time military timing instruments has adversely affected American manufacturers, Mr. Shennan declared.

Sale of Jewelry Manufactured By Inmates of N. J. Prisons Placed at $480

A recent order by the New Jersey prison authorities restricts large-scale jewelry manufacturing by inmates of penal institutions of that state to $480 annually, when it was brought to the attention of prison authorities that some inmates' yearly earnings from the outside sale of jewelry, manufactured in the prison, exceeded $7,800.

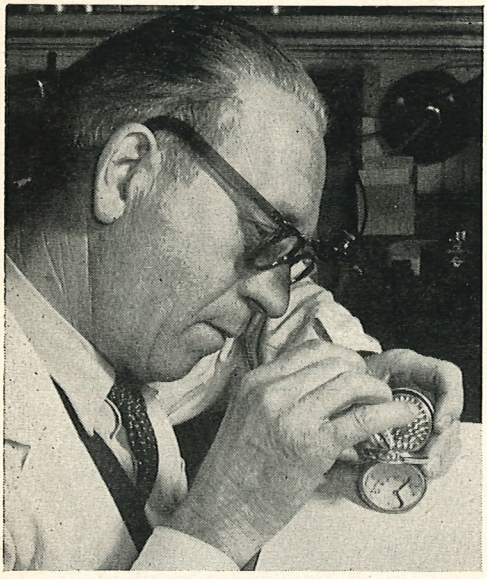
FORMER WATCHMAKER INVENTS NEW GUN

John Calling of Evansville, product engineer of the International Harvester plant, former watchmaker, has invented a pistol that will use dry ice instead of gunpowder as the power behind bullets.

The new pistol devised by Mr. Calling propels a bullet with greater force than an airgun, and shoots lead pellets slightly larger than those used in an airgun.

A chamber, containing four ounces of dry ice, is located under the gun barrel, and when the ice melts, it forms a carbon dioxide gas which creates 1,000 pounds pressure per square inch. The touch on the trigger releases some of the gas pressure and fires the pellets.

Mr. Calling, who is an amateur magician, began the development of the gun as a "prop" in his magic work.



Craftsman Rene Gamin works on a Braille pocket watch developed by Swiss watchmakers. Gamin with thirty years' experience is one of many precision workers who now are making 40,000 watches annually for the world's blind. The Braille watch is the same high-standard quality as a standard Swiss jewel-lever movement.

NOTICE

Unset jewels, taps and screws for Jeweling Plate used in H.I.A. CERTIFIED MASTER WATCHMAKER examination can be obtained by remitting $2.00 to Ralph E. Gould, Sec'y, Horological Institute of America, Inc., Washington 12, D. C.

Classified Advertising

CLASSIFIED—Payable in advance. Rates under all headings, except "Positions Wanted," $1.50 for first 25 words, five cents for each additional word. "Positions Wanted," 75 cents for first 25 words, five cents for each additional word. Bold face type five cents additional per word; capitals, also five cents additional per word. Box numbers for "Blind" advertisements, 50 cents additional for postage and handling.

● SPECIAL SERVICES

BALANCE STAFFS made for unusual or obsolete watches. Send sample staff only—prompt service. C. R. CHAPMAN, Box 268, Laramie, WYOMING.

HAIRSPRING VIBRATING — Same day service. Flat, $1.75; Breguet, $2.50. Fitted to bridge—leveled—poised—checked. Write today for mailing envelopes. CHARLES THOMAS & CO., P. O. BOX 330, Union City, N. J.

Assorted staffs for American Watches: Elgin, Waltham, Hampden, Howard, etc., 50 for $2.95; 100 for $4.95. Mainsprings, assorted, same—$1 per doz.; 100 for $5.95. MORRIS FREY WATCH CO., 915 Holland Bldg., St. Louis 1, Mo.

FOR SALE — W. W. and Moseley wire chucks 1 to 3, $3.50; 4 to 9, $2.50 each; also half sizes and chuck blanks. Lathe repairing, watch and clock wheels and junior music box worms, and other parts difficult to obtain made to order. JES. I. HANSEN, 202 Denver Theatre Bldg., Denver, Colorado.

WATCHES USED:

5—Swiss Wrist Watches in Y.R.G.P. and G.F. cases, needing minor repairs.....$20.00

10—Swiss Wright Watches needing repairs..$20.00

5—Assorted Wrist and Pocket Watches.....$ 6.00

B. LOWE

2nd Floor Holland Bldg., St. Louis 1, Missouri

BALANCE STAFFS made for unusual or obsolete watches. Send sample staff only—prompt service. C. R. CHAPMAN, Box 268, Laramie, Wyoming.

● SITUATIONS WANTED

WATCHMAKER, graduate, veteran, some experience, desires position as apprentice or "On the Job Training." Write Russ C. Scalzo, 1659 East 9th Street, Brooklyn, N. Y.

INDIANA LICENSED WATCHMAKER — Graduate of Elgin College, wants position in Arizona, or adjoining states. Seven years' experience on high-grade work. Capable of taking complete charge of repair department. Would consider purchase of small retail store. DWIGHT C. BOWERS, 3216 Ruckle Street, Indianapolis 5, Indiana.

● HOROLOGICAL BOOKS

OLD - NEW—Practical, Theoretical, Historical, all phases Watch and Clockmaking. Liberal estimates entire libraries, books, periodicals, embracing horological subjects. Advise requirements; or what have you? "HOROLOGIAN," 841 S. Park, Springfield, Illinois.

WATCHMAKERS, Apprentices, Students, Instructors—THE WATCH REPAIRER'S MANUAL, by Henry B. Fried. A complete Manual on every phase of watch repair. See page 2. D. VAN NOSTRAND CO., Publishers, New York City.

JOSEPH BULOVA School of Watchmaking Technical Training Manuals—$5.00, including 1-year membership in the Horological Institute of America, Inc., 1 year's subscription to the H. I. A. JOURNAL. The MANUAL contains more than 250 pages of practical information on every phase of successful watch repairing and more than 600 accurate drawings. Ralph E. Gould, Sec'y, Horological Institute of America, Inc., Washington 12, D. C.

● TRADE WATCH REPAIRING

HIGH-GRADE WATCH REPAIRING for the trade. Work time and checked on the WATCHMASTER. Satisfaction guaranteed. Complicated watches a specialty. 10-day service. Write for price list. CURTIS V. HASKINS, 1215 West 32nd Street, Indianapolis, Ind.

BALANCE STAFF to watch, $2.00; order and balance staff, mainspring, $4.00. Estimates and mail shipments solicited. H. L. Simon, Box 116-C, Central Islip, L. I., New York.

PRIVATE WATCHMAKER desires to contact jeweler in need of quality watch repairing. Reasonable prices—dependable service—14 years' experience. Each watch repaired personally, guaranteed, and with full motion, or no charge. B. P. MOYER, R. 1, Reinholds, Pennsylvania.

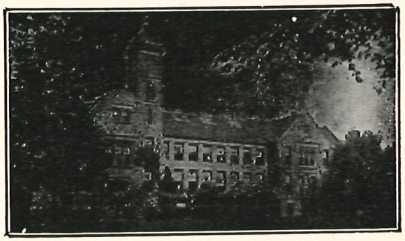
Certified H.I.A. Master Watchmaker. Repairers to the Trade. Write for Price List. K. L. WHELCHEL, 228 Massachusetts Ave., Indianapolis, Indiana. INDIANA LICENSED WATCHMAKER 547.

WATCH REPAIRING for the trade, estimates solicited. Price list upon request. Complicated and regular repairs accepted for complete or partial work. HOWARD SIMON, Box 273, Lake Ronkonkoma, New York.

● BUSINESS OPPORTUNITIES

FOR SALE—Watch movements for sale. For practice, hobby, or material. Sold 'as is'. Hundreds listed. Send 25 cents in stamps. Leo. Khalif, P. O. Box 2441, New Orleans, La.

TRADE—Send us a pound of yellow gold-plated and gold-filled scrap, for our selection of 25 Swiss wrist watch movements, or 25 usable assorted yellow gold-filled and gold-plated wrist watch cases. B. LOWE, Holland Bldg., St. Louis 1, Mo.



BRADLEY UNIVERSITY
SCHOOL OF HOROLOGY

Established 1886
Peoria, Illinois
An Endowed Educational Institution

"As the Pendulum Swings"

Members of the Horological Institute of America have every reason to be PROUD of membership in that organization—indeed, it is a BADGE of DISTINCTION for any watchmaker or horological worker.

The annual meeting in Washington, D. C. this month will mark another MILESTONE of horological progress. Under the capable leadership of President A. S. Rowe, much has been accomplished during the past year by the Horological Institute of America.

The impact of organized efforts to advance the ideals and objectives has been felt throughout the nation as a result of the Horological Institute of America. Guilds throughout the nation have made splendid progress during the past years. Steadily the ethics of HOROLOGY have been improved.

Throughout the past year, the H. I. A. Journal has sought to advance through the printed word the science of HOROLOGY. It has given its readers their money's worth. It is being recognized as a "pacemaker" in the field of HOROLOGY, and its growth has been excellent. Reports of accomplishments have been published in the H. I. A. JOURNAL, the official publication of the Horological Institute of America.

Perhaps the coming year will be the most challenging year in the history of American HOROLOGY —challenging because of the current economic features confronting all citizens. Those watchmakers who are skillfully trained should weather the storms, because theirs is a vital service to their fellow-beings.

2 famous Quotations

"There is hardly anything in the World that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey."

JOHN RUSKIN
Philosopher-author
1819-1900

"We find the best investment we ever made was in the Watch-Master. It has given us more prestige, better work, less come-backs and is paying for itself in volume of work left with us through word-of-mouth advertising by satisfied customers."

ALFRED A. MILETTE
Beau Mils
Chicopee, Mass.

What you get with a Watch Master

STILL UNCHANGED IN PRICE SINCE 1939

The WatchMaster is built to give a lifetime of service. The soundness of its basic operating principles has been proven in all branches of the Armed Forces on such exacting assignments as bombsight timing and in industry where accuracy must be unquestioned. Its dependability on the benches of watchmakers has been evidenced through the years by the negligible amount of machine service.

When you purchase a WatchMaster you get the ultimate in mechanical efficiency, personal installation and instruction, sectional group education in watch-rating, a nationwide repair service and advertising material that promotes your business to an extent that hundreds say, "The WatchMaster quickly pays for itself."

Available on time payment through a representative near you. Write for his name.

WATCHMASTER ADVERTISING IS APPROVED BY TECHNICAL EXECUTIVES

American Time Products, Inc.

580 FIFTH AVENUE NEW YORK, N. Y.

Distributors of Western-Electric Watch-rate Recorders