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Official Publication of the American Watchmakers Institute

Handholding In Five EZ Steps

16

- WILLIAM BIEDERMAN* **4** **PRESIDENT'S MESSAGE**
Building Our Membership
- HENRY B. FRIED* **6** **QUESTIONS AND ANSWERS**
More on the IBM Clock
- JOE CROOKS* **8** **BENCH TIPS**
Here's One for the Wringer
- WES DOOR* **12** **SHOP TALK**
*To Be or Not To Be Free?
That is the Question!*
- ARCHIE B. PERKINS* **18** **TECHNICALLY WATCHES**
Antique Watch Restoration, Part VIII
- STEVEN G. CONOVER* **22** **CHIME AND STRIKE**
Ansonia Chime, Part 2
- MARSHALL F. RICHMOND* **26** **PICKLE BARREL**
Repairing Stone Settings, Part IV
- FRED S. BURCKHARDT* **32** **ROCK QUARRY**
Phil the Watchmaker
- BEN MATZ* **34** **WATCHES INSIDE AND OUT**
A Wrong Watch Part—A Lost Customer
- ORVILLE R. HAGANS* **36** **IN THE SPOTLIGHT**
Watches of Steel
- DAVID H. FRYDAY* **38** **AFFILIATE CHAPTER COLUMN**
Increasing Membership Base

Ansonia Chime Continues

22

AWI Meeting: A Pictorial Recap

28

DEPARTMENTS

- Readers Write/10
Book Review/25
Bench Courses/37
Association News/40
New Products and Literature/42
News in the Trade/44
Classified Ads/46
Dates to Remember/48
Advertisers' Index/48

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Editorial

The American Watchmakers Institute and the *Horological Times* have at times come under criticism for not serving its membership completely. Believe it or not, the Institute and the *Times* make a valiant attempt at total satisfaction among its membership. In our own defense, we must reveal that this dissatisfaction is of a minuscule minority.

It seems that these few, in their frustration, believe that these vehicles of their profession are directly responsible for the moulding of a successful future. That is not so. Your organization is here to aid you in utilizing your own God-given talents.

Raise yourself to the heights you wish to attain.

UP FRONT

The annual Board of Directors meeting is now history and a number of significant events occurred and pertinent reports were considered. Here are some of the highlights.

Frequently one hears the comment that the same officers seem to dominate the organization. This is true whether it be AWI or some other organization. It is interesting to note that of the newly elected AWI executive officers, only one was selected to fill an office he had held in the past, that being the office of treasurer, Marvin Whitney returns to it after a two year absence.

The Finance Committee report revealed a modest deficit for fiscal 1985-1986. The Board adopted a budget for fiscal 1986-1987 which addresses this situation and hopefully makes the necessary adjustments to once again put financing on a balanced budget situation. Of course, the key to financial stability is the stabilization of membership.

The Membership Committee reported that the membership declined again this year. However, the decline was less than half the members lost during the previous year. It is hoped that the membership decline has leveled off and that it will be stabilized for the year to come. A comprehensive plan for membership retention and acquisition was set forth by the membership committee, much of which is currently being implemented by AWI Central.

Members interested in receiving a copy of one or more of the committee reports can obtain the same by requesting the specific report/s of interest and enclosing a mailing label and 39 cents to cover the postage for each report requested. A listing of all committees can be found on page 12 of the May 1986 *Horological Times*.

The Board approved the recommendation of the Certification and Education Committee to return to two-level examinations which have been customary for both watchmaker and clockmaker certification. Titles will be the same as were previously awarded, namely Certified and Certified Master Watchmaker and Clockmaker. The Board also approved increasing the degree of difficulty of both of the Certified Master Examinations.

The Board approved an award sponsored by the Horological Association of Indiana. This award will be given to the individual who achieves the highest score during a calendar year while taking the Certified Master Clockmaker Examination. Complete details of the award and specifications can be obtained from AWI Central.

Adjunct Historian Ben Matz reported to the Board on the progress being made to assist the Smithsonian in updating their horological display to include the development of the quartz timepiece. Mr. Matz has been coordinating his efforts with Carlene Stephens, curator of the division of mechanisms. It is hoped that the display can be readied for early 1987.

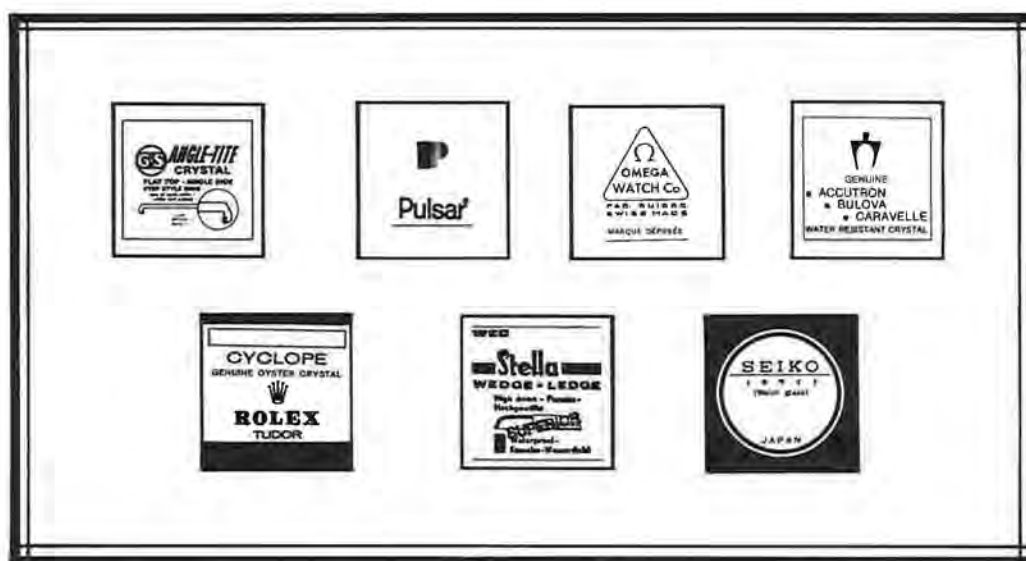
ON THE FRONT: This scene is from Bryce Canyon National Park in Utah. It was photographed by Joseph G. Bajer, Ph.D. of Phoenix, Arizona.

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PRESIDENT'S MESSAGE...



William Biederman, CMW

Building Our Membership

I would like to thank all of you for giving me the opportunity to serve as your next President. It is a challenge that I will meet to the best of my ability. The most important goal that we need to strive for this year is to build our membership so that AWI can continue to provide their many services to the members.

With the support of each member, the talented abilities of the Board of Directors, and the continued guidance of the AWI staff, we will certainly remain a strong team that will continue to offer the many membership benefits that AWI has always so generously given.

This past June at the annual meeting the Board of Directors acted on several proposals that would mean additional membership benefits. These proposals need to be researched further and I will report on them in future articles.

Also acted upon was a proposal to add incentive for each member of AWI to bring in new members. This incentive will work on a point system, whereas any member will receive five points for each new member they sign to AWI. Each point will be worth \$1.00; therefore, for each new member signed in one year \$5.00 will be deducted from his/her dues the following year. AWI staff, Board members, and AWI instructors will be excluded from this offer.

The American Watchmakers Institute is in existence to serve one purpose. That purpose is to improve the status of the horologist and jeweler by improving our standard of living. The best tool we have to accomplish this task is through communication between you and AWI Central. If you have any questions, suggestions, and even complaints, let us hear from you.

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Questions & Answers

Henry B. Fried, CMW, CMC, FAWI, FBHI



MORE ON THE IBM CLOCK

This is some information to add to the March '86 "Questions & Answers" column regarding an IBM clock. The clock mentioned is an "Indicating Clock" which operates from a Master Clock Time Control. The double-dial unit is a composite of two indicating clocks mounted back-to-back. These were made over a long period of time in various shapes, case size, types, and materials.

The key to the type is twofold: 1) The word "International" on the dial, and 2) Style #561-2 movement.

In the IBM numbering systems, the suffix indicates the character of the movements:

- XXX-0 indicates key wound
- XXX-1 indicates simple electrical minute impulse
- XXX-2 indicates self-regulating minute impulse
- XXX-3 and XXX-4 was duplex self-regulation and other special order circuitry
- XXX-5 indicates synchronous motor driven

In Mr. Jackson's question, the movement is a style 561-2; self-regulating, minute impulse driven. It cannot be operated on a battery alone.

The 561-2 requires a minute impulse of 24V (nominal) at ¼ amp (other voltages from 6 to 120 volts DC also used). The movement coil has a common lead known as C. Lines A and B enter the coil via the self-regulating contact: Circuit A is coil-connected 04 minute through 59 minute; Circuit B is coil-connected 00 minute through 04 minute.

The Master Clock sends an impulse of 2 seconds each minute, plus approximately 20 to 25 impulses between minute 59 and minute 00 Master Clock Time. This is to Wire A.

The Master Clock also sends the 2 second impulse each minute for 00 minute through minute 49. Wire B is dead for minutes 50-59; Master Clock Time.

The "Indicating Clock" which Mr. Jackson has will be self-regulated for errors of up to 10 minutes fast or about 20-25 minutes slow in any given hour. Fast errors up to about 14 minutes, and slow errors up to about 50 minutes will be corrected within three hours.

The words "International Time Recording Co. of New York" were used in the late 1920s and early 1930s. The initials "ITR" were used at various times and the word "International" was used in the late 30s to the late 40s. Around 1950-1957 the trademark "IBM" was used.

Having been employed by IBM for 38½ years, I've serviced thousands of the indicating clocks, master clocks,

and countless other products built by the "ITR Division of IBM."

Jackson's clock can be operated from a simple contact, operated each minute for 2 seconds. A synchronous motor is a suitable time source. Each movement will need ¼ amp with a voltage of approximately 20-35V. An AC source can be full-wave rectified, and no filter is necessary. The movement will not self-regulate in this arrangement.

J. M. Huckabee
Austin, TX

Q I have an older ladies Helbros watch in my possession. It has the traditional oval movement and has only the Number 1 on the plate. It is a Swiss Ebauche movement.

This watch has the original box and sales tag of \$32.50, and by my guess has never been worked on. I am not interested in any value, just some information, namely: would this have been Helbros' Dominic Warzecha St. Cloud, MN

A *The Helbros Watch Company (started as Helbein & Stone in the 1920s) produced millions of watches without any reliable records of their historic production.*

We could possibly identify the movement if you could send us a good clear photo of it with the dial removed. (Please turn to page 14)

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Bench Tips



Joe Crooks

Here's One for the Wringer

This month's tip comes from Jim Broughton of Columbus, OH.



When a new battery is installed in a Seiko quartz analog chronograph the hands will probably be out of synchronization. To line the hands back up, pull crown to 1st position, push all buttons one at a time until all the hands are again synchronized. Push crown back into the running position.

To clean the L&R Verimatic outer casing, which gets dirty over the years, is really a very simple matter. Remove the outer casing, and turn the table if you know how. Put all the casing parts into a dishwasher, and using regular dishwashing detergent run through a complete cycle. Most always they come out looking factory new. **DO NOT RUN ANY PARTS OTHER THAN CASING PARTS THROUGH THE DISHWASHER!**

Jim, what do I do if my wife won't let me use the dishwasher? I was thinking I could use the clothes washer, but how am I gonna get that L&R shell through the wringer?

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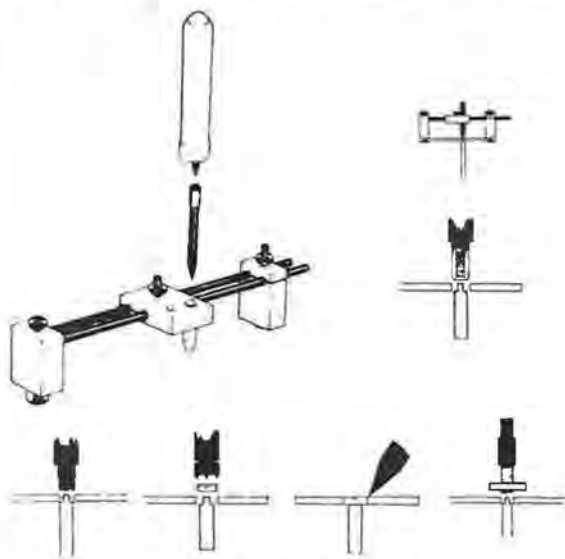
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Our Readers Write

The article by Sean Monk in the February issue of *Horological Times* (p. 36, "The Identification Mark System") brought to mind a watch lost to my family through theft 8 years ago. My grandfather gave the watch to my father as a graduation present, and about 35 years later I used it for my graduation test watch at Gem City College.

As I last worked on the watch about 10 years ago, my description may be less than perfectly accurate, and in the process of several moves I have lost the serial numbers. One thing is certain: clearly inscribed in the case back was my AWI ID# along with "Wayne C. Sheidler—Miamisburg, Ohio." The watch is a Waltham open face type, stem wind and set, with a gold filled case (bezel and back snap on). The dial is a silvery white textured paint with slightly copper toned Arabic numerals. The movement is either 19 or 21 jewels (not sure), with a larger dial side main plate (12 size?) and smaller train side plates. I am certain that it is named "Colonial Riverside," as I have not ever seen both words used on any other Waltham movement. Also it has a friction fit staff as do some Walthams.

Dad's pocket watch was stolen from a display dome on his desk at a local corporation. The police were not notified, to my knowledge. An investigation was made by plant security without success. Obviously my family would like to get the Waltham back if it wasn't a victim of the '79-'80 gold fever. I would be happy to hear from anyone with information as to its past or present whereabouts.

Alan R. Sheidler
Toledo, Ohio

I am not a watchmaker, but I must congratulate you on the advice you provide for watchmakers. Your magazine has helped me many times for answers to problems on many subjects. I have given many "AWI" applications to watchmakers. I hope 50% of them took my advice and subscribed.

Lily Girard
San Francisco, CA

As a retired hospital administrator and science teacher I must say that nearly all persons I have met through the American Watchmakers Institute are indeed wonderful. Thank you AWI!

John Keithley
Topeka, KS

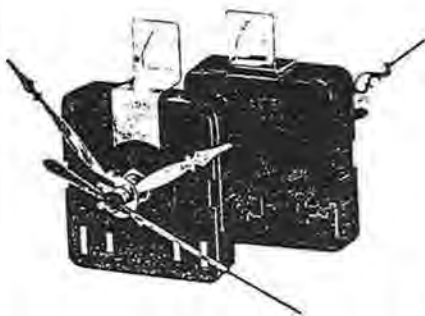
Thank you for your prompt handling of my membership application. Upon receipt of the package of membership materials, I knew that I had made a wise decision in becoming a member of the Institute. It is a pleasure to know that there is some place to turn to for such valuable services as those provided by you. I am looking forward to further dealings with AWI and its many distinguished members.

Lloyd Posavec
Forest Park, IL

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SHOP TALK



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TO BE OR NOT TO BE FREE? THAT IS THE QUESTION!

For the purpose of this article, I have divided FREE into three classifications: 1) Free Gifts, 2) Free Service, and 3) Free Advertising.

FREE GIFTS

A Free Pen—A free gift is always nice and generally accepted graciously, whether it be a ball point pen with our advertising message or any other gift item we choose to give away to our customers. The small cost involved is a good investment and the goodwill is truly good advertising.

There must be a certain amount of caution in the method of distribution of these free pens. We have these at our shop in a small box on the counter with a sign which reads: *FREE PENS—PLEASE TAKE ONE*. We do not reserve these gifts for only those who make purchases. Our sign does not say: *PLEASE TAKE A PEN IF YOU MAKE A PURCHASE*. This would defeat our purpose of a gift. Many of our pens are given at the point of sale when a customer is looking for a pen to write us a check.

A Free Cup of Coffee—Several years ago while staying at a certain motel I observed and was impressed by one of the motel's free gifts. I was standing in the lobby when a person came in to ask directions. After giving directions to the passerby, the receptionist asked him if he had time to have a cup of coffee. Yes, imagine the motel giving this stranger a free cup of coffee, and he was not even staying there! The overall goodwill certainly exists in this kindness. I know that I will always recommend that motel and will always remember this experience.

Unfortunately, I will always remember another free coffee offer at a certain restaurant. They gave the free coffee for a certain period of time, but for those of us who knew them, they also explained their cost of giving. They said that their waitress had to make three trips to each table: first to take the order, then to fill the order, and finally to clean up afterwards. They said if their customers even asked for the "free" coffee, it was a real cost to them.

With such an attitude, I don't believe they should be in this gift-giving business. If we use this type of gift it must be given freely, without catches, and without even hinting that the venture would be costly to us.

FREE SERVICE

Giving Our Time—There are two schools of thought on this kind of giving. Some believe that since we are professionals, we should never give our services as this has the connotation of cheapness, or it expresses our "worth" as something less than what we know it to be. On the other hand, giving free service certainly builds goodwill, and if handled properly can be very beneficial.

Giving a Free Spring Bar—Giving a free spring bar is an example of a very small material cost, so we could classify this gift as a gift of our time. I belong to those who feel this is a nice gesture, and I have given out lots of them. We fit new spring bars when we sell a new band. Also, when finishing a watch overhaul job, we include spring bars, taping the old dirty and worn ones onto the envelope for our customer to see. Most will agree this is a worthwhile gift. However, some don't believe in giving a spring bar if it's all the customer needs, especially when the customer did not even buy his watch from us.

Try it! You may be surprised at the goodwill it will bring, if handled properly. You may hear your customer (or a potential new customer) say: "Gee, you mean you're not going to charge me for this? I didn't even buy the watch from you!" They may follow through by saying, "Actually, I just found out about your business and I will certainly be back."

I admit, there are some more costly special spring bars and also jobs which take up more of our time to do them, and we do charge for these.

Perhaps some will disagree with these free gift methods, claiming they are unprofessional. Before you throw out our ideas, let me tell you about a very professional optometrist whose business was next door to ours for several years. He gave optical screws to anyone whether they had purchased glasses from him or not. He considered this an excellent goodwill gesture. He did not lose any dignity and probably has the finest reputation in our area . . . and his prices are certainly not the lowest.

Free Calling Cards—We certainly do not charge for our calling cards. We give these out under the heading of "advertising." Actually, everything we give could be charged out as advertising.

Waiting on Customers for Free—Isn't this a silly heading? Of course we wait on customers, and of course we do not charge them. This is part of the service that all businesses must do.

Free Estimates—Most stores seem to make free estimates—at least most of the time. We must advise the customer in advance about the charges to repair their watch or other items. An exception might be in those trade shops where they need to charge for all work, as some jobs may not be left by the store for repairs.

Another exception seems to be when a very old watch is brought in and considerable time is needed to make a proper estimate. If any examination charge is going to be made one should notify their customer in advance.

We try to make all estimates free. In the case of old watches, we make a rough estimate and tell the customer the range and if we find it will cost more than the maximum quote we will call them. I don't like the expression 'fix it if it's not too much.' Case in point: I have one old watch now that the customer wants repaired if it will not cost more than \$200—and it will probably end up close to this. Since very few want to spend this much, a good advance understanding is a must.

Most watches are quite easy to examine, thereby taking very little time. Quartz watches are good examples. With proper equipment we can diagnose most of these movements in two or three minutes. Some take a shade longer if it is necessary to remove the movement from its case or if a hidden problem exists.

Free Batteries—People like the word **FREE** and it is amazing how many readers probably jumped to this paragraph first, just to see if we really give batteries **FREE**. The answer is a qualified *no*. We sell batteries and install them and it's a great business, but there are a few exceptions. If we have sold an LCD watch or an analog watch (which has been running while in stock) and the cell expires during the guarantee period, of course we will give a new one.

FREE ADVERTISING


We all know what paid advertising is, but we are talking about *free* advertising. This includes word of mouth, which is probably the best kind. It's not only free but we don't really have to do anything—well, that is, except to take proper care of our existing customers, who tell others, who tell others, who tell others, etc.

CONCLUSION

People basically like things that are free. The free pearl found in an oyster, even cooked and practically worthless (we would say), finds its way into a very expensive gold mounting, just because it was free.

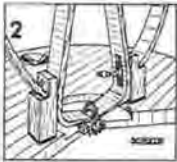
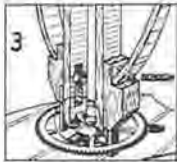
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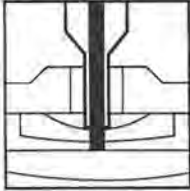
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QUESTIONS & ANSWERS

(Continued from page 6)

The Helbros organization imported many movements from many makers. Most, however, were from the A. Schild Company of Grenchen. At the early pre-1940 stages, they did not mark their movements with either an ebauche stamp or the calibre number. This can only be matched by checking it against old material catalogs which I do possess. You already have the retail price which wholesale was most likely keystone.

Helbros also made watches of medium to upper class priced, some with diamonds, platinum cases, gold, sapphire-studded cases and others, so yours would have been at best a medium quality range.

Q I have two items which are in excellent condition, except for the fact that they are not running! One is a T. Jacot Fleurier Chinese Duplex watch which has staff and escapement problems, and the other is a Borg electrically wound clock (for a '49 Ford custom). The Chinese watch has been wound tight. How can I release the mainspring before disassembly?

Any help is appreciated.

A. Walter De Prisco
Pt. St. Lucie, FL

A A complete exposition on the repair and adjustment of the duplex escapement was illustrated in detail and explained in the HT some years ago.

As for the Borg electrically wound clock, if you will look through the book "Electric Watches" by this writer, you may find a movement that operates on the same principle. All you need do then is to make certain that the electrical connections, coil of the wire are in operable condition. Parts for these or manuals on the repair of this specific time-piece are unavailable. I might suggest that you remove that clock and buy a cheap black dial quartz clock (or movement), fit it to the area occupied by the old Borg clock, and every two years merely replace the AA cell, not worrying about its connection to the 12 volt battery under the hood of your Ford.

To get back to your duplex escapement watch, to prevent damage to the escape wheel teeth, block the train, remove the balance and bridge, then re-

move the dial and hands. Also you will notice that the ratchets on these are small and the click (hooks) must be carefully nudged aside so as not to break that spring, carefully letting down the mainspring. Do not force—maybe one of the train or barrel teeth are jammed. Most often, the barrel and bridge can be removed separately.

Q For quite some time, two inter-related problems have been puzzling me and maybe you can help. One concerns terminology and the other regards structure and function.

Quite often, reference is made to the term "motor barrel" and is usually found describing certain Hamilton mainspring barrels. Exactly what is a "motor barrel" and how does it differ from an ordinary going barrel? Also, the term "safety barrel" has been used to describe those types of barrel arrangements in which the ratchet wheel attaches to the barrel arbor via three screws. Sometimes (as in high-grade and early Swiss movements) the barrel was set up as a hanging barrel but I have yet to figure out why this three-screw ratchet attachment set-up is referred to as a "safety barrel." The only rationale that seems plausible is that if one or possibly two of the ratchet screws were to break or come loose, the third could conceivably hold the ratchet wheel in place to avoid mainspring breakage or further movement damage. Any comments in this area are most helpful.

Second, there seems to be great praise lavished upon the fusee as used in watches. Supposedly, chronometers or better grade watches would not be as accurate without them. In all the extensive reading and a lot of repair/restoration that I have done involving the fusee, I have found that its effect upon constant mainspring torque as compared to an ordinary stopworks is about equal. I have seen only two watch movements fitted with a going fusee and the combination of additional moving parts and chain lends itself to increased possibility of mechanical failure. The question is: If the average mainspring unloads (unwinds) with an inconsistent degree of torque (which they do), and this varying power is transmitted directly to the great wheel, where then is the advantage of the fusee as opposed to a stopworks which can achieve the same or better results with fewer moving parts?

J. Karlson
Garden Grove, CA

A The term "motor barrel" can be defined accurately as one in which the main wheel, with teeth engaging the center pinion, turns on the barrel arbor pivots as the watch runs. This is opposed to a going barrel in which the barrel teeth, driving the center wheel pinion, turn on polished shoulders of the barrel arbor, the arbor remaining motionless except during winding.

Also, as noted in older Waltham watches, the motor barrel was in two separate parts, the lower part containing the mainspring and connected by its outer end to a hook in the steel barrel outer wall, the inner end connected to a hook in the main wheel driving the center pinion. The idea was should it break (mainspring) the bottom, mainspring containing part would merely spin around without any strain upon the center pinion. Variations of this with jewels in 23 jewel watches of many makes used the motor barrel head.

A hanging or suspended barrel is something entirely different and was used in very thin watches for obvious reasons.

The three-screw ratchet idea belongs to the motor barrel and sometimes to the suspended, but their purpose was one of security, not operation. Sometimes this type of arrangement merely secured the ratchet to the arbor with a wide triangular flange.

As for the fusee: It is no longer used in watches as the technology has passed by it and its usefulness is in the past. It is still used in the mechanical, detent escapement marine chronometer where its use is deemed to improve its service. In the older days with poorer oils, mainspring steels and uneven chemical, molecular distribution, thicknesses, gear teeth pitching, shapes, escapement matching, hairspring shapes and stresses, the use of the fusee was justified. Some notable exceptions were those made by Breguet and some French who used motor barrels but these did not keep as good time as the English. Whether this was due to the fusee or just to superior execution of the remainder of the parts is not known to me. Today it is something of the past in watches. As for stopworks, the fusee used that, too. Its purpose, remember, was to overcome the uneven distribution of mainspring power to the train. When set up correctly (fusee) it justified its use. Even today, physicists who are amateur horologists still write mind-boggling theses on the correct shape of the fusee and even one wrote one on the correct shape of the fusee and for pre-hairspring watches.

Henry B. Fried

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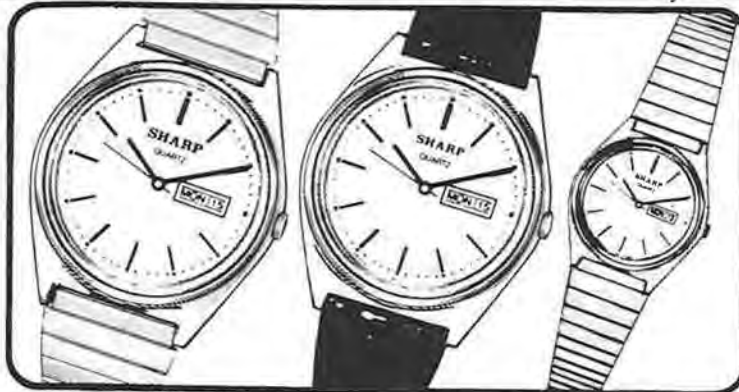


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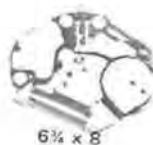
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Part VIII

After a spring has been made, hardened and tempered, and the steady pin installed if it has one, then it must be finished to match the other springs in the watch. Mainly one of three finishes is used for flat springs in watches. These finishes are: a flat high polish, a matt or grey frosted finish, and a straight line or satin finish. The methods used to obtain these finishes will be discussed in that order.

To obtain a flat high polish on steel parts, some method must be used to hold the item being ground and polished. One method is to use the screwhead finishing tool which is sometimes called a bolt tool. Figure 1 shows the screwhead finishing tool. This tool can be used to hold screws when their heads are being polished. The screws are held between the jaws of the tool. A straight combination click and click spring can also be held between the jaws of this tool for grinding and polishing its edge flat.

When grinding and polishing the top of a spring or lever flat, it can be shellacked to the bottom of the screwhead tool as is shown at stage "1", Figure 1. To shellack an item to the bottom of the screwhead finishing tool, first adjust the two screw legs of the tool so they extend through the base of the tool an amount equal to the thickness of the item being shellacked to the tool. Next, clean the screwhead tool and the item in denatured alcohol, then dry the tool with some facial tissue or a clean cloth. Now, warm the tool over an alcohol flame until shellac will melt on its surface. Now smear a small amount of shellac on the tool where the spring is to be placed. The spring is now placed on the melted shellac with its top side exposed. While the shellac is still warm, turn the screwhead tool over on a piece of plate glass and press it against the glass so the spring will level up against the tool. Hold the tool in this position until the shellac has cooled. Note: If the spring has steady pins, then holes would need to be drilled in the screwhead tool to receive the pins before shellacking up the spring. After the spring has been shellacked to the tool, then the leveling legs are readjusted so the spring is perfectly level on the glass. This is shown in stage "2" of Figure 1. The screwhead tool is placed on a frosted glass lap as is shown, then the legs of the tool are adjusted so the spring touches the surface

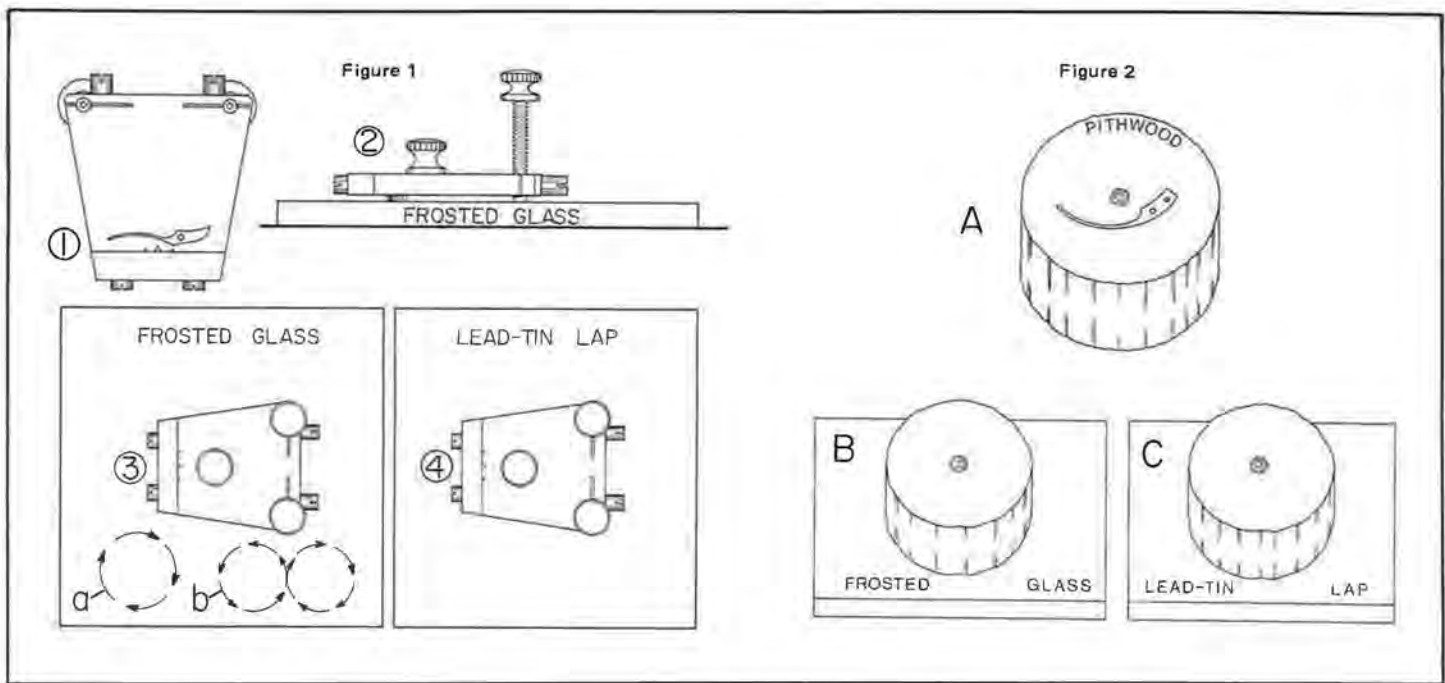
of the glass at all points. After this, the leg binding screws are tightened to prevent the legs from shifting during the grinding and polishing operations.

Stage "3" is the grinding of the spring until its top is flat and smooth. This operation is done on the flat frosted glass lap. The frosted glass lap should be made from a piece of plate glass for durability.

To make a frosted glass lap, take two pieces of plate glass about four inches square. Then wet with water the two surfaces to be ground. Now, take some fine carborundum powder and place some on both surfaces to be ground. Then move the two glasses one on the other in a circular motion until the two surfaces have acquired a uniform frosted finish. Danger: Before trying to grind the two glasses, make sure that the edges of the glasses are not sharp because there is danger of cutting the fingers when grinding the two glasses together. Sharp edges can be removed with a glass grinding wheel or on wet or dry emery paper.

After the surfaces on the two glasses have been ground, then they must be cleaned thoroughly by scrubbing them with a washout brush and soap and water or in water base soapy cleaner. After this, they are rinsed in warm water and dried. This process is to remove any trace of the carborundum powder. One of the frosted glasses can be used with oilstone powder and oil for coarse grinding and the other glass can be used with Linde A or Diamantine and alcohol for fine grinding. The type of grinding material used to grind a spring flat would depend on how much grinding is needed to make the spring flat. If much grinding is needed, then oilstone powder mixed in oil is used on one of the frosted glasses. If not much grinding is needed, then Linde A or Diamantine and alcohol is used on the other frosted glass.

When grinding a spring flat, the motion given the screwhead finishing tool is important. The motion can be a circular motion as is shown at "a", stage 3 of Figure 1, or it can be a figure "8" motion as is shown in "b" stage 3, Figure 1, or it can be a combination of the two motions. The figure "8" motion is considered the best motion for



grinding an item flat.

The method used to hold the screwhead tool during the grinding and polishing operations is important. If there is a knob on top of the tool, as is shown in Figure 1, then the knob can be held between the thumb and index finger with the thumb curved around one leg of the tool and the middle and ring fingers against the other leg of the tool. The pressure is applied to the tool with the thumb and index fingers holding the knob.

Before actually grinding a spring flat, one must determine if the leveling legs are adjusted to the exact position to allow the spring to be ground level. To do this, place some grinding material on the frosted glass lap. Then the screwhead tool is placed on the glass lap with its legs and the spring resting on the frosted glass. Now, give the screwhead tool two or three swipes on the glass. The motion can be a circular or figure "8" motion. Next, remove the screwhead tool from the glass and clean the grinding material from the spring with a piece of pithwood so it can be inspected. If the spring is being ground unevenly, then the legs of the screwhead tool must be readjusted so the spring will be ground flat. Don't forget to retighten the binding screws of the tool each time the legs are adjusted.

After the tool has been adjusted so the spring is being ground evenly, then the grinding is continued until the spring is flat and smooth. After the spring has been ground flat, then proceed to polish the spring. This is shown in stage 4 of Figure 1.

The final flat polish of a spring is done on a lead-tin lap with Linde A or Diamantine and alcohol. Although a fairly good polishing job can be done on a fine frosted glass lap, the lead-tin lap seems to give a better deep black finish. Note: It is very important to thoroughly clean the screwhead tool and spring with a brush and soap and water and then rinse in hot water and dry before proceeding to the next lap, especially the lead-tin lap. This is to prevent coarser grinding particles from being transferred from one lap to the next lap.

The polishing of a spring on the lead-tin lap is essentially the same as grinding the spring flat on a frosted glass lap. The lead-tin lap must be flat, smooth, and clean. The preparation of the lead-tin lap is done by scraping its surface

with the sharp corner of a burnish back file. The lap is scraped in different directions across its surface to make it flat and smooth. Only Linde A or Diamantine is used on this lap. When polishing on the lead-tin lap, the Linde A or Diamantine is applied to the lap after a small amount of alcohol has been applied to its surface. The article being polished is moved on the lap in a circular or a figure "8" motion using large motions at first and then gradually reducing the circles for the final polish. The pressure is also reduced during the final polishing. A little dry Linde A or Diamantine can be used on the lap for the final polish. This allows the surface to be inspected for polish without having to clean the surface each time it is observed. Note: It is very important not to disturb the article fastened to the screwhead tool when it is being cleaned or when it is moved from one lap to another lap; otherwise, the level of the article will need to be reestablished.

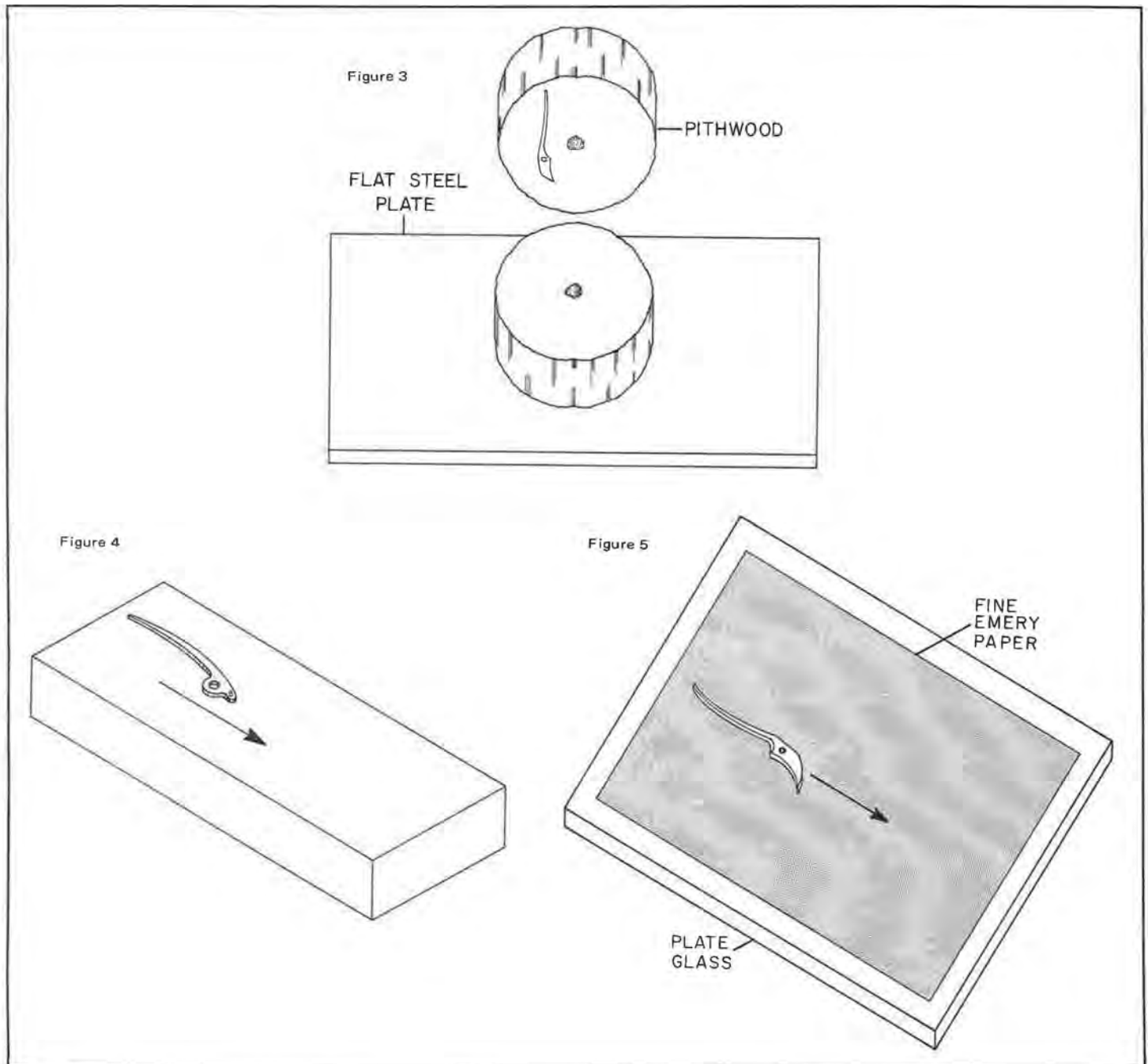
Another method for holding articles when they are being ground and polished flat is shown in Figure 2. This is by the use of button pithwood. This method is usually less time consuming since the article does not need to be shellacked up as with the screwhead tool. View A, Figure 2 shows a spring embedded in the flat surface of the pithwood. The spring is embedded into the surface by placing the spring top side down on the lap and pressing the pithwood down on the spring until the spring is flush with the surface of the pithwood. View B, Figure 2 shows the spring being ground flat on a frosted glass lap with grinding material applied to its surface. The motion of the pithwood can be a circular motion or a figure "8" motion. Important: A different piece of clean pithwood should be used for each lap and grinding material. In other words, if one is using a frosted glass lap with oilstone, there should be a piece of clean pithwood for this operation. There should be another piece of clean pithwood for a glass lap which is having Linde A or Diamantine used on its surface, and still another clean piece of pithwood should be used on the lead-tin lap. When not being used, these pieces of pithwood should be stored in separate ziploc bags which are marked for that particular piece of pithwood. Also, the edge of each piece of pithwood should be marked to identify it with the job it is to perform. This caution is necessary to prevent the coarse particles of the grinding material from con-

taminating the polishing material as well as the lead-tin lap. All laps should be stored in individual envelopes while not in use, and they should be carefully cleaned before being stored in their envelopes. View C, Figure 2 shows the spring being polished on the lead-tin lap.

The second type of finish that is given to watch springs, levers, screwheads, etc. is the flat matt or grey frosted finish. This process is shown in Figure 3. The process is somewhat the same as the flat grinding of springs and levers except the lap used is a flat steel plate. The grinding material is fine oilstone powder mixed with clock oil. A piece of pithwood is used to hold the article being given the finish. The pithwood holding the article is given a circular motion with large circles at first until the surface of the item is ground flat. The final matt or grey frosted finish is gotten by making the final motions so small that the grains of oilstone just slightly roll to produce microscopic pits in the article without any scratches.

After the finish has been obtained, then the article should be thoroughly cleaned to remove all of the oilstone and oil.

The third finish found on steel watch parts is the straight line or satin finish. This finish can be gotten by drawing the article in a straight line on a stone or emery paper. Figure 4 shows a spring being given a straight line finish on a stone. The stone used depends on how fine the lines need to be on the finish. It is important to be able to reproduce a finish on a new article which matches the line finish of the other steel parts in the watch. If the lines on the other steel parts in the watch are fine, then a hard Arkansas stone may be needed. On the other hand, if the lines need to be coarse, then a fine India stone may be needed. Some experimenting may be required in order to match the finish of the original article. Different grits of emery paper which are cemented flat on pieces of plate glass can be used for creating a line finish on springs and levers. This is shown in Figure 5.



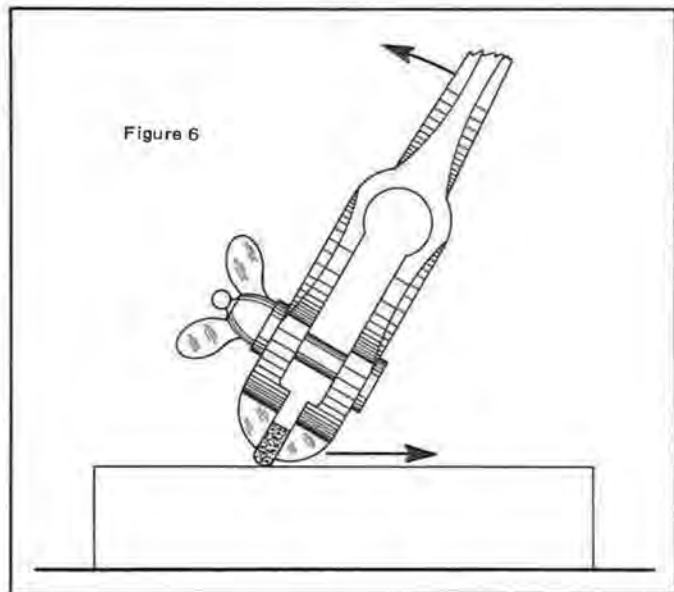


Figure 6

Note that the spring is moved on the emery paper in a lengthwise direction. This is to help prevent a possible fracture in the spring when it is in service. Any line or scratch across the spring is a potential break in the spring. The grits of emery paper usually used on the plate glass are 0, 2/0, 3/0, and 4/0. A beautiful satin-like finish can be gotten on springs or levers by first polishing them flat and then giving them two or three strokes on 4/0 emery paper. This gives the spring a bright line finish. The article can be moved on the stone or emery paper with the index finger when being given a line finish.

Some combination clicks and click springs have their top edge rounded and polished. This can be done by using the method shown in Figure 6. The article is held in a flat jawed pin vise as is shown. The article is first shaped on a fine stone, then smoothed on fine emery paper (4/0), and is then polished on a flat boxwood block with Linde A or Diamantine and alcohol. The motion that is given the pin vise is as follows. The pin vise is held in the hand somewhat like a pencil. The vise is held between the thumb and forefinger close to the end of the jaws while the handle of the vise rests on the hand like a pencil. The motion that is given the pin vise is a sweeping motion created by pulling the article held in the vise jaws on the stone or emery paper and, at the same time, the handle is brought toward an upright position like that which is shown by the two arrows.

TMB

MABASO WINS MAX EPSTEIN AWARD



Ezekiel Mabaso, last year's recipient of AWI's Dick Lang Award, has been awarded the Max Epstein Award, given by the Alumni Association of the Joseph Bulova School in Woodside, New York. The award is for outstanding disabled students—not only in their work but for having the personal characteristics of integrity, cooperation, and support which Mr. Mabaso demonstrated in the time he spent at the Bulova School.

A citizen of Johannesburg, South Africa, Ezekiel Mabaso returned to his country after completing his training at the Joseph Bulova School. He is now working for the Seiko Watch Company where he repairs Lorus and Pulsar movements. Their watchmakers produce 15 pieces a day completely overhauled.

The Max Epstein Award includes a cash award as well as the recipient's name placed on their plaque, located in the recreation/cafeteria room at the School.



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Chime and Strike

Steven G. Conover



ANSONIA CHIME*

PART 2

s promised, we will cover some hints on reassembling and adjusting the Ansonia movement, and look at the hammer and winding assemblies. Refer to the June article for details of the front movement parts. Movement parts illustrated this month are numbered beginning where we left off last time. The same applies to figure numbers.

In preparing this article, I disassembled and repaired an Ansonia chime clock my aunt gave me recently. She had received it as a wedding gift in 1926. The movement was not in running condition. Gummy oil and dirt were the main problems. After taking down the movement, I saw that the pivot holes were in good shape, although most of the pivots needed polishing. The three mainsprings were fine after cleaning. I left the chime correction cam (8) in place, because I couldn't loosen it from the arbor after backing off the set screw. Rather than force it, I left it on. There was no harm in doing so, because the pivot and hole were in good condition.

WINDING MECHANISM

One of the first items you work on as you disassemble the clock is the lower front movement plate. Figure 6 shows the plate (30), with the three winding mechanisms. The time mechanism (39) is in the center. The cover plate (33) is cut partly away to expose the click wheel (34) and winding wheel (35). Naturally, you cannot remove the cover plates yet. Your first step is to let down all the mainsprings. With the power safely off, strip all the winding parts from the lower movement plate. Leave the click (36) and clickspring (37) in place unless they need repair. External winding parts from time, strike and chime are interchangeable.

After you remove the lower plate, you can take out the barrels. Mark or identify each barrel, cover, barrel arbor and spring so you don't get them mixed up during cleaning. A good mainspring winder is essential for the job of safely getting the springs out of the barrels. You cannot expect a successful repair unless the springs are clean. Whether or not your ultrasonic can clean between the spring coils, you still

need to take them out of the barrels to check for cracked ends. It should be obvious that a bad mainspring is going to fail.

Inspect the winding wheels and click wheels for excessive wear or bad teeth. If your clock parts supplier does not show exact replacements for these, it might be necessary to order a specially cut wheel if you don't have the equipment to do the job yourself. Wear is often the worst on the chime winding parts because of the stronger spring. As the teeth wear, winding action becomes bumpy and stiff. If the click fails to seat itself as you turn the key, you will end up with damage.

HAMMER MECHANISM

Figure 7 shows the rear of the movement. The upper hammer assembly (41) and lower hammer assembly (46) are held together by the chime bracket plate (45). The hammers extend well below the bottom of the movement, but this isn't as awkward as it seems. If you remove the plate screw just below the pin barrel (43), the bracket pivots in the middle. This may make it easier to remove the movement from the case.

Once the movement is out, you can take off the upper and lower hammer assemblies along with the pin barrel, as a single unit. Then you can decide whether you want to take the assembly apart. If it moves freely after ultrasonic cleaning, you may want to leave it together. With most of the older chime movements you don't have this choice. You have to remove the hammer levers and the spacer washers between them. Check the condition of the hammer chains (44) and the five hammer heads. Repair as necessary.

The chime silencer (47) is simply a lever which can raise the four chime hammers to silence them. The silencer arbor pierces the dial and runs through the movement. A coil spring, pin, and washer arrangement presses the arbor against the rear plate. This creates enough resistance to keep the lever wherever it is turned. You can leave the silencer arbor installed

in the rear plate when you take apart the movement. By inserting the smaller end of the winding key and turning the silencer arbor, the owner moves the silencer lever into contact with the hammer assembly. There is no silencing effect on the strike hammer.

CHIME HAMMER OPERATION

The chime hammer assembly is powered by the chime drive wheel (40). The wheel meshes with another on the end of the pin barrel (43). In turn, the pin barrel moves the upper hammer assembly, which is hooked up to the lower assembly by the small chains.

Following a repair, the chime hammer sequences must be adjusted. In most chime clocks, it is best to loosen the set screw on the chime drive wheel, then turn the hammer assembly by itself, to a known point. I've always found that the first quarter note sequence is easiest to identify. For this reason, I operate the chime train to the end of the first quarter chime, then move the hammers to agree. In this clock, the four descending notes are the result of the chime hammers hitting in order from back to front.

Unfortunately, the set screw is small and hard to reach in the Ansonia chime. It is easier to tighten the screw

during the assembly procedure, before you install the chime assembly. When you want to adjust the chime sequence, rotate the pin barrel and reach the desired note pattern first. Then, without changing anything, install the hammer assembly. The pin barrel gear and the chime drive wheel should mesh correctly.

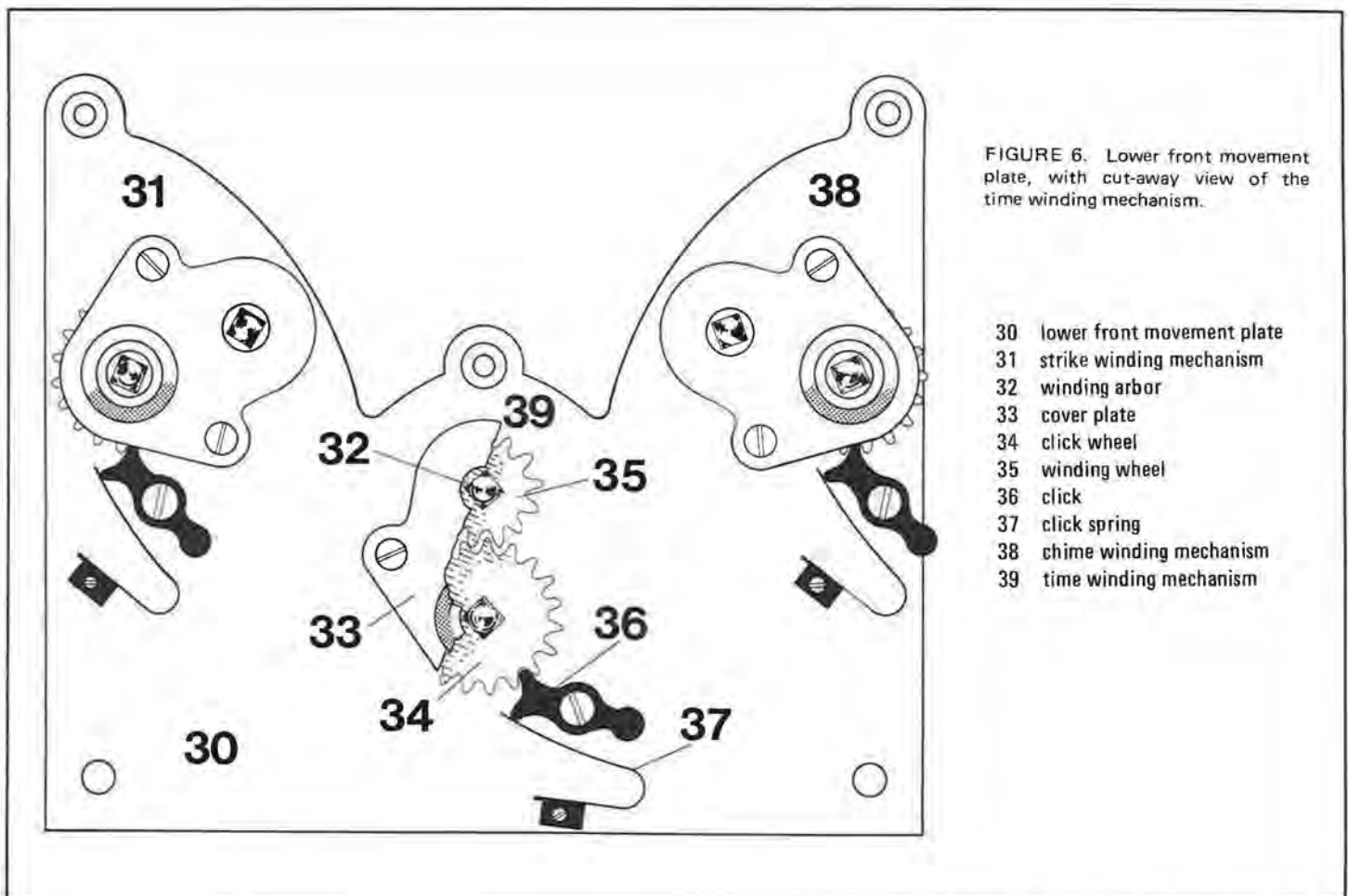
STRIKE HAMMER OPERATION

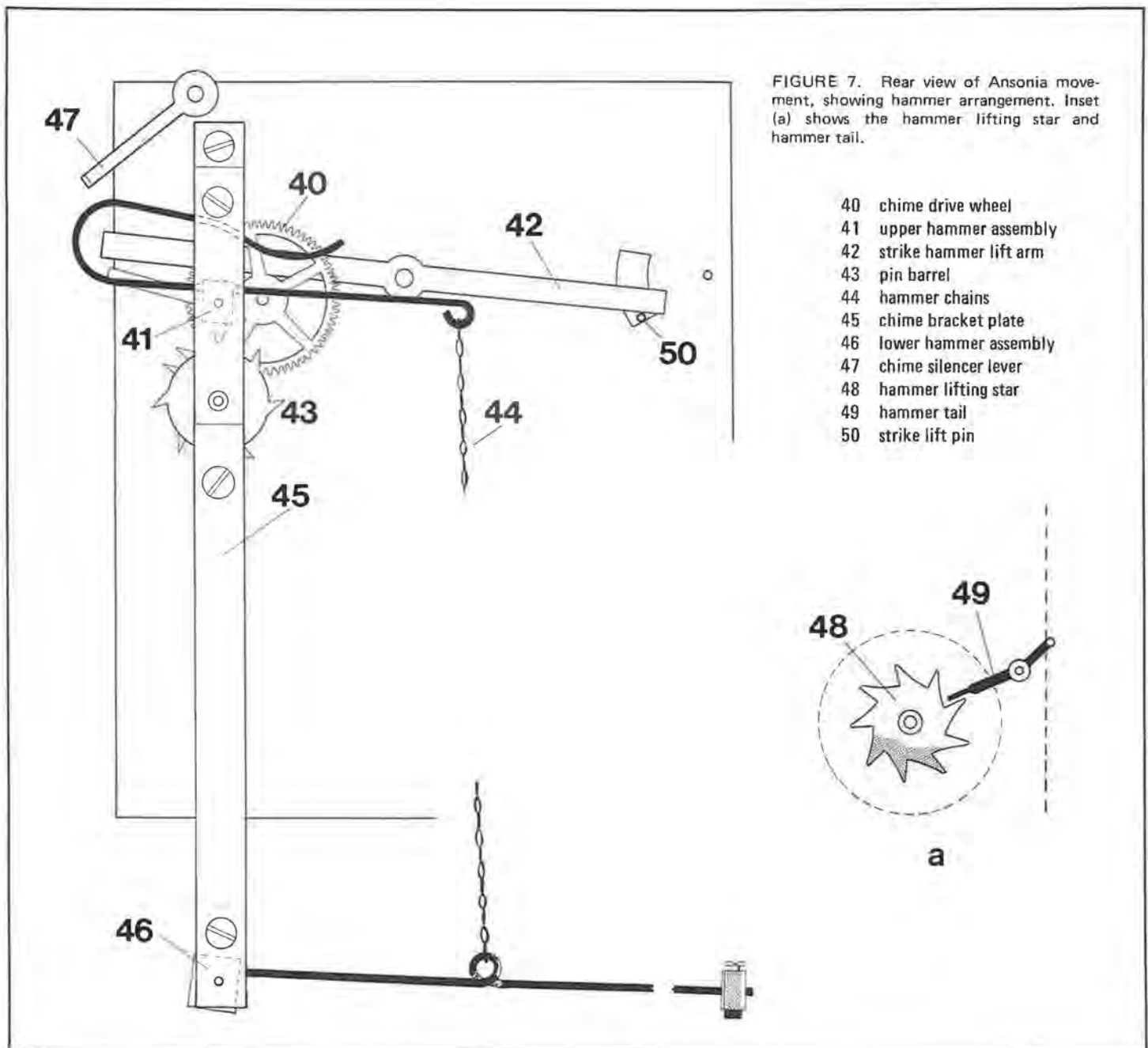
Strike hammer action begins with the hammer lifting star (48), which raises the hammer tail (49). The strike hammer lift arm (42) carries the motion across the back of the movement, to the strike hammer. The arm is next to the rear movement plate, and it pivots like a see-saw. The strike lift pin (50) pushes up, which pushes the other end of the arm downward. This action moves the single strike hammer up. The hammer falls as the star (48) turns, releasing the pin (50).

We'll cover further strike adjustments in the next section. At this point, make sure the strike hammer lift arm is free to move without sticking or binding. Hammer action will be sluggish unless there is a minimum of friction.

NOTES ON ASSEMBLING THE MOVEMENT

To assemble the movement, install all the arbors





into the rear plate. Don't forget the arbor which carries the hammer tail (49) and strike lift pin (50). You cannot add them later, after the plates are together. Add the upper front movement plate, easing the lower pivots in place first. You may want to leave the two fly arbors out until the plate is halfway on, to minimize the chance of bending the small pivots. Never force them, and never forget they are there. The recoil pallets should be added along with the fly arbors. You can still add the pallets at the end if you forget to include them. You just have to separate the plates enough to allow the pivots to go into the holes.

STRIKE ADJUSTMENTS

After the plates are together, install the strike levers as pictured in the June article. Turn the wheels by hand and check the strike operation. As the strike completes, the hammer tail must be free of the hammer lifting star. Figure 7 shows the correct position. If necessary, separate the plates enough to readjust the mesh between the third wheel and the

pinion above it. Look at the position of the pin on the gathering pallet at the same time, to make sure it is clear of the rack. You can twist, or remove and reinstall, the gathering pallet to correct it.

The strike warning pin (28) should have a 7 or 8 o'clock rest position. It can then travel almost a half revolution of the wheel as warning occurs. The only other strike adjustment is the snail position for 12 o'clock. This is probably one of the last items to take care of during assembly of the movement. It's easiest to take care of after chime adjustments are completed.

CHIME ADJUSTMENTS

The chime correction cam (8) should be added to the movement. Referring to the June article, turn the wheels around to the end of the third quarter chime. With the chime locking piece (25) seated in the third quarter slot in the locking plate (26), the chime correction cam (8) should be tightened in place as in Figure 4 (June).

Book Review

A TIME TO WATCH, A WATCH AS ART: CLASSIC, RARE, EXTRAORDINARY by Jac Zagoory, Hilda Chan. 8½ x 11½". 200 pages, 126 items in color, 100 b/w, pub. 1985 by Chin Zac Ltd. at \$88.00.

That the wristwatch is now recognized as a true collectors' item is to acknowledge a fact brought home by its popularity at auctions and observing the type of watches worn on the wrists of the "in people".

In this near century ending, some unusual and very interestingly styled watches for wristwear were produced. Also, some watches, although with comparative plebian cases and styling had some very interesting innards. Methods of manual and self-winding, train wheel arrangement, escape-ments, or ringing watches make these attractive to the discriminating collector.

Now there are books which try, some with merit, to show almost every movement or wristwatch made; one is a price guide and two others have been reviewed earlier. The subject of the book under this review selects over a hundred of the most interesting of wristwatches to the authors and is in a large "coffee table" type of book. The author, Jac Zagoory, states that the wristwatch is "a true 20th century art". Each watch is beautifully photographed against a dramatic arty and at times "glitchy" background supplied by Hilda Chan, art supervisor, photographer-co-author.

A short history precedes the photographic exposition with short descriptions of the watch and often of the movement. There are also minute repeating wristwatches, numerous Rolex, Patek-Philippe, and other top name Swiss wristwatches

and others of the second decade of this century. Some are demi-hunter, full hunter cases, silver, platinum, gold, diamond, and gem set. Others are nickel, chromium or baser metal cases and finishes.

There are curved watches with radium dials and hands, enamel cased and braceleted watches. The advent of self-winding wristwatches is represented by numerous interesting models which feature the water-resistant models as well as the Cartier "tank" shapes. Also, with the introduction of air travel, world-time dials sophisticate the watch's appearance, some shown in this book. American watches are well represented with products of Hamilton, Waltham, Elgin, and Bulova prominent among those. A marquis-shaped lady's watch by Cartier has a winding at its pointed XII position and an exposed balance at the opposite pointed position. Rock/crystal cased watches, Reverso by LeCoultre, the Rolls in which the sliding movement in the rectangular case winds the mainspring, jump figure watches, Mickey Mouse types, and the Autorist winding by the flexure of the hinged bracelet lugs are included. Perpetual calendar, moon-phase, and chronograph types are included as well.

The age of the battery is shown in the last 1950-1984 chronological section with the Hamilton Ventura (500 model), triangular Masonic, and skeletonized watches complete this. A glossary, a crystallized list of makers and their histories (what, no wrist tourbillons?—they were made but super expensive) end this exposition. Thus, this book could serve as a guide to what is attractive to collectors and as a guide to the would-be collector of wristwatches.

THE MUSICAL BOX HANDBOOK, DISC BOXES, by Graham Webb, 5¾" x 8¾", 316 pages, soft covers, 55 illustrations, pub. 1985 by Vestal Press Ltd. at \$15.95.

Musical boxes and clockmaking have always gone hand in hand. The earliest were the gems from famous clockmakers. Today clock repairers also do musical box repairs and therefore this new volume should be of interest.

This is a second volume to his first which covered the earlier musical boxes and devices. This second volume deals only with those that have discs instead of rollers. Discs as musical devices will be remembered as having been used in watches in the late 18th century. This book deals with those which appeared just a few short years after Edison's phonograph, yet they became very popular.

This book is not merely a recounting of history and development of this mechanical musical device but over two-thirds of its pages are devoted to the repair and maintenance of musical disc players.

In the opening chapters, the German-Swiss beginning is recounted with the Swiss supplying the musical combs with which they had so many years of experience. The principle inventors and manufacturers are mentioned with short descriptions of their trials (some legal) and tribulations.

The Regina, an American venture, begins in September 1892 when Gustave Brachhausen, a pioneer musical box maker, came from Germany to Jersey City with five workers. The Regina is claimed by many to have the best sound of any music box. Those who have heard many types

(Please turn to page 33)

Next, observe the chime drop lever (24). It should rest in the slot in the cam (23). In addition, the chime lock pin (20) should rest against the chime locking lever (21) to stop the chime train. You may have to separate the plates and adjust these factors several times to get them right. The design is similar to that of the Seth Thomas No. 124 and 113 movements, covered in these pages some time ago.

Chime warning does not need to be "set up". The chime lock pin (20) moves from the locking lever (21) to the warning lever (22), so you don't need to worry about it.

TESTING

To finish up, add the mainspring barrels and the lower front movement plate. Install the winding parts shown in Figure 6. After you tighten all the pillar screws you are ready to wind and test.

The real test of the movement is to achieve a solid seven or eight day run. You'll have to wind the springs all the way to make it. Wind carefully, because the geared-down winding mechanisms take away the "feel" of winding. It is very hard to tell when you are "almost there". Make sure your customer knows how to wind fully without forcing the key.

THE PICKLE BARREL



Marshall F. Richmond, CMW

Repairing Stone Settings

PART IV

FLAT, MIRACLE, AND ILLUSION SETTINGS

It is no doubt easier to replace settings than it is to repair them. In replacing the settings we are faced with having to make the settings—not a very practical solution. Although findings are available and many settings can be ordered and obtained in a few days, it's hard to find a perfect match for the setting to be replaced. So the piece of jewelry would be altered, which is not always acceptable to the customer. It also requires keeping a large inventory of findings on hand to be able to make replacements right away instead of having to order and wait. In most cases satisfactory repairs can be made with the setting being as strong as the original, with hardly changing its appearance.

BEFORE DOING THE REPAIR:

WHAT TO POINT OUT TO THE CUSTOMER

When taking in repairs we are usually dealing directly with the owner of the piece of jewelry. This is when we have the opportunity to explain to the customer various options available, and let him decide whether to repair or replace with the chance of the appearance being slightly altered. Also, costs can be explained up front so there is no misunderstanding when the repaired article is delivered. When doing trade work we don't have the opportunity to deal directly with the customer; while written instructions are quite often vague we must try to make any repair look as close to the original as possible.

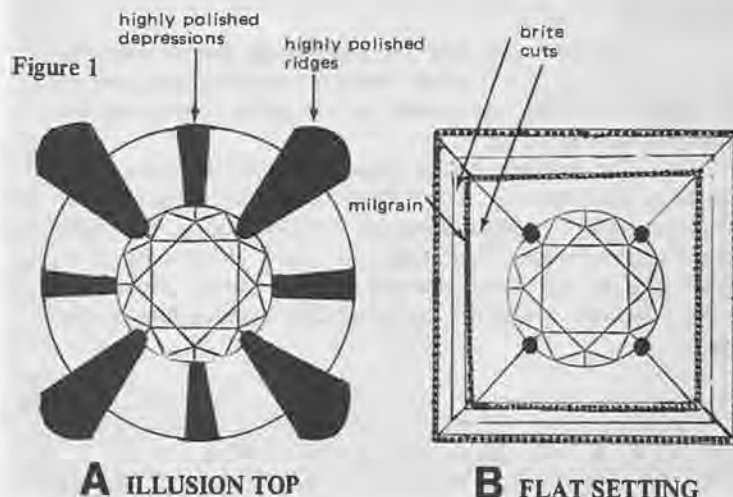
A common problem to the trade jewelry craftsman is underestimating repairs. Many rings come in for repair needing all prongs or beads retipped or repronged . . . yet the instructions might say: "Please replace one prong or bead." If the instructions are followed exactly and one prong or bead is replaced, soon another may give way with the stone coming loose and getting lost. Then you are expected to do the repair again under warranty, many times having to furnish a replacement stone at your expense. It is better to return this type of repair with a written estimate first to repair it correctly.

Figure 1 shows a top view of a miracle or illusion setting and a flat setting. Figure 2 is a side view of two rings with miracle or illusion settings and two methods of replacing broken beads. There are many causes for the need to repair these settings, but probably the most common is wear and broken beads from rough usage or abuse, requiring different methods of repair.

MISSING BEADS

Where a setting has one bead missing and the others seemingly in good condition, I replace the bead in one of two ways (there are probably many more). One method is to take a small chip of 14K white or yellow gold, depending on the color of the setting, and put it on the asbestos bench pad. Flux and apply heat until it melts, forming a small sphere or ball. Flux again after placing it on a small piece of solder the same color as the setting. This will melt at a lower melting point than the sphere and coat it, making a slightly larger sphere.

The setting must be prepared by 1) cleaning, then 2) dipping in boric acid and alcohol, and 3) burning off, leaving a white-frosted coating in appearance over the complete piece of jewelry. This can then be set up on the bench pad, gripped with a pair of heavy duty tweezers, and held firm with a steel bench block. The point in the setting where the bead is broken off should be fluxed. I use a piece of sharpened pegwood to dip in flux and apply. The solder-coated gold sphere is then picked up with a solder pick; with heat applied to the setting the sphere applied with the pick until the solder flows enough so the pick can be removed. Enough heat can then be applied to flow the solder to make a good bond of the sphere to the setting (see Figure 2B, Point a).



FINISHING

This now has to be finished, since in all probability the solder will have flowed down onto the setting from the top and sides of the sphere if a good solder bond has been made. Choose a beading tool with a depression that will form about the same size bead as the others in the setting. It can be shaped by getting the tip located properly, exerting great downward pressure while moving the handle back and forth from the side of the stone in a direction of the center of the top table. This motion with pressure not only forms the bead but pushes it over the edge of the stone. When this happens it sometimes leaves a small ridge around the bead. This ridge—as well as any excess metal—can be cut away by using a flat bottom engravers graver. The graver can then be resharpened and the belly polished on 4/0 buff paper cemented to a square of plate glass until it has a mirror finish. This can then be used to brite cut around the bead and matched in with the brite cutting all around the stone. The repair can then be either pickled or boiled in water to remove the boric acid coating, then polished with tripoli and rouge. Clean it with ultrasonic or a brush using a prepared jewelry cleaning solution; rinse in water and dry.

USING GOLD WIRE

Here is a similar method of making a new bead. Instead of using a sphere coated with solder and applying it with a pick, a piece of gold wire is used. The preparation is the same except that the end of the wire is fluxed and a small amount of solder is flowed onto it. The wire end can then be soldered to the setting in the same location that the sphere would be applied. After it is adhered to the setting it can be cut off, leaving enough protruding to form the bead. If the soldered wire is over the edge of the stone it can be easily finished by using a cup bur in the flexshaft tool. (For location and application see Figure 2, Point b.)

To make this an easier solder joint and much stronger, drill a hole slightly below the surface where the old bead was broken. This will allow the gold wire to seat in it and depth to a fraction of a millimeter. If solder is placed on the wire just above the end and just melted onto the wire but not allowed to flow to the end, it will allow the wire to be seated in the depression made by the drill. After fluxing and applying heat, the solder can be pulled down the wire and into the depression and around the base of the wire. If this method is used but there is doubt concerning whether a good solder joint has been made, it can again be fluxed after it has been cut off, then reheated until the solder flows to your satisfaction.

Finish it as previously described.

REBUILDING CORNERS

In the case of miracle or illusion settings where the beads are worn thin or the part over the stone is all or partly worn away, usually the corners have been worn down below the level of the beads. Therefore, to make the repair properly the corners need to be rebuilt. Usually in such cases all four corners need to be rebuilt. However, if a new top is available it is more practical to use, but often one identical to the original is not.

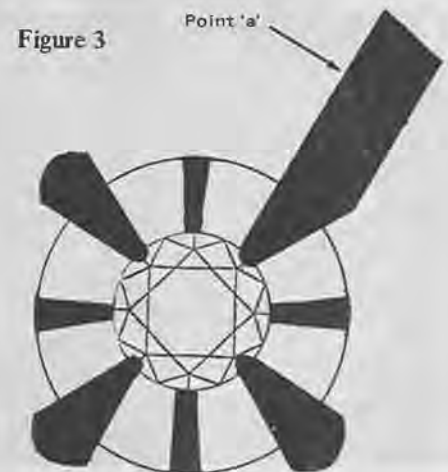
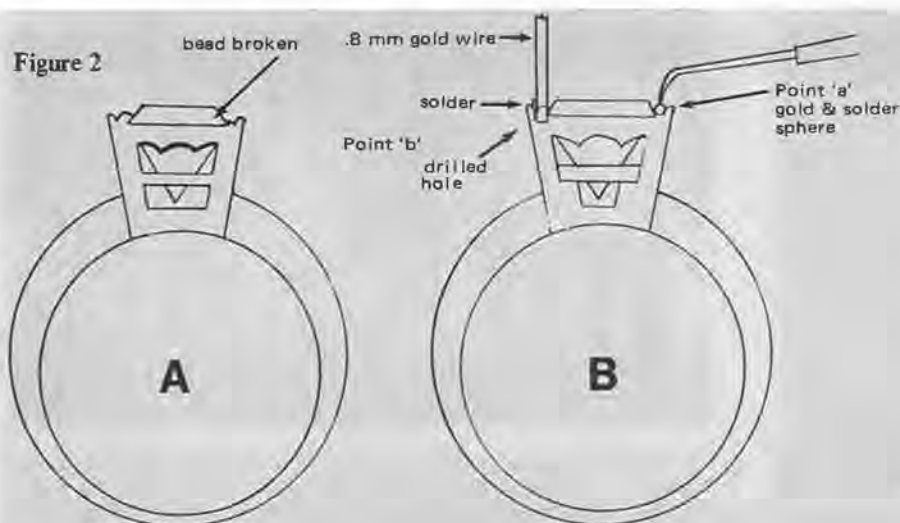
If the stone is still in place and it is a stone that will take heat, the metal can be added to the corners protruding over the stone by filing the corner until it is flat. Use a piece of flat gold of the same color as the setting and file the end in a V so the point of the V will be over the stone. This point will later be made to form the bead. The gold strip should be thick enough to bring the corner up high enough to make a protective protrusion above the bead. The ring should be prepared as usual by cleaning and using the protective alcohol and boric acid burn off, then the corner fluxed. In applying the flux it is always wise to first heat the place to be soldered. When it is touched with the flux brush the flux will sizzle slightly and turn white. In this way the flux can be applied and controlled or confined to the area that you want the solder to flow.

Next prepare the V end of the piece of gold. Flux one side at the point and back far enough that solder can be flowed from the point to make a good solder joint when applied to the setting. (Figure 3, Point a shows metal strip soldered to corner.)

FINISHING

To finish this, remember how the setting looked originally as there are many ways a top can look or a stone can be set. The first thing to do is cut the metal strip off at the corners with a jewelers saw. Using the saw, separate the point protruding over the stone into a protruding small square or diamond shape. Then with a beading tool form this into a dome-shaped bead. This will usually make it lower than the corners which can be finished in several ways, but should have more height than the bead giving protection to the bead against wear, bumps, or knocks. It can be finally finished as was previously described using the solder-covered sphere.

NOTE: IT IS IMPORTANT TO ANALYZE THE STONE SITUATION BEFORE STARTING ANY REPAIR REQUIRING HEAT. There is risk involved in putting heat on (Please turn to page 35)



American Watchmakers Institute Annual Meeting 1986

Fort Worth, Texas

From June 24 through June 29, 1986, AWI committees met at the Flagship Inn in Texas. Following is a pictorial story of the happenings.



A committee report from Charles Barnes, Michigan.



In session.



Howard Opp (left) after installing officers Bill Biederman, President; Wes Door, Secretary; Alice Carpenter, 2nd Vice President; Bob Bishop, 1st Vice President; and Marvin Whitney, Treasurer.



Immediate Past President Fred Burckhardt presenting new President William Biederman with gavel and badge of office.



Newly elected directors (left to right): Wes Door, Washington; Marvin Whitney, Virginia; David Fryday, California; Alice Carpenter, North Carolina; Jim Broughton, Ohio; and Marshall Richmond, Indiana. Not present was Bill Clary, Illinois.



Fred Burckhardt (left) receiving honors from Howard Opp.



Milton Stevens, Executive Secretary of AWI, receiving the Institute's most prestigious award: "Fellow, American Watchmakers Institute."



Retiring directors David Arnold, Bob Leach, and Bob Howell.



The Dick Lang Award presented by Howard Opp (right) to Jim Broughton. The honor was won by Chung Yun-ho of South Korea.



David Fryday, Affiliate Chapter Chairman, presenting the Chapter Annual Award to Minnesota. The award was received by Rudy Benson.



Jack Schecter delivering a farewell message upon celebrating his retirement from Seiko.



Incoming officers of the Research and Education Council are (left to right): James Burdette from Great Falls Vocational Technical Center in Montana as Secretary; Bill Clary from Parkland College in Illinois as Chairman; and George Lewis from Seattle Community College in Washington as Vice Chairman.



Bench instructor Calvin Sustachek updating the educators on the use of various types of testing equipment for quartz watches and clocks.



Affiliate Chapter Vice Chairman Tom White (left) from Arizona and Chairman David Fryday.



Scott Chou, Seiko Time Corporation.



President Burckhardt addressing the Affiliate Chapter representatives.



Affiliate representatives.



Education, Library, and Museum Trust directors Jim Broughton, Bob Nelson, Ewell Hartman, and Henry Fried. Mr. Nelson was chosen as Chairman. Director Josephine Hagans was not present.



AWI Chapter #102 of the National Watch and Clock Collectors Association.

More photos . . .





Fred Burckhardt

Phil the Watchmaker

An old friend, Phil Phieffer, called the other day. Phil and I worked together many years ago. The shop wasn't exactly a fun place. The foreman was an old Englishman who didn't believe in talking during working hours. Smoking was also banned—along with too many trips to the lavatory.

As you may have already guessed, Phil was a chain smoker, he loved to tell stories, and he had weak kidneys. The only reason he was able to hold onto his job was because he was a heck of a watchmaker.

One day, when Phil was between a puff and a flush, he was telling me about his uncle who gave up the jewelry business because he felt he could do better running a restaurant. It seemed his uncle wanted to specialize in certain kinds of food rather than the same old fare. He had steamed rhinoceros steaks, pangolin tail soup and musk ox tongue sauteed in sauerkraut juice. For some reason the restaurant didn't do much business. Phil's uncle figured it was because the menu wasn't unusual enough to attract customers. One day he went to the butcher's and bought an elephant's trunk, as they were on special that day. Then he went to the local stove shop and had an oven made. It was ten inches square and twelve feet long. He stuffed the trunk and baked it. Then he sliced it into one-inch thick slices. It went over big and the restaurant was a success. The nice part about it was there was no waste. Whatever was left over he sold as picnic lunches, telling the cus-

tomers to eat just the stuffing and use the rings as quarts.

In many ways, Phil was like his uncle. He was never satisfied with the ordinary, commonplace style of life. This carried through even into his watch repair work. When he finished with a watch, it looked like it had been worked on. He even polished down in the slots in the screwheads—not only the plate screws, even the balance wheel screws! Phil was not only meticulous; he was also scrupulous. In fact, he had scruples all over the place.

Phil didn't get along too well with the boss. Actually, nobody did. I guess it was because he had the personality of a bowl of soggy cornflakes. They argued all the time over the correct way to do a certain repair. Even if it could be done both ways, neither would budge an inch and admit the other was right. One time they went at it for three days about whether or not unbreakable mainsprings should be cleaned. It was funny that all during these heated arguments, at no time did Phil threaten to quit or did the boss threaten to fire him. As I look back now, I realize they needed each other as a check and balance arrangement.

One day the boss jumped on Phil for wasting so much time taking smoking breaks. Phil didn't say a word. He just walked over to his bench where he had a chronograph completely disassembled, and with one full swoop, sprayed the parts all over the shop. The boss, after seeing what Phil had done, looked Phil in the eyes and said, "I assume you are

quitting?" This was the type of person the boss was: quick to analyze the situation and come up with a brilliant remark. Phil answered, "That's right. There must be a better way to make a living!"

Remembering what had happened that day, I asked Phil what he had been doing all these years. He said that since he had a few dollars saved, he decided to travel around the country doing odd jobs. Some weren't too thrilling—like painting a stripe down the highway that ran across the Mojave Desert; picking peaches in Pomona; pruning trees in a kumquat forest; and milking armadillos on a ranch in South Texas. He mentioned once, while selling paint on an Indian reservation, he ran across some guy mumbling something about the future of the watchmaker. Finally, he admitted that he never was able to find a better way to make a living. After searching for several years, he was offered a job making tiny light bulbs to use in digital watches. He did such a good job that he was promoted to the engineering department where they were working on the development of quartz analog watches. His job was to make sure that no two watches could use the same size battery. Ask any watchmaker and they'll tell you how suc-

cessful he was at his job.

This was just the start of Phil's career in the watch field. He went on to design watch crystals that need those little plastic seats; sliding catches on watch bands—guaranteed to slip off and get lost; watch bands that are designed for specially fitted cases that would become obsolete after six months; snap-open cases where the back had no recess or lip where it could be pried open. I believe he also mentioned helping with the ladies' watch where you have to hold the case with one hand, use a screwdriver to pry up the stem release with the other hand, and pull the stem out with the other hand.

Phil and I must have talked for an hour and a half. He had an appointment to meet with several big shots from one of the watch companies. He's going to submit a proposal of a design for a new type watch. If I'm not mistaken, he said it would be powered by a mainspring, would have to be wound by hand, and had wheels and something called an escapement with a balance wheel. Sounds too wild for me. I doubt if it will ever go over!

TMB

BOOK REVIEW

(Continued from page 25)

of boxes might well agree. Graham Webb recounts their rapid and enduring success which continued until 1919.

The addition of bells to the disc player box made some more appealing if very expensive. Rare musical disc boxes (the title of one chapter) mentions belled players, those with small discs, coin operated devices, elaborately decorated wooden cabinets, reed organ attachments, automatic disc changers, and clocks with disc players.

A chapter on choosing a disc musical box mentions what to examine, such as sound, comb condition, tuning weights, dampers and their importance, also the condition of the discs, running condition and casework. Some good drawings illustrate areas of inspection.

To many, who aside from repairing clocks also service these devices, the meat of this book is its 10 chapters on the repair of disc musical boxes. These chapter headings include cleaning the movement, restoring the box case, care and repair of discs, and some minor repairs. Also, the replacing of some broken comb teeth, replacing the lead weights, rust removing, and adjusting dampers and brakes are covered with many drawings.

A chapter on over 60 makes of scales for tuning the combs should prove very helpful. A list of makers and their agents with a short bibliography which should have included more references completes this volume. The drawings are good and instructive and a fine reference for history, dating and identification, but best of all a good manual as well for the repairer.

Henry B. Fried

TMB

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WATCHES *Inside & Out!*

Ben Matz



A Wrong Watch Part A Lost Customer

For want of a nail the shoe is lost, for want of a shoe the horse is lost, for want of a horse the rider is lost, for want of a rider the battle is lost."

This adage, one of the oldest in the English language, was based on the story of a rider who had to convey a critical message to his general. Before leaving on his mission, he checked his horse's hooves and discovered a missing nail from one of the shoes. He decided it was too insignificant and too unimportant to bother with. The result was the chain of events that ended in disaster.

Watch repairers have long discovered the lesson of this proverb. They know that for "want of a watch part" a customer may be lost. It would follow from this that watch repairers, to ensure the delivery of correct parts, would exercise extraordinary care when ordering material. But too often this is not the case.

Can it be that watch repairers so resent the paperwork and find it such an irritating nuisance, that ordering material is treated as though it were "unimportant" and "insignificant"?

What else can account for the many follow-up phone calls, repeat letters, and unnecessary trips to the material house? What else can account for the duplicated shipments, exchanges, refunds, and job delays? All this results in the terrible frustration of the jobber, watch repairer, and customer.

What can be done to solve this? Careless and haphazard ordering does not alleviate the burden, it increases it. Perhaps this situation could be improved by an awareness of the most common errors made. To determine what these are, I queried material houses and material departments of major companies. They reported that the errors made most frequently are these:

MOVEMENTS

1. Using irrelevant identification numbers such as serial or battery numbers imprinted on the movement or case.

2. Omitting identification numbers altogether.
3. Using wrong part numbers.
4. Omitting part numbers.
5. Instead of using part numbers, giving location and function such as "I need the first reverse wheel that connects with the oscillating gear".
6. Using the name of the part rather than its number. Often a part name varies with the manufacturer. The same part can be called a yoke or a set bridge.
7. Omitting specifics for parts used in the same movement which vary in height or form such as cannon pinions or escape wheel pivots.

CASES

1. Using irrelevant identification numbers such as serial numbers, production stampings, etc.
2. Omitting case numbers.
3. Requesting case parts without giving its basic case reference number.
4. Omitting case part numbers when different from the case number.

Now let's see how these problems can be overcome by correct ordering.

MOVEMENTS

1. Check for identification under balance bridge, train bridge, oscillating weight, etc.
2. If not in these usual places, check under battery, on main plate under dial, etc.
3. If all else fails, send the movement.
4. For correct part number and name, check catalog, microfiche, or technical bulletin.
5. If variants exist, specify heights of parts such as cannon pinions, hour wheels, sweep pinions, sweep

second wheels, batteries. Or specify construction of parts such as escape wheels (pivots) and regulators.

6. If description of location and function of a part is necessary, submit a carefully drawn sketch of the part and its interconnections.

CASES

1. Submit case number when requesting case parts. Generally, the case designation is the basic reference number for all case components. However, in some rare instances, the case part has its own number imprinted on the part itself.
2. Specify color (except for gaskets, springs, etc.). Most cases bearing the same reference number are made in yellow and white. Orders for crowns, buttons, bezel rings, armored rings, crystals with masks, attachments, dials, etc. must specify color as well as reference number.
3. If no reference number is found, submit the complete case. Sending the bezel alone for a part such as crystal, crown, etc. means that the supplier must physically match parts, a time consuming operation which will undoubtedly delay shipment. Therefore, always include the back which contains the basic case reference number.

To summarize—ordering may be a nuisance but it is an integral part of the entire servicing operation. It means obtaining and using as much reference material as possible. It means carefully examining movements and cases for correct identification markings.

It also means becoming familiar with the identification marking patterns used by various companies. For instance, Bulova identified its mechanical movements with a ligne size number followed by letters (example: 5 AZ or 11 AN). On later models it adopted an all numerical code consisting of four digits followed by a two digit decimal such as 1000.10 or 1351.10. Learning the patterns used by the companies enables you to obtain the correct designations when there are multiple markings on the movement or case.

Finally, it means including all the details in writing up or phoning in an order. It might help to have a permanent reminder available in your order book for problem items. Examples follow:

WHEN ORDERING

CANNON PINIONS	SWEEP SECOND WHEELS
OUR WHEELS	BATTERIES

include

- factory and caliber number _____
- part name _____
- part number _____
- height when there are variants _____

WHEN ORDERING

CROWNS	BEZEL RINGS
BUTTONS	CRYSTALS WITH MASKS
BEZELS	ARMORED RINGS
DIALS	ATTACHMENTS

include

- factory name _____
- case number _____
- part number _____
(if different from case number)
- color _____

Material suppliers also stressed being prepared. "Plan before you order, not while you order," one of them said. "Don't phone and say, 'I want a dozen, no make it two,' or 'Wait a minute, I need another item. Let me see, what was it?'"

They were also concerned about legibility and accuracy when writing orders. "Often we can't decipher the handwriting or the numbers."

In conclusion, following the above guidelines should result in a smoother operation with less wear and tear on all concerned. And it will never be said of you that through your negligence a customer was lost due to "lack of a nail".

JAMES

PICKLE BARREL

(Continued from page 27)


any stone. It should first be evaluated as to whether the risk is worth trying to make the repair without removing the stone. We all must take a certain amount of risk—even in getting out of bed in the morning. In many cases with experience heat can be applied to many repairs without stone removal which saves lots of time. This is a personal judgement; highly valuable or heirloom stones should *always* be removed before applying heat . . . and even then there is risk involved in damaging them.

I plan to devote the next 12 articles of "Pickle Barrel" to a basic course in jewelry repair. The next issue will discuss tools and equipment.

JAMES

From the Manuscript and Photo Library of Orville R. Hagans, FAWI, CMW, CMC, FBHI, FNAWCC



WE WANT TO GIVE CREDIT WHERE CREDIT IS DUE: Last month's article "Unknown Father of the Talkies" was ran without our giving proper credit to *The Jewelers' Circular-Keystone*, from which the story was taken. Written by Gove Hambidge, the article dealt with the late Charles Edgar Fritts, for many years the technical editor of *The Jewelers' Circular*. It was published by them September 1935. We apologize to the *JCK*. 

WATCHES OF STEEL

The long and misty story of steel has an early link with mechanical horology. The first metal used in the making of clocks and watches was for the most part iron, and then came steel which has ever remained common to the making of arbors and pinions in the train of clockwork.

In the 17th century steel was used in some cases for practically every part of a clock or watch, including their cases. We have examples of very ornate clock cases in classical design made of polished and matted steel, and in some instances damascened with precious metals.

Joliet, Illinois has been a place of steel in state history and it is interesting when we learn that when Joliet surveyed the site of Chicago in the 'Prairie State' in 1673 he used a steel watch in the timing of his survey observations. France was the home of the steel watch in those days, and this particular timepiece within a steel case in a blue finish covered with filigree plates of solid gold was the fashion at Court. The Martinot family of Paris were the Court horologists for many generations and Joliet was a relation in the grand-maternal line. There were Joliet's also in the trade in provincial France. Joliet had six steel watches made in Paris which he gave to his friends in America. In those pioneering days a watch was indeed a treasure—and a wonderful gift.

Joliet's own watch was square in shape as the one of the same period here illustrated, and the steel case was covered with an ornate floral pattern of filigree brass. It was, of course, the long ribbon of steel tightly coiled on an arbor which made



the pocket or travelling watch possible and was used by Peter Hele, an horologist of Nuremberg about 1504. The steel motive power for clocks and watches has come down to our day and naturally stainless steel watch and clock cases are in the latest horological fashion. So, watches of steel have an ancient link with the history of the Middle West.



BENCH COURSES

AUGUST 1986

17	T	Nashville, TN	BROUGHTON
17	T	Boston, MA	CARPENTER
17-18	W	Newark, NJ	GEIGER

SEPTEMBER 1986

6	T	Denver, CO	CARPENTER
7	T	Kansas City, MO	CARPENTER
13-15	U	San Francisco, CA	PERKINS
14	T	Austin, TX	BROUGHTON
14-17	M	Seattle, WA	BAIER
21	D	St. Paul, MN	SMITH
28	T	Columbus, OH	BROUGHTON

OCTOBER 1986

5	T	Richmond, VA	CARPENTER
6-10	N	Kansas City, MO	IVERSON and LaCHAPELLE
12	T	Huntsville, AL	BROUGHTON
18-19	W	San Francisco, CA	GEIGER
19	A	Baltimore, MD	JAEGER
22-24	I	Cincinnati, OH	PERKINS
25-27	U	Cincinnati, OH	PERKINS

NOVEMBER 1986

9	T	Philadelphia, PA	CARPENTER
9	T	Pittsburgh, PA	BROUGHTON
16	T	Kansas City, MO	CARPENTER

FEBRUARY 1987

8	T	Baltimore, MD	BROUGHTON
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- D Seiko Quartz CombosLeslie L. Smith, CMW, CEWS
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- F Common Sense Quartz Watch Repair.Robert F. Bishop
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961.101William Biederman, CMW
- H ESA Analog Quartz RepairJames Adams, CMW
- I Using the Watchmakers LatheArchie B. Perkins, CMW
- L Introduction to Striking Clocks.Joseph G. Baier, Ph.D., CMC, CMW
- M Striking Clocks—Advanced SeminarJoseph G. Baier, Ph.D., CMC, CMW
- N Introduction to Clock RepairRon Iverson and Jim LaChapelle
- R Introduction to Jewelry Skills.Marshall F. Richmond, CMW
- S Management Seminar.Fred S. Burckhardt
- T RetrofittingBuddy Carpenter, CEWS
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- U Advanced Lathe CourseArchie B. Perkins, CMW
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Affiliate Chapter Column

David H. Fryday



Increasing Membership Base

Each year we must strive to increase the membership base in our guilds. This job is the responsibility of each and every member in every association throughout this country. Now is the time to take action to vitalize our guilds.

Recently I heard a realtor state that there are three things which determine the value of property: location, location, and location. Although this explanation is simplistic, it is analogous to determining the value of our local guilds. The value of our local guilds can be determined by three things: programming, programming, and programming. Good guilds are the result of good programming. Our local guild feels that by excellence in its programming it can keep pace with the evolution of its membership.

As a director of your local guild, you must determine what the membership needs in order to focus the programming in their direction. To determine their needs, you must communicate with the individual members. The most basic way is to talk to the members in person or by phone. This form of canvassing will result in grassroots support for tried and true programs, and hopefully develop new ideas. The director must listen to what the member is suggesting with an open mind. Even experienced leaders do not know how well an idea will work until it is tried.

A second method for determining the interests of the membership is by surveying the group. A survey could be passed out at meetings, included with annual membership renewal forms, or printed in the newsletter. The survey should include old program ideas, new ideas, and even farfetched ideas. In the surveys we tried in our area we were surprised to find support for programs that had been run many times. We had overlooked these programs that were still needed. Likewise, some of the farfetched ideas got surprising support and we tried producing these programs.

As a member of a local guild you also have the responsibility of helping the programming by including your

own input. When an officer contacts you about your interests, this is an opportunity to give constructive help. The directors of your organization have to give up much of their free time to keep the organization functioning and sometimes do not notice the changing needs of the membership. You can be of great help. Let the officers know what you need or would like to see. Similarly, you must respond to surveys. Much time and planning goes into the development of a survey and with the survey the organization can get its fingers on the pulse of the membership. With your completed surveys, the guild can better serve you and the rest of the membership.

As an officer of your organization, you are ultimately responsible for arranging the events to be sponsored by your guild. The mainstay of programming in our local organization over the last 10 years has been the bench course for watch repair. Although interest is waning somewhat in these courses, they still draw members to the meetings. The AWI has a plethora of bench courses and well prepared instructors to teach these courses. Write AWI Central for a listing of courses and programs if you do not have one for the current year. All of these bench courses will not be available forever. If your group is interested in a particular one, you better book it while it is still readily available. Of course there are new courses being developed. Of particular note in 1986 is a new course by Buddy Carpenter and James Broughton on retrofitting quartz movements.

In addition to bench courses, we have tried many of the varied slide, film, and video programs from the AWI Library. These slide programs all have valuable tidbits of information. We have tried, and are enthusiastic about "The Key Test for Quartz Analog Watches" by Ewell Hartman. This is a program which is a self-administered bench course useful for groups from three to 12 watchmakers. The instructions are on tape and the watchmakers may proceed at their own pace.

When the programs we wanted were not available

from AWI, some of our own members developed their own programs. We have produced programs on Accutron repair, meter reading and basic electricity, and on clock repair. Other sources of programs can be had from watch and movement manufacturers. We have utilized these programs. One by one, however, the manufacturers are expressing less interest in training the watchmakers. In our area we have produced trade shows which have been popular. When combined with round table discussions and other entertainment, the trade shows have been well attended. Each year we have an annual convention. Rather than being held at our regular meeting place, these conventions have generally been held outside our immediate geographical area. The membership attending is usually a small group of watchmakers, but all attending agree that the convention is of great value.

Finally, meetings can be had on topics tangentially related to the subject of our daily profession, such as computers, gemology, management, or marketing. We have had computer companies make presentations of an educational nature to our group regarding the innovation of this new technology and its potential usefulness to watchmakers. We have had a local geologist/gemologist make a presentation and bring samples of rocks found in our state containing gemstone

material. These rough minerals were contrasted to the finished cut gemstones. Fred Burckhardt has come to our organization to speak on this subject. He related gemology to our repair work explaining in detail the care we should take with gemstones we would encounter regularly. Mr. Burckhardt has also developed a "Two-day Management Seminar for Jewelers and Watchmakers" designed for owners, managers, and those aspiring to such a position. This program has been well received.

The question of how to stimulate membership must be answered with an aggressive revitalization of our programming. In addition to our normal attrition of members due to retirement or relocation, some of our members have indicated loss of interest due to boredom with our organizations or failure to see any personal benefit in the content of our present programs. As members or leaders of our horological organizations, it is our individual and collective responsibility to insist on excellence in the programs we sponsor. The improvement of today's educational development will benefit us personally and will guarantee the future of those who follow in our footsteps.

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If you are a member of a guild or association or school, please indicate:
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 Number _____



...from all around the ASSOCIATION...

PENNSYLVANIA

The Watchmakers Association of Pennsylvania inaugurated the Susquehanna Valley Guild into their organization on June 1, 1986. Formed in the Wilkes-Barre, Scranton and Bloomsburg area, it is the fifth guild for Pennsylvania.

Elected officers are: James Moersh, president; Al Norcross, vice-president; and Mark Margowage, secretary/treasurer.

Anyone in the Susquehanna Valley area that would like more information on this new guild can contact Mr. James Moersh, 239 Iron St., Bloomsburg, PA, business (717) 784-1215, home (717) 784-5072. The first meeting will be held sometime in September.

CALIFORNIA



Pictured above receiving the new charter for the San Diego Watchmakers and Jewelers Guild are, left to right: William Solchaga, secretary; Carl Goldberg, president; James Adams, AWI instructor; and Norbert Rick, treasurer. Mr. Adams presented the new charter to the guild while he was in San Diego to give his course on ESA Analog Quartz Repair.

NORTH CAROLINA

The North Carolina Watchmakers Association held its annual convention June 6-8, 1986 at the Radisson Hotel in High Point, NC. This year's program included a short version of Buddy Carpenter's Retrofitting course; a discussion by Marty Berzon of Cyma on problems in quartz repair, and Jim Stewart of Stewart's International School for Jewelers discussed practices for the bench jeweler. James Lazarus of L&R Manufacturing was the after dinner speaker.

The C.E. Kneeburg Memorial Award was presented to the Golden Triad Watchmakers Guild. The award is presented annually by the Piedmont Crescent Guild to an individual or group "for outstanding contribution toward the advancement of watchmaking in North Carolina". Gerry Pettera, guild president, accepted the award on behalf of the guild.

NEW JERSEY



Buy, Sell and Swap Night at Watchmakers' Association of New Jersey featured an auction. Board Chairman Joseph Cerullo was auctioneer and President John Sokol was cashier. Buyers took home a wide assortment of relics and rarities donated by members and the association's treasury got a good boost.

CONVENTIONS

*Nebraska & South Dakota Jewelers Association
81st Annual Convention
August 22, 23 & 24, 1986
Ramada Inn - Kearney, NE*

*Iowa Jewelers and Watchmakers Association
Convention and Trade Show
September 13-14, 1986
Des Moines Marriott Hotel - Des Moines, IA*

*North Dakota Jewelers and Watchmakers Association
Convention and Trade Show
September 13-14, 1986
Seven Seas Motor Inn - Mandan, ND*

*New York State Watchmakers Association
48th Annual Convention
September 26-28, 1986
Waterloo Holiday Inn - Waterloo, NY*

*Arizona Horological Association Convention
September 27, 1986
Hassayampa Inn - Prescott, AZ*

*Horological Association of Indiana
Annual Convention
September 27-28, 1986
Holiday Inn Southeast - Indianapolis, IN*

*Florida State Watchmakers Association Convention
October 24, 25 & 26, 1986
Palm Beach, FL*

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AWI's promotion department has prepared a series of professional advertisements designed to help you sell your products and services to your community. Simply call your local newspaper, magazine, or service publication and ask them to add your name, address, and telephone number in the area provided. These ads mean business for you! NOTE: Ad layouts in the kits are approximately 50% larger than reduced versions used in this advertisement.

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New Products and Literature

SEIKO'S GRAY GRID NEW MEMBER OF SPORTS 100 COLLECTION

One of the latest additions to the Seiko "Sports 100" family is Seiko's high-tech quartz watch for men.

A hint of red sweeps the gray grid on the round dial of this watch. The grid is surrounded by a solid gray border which holds white hour marker and a day/date calendar. The new Seiko Sports 100 watch has a silver gray band and is water tested to 100 meters (300 feet).

Seiko Sports 100 watches are available from Seiko's nationwide network of distributors.



Seiko Sports 100 Watch

GOLD RECOVERY SINK FROM GAMZON

Gamzon Bros., Inc. is featuring a gold recovery sink. This polypropylene unit has a sink top, three compartments for settling and an enclosed motor and pump with a polypropylene filter for recovering minute particles of gold. Usually five feet wide by

two feet deep, special sizes can also be manufactured.

For further information contact Gamzon Bros., Inc., 21 West 46th Street, New York, NY 10036. Tel: (212) 719-2550, outside New York state call (800) 223-6464.

ASSURANCE DIAMOND TESTER

Take the guesswork out of diamond identification with Gesswein's new Assurance Diamond Tester.

The tester measures thermal conductivity and instantly distinguishes genuine diamonds from all simulations. It gives instant readings on any stone one point or above, whether it be loose, set, rough, or polished.

The space age micro-electronics of this diamond tester offers speed and extremely accurate readings. The easy-to-use tester is completely portable for accurate, professional results anywhere. It has a full 2-year repair or replacement warranty.

For further information contact Gesswein, 255 Hancock Ave., Bridgeport, CT 06605, (203) 366-5400.



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Concord's "Centurion" collection is reinforced by a prestigious model based on state-of-the-art technology. Its dual-quartz movement provides extremely high precision—a variation of ± 10 seconds a year. Called "Grande Precision", this watch is available in 18K gold and is water-resistant to 30 m. For more information contact Concord, 650 Fifth Ave., New York, NY 10019, (212) 397-7800.

ANTI-SLIP MATS

Solder Absorbing Tech. has an answer to those slippery problems that can occur in the workshop, lab, office, and home. It's called the Stopslip™ mat. The number of applications is endless.

Because of its inherent tackiness, any item placed upon its surface will stick there as if glued without leaving any traces either on the table or on the object. Made from hard-wearing material, it is extremely long lasting and needs only an occasional wash with warm soapy water to remove accumulated dust and other debris and restore the original tackiness. Stopslip is available in various sizes, and thicknesses of 2 and 3 mm.

It can also be cut to required sizes with scissors.

For further information and sample call toll-free 1-800-628-8862 (in MA 413-788-6191) or write to Solder Absorbing Tech. Inc., 144 Oakland Street, Springfield, MA 01108.



Stopslip Mat

NEW CHARM DISPLAY BOASTS MANY EXTRAS

This portable charm display makes it easy to display charms from any direction. Customers see the charms from either side plus the front as they approach the display. It folds up like a book for easy handling. Holding over 200 charms it measures only 14 x 8½ x 6" deep when folded. Complete with a turntable, it takes up less room than two standard size easels yet has over twice the capacity. Each of the three wings is 14 inches high by 8½ inches wide when open. It is permanent till you decide to close it which takes only a few seconds. The display is made with ½ inch thick foam rubber rather than the 1/8 inch thick padding normally used. This gives the 250 U-shaped jewelers pins provided a much better holding power to help prevent pilferage. The display is covered with velvet which attaches to the Velcro covered turntable. Individual pads are provided that fit between the wings when closed to cushion the charms and prevent them from touching each other.

Available free when accompanied by a charm order. A complete catalog is available from **LCS Manufacturing Co., Dept. C., 2510 E. Mercer Lane, Phoenix, AZ 85028** or call (602) 971-1243.



Portable Charm Display

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An all-inclusive kit, selected by the Gemological Association of Great Britain, is now available from Kassoy. This basic group of quality instruments will give the retail jeweler an efficient cost effective method of precious stone identification and analysis.

All instruments are reliable and easy to use. This set is ideal for testing your own merchandise or answering customer questions. The kit includes the internationally accepted book by G.M. Anderson, "Gem Testing". The entire kit (GM2716) retails for \$1495.00.

For more information contact: **KASSOY, 32 W 47th Street, New York, NY 10036** or call toll free 1-800-1-KASSOY.



Kassoy's Gemological Kit

SWEST PUBLISHES FINDINGS AND STONE: SUPPLEMENT

Swest, Inc. has released a new Findings and Stones Supplement. The 20-page catalog contains the newest additions to Swest's extensive lines of 14K gold, sterling silver, and gold-filled jewelry findings. It also provides an updated listing of sizes and prices for genuine and synthetic stones available from Swest's offices in Dallas, Los Angeles, and Atlanta. For a free copy, contact: **Swest, Advertising Dept., P.O. Box 20938, Dallas, TX 75220; (214) 350-4011**



The cherry cabinet of the "Haverhill" (#610-363) by Howard Miller has a high lustrous furniture finish, finely figured inlays of rare Carpathian elm burl, a high-rise arch pediment accented by a shell carving, and a step base that compliments the pediment design with three elm burl overlays. Framing the beveled glass door, beveled glass sides and glass escapement panels are reeded columns with a turned urn base and matching column caps. The Arabic numeral dial is etched throughout with an open center exposing the movement gears, and the blue astrological moon phase features raised moons with an etched and filled arch. The clock has a deluxe cable-driven pendulum movement playing Westminster, Whittington and St. Michael chimes and comes with a brass plate for engraving its initial owner's name and date of purchase. Suggested retail is \$1895. Dimensions: 80-1/2"H x 24-1/4"W x 13-3/8"D. Contact **Howard Miller Clock Company, 860 East Main St., Zeeland, MI 49464, (616) 772-9131.**

FIFTH HONG KONG WATCH & CLOCK FAIR SET FOR SEPTEMBER '86

The 5th Hong Kong Watch & Clock Fair will be held this year in the territory's Miramar Hotel from September 8-11. In addition to the Trade Development Council, the show will be co-organized by the Federation of Hong Kong Watch Trades and Industries Ltd. and the Hong Kong Watch Manufacturers Association Ltd.

This particular exhibition is looked upon by some of the world's top watch and clock traders as one of the most important shows of its kind because Hong Kong is today the world's largest supplier of watches in terms of quantity, a spokesman for the show states. This year's exhibition will have an estimated 140 manufacturers and exporters taking part. Last year's show attracted nearly 4500 overseas buyers. An added highlight this year will be the Hong Kong Watch & Clock Design Contest.

The United States remains Hong Kong's largest trading partner accounting for 40% of the territory's total watch and clock exports last year. Exports of complete watches to the U.S. rose by 15% of which analog watches formed the largest item.

For more information concerning the Watch & Clock Fair contact: **Hong Kong Trade Development Council, 548 Fifth Ave., New York, NY 10036; (212) 730-0777.**

TIMEX RECOGNIZED FOR CONSUMER RELATIONS PROGRAM

Timex Corp. received a Gold Star Award during National Consumers Week, April 20-26, from Arkansas Attorney General Steve Clark in recognition of its outstanding consumer relations program. Timex, headquartered in

Middlebury, CT, has a major service center in Little Rock, AR where a large portion of repairs and all merchandise returns are sent.

Attorney General Clark stated, "With the volume of timepieces produced by the various manufacturing centers of this company, eventually even Timex will have a product that does not function properly all the time. Timex recognizes this possibility and through their Consumer Service Department makes amends for any imperfections which may escape into the marketplace."

The Attorney General's Office of Arkansas is listed in many national consumer publications as a reference for consumer complaints and is often contacted by out-of-state consumers about the repair or replacement of their watches. Therefore, the Attorney General's office maintains a close working relationship with Timex's Customer Service Department.

National Consumer Week's Gold Star Award recognizes businesses and individuals whose efforts contribute greatly to consumer protection and education.

CAS-KER NOW DISTRIBUTOR OF PORTESCAP U.S.

The Cas-Ker Company has announced it has been appointed an authorized distributor of Portescap U.S. products.

The line consists of cleaning and timing machines for watches, engraving machines, ultrasonic cleaning machines, and polishing and soldering equipment. With the addition of the Portescap U.S. line, Cas-Ker now offers a complete line of watch timing and testing equipment in the U.S.

The company's address is **2121 Spring Grove Avenue, P.O. Box 14069, Cincinnati, OH 45214.**



Attorney General Steven Clark awards Timex representatives Gerald White, Linda McCumpsey, and Letha Watkins with the Gold Star Award at the National Consumers Week in Little Rock, Arkansas.



WINNERS OF PULSAR'S CONTEST TOUR JAPAN

Gilbert A. Berman (third from left) and his wife Mardian, grand prize winners of Pulsar's "Guess the Date" contest are shown visiting Pulsar's watch factory located in the scenic Japanese Alps.

During their free trip to Japan, the Bermans enjoyed one week of leisure and cultural activities as well as a tour of the Suwa facility. They visited the cities of Tokyo and Kyoto during the height of the cherry blossom season. Throughout the all-expense paid, one-week trip they were graciously hosted by Pulsar representatives.

Berman, co-owner with his brother Robert of two jewelry stores in Wilmington, DE, entered Pulsar's contest last year at the Jewelers of America Show in New York City. Pulsar held the contest to commemorate the sale of their 10 millionth watch. This was achieved in a span of six years since Pulsar began marketing the watch brand in the United States in 1979.



Frank Massa

MASSA JOINS BULOVA

Frank D. Massa has joined Bulova Watch Company as a sales representative, it was announced by Tibor Kentey, the company's national sales manager.

Massa, who brings to Bulova 11 years of sales experience in the jewelry industry, is an Indiana Registered Watchmaker and a member of the National Association of Watch and Clock Collectors.

A resident of Elkhart, IN, Mr. Massa will be responsible for sales in Northern Indiana, Western Michigan, and Eastern Ohio.

TISSOT WATCHES SALUTES AMERICAN VALEDICTORIANS

Tissot Watches of Switzerland recently inaugurated "The Tissot Watch Award for Excellence" to honor outstanding scholars among this year's high school graduating classes in three American cities (Chicago, Boston, and Rockville).

The Tissot Watch Award for Excellence program is designed as a salute to the spirit of achievement that conquers classroom pressures and motivates a success-oriented attitude. Tissot conceived this program to applaud students who stay in

school and graduate with distinction.

The events received acceptance and support from the Mayor's Offices and Boards of Education, as well as key officials from a leading store in each location. Each valedictorian received an engraved classic Tissot men's and women's watch; In Rockville, the students each received a Rock-Watch, a recent Tissot market entry, carved from Alpine granite.

BULOVA SUCCESSFUL IN LAWSUIT

On June 9, 1986, the United States District Court for the Central District of California entered a permanent injunction against jewelry retailer Leon Weiss, European American Sales Corp., and various other companies and persons, permanently barring them from advertising, importing, distributing, or selling Bulova watches which were not imported into North America by the Bulova Watch Co., Inc. Entry of the injunction terminates Bulova Watch Co., Inc.'s lawsuit, which was begun in September 1984, against the parties. The lawsuit had sought such a permanent injunction.

Andrew H. Tisch, president of Bulova, said, "I'm very pleased with the outcome of this action because it confirms what we have said all along — that Bulova will take all legal steps necessary to protect its name, products, and distribution."

GIA ACCEPTING 1986 MACK SCHOLARSHIP APPLICANTS

The Irene K. Mack Memorial Scholarship for correspondence courses offered by the Gemological Institute of America is now available to applicants through



ABOVE:

The Chicago Valedictorians received the Tissot Valedictorian Watch Award presented at Carson Pirie Scott auditorium. Front row (L to R): Neil Ramo, President, Carson Pirie Scott; Morris Pennington, Vice President, Tissot Watches; Howard Stanback, Mayor Washington's Educational Advisor. The students were honored for their academic achievement.

BELOW:

The Boston Valedictorians received the Tissot Valedictorian Watch Award presented at Boston City Hall. Standing center front: Dr. Laval Wilson, Superintendent of Boston Public Schools.



September 30, 1986. The two annual scholarships are for full tuition in the GIA Home Study Colored Stone Grading and Jewelry Sales courses.

The scholarships were established in 1985 by Irene Mack's family in honor of her long involvement in the jewelry industry and to give young people opportunities in the business.

Eligible candidates for the Colored Stone Grading Scholarship must have completed the GIA Colored Stone course or

FGA in 1985. Applicants for the Jewelry Sales Scholarship must have been between 16 and 30 years of age as of October 15, 1985. Candidates must be U.S. citizens or legal residents. Separate applications are required for each scholarship.

Interested applicants can contact Booker Williams, GIA Financial Aid Officer, 1660 Stewart St., Santa Monica, CA 90404, or call 1(800) 421-7250.

Classified Ads

Ads are payable in advance \$.50 per word, \$.60 per word in bold type. Ads are not commissionable or discountable. The publisher reserves the right to edit all copy. Price lists of services will not be accepted. Confidential ads are \$4.00 additional for postage and handling. **Classified Display Ads** are \$25.00 per column inch. The first of the month is issue date. Copy must be received 30 days in advance (e.g. Feb. issue closes for copy on January 1). *Horological Times*, P.O. Box 11011, 3700 Harrison Ave., Cincinnati, OH 45211; (513) 661-3838.

TRADESMEN

CLOCKS: gearcutting, retoothing, repivoting, rebushing, jewelery. **REPAIRING:** Chronographs/timers, fusees, aircraft clocks, antique clocks/pocket watches. Send sample for estimate. **SASE. NIEGELS HOROLOGY**, Roy Niegel, CMC, CMW, 101 E. St. Joe Drive, Spirit Lake, ID 83869. (208) 623-4330. (tf)

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SCHOOLS

Correspondence courses in Quartz-Accutron-Watchmaking-Jewelry-Lost Wax Casting and Rubber Mold Making. Free folders. Watchmaking Institute of Canada, 1012 Mt-Royal St. East, Montreal, H2J 1X6; (514) 523-7623. (tf)

Jewelry/Watch Retail or Repair Business. I am a well-trained professional of 38 with an FGA doing GIA and trained at bench on watch repair, jewelry repair, and stone setting. Currently employed with major chain as manager. I want to buy into an ethical, well-run and profitable business related to the jewelry industry. The business should net at least 50,000 per year after all taxes, etc. I can put down approx. 35,000 cash. Please send details and complete information to: Box 0686-1, *Horological Times*, P.O. Box 11011, 3700 Harrison, Cincinnati, OH 45211.

Dates To Remember

AUGUST 1986

- 9-11—Mississippi Jewelers Association Convention; Royal D'berville Hotel, West Beach, Biloxi, MS.
- 17—Retrofitting Bench Course (AWI); James Broughton, instructor; Nashville, TN.
- 17—Retrofitting Bench Course (AWI); Buddy Carpenter, instructor; Boston, MA.
- 17-18—Restoration of Fusee Watches Bench Course (AWI); Ralph Geiger, instructor; Newark, NJ.
- 22-24—Nebraska & South Dakota Jewelers Association 81st Annual Convention; Ramada Inn; Kearney, NE.
- 23-24—Minnesota Jewelers Association Fall Convention and Trade Show; Radisson South Hotel, Bloomington, MN; (612) 483-3613.
- 23-27—Frankfurt International Autumn Fair, Frankfurt Fairgrounds, Frankfurt, West Germany; (212) 974-8856.
- 28-31—European Watch, Clock and Jewellery Fair-Singapore '86; Hyatt Regency; Singapore; Telex: 62 685 fairs ch.
- 31-4—International Watch, Jewellery and Silver Trades Fair; Earls Court; London, England; (212) 593-2258.

SEPTEMBER 1986

- 5-7—Intermountain Jewelers Association 25th Silver Jubilee Convention; Elkhorn Resort; Sun Valley, Idaho.
- 5-7—Tennessee Jewelers Convention, Marriott Hotel; Nashville, TN; (615) 893-9162.
- 5-10—Bijorhca: Fall International Jewelry, Clocks & Gifts Exhibition; Porte de Versailles, Paris, France. (212) 869-1720.
- 6—Retrofitting Bench Course (AWI); Buddy Carpenter, instructor; Denver, CO.
- 7—Retrofitting Bench Course (AWI); Buddy Carpenter, instructor; Kansas City, MO.
- 13-14—Iowa Jewelers and Watchmakers Association Convention and Trade Show; Des Moines Marriott Hotel; Des Moines, IA; (515) 274-1596.
- 13-14—North Dakota Jewelers and Watchmakers Association Convention and Trade Show; Seven Seas Motor Inn; Mandan, ND; (701) 667-2836.
- 13-15—Advanced Lathe Bench Course (AWI); Archie B. Perkins, instructor; San Francisco, CA.
- 14—Retrofitting Bench Course (AWI); James Broughton, instructor; Austin, TX.

- 14-17—Striking Clocks - Advanced Seminar (AWI); Joseph G. Baier, instructor; Seattle, WA.
- 21—Seiko Quartz Combos Bench Course (AWI); Leslie L. Smith, instructor; St. Paul, MN.
- 26-28—New York State Watchmakers Association 48th Annual Convention; Waterloo Holiday Inn; Waterloo, NY.
- 27—Arizona Horological Association Convention; Hassayampa Inn; Prescott, AZ.
- 27-28—Horological Association of Indiana Annual Convention; Holiday Inn Southeast; Indianapolis, IN.
- 28—Retrofitting Bench Course (AWI); James Broughton, instructor; Columbus, OH.

OCTOBER 1986

- 5—Retrofitting Bench Course (AWI); Buddy Carpenter, instructor; Richmond, VA.
- 6-10—Introduction to Clock Repair Bench Course (AWI); Ron Iverson and Jim LaChapelle, instructors; Kansas City, MO.
- 12—Retrofitting Bench Course (AWI); James Broughton, instructor; Huntsville, AL.
- 18-19—Restoration of Fusee Watches Bench Course (AWI); Ralph Geiger, instructor; San Francisco, CA.
- 19—Meter Microamps and Modules Bench Course (AWI); Gerald Jaeger, instructor; Baltimore, MD.
- 22-24—Using the Watchmakers Lathe Bench Course (AWI); Archie B. Perkins, instructor; Cincinnati, OH.
- 24-26—Florida State Watchmakers Association Convention; Palm Beach Airport Hilton; Palm Beach, FL.
- 25-27—Advanced Lathe Bench Course (AWI); Archie B. Perkins, instructor; Cincinnati, OH.

NOVEMBER 1986

- 1-2—Illinois Watchmakers Convention; Clock Tower Inn, Rockford, IL. For information: (309) 467-5016.
- 9—Retrofitting Bench Course (AWI); Buddy Carpenter, instructor; Philadelphia, PA.
- 9—Retrofitting Bench Course (AWI); James Broughton, instructor; Pittsburgh, PA.
- 15—Watchmakers Association of New Jersey 47th Anniversary Dinner Dance; Garwood, NJ. Reservations: call Joseph Cerullo at (201) 272-0040, or write c/o Phoenix Jewelers, 123 N. Union Ave., Cranford, NJ 07016.

Ad Index

American Perfit	4
Becker-Heckman	33
Bergeon	13
Borel	7
Bowman	33
Cas-Ker	Inside front cover
L.A. Clark	17
CFI	8
Esslinger	3, 16
Gem City College	8
Germanow-Simon	15
Jewelmont	15
K & D Manufacturing	21
S. LaRose	10
Marshall-Swartchild	11
New York Jewelers	21
Oceanside Time	5
Seiko	Inside back cover
Zantech	9
16—Retrofitting Bench Course (AWI); Buddy Carpenter, instructor; Kansas City, MO.	
FEBRUARY 1987	
8—Retrofitting Bench Course (AWI); James Broughton, instructor; Baltimore, MD.	
13-17—INHORGENTA '87, Munich Trade Fair Centre. For information: (201) 652-7070.	

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