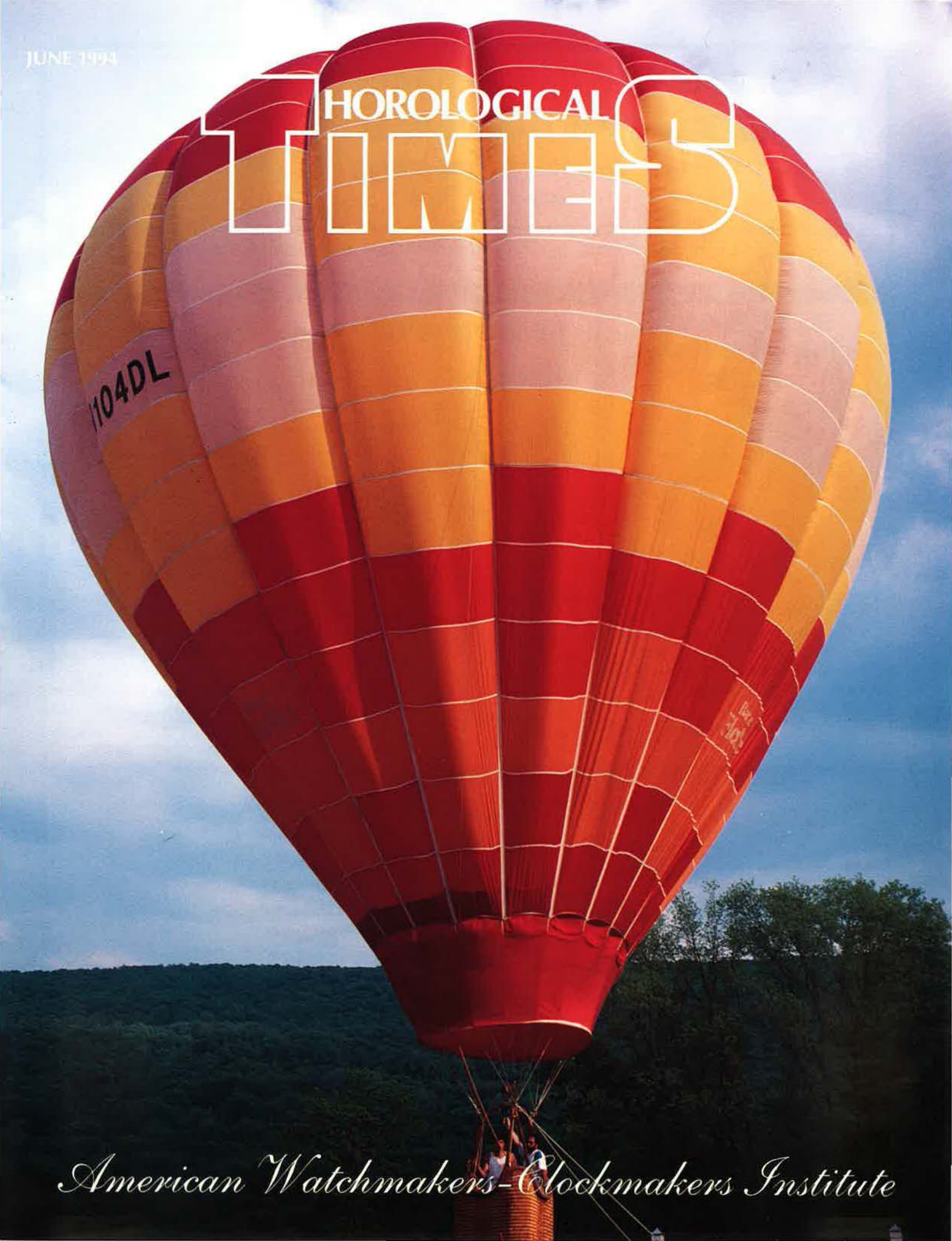
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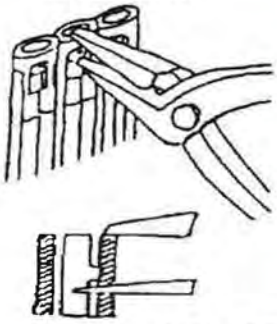
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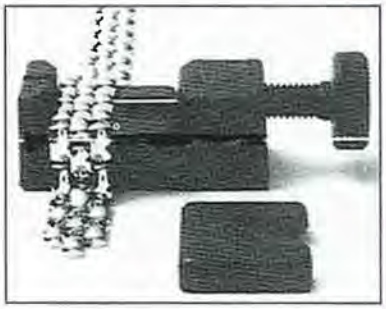


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President's Message



What's that old saying, "June is the month of the year when a young man's fancy turns to thoughts of love"? Yes, it's the month for diamonds, and also the month for the annual AWI Board of Directors meeting.

This meeting is held in Cincinnati, Ohio. This year's meeting will be Friday, June 24 through Sunday, June 26. It is not too late for you to plan to attend. Everyone is invited, and that includes *you* (and your spouse, of course).

The meeting will be held at the Commonwealth Hilton Hotel in Florence, Kentucky (near the Greater Cincinnati International Airport).

The Affiliate Chapter delegates will have an early bird reception on Thursday, June 23, from 7:00 to 9:00 p.m. The regular Affiliate Chapter Delegates Meeting begins at 9:00 a.m. on Friday, June 24. This meeting is for all of the various state representatives who are sent by their guilds specifically to represent them at this meeting. Here's where you come in. Yes, *you* should come to the meeting, too, to listen and to be heard from before the voting. Only state delegates have voting rights, but your input is welcomed. You can watch your delegate vote, and even frown or shake your fist if he or she doesn't vote the way you wish.

If you are an Affiliate Chapter delegate this year, then, of course, you need to attend the meeting, give your input and vote. You will also give your guild's report, which you probably have prepared by now. (All Affiliate Chapters received a form to make it easy for you to present your report. If you filled out your form early and returned it to AWI Central, then copies have been made will be given to attendees in their meeting packet.) It is interesting and educational to listen to these reports and see how the various states and guilds handled different situations throughout the year.

On Saturday, the Board of Directors begins its annual business meeting. They listen to reports from the various committees regarding their activities during the year. This includes an interesting "financial report" given by our treasurer. The Board of Directors also considers all committee recommendations (including suggestions from the Affiliate Chapter meeting). They make final decisions after listening to all of the discussion, including suggestions made by all AWI non-board members. This means all AWI members are welcome to attend all meetings.

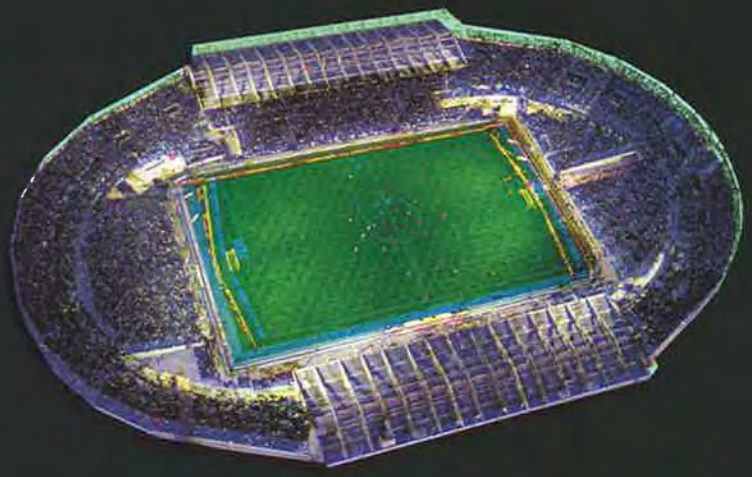
Saturday night is when the president's reception and banquet take place. These are for all AWI members, spouses and friends. You will enjoy the fellowship and the awards presented by the Honor Awards Committee.

The Board of Directors finalizes business on Sunday morning, including the election of new executive officers and the installation of newly elected directors. At this time they also consider new business. The meeting is usually completed by 1:00 p.m.

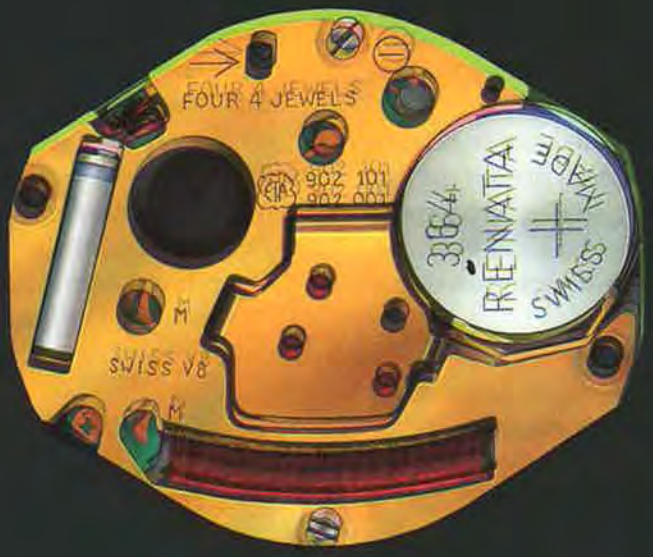
I hope I will have the chance to meet you in Cincinnati.

Wes Door

ON THE FRONT: A balloon race in the Poconos, PA by Jack Goldstein f rom Cranford, NJ.



TEAM WORK



Playing well as a team makes the game easier: long before its launching, a watch movement has its enthusiastic group of fans. Deciding with them on the detailed requirements is of overwhelming importance when it comes to design and production. It leads to worthwhile products that are popular with users, for example the new NORM-FLATLINE 6¾‴ x 8‴ cal. 902, a movement that combines both brass and synthetic material.

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Questions & Answers



By Henry B. Fried, CMW, CMC, FAWI, FBHI, ★FNAWCC

Q. I'm sending pictures of a pocket watch brought into my store by a customer. (See Figures 1 and 2.) I would greatly appreciate any information on the production and make of the watch. I would also like any information that may have possible historical significance. Note the engraving on the dust cover; the case is also stamped 18K and 22926 10952.

Scott Aalund, Kirkwood, TX

A. Ullysse Humbert was one of the few Humberts who were watchmakers in the last half of the 19th century. They worked out of LeLocle, then a busy horological center of Switzerland.

The model used was a popular one and of no great horological importance, although it was rather early for a stem wound watch. But then again, LeLocle was the center of the industry, and anything new would certainly have been used there.

The Jules Jurgensen company also used similar ebauches in their early Swiss products. The watch is nicely finished and is of higher grade than normal. It has the Breguet overcoil hairspring and the self-adjusting, floating stud. This is not a rare watch and, aside from its gold case value, does not invite vigorous bidding at auctions.

Q. I have a problem with a Swiss Roamer MST 436. It came to me in a rather unfortunate condition, with a number of parts missing. I managed to procure a new automatic wheel, a barrel complete with lid and arbor, and a separate mainspring. I serviced the watch and lubricated the barrel with graphite grease, Mobeius 8302, wound the mainspring into the winder, and inserted it into the barrel. I lubricated the spring with Mobeius D5 oil.

The problem is, I cannot hear the mainspring slipping. Shouldn't a mainspring slip around in the barrel after about every six or seven turns on the crown? I tried to listen to the spring slip with the microphone of my Greiner timing machine; possibly the mainspring is continually slipping? The watch would not run for more than about twelve or thirteen hours when removed from the wrist.

A fellow watchmaker suggested removing the mainspring and stretching it, then leaving the barrel wall rough. I believe the barrel wall should be polished and lubricated with graphite grease, don't you? Is there some kind of adjustment that can be made to the end of the mainspring to make it grip the barrel wall? Possibly, at the moment, the mainspring is too slippery? I would appreciate your expert advice. Perhaps you could suggest to me one of your books on the subject of mainsprings in automatic watches.

Dennis Bereton, New South Wales, Australia

Continued on page 35

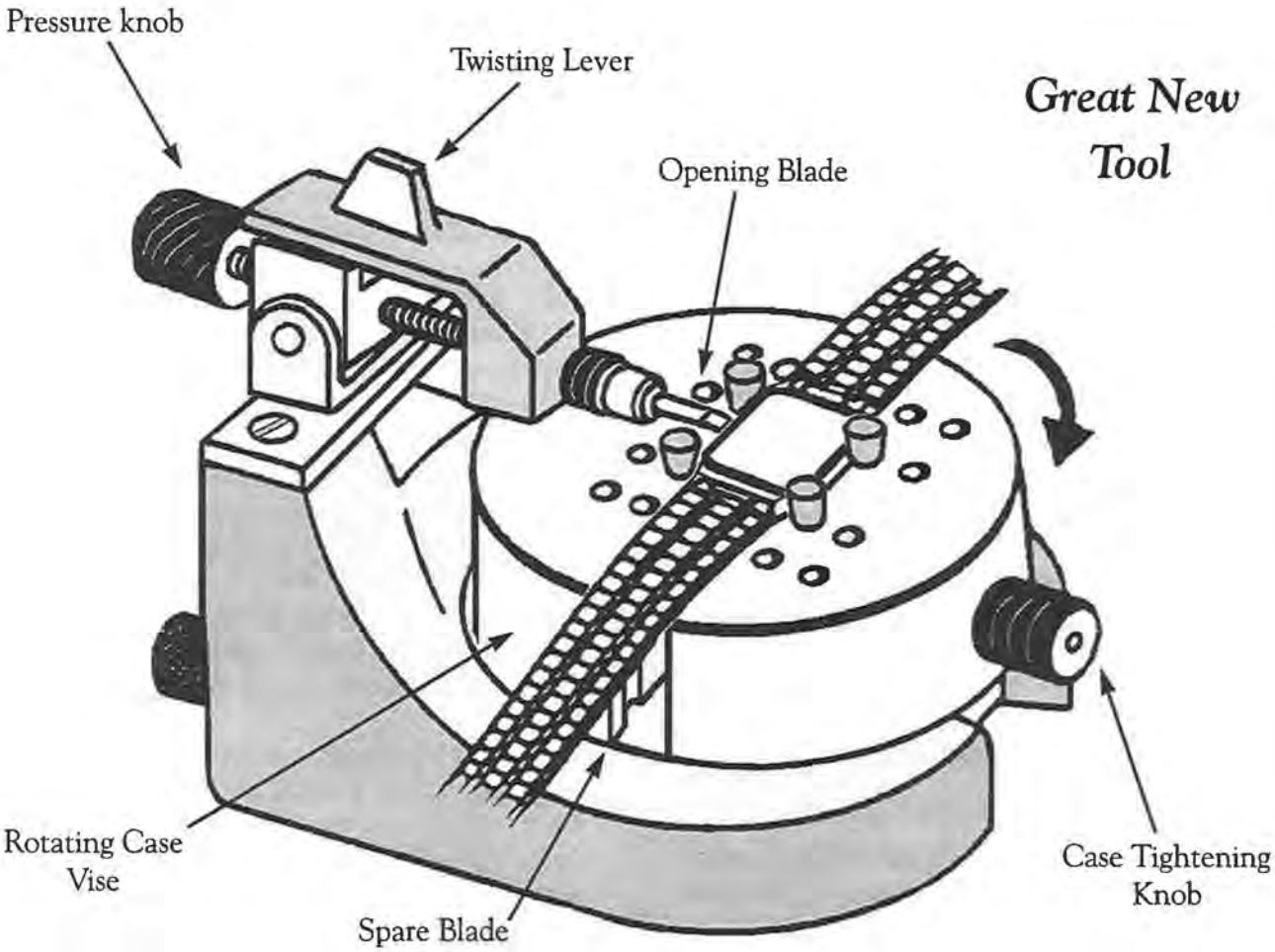


Figure 1.



Figure 2.

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As a Clockmaker Turns

Preparation for Pinion and Wheel Work with the Small Lathe, Part 1



By J.M. Huckabee, CMC, FBHI

Scope

This will be a series of three articles devoted to tools and methods of making pinions and wheels. While the primary theme is pinion making, a smaller facet of the material will be related to wheel work. Tools and materials on wheels will present different ideas from those in the previous wheel making series.

This pinion work will relate the method of indexing in the lathe spindle, and cutting a stock of pinion material about two inches long. This material can then be sliced into six to eight pinions for mounting on individual arbors. The pinion involved will be in 0.5mm module as used in the AWI CMC exam. The piece will have ten leaves (teeth).

The equipment used will be of the type found in our trade. It will produce excellent results, suitable for repair and maintenance work, but not suitable for high production manufacturing.

This series does not deal with the theory of pinion and wheel work, and it does not cover the ultimate use of the pinion material. The theme is a presentation of tools and how to use them.

Pinion Types

There are two general types of cut pinions. One is made, drilled and fitted onto an arbor. The second type uses the same material as pinion and arbor all in one piece. This type may have the arbor finished before or after the leaves are cut; it depends on the machinery available for the job. The first type, which we will make, is made in a stick that will be cut into a number of pieces.

Older American clocks have a small brass pinion on the minute hand shaft. Often we find these split. As an example, I make a stick of pinion material that will ultimately yield six to eight pinions. I have a number of these around, and it seems I never need to make another stick.

What Are the Tools Like?

In many cases, the pinion can be indexed by the lathe headstock. Counts of 6, 10, 12, 15, 20 and 30 can be indexed right in the lathe spindle. Other numbers will require an index plate on the lathe spindle.

Look at Figure 1. This pinion stick was indexed as mentioned and cut with a vertical spindle milling attachment; the cutter is also shown. This stick has about 1 1/2" of useful material.

Tools look different with various lathes. Figure 2 shows a cutter arbor that fits directly into the spindle of a Unimat lathe. That lathe works quite well for wheels and pinions with suitable fixtures. This illustration also shows a wheel blank and several typical cutters.

Refer to Figure 3. This tool is a combination index fixture and milling spindle. It is similar to the Swiss tool used in the wheel-making series, but a little more sturdy. As shown, it is in vertical milling spindle form as we will use. The belt pulley and index plate interchange on the spindle, and an index latch fits into the indicated location. This spindle accepts WW style collets.

In general terms, Moseley collets are longer, stronger, and have deeper pockets in the larger sizes. For that reason alone, I usually use Moseley style collets to hold work arbors. Work arbors made onto a collet-stub are best; however, they are frequently not a good economic decision and they are not immediately available.



Figure 1: Cutter and pinion. This piece can be cut into several pinions and mounted on arbors.



Figure 2: Cutters, wheel blank and lathe arbor. This fixture is used with an older Unimat lathe.

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Figure 3: Milling and Index Fixture by Boley. Pointer indicates attachment location for the index latch.



Figure 4: Boley vertical slide and milling fixture. Collet and arbor are two pieces. Adapter indicated permits use of a Moseley collet in a WW-style spindle.

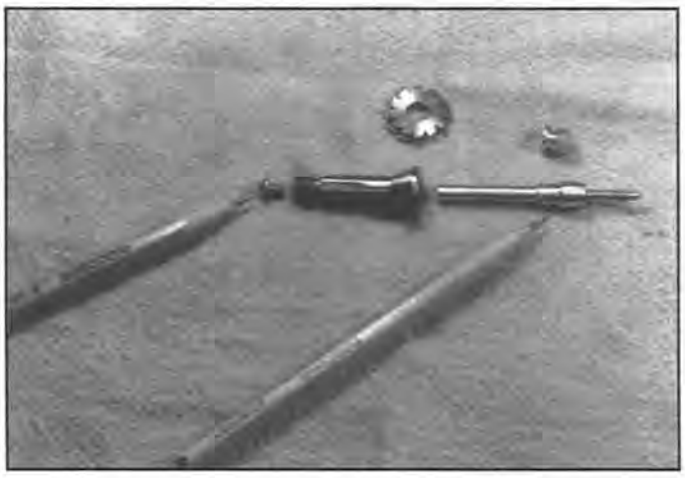


Figure 5: The collet is #64. The arbor has a tang which passes through the collet and is held in place with a screw.

Observe Figure 4. This is one of the methods I use with the Moseley collet. The drawbar spacer takes care of the length problem, and Figure 5 depicts the arbor detail.

The arbor is cut to an exact fit into the collet pocket, with its major shoulder sitting against the collet face. The smaller tang (left end) is a snug fit into the through-bore of the collet, ending just short of the collet end. The tang is threaded for a locking screw to hold the arbor in place. The described portion of the collet is finished first; the cutter seat, threaded arbor section and center tip formed last. This works out quite nicely.

Prepare the Raw Material

Without exception, your pinion raw material should have a true center on both ends. Likewise, your cutter arbor should have a true center. These are important to equipment set-up and testing the finished piece. (See Figure 6.)

Your raw material may or may not be able to pass through your holding collet or lathe chuck. In the case of the 10mm lathe, stock up through 5/16" will pass through a collet. Most 8mm lathes will pass either 3/16" or 5.0mm, depending on who made the collets. I have WW style collets through #70, but these oversized pockets are quite shallow. My Moseley style collets—by Starret in the 63-66 sizes—have pockets about 1/2" deep. This is because the working end of the collet is longer than the true Moseley form.

When using the 8mm lathe, I would cut the raw materials to sit in the pocket bottom of a larger collet. In Figure 6 you can find a mark on the pinion material at the approximate cut-off point. Form the center here, and seat the material against collet pocket bottom. The material may need to be necked-down to fit an available collet.

Set the raw material between centers. Really you would support one end in the collet mentioned, and the other end in a tailstock female center. Now turn the piece to the exact diameter of the finished pinion. That will be used as our cut-depth gauge. Figure 7 shows the material through a collet and the tools that were used.

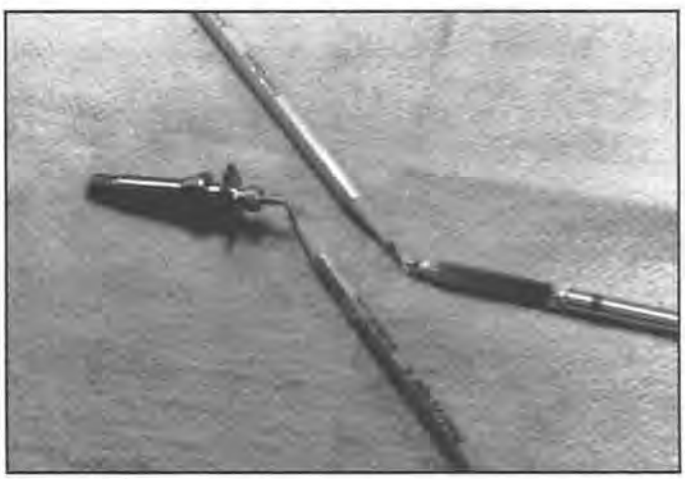


Figure 6: Cutter arbor and pinion stock each have true centers which are needed in equipment set-up.

Lathe Modifications

The American-style watchmaker's lathe is a marvel of utility. The things that this little gem can do are countless in number! On the other hand, I cannot understand some of its features. How can a workman read the index position with the pin location hidden? In the midst of oil, chips and hole counting, we conclude this had little forethought in its location. And further, there is nothing to lock the index pin in place. These problems need attention before we start our pinion work.

The lathe pieces in Figures 7 and 8 are by Derbyshire for the Magnus Elect 10mm collets and WW style bed. Gib screws were added to permit use on an available bed, and a new index pin and latch spring were made. A pointer and marker guide were also added to the index feature. These parts are shown in Figure 8, and will be illustrated in function in the third article of this series. The added features are necessary for any serious work that requires extensive use of the index feature.

Another Form of Indexing

I mentioned the Unimat cutter arbor earlier. Figure 9 shows the index feature I use with the Unimat lathe for wheel work. I also use this tool with my Derbyshire Micromill. That little mill has lever feed on its table, and sure is faster than the crank feed on the watchmaker's lathe. In addition, the edge-notched index plates are a joy to use. The group shown has about sixty plates in commonly used numbers from 3-96. Just moving to the next notch, with no counting, is a real joy!

AWI members who have an interest in this indexing device may obtain detailed plans from AWI Central. Send an SASE with three first-class stamps and request "Plans for Huck's Index Fixture." The envelope should be large enough to hold about eight unfolded 8 1/2 x 11" sheets. There is no charge to members in good standing.

Forward

The next article in this series will speak to the tool slides and necessary features to build a lathe into a pinion engine. ❐

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Figure 7: Pinion stock as used in a 10mm lathe. The stock may not always be able to pass through the collet. Material is supported in the indicated cup center.



Figure 8: Gib screws, index pointer, and index locking spring were added to this headstock for pinioin work.



Figure 9: Index fixture and accessories. Designed for the older Unimat lathe, and useful with others.

Rock Quarry et tu

Those Were the Good Old Days



By Fred S. Burckhardt

It's always nice to visit with an old friend. Fortunately, I lucked out one day recently and had two old buddies visit. First was a fellow who helped me when I was learning how to fix watches. His name is Billy Bob Billabong, from Australia.

Billy Bob and I worked together for a large jewelry store in Philadelphia. Our boss was a very staid Englishman who never felt secure in his job. The poor guy hadn't smiled since Victoria was queen. Billy Bob loved to pull practical jokes on him. To give you an example, we kept the watch material in large wooden cabinets whose drawers contained about three hundred partitions. If a drawer should ever drop, it would mean several days lost replacing everything in its correct space. The bottom drawer was empty. Why? I never did know. Anyway, Billy Bob got everybody to save all their old parts—broken staffs, stems, old crowns, etc—for months. One day, when the boss went to the rest room, Billy Bob quickly switched the top and bottom drawers. Then he poured all the old watch parts into the empty slots of what was now the top drawer.

When the boss returned, Billy Bob said to him, "That top drawer in the material cabinet is stuck and I couldn't pull it open. I tried to pull hard, but it still wouldn't budge."

"That's strange," said the boss. "It was working fine a little while ago. Let me see if I can get it open." He walked over to the cabinet, braced his foot against the bottom, wrapped his hands around the knobs, and commenced to pull as hard as he could. Needless to say, both the boss and the drawer went skidding across the room with parts flying all over the place.

With parts still bouncing around, Billy Bob turned, looked at the boss and said, "It sure opened easy that time." To top it off, Billy Bob got up, started sweeping up the parts, and emptied the dust pan into the trash can. When the boss saw this, he almost had the big one, because he knew he would get fired for allowing all those parts to go to waste. Billy Bob told the boss that another watchmaker, who was off that day, organized the whole trick and, even though Billy Bob tried to stop it, nobody would listen. He then told the boss to go sit down and he would take care of cleaning the place. All the time he was sweeping, Billy Bob said little things like, "This isn't funny," "Somebody could've gotten hurt," "You people shouldn't play around like this." By the time he was finished, the boss thought Billy Bob was the nicest guy in the world.

When the other fellow came in the following morning, the boss jumped all over him. The poor guy didn't even know what took place. Billy Bob just sat at his bench making believe he was hard at work. When the boss was finished berating the poor guy, Billy Bob got up, walked over by the boss and said out of the corner of his mouth, "Nice going boss. He should feel lucky you didn't fire him for pulling such a stunt."

All I can say is, Billy Bob is my kind of people!

Billy Bob returned to the Australian outback to make his fortune digging for opals. It didn't take long for him to realize that it was much easier to make a living repairing watches. He was telling me, when I saw him recently, that he finally found a job he enjoys. He is with one of the watch manufacturers. His job is to put the quartz crystals into the little canisters.

Shortly after Billy Bob left, who should walk in but my old buddy Slide Simslyn. We called him Slide because he played the trombone after work. He did this to supplement his income which, at that time, ranged from poor to lousy. This was the first time I had seen him in almost thirty years. We spent a couple of hours bringing each other up to date. Just as he was about to leave he said, "Let me show you something." He reached into his pocket and pulled out an old pocket watch and asked, "Do you remember this?"

He handed it to me and, looking at it, I said, "How could I ever forget this?" It was part of Slide's favorite trick. Back when we worked together, Slide would wait until there were several customers in the store. Then he would jump up from the bench and say, "I'm tired of trying to fix this #%*&@$ watch!" Then he would throw it as hard as he could against the wall. I wish I had pictures of some of the customers' faces when he did this. One time, a fellow was in the process of taking off his watch to leave it for repair when Slide pulled his trick. He picked up his watch, put it back on his wrist and walked out before Slide could explain the whole thing was a joke. The boss didn't think it was very funny and told Slide, in so many words, that he was no longer an employee.

This was good in a way, because Slide concentrated on his trombone, formed a band, and became famous until the big band era went down the tubes. Lucky for him, he got a job as the lead trombonist in *The Music Man*.

Oh, for the good old days! ❐

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Waterproof & Water-Resistant Watches

The Construction and Design of Fancy-Shaped and Quartz Waterprotected Cases, Part 8

We continue the discussion of waterprotected cases by considering the construction of fancy-shaped watch cases designed for mechanical watches, and quartz watch cases.

Quartz watch case illustrations used by permission of Gene Kelton, Citizen Watch Co.

By Henry B. Fried, CMW, CMC, FAWI, FBHI, ★FNAWCC



Waterprotected watch cases lend themselves most closely to round designs. Inventors and designers are constantly seeking a simple method of creating an impervious case using fancy shapes. When waterprotected watches are cased in other-than-round designs, they most often appear as a variation of the push-out case (Figures 54 and 55).

Figure 54 shows an exploded view of the chief components of a screw-clamp type of waterprotected case. Although the screw-clamp system has been used just as often with round cases as with shaped, it is shown here in rectangular form to demonstrate its operation in shaped movements. The case bottom (A) is above the movement (B) with its snap-stem (C), which is slipped from the inside of the case bottom through the case pipe and fits into the snap crown (D). Resting on both the case rim and the edge of the dial is the gasket (E). Fitting over the gasket is the basin-shaped crystal (F). The case top (G) fits over the crystal and the case bottom. The U-cut (K) in the case top fits over the case pipe in the case bottom. To secure the case and put pressure upon the gasket, the four screws (H) are turned down. These fit into the case niches (J) and perform about the same kind of pressure that your fingers would when fastening the case.

The assembled unit (Figure 55) shows how the fastening is performed. (The letters designating the parts are the same as in Figure 54). Notice how the niches (J) appear in section, side view. When the screws (H) are turned in, the tips of the screws push the flats of the case niches upward, causing the flat top of the case bottom to compress the gasket between itself and the crystal, which is held by the upper rim of the case top (K). This type of case does protect the movement, but its chief fault is weakness at the triangle below the screw and at the U-slot. As these cases are most often cast or molded

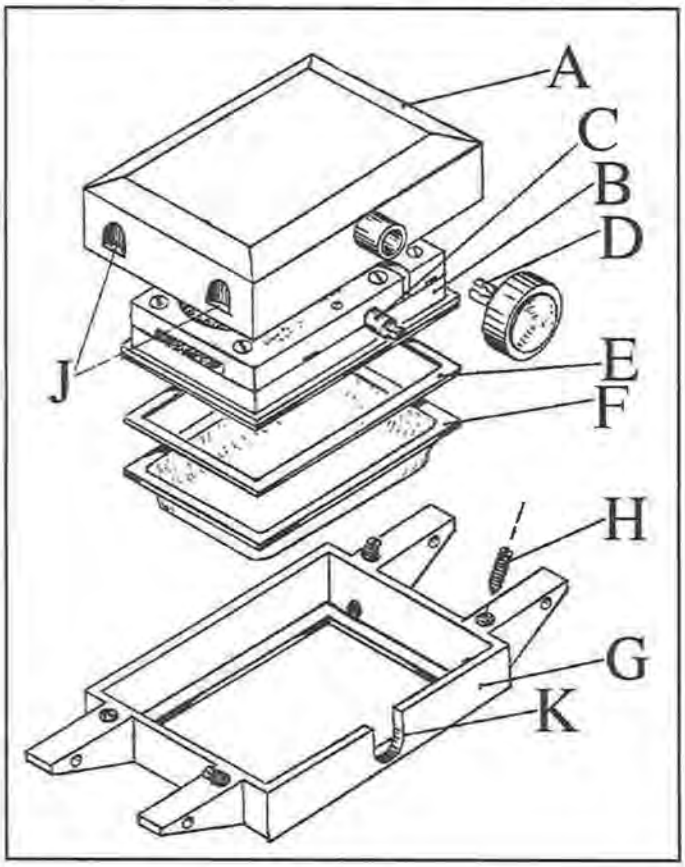


Figure 54. An exploded view of a common shaped waterprotected case.

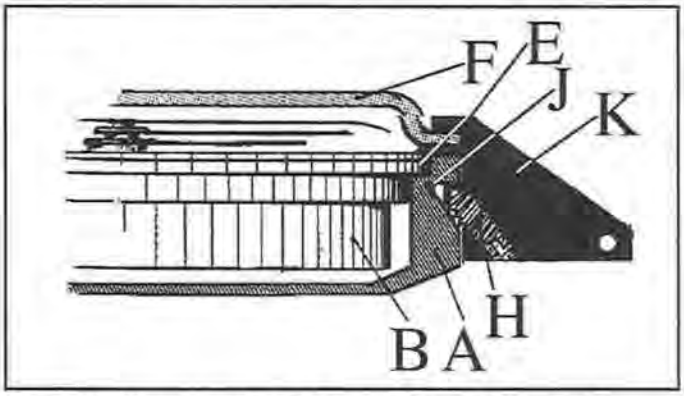


Figure 55. A cross section of the case shown in Figure 54.

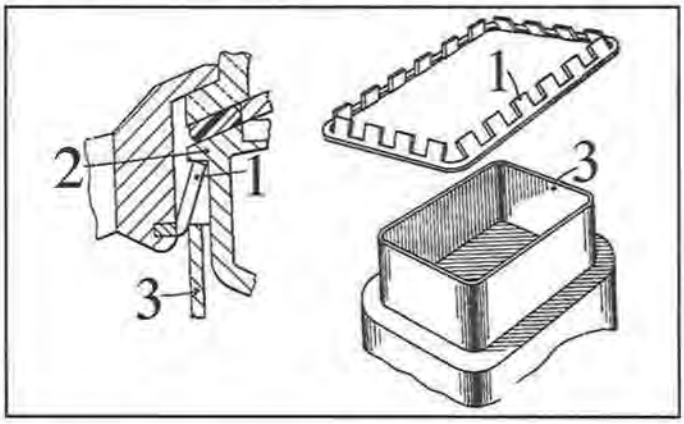


Figure 56. A patent for a shaped waterprotected case using a tension and locking spring frame.

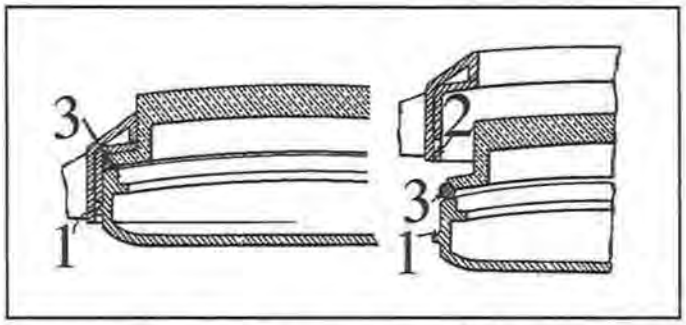


Figure 57. Another patent using an O-ring gasket in a shaped waterprotected case.

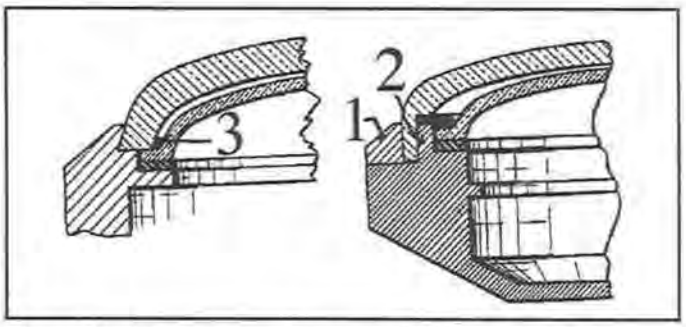


Figure 58. A patent granted to a watch using two crystals.

and therefore brittle, this is a real danger. Also, an examination of the side view shows that moisture and corrosive liquids (salt water, perspiration) can lodge in the crevices between the case bottom and the case top. When these watches come in for service, there is always a thick, muddy residue of rust, lint and other matter present in these crevices that must be cleaned before the case can be further dismantled. In addition, the screw holes strip. This is caused by the warpage that results from the stresses on the case.

The Patent Race

The quest for an efficient design for shaped waterprotected cases was much in evidence in the late fifties. Within the space of three months, three patents were granted for waterprotected watch cases, two of which concerned themselves with shaped cases. One (Figure 56) was used by the Bulova Watch Co. The idea is similar to the one using screws. Instead of them, however, it has the retaining and locking spring (shown at its upper right). The pressure is applied by a press or with the fingers until the prongs (1) slip past the case ridge (2) and lock themselves. To open the case, the special fixture (3-lower right) is pushed into the groove around the case, which spreads the locking prongs outward. The case top springs up. The objection to this case is again that the groove will become a trap for moisture and dirt.

Another device for shaped cases (Figure 57) is a snap-type with the ridge (1) snapping into the case-top groove (2). The difficulty here seems to be in properly seating the O-ring (3) so that it retains its necessarily precise position at the reverse-beveled crystal's edge.

The third patent (Figure 58) is a waterprotected case using two crystals. The inner is made of glass while the outer is



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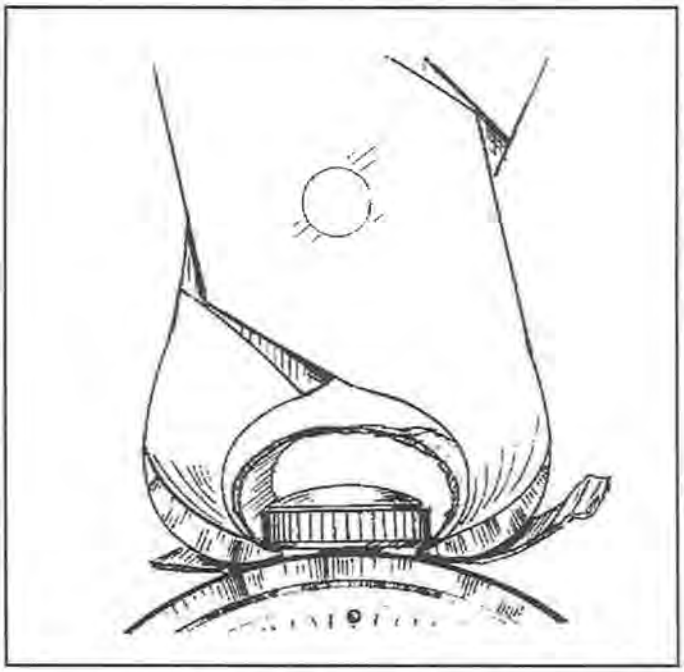


Figure 59. A safe method of removing a snap-crown—plastic foil and pliers.

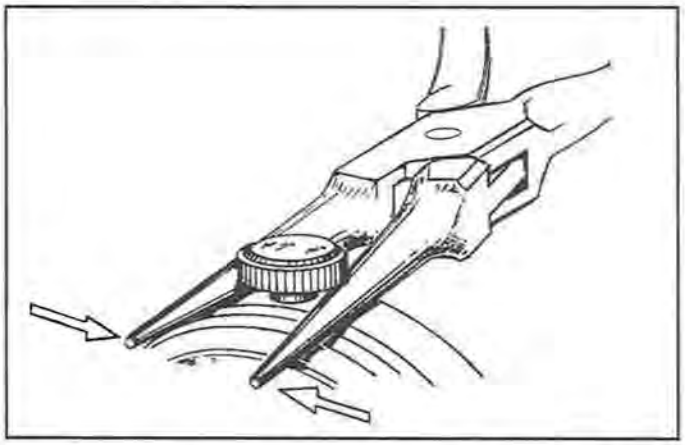


Figure 60. Removing the crown in the hand-setting position is safe with round-nose pliers.

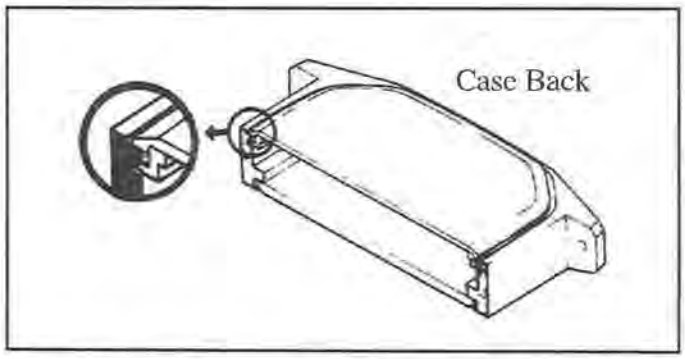


Figure 61. The floating type of waterprotected case. Note the gasket on case back lodged against lip of case body. (Also see Figure 63.)

of plastic. The inventor claimed that plastic is porous while glass is not. He employed the plastic, however, to protect the glass. Protection is maintained by the ring (1) pressing upon the crystal's edge, squeezing it against the upper rim of the case (2). A novel feature is a chemical condensation inhibitor (3), such as a silica gel, dry moisture-absorbing grains like coarse sand in appearance. This forms a circular barricade around the watch between the two crystals. The inventor also recommended the inclusion of a cobalt chloride C_0Cl_2 that, under the action of moisture, changes from blue to pink, warning the wearer that his watch is no longer waterprotected.

The Snap-Stem and Crown

The snap-stem and crown are used only where the back of the case cannot be removed to loosen the detent screw or pressure post, which releases the complete stem. When the snap-stem and crown are used, the movement must be removed through the top of the case. An examination (Figure 54) will show that the buttonhead of the stem, when snapped into its receptacle in the crown, will withstand the normal pulling out to set the hands without coming apart. Therefore, when these *must* be separated for the purpose of dismantling the case, some extra force will be needed.

There are three methods of unsnapping the crown from its stem. All of these are performed while the crown is pulled into the hand-setting position. The best is with the fingers. When the crown is pulled out, the fleshy part of the thumb and index finger can fit between the case and the bottom of the crown. The fingers assume the shape of pincers. Merely squeezing them may supply the necessary leverage to separate the crown from the stem. This is best, because it will neither mar the case nor harm the case pipe. Some watchmakers, however, cannot part them in this manner because their fingers are either so tender they cannot separate the stem and crown, or so tough they will not fit underneath the crown.

Many watchmakers use another method (Figure 59). A piece of soft plastic sheeting is placed around the crown, and a dull cutting pliers is placed in the position shown. Light pressure will then snap the crown up and off. When doing this, care must be exercised not to pinch the case pipe. This will spoil the protective feature of the case.

A third method (Figure 60) uses polished round-nose pliers instead of cutting pliers. They are less likely to harm the case pipe, and the curved tips supply the natural wedge shape to do this job. If this pliers is used on stainless steel cases, no protective film is needed, although the film is recommended for use with gold content or soft metal cases.

To remove the movement from a case having the snap-stem and crown, always push the stem back into winding position before attempting to take the movement out of its case bottom. Otherwise there is danger of breaking the stem. It may be pushed back into the winding position with a blunt pin. You can also place the crown on top of it, twisting the crown so that its slit is at right angles to the corresponding

ridge on the stem. Pushing the crown weakly will return the stem to its winding position without the crown snapping back.

Quartz Watch Cases

Many quartz watches are encased with gasketed snap backs, some claiming a 3 or more ATM impermeability. To effect this, various types of gasketed back flanges are used in some brands. These do require considerable pressure on the case back to position them after removal for battery changes, etc. Knowledge of their construction will aid considerably in opening the case and replacing the back without altering the quality of its permeability or appearance.

Citizen Watch Company, for example, uses the system they term "floating back types." One example, whose back has the GN-7-F stamped on it, is shown in Figures 61 through 64. The case itself has a deep rectangular groove in both the shaped and round model cases. This groove houses the gasket in the bezel. The lower lip of the snap back fits into the groove of the back of the case. The snap back's gasket fits quite snugly against the square top edge of the case groove. This is shown in Figure 61.

To open and close such a case requires a special stepped case opener as shown in Figure 62. In a way as explained in the Citizen manual, opening and closing such a case is done with the effort required to remove a sliding door.

Continued on page 37

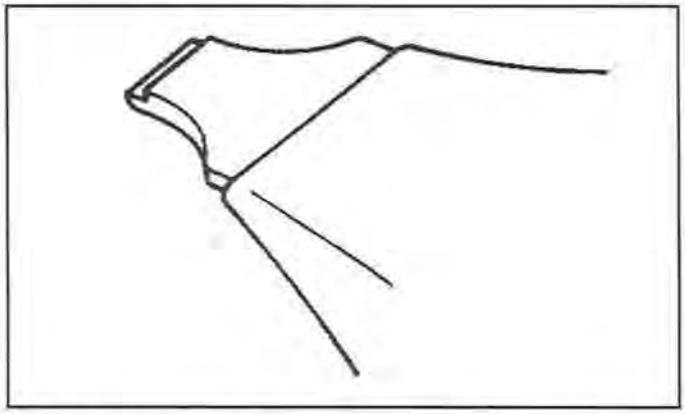


Figure 62. The stepped case opener. (Also see Figure 63.)

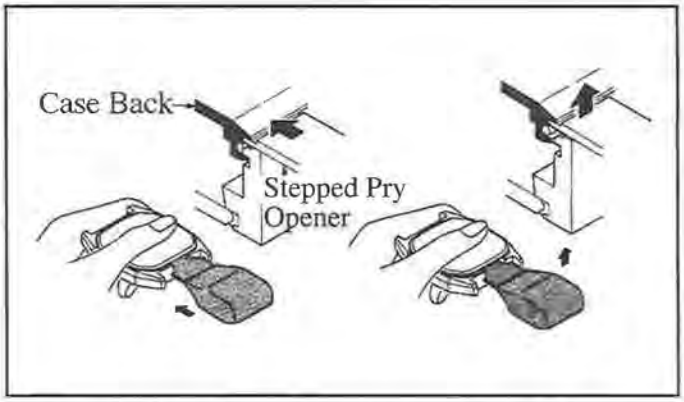


Figure 63. Note forward pressure of stepped opener in lower and upper view.



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Completing the Pallet Fork

By Archie B. Perkins, CMW, FNAWCC, MBHI
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After the slots for the pallet stones have been sawed, you would scribe out the outline of the pallet fork on the material as shown in broken lines in Figure 1. Then you would saw off the excess material at the end of the fork at the broken line and prepare to saw the fork slot.

Sawing the Fork Slot

Figure 2 shows the fork slot being sawed. The pallet fork material is mounted on top of a work plate, and is held down tightly with two clamps. The center line on the pallet fork material is lined up with the center line on the work plate as shown. The work plate is held squarely on top of the slide rest by two screws that go into a flat metal strip fitted to the T-slot of the top slide of the slide rest. Holding the work plate this way allows you to use the slide rest screws to position the work in relation to the slitting saw used to saw the fork slot. The height of the top of the work plate should be such that it allows the pallet fork material to be on center with the center of the diameter of the slitting saw. Feed the pallet fork material into the saw by turning the screw on the cross slide of the slide rest when the fork slot is sawed. After sawing the fork slot, mill the curve of the fork horns.

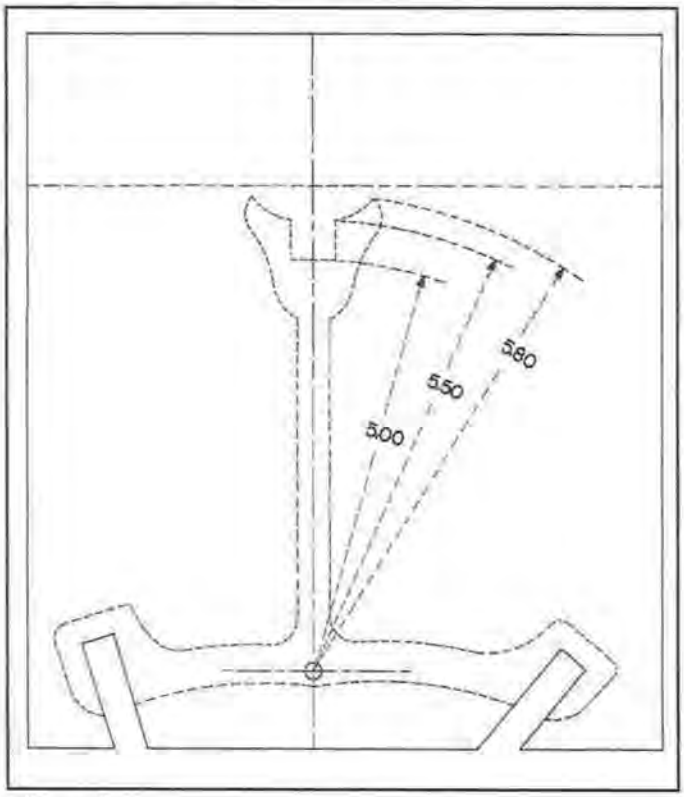


Figure 1

Milling the Curve of the Fork Horns

When milling the curve of the fork horns, you need not disturb the pallet fork material on the work plate until after the curve has been milled. The curve is usually milled with two cutters stacked together on an arbor chuck. A spacer washer is placed between the two cutters to position them to produce a curve shaped properly to the fork horns. This is shown in Figure 3. You need to make the cutters for the particular job using the pantograph method. (Sometimes you can use wolf tooth cutters for milling the curve of the horns. These are used singly because when they are stacked together, the curve of the cutters is spread too far apart to match the curve of the fork horns.) The teeth of the two cutters must point in opposite directions in order for them to be used to cut in the same direction. The cutters should be placed on the arbor chuck so that they will cut in a downward direction. This assures that the work will be pressed more tightly against the work plate when the horns are being milled. After the curve has

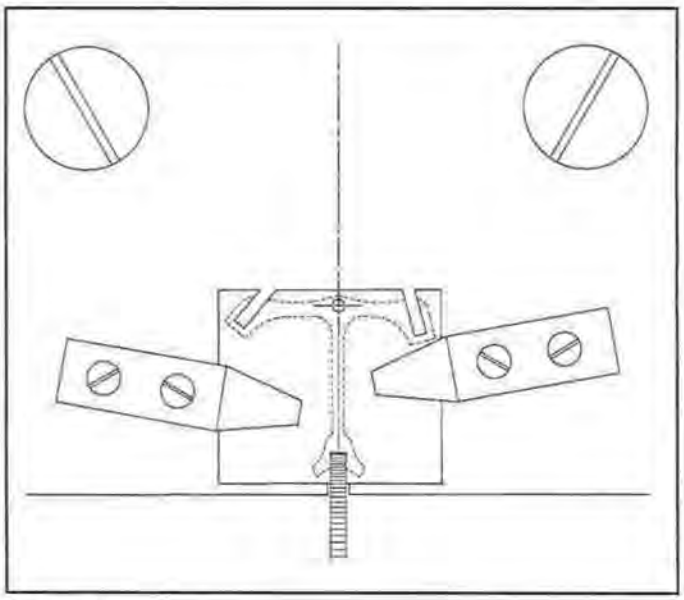


Figure 2

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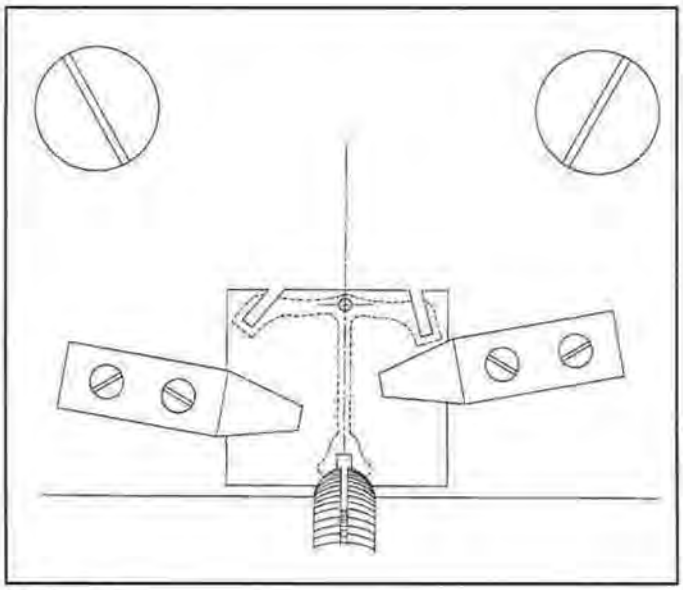


Figure 3

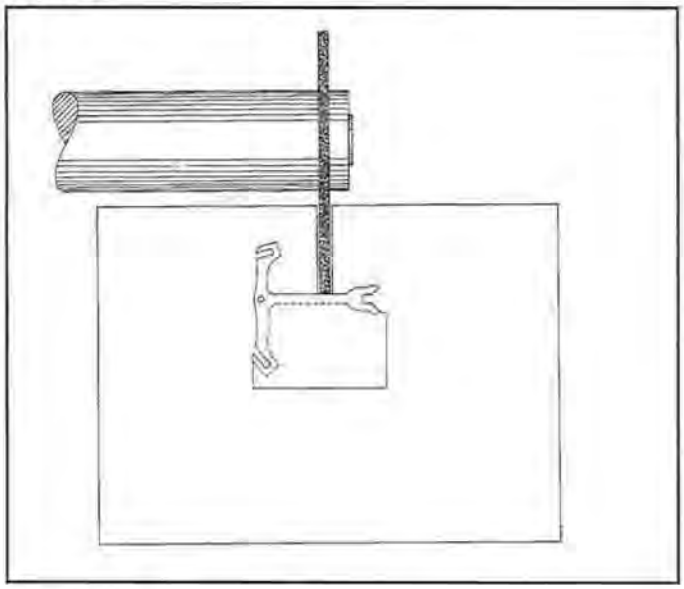


Figure 4

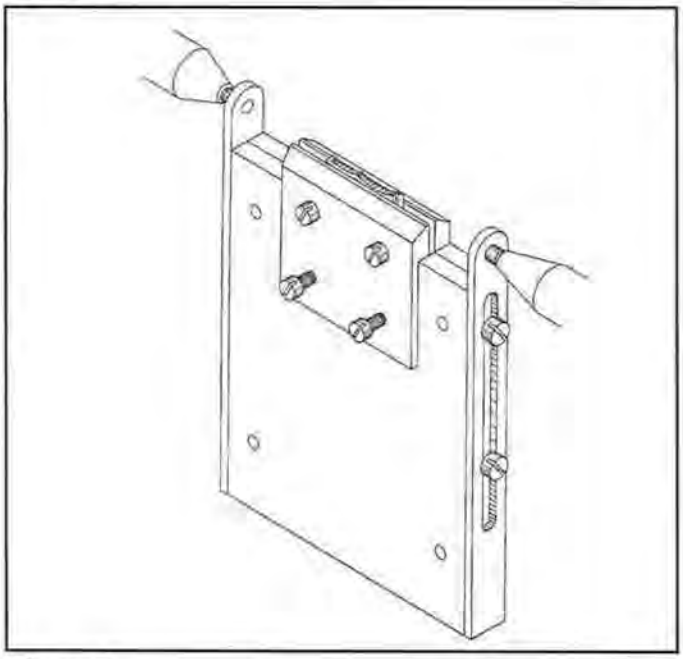


Figure 5

been milled on the fork horns, you would proceed to cut out the shape of the pallet fork from the material.

Shaping the Pallet Fork

Figure 4 shows how the pallet fork can be shaped. First, use a jeweler's saw to saw away the excess metal from one edge of the pallet fork, leaving some metal attached to hold onto while that side is trimmed to the line as shown in Figure 4. Trim with a carborundum disc held on an arbor chuck. Shape the edge of the disc with a diamond wheel dresser to conform to the shape of the surface being trimmed. Hold the pallet fork material flat on top of a saw table with the fingers while the trimming is done. Use a saw table that is mounted on a post held in a solid T-rest. Adjust the height of the saw table so the pallet fork material is on center with the center of the diameter of the carborundum disc. Trim the pallet fork just to the scribed line on the material.

After one edge has been trimmed, use the jeweler's saw to saw away the excess material from the other edge of the pallet fork. Then, trim these edges with the carborundum disc. This time, hold the pallet fork with tweezers, or shellac it to another piece of metal to serve as a handle while the trimming is done. After the pallet fork has been trimmed, finish the edges of the pallet fork.

Finishing the Edges of the Pallet Fork

The edges of the pallet fork should be draw-filed to smooth the edge surfaces. These surfaces should be made square with the flat surface of the pallet fork. One of the best ways to maintain the squareness and flatness to the edge surfaces is to clamp the pallet fork in a swing tool while the edges are draw-filed or stoned to finish them.

A swing tool I made is shown in Figure 5. The swing tool is used between the dead centers of a lathe or turns. The centers on the swing tool can be male or female. The ones shown are male centers that work in female centers in the headstock and tailstock. The swing tool centers are frictioned into two steel strips that are slotted for two screws. This allows the centers to be raised or lowered to the height of the work that is held between the jaws of the tool.

The two upper screws in the jaws of the tool are used to tighten the jaws on the work. The two lower screws are used as leveling screws to keep the jaws parallel to each other so they will be tightened flat on the object. A pallet fork is shown between the jaws in the illustration. The belly section of the pallet fork is in position to be worked on.

For the swing tool to operate correctly, you must have the tool's centers level and at the same height as the surface of the item being worked on. If the centers of the tool are too high or too low, the tool will rock back and forth when the object is being worked on, preventing you from obtaining a flat surface. This tool is good to use when cross-filing or draw-filing, as well as when stoning and polishing. After the edges of the pallet fork have been finished,

you should stone both sides of the pallet fork flat. Next, the pallet arbor hole is prepared for the pallet arbor. The hole is threaded or reamed depending on the type of pallet arbor.

Thinning the Fork End of the Pallet Fork

The fork and the neck of the fork should be thinned down on the underside to decrease its weight. This helps to balance the pallet fork so there is less resistance to unlocking the escapement by the balance wheel when the watch is in an edge position and the fork is in a horizontal position.

To thin the fork, hold the pallet fork flat on a special swing tool as shown in Figure 6. The pallet fork can be shellacked to the face of the swing tool, or it can be pegged to the swing tool with two brass pins—one through the pallet arbor hole and another in the end of the fork slot. The pallet fork should be placed top-side-down exactly on the center line running through the swing tool centers. The height of the swing tool centers must be adjusted to the same height as the surface of the pallet fork being filed.

Figure 7, View A shows the pallet fork before being thinned, and View B shows the pallet fork after being thinned. Note that when you are thinning the pallet fork, you should leave it thick enough to allow for finishing its top side.

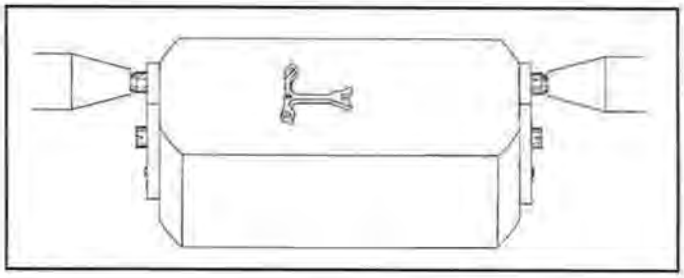


Figure 6

Drilling the Hole for the Guard Pin or Post

After the pallet fork has been thinned, drill the hole for the guard pin or guard pin post. This is shown in Figure 7, View B. The location of the hole is exactly on the center line of the fork and in the exact center of the material just back of the fork slot as shown.

Hardening and Tempering the Pallet Fork

After drilling the guard pin hole, harden and temper the pallet fork. To harden the pallet fork, heat it in an iron or steel container packed with cast iron filings or wood charcoal. The container should have a cover. The container and its contents are heated to a medium cherry red, and the contents are dumped into a container of room-temperature tap water to quench the pallet fork.

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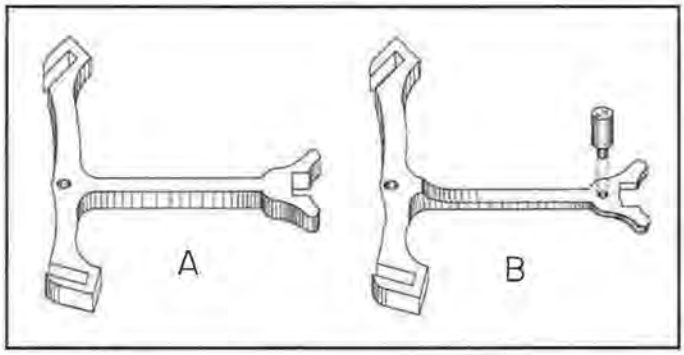


Figure 7

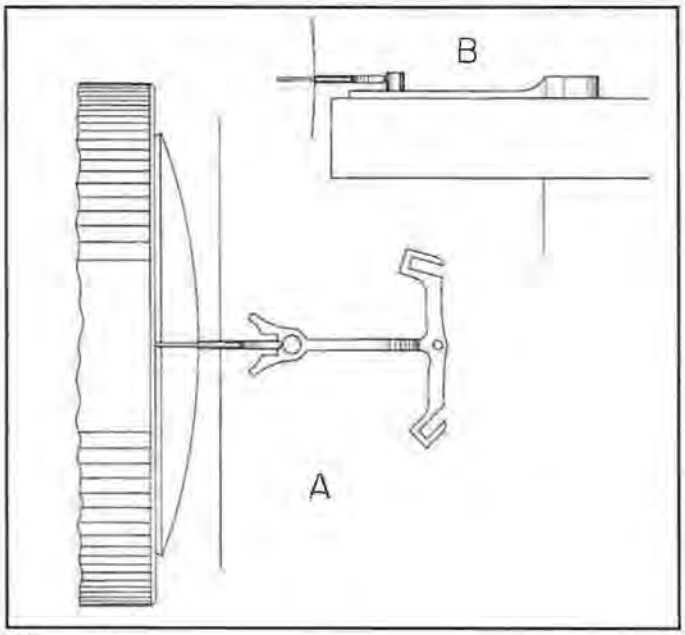


Figure 8

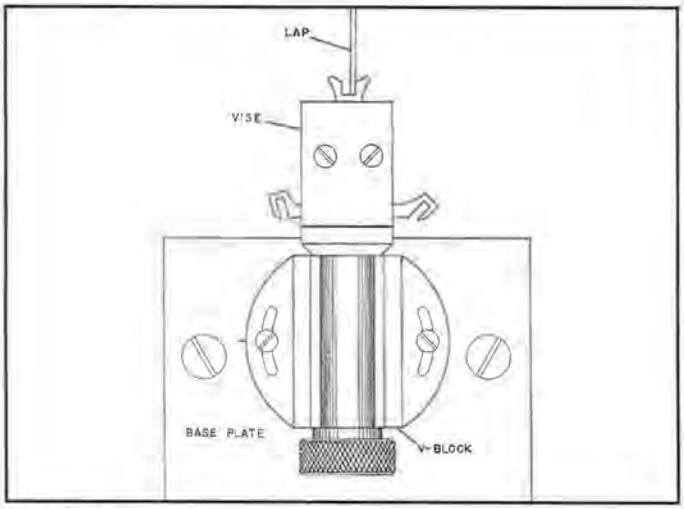


Figure 9

Next, clean the surface on the pallet fork with fine emery paper, and then temper it to first blue color. The tempering is done by placing the pallet fork on some clean sand in the bluing tray. Heat the tray and its contents over the alcohol lamp flame until the pallet fork has reached the desired blue color. At this moment, remove the pallet fork from the sand and place it on a piece of glass or flat metal to let the pallet fork cool slowly. Remove the blue from the pallet fork with a blue remover solution or with fine emery paper.

If the pallet fork is for a single roller watch, the top of the pallet should be polished flat on a ground glass and tin lap before the guard pin is fitted. On the other hand, if the pallet fork is for a double roller watch, a guard pin post is fitted before finishing the top of the pallet fork. The post is made from steel rod and fitted as shown in Figure 7, View B. The shoulder on the post should fit the hole with a friction fit and be long enough to be riveted into the hole in the fork. After the post has been installed, the top of the pallet fork is finished.

Drilling the Post for the Guard Pin

Next, drill the hole in the post for the guard pin. Support the pallet fork on top of a saw table as shown in Figure 8. The saw table is of the type that fits into a solid T-rest. Adjust the saw table upward or downward so the drill in the lathe headstock lines up with the center spotted in the guard pin post. This is shown in Figure 8, View B. Figure 8, View A shows the hole being drilled. Hold the pallet fork flat on top of the saw table and feed it into the drill. You can use a tweezers on the neck of the fork just back of the fork to feed the guard pin post into the drill. Drill the hole through the center of the post.

Before the guard pin is installed, you should shape and polish the fork slot.

Shaping and Polishing the Fork Slot

The sides of the fork slot should be rounded and polished, and the slot should be slightly wider at the back end than at the front end. This slight back taper need not be more than one or two degrees. Figure 9 shows a tool I designed for obtaining this shape and finish. This is not a scale drawing; it is shown only to convey an idea. The tool contains three main parts. The vise or holder for the pallet fork has a handle that works in the notch of the "V" block. The "V" block is mounted on a 1/8-inch thick base plate. The "V" block pivots on a center pin mounted on the base plate. The base plate is mounted on top of the slide rest. Two screws and a metal strip in the T-slot of the slide rest hold the base plate on the slide rest.

The "V" block is slotted with two circular slots. These slots each have a binding screw so the "V" block can be swiveled to different positions and bound into place with the screws. Degree marks are milled around the edge of

the "V" block, and an index mark is made on the base plate to match the zero mark on the circumference of the "V" block when the "V" in the block is square with the lathe bed.

This indexing system allows you to set the tool to obtain the desired slight back taper to the fork slot. Also, the handle of the vise working in the "V" block allows you to turn the vise holding the pallet so you can round off the sides of the fork slot. The handle of the vise that works in the "V" block has two shoulders spaced apart so as to prevent any endshake on the vise when the handle is working in the "V" block. The lap used to shape and finish the fork slot is held on an arbor chuck in the lathe headstock. The slide rest screws are turned to position the fork slot in relation to the lap.

When using the tool to round the sides of the fork slot, hold down the handle of the vise in the "V" block with one hand, while turning the handle back and forth with the other hand (holding the knob at the end of the handle). The whole tool is designed so that when the pallet fork is clamped in the vise and the handle is in place in the "V" block, the fork will be on center with the center of the diameter of the lap. This tool can also be used for shaping and finishing English pallets.

After the fork slot has been finished, the guard pin, pallet arbor, and pallet stones are installed.

Making pallet forks will continue next month.

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Management

Part 2



By Fred S. Burckhardt

Management means:

- Getting results
- Accomplishing objectives
- Planning and taking risks
- Leaving an impact on society
- Anticipating and shaping the future rather than waiting for it
- Leadership
- Action
- Selecting the best people
- Obtaining results through coordination of efforts
- Giving positive feedback and recognizing people for their accomplishments
- Control
- Knowing your customers
- Good communication
- Effective and efficient problem-solving and decision-making abilities.

It has been said that there are three kinds of managers: those who make things happen, those who watch things happen, and those who wonder "what happened." In order to be classified in the first category, it is imperative that you become a good decision maker. Managers are involved in a never-ending series of decision making. Decisions concerning personnel, merchandise, sales, pricing, and public relations are but a few. It is the manager's job to make as many good decisions as possible with the information at hand. There are times when it is better to make a decision in a hurry than to procrastinate and make no decision at all. Making no decision is the same as making a bad one. The quality of a manager's decisions affect the success of the firm.

There are four steps in the decision-making process:

1. Define the problem.
2. Develop alternatives (for how the goal is to be achieved).
3. Evaluate alternatives (determine feasibility).
4. Implement the plan of action.

As an example, let's say your accountant calls to tell you that, after reviewing your books, she finds that in order to make any profit, you'll have to increase your sales by twelve percent during the coming year. She also says that this increase will have to be accomplished without spending a lot of money, as the cash on hand is needed to pay current bills. Your first thought is to call your banker, but she tells you that a loan at this time is impossible.

Let's work this out using the decision-making process.

1. Define the Problem

Sales must increase by at least twelve percent. Very little money is available to help make this increase possible.

2. Develop Alternatives

A. Add better-selling lines of merchandise.
B. Increase advertising using a variety of media.
C. Offer more customer services.
D. Provide additional training to sales personnel.
E. Offer bonuses to sales personnel.
F. Have more "special" sales.
G. Move to a new location in the shopping mall.
H. Make better use of memo and consignment merchandise.

3. Evaluate Alternatives

We can forget A and G because of the money situation.

Offering bonuses to sales personnel is not feasible at this time, and could cause more problems, so let's forget E.

Having special sales might work, depending on the type of sales you have in mind. If it means reducing prices, then it won't. Remember, you're trying to increase profits. Taking a smaller mark-up will reduce the profit margin. On the other hand, if you have special sales on selected merchandise only, such as slow movers or excess stock, it's OK.

This leaves us with B, C, D, H and possibly F.

4. Implement the Plan of Action

The evaluation should determine which plan or plans should be implemented. In this case, the following plans were set:

1.) Advertise selectively on radio and local paper.

2.) Offer additional customer services such as free ring cleaning, free gift wrapping (if sale is over a certain amount), plus other minor services.

3.) Give sales personnel additional training in selling techniques. (Free training is offered by many watch companies and other manufacturers.)

4.) Offer more memo and consignment merchandise, as available from many manufacturers and dealers. Of course, if your credit is no good, don't expect much cooperation. If your credit is good, don't be afraid to

ask about these arrangements, because many manufacturers won't offer. But make sure no strings are attached. For example, if you must guarantee a certain amount of sales, or are required to purchase a certain percentage, forget it!

5.) We've already talked about special sales. If you can take advantage of memo and consignment arrangements, these goods are perfect for using as a "special." Don't make them too special, feeling that you have nothing tied up in the merchandise. Remember, you still have overhead and, if the mark-up is too small, you could end up losing money.

Even though we've worked out the problem, it won't be worth anything unless we put the plan into action. So let's go one step further in implementing the plan.

1. List who is going to be responsible for each phase. Set dates for starting and completion. Set a budget and stick to it.

2. Let each person know what results are expected.

3. Check from time to time to make sure all is going according to plan. If a situation has developed that needs correction, it will be much easier to correct it immediately

You'll find this decision-making process will become easier with constant use. Regardless of how large or small the problem, unless you make the right decision, the business could suffer and you, the manager, will be to blame.

Strategy

Another area of concern for the successful manager is developing and using strategy.

Strategy is the general approach to be followed in achieving an objective. This is similar to a military connotation developed to out-think, out-fox and out-maneuver the competition.

A basic rule in strategy development is to seek out your competitors' weaknesses and bring your greatest strength to bear in that area. They, in turn, will use their resources against your weakest point.

As an example, suppose a discount house near you doesn't offer any kind of repair service. This would be a good point for you to bring out in your advertising and in your sales presentation (after-the-sale service, we service what we sell, etc.). In turn, they will probably hit you with lower pricing. In this case, there is not much point to a head-to-head confrontation, as costs will be too high, even for the winner. ❐

"Where absolute superiority is not attainable, you must produce a relative one at the decisive joint by making skillful use of what you have." —Karl Von Clausewitz

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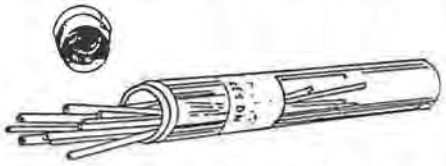


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Shop Talk

Balance Staff Work

PART 3

By Wes Door, CMW



As we continue on from last month's column, we are getting close to removing the old balance staff. But first let's look at the styles of staffs that may be in the watch we are working on.

Types of Balance Staffs

Figures V-A, V-B and V-C show the three general types of staffs. Within each type there may be hundreds of various measurements, of course, giving us a multitude of shapes. All we are concerned with for now are the three types shown here.

The names of the parts are as follows:

a: upper pivot
b: hairspring shoulder
c: balance seat
d: hub
e: roller shoulder
f: lower pivot
g: lower balance hole jewel (upper balance hole jewel is not shown)
h: lower balance cap jewel (upper balance cap jewel is not shown).

The parts of these staffs seem about the same, except Figure V-C at d and e. These could be either the hub or the roller shoulder. This staff is different from the other two.

Notice that Figure V-D shows a roller table. Naturally we would not put the roller on yet. I am just showing it here to make a point. Figure V-D and V-E show two locations that are used on some friction staffs for the roller: over the hub area in Figure V-D and under the hub area in V-E. When the staff seen in Figure V-E is fitted into the balance wheel, this hub will disappear into the staff, as it actually goes in flush inside the large "permanent" hub (Figure V-F a) that is attached to the balance wheel (Figure V-F b). We must not remove this hub from the balance wheel when removing this friction staff.

This large built-in hub generally has a contrasting color (sometimes a blue steel appearance) and is quite obvious as we look at the staff before removing it.

Cutting the Staff

Figures V-A and V-B show two staff types that require lathe work to be removed from their balance wheel. There are several schools of thought on where to cut (or what to cut) to do a proper job. You want to remove the balance wheel from the balance staff so that you may fit a new staff. You must use care to do this without distorting the balance wheel. The balance wheel is riveted to the staff, so I prefer to cut out that rivet area. Then the staff will be easy to "punch out" by using your stake set. *Do not* attempt to punch out a staff without first removing the rivet area. Many prefer to remove the balance seat and hub by turning them off using the lathe and a graver. This will safely separate the staff from the balance wheel. If you use the method I show here, refer to Figure VI-A. It shows the graver set up ready to cut off this rivet area without cutting into the balance wheel. This can be done with a little practice.

Staff Removal

To remove the staff from the balance wheel using the method I prefer, place it into your stake set (Figure VI-B).

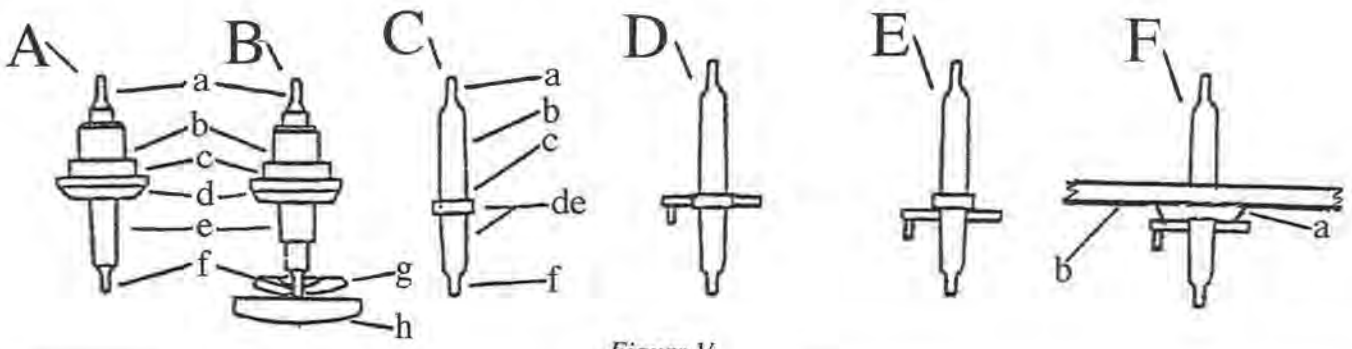


Figure V

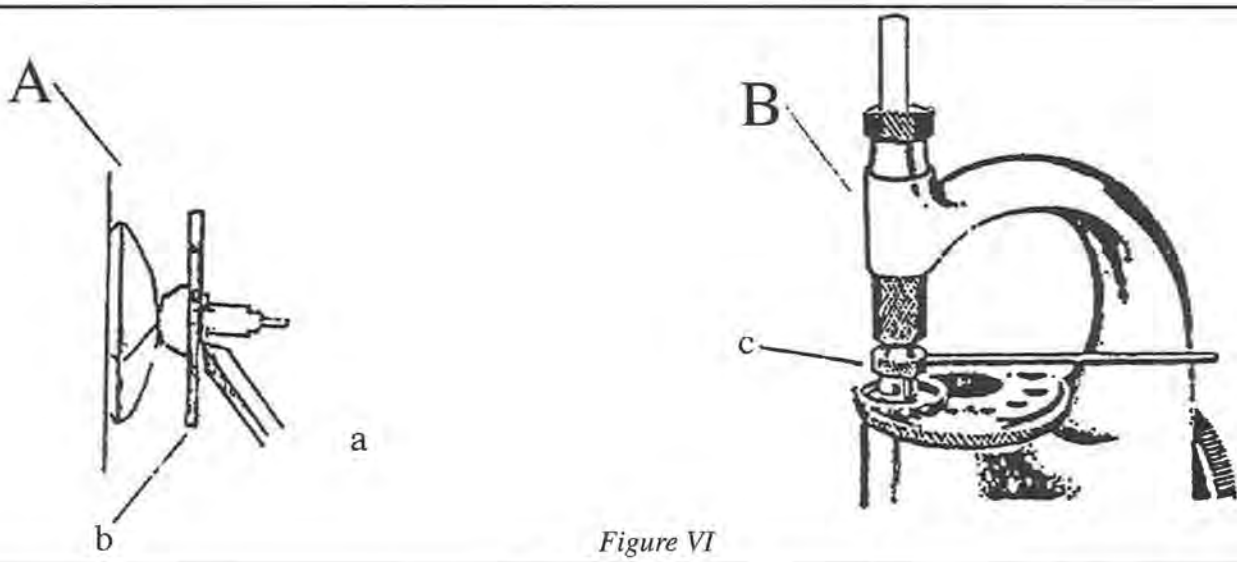


Figure VI

You may want to use a staff removal holding tool as shown in Figure VI-B-c, which locks the balance wheel in place while tapping on the stake punch. To remove the staff, give a short but sharp tap with your hammer on the top of the punch. You want the staff to drop out without distorting the balance wheel.

One of the reasons I prefer this method is because it leaves the old staff intact, which is generally very important in matching another new one to fit. Sometimes it's necessary to make one to fit, and having an old staff as a model is ideal.

Actually, you should take measurements as soon as possible, even before removing the staff with the stake, if you feel there is a chance of losing the staff (and a fair chance of needing these measurements).

Removing a Friction Staff

Remove this friction staff by using your stake set and selecting a hole in the die plate of your stake. You need to select a hole that will clear only the staff, not the hub. The hub will remain with the balance wheel. It is not designed to be removed.

In the next issue, I'll cover Finding and Fitting a Staff. ❐

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Ask Huck

Clockmaking Bits About...

The Mystery of the Crutch
Damaged Taper Pin Holes

By J.M. Huckabee, CMC, FBHI



Question: Why the great mystery about a clock crutch? How long should it be? What should it be made from? How is it adjusted? Why the elongated loop? How heavy should it be? Please discuss this piece related to an American clock.

Answer: Most text books have very little to say about the crutch. Most of our clockmaking literature speaks to a few simple adjustments; however, I do not recall ever reading a scientific analysis of the crutch and the relative merits of various forms.

A study of many of the great clockmakers of the past will show their prize escapements were "crutchless." The Sigmund Riefler escapement imparted motion to the pendulum via the suspension spring. W.H. Shortt applied the impulse directly to the pendulum rod, and so did Lord Grimthorpe in his famous Big Ben gravity escapement.

It appears that the crutch is a necessity in connecting the escapement and pendulum, and is a component we must contend with in most simple clocks.

Why the elongated loop in American clocks? This solves two problems. It eliminates the need for the clock to be "leveled on two axes." The clock is best adjusted for the horizontal axis, but has a bit of tolerance for a tilt from front-to-rear. A second advantage is that the motion of the crutch is not required to follow the absolute path of the pendulum rod. These solutions are for practical reasons, not scientific ones.

How long should it be? It appears that the designers' choice is the dominant factor in determining the length. But in this case, we can see some problems. Most of us have observed an old English grandfather clock with its long, thin suspension spring and short crutch, and how the upper pendulum rod moves back and forth in advance of the pendulum ball motion. We can't knock the commercial success of these clocks, but neither do we believe this has a scientific function in timekeeping accuracy.

Our escapement anchor, its arbor and pivots, plus the crutch is quite a burden on the escapement and power system. It behooves us to reduce this burden as realistically as possible. When dealing with the clockmaking trade, it is ours to restore that which comes into our hands. If we desire to venture into building clocks, we have the freedom to build what pleases us. I've built a number of clocks from my own design. Four were large regulators and I chose to make the crutch about a foot long on each of them!

I'm inclined to believe that the crutch is no more a mystery than building an automobile with the engine between the front wheels, or the back wheels, or possibly in the midsection!

You bring up a very interesting subject for which I think the real answer lies in practical factors in manufacturing, shipping, and ultimate commercial success. We probably would be dismayed at a design different from what we now know!

Question: What can I do with a taper pin hole that is damaged? The item in mind is the cross hole in a pillar where the pin locks the front plate in place.

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Answer: There are undoubtedly a number of ways this repair can be made. If the clock is several hundred years old, I would use a method that retained the pillar. But for an American clock from the latter part of the last century, I probably would replace the pillar. Let's discuss that method.

While writing this, I measured a couple of American clocks. A Sessions pillar appears to be made from #12 gauge steel wire (Stubbs) at approximately 0.189". Another measured about 0.199", which appears to be #8 in the same gauge.

I usually make these from a 3/16" mild steel welding rod that has a nominal diameter of 0.1875". That's just 0.0015" different from the Sessions size. This rod fits into a #48 collet.

Let's remove the old pillar first. Center punch the rivet end and hold the pillar in a drill press vise. Use a bit around 0.160" diameter (#20) and drill into the post. As soon as it passes through the upset area, the pillar can be pulled loose from the plate.

Lathe-turn the new piece for a trial fit into the plate holes. Leave the tang to be riveted standing above its plate about 0.020", and the other tang equal to the remaining good pillars.

Hold the pillar in the vertical V-notch of the jaws of a strong vise. Now rivet the piece in place with a few strokes of a flat-faced hammer.

Assemble the two plates and mark the location and angle for the taper pin hole. My method is to drill a hole slightly smaller than the original, try the pin, and brooch the hole to a suitable fit.

Let's talk about those welding rods. I buy these in 1/16", 3/32", 1/8", 5/32", 3/16" and 1/4" diameters. They are sold by the pound, and so when I purchase welding supplies for the ranch, I usually replenish my clock shop needs. These rods are mild steel, not too different from arbors used in older American clocks. The rods are 36" long, with a flash copper plated surface. The copper can be removed with a Scotch-Brite pad while the lathe work is being done. I've made lots of clock arbors from this material.

While on welding rods: bronze rods are available in the same group of sizes. There is no better hard bronze bushing than those made from 1/8" brazing rods. I've used this material for about forty-five years with great success.

And still another use: most of my larger clock staking punches are made from 3/16" and 1/4" brazing rods. I cut the punches to a length of 3". This bronze is mean to work, but is a very valuable raw material to the clock shop.

❐

If you have any questions, please write:
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Removing Finger Rings

By Marshall F. Richmond, CMW



Rings have to be removed from enlarged or swollen fingers for reasons ranging from natural growth and injury, to mental stress and illness. One common problem causing the need for ring removal is arthritis. Arthritis causes the knuckle to become enlarged, while the part of the finger where the ring fits remains normal size. The ring is relatively loose on the finger, but when the wearer tries to remove it, he or she cannot get it over the enlarged knuckle.

Some people, when they discover they cannot remove their rings, seem to panic and the swelling worsens. I have even been called on late at night to make a house call and remove a ring or rings from swollen fingers.

Sometimes a ring will have to be cut off the finger, but there are several things to try before resorting to cutting or sawing the ring(s). Many times a ring can be removed with a little gentle effort, without cutting it. Any time rings can be removed without cutting, it is much better (even though the ring may have to be sized larger).

When a person tries to remove a ring from their own finger, they have only one hand to work with, so all they can do is try and pull the ring over the knuckle. This bunches the skin ahead of the ring making it nearly impossible to remove. In removing a ring from another person's finger, you can pull the ring toward the knuckle with one hand and use your other hand to work the bunched skin away from the knuckle and back under the ring. Sometimes greasing the finger with a lubricant such as Vaseline will allow the ring to slide over the knuckle. The first consideration is for the customer's comfort, so any moves you make should be done gently. Any ring can be removed without causing pain to the wearer.

Let's say you are successful in getting the ring off in one piece. It is wise to advise a customer whose finger is enlarged from swelling to wait two to six weeks before having the ring sized, because temporary swelling may go down and the ring could be worn again at its current size. If the enlargement is from natural weight gain, the ring can be sized at any time. Reducing weight seems to be a popular thing to do today, considering all of the ads for weight-reducing plans ranging from diets to exercise. Fingers get thinner with the reduction of body weight. This usually creates a demand for rings to be sized smaller. Many of these people gain the weight back sooner or later, and need to have the rings removed and made larger.

Many people try to cut rings off their fingers themselves using cutting pliers or even files or hack saw blades. Many of these rings have been brought to me to put back together at the proper finger size. Some of these were neatly done, but most of them were butchered. The butchered

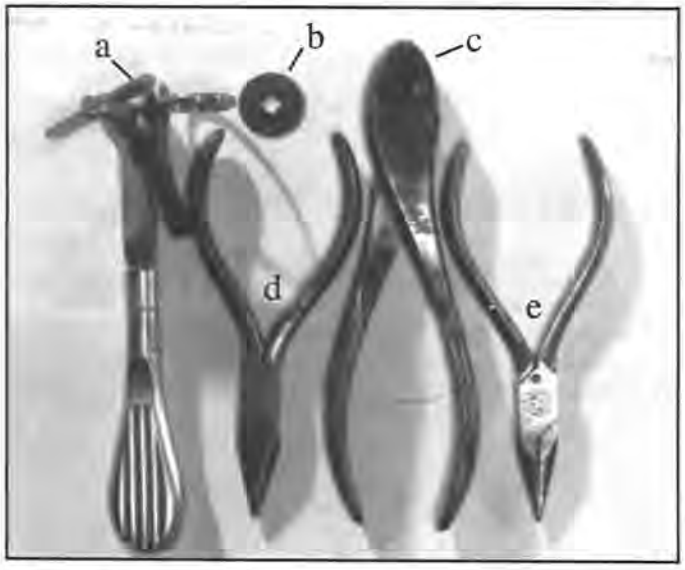


Figure 1

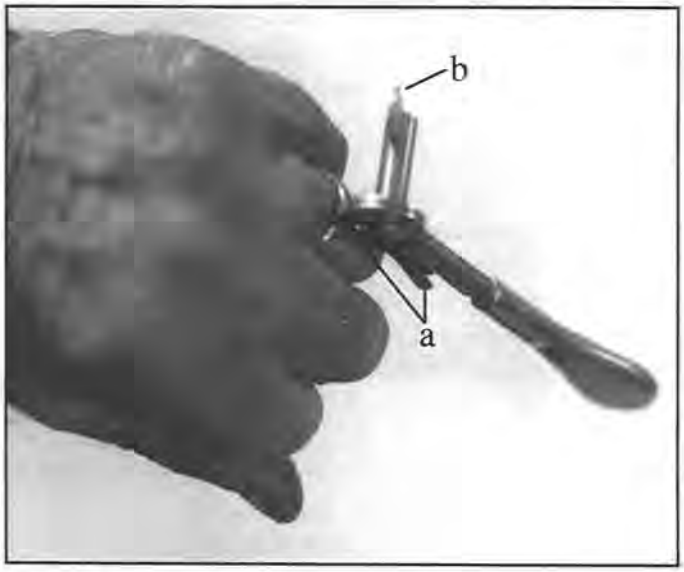


Figure 2

ones have to have some of the damaged metal removed and replaced with a piece the correct size to make the ring the needed size. Sometimes this requires a half shank.

Cutting Off Rings

Some rings have thin shanks and can be cut easily with a pair of side-cutting pliers and thus removed from the finger. If the shank is very thick, there is too much danger of injuring the finger, so a professional jeweler's saw (see Figure 1a) should be used. This procedure can be painless if done properly. One advantage in using cutting pliers (see Figure 1e) is that the cut ends of the shank are wedge shaped, and with a little dressing with a file can be perfect for two "V" joints (see Figure 3a point 1). The piece to be fitted can be made to the correct length for the size and the "V" filed in each end with a triangular file. When using side-cutting pliers on a stone or signet ring, or a ring with a tapered shank, the ring should be cut opposite the stone or signet in the narrowest part of the shank.

The safest and most convenient way to cut the ring with cutting pliers or a professional finger ring cutter is to turn the ring on the finger so the set, signet or widest part of the ring is in the palm of the hand. Then turn the hand over and have the wearer make a loose fist (see Figure 2), which leaves the place to be cut in a position with nothing around it. If using side-cutting pliers, open the jaws and slip one point under the ring shank as far as possible without causing pain. Then apply the pressure as you would to cut anything else, and the ring should separate.

If the ring does not cut easily, then a finger ring saw should be used. As the saw is a circular cutting blade and turned by hand, there will not be enough heat generated to be felt in the finger. To separate the ring, use two pairs of chain-nose pliers and grip on each side of the cut, bending outward until the ring will come off over the knuckle. As the edges on both sides of the cut are sharp, care must be used in removing it from the finger.

In the case of a person with a badly injured finger—one that has been burned and has raw tissue exposed, for example, or one with an open wound around the ring—it would be best to refer this ring removal to a doctor who can use sterile gloves and tools.

Figure 1 shows the tools needed to remove rings from fingers where cutting the ring is required. The ring cutting saw (Figure 1a) has a guard that goes between the saw and the finger that is spring loaded to hold it in place as well as put tension on the saw blade to make it cut while turning the arbor (Figure 1b). With the guard between the finger and the saw blade there is no chance of sawing into the finger, and since the saw is powered by hand, there is no danger of creating enough heat to be felt in the finger. The two pairs of chain-nose pliers work well in gripping each side of the cut to bend outward until the circle is enlarged enough so the ring will come over the knuckle. It

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is good to have extra blades (Figure 1b) as they sometimes get dull, and removing a ring should be done as quickly as possible. These replacement blades can be obtained from most any material and tool supplier.

Figure 2 shows the ring saw in position to cut the ring. The person using the cutter will hold the handle with the left hand and turn the arbor and saw with the right. This is the position I have always used, but if you find any other positions or methods that work better for you, you should use them.

Sizing Rings

Some people have large knuckles even though the part of the finger where the ring is worn is small. This situation has been recognized for many years, and ring designers have tried, and are still trying, to find a solution. One attempt to keep a ring in place on the finger was a ring guard that snapped over the bottom of a shank and reduced the inside diameter of the ring after it was over the knuckle. It did not work well or last long, and because it was made of karat gold, it was expensive. Other ring guards made of plated base metals have been introduced, but these corroded from body acids in a short time.

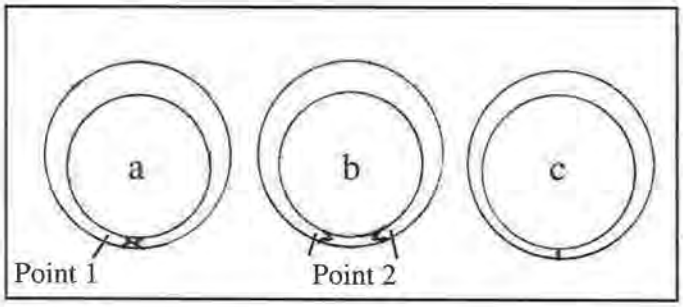


Figure 3

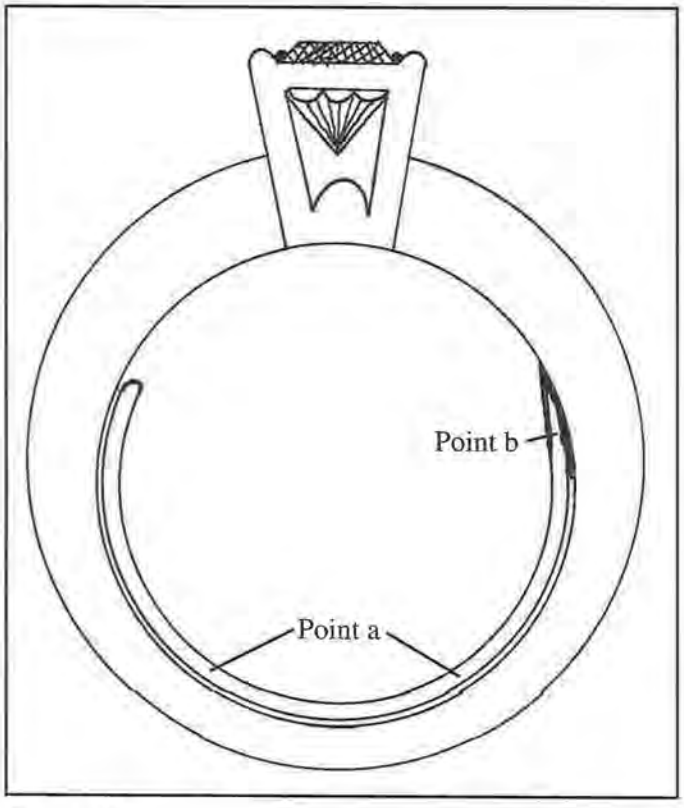


Figure 4

Another attempted solution was the "tru-fit." Spring-loaded pressure pads were placed on each side of the diamond in a diamond ring. They worked fine when new but quickly failed as they became full of dirt, soap, detergent and other foreign matter. Available even now are "finger fit shanks" and "adjusto shanks." These are partial shanks that are installed on finger rings in much the same manner as a half shank is installed—by hard soldering it to the ring. First you must determine the finger size to be used, which would be the size of the finger where the ring is to be worn (not the knuckle size). The finger fit works on a latch and hinge principle. When the latch is opened, a section unfolds, letting the finger fit shank open on hinges half way up the shank. After putting the ring on the finger, the buckle is folded and the latch snapped tight, leaving a snug fit on the finger. The adjusto shanks are installed in the same way, but they enlarge a different way. The bottom of the shank is double, and it slides open. Since these hinged, adjustable shanks have small hinge pins, they become tight if they are not worked often by opening and closing. If opened and closed often, however, they weaken, so the life of these adjustable shanks is limited.

The best way I have found to make a ring fit tight, is to install a spring inside the shank so it can be adjusted to fit snugly after the ring is over the knuckle simply by bending the spring. Until recent years, I used 14K gold for these springs, even for platinum rings because platinum will not work harden (temper). Recently, a jewelry store owner I do work for suggested using stainless steel for this spring since gold is so expensive. I tried it and it works. After using steel on quite a few jobs and receiving no complaints, I feel free to recommend it. The cost of stainless steel is a fraction of the cost of gold, which makes it less costly for the customer.

Making a Ring Larger or Installing an Inner Spring

In order to make the ring the correct size, you must know the size of the knuckle. Determine this by finding the ring sizer that goes over the knuckle easily. You'll need a piece of stainless steel approximately 24 gauge or .6mm thick (with a rolling mill, a thicker piece can be rolled to this thickness). A strip can be cut from this to the width of the ring shank. This can then be bent and made round on the ring mandrel to about the size of the ring gauge that measured the knuckle. We will use a size 9 for an example. The piece to be used should be long enough to go about two-thirds of the way around the shank on the inside, so cut it about 1 5/8 inches long before bending.

Using a size 9 ring sizer, slip it on the mandrel and it

will come to about a 9 on the mandrel. If not, use the next size larger (10 1/2) and if that lets it go to a size 9, the ring should be sized to whatever size is indicated. Knowing the size to make the ring, that is the next step. If the ring was cut from the finger with side-cutting pliers, it should look like Figure 3a point 1 after dressing with a file. With this, slide it on the ring mandrel to size 9 with the shaped spring inside the ring, and it will open the opening to look like Figure 3b. Measure this as shown in Figure 3b point 2, and cut a piece slightly larger and thicker to this length.

With a triangular file, cut the ends to fit as shown in Figure 3b. This piece should be the same karat or color as the ring shank. Make sure that the opening has been made wide enough to fit the piece in with only enough pressure to hold it in place. Heat slightly and flux with regular flux. Place a couple of solder chips on each joint inside the ring with a flux brush. Apply heat from the outside of the ring until the solder flows and is drawn through both joints to the outside of the shank. Cool and then place the ring back on the mandrel and round it by hammering in the piece and solder joints. File the inside smooth, then place the spring inside the ring on the mandrel and check to see if it is a size 9. If slightly smaller, it can be enlarged easily up to a half size more by hammering more since the piece put in was slightly larger than the ring shank.

When the size is definitely established as correct, the sides and the outside of the piece should be shaped, then the ring completely polished to a tripoli finish. Next the spring should be positioned in the ring. It can be held tight by grasping with heavy duty tweezers near the bottom of the shank. The end of the spring and the shank around should be fluxed with "Aircosil Flux," then heated to pull the flux between the end of the spring and the shank where the solder must flow (see Figure 4 point b). Place a chip of solder at the end of the spring on the inside of the shank and apply heat until the solder flows, pulling it back down the shank under the spring for a sturdy solder joint. Cool and put on the ring mandrel and, with a rawhide mallet, tap it so the spring is round and seated well. The tension on the finger can be tightened by bending between points "a" in Figure 4. The ring can now be re-polished and cleaned.

In the next issue, I will discuss measuring methods used in the jewelry industry. ❐

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AWI Congratulates COSERV on Its Tenth Anniversary

A decade of steadily increasing productivity and cost effectiveness has demonstrated the value of having a single, well-organized service division that handles all the watch and clock brand lines of SEIKO Corporation of America (SCA).

The evolution of COSERV, since its inauguration ten years ago, reflects the changing nature of the timepiece industry. Technology has made module replacement rather than repair the key to efficient service, and chain retailers have continued to expand their share of the market.

Recently, in presenting a first decade commemorative plaque to COSERV Vice President Don Maley and his staff, former SCA President Shigeho Kurashina congratulated the group. The move toward consolidation began back in 1983, soon after Maley oversaw the computerization of the service unit handling Seiko timepieces. Subsequently, a request from



Shigeho Kurashina, recent past president of SCA, presents a tenth anniversary plaque to Don Maley, vice president of COSERV, founded in 1984 as the company's consolidated service division for all watch and clock brand lines.

the Pulsar Time division to share the computer system suggested to him the logic of consolidating all the service operations for all SCA brands.

Shortly afterward, COSERV was officially launched at 57th Street and 11th Avenue in New York City on January 1, 1984.

Midway through 1984, COSERV moved to SCA's current corporate headquarters on Macarthur Blvd. in Mahwah, NJ, and in 1989 moved into its own facility on nearby McKee Drive. Maley takes pride in the fact that thirty-six percent of today's COSERV personnel have ten or more years experience. More than three-quarters have been with COSERV for more than five years.

"Experience, dedication and efficient systems enable us to handle a tremendous volume of work with relatively few problems," he noted. He added that the service division's productivity had more than doubled over the decade.

Maley acknowledged that, like any service organization, COSERV must deal with complaints. "It goes with the territory. People only come to us when they have a problem," he said. "And people with problems are never happy."

His own philosophy of service as a sales support function, however, is representative of COSERV's commitment to solving customer problems quickly and professionally. "We want to turn customers with problems into happy customers."

This dedication to the customer can be seen in every part of the COSERV organization. The material sales operation, located in Mahwah, handles 1,000 to 1,4000 calls each day on their 800 toll-free number. Parts orders received from retailers by 1:00 p.m. (EST) are shipped the same work day. More than ninety-five percent of all orders are filled off the shelf.

Other service centers are in El Segundo and Oakland, CA. El Segundo also houses the Los Angeles Special Projects Department, which imprints logos, engraves casebacks, and handles other special orders in support of sales programs.

The average customer repair is processed through one of the COSERV service centers in six work days, with more than ninety percent being completed within ten work days. "But the ten percent that doesn't get handled in ten days can cause ninety percent of our headaches," Maley said.

A decade ago, sixty percent of COSERV's repairs came from retailers—primarily jewelers—and forty percent from consumers. Today eighty-five percent are from retailers, and only fifteen percent from consumers.

Maley noted that jewelers continue to encourage service, but that the retailing chains tend to concentrate on sales. He expects this trend to continue over the next decade.

"In some parts of the country, it's almost impossible to find a qualified watchmaker," he added. "So the demand for our services will continue, even though the quality of our watches keeps improving, and our service solutions keep getting simpler. Some years ago, for example, we may have tried to fix a non-functioning watch movement, whereas today, in many cases, we simply replace the whole movement."

Maley said SCA will continue to provide value-added service excellence for jewelers, retail chains and consumers. "Our commitment to our customers doesn't end when the sale is made. After-sale service and parts replacement are part of the process."

Maley noted that service has always been a loss-leader

for SCA. In its first decade of operations, COSERV has raised its repair prices only twice—by sixteen percent in 1988 and by four-and-a-half percent in 1992—while the cost of doing business has gone up by eighty percent.

"I'm sure we would keep our customers even happier if we spent even more on service than we do," said Maley. "But in the real world, we have to keep service costs under control," he added.

COSERV is currently in the midst of a series of tours and seminars for sales people. Pulsar Time sales people recently completed the program, and a similar program will be held for Seiko Time in the near future, Maley said.

Teamwork is the key to efficient problem solving, both within COSERV and in relations with sales personnel, according to Maley.

"In the past, sales people haven't always realized how ready we are to assist them in any area related to service and repair," said Maley. "We believe we're taking a giant step in closing that gap."

SEIKO Corporation of America is a wholly-owned subsidiary of the Tokyo-based SEIKO CORPORATION and markets watches and clocks under the Seiko, Pulsar, Lassale, Lorus and the JAZ brand names.

❐

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Veteran watchmaker Jorge Benitez, now a trainer for SCA's COSERV division, demonstrates the demanding skills required for service technicians. Though modern technology has made module replacement rather than repair the main focus of timepiece service operations, the inner workings of a watch, like the Seiko Quartz Chronograph shown here, are still complex and delicate.

Education Update

By James Lubic

Bench Courses

It's time to take notice of the July schedule if you haven't already. We have a two-day Mechanical Chronograph course scheduled for July 9-10 in Birmingham, Alabama. At present, we have no one registered for this course. The course is designed for the skilled watchmaker with little or no knowledge of chronographs. The first day of the course covers the pillar wheel type chronograph, and the second day covers the modern cam type chronograph (specifically the Valjoux 7751).

The Advanced Clock Repair course taught by Ron Iverson scheduled for July 15-17 in Minneapolis, Minnesota is full.

Roy Hovey is getting ready to travel to two new cities with his lathe courses. On July 15-18 he will be in Denver, Colorado with Phase I. Presently there are only four students registered. On September 9-12, Mr. Hovey will be in Austin, Texas with Phase I. There are eight students registered for the Austin Phase I course. Mr. Hovey will be returning to these cities twice in fiscal year 94-95 to complete Phase II and Phase III of this twelve-day course. Get in on the ground floor while there are still openings.

Project Extend

Quartz watch repair is scheduled for July at Project Extend in Cincinnati, Ohio. Gerald Jaeger will be the instructor for Quartz I the week of July 18-22. Presently there are two members registered. Quartz II will be taught by Bob Bishop the week of July 25-29. We have three members registered for this class. These two classes were canceled last year due to lack of registration. I hope all the members who called to inquire about quartz training will take advantage of the Quartz I and Quartz II courses being offered in July.

After July 1, the $50-per-day education fee goes into effect. In an effort to help members keep down the cost of traveling to Cincinnati for Project Extend, we have added a yes/no box on the registration form to let students give AWI permission to release their phone numbers to fellow students. If you are interested in sharing transportation with fellow students, please check the appropriate box to allow AWI Central to release your phone number to the other members registered for the same course. We hope this will allow students to share travel expenses, etc.

❐



Sam Hodge making tools.



Most recent lathe course at Project Extend. Left to right, first row: Roy Hovey, Ron Moss, Bill Carson, Tamera Houk, Bill Palmer, Jim Williams, Bill Rhodes. Second row: Bill Burnley, Michael Wilken, Sam Hodge, Jack Arnold, Ron HoHenwarter, Jim Rigsby, Dewy Clark.

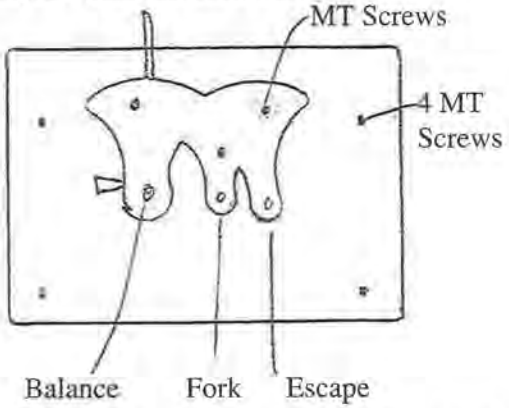


Tamera Houk shaping her gravers for bezel setting jewels.

AWI Material Search Network

Editor's Note: This column is designed to work in conjunction with the AWI Movement Bank. If you can supply any of the items listed here, please send details to the Material Search Network. **Do not send the items.** Members requesting these items will be advised of their availability and will contact you directly.

UU3 Waterbury repeating carriage clock needs complete platform escapement



UU4 Ingersoll Boy Scout minute and second hand. Shown on page 22 of *Character Wrist Watch Price Guide* by Mycko & Ehrhardts

UU9 Trenton 6 size (new model) balance staff, part #118

UU10 Hampden 12 size balance complete, part #5292 or 5293

UU12 Longines 17.89 center wheel, serial #4856875

UU13 Waltham 18 size model 1879, 11 jewel, safety pinion - 10 leafs measure 3.25mm diameter x 1.93mm high

UU16 Waltham 18 size, 21 jewel, grade 845 complete movement

If you can supply any of these items, please contact:

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If a member wants to use this service, there is a fee: $5.00 per part or the donation of a complete vintage watch movement per part. We prefer the donation of a vintage movement.

Questions & Answers
Continued from page 4

A. I was surprised that you were able to obtain parts for this old movement. While nicely made, parts here are really in short supply or not at all available. You mention that you lubricated the barrel with graphite grease *and* lubricated the mainspring. Hearing the mainspring slipping would require some acute audible faculties. Yes, the slipping of a mainspring in the barrels of automatically wound watches should take place after five or six full turns.

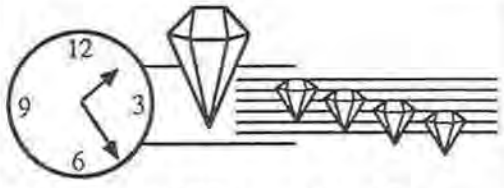
Generally, all modern watches are engineered to run about forty-eight hours on one winding. In the US, those that run longer are taxed import wise. Thus I believe that the Swiss do that on all watches they make unless they are willing to have some pay a greater duty in the US should their watches come to America. To separate them would be costly.

When it is suspected that mainsprings slip too soon and easily, the auxiliary slip-spring is straightened out a bit so that it obtains better purchase against the barrel wall. Your idea of polishing the inside wall is, in my opinion, poor as it invites premature slippage of the slip-spring. In fact, in the US, one good watchmaker revealed that when he encounters such a stubborn problem, he introduces a pinhead-sized bit of oilstone powder to assist in having the auxiliary endpiece have a greater purchase against the barrel wall.

If you really want to *see* if the spring slips prematurely, remove the barrel from the watch, place the long end of the barrel arbor in a tight-fitting pinvise and, if the cover has a slot to observe the last coil, note at how many complete turns of the pinvise and, of course, the spring within has been turned before you *see* the slippage. Or, remove the cover and, covering the spring to prevent its jumping out of the barrel, observe it. To facilitate this, you may use a piece of clear plastic between the finger holding down the spring and the wound spring.

Whoever told you to stretch the spring is, I think, pulling your leg. Do *not* lubricate the barrel wall. To triple check, test the train wheels to see whether any are loose on the pinions. The 3/4 screw may be an aid to the repairman to assist in manually winding the watch.

The AWI library does have books on automatic watches. You might ask if they will lend one to you. ❐



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Video Previews

By Milt Stevens

AWI has expanded its efforts to bring videos relating to our trade to our members and for use by our members for presentations to church, fraternal and service club meetings.

Here is the first of a series we have recently previewed. All are available for use by AWI members. Contact the audio visual library of AWI for details.

Letter to a Friend. Approximately 18 minutes. Produced for Audemars Piguet, Le Brassus, Switzerland. For horological meetings and for the public.

On the pretext of writing to a friend, the subject describes his experience of acquiring an Audemars Piguet Grande Complecations Watch.

The writer details his visit to the famed Valley Dujour, which, for centuries, has produced the finest craftsmen and examples of the watchmaking craft. Tastefully written and filmed in beautiful color, the film blends the splendor of this peaceful valley with the work of skilled craftsmen who produced 416 individual parts to bring this magnificent timepiece into being.

Flat Polishing, instructor Ron DeCorte. 42 minutes, filmed 1/94. For individual study and horological meetings.

Ron DeCorte is recognized in the U.S., Switzerland and the rest of Europe as a highly skilled craftsman capable of designing and producing any part required for the most complicated timepiece.

In addition to having mastered these skills, Mr. DeCorte is a natural teacher. As you view the tape, you immediately become aware of the pleasure he derives in sharing his skill and knowledge with those who are serious about improving their skills.

Using a Maltese cross stop-work, he demonstrates the technique he has developed to produce a fine flat (black) polish on the piece. He begins by preparing several laps so they have surfaces that will produce the desired finish. Using an India stone, he stones the piece. The stoning process is followed with lapes containing #6 micron and #3 micron diamond paste.

To prove that anyone can acquire this skill, Mr. DeCorte talks a novice with no watchmaking background through the process. This results in producing a very satisfactory polish on the Maltese cross.

As the Lathe Turns, Alice and Buddy Carpenter. Approximately 30 minutes, filmed in 1994.

Filmed by Alice and Buddy Carpenter with their own camcorder, this program deals with the care of a watchmaker's lathe. Buddy completely disassembles, cleans, oils and reassembles the lathe while Alice films and kibitzes.

The Carpenters, from North Carolina, are one of this country's well-known husband and wife horological teams. Both are AWI bench course instructors, and both have served on the AWI Board of Directors (Alice is a past president).

This unedited home video presents useful information about watchmaker lathe care. It also features some good-natured banter that should be familiar to all married couples who work together.

What Jewelers Should Know About Fracture Filled Diamonds. Approximately 30 minutes. Produced and sold by the GIA, 1994.

This video deals with the process developed in 1982 of filling fractures (feathers) in diamonds. It is imperative that anyone dealing in diamonds in any way become aware of how to detect and handle stone treated in this manner.

The video supplies you with the information you need to safeguard your reputation and promote consumer confidence in you and your business. Presented by two of GIA Gem Trade Laboratory's most distinguished authorities on fracture filled diamonds—Robert C. Kammerling, Director of Identification and Research, and John Koivula, Chief Research Gemologist—this video will show you step by step:

- what fracture filling is,
- how to detect filled diamonds,
- how to safely repair jewelry containing filled diamonds.

Don't risk your hard-won reputation. Get the knowledge you need to improve your ability to recognize and work with fracture filled diamonds. In helping you understand and deal effectively with the changing face of your industry, this may well prove to be the most important video you see all year.

Smart Watches, Servicing the Seiko 8M25B, instructor Robert Bishop. Approximately 38 minutes. Produced by AWI, 1994.

There are a variety of "smart watches" currently on the market made by both Swiss and Japanese manufacturers. Some even tell your blood pressure and pulse rate; others have a variety of timing and calendar functions.

Instructor Robert Bishop explains how to set and operate several of these watches. He then gives detailed service information for the Seiko calibre 8M23B. Bishop takes you step by step through the disassembly and reassembly processes, which seem to be surprisingly uncomplicated.

At the end of the program, Mr. Bishop explains the need and use of a timer. He gives instruction on use of the meter and power supply for various checks such as current consumption, continuity and circuit. The instruction concludes with the recasing process. Excellent for individual or group instruction. ❐

Book Reviews

THE CONCISE GUIDE TO BRITISH CLOCKS, by Brian Loomes. Soft cover, 4 1/4" x 7 1/4", 252 pages. Pub. 1992 by Barrie & Jenkins Ltd. (20 Bauxhall Bridge Rd., London SW2V 2SA, England) @ $19.95

Brian Loomes's intention was, "to write a general book which will be a good starting point for the novice, while at the same time offering an approach that may be refreshing and different for the more experienced collector. The aim is to pack a mass of information into a small space and yet keep it interesting."

In my humble opinion, the author has definitely accomplished his intent by taking the reader by the hand and leading him through the clock shops of the 17th and 18th centuries in both London and the provincial town and country. On this journey, we meet clockmakers, journeymen and apprentices. We learn their customs, their laws, and (if we listen closely) we can even hear the scraping of the apprentice's file as he shapes the pierced minute hand at his corner bench. We are indeed given insight into this period of history that I have found from no other source. A good deal of this insight comes from original documents of the day, which the author was able to dig out from various places.

In Chapter 3 we are led down time's corridor, past the foliot and verge escapement, the balance wheel and verge escapement, to the pendulum and verge escapement that young John Fromanteel brought back to England after a short period of service with Huygens in Holland. The verge escapement is quickly replaced by the anchor (no one is sure who first used it), then to the deadbeat escapement. Now we are really into an era of precise timekeeing, and all the major players in the game of horology are clamoring to produce the most precise timepiece.

Next we pass through the era of long case clocks with brass dials. Here I was astounded by all that can be learned from a study of the brass dial of a British long case clock. Even a novice such as I could quickly learn to tell where a clock was made, when it was made, and a fair estimate of its value. There is also dating information to be had by knowing the various strike mechanisms.

In Chapter 5 we are told why few enamel dials were used on long case clocks, and the paints that were actually used and why. We also learn who made the dials and how they were made. We see how the dials were decorated and what these decorations tell us. We see dial openings and learn their secrets. After reading these two chapters, I will never again be able to pass an English long case clock without stopping to study and appreciate the beauty of its dial.

Next we see examples of hook and strike clocks, hooded clocks, tavern (or act of parliament) clocks, and Norfolk clocks, and are led into a very good pictorial tour of case designs and choices of woods. One could only wish that these pictures could have been done in color so we could fully enjoy their beauty.

We now come to the advent of the spring driven clocks, including bracket clocks, skeleton clocks, carriage clocks, mantle clocks, novelty clocks, cartel clocks, English dial clocks, and the imported wall and shelf clocks of lesser quality and of lower price.

The final chapters are devoted to specific guidelines to aid the buyer, such as how to determine quality, how to spot a marriage or an outright fake, how to trace an individual clockmaker, how and what to restore or not restore, and how to set up and care for your clock after you acquire one.

I highly recommend this as a reference book to both novice and experienced collector, or to anyone who is remotely interested in British clocks. In my opinion, only two things could improve this book: color pictures to show off the beautiful dials and cases, and larger print for us old-timers whose eyes aren't all that good any more.

Buddy Carpenter

Waterproof & Water-Resistant Watches
Continued from page 15

In other words, when the stepped case opener is inserted into the case groove, usually at the dial figure 6 or 9 position, pressure should be applied lengthwise in the direction of the arrow in Figure 63. *The case knife should not use upward pressure.* The correct direction pressure compresses the gasket at the opposite end. This then allows the lip at the stepped tool side to have room to slide past and up, out of the case's groove. Using upward pressure at the outset of the case opening operation may injure the snap back case edge and its watertightness, and may also injure the gasket.

In closing such a case, apply some silicon lubrication evenly around the gasket. Insert the snap back claw or lip opposite the opening slot of the case back into the groove of the case itself. Push the snap back forward as shown in Figure 64. This again compresses the gasket at the opposite end, allowing your contact end to slide into the case groove and shut. Use the thumb pressure as shown in these illustrations by Citizen; the ideas are applicable to many other such makers' cases. ❐

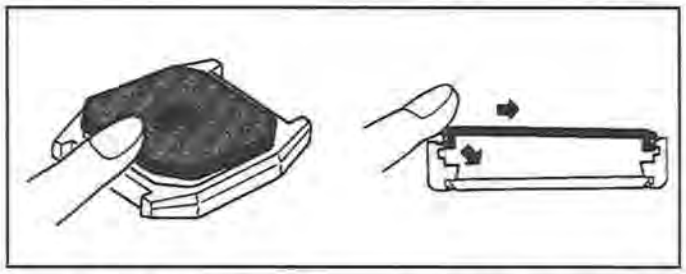


Figure 64. When the opener has dislodged the case back from the rear groove, use lever action to remove case back shown in both views. To close case, use strong forward pressure to compress front gasket. This allows lip of case back to slip into rear groove.

Association News

ARIZONA

The Arizona Clockmakers & Watchmakers Guild met at Monti's Steakhouse in Phoenix on April 14. Bob Miller demonstrated the art of cutting watch crystals.

AUSTRALIA

The Queensland Branch enjoyed the visit of Remy Waelchli from Switzerland, sponsored by ETA Industries. Two seminars were held in Brisbane, Queensland where fifteen tradesmen were trained on the ETA calibre 251.262. One session was specifically for apprentices who have been attending their first year's college training.

At their last regularly scheduled meeting, the members viewed the AWI slide program, "The History of Time." Members plan to borrow the program from the guild whenever they are invited to other meetings to talk about their trade. The program was made available by the AWI Public Relations & Publicity Committee, Fred Burckhardt, chair.

FLORIDA

On April 24, Suncoast Watchmakers Guild met in St. Petersburg, FL and held a trade/swap/sell program. At the previous meeting, the group enjoyed videotapes from Breitling and Audamar Piguet Watch companies. The group is looking forward to the return of members Rik Dietel and Bill Kroh who participated in Henry Fried's tour to Europe. They will share their experience via camcorder.

NEW JERSEY

The Watchmakers of New Jersey was the first organization to view the new AWI video, "Flat Polishing and Other Techniques in Restoring Watches," by Ron DeCorte. In this video, Mr. DeCorte gives a step-by-step explanation of how to use various abrasives and equipment.

Immediately following the video, a live demonstration of those same processes was given by Bernhard Stoeber, WANJ's technical chairman. Bernhard used Ron DeCorte's methods and also some of his own. The presentation was projected onto a video screen by president John Sokol using a camcorder. This gave everyone a good close-up view on the screen. Members carried on a question and answer exchange as Bernhard was working.

NEW YORK

On Monday, April 4, Henry B. Fried gave a fascinating talk to the HSNY on tourbillon watches. The tourbillon is one of the most prestigious and least known watches.

Mr. Fried, with the aid of slides and with his inimitable pedagogical skill, analyzed the working of the mechanism and described its many variants (e.g. the mass-produced Karrusel, the flying tourbillon, and some types that revolve in thirty-four or fifty-two minutes).

It was a fascinating learning experience thoroughly enjoyed by all the members.

NORTH CAROLINA

The **Coastal Plains Guild** welcomed Alice and Buddy Carpenter to their February meeting. They presented a video on how to disassemble and assemble an 18 size pocket watch. Another video was shown on repairing a clock with broken teeth. Buddy demonstrated a procedure of welding to the brass wheel and cutting out the teeth to match.

The Coastal Plains Guild meets the second Sunday of each month. Meetings last from two to three hours.

For the seventeenth year, the third Sunday in July is when the **Cape Fear Guild** will host its annual watchmaker, clockmaker, jeweler and store owner auction.

Early on Sunday morning, eager people start arriving and placing their tools and merchandise on the tables. They have learned that it pays to come early to inspect what is on the tables. Everyone takes notes on lot numbers and the condition of the hundreds of items to be auctioned.

Bob Skurla presents each item and accepts bids. Many valuable items are offered to help members do our trade. If you have tools that are not being used, this is the time to convert them to cash. For information and fliers call (910) 425-3387.

OHIO

The Watchmakers/Clockmakers Association of Ohio, Inc. will hold their 48th annual convention at the Parke Hotel, 3025 Olentangy River Road, Columbus OH on July 29, 30 and 31, 1994.

Henry Fried will be there to put on a program Saturday, and will be the guest speaker Saturday evening at the banquet. There are also some other very good things being planned, including a cook-out Friday evening.

Everyone is invited! For more complete information, please contact Bob and Mary Allis at 106 Earnst St., Fostoria OH 44830, (419) 435-8009.

PENNSYLVANIA

The Watchmakers Association of Pennsylvania has scheduled the following bench courses for the 1994 convention/seminar: Clock Repair by John Nagle, Advanced Quartz Watch Repair by Dan Fenwick, Jewelry Repair by Michael Anderson, Hand Engraving by Robert Hindman, and Tool Making by Bill Sewel. With board approval, there will be a vendor's display and an auction of used equipment. If you have questions, comments or concerns, please call Harry Hinzy at the Hiram G. Andrews Center during business hours. From anywhere in PA, call (800) 726-4211 ext. 371; from anywhere else, call (814) 255-8371.

TEXAS

The Watchmakers Association of Houston Area held their meeting April 19 at Waugh Watch Repair in Houston, TX. Their main topic was a method of cleaning quartz watches. The presentation was made by Don Sorensen. ❐

Affiliate Chapter Column

Success and Goals

By Greg Hostetter, CC

How do you define success? How do you define success as it relates to your affiliate chapter? Some chapters may define their success by the number of meetings they hold each year. Others may consider themselves successful because of the number of members in their association. Still others will look at the "bottom line" and consider themselves successful because they have money in the bank to support scholarships, conventions and other programs.

How does your chapter define a "successful" chapter? What are the goals and dreams of your chapter? Sure, we all want to be part of a successful chapter, but as you can see, success can be defined in many different ways.

I read recently that one of the most important tools for success is goal setting. Setting the goals to put you on the path to being a more successful chapter is actually quite easy. Each chapter simply has to decide what it wants. Now this is not strictly a committee assignment. Setting goals and direction for a chapter is the responsibility of each of the members. Putting a committee in charge of getting input from the entire membership, however, can greatly improve the effectiveness of the project.

How do you approach your members when planning goals? One idea is simply to ask each and every one for a three-item wish list. If they could have anything from the chapter, or if the chapter could offer anything, what would it be? Now don't settle for an answer of, "I don't know." Ask everyone to give serious thought and make a realistic wish list. Flying everyone to Las Vegas for free to attend annual conventions could be considered unrealistic.

Once all the lists have been collected, have the committee tabulate the results and prepare them for membership approval. Before publishing the list, have the committee rephrase the goals to be positive and specific. Rephrase "stop having meetings on weekends," to "hold our meetings during the week." Modify "give us more technical stuff" to "hold two more technical seminars this year."

Get the membership to vote on and approve the top three to five goals as the official goals your association is going to work toward. By having the goals voted on and approved, your membership knows the exact direction and focus your association is committed to. The nice thing about being an affiliate chapter is that each chapter has the ability to define its own goals and find its own definition of success.

How do you reach the goals the membership asked for? Here you have at least two main options: 1) you can use the principle of trial and error and hope that you do what works, or 2) you can copy the success of someone who has reached the goal you're working towards. Option one can be slow and expensive. Option two is easy. In fact, option two is already in the works for you. It's called the annual Affiliate Chapter meetings coming up on June 23rd and 24th!

Your chapter representative will be learning of the successes of the other chapters. Take advantage of this important pool of knowledge and experience. Have your delegate ask as many questions of as many people as possible. The stage is set for them to learn, they just have to participate and take advantage of the opportunity put before them.

When he or she gets back home, have your chapter representative give a full summary of their trip. Let your members know what's going on in the other chapters. It's a great source of new ideas.

Don't forget, each of you can attend the affiliate chapters meeting. Come give us your thoughts, ideas, and opinions. Become an active part in the whole process. Share what you've got with the other chapters and have a good time doing it. We'll look for you in Cincinnati! ❐

1994 CONVENTIONS

North Carolina Watchmakers Association
June 3-5, 1994
Holiday Inn North—Raleigh, NC

AWI Annual Board of Directors Meeting
June 25–26 1994
Commonwealth Hilton—Florence, KY
(near Cincinnati, OH)

Watchmakers-Clockmakers Association of Ohio
July 29-31, 1994
Park Hotel—Columbus, OH

Illinois State Watchmakers Association
October 14-16, 1994
Keller Convention Center—Effingham, IL

Florida State Watchmakers Association Convention
October 22–23, 1994
Orlando, FL

Bulletin Board

A. NEW REQUESTS

JUNGHANS B-09 INFORMATION

Howard Partlo, Spring Hill, FL is seeking service information for the Junghans B-09 clock.

MAKER AND DATE OF WOODEN CLOCK MOVEMENT





Paul Loftus, Lemont, PA is trying to determine the maker, date of manufacture and type of wood used in the wooden clock movement shown, and whether it was encased as a wall or tall clock. A recommended bibliography would also be appreciated.

B. RESPONSES

SPECIFICATIONS FOR AMERICAN BALANCE STAFFS AND JEWELS

Leon Sanger, Olathe, KS; Bob Callaghan, Rinereck, NY: Alice Carpenter, Tarboro, NC; and Pat Williams, Dallas, TX all told us about the book *American Pocket and Wrist Watch Balance Staff Interchangeability*, by Townsend & Erhardt. Pat Williams supplied a copy of the book.

W.E. Wilkins, Sumerset, CA; Tim Flower, Pittsburgh, PA; and David Christianson, Kendallville, IN told us of the Swartchild Co. publication *Chart Book for Genuine American Balance Staffs*. Wilkins and Christianson supplied copies.

Other possible sources were also recommended. We have forwarded this information to Daniel Rom, Rockville, MD.

STERNKREUZ PLASTIC CRYSTALS

It seems that Gene Hollingsworth, Emmett, ID did not call the right places when he wrote that he called a number of supply houses, including K&A Watch Supply, and could not locate these crystals. K&A Watch Supply informs us that they are still in business and are located at 1548 East 9th Street, Brooklyn, NY 11230. Phone: (718) 382-6406 and 6410; Fax: (718) 382-6426. We have been notified of these additional sources for the crystals:

Guenther & Sons
404 W. 7th St., Rm. 408
Los Angeles, CA 90014

Jules Borel & Co.
1110 Grande Ave.
Kansas City, MO 64106

TWM-The Buttner Co.
800 Juan Tabo N.E.
Albuquerque, NM 87123

We have also been advised that American Perfit Crystal Corp. distributes the Stella "PHC" crystals, made expressly for the purpose of being a direct replacement of the savonnette, ht. 7 crystal.

Bulletin Board hopes that in the future Gene Hollingsworth and others will exhaust every effort to find a source before writing for help.

BRANSON MODEL D-50 SCHEMATIC

Sidney B. Williams, Cedarburg, WI has supplied the Branson Model D-50 schematic requested by George Aldridge, Warminster, PA.

DEVON GENTS WATCH

Normal Meisel, Ft. Myers, FL shares that the "Devon" brand watch is sold by Service Merchandise.

C. ITEMS STILL NEEDED

L&R STANDARD 2 WATCH TIMER AND MODEL 320 ULTRASONIC TANK

Ken Setser, Potsdam, OH seeks schematics and operating instructions for the L&R Standard Watch Timer, and for the L&R model 320 Ultrasonic Tank.

DANAKER CLOCKS

Richard Dermond seeks to identify a distributor and/or dealer for the Danaker brand clock.

VIGOR PEN PLATER # PM515

Pete Derkotch, Bellmawr, NJ is seeking operating instructions for a Vigor Pen Plater # PM515.

ST. LOUIS WATCHMAKING SCHOOL

Gene Bertram, Kirkwood, MO is seeking information about the St. Louis School of Watchmaking, which operated around the turn of the century.

Bulletin Board

L.F. & W.W. CARTER CLOCK, BRISTOL, CT
Jerry H. Brazil, San Antonio, TX writes:
I have an L.F. & W.W. Carter double dial shelf clock on my bench for restoration, and am in need of a few parts. The clock is a shelf model with 8" dials. It is very similar to item number #182 on page 65 of the Survey of American Clocks, Calendar Clocks *by Miller and Miller. I am missing the upper dial completely. The main problem is that I'm missing the drive gears for the movement of the day of the week hand on the time movement. So far I've not been able to find a picture or description of this complete movement, so I'm not sure what I'm missing. I've restored the time and strike weight driven movement, but I find no additional wheels or gears to drive the day of the week hand. By the way, I'm also missing this third hand.*

CLOCK CHAINS CUSTOM MADE
Del Littlefield, Pensacola, FL is seeking someone in the US who makes chains to order for an English grandfather (floor) clock.

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News of the Trade

CAS-KER INTRODUCES REDI-PRONGS



Redi-Prongs.

Redi-Prongs are a fast and convenient tool for prong retipping that offer longer wear than solder prongs. Each small cap is made of plumb gold with a small amount of pre-applied, medium-hard 14K solder on the bottom. Redi-Prongs are time saving and therefore cost saving.

Redi-Prongs are a precise and easy way to replace or rebuild prongs perfectly on diamonds of all sizes. They are now available from Cas-Ker in a 300-tip kit in assorted sizes in white and yellow gold. Cost is $49.95. Contact Adrian Herberger at Cas-Ker for more information at 800-487-0408.

ETA TECHNICAL COURSES

ETA SA Fabriques d'Ebaushes, Europe's largest manufacturer of components and movements for electronic and mechanical watches is offering six different courses at their Grenchen training center. They will be presented in English, Spanish, German, French and Italian. The following are the technical courses the ETA training center is offering for watchmakers, watch repairers and sales and administrative personnel.

A-1 Basic Course, 3 1/2 days
For watchmakers and repairers wishing to acquire basic knowledge of quartz products.

A-3 Specialization Course, 3 1/2 days
For watchmakers and repairers who have followed a basic course and wish to specialize in chronos.

A-4 Repairing Quartz Watches, 4 1/2 days
For watchmakers and repairers who have followed basic course and want to repair quartz watches.

A-5 Individualized Technical Courses
For watchmakers and repairers, sales and administrative personnel. Tailored to individual requests and needs.

A-6 "Top Range" Course, 3 1/2 days (New)
For watchmakers and repairers who can repair mechanical and quartz products, and wish to specialize in top range watches.

D-1 Technical Training, 1 day
For sales and administrative personnel who wish to acquire knowledge of mechanical and quartz products.

Information about courses scheduled and enrollment details can be obtained from ETA SA, Centre De Formation, Bahnhofstrasse 9, Ch-2540 Grenchen, Switzerland. Phone: (065) 51 71 71; fax: (065) 51 71 74.



Left to right, R. Waelchi, P. Zihlmann and P. Jakob, TEA's team of instructors who are to give a wide range of courses for watchmakers, sales and administrative personnel at the company's training center in Grenchen, Switzerland in 1994.

NEW FREE CONTACT EAST CATALOG

Contact East, North Andover, MA, has released a new 244-page catalog with many items of interest to watch/clockmakers and jewelers. Contact East is known for distributing technical electronic supplies, but they also carry tools for our industry such as precision hand tools (screwdrivers, pliers, tweezers); inspection equipment (magnifiers, microscopes, eye loupes, lamps); cleaning equipment (ultrasonic cleaners, cleaning wipes, dispensers, adhesives, soldering supplies); and much more. To receive your free copy, call (508) 682-2000, or write Contact East, 335 Willow Street, N. Andover, MA 01845. Tell them you saw it in *Horological Times*.

News of the Trade

WITTNAUER INTERNATIONAL IS LAUNCHED AT LAS VEGAS JCK SHOW

On March 31, 1994 Longines/Wittnauer, a name known around the world since 1880, officially became Wittnauer International, Inc. The announcement of the name change will be made by president Reynald M. Swift during the JCK Show in Las Vegas, June 4-7.

In addition to the announcement and introduction of this year's expanded collection of watches, Wittnauer International plans to celebrate the company's history with a collector's book and special limited edition watch to commemorate its 114 years of Swiss watchmaking.

The history of Albert Wittnauer, the evolution of his company, and an era in watchmaking are traced in the book *Wittnauer: A History of the Man and His Legacy*, by Henry B. Fried.

Wittnauer will also highlight Zodiac, the Swiss watch that was recently named official watch of the UDT/SEALS, (A.K.A. The Navy Seals). These watches are water-resistant to two hundred meters, feature a patented system of shock-resistant cases, unidirectional rotating bezels, and an evacuation system under the bezel to remove undesirable particles and ensure longer life.

NEW GOLD REFINING MADE EASY AND PROFITABLE

Kassoy, Hicksville, NY announces a simplicity gold refining system that allows anyone to refine their own gold. The system is easy-to-learn (video provided), cost-effective (only $2 per ounce to operate), safe (no toxic chemicals), compact (takes up less than one cubic foot), and versatile (refines any karat 1K to 20K). Your gold never leaves the shop and the system pays for itself right away. For the price and details contact Kassoy, 16 Midland Avenue, Hicksville, NY 11801, or call (800) 4-KASSOY (in NYC: 516/942-0560). Tell them you saw it in *Horological Times*.

SUPER-CONCENTRATED JEWELRY CLEANER FROM L&R

L&R Manufacturing Company has introduced Jewelex®, a super-concentrated, pre-measured individual packet for professional cleaning. To be used with the Q90 machine that was engineered for professionals concerned with cleaning large volumes of jewelry, this combination may be used to clean stock or customers' jewelry, or to clean compounds, oils and flux from repaired jewelry.

The non-ammoniated jewelry cleaner is pre-measured to provide the correct amount of cleaner for your Q90. Simply open the packet, empty directly into your ultrasonic tank, and add the appropriate amount of water. One packet makes one tankful. Because of its super concentration and unique packaging, Jewelex helps save on storage space and on freight.

To receive a free sample of Jewelex, send a request to Free Jewelex Sample, L&R Manufacturing Company, 577 Elm Street, Kearny, NJ 07032-3604.

BB CRYSTAL COMPANY MARKETS WATCH CRYSTAL CLOTHS

The American Perfit Crystal Corporation, makers of BB Crystals, announces the availability of genuine chamois cloths for all watchmakers' and jewelers' polishing needs. Made of genuine sheepskin, the cloths have undergone a tanning process that gives them the ability to absorb tiny dirt particles that would otherwise scratch the surface being polished. These lint-free, washable cloths may be used wet or dry and will not scratch. Contact your watch material supplier.

CLOCK AND WATCH TRADEMARK INDEX, by Karl Kochman

Featuring trademarks from Austria, England, France, Germany and Switzerland, this 1993 edition is expanded to 967 pages and 17 tables with 18,000 trademarks as a result of Karl Kochman's continued research in these countries. The contents are of special interest to collectors, hobbyists, appraisers and historians.

The book contains a first-ever published chapter on electrical clocks, data from the Industrial Revolution to present. Also included are chronological essays of notable European watch and clock enterprises.

It's available from Scanlon/American Reprints, P.O. Box 379, Modesto, CA 95353 or your book dealer ($38.50). ❐



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Dates to Remember

JUNE 1994

3-5–North Carolina Watchmakers Association Annual Convention, Holiday Inn North, Raleigh, NC. For more information, contact Alice Carpenter (919) 823-2944.

4-5–Hairspring Vibrating Bench Course (AWI); Joseph Cerullo, instructor; Des Moines, IA.*

5–Servicing ETA Quartz Chronographs Bench Course (AWI); James Broughton, instructor; Orlando, FL.*

24–AWI Affiliate Chapter Meeting, Commonwealth Hilton, I-75 & Turfway Road, Florence, KY. Contact AWI Central for more information.

25-26–AWI Annual Board of Directors Meeting, Commonwealth Hilton, I-75 & Turfway Road, Florence, KY. Contact AWI Central for more information.

JULY 1994

9-10–Mechanical Chronographs Bench Course (AWI); James Lubic, instructor; Birmingham, AL.*

15-17–Advanced Clock Repair Bench Course (AWI); Roland Iverson, instructor; Minneapolis, MN. *

17—North Carolina Watchmakers Assocation Cape Fear Chapter Annual Auction. Call (910) 425-3387 for details.

15-18–Lathe Bench Course, Phase I (AWI); Roy Hovey, instructor; Denver, CO.*

29-31–Watchmakers-Clockmakers Association of Ohio Annual Convention, Park Hotel, Columbus, OH. For more information, contact Bob & Mary Allis, 106 Earnst St., Fostoria, OH 44830; (419) 435-8009.

AUGUST 1994

13-14–Hairspring Vibrating Bench Course (AWI); Joseph Cerullo, instructor; Rochester, NY.*

13-14–Introduction to Clock Repair Bench Course (AWI); Buddy Carpenter, instructor; Austin, TX.*

20-21–Repair of the Atmos Clock Bench Course (AWI); Gerald Jaeger, instructor; Baltimore, MD.*

20-21–Advanced Quartz Watch Repair Bench Course (AWI); Robert Bishop, instructor; Nashville, TN.*

20-21–Cuckoo Clock Repair Bench Course (AWI); James Williams, instructor; Springfield, IL.*

20-22—L.A. Jewelry Show, Los Angeles Convention Center, West Hall. (800) 523-7469.

SEPTEMBER 1994

9-12–Lathe Course Bench Course, Phase I (AWI); Roy Hovey, instructor; Austin, TX.*

17-18–Advanced Quartz Watch Repair Bench Course (AWI); Robert Bishop, instructor; Austin, TX.*

17-18–Striking Clocks Bench Course (AWI); John Nagle, instructor; Tucson, AZ.* (Held in conjunction with convention.)

18–Basic Pocket Watch Repair Bench Course (AWI); Alice Carpenter, instructor; Tucson, AZ.* (Held in conjunction with convention.)

24-25–Cuckoo Clock Repair Bench Course (AWI); James Williams, instructor; Columbus, OH.*

OCTOBER 1994

14-16–Illinois State Watchmakers Association Annual Convention; Keller Convention Center, Effingham, IL.

22-23—Florida State Watchmakers Association Convention, Orlando, Florida.

***For more information on AWI Bench Courses, Project Extend, and Regional Seminars, contact AWI Central, P.O. Box 11011, 3700 Harrison Avenue, Cincinnati OH 45211; (513)661-3838; Fax (513) 661-3131.**

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JULY 1994
15-17--Advanced Clock Repair--Minneapolis, MN
15-18--Lathe Course (Phase 1)--Denver, CO
16-17--Mechanical Chronographs--Birmingham, AL

AUGUST 1994
13-14--Hairspring Vibrating--Rochester, NY
13-14--Introduction to Clock Repair--Austin, TX
20-21--Repair of the Atmos Clock--Baltimore, MD
20-21--Cuckoo Clock Repair--Springfield, IL

SEPTEMBER 1994
9-12--Lathe Course (Phase 1)--Austin, TX
16-17--Advanced Quartz Watch Repair--San Antonio, TX*
17-18--Striking Clocks--Tucson, AZ*
18--Basic Pocket Watch--Tucson, AZ*
24-25--Cuckoo Clock Repair--Columbus, OH

OCTOBER 1994
7-10--Lathe Course (Phase II)--Austin, TX
8-9--Hairspring Vibrating--Birmingham, AL
22--Introduction to the Watchmakers Lathe--Orlando, FL*

NOVEMBER 1994
3-4--Striking Clocks--Minneapolis, MN*
4-7--Lathe Course (Phase II)--Denver, CO

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The Watch/Clockmakers Lathe Course
Roy Hovey
Phase I: Basic Lathe & Accessories
Phase II: Mounting Wheels, Arbors, & Staff Blanks
Phase III: Staffs, Repivoting, Jewel Setting; Bushings, Lantern Pinions, & the Jacot Tool
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JULY 1994
18-22--Quartz I--Jaeger
25-29--Quartz II--Bishop

AUGUST 1994
1-5--Quartz III--Carpenter
8-12--Clock I--LaChapelle
15-19--Clock IV--Iverson
22-26--Clock V--Christianson
29-Sept. 2--Clock VII--Christianson

SEPTEMBER 1994
12-16--Watch IV--Lubic
19-23--Watch VIII--Lubic
26-30--Basic Jewelry Repair--Richmond

OCTOBER 1994
3-7--Clock VI--Nagle
10-22--Lathe Course--Hovey