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COVER

This month's cover features the Seiko Spring Drive Chronograph SPS001



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President's Message

By Dennis Warner, CW21

AWCI members, the Board and the office staff are quite busy this time of year. Members are paying their dues, participating in their local chapters, asking and answering questions on our various chat rooms, engaging in the bench courses in Harrison and satisfying their customers' horological needs.

Your Board of Directors are preparing for the midyear meeting in early February in Harrison. They will review the midyear reports submitted to them by the committees. The remainder of the year will be based on the recommendations made by those committees and approved by the Board. The reports and results will be available in early March on the AWCI website and AWI-Matters.

The staff at AWCI has another new face. A well-qualified individual Daniela Ott has filled the position of Receptionist/Technical Support.

The staff at headquarters is busy following and implementing the directives given to them by the AWCI Board. Your dues for 2008 are coming in at a good rate. We will have an accurate figure available by the midyear meeting. Three one-week education classes were held in Harrison, CW21 exams were administered at several locations throughout the U.S. and graded in Harrison.

A grant application to the JCK Industry Fund has been filed. The requested amount is $50,000 and is to be used to develop the Watch Specialist program and the certification exams for the Watch Specialist and Watch Technician.

The Certified Clockmaker 21 exams have been established and the program will be presented to the Board of Directors at the midyear meeting.

The Perpetuation Fund Committee has been working to restructure the Perpetuation Fund investments. An agreement has been signed with Johnson Investment Counsel to finalize.

I thank those who give of their time and energy to make these efforts successful.

Executive Director's Message

By James E. Lubic, CMW21

This year membership dues are being returned at a steady pace. I would like to thank those who have renewed their membership with AWCI, and remind those who haven't that this *HT* will be the last you will receive before being suspended from our membership February 25th. By the way, the ELM Trust would like to thank all of you who generously donated to the Trust this year. So far the total cash donations for fiscal year 2007-08 are $4,587.66.

By the time you receive this issue of the *Horological Times* the 2007-08 Midyear Executive Committee Meeting will have already taken place. The dates for this year's meeting are February 9th and 10th. AWCI's financial direction, educational programs including the kickoff of the Twenty-First Century Clockmaker (CC21) exam will be big topics of discussion, as well as updating our Strategic Plan. We should have a full report in the March issue of the *HT*.

The AWCI Board of Examiners (BOE) will also be meeting. This meeting will take place Friday, February 8th. The purpose of this meeting is to review certification policies and procedures. If there is any tweaking to the certification that needs to be done, proposals will be made to the Board of Directors for consideration.

The Industry Advisory Board (IAB) will also meet on February 8th. Again this year the IAB members will be helping to facilitate the trade fair booth at the upcoming JCK Show in Las Vegas, May 30th through June 3rd. The IAB has become very instrumental in the advancement of AWCI's mission. We appreciate these volunteers and their support.

Speaking of volunteers – one of the key elements to the success of AWCI is our members commitment to getting involved. The new CC21 exam is going to need the expertise of members across the country to become a "mentor" to the CC21 exam. A mentor's job will be to represent AWCI in the examinee's workshop. The mentor will deliver the first test items to the examinee and oversee the work as it is done on these items, including the written exam. He or she will observe the examinee doing several of the required tasks during the first day of the CC21 examination. At the end of the first day, the mentor will help the examinee pack these first projects and ship them to AWCI for assessment. Before the mentor leaves, he/she will leave the next project with the examinee for the examinee to complete and return to AWCI within a 14-day time frame. As you can see, membership involvement will be very important to the success of the CC21 Certification. We have a list of members who have already shown interest in getting involved with this project, but we need more volunteers. If you are interested in becoming a mentor you may contact Education Coordinator, Nancy Wellmann, toll free at 866-367-2924, extension 303, or e-mail at nwellmann@awci.com.

As we move forward with the Watch Specialist (WS) and Watch Technician (WT) training and certification programs we will need even more membership involvement. We will need to train members to deliver this education to various classes regionally. We would like to get enough involvement in order to divide the responsibility over a larger group of members and therefore we won't have to rely on too few

Continued on page 43.



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Questions & Answers

By David A. Christianson, CMW21, FAWI

Question

I am trying to find out some historical information on a watch that I am restoring for a thesis project at the Lititz Watch Technicum. I have included pictures of all the components and the original case. I am pretty sure it is pin set. It does not have any Perret and Fils markings anywhere on the movement, only number 49 under the bridges. Perret and Fils is only marked on the case, and on the inner case back, as indicated in the pictures.

Any information you have about the watch manufacturer would be much appreciated. Thank you very much for your time.

Aaron Recksiek
Lititz, PA

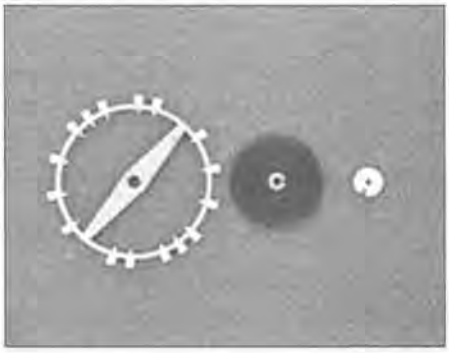
Answer

Your Perret & Fils pocket watch has a stem wind mechanism (remontoire) and a pin-setting mechanism, suggesting it was made between 1879 and 1890, when this combination of winding and setting was most commonly used. The inside back cover tells us that it has a straight-line lever escapement (ancre ligne droite); 15 jewels; a Breguet overcoil hairspring (spiral Breguet); the case is made of nickel silver; and the watch was made in Geneva by Perret & Fils. This is where the origin of your watch gets really blurry really fast.

There are about 42 watch firms listed in Kathleen Pritchard's *Swiss Timepiece Makers: 1775-1975*, most of whom were operating at the time your watch was made. About six of them were in Geneva, but none of them were named Perret & Fils. Of the 42 Perrets



























there was one Perret & Fils, but they were in Le Brenets (Le Brevine, now) about 15 miles south of LeLocle in the Neuchatel Canton (as the crow flies). Perhaps the Le Brenets firm had an office in Geneva or perhaps one of the other 42 firms had a couple of sons (fils) that took over their father's firm and changed the name but just hasn't been recorded in any of the recognized watchmakers lists (which list even more Perrets than Pritchard, but no fils). I don't know, but I feel it is probably the Le Brenets (Le Brevine) firm.

What I do know is that your watch is a very well-made watch, made around 1870 from a LeLocle-style Swiss bar ebauche (blank movement) that was commonly used by watchmakers between 1870 and 1890.

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Seiko Spring Drive Chronograph SPS001

By Ron DeCorte, CMW





1

Launched in 2007, the 300-piece limited edition Seiko Spring Drive Chronograph SPS001 is manufactured in a special alloy titanium case that is highly resistant to scratches and is GMT equipped.

On the dial side all functions are easy to read and properly positioned [1]. From the center are the hour, minute, chronograph seconds hand, and GMT hand in red. It is the chronograph seconds hand that is most intriguing and special about this watch. Unlike all other chronograph watches that start and stop from 5 to 10+ times per second depending on the frequency of their mechanical lever escapement. The Spring Drive chronograph seconds hand is totally fluid due to the Spring Drive movement that is in constant motion avoiding the jerky motion of typical chronographs. You might not believe me when I say you cannot appreciate the graceful fluid motion of this chronograph until you hold it in your hands and experience it yourself.

OK, lets get back to the dial and its other features [2]. Applied hour markers are polished and beveled with GMT hour



2

indications between and a simple date window at 3:00 o'clock. At the 9:00 o'clock position is the continuous seconds chapter ring and at 7:00 o'clock the power reserve indication of 72 hours. The two remaining chronograph indications are the 30-minute chronograph register at the 1:30 position and the hour register at the 4:30 position. I should also note that all of the Spring Drive Chronograph hands are in continuous fluid motion when in function except the minute register hand that is semi instantaneous (jumping once per minute). Why is it that the minute register hand is not continuous? After using the chronograph I understood that it could be possible to misread the minute indication if it was not changing precisely at each minute interval—good thinking!

The crown at 3:00 o'clock is responsible for setting the hour/minute, adjusting the GMT hand, adjusting the date, and of course winding the movement in case you let it sit idle for more than 72 hours [3]. Located at 2:00 is the chronograph start/stop button and at 4:00 the chronograph reset button as is typical. But, "typical" ends when you actually use the chronograph buttons. Seiko developed a push button system in the 1960s called "ready-set-go". Unlike many other chronographs that have a slow reaction time for the starting and stopping of the chronograph, Seiko developed a very rapid mechanical release and stop mechanism for their stop watches used to time international sporting events. So what does "ready-set-go" mean? Well at first you set your finger on the start/stop button (ready), next you depress about halfway until slight pressure is felt and the start function is cocked and ready (set), and finally at the moment of truth the button is pressed gently further and instantly the chronograph is in operation. Super smooth and fast is the only way I can describe it.

Looking from the back a sapphire exposition crystal gives a clear view of the movement including the winding rotor [4]. (Did I mention this is an auto winding watch with 72 hours power reserve?)

At the heart of the chronograph functions is the column wheel [5, with V-shaped steps], considered by most to be the "classic" way of functioning a chronograph. To bring things into perspective I would like to mention the Seiko caliber 6139. Introduced in 1969 it was one of the first auto winding chronograph watches that also incorporated a vertical clutch system and was controlled via a column wheel. To my knowledge this was the first chronograph to incorporate automatic winding, column wheel functionality, and a vertical clutch system.



3



4



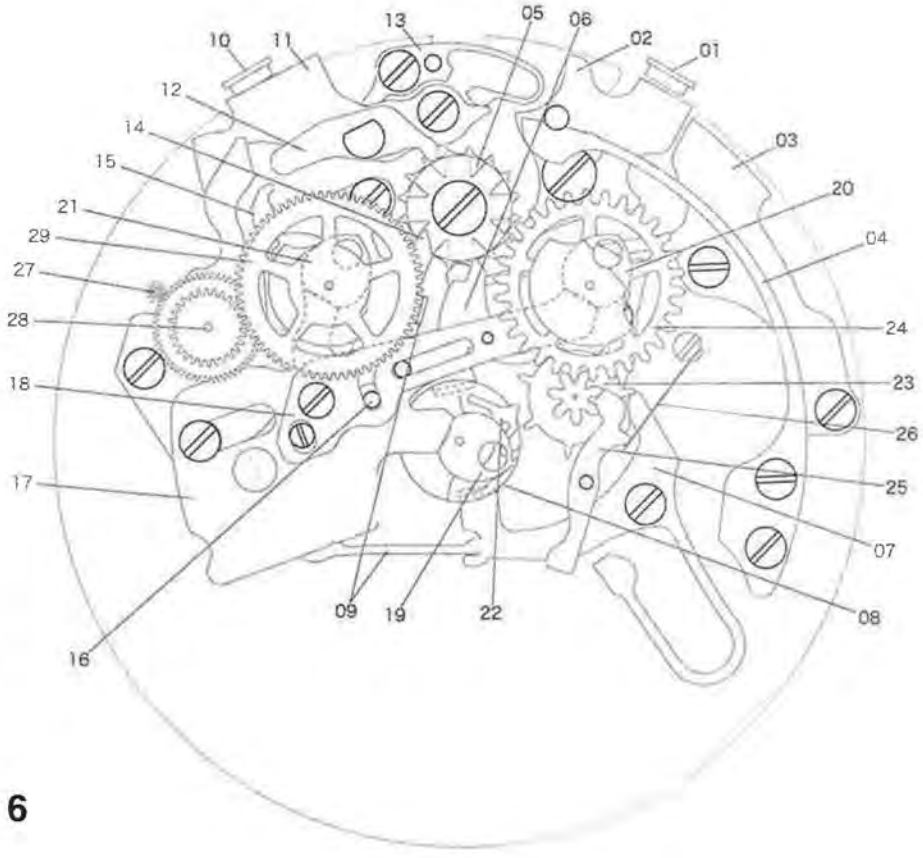
5

- 020 and 024 comprise the minute recording wheel assembly, including its heart cam and counterweight. As with the center chronograph wheel this wheel assembly has a long shaft that passes through the entire movement, as does the hour recording wheel, and carries the minute recording hand.
- 021 and 029 comprise the hour recording wheel.
- 06 and 07 are pivoted levers that open and close (disengage/engage) the vertical chronograph clutch.
- 017 and 018 are the "hammers" that when set against the heart cams of the hour, minute, and seconds wheels resets them to zero.
- 029 and 021 comprise the hour recording wheel assembly. As mentioned above this wheel assembly passes through the entire movement via a long thin shaft and carries the hour recording hand.

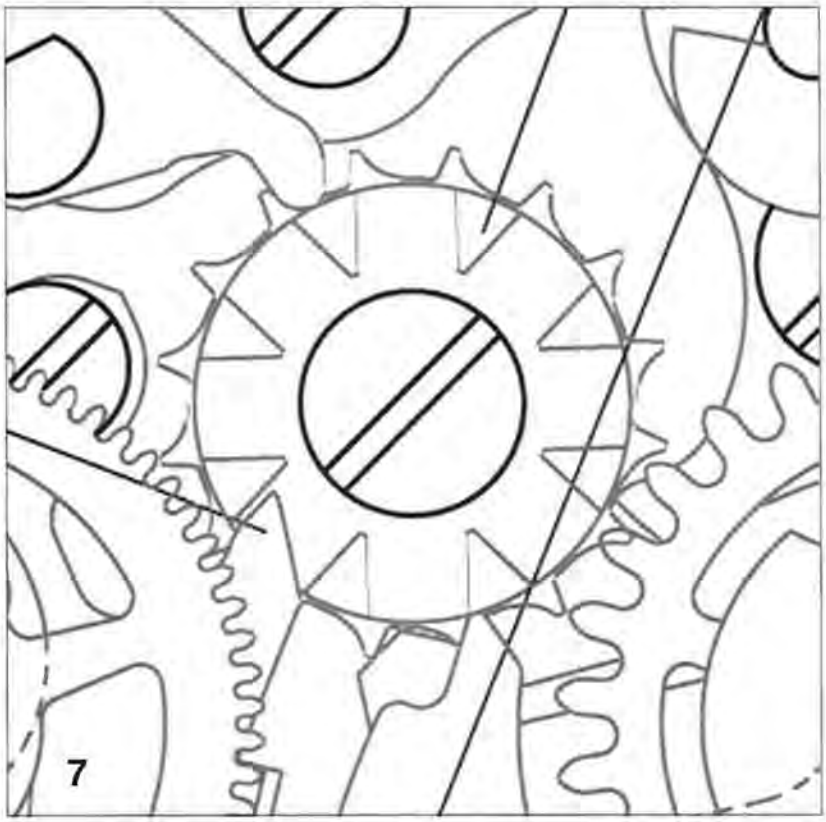
Given that, let's have a closer look at how the Seiko Spring Drive chronograph operates.

Most of the chronograph components are shown in [6]. We will not concentrate on all of them but rather on those of importance to the basic understanding of functionality. As a brief overview I'll point out some of the more important components.

- 01 is the start/stop push button
- 010 is the return-to-zero (reset button).
- 05 is the column wheel.
- 019 and 08 comprise the center chronograph wheel assembly. This wheel assembly has a long thin shaft that passes entirely through the watch movement and carries the chronograph seconds hand on the dial side. Also incorporated in this assembly is a vertical clutch system that engages and disengages the chronographic seconds and minute recording. We'll explore the vertical clutch in more detail later in the article.



6



As mentioned earlier at the heart of the chronograph function is the column wheel 05 [7]. The column wheel is responsible for engagement and disengagement of all chronograph functions. It is the V-shaped columns and the spaces between that control the actions of the levers and arms. In other words all chronograph functions begin here, either directly or indirectly.

At the center of the Spring Drive chronograph is the center chronograph wheel assembly that incorporates the vertical clutch mechanism [8]. As compared to some chronographs that use horizontal coupling to engage and disengage the chronograph, the vertical clutch has some distinct advantages. First it is almost virtually instant in terms of engagement/disengagement, there is no lag time. Second there is no possibility of the seconds hand

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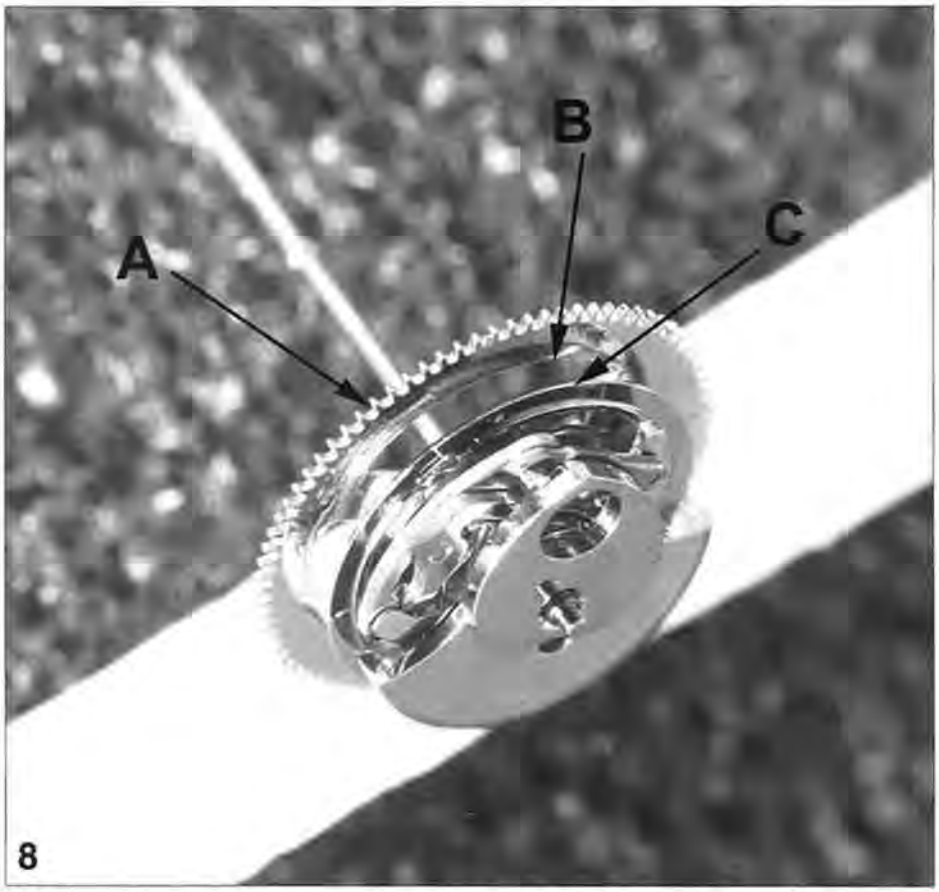


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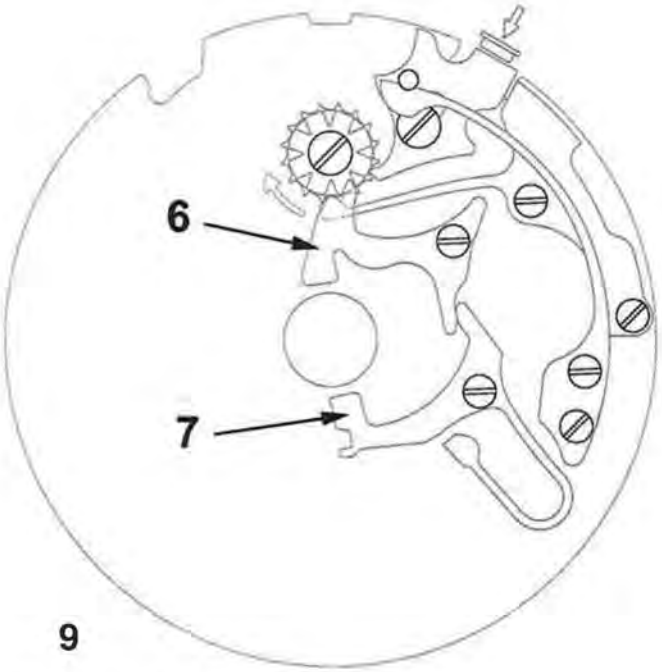
jumping either forward or backward when the chronograph is started; something horizontal engagement can suffer when two gears are suddenly meshed together. And third it is very compact in terms of size.

So how does it work? Well let's say it has a lot in common with the clutch in a manual transmission automobile. Wheel "A" is driven via power from the barrel and is in constant rotation. "B" is the clutch plate that is attached to wheel "A", and "C" is the clutch that is rigidly connected to the long shaft that carries the chronograph seconds hand. When the clutch is closed (engaged), power from the barrel is transmitted to the chronograph seconds hand, and when the clutch is open the clutch is disengaged and the seconds hand is stopped.

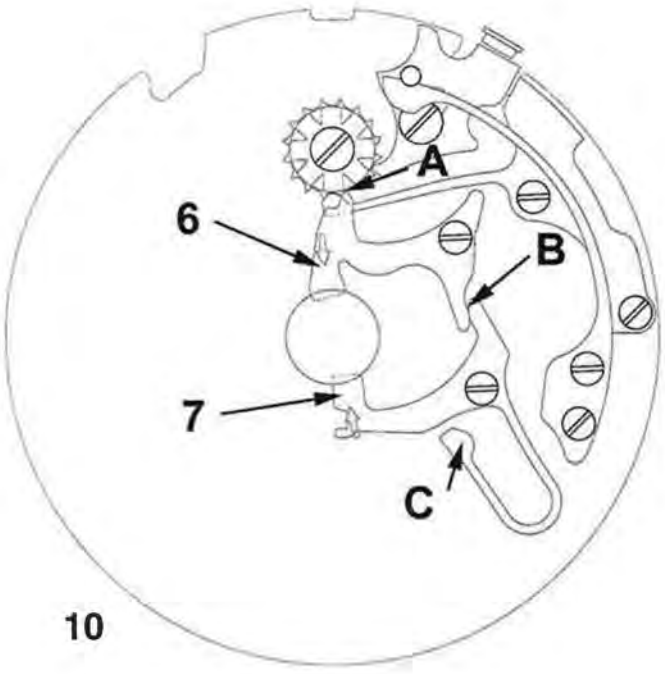
In drawing 9, levers 6 and 7 are not engaged with the vertical clutch mechanism allowing the clutch to engage and the center chronometer seconds hand to rotate and mark the elapsed seconds.

In drawing 10, levers 6 and 7 are engaged with the vertical clutch that in turn disengages the clutch stopping the chronograph seconds hand from receiving power. The action of the column wheel on the beak of lever 6 at point "A" is responsible for either engaging or disengaging both levers 6 and 7 simultaneously since they share a common point of contact with each other at point "B", while the curved tail "C" of spring 7 acts as a spring to keep both levers united in their actions.

Drawing 11 illustrates the return to zero (reset) function of the Spring Drive



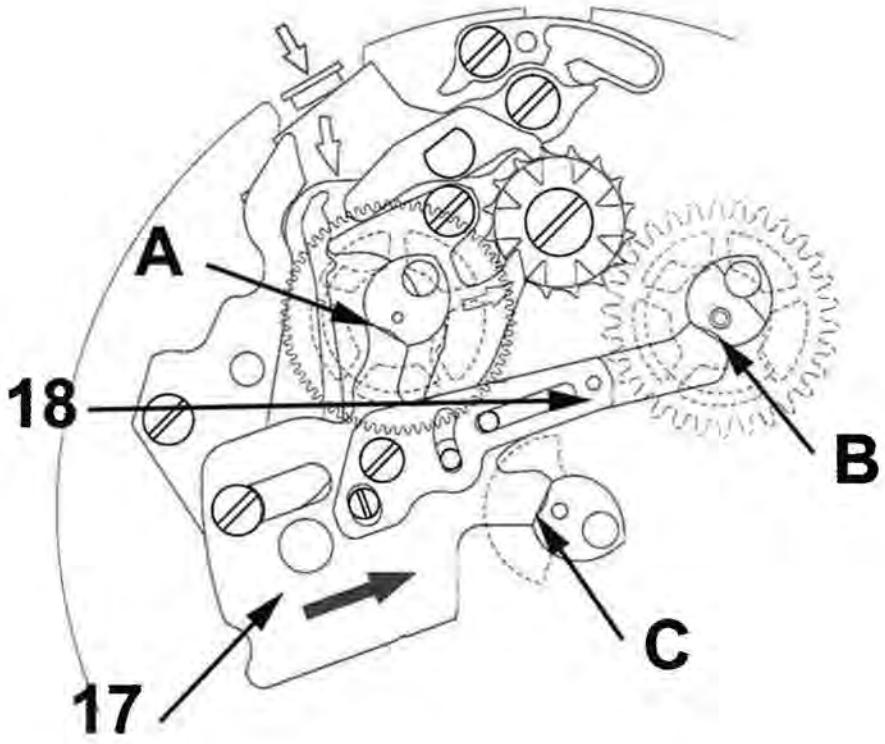
9



10

chronograph. I should note that this function is blocked while the chronograph is in operation and can only take place when the chronograph has been stopped. When the reset button is pushed the two hammers 17 and 18, which are connected together in a semi-rigid manner, are released in the direction of the solid green arrow contacting the hour wheel heart cam "A", the minute wheel heart cam "B", and the seconds wheel heart cam "C". Since the heart cams are eccentric to the central axis of each wheel the cams are forced by the flat hammer faces to assume a static or "zero" position.

There is a very nice video of the Seiko Spring Drive Chronograph located on the Seiko Spring Drive website: www.seikowatches.com/products/springdrive/index.html



11

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AWCI

By Mark Butterworth

The Modern German Clock Movement

Part 74

Turning Back the Hands of Time

Quite often the customer asks "Can I turn the clock hands backward for the correct time?" For an antique clock, the safe answer is to not turn the hands backwards past the hour or half hour mark. There were a few exceptions, but they are indeed exceptions. Most modern German clock movements, on the other hand, are designed to set the time by turning the hands backward. The reason for this is that most of these movements are chiming ones and nearly all have a striking feature at least. In moving the hands forward without allowing the chime to unlock and play completely its sequence, it is possible to shear off the pin on the warning wheel while it is rotating during the strike or chime. In addition, with the V-shaped design of the unlocking lever used by Hermle in particular, it is also possible to compress the lever (decrease the opening angle of the V) if the hands are turned while the train is running. That can result in the unlocking lever to not raise high enough, on the hour in particular, to allow the train to go into warning. As a result, from a design point of view, the manufacturers intent is to set the clock by moving the hands backward. In addition, the customer should be informed that the chime could take up to an hour to synchronize.

As alluded to earlier, this design for turning the hands backwards is built into the unlocking lever. (The one driven by the star wheel on the minute shaft.) How it interacts with the star wheel on the minute shaft and also the locking lever are also vital. There are two basic designs. The first type used by Hermle and the cuckoo manufacturers is a flexible V in which the lower portion of the V is literally pushed up away from the movement and out of the way when the start wheel moves backwards past it. Figure 1 is of a Hermle 1161-853 unit with the hour tube and snail removed. If the star wheel rotates clockwise, it pushes on a pin on the underside of the lever. That in turn rotates the lever itself about its arbor. If the star wheel rotates counterclockwise, the pin has a bevel to allow the start wheel to physically lift the lower arm up as described. Figure 2 shows the unlocking lever removed from the movement.

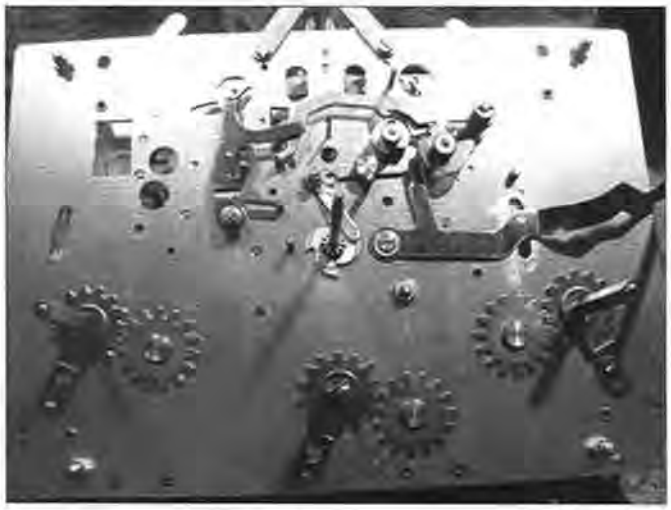


Figure 1. Hermle 1161-853 showing unlocking lever with hour tube and strike rack removed.



Figure 2. Showing removed unlocking lever from Hermle unit.



Figure 3. Kieninger RWS unit with "T" type unlocking lever.

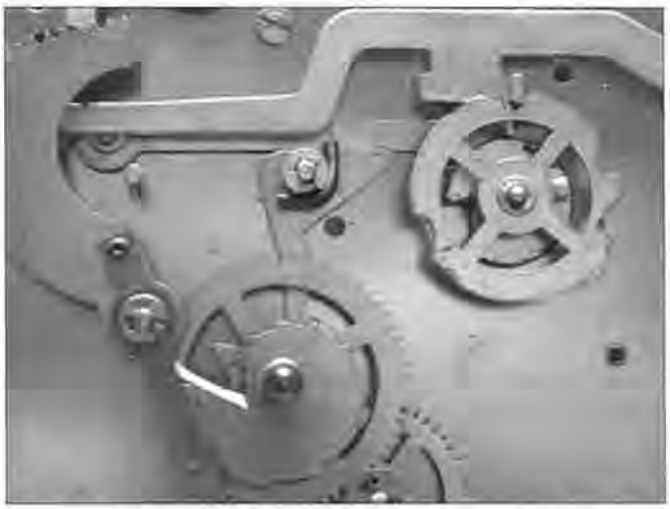


Figure 4. Solid triangle unlocking lever with coiled spring on Urgos UW32 series.

The second type is a solid piece in the form of a T. The piece pivots about an arbor and is pushed backwards out of the way by the star wheel. Once the start wheel moves backward past the piece, it then rights itself horizontally again. It will then be in a position to lift the locking lever out of the locking cam when the start wheel passes by it in a clockwise rotation. This is typical of units manufactured by Kieninger. Figure 3 is their RWS series movement. The third type is a solid triangle with a pivoting arbor at the corner. A spring is usually present to return the piece to its original position. Urgos is the most common example and Figure 4 shows the Urgos UW 32/1. There are a few designs incorporating a pivoting mechanism into the unlocking lever itself, but the principle is the same. The second piece is made to allow the star wheel to move past it in a counterclockwise direction and a counterweight restores it to the original position.

Some repair persons are still not comfortable instructing the consumer to turn the hands backward as a matter of practice, and for good reason in some instances. If the hand nut on the clock is not tightened properly, it can become loose turning hands opposite to their normal rotation. This is especially true with cuckoo clocks, and Hubert Herr ones in particular. There is also a fear that if the customer is told it is fine with one clock, he might set the time on an antique in the same way. Some shops tell the customer to stop the clock and restart on the correct time, although that is not practical for a balance wheel mechanism. Certainly instructing the customer to move the hands forward allowing it to completely chime each quarter will work. It should be mentioned that if the mechanism is spring driven, it might be a good idea to wind it after setting or it may not chime the full week. Sometimes, it is a matter of common sense. Each spring, most places advance the time by an hour (spring ahead, fall back) for daylight savings time. It makes more sense to me to rotate the hands forward one hour, allowing it to chime out each quarter that moving them backwards 11 hours. This is especially true with a calendar mechanism. In the end, it is hoped that understanding the design of the mechanism and intent of the manufacturer is helpful in the decision making process.

Final thought: *"To change and to improve are two different things."—German proverb.*

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Watch Repair in America

Part 3

World Watch Production

By David A. Christianson, CMW21, FAWI

In my continuing efforts to study the history of watch repair in America, I thought it would be interesting to get a historical picture of the numbers of watches produced in America and in the world. The accompanying graphs and its supporting tables are pretty self-explanatory.

Early historical data for the graphs comes primarily from tables that are found in two books: *Watches: 1850 – 1980* by Max Cutmore (pp. 17, 44, 129, 186); and *Revolution in Time* by David Landes (p. 386). Together, these works give us a good idea of production figures from 1790 to 1985. Antoine Simonin noted in his article "Future of Watchmaking Profession" that the estimated world production of watches reached 730 million in 1990. And then in his article, "Watch Production and Import Statistics," Jim Sadilek summarized some very interesting data that he found in a statistical report entitled, *The Market for Watches and Clocks (Past Performance, Current Trends, and Strategies for the Future)*; and at the same time gave us world watch production figures for 1992 through 2003 that were found in this 400+ page report. He noted that during this time frame, mechanical watches accounted for only 1.7% of the total world production. And finally, Lucien Trueb, in his book, *The World of Watches*, tells us that in 2004, 1.20 billion watches were made worldwide and that mechanical watches represented 1% of this total (Table 1).

In the late 1950s electro-mechanical watches came onto the scene, followed in 1960 by electronic watches (most of which were a transistorized version of the earlier electro-mechanical along with the tuning-fork watches) and then the advent of quartz watches in 1970, which dominated the market after 1976. So at a point in the late 1950s the graph splits, showing total watch production on one line (including mechanical) and mechanical watch production only on the other graph line.

The other line on the graph shows American watch production in order to give us another perspective. The production figures for 1900 – 1950 come from Cutmore (pp. 129 and 168). Both authors showed essentially the same production figures for the period 1951 to 1985, Cutmore on page 136 and Landes on page 386 (Table 2).

You'll note that American production leveled out from about 1950 until 1962, when mechanical watch production ceased in the U.S. and then began a rapid increase, not by traditional mechanical manufacturers, but by electronics firms making quartz digital watches, a technology developed in the U.S. The remaining traditional American watch companies continued to sell imported movements in their watches until American companies could no longer compete with the rapidly growing Southeast Asian producers, around 1985.

References

Max Cutmore, *Watches: 1850-1980.* (Devon, England: David & Charles, 2002).

David S. Landes, *Revolution in Time, Clocks and the Making of the Modern World.* (Cambridge, MA: The Belknap Press of Harvard University Press, 1983).

James Sadilek, "Watch Production and Import Statistics", *Horological Times*, Volume 28, Number 6, June 2004, Donna Baas, Ed., (Harrison, OH: American Watchmakers-Clockmakers Institute): p. 18.

Antoine Simonin, "Future of Watchmaking Profession", *Horological Journal*, Volume 135, Number 2, August 1992, Timothy Treffry, Ed., (Upton, Newark, England: British Horological Institute): p. 40.

Lucien F. Trueb, *The World of Watches: History, Technology, Industry*. (New York: Ebner Publishing International, Inc., 2005).

TABLE 1
World Watch Production

Year	Estimated Production		Source
1790	379,000		Cutmore, p. 17
1800	400,000		Cutmore, pp. 17 & 44
1850	2,500,000		Cutmore, p. 129
1870	2,200,000		Landes, p. 455
1900	13,100,000		Cutmore, p. 129
1925	26,300,000		"
1945	21,567,000		Landes, p. 386
1950	47,723,000		"
1962	108,832,000		"
1970	176,746,000		"
1975	224,186,000		"
1985	648,000,000		Cutmore, p. 186
1990	730,000,000		Simonin
		(Mechanical)	
1992	1,040,000,000	17,680,000	Sadilek
1996	1,090,000,000	18,530,000	"
1997	1,280,000,000	21,760,000	"
1999	1,240,000,000	21,824,000	"
2000	1,210,000,000	20,579,000	"
2003	1,290,000,000	21,930,000	"
2004	1,200,000,000	12,000,000	Trueb, p. 41

World Watch Production

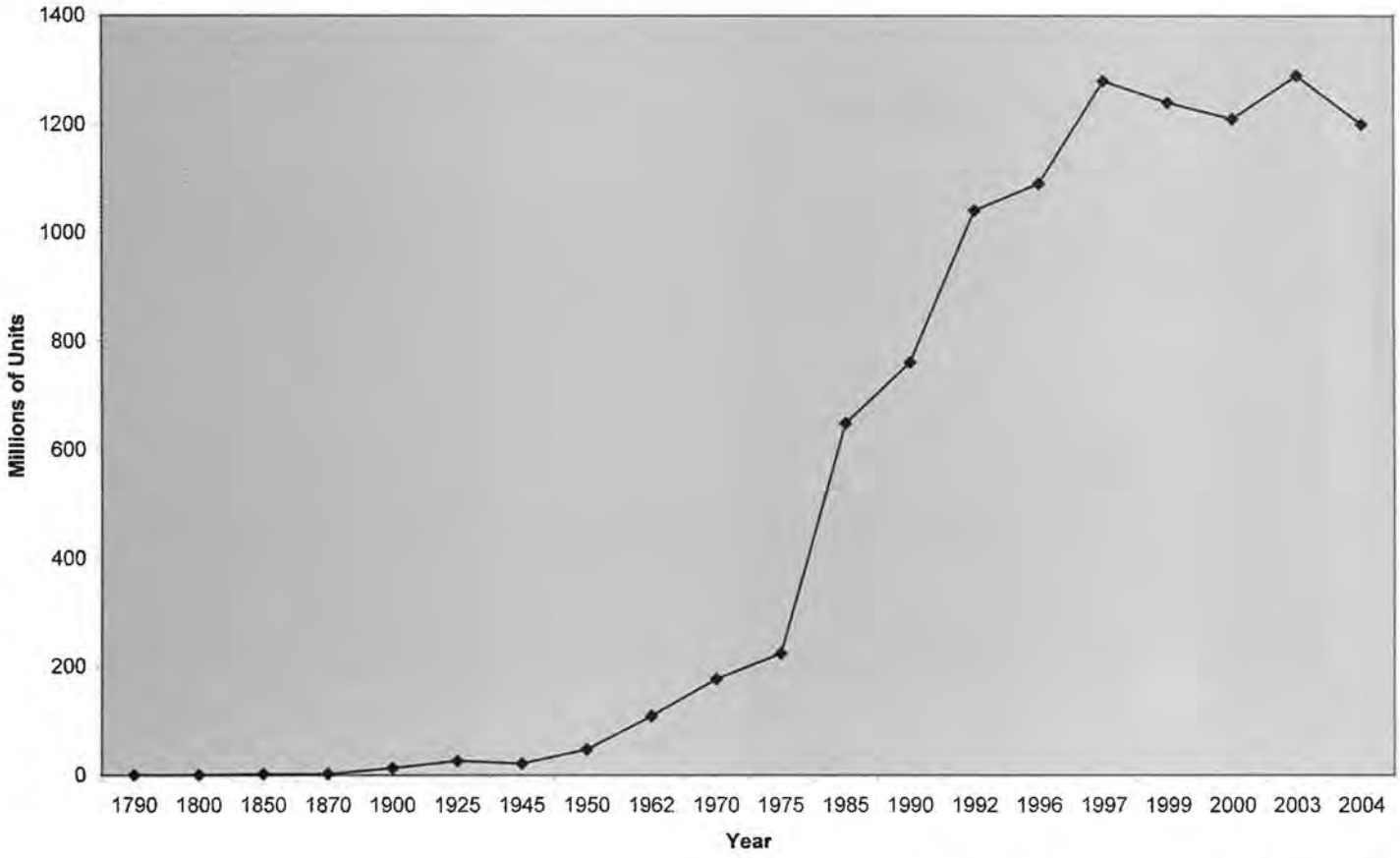
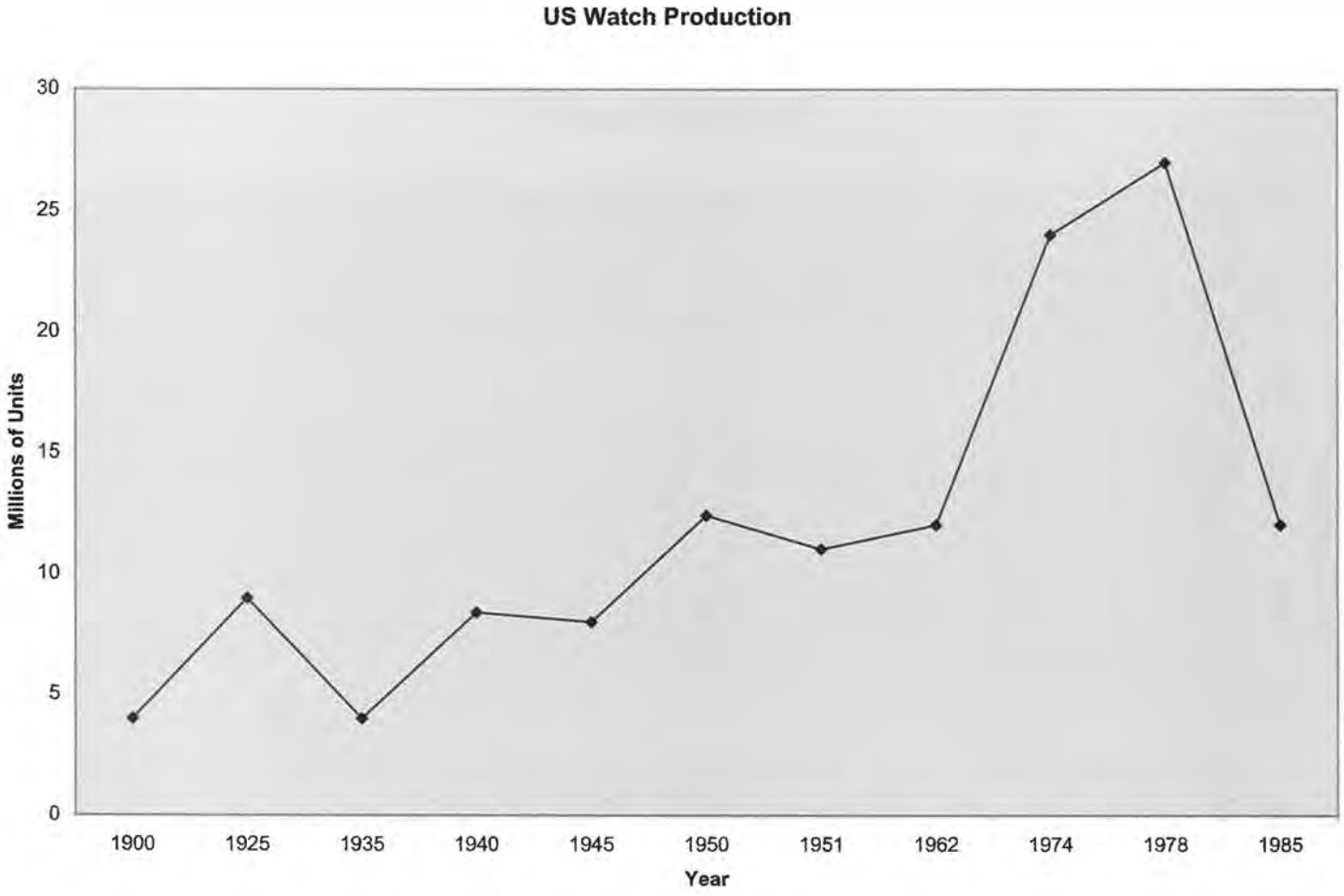


TABLE 2
United States Watch Production

Year	Estimated Production	Source
1900	4,000,000	Cutmore, p. 129
1925	9,000,000	"
1935	4,000,000	Cutmore, p. 168
1940	8,400,000	"
1945	8,000,000	"
1950	12,400,000	"
1951	11,000,000	Landes, p. 386 & Cutmore p. 136
1962	12,000,000	" "
1974	24,000,000	" "
1978	27,000,000	" "
1985	12,000,000	"





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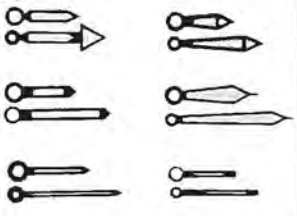


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Dealing with Escape Wheel Problems

Part 1

By David J. LaBounty, CMC, FBHI

One of the most worrisome conditions to find in any movement is an escape wheel with damaged teeth. For most of us, it is the first thing we look for when handling a movement since restoring a mangled escape wheel can be nearly impossible. There are times, in fact, when the task appears so daunting that a new wheel seems to be the only solution. Experience has taught us the movement is virtually guaranteed to exhibit timekeeping problems if the condition isn't properly dealt with. But replacing an escape wheel should be considered a last resort since there are techniques that can restore even badly damaged escape wheels to their optimum performance. Practicing these techniques turns a nearly impossible task into routine.



Figure 1. A pair of pliers that will work well for straightening escape wheel teeth.

The Pliers

A proper pair of pliers will make all the difference when making repairs to slender escape wheel teeth. The jaws will need to be smooth and the tips narrow. Serrated-jawed pliers will mar the teeth, causing further damage, and a jaw tip that is too thick won't allow the necessary range of motion. A good pair of pliers can be made from those readily available with only slight modifications. Figures 1 through 3 show an example.



Figure 2. A readily available pair of pliers (left) can be easily modified for escape wheel repair.

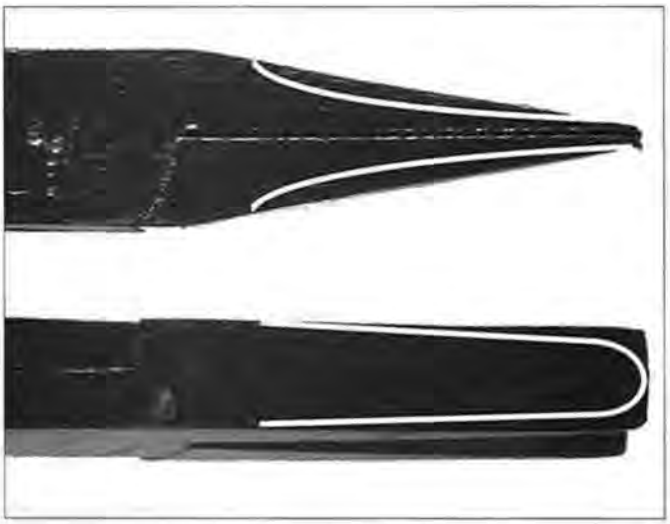


Figure 3. A pair of flat-nosed pliers showing the areas to be relieved.

Finish the modified surfaces of the pliers to match the rest of the pliers body. This is more for aesthetics and professionalism than it is for function. This pair of pliers will quickly become your favorite tool and a rough, ugly finish on the jaws will be a major distraction.

Examine the Wheel

The first step is to determine whether the escape wheel will need any attention. Problems with out-of-round or slightly short teeth can be very difficult to identify. Bent or damaged teeth are easier to see, especially using an eye loupe. This type of damage will often show up as a discoloration on the tooth; either as a bright spot, where the tooth has been nicked, or as a dark area where a bend is creating shadow. (See Figure 4.)

It is often easier to *feel* subtle problems rather than see them. Just before polishing the pivots, while spinning the wheel in the lathe, lightly rest a finger on the spinning escape wheel. (See Figure 5.)

Feel For

Roughness: Indicates a bent, damaged, or short tooth and can also indicate poor indexing
A bump: Indicates a damaged or short tooth
Pulsing: Indicates an out-of-round escape wheel

A light touch on the escape wheel should produce a soft, smooth feel. If any of the above is present, examine the escape wheel under magnification and determine where the problems are. This should be done after any truing of



Figure 4. Two escape wheel teeth showing slight damage. Note the irregular line along the tooth face, which can be easily seen with an eye loupe.

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Figure 5. A light touch on the edge of the spinning escape wheel, just prior to polishing the pivots, will allow you to feel a problem.



Figure 7. Straightening a misaligned tooth.

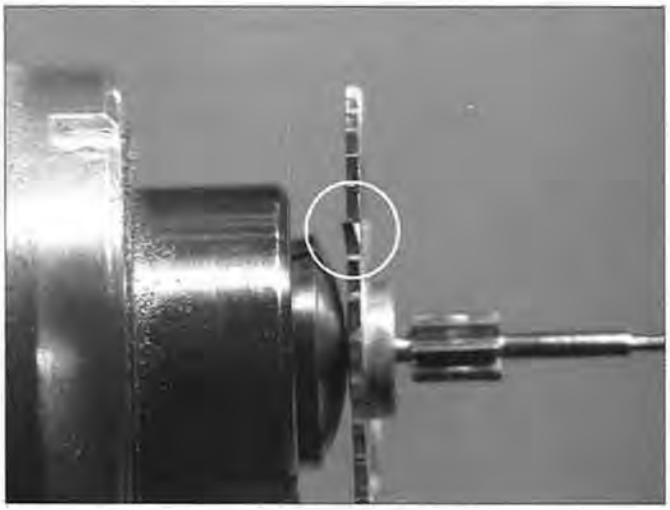


Figure 6. Tooth bent out of alignment.



Figure 8. Bringing the escape wheel back to true.

the shaft, of course, since a bent shaft will produce a similar result. Postpone polishing the escape wheel pivots until all of the problems with escape wheel teeth have been addressed.

Examine the escape wheel from the side as well as on edge, paying particular attention to the tips of the escape wheel teeth. If there is a tooth out of alignment, it can be straightened easily at this point, while the wheel is in the lathe. This will give better control and leverage while straightening the tooth. (See Figures 6 & 7.)

The escape wheel should also run true in the flat, without any wobble. Large variations may require using pliers to straighten, but most can be done with the fingers. A pinching or twisting action works best. (See Figure 8.)

Part 2 of "Dealing with Escape Wheel Problems" will continue next month.

BULLETIN BOARD

RESPONSES

Elgin Crown Wheel and Minute Wheel

Joe Miller, Fresno, OH; Kenneth Peck, Phoenix, AZ; and Kenneth Barfoot, Custer, SD have responded to Milton Stevens' request for an Elgin crown wheel and minute wheel.

ITEMS STILL NEEDED

Sonic 4 Ultrasonic Cleaner

Charles Goad, Fairland, OK, is searching for a schematic for a Sonic 4 Ultrasonic Cleaner.

Do you have information regarding this month's requests? Do you need information about one of this month's responses? If so, send your information or requests to: *Horological Times* Bulletin Board; 701 Enterprise Drive; Harrison, OH 45030-1696; Toll-Free: 1-866-367-2924, ext. 307; Phone: (513) 367-9800; Fax: (513) 367-1414; E-mail: dbaas@awci.com

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By Jack Kurdzionak, CW21

"In God We Trust, All Others Pay Cash"

Before the days of credit and debit cards, one saw signs with "IN GOD WE TRUST, ALL OTHERS PAY CASH" posted in diners, service stations, food stores, and many other establishments, all obviously playing on the use of the motto "In God We Trust" that is on our coins and paper currency. It may come as a surprise to many younger and even not so young persons that this was not always so. The regular use of "In God We Trust" on U.S. coins did not begin until 1908. In 1956, Congress made "In God We Trust" the official motto of the United States and the motto did not appear on paper money until 1957. Now that we live in the world of credit cards, debit cards, easy payments, etc., perhaps we should reword the old sign to include, in addition to cash, major credit cards, and money orders. Another sign from the same era, also no longer commonly seen, stated, "Credit makes enemies, let's stay friends."

Occasionally one hears of a situation that brings those old signs to mind. Recently, a member told of a jewelry store's watch repair account that he had serviced for a while. A few years ago, the store's service manager asked the watchmaker to accept its trade watch repair account. This well-respected store had been in business in the same city for over thirty years and had expanded to six very desirable locations in the metropolitan area. The manager and the watchmaker set up the trade account terms for types of watches to be serviced, estimating charges, turnaround time, and payments for completed work. The store agreed to pay for work delivered and billed during a month on or before the 10th of the following month. For a while, the arrangement worked very well. The jewelry store always paid the watchmaker within ten days of the month's end. After several months, the store began making late and partial payments. When the watchmaker questioned the jewelry store's accounts payable department about the late and partial payments, they assured him by explaining there had been some glitches in the system, and that he should not be concerned. The store's repair department manager further assured the watchmaker that he was a valuable partner and asset to this small chain of fine stores and furthermore he was told, please do not worry about any overdue payments. However, unknown to our watchmaker, there was plenty of cause for concern.

As months passed, the jewelry store's unpaid bill gradually increased from hundreds of dollars to thousands of dollars. The watchmaker, now concerned about the amassing debt, realized he was facing a dilemma. He could refuse to accept any more work and risk non-payment for the past work or continue working with no assurance of full payment for both past and future work. If he stopped doing any work for the store and returned all other work as undone, he had no collateral for the debt owed to him. Nevertheless, if he continued to work for the store, the debt might continue to grow with no assurance of payment. He consulted his attorney and received more bad news. What he thought was collateral for the debt, the work in progress, was not. He could only demand payment for the work that was still undelivered because his state law allowed a mechanic's lien on that work. Since the outstanding debt was for work already delivered to the jewelry store, he waived his right to the mechanic's lien on the delivered work. His only alternative to force payment of the unpaid, non-collateralized debt was to hire the attorney, sue the jewelry store in court, and hope to prevail. The low cost alternative of suing in small claims court in his state was out of the question, as that court has a limit of two thousand dollars.

Before he could make a decision, the jewelry store management made one for him. The owners of the jewelry store abruptly left the country. They returned to their original homeland on another continent where they could not be easily located nor forced to return to the USA. The store's bank creditors seized the assets of the store, fired all the employees, and put an interim management team in place to sort out the fiscal morass left by the recently departed owners. The jewelry store filed for bankruptcy and liquidated the remaining assets, which put the watchmaker in line with all of the other creditors in his class. The federal government, state and municipal governments, employees, and secured creditors were all lined up far ahead of him. Unsecured creditors, such as this watchmaker, go to the back of the collection queue in bankruptcy cases. Some months later, when he received his final settlement, it was at the rate of eighteen cents for every dollar owed. He received less than one thousand dollars as his payment for over five thousand dollars worth of parts and labor.

This situation, although not common, is not rare. Businesses of all kinds, large and small, go into bankruptcy leaving creditors and customers poorer, sadder, and wiser. Our members who do provide services to other businesses, as subcontractors, need to take some self-protective

measures to prevent major losses to their income. No one can prevent every loss. Yes, there will be unavoidable losses to every business, but you can take steps to prevent or at least minimize those losses. Here are a few of those steps:

a. Extend no credit at all. Make all customers bills' due upon receipt. Accept cash, checks, and credit cards. Exercise your state mechanic's lien by retaining repairs until you receive payment. In most states, you are not required to return repairs unless you receive payment. Know the law in your state. This is the least risky of all procedures, but understand that some store managers may refuse to send work to you if you do not extend credit.

b. Extend credit on a limited basis by setting fixed guidelines for payment options. Are you willing to accept weekly, biweekly, or monthly payments? Will you require payment in full at the end of each agreed upon payment period? Will you place a limit on the total dollar amount that may be outstanding during each period?

c. Ask for credit references from other similar vendors and be willing to follow through by calling upon those references to verify the potential client's payment history.

d. Join the Jewelers Board of Trade if your business is large enough to justify the cost. JBT continually rates and reports financial information for nearly every business in the country that deals with watches, clocks, and jewelry.

e. Use your informal watchmakers network to ask questions of others who provide similar services. In the case of the store mentioned above, almost everyone who had dealt with the jewelry store would have privately told the watchmaker to be very cautious about extending any credit terms to that store. The store had a reputation of slow payments to almost every vendor of products and services.

f. Follow your instincts before allowing credit. If the client needs your services, the client will endeavor to meet your payment requirements. If the client demands you accept payment on his terms, carefully consider it before extending any credit. Remember, your clients do not negotiate payment terms with the Postal Service, the tax collector, the utility companies, their landlords, and others that provide required products and services. Should you be any different? As a small business owner, you need prompt and full payment, as much or more than any other vendor.

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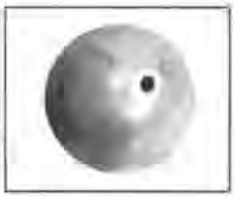
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g. Be on guard when your client does not meet agreed upon credit obligations. Late or incomplete payments are a red flag. Meet a client's requests for extended terms by asking the client to pay by credit card so that the extended terms are at the risk of the credit card issuer rather than the watchmaker.

h. Finally, remember your first obligation is to protect your business. It provides your livelihood. Your clients are protecting their interests, not yours.

The watchmaker cited above made several avoidable errors when he accepted the jewelry store as a client. If he asked people in his local trade network about the jewelry store, they might have warned him before he extended credit or let the amount due become unmanageable. Every watch and jewelry salesperson visiting his shop could have told him, privately, the jewelry store was on credit hold with various companies. Other watchmakers in his area might have warned him that this store owed them substantial amounts of money. If he had asked for quality credit references in advance, he would have seen there was none. Finally, when the store did not meet previous payment terms, he should have stopped delivering work and cut his losses immediately. He did not follow the wisdom of the old sign, "In God We Trust, All Others Pay cash." After receiving the bankruptcy settlement, this watchmaker probably had similar emotions to those of the wedding guest as told in the final stanza from Coleridge's "Rime of the Ancient Mariner":

"He went like one that hath been stunned,
And is of sense forlorn:
A sadder and a wiser man
He rose the morrow morn."

Jack Kurdzionak

"Old Soldiers Never Die, They Just Fade Away"

General Douglas MacArthur concluded his final speech to Congress when he retired in 1951 by quoting the line above from old army ballad. This writer was reminded of that line as he read a letter from one of our senior members in Pennsylvania. Joseph Verruni attended the Philadelphia College of Horology and became certified in 1948. He is now 89 years old and still working at his bench, although now only repairing clocks as he finds the watches too small. Joseph sent along two tips, he has found helpful for clock repairs, to share with our members.

The first is a different use for four pronged diamond tweezers. Instead of holding diamonds, he uses these to hold and fit the minute hand nut on a clock's center wheel arbor. He also finds the tweezers helpful for grasping screws and nuts. The second is an alternative use for a sound-amplifying device shown in the photo from a newspaper



advertisement. When this device is touched to a running clock movement, Joseph is able to clearly listen to the beat sounds of the escapement.

To paraphrase the general, we can say that "Old watchmakers never die, they just repair clocks."

Jack Kurdzionak

You Are Invited

Do you have a solution to a watch or clock repair problem that you want to share with our membership? Do you have a question about a repair problem you would like to ask? I invite you to participate in this column with your suggestions, questions and comments. It is easy. Just e-mail me at AWCI <magazine@awci.com> or write using the old standby known as the postal service. You can even fax me at 513-367-1414.

I will do my best to help you help the membership. By sharing your questions and suggestions, all of our members can benefit from our combined knowledge and experience. The ideas, tools, techniques and products presented in this column are suggested by the author and contributing members and are not endorsed by any manufacturer, supplier, advertiser or AWCI itself.

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AWCI Honor Awards Nominations

The Honor Awards Committee would like your help in finding applicants who fulfill the requirements for the achievement awards given out at the AWCI Convention and Educational Symposium held in August. The awards are:

AWCI Fellow Award
This is AWCI's most prestigious award. It carries the endorsement of one's peers as an outstanding member of the Horological Community. The person must have these qualities:

- Tangible evidence of leadership abilities
- Active participation chairing or serving on committees
- Publication of articles in horological publications
- Given lectures, workshops and technical demonstrations

Outstanding Achievement Award
Recognized for outstanding personal achievements or accomplishments such as projects, inventions, or innovative or creative ideas that meet a need in the field of Horology.

Meritorious Service Award
Awarded to a person who has made a significant contribution to AWCI and its members.

The Honor Awards nomination form must be received by the Honor Awards Committee Chairperson by May 1, 2008. Please e-mail the Honor Awards Committee at awardscomm@awci.com with any questions or concerns. The Honor Awards nomination form can be downloaded from the AWCI website (www.awci.com) or you can request a copy by contacting AWCI at 866-367-2924.

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By Laurie Penman

Fusees and Stopworks

Part 1

Fusees

The main purpose of the fusee is to obtain a constant torque for the train from a source (mainspring), which does not provide a constant torque; it is a corrective device. Figure 1 demonstrates the idea. Torque is a multiple of load (applied to the radius of a circle) and the length of the radius (torque arm). It is, in fact, the rotary application of the familiar lever and load. Figure 1 draws a comparison between the multiple of radius and load for a wheel or pulley and the multiple of lever arm and load for a straightforward lever and fulcrum.

It can be seen that just as a reducing load can be made to move a constant load by increasing the length of the lever arm, so a cord around a drum can be made to drive a train with a constant load by applying it to a lengthening torque arm if the available force (from the mainspring) declines. As a normal helical spring winds down the force does indeed decline. So the fusee with its varying length of torque arm is used to counteract the fall off in available load (Figure 2).

Starting with a fully wound spring barrel a cord is wrapped around a conical drum, as the spring unwinds it draws on the smallest diameter of the drum to begin with, gradually moving up the cone to the larger diameters, until when the mainspring has exhausted a lot of its power and no longer exerts a strong draw on the cone, it is pulling on a much larger torque arm. Attached to the fusee cone is the first gear in the train and the form of the cone is designed to provide this gear with an unvarying driving force to transmit through the train to the escapement and the pendulum or balance wheel. It is theoretically possible to arrive at a curve for the flank of the cone that will produce a constant output to the first wheel. (See A. L. Rawlings', *Science of Clocks and Watches*, p. 237 in the second edition.) However, this is a difficult curve to generate and there are variables that affect the output: changes in spring lubrication, changes in friction at the drum and fusee diameters if the cord follows anything but a perfect line as it is wound and unwound from the system, and changes in the spring's characteristics over the decades. The fusee is not the route to a perfect timekeeper, but it does reduce the errors of a mechanical clock and in the case of the marine chronometer is one factor in that machine's ability to keep time to very close limits even under bad conditions. Storms at sea are *very* bad conditions!

Because the fusee cone has a defined length of cord or chain that it can wrap around itself it automatically performs the function of stopworks, a means of selecting which part of the mainspring will be used, and a very useful function that needs to be properly understood when the clock is assembled and the linkage between spring drum and fusee cone established. Fusees can be linked by catgut, cord, wire or chain. (Of these, chain is best because it allows less stretching than the others and it is fairly obvious that if the cord, etc.,

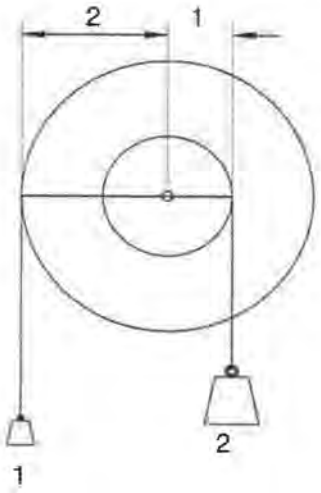
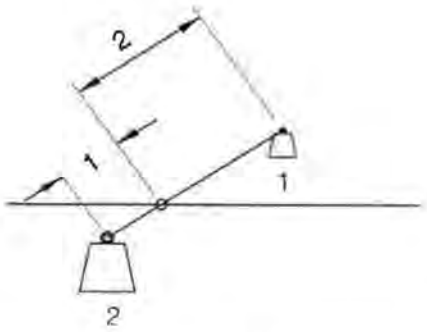
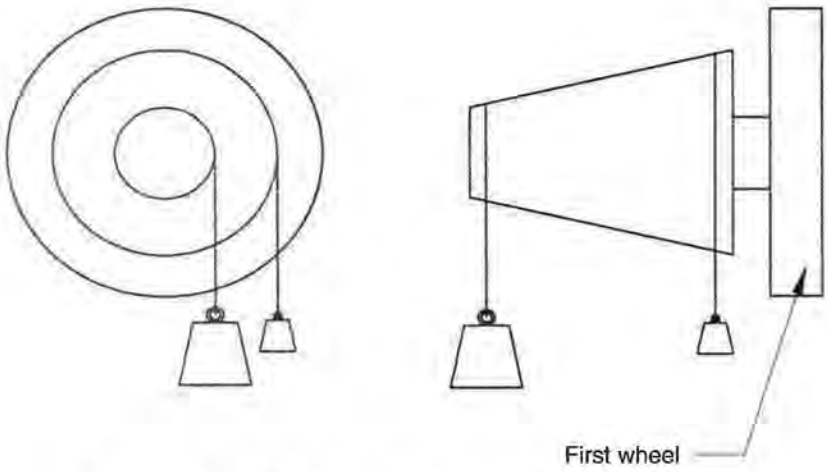


Figure 1



The multiple of load and radius works the same way on wheels or pulleys as on levers.



The smaller load can be made to apply a similar torque to the wheel as the larger load if the shape of the cone is correct. In other words, the multiple of load and radius can be made to be constant.

Figure 2

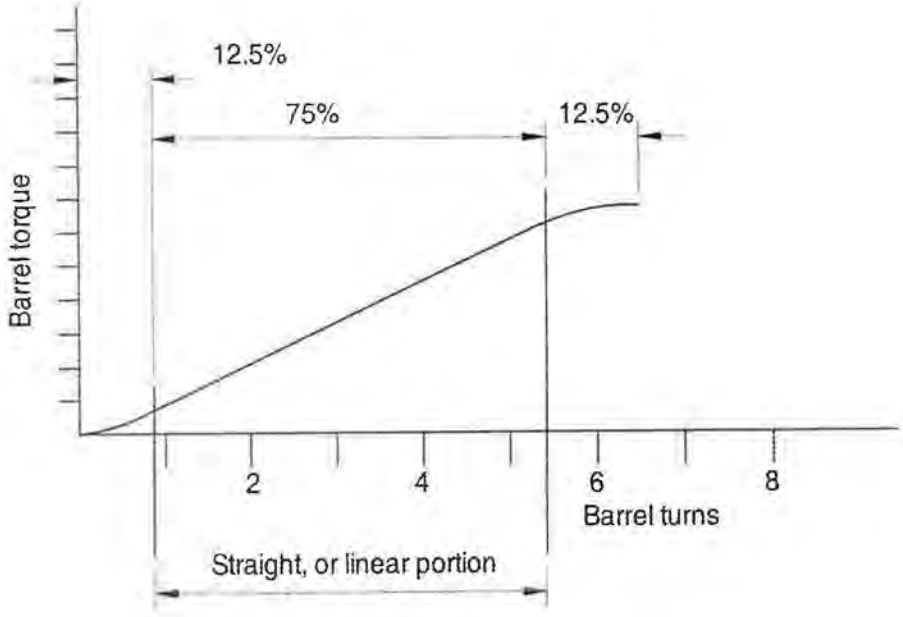


Figure 3

stretches, then the relationship between mainspring wind and train will alter and the power delivered to the escapement will be affected.)

Stopworks

Why do we wish to specify what part of the mainspring's winding is used? The answer is that a spring performs differently at different portions of its wind. In terms of torque and the number of turns made on the winder, there is a steep build up of torque for the first part, a steady, linear increase of torque for the central part of the wind and a steep fall off at the end (Figure 3).

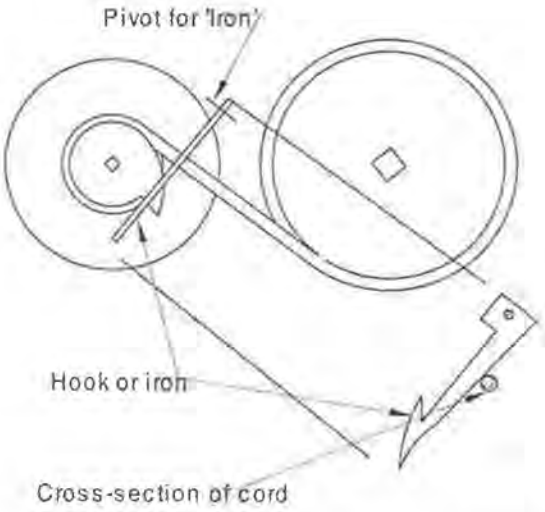
The steep changes at beginning and end make the control of the clock's time rate difficult and so the clockmaker aims for the middle, linear section, where the rate is more even. This phenomenon applies to all normal helical springs and Figure 3 shows the approximate proportions of each area.

(I have shown figures of 12.5%, but I usually split this into 10% at the start and 15% at the finish).

Limiting the amount of winding onto a fusee cone is fairly simple, but the operation (setting up) needs to be tackled methodically. Winding down is limited by the cord itself, because the mainspring will not unwind any further when the cord reaches the end of the fusee groove and is stretched along the center line (or nearly so) between cone and barrel. The limit on winding

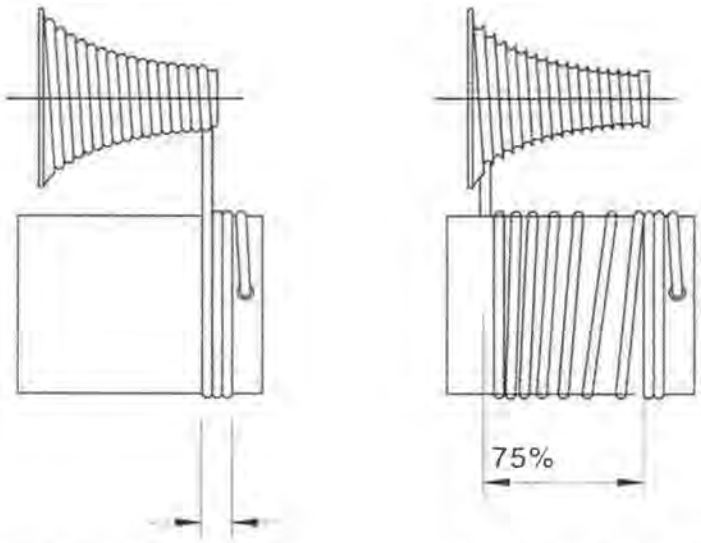
up is achieved by means of a hook, or "iron" that is moved by the line of the cord itself as it moves along the cone until the hook engages a projection on the small end of the cone (Figure 4).

The cord, or chain should make one turn around the barrel before the spring has any tension put upon it, this avoids undue strain being put on the knot or chain hook. When the spring has been set up there will be more of the cord wrapped around the barrel, which never winds off during service. As a rule of thumb it is assumed that the middle three quarters of the possible spring turns span the linear portion, in other words 75%, which leaves 25% to be shared between the start and finish of the winding available. This can be split evenly or into 10% and 15%, for the normal fusee it will make very little difference, however, if a precision clock is being set up there is a more exact way of determining the proportions. I will deal with that later.



The positions of cord, fusee and iron

Figure 4



3 barrel turns includes a little cord to relieve the knot

There should still be tension on the cord at this point and the number of turns left until it is slack represents 10% to 15% of the spring curve (Figure 3).

Figure 5

Setting Up the Fusee and Mainspring Barrel

Unless this is a brand new fusee and barrel, years of wear will have marked the barrel and show how many coils were needed to unwrap the cord from the cone. Simply counting the coils and discounting the ones that were put there to prevent strain on the knot, will tell you how many coils were intended for running on the linear portion of the spring and how many were left unused by the limiting effect of the cone hook. The count ought to be made before the clock is dismantled when the unused coils are the ones left when the cord is stretched almost perpendicular to the fusee cone. If the cord was broken, or the clock already dismantled when you come to it, a reasonable estimate can be made by counting the marks that show the cord coils lying closely side by side. They start to move away as soon as the cone begins wrapping up the cord. However, these coils also include any that were simply there to relieve strain on the knot, when the mainspring is pulling on the small end of the cone.

I will assume that the cord is still intact and proceed from there, beginning with a fully wound fusee.

First I count all the coils and coil marks on the spring barrel, then I remove the escape pallets and allow the clock to run down (applying gentle friction to the escape wheel arbor if it runs too fast, becoming noisy), and count the coils again. The difference represents that number of turns in the barrel that are not being used (the last part of the spring curve shown in Figure 3) and one or two that were put there to grip the barrel and ease the strain on the knot. The count that has just been made is of the barrel turns that are the working part of the mainspring (75% of the total available).

There is a ratchet on the winding arbor of the barrel, let this down

carefully with an adjustable wrench, manipulating the click or pawl between each movement of the wrench. It must be done very carefully because the click is not spring loaded (except on early 18th century bracket clocks), but locked in place with a screw which needs to be loosened before you begin. There is often very little of the winding square to grip with the wrench. This is really a job for three hands.

When the barrel has been let down to the point that the cord becomes slack, I count coils. The difference between this figure and the last count is the number of coils that are "set up" (the first portion of the spring curve in Figure 3). Make sure to count the number of ratchet teeth that were released during this last operation; the figure will be needed later. Figure 5 shows the stages involved.

Supposing that there were five and a half turns of the barrel when winding off the cone and one and a quarter further turns while using the wrench. The five and a half turns represents 75% of the turns that the spring barrel can make when totally free of the fusee and train and the one and a quarter the portion of the spring wind at the end of the linear portion. These quantities were shown in Figure 3.

A little simple arithmetic is needed now to find the number of turns that were built into the other end of the linear portion.

A = the beginning; B = the linear portion; C = the end

$$\frac{B}{C} = \frac{5.5}{1.25} = 4.4$$

5.5 turns represents 75% of the total spring turns and 75% divided by 4.4 = 17%

The clock was set up with 17% of the total turns locked up when the fusee was empty of cord.

It is unlikely that the original clockmaker designed the clock for 17%, it was probably 15% and that is what I will assume from now on. 15% is a fifth of 75%, so the number of turns of the barrel to set up are strictly 1.1, but for reasons that I will explain, I would make 1.25 turns of the winding arbor when I set up.

Apparently I am suggesting returning the spring barrel to the same condition as I found it!

Spring barrels do not make the same number of turns as their winding arbors, because the arbor winds the length of the spring onto a small diameter, and unwinds it into the larger diameter of the barrel. I have made a guess at what number of arbor turns is equivalent to 1.1 turns of the barrel.

To work more exactly I make use of the figure that was noted for the ratchet teeth released when the barrel had all its wind let off.

The proportion of barrel turns for this portion of the spring to the number of turns that I want to set up is known (17 : 15), and this can be applied to the number of ratchet teeth that were let down. When it comes to setting up, it is easier to count teeth than to try to judge fractions of a barrel turn.

$$\frac{17}{15} \times 1.1 = 1.246$$

If the ratchet has twelve teeth, I will set up the barrel with 15 teeth of the ratchet, or one and a quarter turns, which is what I guessed at anyway.

Next month I will make use of these calculations to carry out the actual task of setting up the fusee barrel.

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AWCI Perpetuation Fund Committee Report

Chair	Dennis Warner, CW21
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Trustees	Mark Butterworth
	Charles Cleves, CMW
	David Christianson, CMW21
	Jim Lubic, CMW21

Objective
The Perpetuation Fund trustees are responsible for monitoring and making strong recommendations in regard to the investments entrusted to them via the Constitution and Bylaws.

Goal
The trustees will work with the financial advisor and report back to the membership via a written report.

Actions
Motion made by Jim Lubic, seconded by David Christianson and approved by the committee:
That an annual maximum of 5.5% of the moving average value of the fund be set, net of advisory fees subject to an annual review by the Trustees. The motion passed unanimously.

The Trustees agreed (no formal vote taken) that the investment vehicles proposed by the Johnson Investment Counsel were suitable for the Perpetuation Fund with the exception of CMO's (collateralized mortgage obligations), margin sales, and short sales.

The Trustees also agreed (no formal vote taken) that a password-protected website, provided and maintained by the Johnson Investment Counsel to continually monitor and document our investments, will be made available with access restricted to the Trustees of the Fund and all members of the AWCI Board of Directors.

The Trustees gave (no formal vote taken) Executive Director, Jim Lubic, authority to proceed to employ the Johnson Investment Counsel as soon as possible. The Johnson Investment Counsel will transfer the assets of the Fund from the Ross Sinclaire firm's custodian to the Johnson Investment Counsel's custodian.

AWCI CONSTITUTION
ARTICLE XX - THE JAMES M. DODSON PERPETUATION FUND
Sec. 1. The Institute shall establish and maintain The James M. Dodson Perpetuation Fund. The money derived from the sale of any of the AWI Packard Collection watches shall become a part of the Fund and shall constitute the principal amount of the Fund. The principal shall be held as such and shall not be expended except as authorized in the Bylaws. The Fund principal shall be invested and reinvested in investment grade securities. The fund trustees with the guidance of a professional investment advisor shall direct the fund strategies per the Bylaws. Income received on investment of Fund principal may be paid over and distributed to the Institute's general fund.

AWCI BYLAWS
ARTICLE XXI - THE JAMES M. DODSON PERPETUATION FUND
Sec. 1. Purpose and Procedures
(a) To monitor the investment of the James M. Dodson Perpetuation Fund and determine that they are invested as required by the Constitution.
(b) To insure the continuation of the existence and activities of the American Watchmakers-Clockmakers Institute.

Sec. 2. Trustees
The James M. Dodson Perpetuation Fund shall be held and managed by a board consisting of six (6) trustees, to be known as the James M. Dodson Perpetuation Fund Trust.
(a) Three (3) past presidents, or past treasurers, of the Institute shall be appointed as trustees by the Executive Committee. One shall be appointed each year, to serve a three-year term. Vacancies shall be filled within 90 days by the Executive Committee.
(b) The president, treasurer and executive director shall be trustees and shall serve until replaced in office.
(c) All six trustees shall have voting rights.
(d) A minimum of 4 votes shall decide issues before the trustees.

Sec. 3. Meetings
(a) The trustees shall meet at least annually preferably during the dates of the annual Board of Directors meeting.
(b) Additional meetings shall be held according to Ohio State law.
(c) The president shall serve as chairman of the James M. Dodson Perpetuation Fund.
(d) The executive director or someone designated by the Chairman, shall record the minutes of all official meetings of the Trustees.
(e) The Executive Director, or someone designated by the chairman, shall report to the trustees the status of the investments the trustees are responsible to monitor.

Sec. 4. Fund Management
(a) A resolution shall be filed with the custodian of the James M. Dodson Perpetuation Fund's investments. Authorized signatures will be the same as the ones for all other Institute accounts.
(b) The executive director shall be the James M. Dodson Perpetuation Fund's agent with the custodian of the investments. The executive director shall be authorized to sign administrative documents, order interest payments deposited into the general fund, and to serve as contact between the custodian and AWCI members and officers.

Sec. 5. Additional Responsibilities
The Board of Directors may request the James M. Dodson Perpetuation Fund Trustees to administer and invest other funds, not established in the Constitution, according to the current written investment policy of AWCI.

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February 11-15, 2008	Servicing and Adjusting the Lever Escapement
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April 7-11, 2008	Basic Quartz Watch and Quartz Chronograph Repair
April 14-18, 2008	Modern Mechanical Chronographs, Servicing and Adjusting
May 19-23, 2008	ETA Calibers - Alessandro Betti, Instructor
June 9-13, 2008	Watchmaker's Lathe I
June 16-20, 2008	Watchmaker's Lathe II
July 14-18, 2008	Basic Watch Repair
September 22-26, 2008	Modern Automatic Watches
October 6-10, 2008	Basic Quartz Watch and Quartz Chronograph Repair
October 13-17, 2008	Modern Mechanical Chronographs, Servicing and Adjusting

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April 28-May 1, 2008	AWCI Training Facility	Harrison, OH
May 12-15, 2008	AWCI Training Facility	Harrison, OH
June 23-26, 2008	AWCI Training Facility	Harrison, OH
July 21-24, 2008	AWCI Training Facility	Harrison, OH
August 11-14, 2008	North Seattle Community College	Seattle, WA
September 2-5, 2008	Lititz Watch Technicum	Lititz, PA
October 27-30, 2008	AWCI Training Facility	Harrison, OH

ETA Training Courses - 2008

ETA SA, a Swatch Group Company, will offer new technical training courses in 2008.

Founded on its solid experience in the area of quartz and mechanical movements, ETA SA is able to provide a variety of horological courses to its clients and the professional organizations of the industry. These courses have been designed with specialists as well as sales and administrative personnel of the watch industry in mind.

The increasing diversity and technical complexity of the products make it crucial to keep step with innovation. So it is that for over 40 years ETA's training program has been equipping professionals with in-depth knowledge of how its products function.

This training program reflects the determination of ETA SA to provide excellent standards of training so as to fully satisfy the requirements of its clients in terms of knowledge of its products.

The course program of ETA SA for 2008 is the following:

- Basic and improvement course on ETA quartz products plus autoquartz, without chronographs (A1) for watchmakers and repairers

- Update on new ETA products (A2) for watchmakers and repairers

- Specialization course on ETA mechanical chronographs (A3)

- Specialization course on ETA quartz chronographs (A4)

- Individualized course - content by arrangement (A5)

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PARTS MESSAGE BOARD

The American Watchmakers-Clockmakers Institute **Parts Message Board** is available on line at **www.awci.com** Click on the Parts Forum in the Top Links box. Guests are free to browse our topics and posts but only validated AWCI members will be able to actively post messages and communicate with one another via private messaging.

The purpose of this board is to aid our members in finding watch parts, clock parts and tools. This board is not open to generic advertising posts; therefore, web addresses and e-mail addresses should not be included in public messages.

Designation	Type of Course	Participants	Duration	2008 Dates	Language	Place
A1	**Basic and improvement course** On ETA quartz products including autoquartz (without chronographs)	**Watchmakers and repairers** who would like to learn the basic knowledge of the quartz products and the autoquartz technology	3½ days	March 10-13	English	ETA Grenchen
A2	**Updating course** New ETA products	**Watchmakers and repairers** who desire to be informed about new ETA products	2 days	June 9-10	English	ETA Grenchen
A3	**Specialization course** On the ETA mechanical chronographs	**Watchmakers and repairers** who desire a complete training on ETA chronographs	3½ days	March 25-28	English	ETA Grenchen
A4	**Specialization course** On ETA Quartz chronographs	**Watchmakers and repairers** who desire a complete training on ETA chronographs	3 days	September 22-24	English	ETA Grenchen
A5	**Individualized course** Course content by arrangement	**By Arrangement**	By Arrangement	By Arrangement	English	By Arrangement
A7	**Refresher course on mechanical watches** On the whole range of ETA mechanical products (without chronographs)	**Watchmakers and repairers** who wish to refresh their knowledge on the servicing of mechanical watches	3½ days	September 8-11	English	ETA Grenchen
D1	**Technical training seminar** Product knowledge of ETA mechanical and quartz watches	**Sales and administration personnel**	1 day	on request	English	ETA Grenchen



Modern Automatic Watches

March 10-14, 2008

AWCI Training Center - Harrison, OH

Instructor Thomas D. Schomaker, CMW21

(Also a preparatory course for the AWCI CW exam)

The purpose of this course is to teach the student all the fundamentals of modern mechanical automatic watch repair that are most prevalent on today's market. The student will learn how to perform the various diagnostics in evaluating the condition of the various components, cleaning, assembling, adjustments, dialing and casing.

Prerequisites

- At least three (3) years experience in mechanical watch repair, or having participated in the AWCI Basic Watch Repair course as well as owning the required tools listed in the course outline (www.awci.com/services/continue-edu.php)
- Reading pages 169-188 of the book *The Theory of Horology* (essential prior to attending the course)

The student will learn:

1. The most common differences between manual wind and automatic watches
2. Discussion of all the components in detail
3. Servicing the above, including up-to-date methods of barrel setup
4. Practical exercises
5. Advanced cleaning procedures
6. Different lubricants in modern watchmaking

7. Regulator pins (traditional and ETACHRON)
8. Timing adjustments and analysis (five positions and amplitude in two states of power)
9. Written and practical test

Essential materials for the student to bring to class

For all AWCI courses, AWCI will provide cleaning machines and solutions. Hand tools should be provided by the student. Lathes, staking tools, poising tools and truing calipers, etc., will be available, but students should provide their own whenever possible. Ownership of quality hand tools is an expectation of a Professional Watchmaker. The brand names mentioned in the recommended tool list are used to help you identify the tools from the most popular tool catalogs. You are welcome to choose a brand of your choice, as long as it is of equal or better quality. You will notice that in some instances, we have listed more than one type of tool, this indicates you may bring the tool of your preference.

Contact Nancy Wellmann, Education Coordinator, nwellmann@awci.com or call toll free (866) FOR-AWCI (367-2924), ext. 303 or visit AWCI's website: www.awci.com for more information.



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ASSOCIATION Health PROGRAMS



AWCI Correspondence Course in Clock Repair

Based on the original correspondence course written and administered by Laurie Penman, AWCI's resident clock instructor, this course is constructed to provide information and instruction in a manner that is immediately useful in both learning and practicing clock repair. The course contains 16 lessons. At the completion of each lesson you will receive comments and suggestions from Laurie Penman, and a pass or fail grade. Those who achieve a pass grade in each section will receive a certificate of completion. Mr. Penman will be available to answer questions or offer suggestions to each student.

The AWCI Correspondence Course in Clock Repair package contains all the material and information necessary to successfully learn the fundamentals of clock repair, including *The Clock Repairer's Handbook* by Laurie Penman and a one-year subscription to Steven G. Conover's monthly publication, *Clockmaker's Newsletter.* Course participants will be invited to attend a 2-day meeting at AWCI to confer with Mr. Penman and meet other students.



AWCI Members - $800

Non-members - $925

Contact Nancy Wellmann, AWCI Education Coordinator
E-mail: nwellmann@awci.com
Phone Toll Free 1-866-367-2924, ext. 303 or (513) 367-9800

AWCI Member Websites

- **Have you always wanted a website for your business, or are you unhappy with your current website?**
- **Do you feel that your business needs more exposure to your customers?**
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BASELWORLD 2008

The jewelry exhibition halls will undergo further upgrading for the World Watch and Jewelry Show BASELWORLD 2008. The latest redesign and the new "Hall of Impressions" offer jewelry brands – similar to watch brands – an exquisite showcase opportunity.



Preparations for BASELWORLD 2008 (April 3-10, 2008) are successfully underway. The current planning status underlines how the World Watch and Jewelry Show retains and reinforces its position as the sector's leading international show and the most prestigious industry meeting place.

Jewelry Makers Present Influential Brands

Similar to watch brands, it is becoming more important for jewelry makers to showcase their products to reflect their status as influential brands with a unique identity. As such, the branding activities of these exhibitors increasingly require more space, and this is something which BASELWORLD can now provide. "First Avenue", which was introduced at BASELWORLD 2006 was a response to this trend. Additionally, over recent years, growing brand awareness within the jewelry sector has reinforced the importance of attending the Show as a major marketing opportunity.



New in the Jewelry Sector: The "Hall of Impressions"

The luxury redesign of the Jewelry sector in readiness for BASELWORLD 2008 meets the need for more space and will further upgrade the jewelry exhibition halls. In Building 3, the newly refurbished "Hall of Impressions" creates additional floor space that opens up a new world for jewelry exhibitors. The exhibition stand and new decorative scheme introduced by the Show's management gives exhibitors a top quality showcase in a refined setting. Through inclusion within this area, exhibitors in the "Hall of Impressions" will attract extra attention during BASELWORLD.

Parallel to the "Hall of Impressions", jewelry exhibitors in Building 2 will also have more space per exhibitor in the "Hall of Visions" and "Hall of Feelings". The jewelry sector at BASELWORLD therefore reflects the diversity within the international market. The Show Director, Sylvie Ritter, commented: "BASELWORLD is a well-known showcase for over 95% of the Swiss watchmaking industry. The watch sector is therefore traditionally very strong and fully

represented in Basel. Alongside watches, the jewelry sector continues to gain importance at BASELWORLD across the entire price spectrum. Our commitment to representing the entire, international jewelry industry in Basel is therefore increasingly successful." For jewelry exhibitors, the World Watch and Jewelry Show also continues to gain importance thanks to the high quality of the visitors.

BASELWORLD 2008 – World Watch and Jewelry Show
Date: Thursday, April 3 to Thursday, April 10, 2008
Place: Exhibition Center Basel
Opening hours: Daily 9 am to 6 pm
9 am to 4 pm on the last day
Internet: www.baselworld.com
E-mail: visitor@baselworld.com

Executive Director's Message

Continued from page 3

members to do too much. If AWCI is to be successful in the future, your help is needed. If you are interested in getting involved in this part of AWCI's future, again, please contact Education Coordinator, Nancy Wellmann.

Another reminder – Go to the AWCI website at www.awci.com and make sure your contact information is visible to the public. How do you do this? Once you are at the AWCI website click on "Referral Directory" in the blue box. Follow the directions on that page and see if your contact information comes up. If it does, great! If not, click on the "log in" in the upper right side of the page. On the "log in" page type your member number where it is required, and then your "password". If you have never logged in to the member area before, your password is your member number and the first initial of your last name capitalized. Click "Submit." Now you will see a list of 17 options. The 15th option is "Update your online Referral Directory record;" click that. On the next page is your record. The first item is "Make your Referral record public" with a drop down menu. Click "yes" in the menu and correct any other information that appears there. When everything is correct click on "Submit Form" at the bottom of the page. Now you should be all set. I have heard from many members who say they have received repair jobs from our website as a result of the AWCI Referral Directory. You can too.

Have a great month and remember when making purchases from our advertisers to tell them that you saw their ad in the *Horological Times*.

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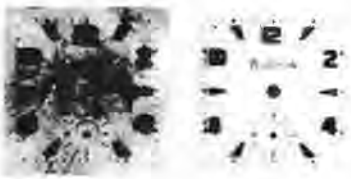
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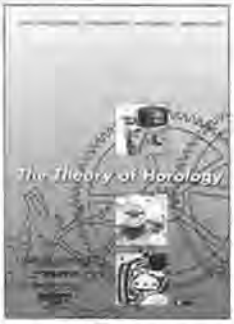
Q. Do you have enough watchmakers, repairers or technicians to meet consumer demand?

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By Hans Jendritzki

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