

# THE TORSION TIMES

A PUBLICATION OF THE NATIONAL 400-DAY CLOCK CHAPTER #168

VOLUME I, NUMBER 1

1ST QUARTER 1996

## FROM THE PRESIDENT:

As usual I know that this publication will be late going out to you. I'M SORRY!! Our target date was to have the first newsletter in your hands by April 1 but with all the things to be done and organized we were running a little late.

We decided to start off with a "BANG" making the first publication one to remember. I hope you enjoy and remember.... we can't succeed without your help. If you have an idea for an article...jot it down and send it in. If you have any question about 400-day clocks.... send it in. Thanks,  
Les McAlister

## FROM THE SECRETARY:

We would like to publish activities reported by chapter members in the chapter reports section of each issue of the NAWCC BULLETIN. Any stories of interest related to 400- Day clocks are welcome, including local meeting activities, displays, etc. Also please include photographs when available. Send to the attention of John Hubby, Chapter 168 Secretary, 28 Red Sable Place, The Woodlands, TX 77380-2643.

## FUTURE MEETINGS:

The first ever meeting of Chapter #168 members will be held at the Greater St. Louis Regional on 4:00pm Saturday, May 25.

We have also arranged for meeting space at the National Convention in Cleveland, Ohio on Saturday, June 22, and are planning to have meeting space at the Great Lakes Regional in Dearborn, MI Saturday, September 7.

Mr. Bill Ellison of The Horolovar Co. has also offered to host an open house at the company headquarters, just outside of Dearborn the same week as the Great Lakes Regional. More details to follow.

## AND THE WINNER IS:

Our Secretary, John Hubby sent in the winning entry for our chapter newsletter. There were several outstanding ideas (my favorite was "A Harder Times" but I thought it might confuse new members who were not versed in the history of 400-day clocks.) John, your vintage 2EG Kundo will be in the mail as soon as I can remember to do it.

## MEMBERSHIP:

Since the last report our ranks have risen from 56 to 77 members. One of the reasons for this is word-of-mouth from members and in some cases action "above and beyond" the call of duty.

This is true in the case of our Canadian Director, John Connolly. John has posted chapter information on the INTERNET, communicating with anyone who will listen, resulting in several new members joining. Great Job "jobeco@express.ca" (John)!!!!

## LOGO COMPETITION:

We still need persons to submit entries for the Chapter #168 Logo. Remember the winner gets a vintage Schatz 49 clock.

## TREASURY:

The cost for the last mailing was \$89.71, with an addition of \$210.00 for new members, bringing chapter funds to current balance of \$1576.90.

President: Les McAlister  
1369 Manuka Drive

V.P.: Joe Delaney  
23 Bluefield Terrace

Secretary/Treasurer: John Hubby  
28 Red Sable Place

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## CHAPTER HIGHLIGHTS:

Secretary, John Hubby recently organized a display of 400-day clocks for Chapter 139 in Houston, TX. The chapter was so happy with his presentation, that they published a special article in their newsletter in his honor, entitled, **11 EASY STEPS TO PUTTING ON A FIRST CLASS EXHIBIT AT A CHAPTER 139 SHOW.**

The article went on to list the exhaustive steps that go into this type of exhibit and thank John for his efforts. Great Job John!!!!

President, Les McAlister gave a presentation on the history and repair of 400-day clocks at local meeting of the St. Louis, AWI Chapter. Several persons attended this meeting with 3 new members joining Chapter 168.

## NEW MEMBERSHIP APPLICATIONS:

Attached you will find a new "revised" membership application form. The new form now shows our chapter number and gives Secretary/Treasurer, John Hubby as the contact person. Please discard any old forms you may have.

## THE ANSWER BOX (TERWILLIGER'S CORNER):

Do you have a question or a problem with repairs to a 400-day clock? If so please send a description of your problem to our Answer Box Correspondent, Fred Armbrust. Fred volunteered for this duty (sorry no hazard pay) and will be our clearing house for all contacts on this subject. Fred's address is:

Fred Armbrust  
P.O. Box 663  
Caribou, ME 04736

(continued)

Any historical/informational article on 400-day clocks that you would like to submit for printing in our newsletter should be sent to Secretary, John Hubby.

## MART CHAIRPERSON NEEDED:

We need a volunteer to handle all duties related to gathering advertisements and submitting this quarterly information for printing in our newsletter. Please contact Les McAlister if you are interested.

## THE SOURCE:

Due to the need to quote a specific source when trying to relate information about 400-day clocks, the OFFICIAL source will be the 10th Edition of the Horolovar 400-Day Clock Repair Guide.

In the future if you see the statement "page 43 of the Repair Guide", this would refer to Page 43 of the 10th Edition of the Horolovar 400-Day Clock Repair Guide.

This will eliminate confusion caused when persons having different editions of the Horolovar Repair Guide try to communicate about a specific page, subject or item. This book can be ordered from any clock parts supplier or Horolovar directly (see MART).

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President: Les McAlister  
1369 Manuka Drive  
O'Fallon, MO 63366

V.P.: Joe Delaney  
23 Bluefield Terrace  
South Weymouth, MA 02190

Secretary/Treasurer: John Hubby  
28 Red Sable Place  
The Woodlands, TX 77380

## CHAPTER #168 MART

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MOVING: AND SELLING EVERYTHING! BOOKS, PARTS, TWO 1000-DAY MOVEMENTS, 4 LANTERN-STYLE 400-DAY COMPLETE, ABOUT 20 WITHOUT DOMES (ORDINARY 50s VINTAGE). I ALSO MAKE GLASS OR MARBLE CASES FOR 400-DAY CLOCK MOVEMENTS. SEND SASE FOR LIST TO JOHN BERNBROCK, 6828 OLD REID RD. CHARLOTTE, NC 28210-4625

W A N T E D. KAISER 400-DAY CLOCK WITH GLOBE PENDULUM, MOON DIAL AND ORIGINAL GLASS DOME. ALSO ANY OTHER 400-DAY CLOCKS WITH DISC OR UNUSUAL PENDULUMS. JOHN CONNOLLY, 6051 SUNWOOD DRIVE, DELTA, B.C. CANADA V4E2X5. PH:604-572-0778  
E-MAIL:jobeco@express.ca

WANTED: TO PURCHASE, PRE 1882/STRIKING/WOODEN-CASED WALL-HANGING 400-DAY CLOCKS. PLEASE SEND PHOTOS AND DETAILS TO MR. MUN, 39 JALAN SELANTING, SINGAPORE 598395, TEL 4672163.

WANTED: DISC PENDULUM FOR URANIA JAHRESUHFENFABRIK, 1908. WANTED UNUSUAL OLDER 400-DAY CLOCKS. CRYSTAL REGULATOR CASES, METAL CASES, U.S. MADE, UNUSUAL PENDULUMS, ECT. JOE KADDIS, 7 STEEPHILL RD., WESTON, CT 06883 PH: 203-227-7081

WANTED: ANY ADVERTISEMENTS, BROCHURES CATALOGS FOR 400-DAY CLOCKS TO BE USED IN RESEARCH ACTIVITIES. PLEASE CALL OR SEND INFO TO. LES McALISTER, 1369 MANUKA DRIVE, O'FALLON, MO 63366-3759,  
PHONE: 314-978-8775

WANTED: GUSTAV BECKER 400-DAY LOUVRE CLOCK WITH DISC PENDULUM. SEND INFO TO, DON ALLEN, 616 WILKERSON, SEDALIA, MO 65301.

WANTED: ANY ORIGINAL TERWILLIGER SILENT AUCTION CATALOGS, WILL PAY \$7 EACH POSTPAID IN GOOD CONDITION. WILL PAY TOP PRICES FOR UNUSUAL PENDULUMS EITHER SEPARATE OR WITH A CLOCK, ESPECIALLY NUMBERS 7, 8, 9, 10, 16, 29 AND 30 ON PAGES 195 & 196 IN 400-DAY REPAIR GUIDE 10TH ED. LOOKING FOR ANY WURTHNER MOON-PHASE DIAL CLOCK GRO, ALSO ANY KIENZLE CALENDAR DIAL CLOCK PER No. 21 PAGE 35 IN THE 400-DAY REPAIR GUIDE. CALL JOHN HUBBY  
713-362-0165 OR FAX 713-362-0514.

FOR SALE: ALL ORIGINAL ca 1906 JAHRESUHFENFABRIK PORCELAIN DIAL W/DISC PENDULUM IN 4-GLASS MAHOGANY CASE \$950; ALL ORIGINAL ca 1905 PHILLIP HAAS SILVERED DIAL W/P. HAUCK CHRONOMETER STYLE TEMP. COMPENSATING PENDULUM (#6 PAGE 195 IN 10TH ED.) \$1,050. CALL JOHN HUBBY  
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## TERWILLIGER'S CORNER

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### DEPTHING OF THE ANCHOR PIN INTO THE FORK TINES

By: Bill Ellison

Depthing of the anchor pin into the suspension spring fork will effect the torque applied to the suspension spring and, will in turn, effect the swing of the pendulum. The anchor pin and fork depthing is a very complex problem and I wish that we had the opportunity to discuss this problem on a face-to-face basis with a piece of sketch paper between up. Since this is not possible, I will try to explain my thoughts on this problem while sitting on my hands. (It would help if you could see my arm waving as I go through my explanation.)

When I look at the functioning or design of a clock, it is easiest for me to consider the transfer of energy between the clock and the pendulum. There are two distinct periods of energy transfer which occur while a clock is running. The first transfer of energy occurs when the escape wheel teeth are in contact with the angled surfaces of the anchor pallets. During this period, the clock is transmitting energy into the rotating pendulum. The second period of energy transfer occurs when the escape wheel teeth are touching the curved sections of the pallets and the escapement is termed to be in the "locked condition." During this second period, the pendulum is losing energy as it tries to move the anchor. As I consider the functioning of a clock, I have to keep reminding myself that the energy coming through the escapement and into the pendulum is only used to overcome the frictional loses in the system, hysteresis loses in the suspension spring, and loses due to air resistance of the pendulum. The main energy added to the system occurs when we start the pendulum spinning. The actual energy added to the system by the clock is very small.

During the first period while the escape wheel teeth are in contact with the angled portions of the anchor pallets, the clock is applying a force to the anchor pin. This force is transferred to the fork and becomes a torque as the fork acts upon the suspension spring. This torque is added to the torque stored in the wound-up suspension spring and these two torques cause the rotation of the pendulum. If this first period of energy transfer was the only consideration, the anchor pin would be set-up so that the torque applied to the suspension spring was the greatest amount possible, however, during the second period of energy transfer, the energy stored in the rotating pendulum must cause the anchor to move from the locked position to the unlocked position where the escape wheel teeth are in contact with the angled surfaces of the pallets. If the anchor pin was placed at the end of the fork tines farthest away from the suspension spring, the loads acting on the locking surfaces of the pallets would be very high making it difficult for the anchor to move.

Thus, if the designer sets-up the anchor pin and fork so that the distance between the contact point of the anchor pin and the suspension spring is as great as possible, the torque going into the pendulum will be maximized. However, when the pendulum begins to swing in the opposite direction, the frictional forces resisting movement of the anchor will also be maximized. I am not certain that I could do all of the necessary calculations to prove it, but I believe that the gains to the pendulum going in one direction would be balanced by the loses to the pendulum when the rotation reverses. However, as the forces in the escapement rise, it requires a stronger mainspring to keep the clock running. Since mainsprings were (or are) expensive, 400-day clock designers would try to keep anchor pin as close to the suspension spring as possible so that mainspring size would be minimized.

From a manufacturing point of view, it is much easier to make the anchor pin vertical in the side view. It is also a more predicable set-up since small errors in angles of the anchor pin can cause large changes in force or energy transfer. To the best of my knowledge, all of the early 400-day clock designers designed the anchor pin so that it would be vertical in the side view. Just to make sure that my statement was accurate, I checked my examples of early 400-day clocks. I concluded that my statement was accurate and I also noticed an additional design feature on several of these old clocks. In the early days of the 400-day clock, there were often several designs of brackets applied to a given movement. Usually, the different brackets were designed so that the distance between the back plate and the suspension spring was approximately the same. However, a few of these brackets had the

## TERWILLIGER'S CORNER

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effect of moving the suspension spring away from the back plate. On clocks with these types of brackets, often there was an attempt made to keep the distance between the location of the vertical pin and the suspension spring constant. Clocks with anchors like "a" or "b" in Figure 4, page 43 in the Repair Guide would move the brass bushing holding the vertical pin closer to the back plate or they would shape the vertical pin so that it looked like "d" in Figure 3, page 43. I would guess that the designers followed the "if it works, don't mess with it" approach with these different brackets.

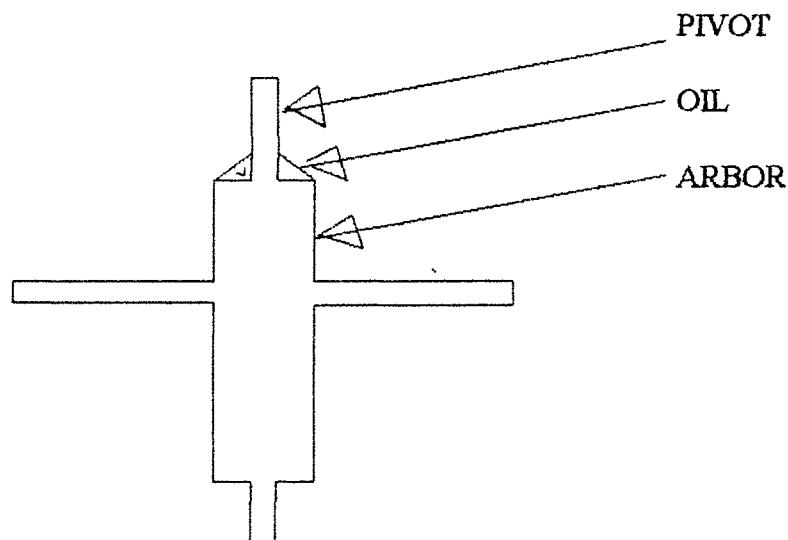
### PRE-OILING A 400-DAY CLOCK MOVEMENT

By: Les McAlister

Have you ever over oiled a 400-Day movement after overhaul and had the oil get all over the back plate and ruin the "perfect polish" job you strived so hard to achieve? If you can answer no to this question don't read any further, however, if you are like me, this was one of those little things that drove me crazy. I received the answer to this dilemma from a Mr. Charles Hellige of St. Louis, MO. who told me to pre-oil the pivots as I reassembled the movement. The only tool required is a small fine artist paint brush.

Dip the paint brush in the oil and then lightly touch the tip of the brush to each pivot surface where it meets the shoulder of the pivot/arbors. The brush should be kept very wet with oil to insure easy transfer. Enough oil will be drawn from the paint brush to evenly cover around the interior surface of the pivot shoulder (never too much or too little)<see drawing>. This procedure should be done to the "down" side of each wheel's pivot as it is first positioned in the movement plate for reassembly. The "up" side of each pivot can be easily oiled just prior to the installation of the top movement plate.

After the movement is reassembled you will find that the PERFECT amount of oil is present in each bushing hole with no chance of excessive oil causing any appearance problems on the outside or inside of the plate.



This procedure may take some practice to become "perfect", however, after you do it several times I think you will appreciate the benefits as much as I do.

# TERWILLIGER'S CORNER

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## GUSTAV BECKER COLUMN FINIAL DESIGNS

By: Bill Ellison

There are several ways for a collector to enjoy a clock. One of the ways is to study a detail from the clock and attempt to understand why particular design approaches were chosen in the manufacturing of this part. An example of this kind of activity involves the finials used on top of the columns on various Gustav Becker 400-day clocks.

On the most common Becker design, the finial has an external thread on the bottom of the finial. This thread is tightened into an internal thread in the top of the column bolt. This thread attaches the platform to the column bolts which, in turn, attach the column to the base. (On the earliest Becker clocks, the columns were made of solid brass and did not have separate brass tubes with steel column bolts inside these tubes. However, the finials are the same for either of these two designs.) This finial design is shown in the 400-Day Clock Repair Guide on clocks Number 54 and 67 in Section 6. Since the finials are round and decorative, it is relatively difficult to grip them for tightening or loosening.

There is a second, relatively rare design where the finial has a tapered pin on its bottom and this pin is pressed into a hole in the head of a screw which is threaded into the column bolt. This screw is brass and has a very thin head with a screw driver slot for tightening the screw into the column bolt. In this second design, the finial is slightly smaller than on the first design. The most notable feature of this design is that the finials on the columns are identical to the three finials in the arch used on this clock.

I do not have enough examples of the second design to be able to establish the date when this design was introduced but, perhaps with the help of the chapter membership, beginning and end points can be established. I do have two examples of Becker clocks with Plate #1199; the first with Serial Number 2029405 (1906) which has the first design column finials, and the second clock with Serial Number 2273472 (1908) which has the second design column finials. Evidently, in 1906, 1907 or 1908 the change to the second design was made. It would be interesting to learn if any finials of the first design appear on later Becker clocks.

We will never know for sure why the second design of the column finial was introduced. Perhaps it was felt that the presence of the screw driver slot would make assembly and disassembly easier. I should note that the screw driver slot is so shallow that disassembly is certainly not greatly improved with the second design. It is also possible that the second design with the five identical finials resulted in lower production costs due to one less machining set-up per clock. Also, the use of the finial on both the arch and columns meant that a greater number of pieces of this particular finial could be produced. Perhaps the greater volume of finials resulted in lowered costs. What ever the real reason, it is fun to speculate why this change was made.

## THE SCHATZ JUBILEE

By: Bill Ellison

In 1981, the Schatz Jubilee clock was introduced to commemorate 100 years of 400-day clock making by the Jahresuhrenfabrik/Schatz Company. Just in case your 400-day history is a little rusty, Jahresuhrenfabrik began the first commercial production of torsional pendulum clocks in 1881 under the leadership of August Schatz. The fledgling company was able to purchase the tooling of a bankrupt clock company in Triberg, Germany. One hundred years later, operation under the name "JahresuhrenFabrik G.m.b.H Aug. Schatz & Sons", was still in business, still centered in Triberg.

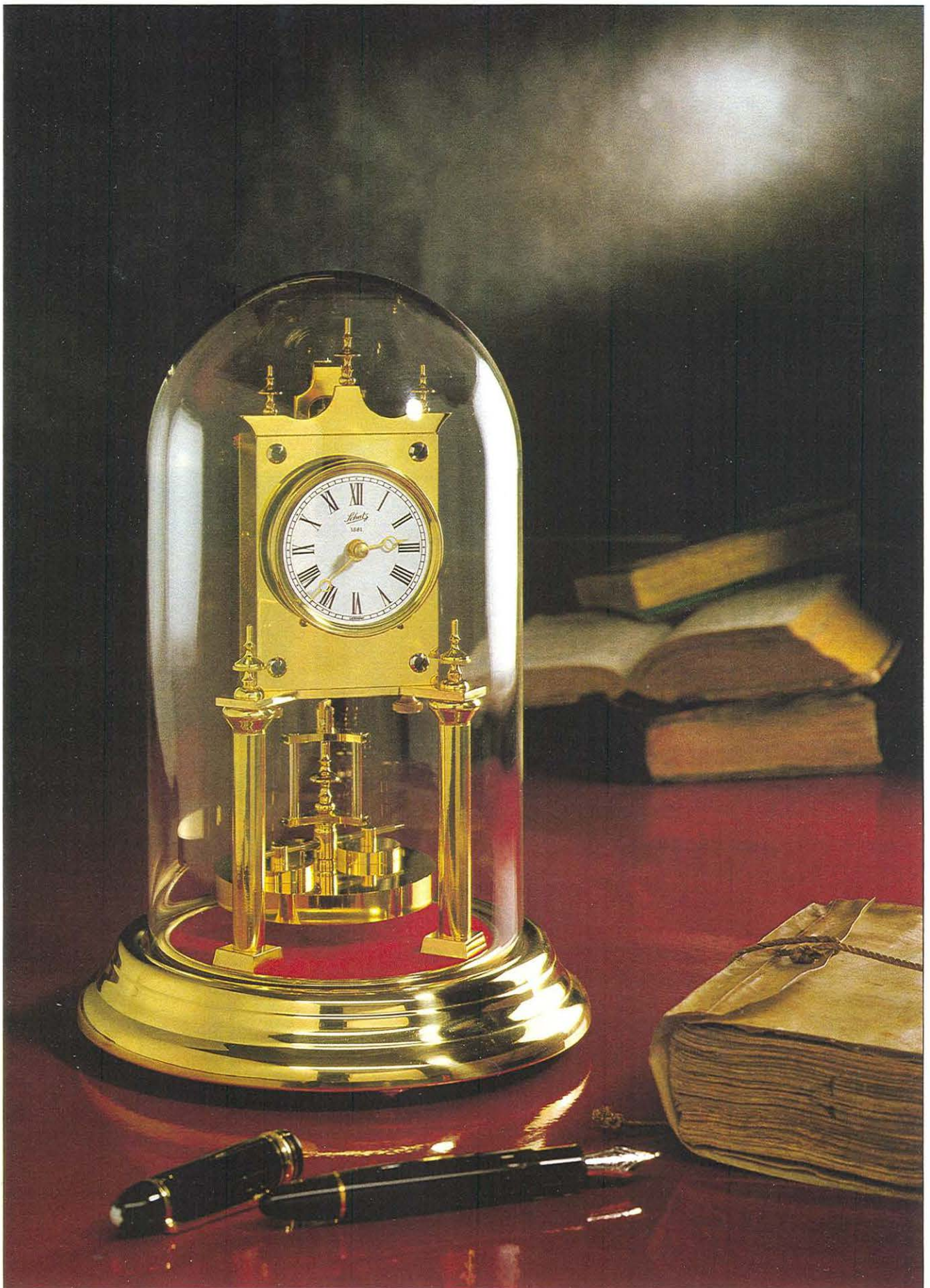
After suitable, serious discussions, it was decided to produce a limited number of replicas of the 1881 clock. These clocks were to be very highly finished and production was limited to 3000, serial numbered clocks. However, there was a minor problem and, to steal the words from the radio personality, Paul Harvey, now "you will learn the rest of the story."

Interestingly enough, the last wide plate 400-day clock (identified as the Schatz 49 Model) was quite similar to the first 400-day clock produced in 1881. The pendulum had changed from disc to four ball and the bracket was slightly different not to mention the presence of a suspension unit guard but, from a few feet away the clocks were visually identical. Thus, no problem. Since the last Schatz key wind 400-day had been produced in 1974 and in 1981 Schatz only produced quartz controlled 400-day clocks, all that had to occur was to locate the tooling, dust it off, and install it on the production floor. Except that there was a problem. Schatz had long had a policy of destroying all production tooling when a model was dropped from the line. As a result of this policy, there was no tooling in existence for a mechanical 400-day clock in the Schatz factory. This, in turn, meant that new tooling would be required for virtually every part on the Schatz Jubilee. Since the production run was limited to 3000 clocks, this tooling would have to be paid for by just these 3000 clocks and this would have resulted in a short run of extremely expensive clocks.

Then fate stepped in. Uhrenfabrik Herr had recently gone bankrupt and the sale of the factory and tooling was in process. Schatz was able to purchase all of the required wide movement plate tooling for a relatively small amount of money from the defunct Herr Company. This purchase probably seemed particularly sweet to Schatz since the founder of the Herr Company had worked for Schatz in the early 1950's before he left to found his own 400-day clock company. It was widely believed that Herr had "borrowed" the blueprints for the wide plate clock movement when he left Schatz and, indeed, practically every part in the Herr wide plate movement is interchangeable with the Schatz 49 movement. All of this meant that Schatz had the tooling for a movement which was very close in appearance to the 1881 Jahresuhrenfabrik clock.

The efforts of the 1981 Schatz organization on behalf of the Schatz Jubilee should not be down played. The plates of the Schatz Jubilee movement were given an extremely high polish and the disc pendulum is a work of art. It should be noted that Schatz actually replicated an 1883 pendulum with a three pillared gallery rather than the 1881 disc pendulum which had no gallery. Otherwise, the Jubilee was very close to the original 1881 clock. However, it should not be forgotten that the clock that commemorated the 1881 Jahresuhrenfabrik 400-day clock was actually a Herr clock ..... and now you know the rest of the story.

\*NOTE\* With this article is attached a copy of a picture of the Schatz Jubilee from a 1985 Schatz catalog. Also included is a copy of the Schatz 100 Years History booklet. This booklet was included with every Schatz Jubilee sold and gives a complete history of Jahresuhren-Fabrik GmbH.



05 1270  
Height 29 cm = 11½",  
Base Ø 19.5 cm = 7¾",  
Polished brass.



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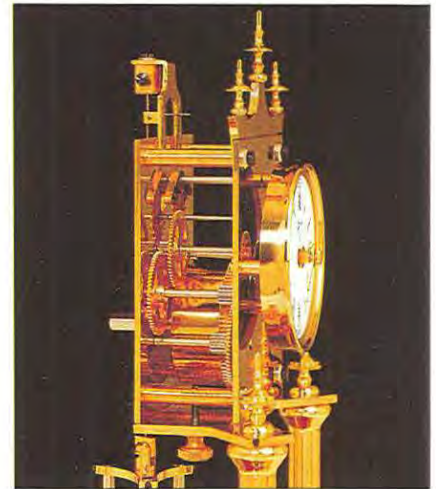
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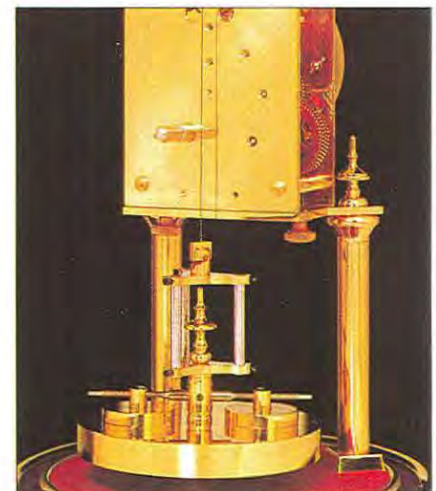
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Known also as the "Anniversary Clock", it is a clock that has almost always been received as a gift. A remarkable clock which will give precious service to you and yours.



The extra solid plates and the barrel are mirror-polished. Viewed from the side, you can see the escape teeth enter into the anchor following contact with it. In the escapement action the force of the barrel passes on with the anchor pin to the fork of the suspension wire, thus keeping the pendulum rotating.



On the heavy disc pendulum are two little polished weights which can be moved to regulate the clock. The nickle-plated verges and the vertical rods make out of this clock a precious piece of workmanship. The red velours on the wooden base, coated with brass, underlines the distinction of this clock.