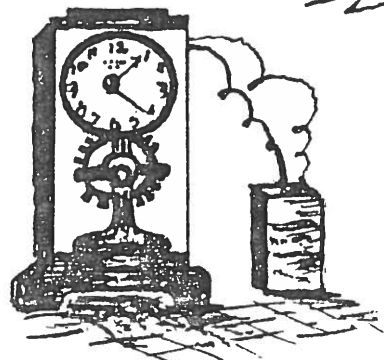


NATIONAL ASSOCIATION OF WATCH AND CLOCK COLLECTORS, INC.

ELECTRICAL HOROLOGY  
SOCIETY

Chapter No 78

NEWSLETTER NO. 8  
February 1974



Hello fellow enthusiasts:

This is our second Newsletter as Chapter No. 78 and from the mail I have received I am most pleased that those writing are so enthusiastic about Electrical Horology. As stated before, we are collectors of a most unique type of clock with as many diverse types as there are ideas in inventors' minds. These clocks are turning up at many meetings whereas prior to the interest we are showing we did not see many unusual electrical clocks. On the other hand, the prices have risen phenomenally! Recent correspondence states that a Synchronome clock in poor condition was recently selling for \$300. and a Bentley in similar condition for about \$900. This is inflation to the n'th degree to be resisted most aggressively. Of course, a clock in good condition, which is of interest to the buyer should command a reasonable price, but many dealers and some sellers are just groping in the dark hoping that the price they are asking will be paid. Just as with any other clock one should pay for value rather than for greed.

I have not been overwhelmed with articles and whether this is due to fear or false modesty on the part of the membership---I do not know! All I can say is that if you can communicate with one another verbally, then you can write! Any anecdote of how you purchased an electrical clock, repaired one, etc.---put it in one paragraph or several and it would be welcomed by your editor. As you can see in this issue I am relying on a translation I have made some time ago which I hope will be of interest. Also, I am including two photographs which hopefully will enhance the descriptive material.

The Mart is being more fully utilized and this is a positive sign. I would like to see more in the Mart as our National Mart has very little on electrical clocks. Both National and our Chapter Mart are awaiting your electrical ads. The price of an ad will be well worth it when the clock is sold or bought. Remember the Marts work both ways--buy or sell.

We have approximately 70 members in the Society. Thirty have paid dues of \$3.00 for October 1973 through 1974 (our particular fiscal year). I think it is not fair to me personally to have to beg, borrow and scrape around until everyone who is a member pays their dues. One notice really should be enough as I would rather devote my time into putting out a good Newsletter

rather than to take up an entire paragraph requesting dues. If you have not received two photos with this Newsletter, it means I have not received your dues for the year. I am sure it has slipped many minds to send dues. Photos will be sent to all paid members with Newsletter No. 9. If you wish to withdraw from Chapter 78, please advise me so.

We have received our Charter and this will be framed shortly. Also, each member who joined prior to this Newsletter and still wish~~es~~ to remain with us will receive a Charter Certificate of Membership.

In this issue I also took the liberty of enclosing a question with the wallet-size photo. Some members have already seen this clock and could not identify it, but perhaps there is a chance that I will get a positive identification rather than the general idea I have now stating that it is an inventor's model.

Setting up machinery for election of officers will be discussed in next newsletter.

One last remark, I am still hopping around on crutches but the fracture is healing. I thank all those who have sent me wishes for a speedy recovery most sincerely.

Electromagnetically yours  
Marty Feldman



\*\*\*\*\*

TECHNICAL SECTION

We understand from Mr. Charles Aked of Great Britain that he has been, along with various people, on the trail of one of the earliest electrical clocks made. This would pre-date the generally accepted date of 1840 dealing with the Bain clock of 1840 by 24 years since he is on the trail of an electrical clock made approximately 1816. We wish him all the best of luck in his work and in his hunt dealing with this clock as it is a most difficult task. Sherlock Holmes is alive and well in Middlesex, Great Britain!!!

\*\*\*\*\*

From Mr. Ed Hanff who has been doing considerable research on a fairly rare clock made by the National Self-Winding Clock Co., of Champagne, Ill., we are including part of his research which is a patent list for this particular clock. We hope to receive more information from him, perhaps in the form of an article dealing with the striking electrical clock of rather complicated and unusual design.

List of patents related to clocks made by  
National Self-Winding Clock Company

One of these clocks has a total of nine patent dates stamped on the works plate. These dates are the first listed.

February 19, 1895

- #534,318 Charles M. Crook, "Electric Winding and Synchronizing Device for Clocks." Information from xerox copy of patent shows an early design emphasizing particular details of the electromagnet and the synchronizing devices to make the time indicated on one clock coincide with time on other clocks electrically connected to it.
- #534,319 C.M.Crook, "Electric Clock synchronizer." Covers synchronizing mechanism only.
- #534,320 C.M.Crook. "Electric Winding Mechanism for Clocks," Variation of #534,318. Not studied in detail.

April 2, 1895  
 #536,926 M.V.B.Ethridge and J.H.Eastman, "Electric Clock Winding Mechanism." Shows mercury switch device.

July 8, 1901 No applicable patent found in Gazette.

July 1, 1902  
 #703-953 C.M.Crook. "Self Winding Electric Clock."  
 Xerox copy shows time and strike clock somewhat similar to clock I have but more complicated. Probably the most valuable patent studied.

July 15, 1902  
 #704,620 C.M.Crook. "Self Winding Electric Clock." Not studied.

July 28, 1903  
 #734,674 C.M.Crook. "Self Winding Electric Clock." Not studied.

November 8, 1904 No patent found for this date.

November 28, 1905  
 #783,746 F.I.Getty. "Electric Secondary Clock." Not studied.

September 26, 1905  
 #800,607 Chas. S. Burton, "Electric Winding Device for Clocks."  
 Assigned to NSWCC. Weighted levers instead of springs, but states that this feature covered by #637,454 of F.I. Getty. Burton's two claims cover only the use of a mercury switch and its design.

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The following patent dates and numbers were taken from the patent Gazette Index but were not looked up in the Gazette.

December 3, 1895  
 #550,822 C.M.Crook, Self Winding Clock

November 21, 1899  
 #637,454 F.I.Getty. Assigned to Automatic Electric Clock Co., Kansas City, Referred to in Burton's patent.

November 5, 1901  
 #686,209 C.M.Crook. "Clock Winding Mechanism." Non-electric clock.

October 28, 1902  
 #711,944 C.M.Crook, "Electric Clock."

Compiled by Ed. Hanff

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QUESTION & ANSWER SECTION

This particular clock pictured (wallet size photo) runs on 1½ volts. It has a balance wheel escapement with a lever alternating between two banks of two electromagnets per bank. There is a pin on the balance wheel which strikes one or the other of two straight springs acting as contacts in the electromagnet circuits. Thus, when the lever is to the left, the clock is so constructed as to have the right bank of electromagnets activated to pull the lever back and vice-versa; this, plus the energy of the balance hairspring keeps clock going. The clock stands about 6" tall, is dome enclosed, and appears to be handmade of American manufacture! There are no numbers, names or scratch marks indicating any form of identification. If anyone has any ideas as to its origin, please contact me at your earliest convenience. Many thanks to anyone for help.

Marty Feldman, 1545 Rhineland Ave. Bronx, N.Y. 10461

2) Does anyone have information on a master clock of regulator quality which works on 117 volts and is marked, Parker patent?"  
Alan Marx, 105 Bayeau Rd. New Rochelle, N.Y. 10804--914-632-5986

3) Can anyone help Ed Hanff in his researches? This clock is a wooden (straight line) mantle clock and One electromagnet winds it for both time and striking. Made by National Self-Winding Co., Champagne, Ill.  
E.A.Hanff, 2344 McNary Blvd. Pittsburgh, Pa. 15235

\*\*\*\*\*  
MART

WANTED: Rieffler, Vaucanson, Warren, Bangor electric. Any interesting book on electric clocks. A. Marks, 105 Bayeau Rd. New Rochelle, N.Y. 10804-914-632-5986

\*\*\*\*\*  
WANTED: Would like to buy instructions for operating a clock made by Self-Winding Clock Co., N.Y. Pat. Oct. 1898. On dial Western Union Naval Observatory Time. J.A. Stephens, 1026 Providence Rd. Secane, Pa. 19018

\*\*\*\*\*  
WANTED: Odd-ball electrics, any literature for sale or Xerox.  
FOR SALE: Orig. Bulle parts-still avail. in limited quantities (suspensions, springs, magnets, etc.)  
Japanned-cased Bulle-complete but offered "as is"-----\$85.00 + pp.  
M.Feldman, 1545 Rhineland Ave. Bx.N.Y. 10461

\*\*\*\*\*  
WANTED: "Warren" battery clock as in B. Palmer's-American Clocks.  
L. S. Kozbelt, 526 Mifflin Ave. Pittsburgh, Pa. 15221

\*\*\*\*\*  
FOR SALE: Synchronome slave movements (no hands or dials)-----\$8.00 each + pp.  
M.H.Postman, 10 Yerba Buena Ave. Los Altos, Calif. 94022

\*\*\*\*\*  
WANTED: Electric clocks in the shape of a G.E. "Monitor top" refrigerator; and other related items such as; tape measures, playing cards & salt & pepper shakers. See Bulletin October, 1970, pp. 641, 642.  
W. A. Quill, 5316 W. Berenice Ave. Chicago, Ill. 60641

\*\*\*\*\*  
NOTICE: When in the Chicago-land area please stop in and see us at "Just In Time." Electrics always in stock. We also wish to buy. Thank you. Steve Berger  
"JUST IN TIME" Long Grove Hotel, Long Grove, Ill. 60047 -312-364-3990

\*\*\*\*\*  
FOR SALE OR TRADE: Clocks-(All early battery electrics). Tiffany Never-Wind GRO complete and original -----\$135.00  
French ATO early model under a dome fully restored, approx 8" x 16"----\$140.00  
Self-Winding Clock Co. laminated Oak case round gallery type 20" in dia.--\$185.00  
New York Watch Co. wall clock fancy Oak case-18" x 42" --rare-----\$325.00  
Self-Winding Clock Co. wall clock, similar to Western Union model in mahog.case-\$250.  
Seth-Thomas-gallery clock, mahog.case - rare-----\$185.00

BOOKS: "The Modern Electric Clock" Philpott English 1935 covers most all types; masters, impulse, etc.-----\$35.00  
"Self-Winding Clock Co." catalog dtd. 1908-mint condition suitable for later reproduction-----\$40.00

All clocks are in GRO;refinished if needed and all movements are in good order. Will pack small clocks at no cost. A small charge will be made for large clocks. Shipping costs to buyer.  
Color polaroids at \$1.00-refundable with a purchase.  
R.H.(Dick)Vogel, 3008 E.B way. Logansport, Ind. 46947 (219-753-8043 ← telephone)

FOR SALE: Synchronome master clock- exc. condition-----\$375.00  
 Time Indicator with digital read-out- <sup>+ temperature</sup>-----\$400.00  
 Electronic master clock, Riefler registered pend, Patek Phillippe  
 dial w/second jumper.

Ben Wacek, 165 East 64 St., N.Y. 10021

\*\*\*\*\*  
FOR SALE: Master clock, type B-Telechron. Looks like Howard #70,  
 was used in Power House to check cycles/day; wind-up and electric--  
 \$425.00-Will ship--J. Miller, 114 Walnut Lane, Anct. Oak, Macungie, Pa., 18062  
 \*\*\*\*\*

WANTED: Any unusual clocks (electric or automated), books, inform.  
 about clock museums or clock collections available for viewing ---  
 in USA or abroad.--B. Levy, 3 Saul Place, Plainview, N.Y., 11803  
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IN MEMORIAM

Due to personal reasons this memoriam is being written belatedly to  
 express our sadness at the loss of one of our Chapter members and a good  
 friend, George Richman. George was very well known both here and abroad  
 and could always be counted on to help one solve a difficult clock problem.  
 He had a keen understanding of clock mechanisms and was very enthusiastic  
 when dealing with electrical clocks. Among us, here in the U.S., he  
 recognized very early the importance of electrical clocks as they related  
 to the study of horology. Despite physical hardship George would usually  
 be at most regional meetings. We extend our deepest condolences to his  
 wife, Dorothy Richman, and to his family.

Marty C. Feldman

\*\*\*\*\*  
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New members:

- Mr. David Hamilton, 31733 Pembroke, Livonia, Michigan 48152
- Mr. George Cohen, 235 Salem Road, Roslyn Heights, N.Y. 11577
- Mr. Gordon Hullin, 3666 Cold Spring Rd. Baldwinsville, N.Y. 13027
- Mr. Carl Nelson, 1341 Munroe Ave., Racine, Wisconsin 53405
- Mr. Duane Blumenstock, 132 Lamora Ave., Battlecreek, Michigan 49017
- Mr. Robert L. Akers, Rt. #1, Crewe, Va. 23930

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\*\*\*\*\* RANDOM NOTES \*\*\*\*\*

Next Newsletter---in 2 to 3 months; will include copy of a  
 letter signed by Alexander Bain(1845); additional references  
 for clock articles in the MODEL ENGINEER by Dr. G. Feinstein(compiler);  
 tech. data on pre-WW 11 Siemens Master clock--trans. by MCF; tech.  
 data sheet on rotary motor SELP-WINDING CLOCK CO. clock; plus  
 a few surprises!

AGAIN-THOSE WITHOUT PHOTOS-PLEASE SEND DUES- THANK YOU.  
 (this Newsletter has cost us \$ 62.50 !!!)

Your Editor



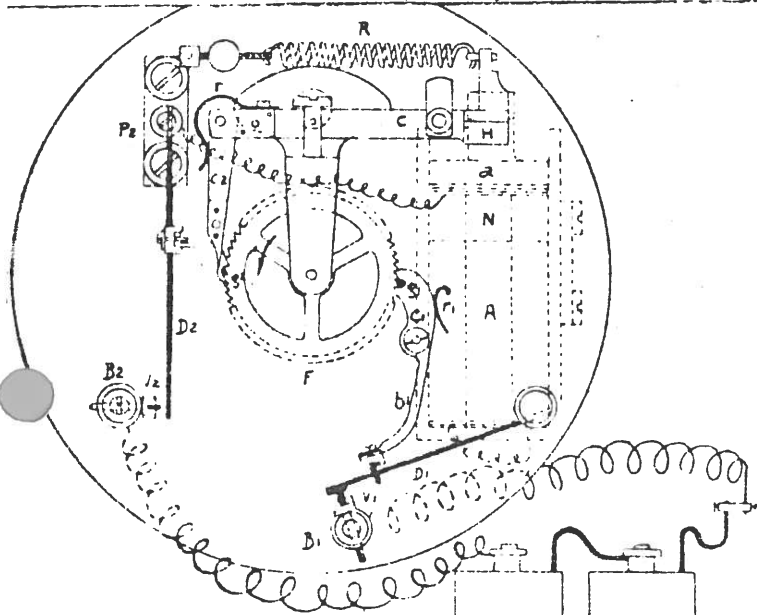


A REMONTOIR CLOCK by DAVID PERRET,  
NEUCHATEL

In figures 135 and 135b, (R) is the stabilizing spring of the remontoir flange. The left hand side of this spring is attached to the middle of a regulating screw which goes through a stationary post; and the right hand side on its top aspect to lever (H) connecting with lever (C) of the armature (a) of the electromagnet (A). (V) and (q), fig. 135b, are the screws of the limiting piece, one limiting the action of (a) and the other limiting the action of (C). The axis of lever (C) of the armature is visible below the right hand end of the spring (R).

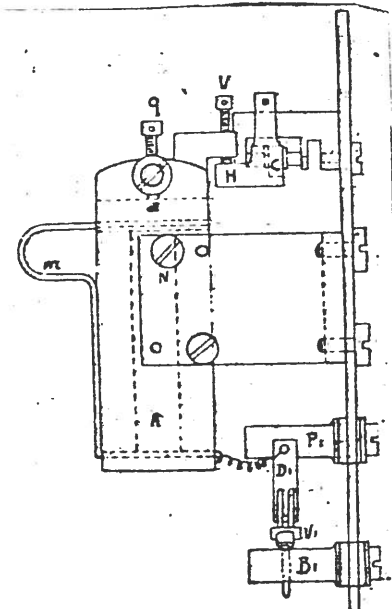
The lever (C) extended at the left parallel to (R), carries articulated with it the impulse ratchet (C-2) on which at its lower end there is a small prism-piece (g-2) which makes the wheel (F) advance one tooth per minute. The wheel (F) is the main driving power of the timepiece, and one sees it below in fig. 136 along with the escape wheel and the balance wheel. The rotation of wheel (F) takes place in an arrow-like fashion under the influence of the impulse ratchet (C-2) being compliant with the steady pull of the spring (R). The retaining ratchet (C-1) having a prism-piece (g-1), a small flat spring (r-1), and a prolongation (b-1) prevents the backward return of the wheel (F).

The impulse ratchet (C-2) has on its underside a small inclined plane against which the regulating piece leans. This piece is fixed to the middle of the flat spring (D-2). In proportion to the descent of the ratchet (C-2) under the control of (R), it pushes (D-2) against the plated contact (v-2) on the stationary post (B-2) and it stops when its run is almost completed. Quickly thereafter the flat spring (D-1) makes contact with (v-1, B-1) at the precise moment when the prism-piece (g-1) of the retaining ratchet (b-1) falls behind the inclined plane of the tooth on which it slides of the wheel (F). Now the two contacts (v-2, B-2) and (v-1, B-1) being thus closed at the same time permit the passage of the current from the battery to the coil of the electromagnet (A); this attracts the armature (a), the lever (C) returns quickly carrying with it the ratchet (C-2); (g-2) comes to rest behind the next tooth of the wheel (F), the contact (v-1, B-1) opens and interrupts the circuit of (A) which ceases to attract the armature, etc.



LEFT  
(fig.135)

RIGHT  
(fig.135b)

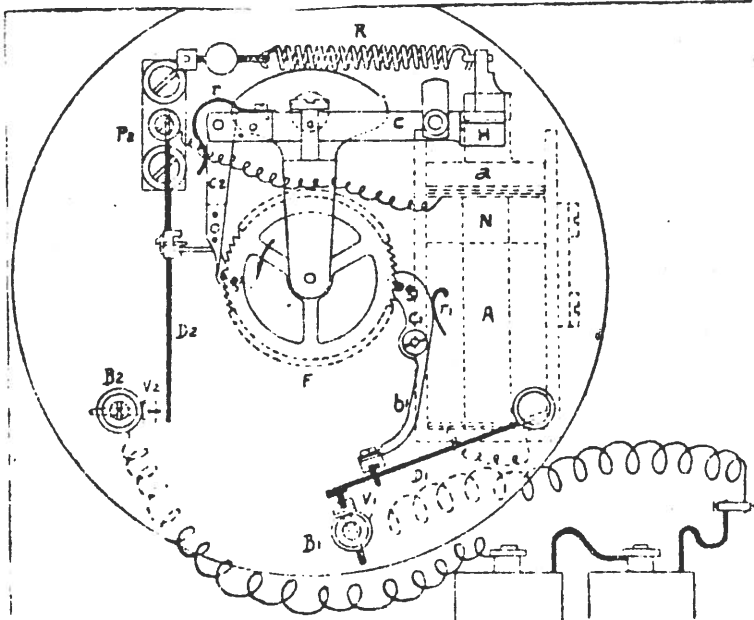


One sees that the armature (a) moves slowly under the control of (R), from the state of attraction to that of non-attraction; the levers (C-1) and (C-2) participate in both these slow movements.

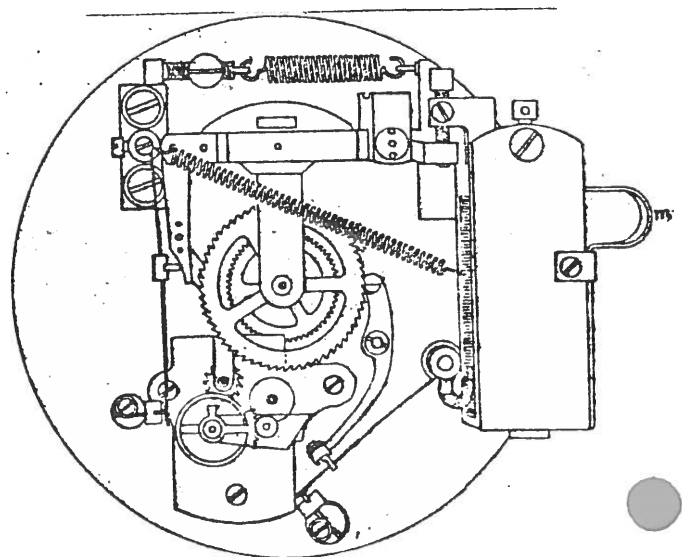
Moreover, one can say that the interrupting contact of the Perret remontoir is in two parts of which one, (v-1,B-1), makes the circuit and the other, (v-2,B-2), breaks it. According to its inventor this system has the advantage of distributing between two distinct points the risks of oxydation which originate as a result of sparks accompanying the opening and closing of the contacts and also has the separate advantage of cleaning the contact surfaces. Let us point out here the precautions taken to prevent the sticking of the armature (a) against the poles of the electromagnet (A) by using a non-magnetic metal in the middle of the spring (m)--fig.135b and 136---and the exactness with which all the moving parts are able to be regulated either in their course of action or in their tensions when they appear under the body of the flat springs or at the flanges.

The electric remontoir of David Perret has been used as well in "Bulls-Eye" clocks provided with a circular balance escapement resembling those of pocket watches, and in precision pendulum movement clocks with a Graham escapement. The Observatory of Neuchatel owns two precision clocks of the David Perret type made by Charles Rosat. One of these delivers hourly an electrical transmission, exactly on the hour, to all the different horological centers of the Swiss Jura mountains and to the Central Offices of the Telegraph System in Berne.

Up until 1901 the service of hourly signals had been made by the indirect reaction of an electrical clock by Shepherd of London which had performed for nearly 40 consecutive years and which is now one of the very interesting pieces in the Museum of the Neuchatel Observatory.

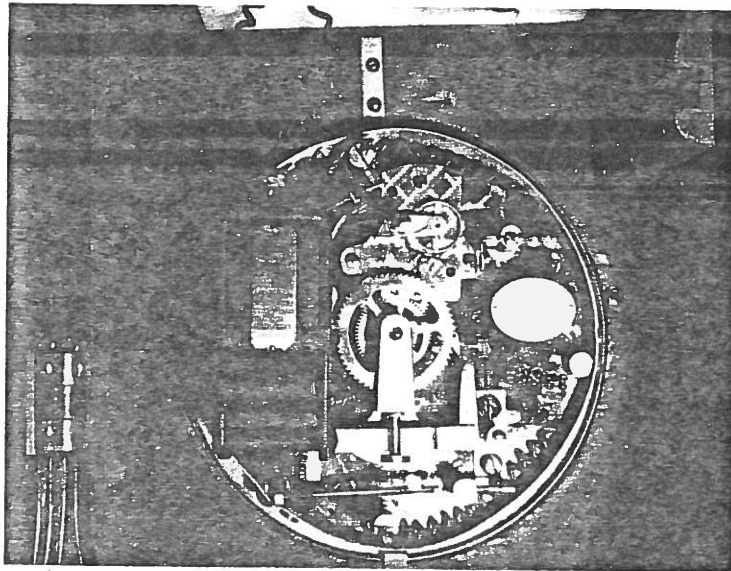
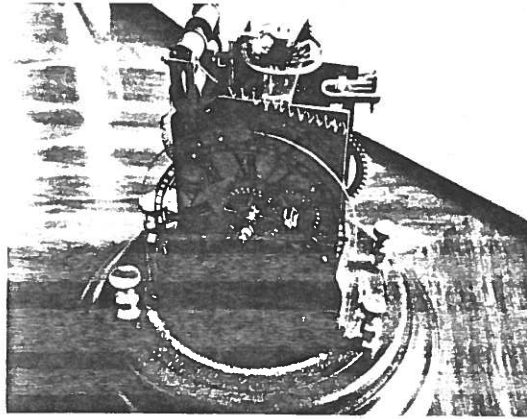


ABOVE (fig 135)



ABOVE (fig. 136)





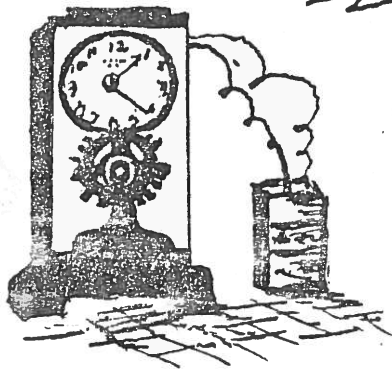


NATIONAL ASSOCIATION OF WATCH AND CLOCK COLLECTORS, INC.

ELECTRICAL MECHANICAL  
W W E E E E E E W W

Chapter No. 78

NEWSLETTER NO. 10



September 10, 1974

Hello fellow enthusiasts:

The summer is over and I hope everyone has picked up a clock or two which was really desired and which will enhance the owner's collection. This last year has been particularly very trying for me on a personal level and also in a general way affecting our Chapter. The loss of Earl Strickler who was a very strong advocate of our Chapter's aims and functions is incalculable. His support for our Chapter was always very strong and unremitting as he had the foresight to see the overall importance of collecting and maintaining through restoration the many electrical clocks to be found. It is a safe assumption that had we not formed a Chapter many of these clocks as well as much information already in print and to be printed would never have come to the attention of our Chapter and the National Association. It is hoped that we shall maintain our interest and I am sure National will continue to give us their collective support.

In the last Newsletter I failed to give John Matlock all the credit that is due him. It was he who designed and printed at his own expense our Charter Chapter Certificates. These certificates were then completed at our home office here and sent out to all charter members. We have 100 certificates and when these are exhausted all future members will not be considered Charter members. John also is connected with Caldwell Industries, 4068 Zarahemla Drive, Salt Lake City, Utah 84117. They offer a wide range of products such as castings for model steam engines, lathes, books, clock kits and other similar products. So, if you think of a project why don't you drop John a line and request his latest catalog which will be most worthwhile.

In this issue we have several articles by our members and I am constantly searching for more of the same. In particular Ed Hanff has done a monumental and exacting job of restoration and research into the Self-Winding Clock Co. of Champagne, Ill. Some of his findings are hereby published and we make a general request now for him to write this up

-62- completely as well as taking photographs which we can reproduce. He has sent me some excellent photos which show the internal workings of the clock as he has made a back plate of plexiglass for that purpose.

Last but not least October begins our fiscal year and in order for us to continue on a high level of quality in sending you these Newsletters complete with photos in some cases, we must raise dues. Dues can be raised in two ways: (a) in small drips and drabs with its accompanying grumbling by the membership or, (b) in one increment with hopefully one big grumble lasting 20 or 30 milliseconds! The dues will be \$7.00 per year. Please don't all scream at once as my personal misery tolerance has been overworked this past year. I trust we will not lose any members as I am sure the cost of batteries per year exceeds our dues. As we are a "mail" Chapter I am sure you can understand the need for high revenues than if we were a Chapter holding meetings. As a matter of fact I have received letters asking me how I put our Newsletter No. 8 with its two photographs for only \$75.00 going to our membership of 85. Well, it wasn't easy. Nevertheless, it was done. Unfortunately, we cannot continue relying on favors and luck in producing these Newsletters. So please send funds as soon as possible as this makes bookkeeping easier and I can devote more time to researching articles as well as planning future editions of the Newsletter.

As a last thought, Bruce and Maxine Levy have graciously offered their home for a general meeting to be held in a month or two. While we can assume those members living in the New York area will attend, why don't some of you who have the time make it a weekend and come to N.Y. for this meeting as well as general sightseeing!! It should prove to be most interesting as we will see a fine collection as well as having individual members bringing interesting pieces for exhibition and discussion, as well as possibly for sale and/or trade. Let us try and make this meeting a very successful one with good attendance. Please let me know if you are willing to come to such a meeting and when it would be most convenient for you in the month of November.

Electromagnetically yours,

*Morty Feldman FAWWEC*

Question & Answer Section:

Could somebody give us a very brief - a paragraph or two - history of the electric clock with a listing of the approximate time of manufacture of some of the more popular makes - Eureka, Bulle, etc. If this is too much of a chore, is there any book available that gives a short summation along with such a listing?

Allen J. Hendry, 1 Tuscarawas Rd. Beaver, Pa. 15009

Recently I bought a clock made by the Self-Winding Clock Co. Bklyn, N.Y. Pat. Oct. 4, 1898. Not knowing anything about this type clock there are some questions I have. Will this clock operate without a Master? Are any operating instructions available for this type clock?

James A. Stephens, 1026 Providence Rd. Secane, Penna. 19018

Article:

The clock is an "American Clock Co. of Chicago" battery operated one which is actually weight driven. The movement is the same one illustrated in "The Modern Clock" by Ward L. Goodrich as shown on page 394 of the third edition.

E.W. Hines

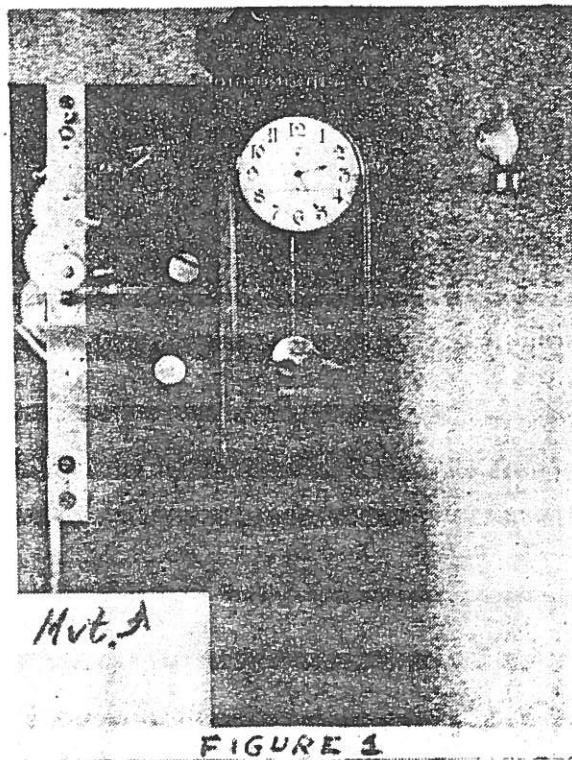


Fig #1  
"American Clock Co. Clock."  
Insert: movement showing  
two remontoir weights  
driving the clock.

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Open letter to the membership:

We would be most happy to have visitors for one day during the month of November in order to share views, buy and sell clocks, and view some new examples. The date is not firm but please write to Mr. Feldman so that we will know how many people would be able to attend. Then we can continue with further arrangements.

Maxine & Bruce Levy, 3 Saul Place, Plainview, N.Y.

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Many thanks again for your praise of the "fine" Newsletter we are attempting to put out. Let us continue, so please, please send dues as soon as possible.

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Patronize our MART. Let us have more articles for the next Newsletter to be printed in December 1974.

Ed. *mcj*

These are the numbers on my IBM clock. On the metal plate model #685-5 Serial #85760 MJ. On the top is stamped Model A 111BEF and 50 watts per cir. 125 watts total. It has 10 discs in the bottom. It does have International Time Recording Division Works Endicott, N.Y. Any information would be appreciated.

Robert Akers, R.F.D.1, Crewe, Va. 23930

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Information will be supplied for the Self-Winding Clock Co. clock. Please send SASE.

R.N.Vogel, 3008 E.Broadway, Logansport, Ind.46947

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I have a car clock marked on the dial-Seth Thomas Electric. The back is stamped patent pending and 11-29 which leads me to believe it was made in 1929. I have wondered if this could be an early electric car clock assuming of course, it was made in 1929?

Paul Berg, P.E., 114 West Creighton Ave.Ft. Wayne, Ind.46807

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TECHNICAL SECTION

Bulle clock information

After receiving the new suspension and silver spring from you along with an instruction sheet out of a 1923 publication, I was able to get the lovely old thing working. But this was with (2) 1-1/2 volt batteries in series or 3 volts on the clock.

The fun came in trying to get it operating on 1 "C" battery or (1) 1-1/2 volts. I naturally found that all contacts had to be thoroughly cleaned but even with this, I found that the adjustment of the fingers on the "escapement" was extremely delicate and had to be just exactly right for them to progress the crown wheel one notch for each and every stroke of the pendulum. Also the "beat" of the pendulum had to be exactly even.

In making these adjustments, I found that a milliammeter connected in the circuit could be of great assistance. With everything functioning perfectly, on 1-1/2 volts, the main "kick" takes just .65 milliamperes. If it is off beat or starts to slow down, this goes up to 1 or even 1.2 milliamperes.

The Bulle is now working beautifully on 1 battery and I have installed a miniature milliammeter inside the case to give a continuous indication of how things are going including the condition of the battery. As a side effect, it also adds a bit of interest when showing it to friends.

Allen J. Hendry, 1 Tuscarawas Rd. Beaver, Penna. 15009

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General Interest:

I bought two pieces of horology one day in Darien, Conn. I had seen this antique shop on their main street, so one day stopped and took a look inside. There were two items that for all intents and purposes should have been consigned to a more appropriate container called "garbage can." Without any hesitation I offered \$5.00 for "this stuff" and was accepted without delay. I thought I had made a mistake. Once home I used a lot of soap, water and ammonia; finally was able to read POOLE on a little shield on the wooden part of the base. I did not remove nor attempt to clean the movement at this time, you see, I have quite a number of Bulletins and remembered reading an article on these clocks by Mr. P. de Manguin. Once I realized that I should keep this dry but clean, I blew the dust out of the works and soldered one broken wire, the clock gave indication that it was ready to go. Unfortunately, the dial is missing as well as the outside case.

The other piece of horology is an electrically operated timepiece with the following name stamped on the front plate. HOGGSON'S PATENT Jan. 3, '99, S.H. Hoggson Pat Appl'd For; under this is number 1030 with a line drawn through it and number 127 as a clean number. Not being very knowledgeable in this line, all I can do is to describe the piece itself. The plates are 11/16" wide by 7" high, there are three wheels and a verge between the plates. As far as I can make out its all together mechanically. But, I can't say the same thing for the electrical side of it. Nor can I describe this in electrical terms either. According to my deductions there's a coil with two points, one on each coil then a piece of metal that is attached to the arbor of the second wheel which in turn has a counter weight which furnishes to locomotion until the piece of metal returns to contact the points again, is repulsed, and the whole process is repeated. There's an outside contact mechanism attached onto the verge wire that must create a contact also because there's a small spring, as found in older toasters that terminates at this point from underneath. The dial hands and dome is missing, but for \$5.00 what do you expect.

Richard P. Dupuis, Rt.2, Box 172, Bedford, N.Y. 10506

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To Fellow Electrical Horologists:

For 30 years I've been interested in automatic timepieces simply for the reason I don't like to wind a clock, and also as a timepiece repair man, I realize constant energy is needed to supply accurate time, so what is more able in our technical society to supply such, than electricity?

Also, I would like to recommend a book club, "John Matlock Selects" Books for the home craftsman, 4468 Zarahemla Drive, Salt Lake City, Utah 84117. This book club is a non-profit part of Caldwell Industries of Luling, Texas, Box 170, 78648.

Both above mentioned groups are slanted to the clock, steam and model craftsman.

John Matlock is a fellow member of NAWCC and in the next catalog of

-66-

Caldwell Industries his clock will be available as a kit, blueprint, or finished product. But I don't know if it's electrically powered or not. Now Caldwell Industries has Hope-Jones' Synchronome Clock for sale as a Kit, blueprints or finished product, also slave clocks to fit the master are available with parts, raw stock, etc.

The clock master is 1973 priced-finished at \$327.00, Kit (97) pieces at \$149.50, and blueprints at \$7.50.

I would recommend "Hope Jones" book Electrical Timekeeping as a text book if any new members are not already familiar with it. (Nice, but try and find one.-Ed.)

We had our regular meeting of Mid Mo. Chapter #51 of the NAWCC recently and Dr. Knauff of Kansas City who is a member of our Chapter #78 attended. Also I called Chapter #78 to our group's attention and I feel several new members will be in the offings.

I have on hand a movement from a Poole or Bulle clock and (mvt. only) I have it operative but had to make center pinion and dial train--very unusual mechanism. It runs well on 2 volts from a power supply of D.C. I prefer to run an unknown movement on as low voltage as possible to continue the time. One thing to point out to beginners in this electrical hobby, especially on the matter of antique electric clocks always use D.C. current. (Mvt. of Poole and Bulle differ as night and day. If it runs at 2 V. it is probably a Bulle--it should run on 1.5 V as that is what the design calls for.-Ed.)

I like to use well-filtered A.C. power to D. C. power supplies, one that I built from scratch and one EICO battery eliminator and one Heath-kit power supply.

Now for simple car clocks, if anyone collects such I use 2 rectifiers of 40 MA and (2) 10 watt wire wound resistors. This will run 6 or 12 volt clocks very well. I would be happy to supply diagram for such if members will write me--total cost of such about \$3.50 including fuse, line cord and connectors. (A diagram would be most appreciated.-Ed.)

Thanks and good luck to all present and future electrical horologists.

Olin Dennis, 103 Malone St. Macon, Mo. 63552

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FOR SALE:

Thinning out collection: Cinn. Time Recording clock-master-oak case, perfect; Amer. Watch Clock Co. clock-rare; English Chronoscope-measures time to thousandths of seconds, laboratory apparatus, very rare; Bulle clock--japanned case, unusual; Wallace & Tiernan Master clock and Sub-Master with pilot slave-sold as a set only-rare; Synchronome master clock, mahogany case, ca.1920-mint; Standard Electric master with bell-ringing tape program device-works only-no face; Astronomical Time Switch-compensates for seasonal changes; For those interested, a detailed list describing each piece as well as price is available upon written request. Bulle parts still available-1st come 1st served. Quantities shrinking!

#3-50

M. Feldman, 1545 Rhinelander Ave. Bx. N.Y. 10461

212-555-1212

~~212-597-5913~~

FOR SALE:

Inter. Time Recorder-- 2 Wt-110 V- merc.pend. refinish.& rebuilt. . . \$325.00  
Stand. Elect. Master--12V - refinish.& rebuilt . . . . . \$250.00  
no shipping.

WANTED: Books, unusual electrical clocks.

A.Marx, 105 Bayeau Rd. New Rochelle, N.Y. 10804

FOR SALE:

Siemens master clock made by Siemens-Halski prior to World War 2. ( Many clocks were destroyed by bombing and also by the need for brass in production of war goods by the Germans). Clock is automatically wound every 30 seconds, is powered by a small weight, and has various take-off connections for slave clocks, bell ringers, etc.

Marty Feldman

FOR SALE:

Bulle clock in a 4 sided beveled glass and brass case. Two doors front and back-veined black marble top and base-MINT-- . . . . . \$350.00

Charles Roth, 2 Circle Lane, Roslyn, N.Y. 11577

Self-WINDING CLOCK of Champaign, Ill. by Ed. Hanff

During the last several months, as time permitted, I have worked on the self-winder. Had little trouble with the time section after determining the correct pendulum length. The strike section is operable, but up to now, the mercury switch disconnects so quickly that the magnet armature does not complete its stroke and the strike motive spring does not get fully wound. I think I know the answer but have to try a few changes before I can say it is complete.

In order to work on this clock effectively I built a special support frame so that both front and rear could be observed. Also, in order to watch the action better, I made up a back plate of Plexiglass, using the regular brass plate as a template and drilling jig. This turned out to be an excellent idea with which I think you will agree after seeing the enclosed photos. The clock

also runs as well as with the brass plate so that I must have drilled the holes of the right size and in the right places.

In correspondence with Bob Feiertag, who has three of these clocks, he gave me considerable helpful information and mentioned that he was expecting to write an article for the Bulletin on these clocks. I thought it would be helpful to him in preparing his story to get some close-up pictures of my set-up with the special X-ray back plate. I am not much on photography but take pictures occasionally with an Instamatic camera I bought about 9 years ago. This type of camera is not adapted for close-up work and focuses for a minimum distance of three and a half feet. I also have a Kodak Tourist camera that hadn't been used for ten years but is also limited to the same minimum distance. However, it has a bellows with about four inches from the lens to the film plane, therefore, with an auxiliary attached lens can take close-ups. I found that Eastman consider this camera obsolete and will not furnish any accessories or parts. I bought a lens of the right size from Edmund Scientific (for \$3.50) and constructed a makeshift lens holder that fits over the regular camera lens housing. After determining the proper focusing distance from the subject, by means of a ground glass taped to the film position, I was able to get photos at about 8-1/2 inches from the lens.

(Hoping Bob's article for the Bulletin will be out shortly so we can share his wealth of knowledge. This partial piece is just an appetizer-Ed).

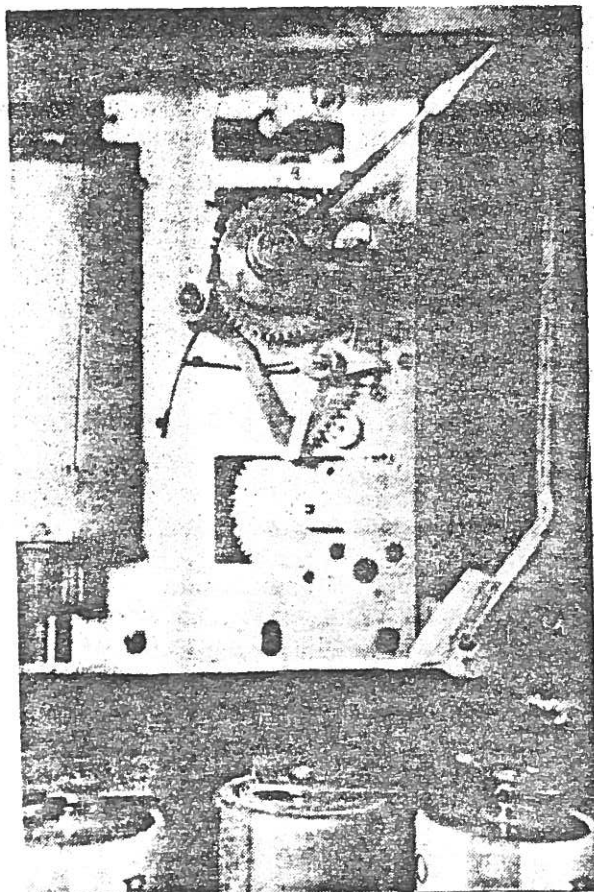


Fig.2  
Front view

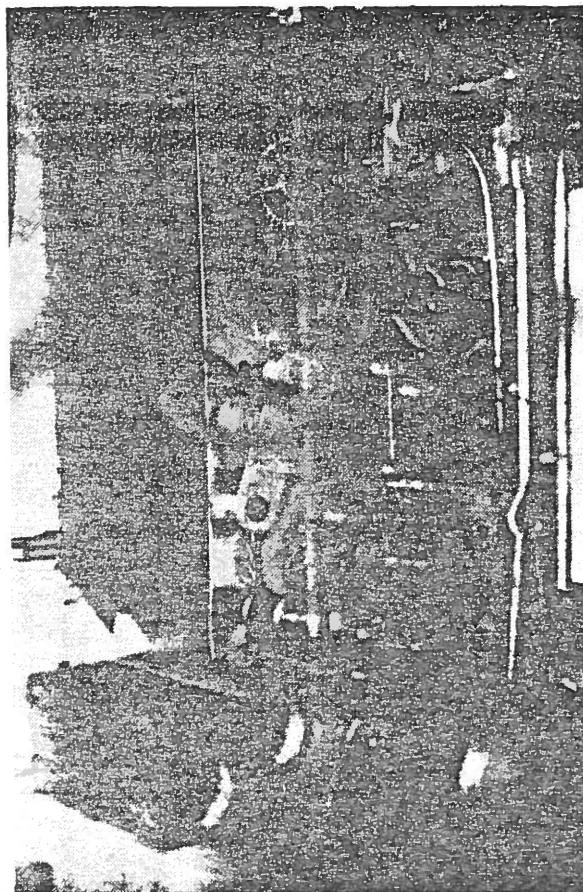
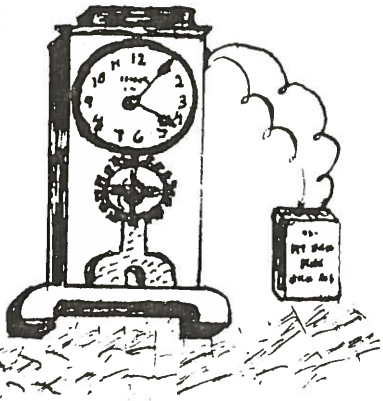


Fig.3  
Back view

The  
**JOURNAL**  
OF THE  
**ELECTRICAL HOROLOGY**  
**SOCIETY**  
**Chapter No 78**



VOLUME I---ISSUE #1

November 22, 1974

Hello fellow enthusiasts:

As promised this Newsletter #11 (with any amount of luck) should reach you in early December prior to the Christmas rush. As you note from the changed masthead, in speaking with Dr. Bruce Levy, it somehow dawned on us that the new title of this newsletter should be more appropriately called The Journal of the Electrical Horology Society. It is hoped that you all find this to your liking. Our membership has increased to 93 members. To date, I have only received approximately 30% of dues from all of you. This is much much too slow as the bookkeeping becomes quite tedious. Don't put it off, send it out today. To my gratification there have been no complaints to the steep rise in dues. As a matter of fact there have been several donations in addition to dues from those who have already paid! I would like to publicly thank those members who sent us monies above and beyond what is asked for at this time. Pending the receipt of dues for the fiscal year of 1975 our membership Roster cannot be mailed out. In this issue you will observe that the Mart is again being most underutilized which is a distinct loss to those members (especially new ones) who might be purchasing some fine examples of electrical horology if they had had the knowledge as to who had what available where! As to election of officers, may I once again suggest that this be deferred until our Chapter can become firmly established. Thus, we are temporarily setting democracy aside in lieu of expediency and efficiency. If there are any objections to this procedure please do not keep it to yourselves and write to me.

In this issue you will note that there are two excellent translations from French textbooks by one of the world's leading authorities on Electrical Horology, an exceptional English gentleman--Mr. Charles Aked. From Mr. Ed Hanff we have more information dealing with the interesting striking clock made by the National Self-Winding Clock Co. of Champagne, Ill. Also, from my files a schematic of the Standard Electric Master Clock system. We still await letters, articles, and other pertinent data dealing with electrical horology.

NATIONAL ASSOCIATION of WATCH and CLOCK COLLECTORS, Inc.



On Sunday, November 17th, six members of the EHS met at the home of Bruce and Maxine Levy. This meeting was the first one for the Chapter and the turnout of local members was very nice. The members who came were asked to bring an interesting piece of electrical horologica and much time was spent discussing the various high and low points of these pieces. Mrs. Levy prepared a very fine buffet for us which was enjoyed by all. Sincere thanks were offered to Bruce and Maxine for their exceptional hospitality and kindness in offering their home for our first meeting. The next meeting to take place sometime during January or February 1975 will be held at the home of our Secretary-Treasurer, Mr. Charles Roth.

So, write articles, patronize our Mart, send dues, and most of all--enjoy this 1st issue of our Journal.

Season's greetings and a happy and healthy New Year to all.

Electromagnetically yours,

*Marty F.*  
Marty Feldman

\*\*\*\*\*

Technical--more on the,

NATIONAL SELF-WINDING CLOCK

So far as I know these clocks were unique in operating both time and strike functions from a single electromagnet. There are two separate power modules, each containing a standard watch mainspring, wound through a fine pitch ratchet mechanism. The twin solenoids are mounted vertically and the moving armature is attached to the short leg of an L-shaped lever. The vertical long leg carries a roller about half way down from the pivot and engages a lever which carries the pawl to wind the time spring. This time spring receives only about a 60 degree rotation so it maintains maximum tension. The energizing switch is attached to the winding lever and operates every 3 or 4 minutes. The strike power module is similar to the time module except that it is wound by a ratchet wheel instead of by a simple lever. The lower end of the long leg of the L-shape operating lever carries a pawl which engages one tooth of the strike ratchet wheel for each movement of the operating lever. The strike ratchet wheel has 13 teeth plus a blank space equal to two tooth spaces. Therefore, the strike spring is wound about 312 degrees when all 13 ratchet teeth have been engaged. A separate notched wheel on the spring arbor operates the bell arbor and will strike 23 times in the 312 degree rotation. Since the clock strikes each hour and once each half hour, there will be 92 strikes in a twelve hour period. With about 20 impulses per hour the spring will be fully wound most of the time with ample reserve to take care of the longer hour strikes. The blank spaces on the ratchet wheel prevent overwinding in the wee small hours.

Ed Hanff

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Electric Clocks without batteries or contacts.

In this clock (the master clock), the motor plays a quite different role to that in those we have seen up to now, for it is employed here as a source of energy. The generator, made to move by a special train of wheels, has current induced in its winding which is distributed to the slave clocks. Here is a brief description of the master clock.

The Magneta master clock (fig.73) consists of two trains, the first driven by the toothed wheel R1, actuating the usual anchor escapement (Graham dead-beat) through a clock train and showing hours and minutes; the other, actuated by the wheel R2, drives the induction generator.

To this end, the last wheel P of this train carries a lever L having two arms which when at rest are supported on one of three pins c fixed on the cranked lever C which pivots on O, the extension arm b resting against one of the six pins g carried on one of the wheels of the first train (the going train).

On the last driven pinion P is fixed a crank M connected by a rod T to an arm B which moves the shaft A of the induction generator.

The induction generator consists of a soft iron core I which carries a winding e of insulated copper wire, the whole is free to turn on the axis A and be displaced with regard to the North and South poles of the magnet.

170

CHAPITRE IX

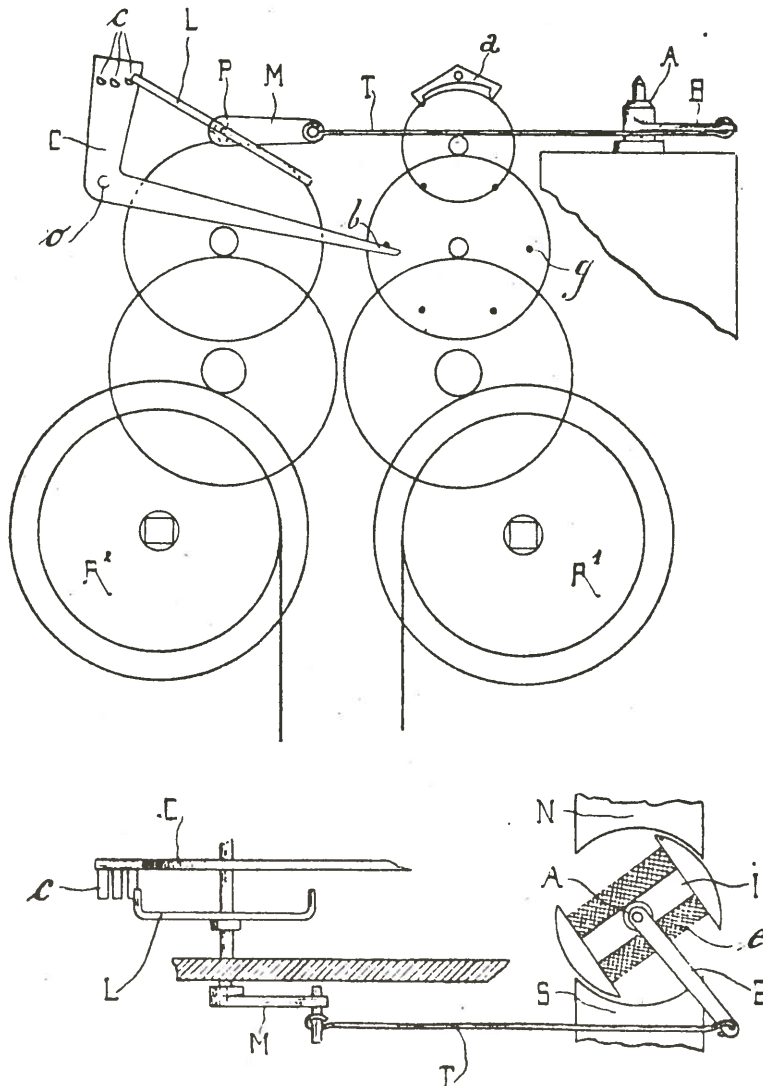


Fig. 73. — Horloge-mère à Magneta





The functioning of the clock is very simple. The clock train is driven by the wheel R1, and in going the wheel which carries the six pins g turns slowly. One of the pins presses on the extension b and turns the lever elbow C from left to right, and one of the arms of L rests successively on each of the pins c, until the moment when the lever L is released and executes an energetic half turn under the influence of the train driven by the wheel R2. This movement is transmitted by the crank M, the rod T, and the arm G to the armature of the generator. The extension b now falls on the following pin and the second arm of L falls on the first pin of C. (The lower diagram shows the cranking of lever L which allows this action to take place, it is not clear from the upper diagram alone). This action is repeated every minute, the displacement of the armature I in consequence causes a current to be induced in the winding e every minute. This current is conducted by two wires to the slave clocks. We can easily conceive that the duration of the current is extremely short, also the slave clocks which are driven must be very reliable, an indispensable condition if they are not to malfunction by missing an impulse.

Remarking once more that they are polarized armatures, the movement of the induction generator gives a current which changes sense at each half-turn of the crank. (Note the generator does not complete a half turn because the length of the driving crank is less than that of the generator, it therefore oscillates, first one way, and then the other, in order to give the reversal of current.

#### Appendix

#### Magneta Master Clock

The master clocks manufactured by the Swiss firm of Magneta SA are distinguished from all other electric clocks in that the driving current used to actuate the secondary clocks is not derived from an outside source, but is produced by the master clock itself. This is effected by an electric generator which is actuated each minute by a clock through a special wheel. The impulses thus given are therefore accurately timed.

The Magneta Master Clocks are made as mechanical clocks driven by weights, and as office clocks with seconds pendulums, and as wall clocks with three-quarter seconds pendulums. Winding can be by hand or automatically, and in the last case, by means of an electric motor with a sufficient reserve of going. All the same, if the electric supply fails for entire days, the functioning of the master clock can only be maintained by winding the master clock by hand.

For important installations one utilizes several induction generators and gives to each, one of the special circuits. The master clocks are also able to supply impulses for signalling equipment, for the operation of these the current is taken from a battery or a transformer to ring a bell, and the circuit of slave clocks in the same place can equally be made independent of outside electric sources.

The secondary clocks are constructed as normal clocks with polarized relays and these can be operated also in a battery installation, and vice-versa a secondary clock with polarized relay designed for a battery installation may be used, in certain conditions, with a Magneta clock installation.

The master clocks, as well as the secondary clocks, are furnished for all desired purposes.

Translated from L'Horloger-Electricien par G. Albert Berner

by Charles K. Aked, Chairman Electrical Horology Group, A.H.S.



Magneta Master Clock

Extract from L'Électricité et ses Applications a la Chronometrie par A. Favarger, third edition published Neuchâtel, 1924. (Pages 382-386).

The system of electrical distribution of civil time to which the firm of Magneta has attached its name, rests on the principle of the mechanical production of alternative positive and negative pulses of current to drive the secondary clocks described earlier on pages 313 and following. These pulses are produced by the master clock itself, by means of a small magneto-electric apparatus which by an appropriate mechanism released each minute and a weight driven train, is moved forward and backwards, turning the armature of the generator rapidly through an arc of  $35^{\circ}$  to  $45^{\circ}$ .

Figures 273 and 274 give first a vertical and horizontal section, and secondly a perspective view of the arrangement of the generator which has a certain similarity to the telephone generator of the American Bell system. One sees at E the crank which, fixed on the shaft of the armature and moved by one of the heels of the mechanism of the master clock making a half-turn at each release, alternatively moves the armature to the two positions AD and BC in the figure 273. If one of these movements (very suddenly given, by a special system of levers, connecting rods, detent springs and stop work, of which figure 275 gives an impression) causes a movement in the secondary clocks by a positive pulse, the next movement causes them to move the other way by a negative pulse. One can see, + and - (figure 273) and at N (figure 275), the poles of a permanent magnet, in the proximity of which the sudden movement of the armature takes place. These poles are in magnetic contact with two rectangular plates of soft iron which carry the generator and which are held apart by four cylindrical brass pillars which can be seen distinctly in figure 274. It is on these plates on which are fixed the extension poles AB, CD of figure 273 (see also figure 274), between which is placed, without touching, the armature consisting of a movable soft iron core with shaped lateral faces, on the shaft of which is mounted a crank E. A fixed bobbin, wound with insulated wire surrounds the armature and is thus caused, at each change in the position of the latter, to have a brief current induced, which flowing through the connecting wires in the form of spirals (Figure 274) causes a brief pulse to be given to the electromagnets in the secondary clocks. These are inserted in a series circuit with one and the same wire for the group and shown in the circuit of the figure 276, with the result that each secondary clock takes part of the total voltage at the terminals of the coil generating the alternate pulses, and each clock works on a constant current (page 277 and following). According to the power of the generator coil one can attach, in an external circuit, twenty to one hundred secondary dials of 25 to 30 cm. in diameter, but then it is necessary to select the capacity, the clock weights and the dimensions of the master clock movement. It is thus that a small installation of dials will suffice to have a weight of 25 kilogrammes wound by hand every day, whilst for the impulsing of some hundreds of dials it is necessary to have recourse to driving weights of many hundreds of kilogrammes rewound automatically many times a day, by means of an electric motor, and with several circuits according to the power. In these last master clocks the number of dials in action is set out in many groups where each has its own supply wire, and a return wire (common to all the groups), and its own generator unit each able to drive 100 unit secondary clocks ( a dial according to its diameter is equivalent to one or more units, each unit corresponding to a quantity of current which is necessary to ensure the proper action, a single dial of 25 to 30 cm. diameter, a dial of 40 cm. diameter requires three times the current of that of a dial of 30 cm., a dial of 50 cm. eight times, etc.).

From the preceding, 1, 2, 3, 4, 5, etc. generator coils worked by one master clock, corresponds to capacities of 100, 200, 300, 400, 500, units of secondary clocks.

The figure 277 shown overleaf gives a view of the front of such a master clock which has a total capacity of 400 units by means of four generator coils. Its weights are rewound automatically by a fractional horsepower electric motor.



The Magneta system, whose principle was patented in 1899 by Martin Fischer, of Zurich, was described in the journal La Lumière Électrique, of Paris, dated 17th January 1891, where it was attributed to a Russian inventor. Searches were made and it was found that the idea of the principle of the Magneta system belonged to Prokhoroff and N. Fahlberg of Kiev, who were granted a patent by the Patent Office of Berlin, under the number 56652, in 1890. This invention has since been brought to perfection in each of its details of construction and execution.

Its principal advantage is the abolition of the battery and contacts. But, for the other part, this system has serious faults resulting from the extreme brevity of the induced currents and of the necessity to provide mechanisms for the secondary clocks with a spring remontoir which has already been spoken of on page 314, and whose presence constitutes an obstacle almost insuperable to its adoption in any system with secondary dials of a large diameter, or street clocks exposed to the vagaries of the outside air.

Magneta Secondary Clock Movement      Pages 313 to 315.

Here the armature A is placed with each of its extremities in the neighborhood of the two poles of an electromagnet EE. It turns on an axis O (figure 222) which is perpendicular to the plane of EE. It is very light because it has to respond instantaneously to alternate impulses of very short duration (0.05-0.10 second) which the master clock transmits in the form of induced currents produced by a falling weight. It is provided in the middle with an extension C completing the magnetic path (figure 223) and under the influence of the magnet poles of M, the yoke of the electromagnet EE in consequence causes the two cores to be magnetized (forked poles).

Meanwhile the maximum asymmetry which exists, first to the left, then to the right, between one of the extremities of the armature and the corresponding pole of EE, is of the order of a millimetre. A long arm B, terminated by a spring F, transmits the oscillating movements of A to the part H in the form of an anchor, the two pins (or pallets) in the two arms of the anchor push alternately on the wheel S and advance it forward one half-tooth at each movement, whose pinion turning always in the same direction, causes to turn, in the usual manner, the hour wheel. We find thus in the Magneta system, the mode of turning an oscillating movement into a rotating movement, an application already used in 1840 by Stohrer.

The spring F, of which we spoke, is for the purpose of permitting the brief jump of the oscillating armature to be followed more slowly, through a lighter stroke, the escapement wheel and minute hand. This spring plays the part of a maintaining spring of the remontoir clock described on pages 183 and following. It has the result that no matter how long the minute hand of the Magneta clock, or how heavy, the action of the spring F prolongs the impulse, in other words the end of the movement of the hand follows after the instantaneous movement of armature A. Now a delayed movement can only be obtained with surety by the interposition of a spring F in the form of a helical or spiral. But we have already seen that the presence of any spring whatever, in a mechanism of a secondary clock constitutes an almost insuperable obstacle to the use of a parallel mechanism in a unified network where accurate time is to be distributed to public dials exposed to the vagaries of the exterior air. The result, in effect, of experience obtained with the Magneta system is that it is inapplicable for keeping time on exterior dials.

Translated from the French by Charles K. Aked,

Chairman Electrical Horology Group.



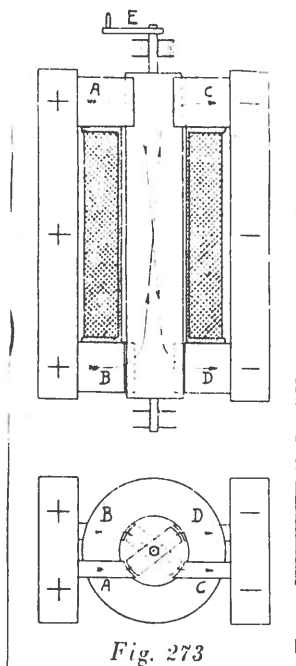


Fig. 273

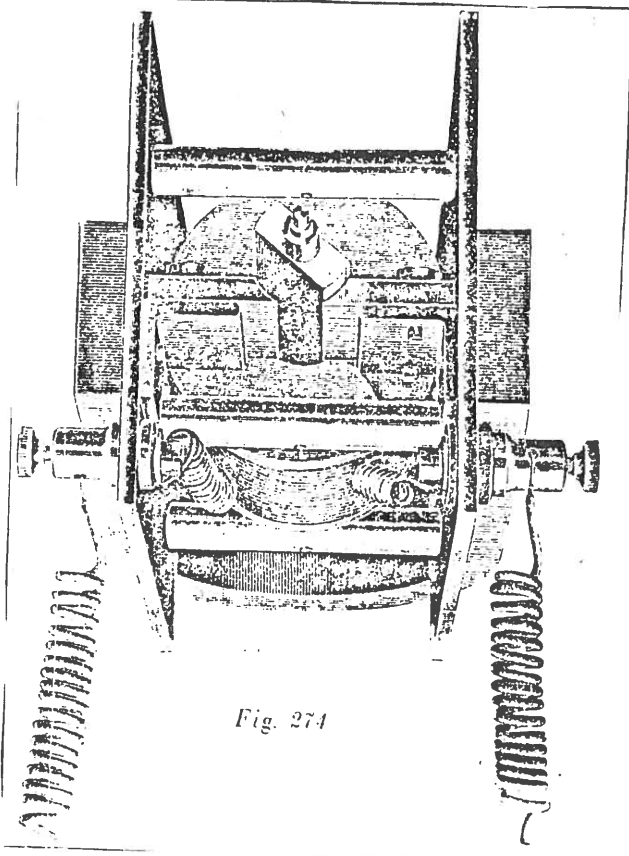


Fig. 274

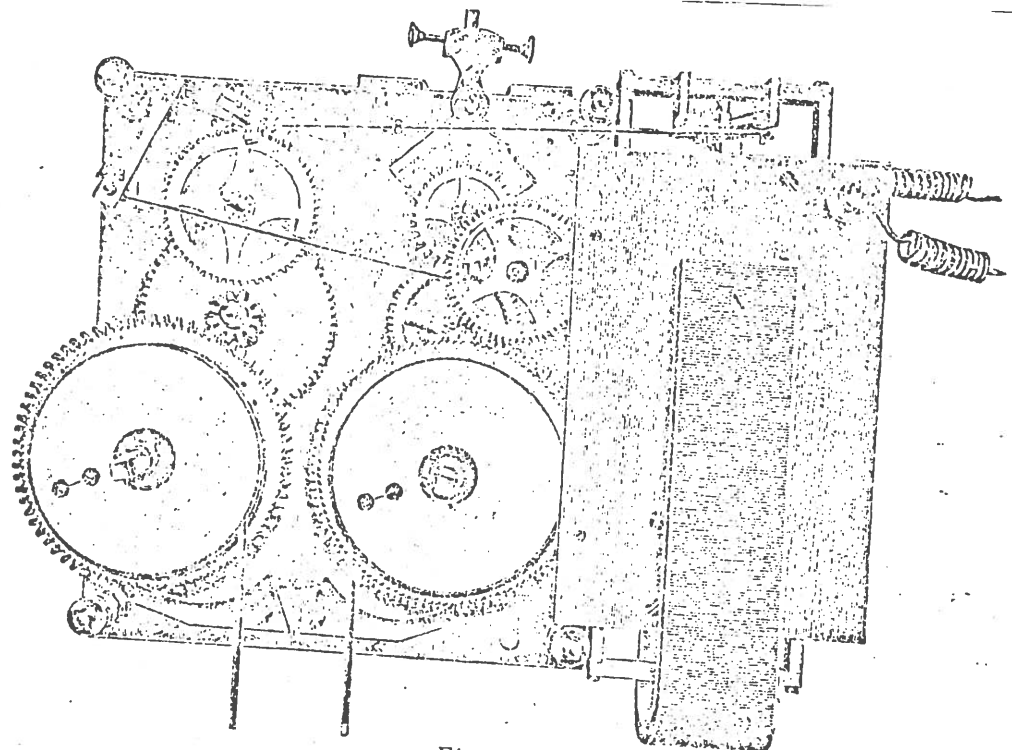


Fig. 275

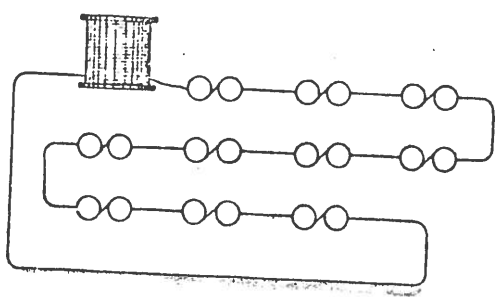


Fig. 276





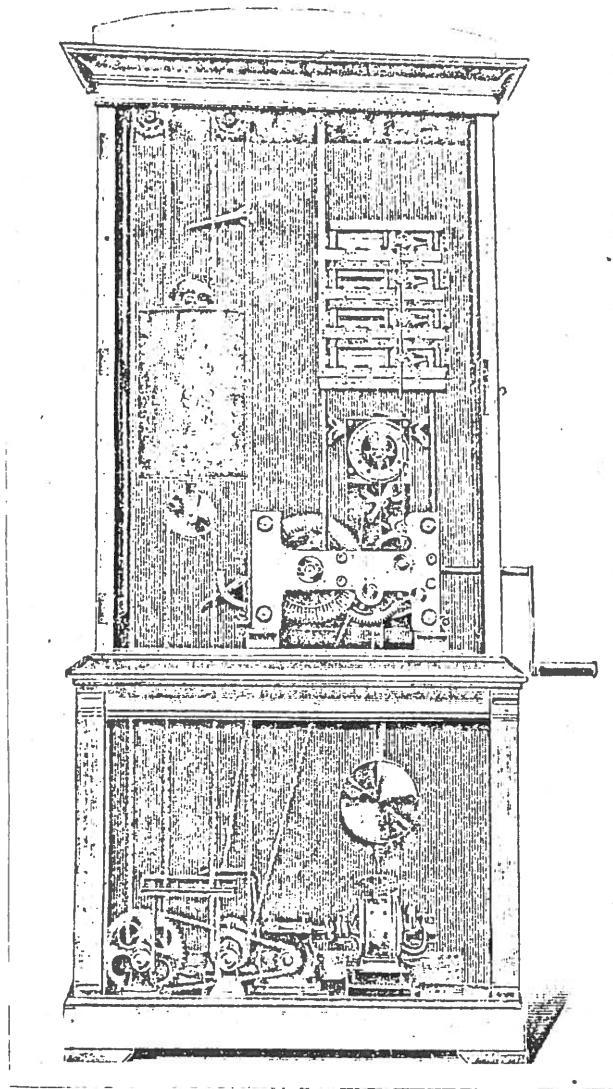


Fig. 277

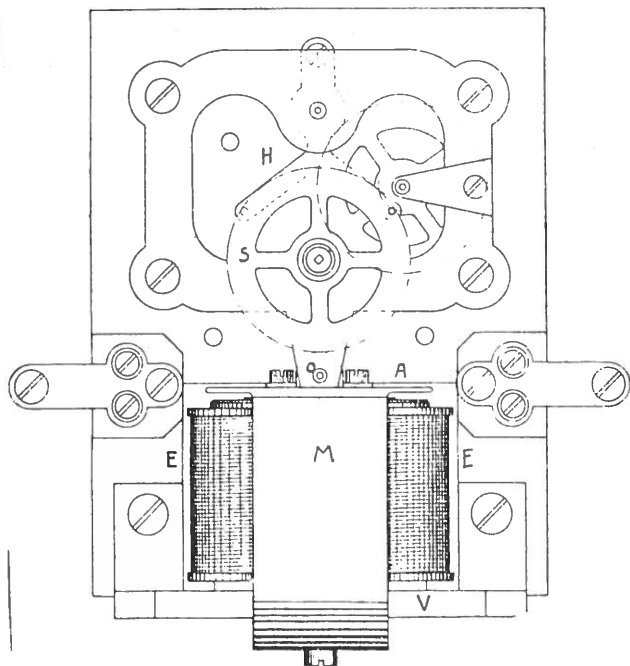


Fig. 222

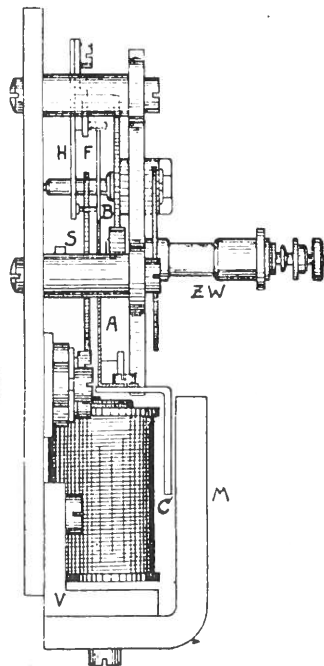


Fig. 223



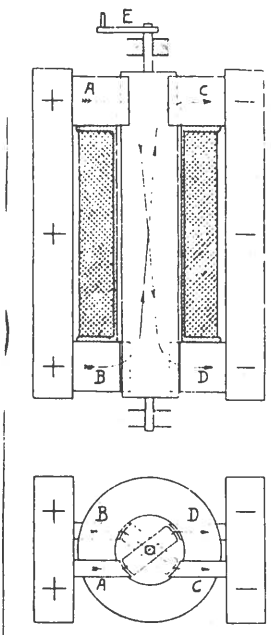


Fig. 273

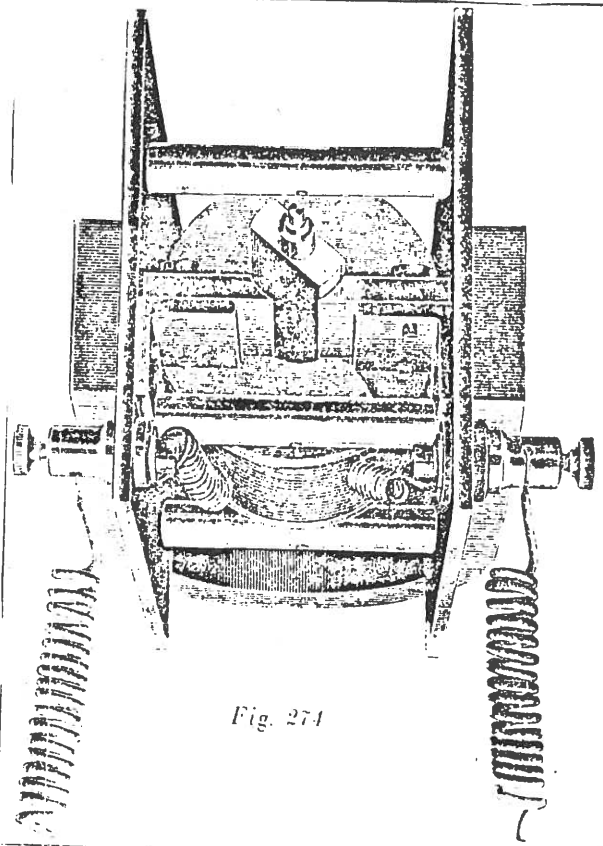


Fig. 274

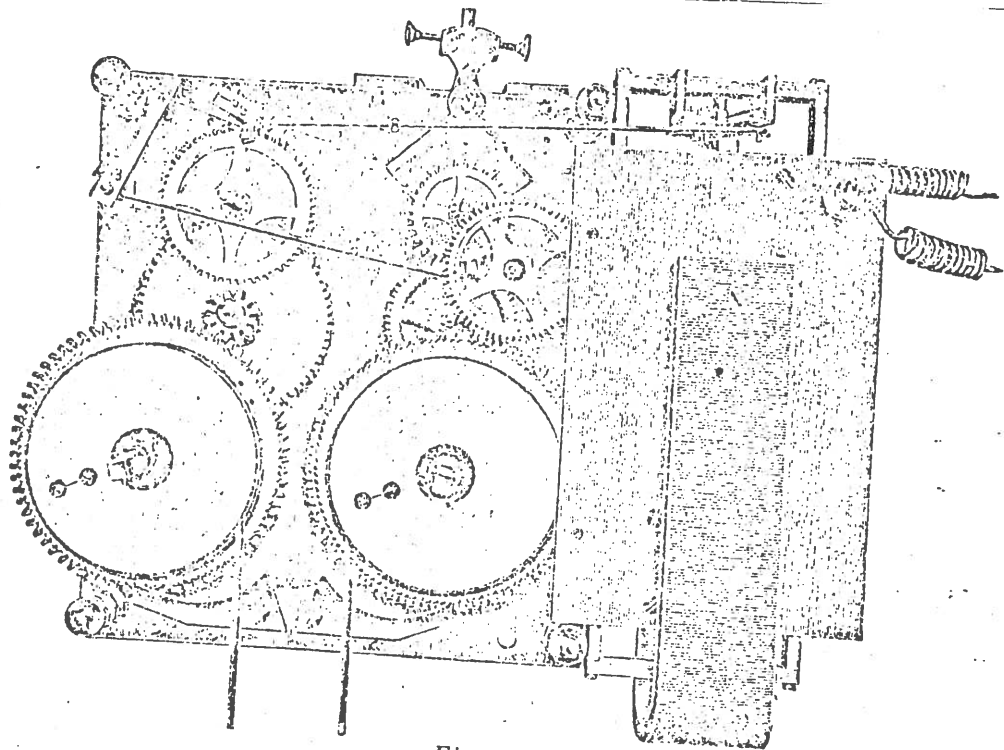


Fig. 275

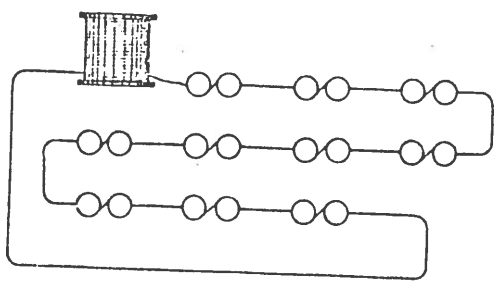


Fig. 276



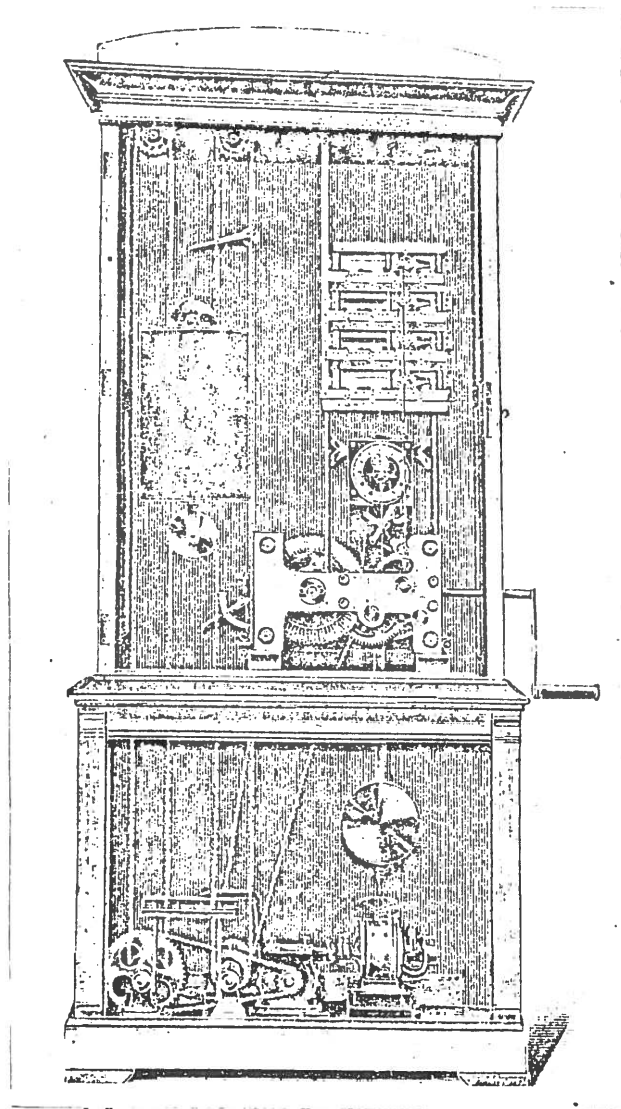


Fig. 277

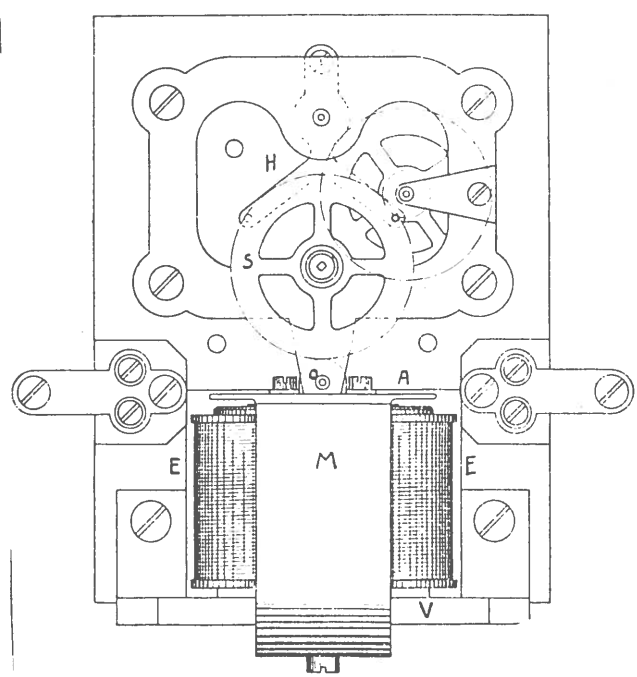


Fig. 222

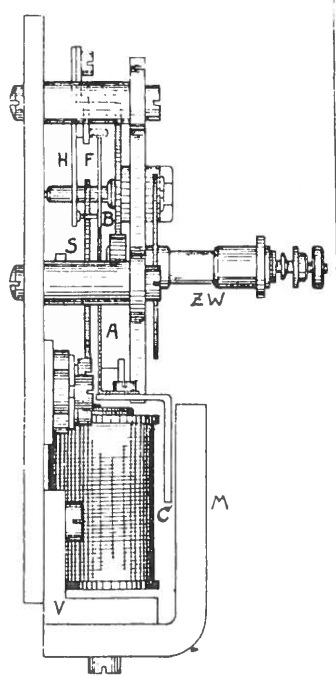
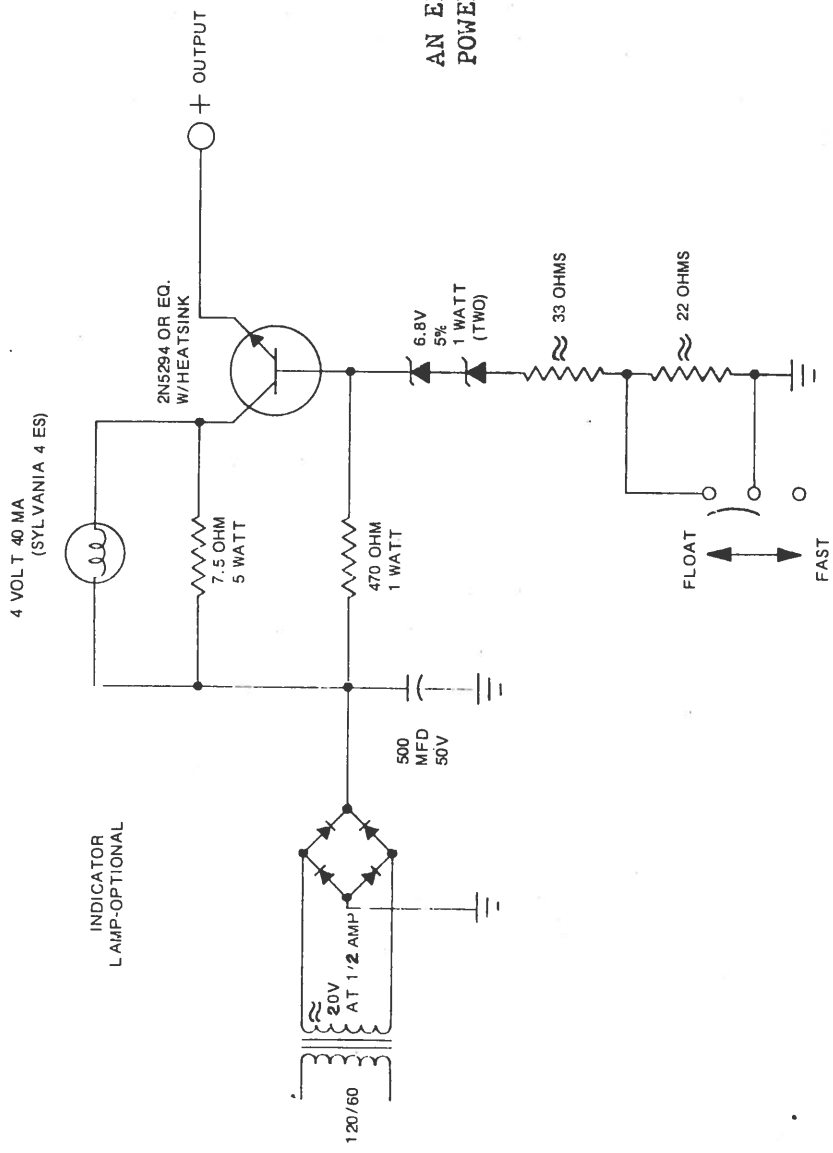


Fig. 223





AN EFFICIENT BATTERY ELIMINATOR  
POWER SUPPLY.

TITLE  
12 VOLT 500 MA POWER SUPPLY AND BATTERY CHARGER  
(TWO OUTPUT VOLTAGES SELECTED BY MANUAL SWITCH)

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2 PL. DEC. ± .02  
3 OR MORE PL. DEC. ± .005  
ANGLES ± 1/2°  
FRACTIONS ± .015  
✓ INDICATES MACHINED SURFACE ROUGHNESS OF 125 μ In.

MATERIAL

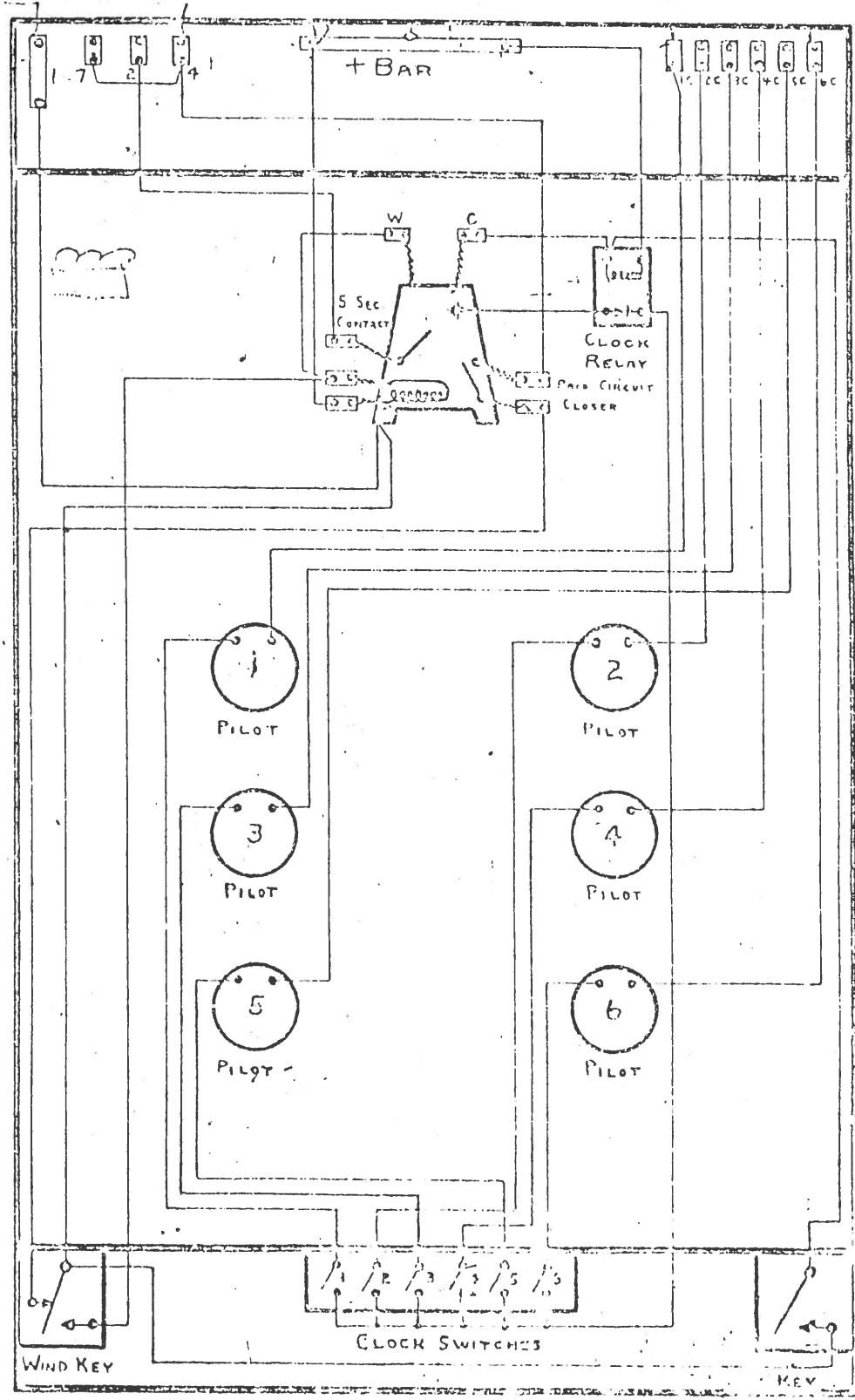
NO.	W A S	DATE	APVD	NO.	W A S	DATE	APVD
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ASSY. DWG.	SHEET NO.	NO. SHEETS	DWG. NO.	CP-5	DWG. SIZE	B
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**THE STANDARD ELECTRIC TIME CO.**  
Springfield, Mass.

INTERNAL WIRING 60 P.S. MASTER CLOCK  
SERIES PILOTS

DRAWN	TRACED	CHECKED	APPROVE	DATE
A.L.B.	A.L.B.	W.S.		6-25-3
TEMPERATURE				

WD-4 88-BED.



FOR SALE:

Brillé Master Regulator (new Brillé wet battery).....\$500.  
General indicator temperature (outside) and time window display  
clock--cost \$1600.00 --operating.....take ....\$450.

B.Wacek,165 E. 64 St. N.Y.10021 (212)737-0777  
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FOR SALE:

Several nice examples of early electrical clocks. Write for list.

WANTED:

Books dealing with electrical horology.

M. Feldman,1545 Rhineland Ave. Bronx,N.Y.10461  
-----

FOR SALE:

#1) Shortt Free Pendulum clock No.31 formerly used in the Astronomical  
Observatory of Australia-----in working condition--master plus slave  
clock.

#2) Shortt Free Pendulum master clock unit--no slave. Details upon  
request.

Dan Crotty,700 N.E. Multnomah St.Suite 1050,Portland,Oregon  
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LATE ARRIVALS

TECHNICAL:

Bulle Patents --U.S. (1935) #2036917  
France (1933) #767359  
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EHS meeting news:

The next meeting will be held at the house of Mr. Charles  
Roth, 2 Circle Lane, Roslyn, N.Y.11577, at 2:00pm. on Sunday February  
**2**, 1975. If you plan to attend please drop Mr. Roth a postcard  
advising such. We request that each member bring an interesting early  
electrical clock for discussion. Try and make this meeting #2.

MCF

