



National Association of

WATCH&CLOCK
Collectors, Inc.

NAWCC Chapter 52 - Los Padres

Eco Magneto Recorders

Scroll down for pics of various Eco Magneto mechanisms , recorders and regulators

I have cut and pasted these pics and descriptions from my old defunct website . At least this way you don't have to put up with the popups. I couldn't update or access that site anymore.

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Eco Magneto Excel Data Base can be viewed on this website by clicking on Resources from the top menu bar and then choosing My Documents from the left side menu.

Most of the following material has been obtained from " THE WATCHMAN'S CLOCK IN AMERICA" , a private publication by Philip H Haselton. Mr Haselton is the retired president of Detex Corporation and presently heads up their private museum. He will be providing me with original company records in the near future and we hope to jointly publish an article in the NAWCC bulletin.

To the purist, this is not truly a clock company as they did not make the clock movements. They bought the movements from Seth Thomas and assembled them in cases along with their mechanisms and sold the finished product. However their different models are unique and unusual enough to warrant our attention. I have noted over the past few years that several examples of this companies products have been lost as people have stripped the mechanisms from their original case, either to use the movements or to convert the cases to other uses. I write this in the hope that fellow collectors will appreciate them and rescue them from such an undeserved fate.

The Eco Magneto Clock Company is best known for its electrical watchmans recording system. Electrical systems can best be described as central supervisory recording systems. With such systems there are a number of remote points to be visited by a touring guard. Each point is connected to a central recording mechanism by electric circuits. From each station he visits, the guard sends an electric signal that registers at the central unit the time and the identity of the station from which he sent the signal. The

record of all the signals on the single recording chart reveals the time and place relationships of the full tour. The term "Supervisory" is appropriate because a chief guard, stationed at the central unit could monitor the incoming signals and judge the guards progress.

Prior to the development of the Eco Magneto Clock, direct wire battery systems such as the E Howard Electro-Magnetic Watchmans Clock performed this same function. Direct wire systems suffered from the relative ease of sending false signals and the difficulties and costs associated with batteries.

In 1887 George Fessenden of Boston, patented a system that not only made it more difficult to send false signals, but also eliminated the battery. His system used a single wire from each station to a terminal in the central recorder, together with a common return or ground wire through all the stations back to the recorder. In most installations this wiring scheme would effectively separate the two circuit wires, with the result that illicitly shorting the single wire for a given station to the return wire was physically difficult.

The watchman carried a small magneto generator that he plugged in at each station. The idea of a portable magneto was very quickly abandoned in favor of ones installed at each station. The watchman, on visiting a station, inserted a small crank and turned it vigorously, creating a signalling current. As originally patented, the system utilized only one pair of electric magnets and a Quinby switch to activate each punch sequentially at the recorder. This was abandoned in favor of having each punch wired to its own pair of electric magnets. The original system combined with a portable generator would have been very cost effective to produce. The quinby switch caused the guard to take his rounds in sequence. This would have been sufficient for fire checks and pressure gauge inspections, but is not the usual method for making security rounds as the tour would have been predictable.

Mr. Fessenden's ideas led to the formation of the Eco Magneto Clock Co in Boston in 1888. Eco produced two units, the Eco Magneto starting in 1888 and the Boston Magneto in 1912.

The Eco used a circular chart or dial and the Boston a rectangular chart carried on a cylinder. The simple circular dial mechanism was less expensive to produce and easier for the owner to manage. However, a circular paper dial can be only so large and thus can serve only so many stations, because each station must have a separate annular area on the dial for its registration marks. Furthermore a dial can make only one revolution before new signals will overwrite the record made on the first time around.

The Eco Magneto circular dial recorder was available in station capacities from 1 to 30 with either 12 hour or 24 hour coverage. Between 1887 and 1920 there were 6064 units sold. The rectangular chart mechanism of the Boston was considerably more expensive to manufacture and presented somewhat greater difficulty for the owner in changing the chart. However, the drum could be made quite long allowing recording space for as many as 60 stations in the largest mode. In addition, the drum could go around more than once. After each revolution, it shifted axially a small amount, placing a fresh track on the chart in position to receive the punch marks during the ensuing revolutions. The mechanism that shifted the drum (also an invention of Mr Fessenden) was extremely simple. It provided for as many as five shifts, thus six rotations of the drum with a 12 hour rotation. Five shifts provided for registrations over 72 hours. It was also possible to delay the first shift by 12 hours so that in a 1913 model called the

tri-record, only two shifts were made in a 48 hour period.

The Boston Chart recorder was available with station capacities from 10 to 60 in increments of 5 for 48 hour coverage and with capacities for 10 to 40 stations for 72 hour coverage. Between 1908 when a preliminary model was introduced and 1920 there were 470 units sold.

The electrical watchman's clock system in the early days often served as the timepiece for the premises. Both the Eco and the Boston offered an independent regulator that was housed with the watchman's mechanism. The watchman's recorder could be sold on its own if the purchase had no desire for a timepiece. With the advent of reliable 60 cycle power and the synchronous electrical clock, sales of recorders without a timepiece became more and more the rule. It is doubtful that combination units were sold after the early 20's.

Perhaps the outstanding characteristics of the electrical systems were durability, long life and ultimately low cost. There was one that had been installed in 1905 and received its first service overhaul 45 years later, in 1950. The characteristic installation for the central proprietary watchman's system was the large textile mill of New England at the turn of the century. With heavy fire risk and heavy fire insurance premiums, the use of the most reliable equipment of the day justified the relatively high cost of equipment and installation. The insurance companies and the national board of fire underwriters of course took a considerable interest in these large risks and rate reductions were allowed when central station systems were used.

Not long after the turn of the century, installations of electrical systems began to decline because the modern low cost fully reliable portable watchclock arrived on the scene. From that point on, central systems no longer enjoyed the exclusive approval of the insurance authorities, yet they had to face higher and higher costs of installation.

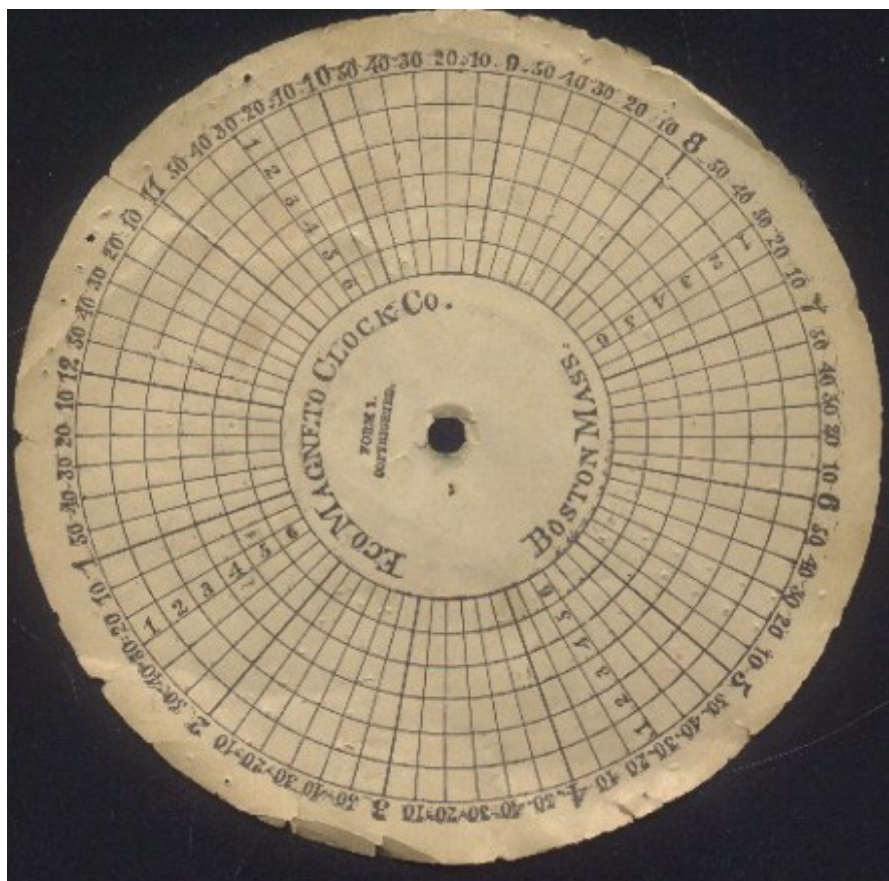
The Eco Magneto Clock Co did produce a portable model. It designed a clock that retained the simple tumbler and pin prick, however, it put the lug that depressed the tumbler on a lengthened yale type combination key that extended through the cylinder to engage the marking mechanism.. This clock, the first portable offering by Eco was listed in 1905 by Underwriters Laboratories. The yale type key obviously made it more difficult to counterfit a key.

The Company was acquired by Charles Renshaw in 1916 and kept separate from his Newman Clock interests. The change in ownership marks the occasion for the change in name to Eco Clock Co. In 1923 it was merged with Newman Clock co to become what is today the Detex Corporation.

Image Hosted by



INTERIOR VIEW OF CASE WITH Seth Thomas #61 80 BEAT MOVEMENT, ECO MOVEMENT IS INDEPENDENT OF REGULATOR, CHART DRIVEN BY SETH THOMAS #10 MOVEMENT



EXTERIOR VIEW OF THE 61 REGULATOR AND A VIEW OF A 6 STATION PAPER CHART USED IN THE MECHANISM BELOW.



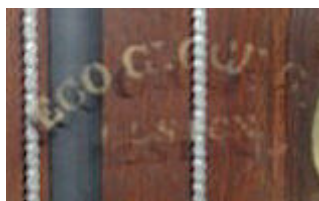
A 6 station recorder case that houses the mechanism when no independent regulator is supplied. The dial is original.



On the left is a 60 beat independent regulator that uses a Seth Thomas 61 A movement. The case is one of the few that was made from Cherry Wood.

On the right:

This quarter sawn case belonged to a collector in San Francisco. the case stands 57.5 inches high, 10 7/8 inches deep and 27.5 inches wide. It weighs 105 pounds. It was purchased in 1920 by the Rhode Island Infirmary for the Insane. 50 watch stations could be controlled by the mechanism that should be in the bottom of the case. Unfortunately the watchman mechanism is missing in this unit. I have a 25 station mechanism but hope to locate a 50 station mechanism and avoid cannibalizing the unit that is presently housed in a small boxed case shown elsewhere on this site. The Boston style mechanism took a rectangular dial.

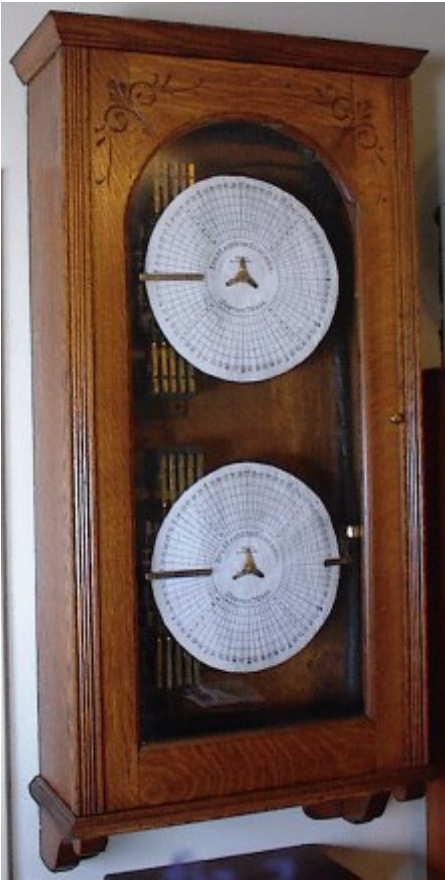


The glass is marked Eco Clock Co. Boston. Prior to 1916 it would have been Eco Magneto Clock Co Boston, and after 1923 it would have been Detex.





The above movement is a 77 B as found in the above right and center clock. The Pic was provided by Dorian Clair of San Francisco. The 61 movement was used up until about 1918, thereafter the 77 B was used. Note the three bolt method that secures the dial.



1903 PRODUCED ESPECIALLY FOR T EATON TORONTO. THE ECO CIRCULAR DIAL RECORDER WAS LIMITED TO 30 STATIONS, MOUNTING 2 OF THEM IN A REGULATOR CASE INCREASED STATION #'S. ONLY KNOWN EXAMPLE SURVIVING. 44 INCHES TALL, 21 INCHES WIDE AND 8 INCHES DEEP. THE FOLLOWING YEAR, THE PATENT PROTECTION EXPIRED. THAT ALONG WITH THE DEVELOPMENT OF RELIABLE PORTABLE MODELS DRAMATICALLY AFFECTED SUBSEQUENT PRICING. COMPANY RECORDS SHOW A WIDE RANGE OF PRICES CHARGED. AS LESS THAN ONE A DAY WAS SOLD AND PRODUCED, IT WAS SIMPLY A MATTER OF WHATEVER THE MARKET WOULD BEAR.





OF THE 6441 ECO CIRCULAR DIAL RECORDERS PRODUCED, 168 OF THEM WERE SINGLE STATION MECHANICAL DEVICES SUCH AS THE ONE PICTURED ABOVE.

This one appears to be serial # 14101. I can make out the number 14 on top of the door and the numeral 1 on the bottom of the door. The wood seems to be Walnut with a slightly red finish. 14101 was bought by The Mercer Automobile company, Trenton, N.J. 10/29/1914 for \$18.

It is in remarkably good condition. The punch and the tell tale still operate. Has all its parts. The Number 10 Seth Thomas movement is complete and functions.

THE NEWMAN CABINET

:: FOR THE NEWMAN GRILLE WATCHMAN'S CLOCK ::



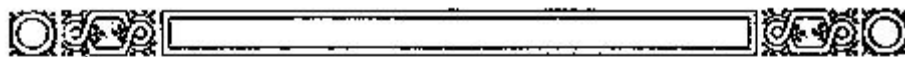
The cabinet is designed to keep the clock under lock and key during the day when not in service, as a protection against theft, mischievous employees and others, also to provide a safe housing against dust and dirt. The cabinet is made of oak finely finished and makes a very attractive office timepiece.

The cabinet is a valuable protection to the watchclock and will add years of service to the device.

Price \$10.00 F.O.B. New York or Chicago, including packing.

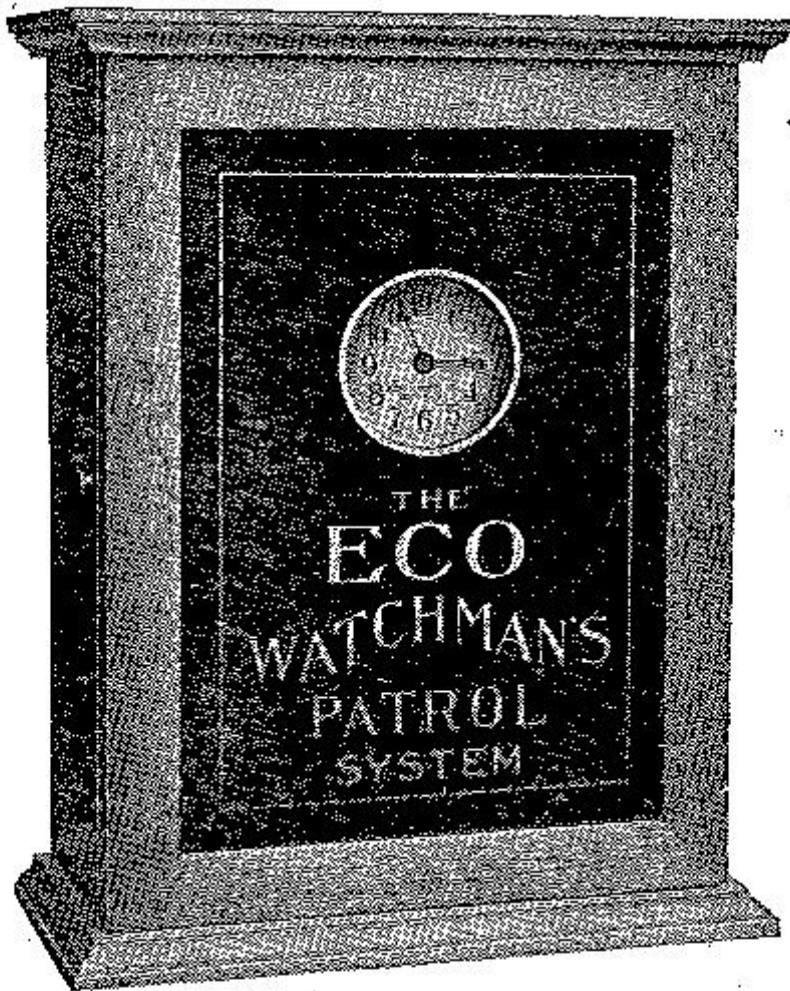
NEWMAN CLOCK COMPANY, INC.

NEW YORK CHICAGO MONTREAL LONDON PARIS GENEVE



ECO WATCHMAN'S CLOCK

CABINET

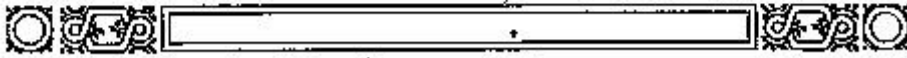


Lock your Portable Clock in this Cabinet when not in use, as a protection against theft or damage.

Dust and Dirt proof, and provides a reliable timepiece for your office during the day.

Price \$6.50





The above system was also sold as The Eco Watchman's patrol system. Newman acquired Eco in 1916. The only known example of the Eco Patrol system is in the Detex Museum.

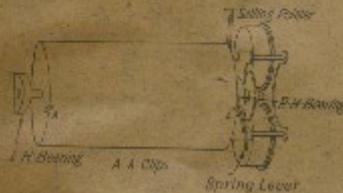


Oak magneto generator.

THESE STATIONS WOULD BE LOCATED AT VARIOUS POINTS AROUND THE PREMISES. THE WATCHMAN WOULD CARRY THE CRANK AND INSERT IT AT EACH STATION, SENDING AN ELECTRIC CURRENT TO THE RECORDING UNIT LOCATED INSIDE THE BUILDING. A PAPER CHART WOULD MAKE A RECORD OF EACH SIGNAL INDICATION TIME AND STATION. Bill Kapp collection, 6.5" tall, 5.5" wide, 4" D

Boston Magneto Tri-Record Watchman's Clock.

READ THESE INSTRUCTIONS CAREFULLY.



1. **To Remove and Replace Drum.** Throw back setting pointer, pull down spring lever at right of drum, making sure to release that end of shaft first; drum will then lift out. In replacing, enter left end of shaft first and pull the lever down to allow right end to enter bearing. Setting pointer should always be up, when removing or replacing drum.

2. **To Attach Dial.** After removing drum, press back the clips A.A. at side of flanges. Place dial over the small projecting pins on face of drum, with setting figures at extreme right hand close to 2 or 3 places along the gummed edge and carry dial tightly around drum; then moisten in perpendicular ruled lines meet. Replace drum, bring down setting pointer, and turn drum until setting figures on right hand side of dial correspond with time of day. Slide drum to the right as far as it will go, and dial will then be in proper position to record time when stations are operated for first period. The automatic shift takes care of subsequent recording positions.

3. **To Detach Dial.** Slide envelope opener (or something similar), carefully between gummed edges, and dial can be removed intact.

4. **Revolution of Drum.** A complete revolution is made every 12 hours, and the drum shifts automatically at the hour of six. The first shift takes place twelve hours after the next six o'clock, so that if dial is set at nine o'clock A.M., the drum would revolve until six o'clock the next morning without change; then shift one space for that day's record, and again at six o'clock P.M., for the night record. It will take care of the records for Saturday afternoon, and three successive twelve hour watching tours. On Saturday, change dial in the morning as usual, and have watchman make rounds, commencing quarter-past every other hour during the afternoon. The night and Sunday day watchman should start on even hours. The Saturday afternoon and night records will be in the first columns for each station, the Sunday day and night records in their own successive columns,—the four records being distinctly legible. The drum is actuated by friction, and when in motion with the clock movement, revolves from front to back upwards. If turned by hand, must be revolved in the same direction. It can be removed and replaced without interfering with the mechanism.

5. **Winding and Regulating Clock.** Wind clock in both springs once a week through the small door at side of cabinet, which must be fastened before locking front door. If clock runs slow, push arm of balance wheel down a trifle; if fast, push arm up. Clean and oil movement yearly, but never put oil on the recording mechanism.

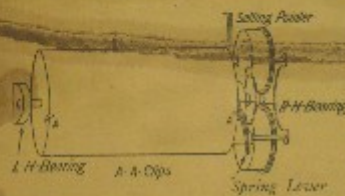
6. **Tell Tale.** The mechanical tell-tale registers in the columns indicated on the dial, every time front door is opened or closed. If more than the proper number of punch marks is shown, investigate, as clock must then have been opened irregularly.

7. **Generators.** Generators should be oiled at least every 12 months, or oftener if they turn hard or rattle. Remove the cover from the generator, and the four bearings to be oiled will be in sight.

THE ECO MAGNETO CLOCK COMPANY,
MANUFACTURERS,
BOSTON, MASS.

Boston Magneto 48-hour Record Watchman's Clock.

READ THESE INSTRUCTIONS CAREFULLY



1.—To Remove and Replace Drum. Throw back setting pointer, pull down spring lever at right of drum, making sure to release that end of shaft first; drum will then lift out. In replacing, enter left end of shaft first and pull the lever down to allow right end to enter bearing. Setting pointer should always be up, when removing or replacing drum.

2.—To Attach Dial. After removing drum, lift the clips A.A. at side of flanges. Place spots on dial (indicated by arrows) over the small projecting pins on face of drum, with setting figures at extreme right hand close to flange. Press clips down to hold dial in place, then moisten along the gummed edge and carry dial tightly around drum; fasten securely, making sure that perpendicular ruled lines meet. Replace drum, bring down setting pointer, and turn drum until setting figures on right hand side of dial correspond with time of day. Slide drum to the right as far as it will go, and dial will then be in proper position to record time when stations are operated for first period. The automatic shift takes care of subsequent recording positions.

3.—To Detach Dial. Slide envelope opener (or something similar) carefully between gummed edges, and dial can be removed intact.

4.—Revolution of Drum. A complete revolution is made every 12 hours, this takes care of the records for four successive twelve-hour watching tours. The drum is actuated by friction, and when in motion with the clock movement, revolves from front to back upwards. If turned by hand, must be revolved in the same direction. It can be removed and replaced without interfering with the mechanism.

5.—Winding and Regulating the Clock. Wind clock in both springs once a week through the small door at side of cabinet, which must be fastened before locking front door. If clock runs slow, push arm of balance wheel down a trifle; if fast, push arm up. Clean and oil movement at least once every two years, but never put oil on the recording mechanism. Notify us when movement needs cleaning and we will furnish loan movement (free of rental charge) for use while your movement is returned to us for attention.

6.—Tell-Tale. The mechanical tell-tale registers in the columns on the dial, every time front door is opened or closed. If more than the proper number of punch marks is shown, investigate, as clock must then have been opened irregularly.

7.—Generators. Generators should be oiled at least every six months, or oftener if they turn hard or rattle. Remove the cover from the generator, and the four bearings to be oiled will be in sight.

ECO CLOCK CO.

MANUFACTURERS

BOSTON - MASS.





Below is a fold out postcard from about 1910 , it takes 4 pix to get it all

Made by Chilton Company, Phila., Pa., U. S. A. 3700-01-02-03

Send (particulars in detail) regarding
(check which) representative

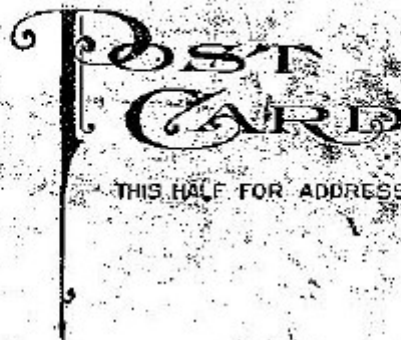
(Electric) Watchman's Clock
(check which) Portable

Name _____

Address _____

Date _____

Particulars to _____



The Eco Magneto Clock Co.

234 Congress Street,

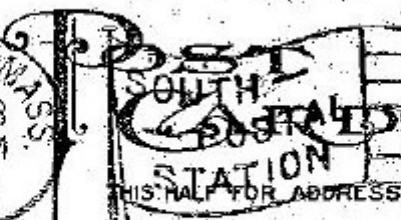
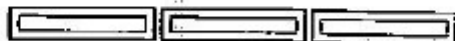
Boston, Mass.

Made by Chilton Company, Phila., Pa., U. S. A. 3700-01-02-03

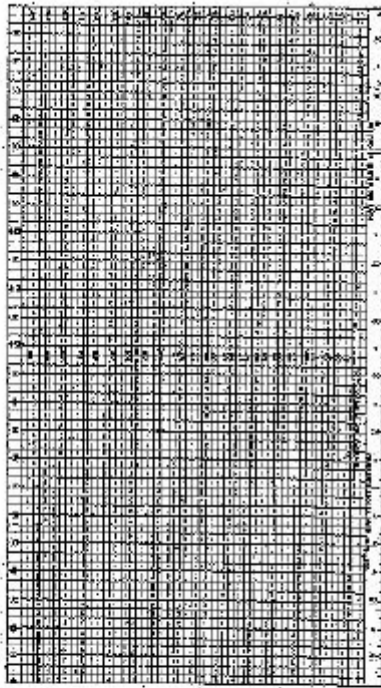
We present illustrations and brief descriptions of our electric and portable watchman's clocks, and will send fully illustrated catalog upon request.

If interested now, or expecting to be in near future, please fill up and mail attached reply card.

The Eco Magneto Clock Co.
Boston, Mass.



M. B. Burgess
41 J. P. Ryan
76 Eastland St
W. J. City

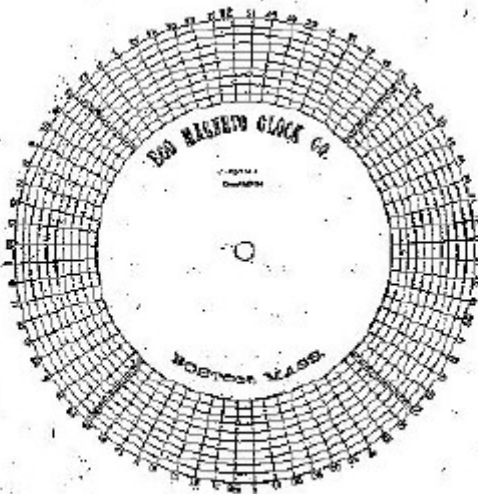


THE BOSTON MAGNETO CLOCK

Uses a rectangular dial, and is arranged (in sizes) to accommodate twenty, forty or sixty stations; respectively, for three consecutive twelve-hour watching periods.]

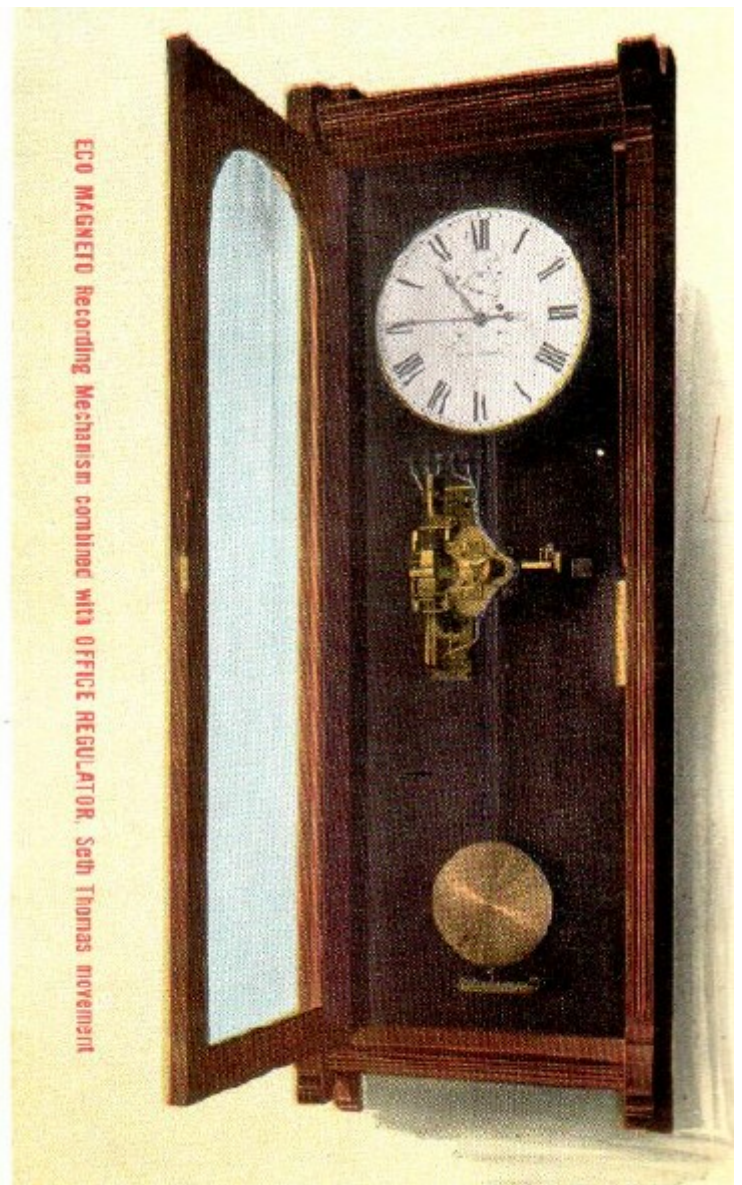
In the construction of this clock, all magnets, needles, armatures, etc., are easily accessible for removal, and all parts are interchangeable.

The method of registration is much clearer than on circular dials, or on any other rectangular dial, owing to the fact that the dial is solidly held in place on the drum, which has a corrugation for each needle, and by reason of the ample space allotted for each station.



THE ECO MAGNETO CLOCK

Uses a circular dial, and is the pioneer of all magneto-operated Watchman's Clocks. There are many thousands in use and all giving entire satisfaction. Made in various sizes to accommodate up to thirty stations on one dial, for twelve or twenty-four hour periods.

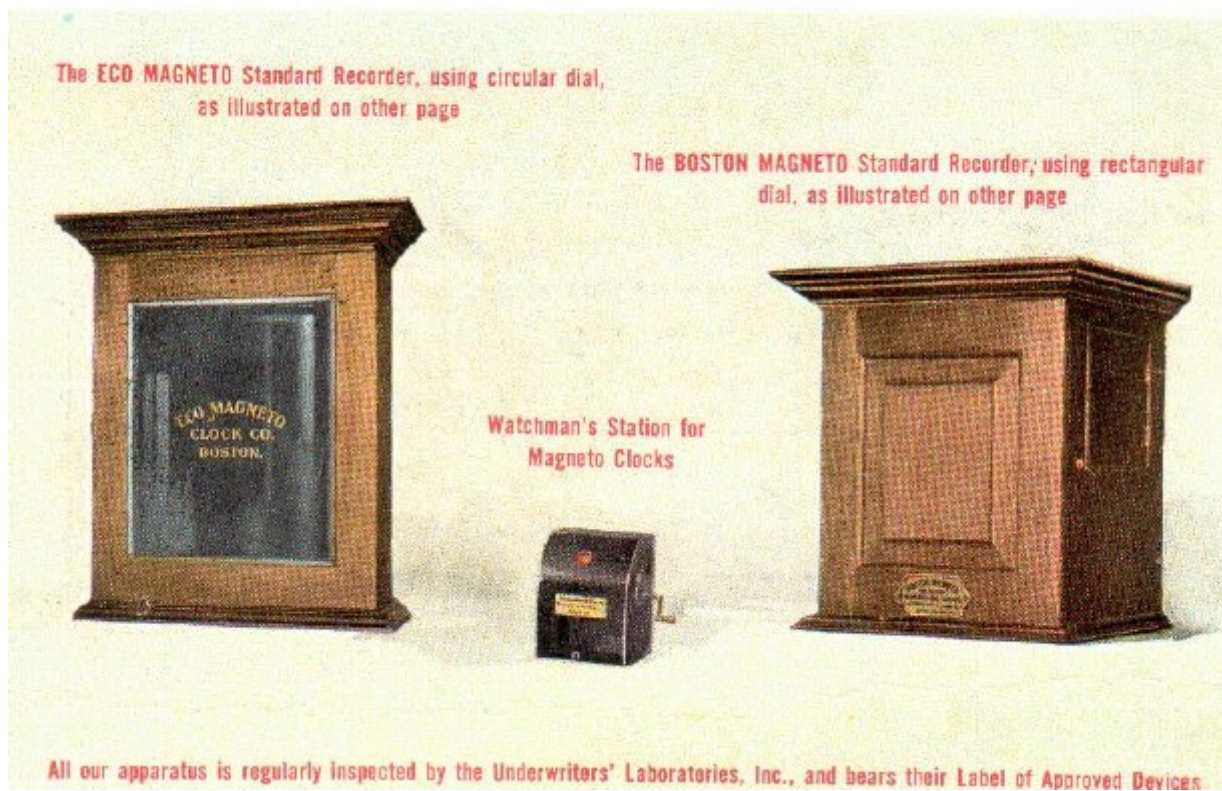




THE ECO PORTABLE WATCHMAN'S CLOCK
For small plants, or where wiring is not feasible, will give excellent service. Gives a clear punched record on circular dial. Registering keys are substantial and rust-proof. Clock and key stations bear the label of Underwriters' Laboratories.

MADE IN SIZES FROM SIX TO THIRTY STATIONS

REGISTERING KEYS ARE FASTENED IN IRON STATION BOXES



The ECO MAGNETO Standard Recorder, using circular dial, as illustrated on other page

The BOSTON MAGNETO Standard Recorder, using rectangular dial, as illustrated on other page

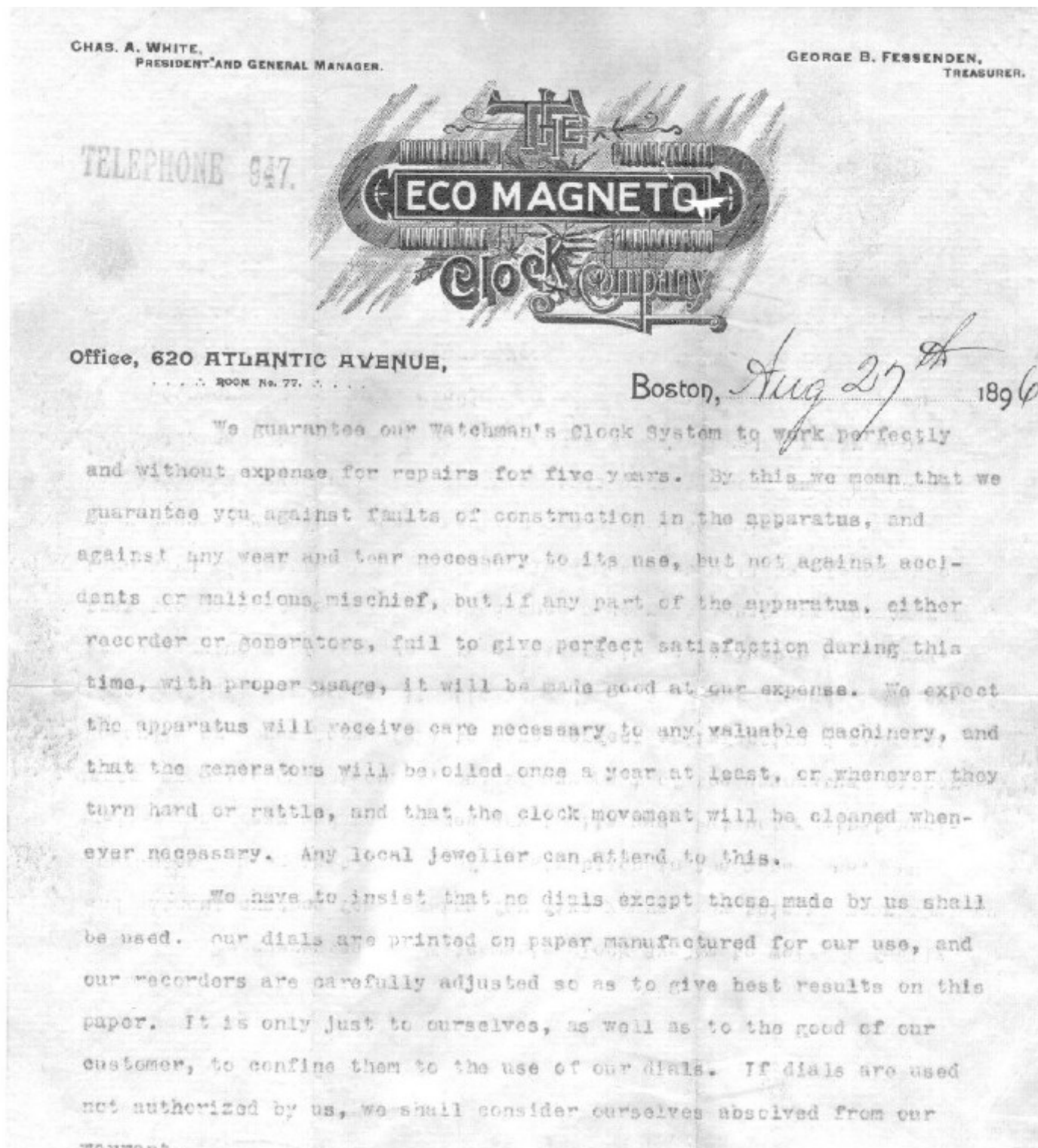
Watchman's Station for Magneto Clocks

All our apparatus is regularly inspected by the Underwriters' Laboratories, Inc., and bears their Label of Approved Devices

Below is a scan of a 5 year warranty issued in 1896 signed by the treasurer who was also the patent holder on both eco devices.

Note that the warranty was void if you didn't use eco supplied dials. There were over 7000 units sold, and many thousands more portables.

The dial sales were actually more profitable than the units and in some months/years gross dollar sales of dials exceeded revenue realized from the sale of the devices themselves.





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