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RESEARCH ACTIVITIES AND NEWS

Snowden Taylor, Chairman, Research Committee,
318 Western Highway, Tappan, NY 10983

TRIPLE FUSEE CLOCKS

by Joseph Arvay (NJ)

Has anyone else ever wondered why the clock makers of circa 1850 made *triple* fusee movements? During this period of American shelf clock development the use of indirect fusees was a prominent feature in the new spring powered technology. In addition to "equalizing power" from the new fangeled brass and steel springs, they also provided a means of transmitting the force from a detached spring to a movement originally designed to be driven by weights.

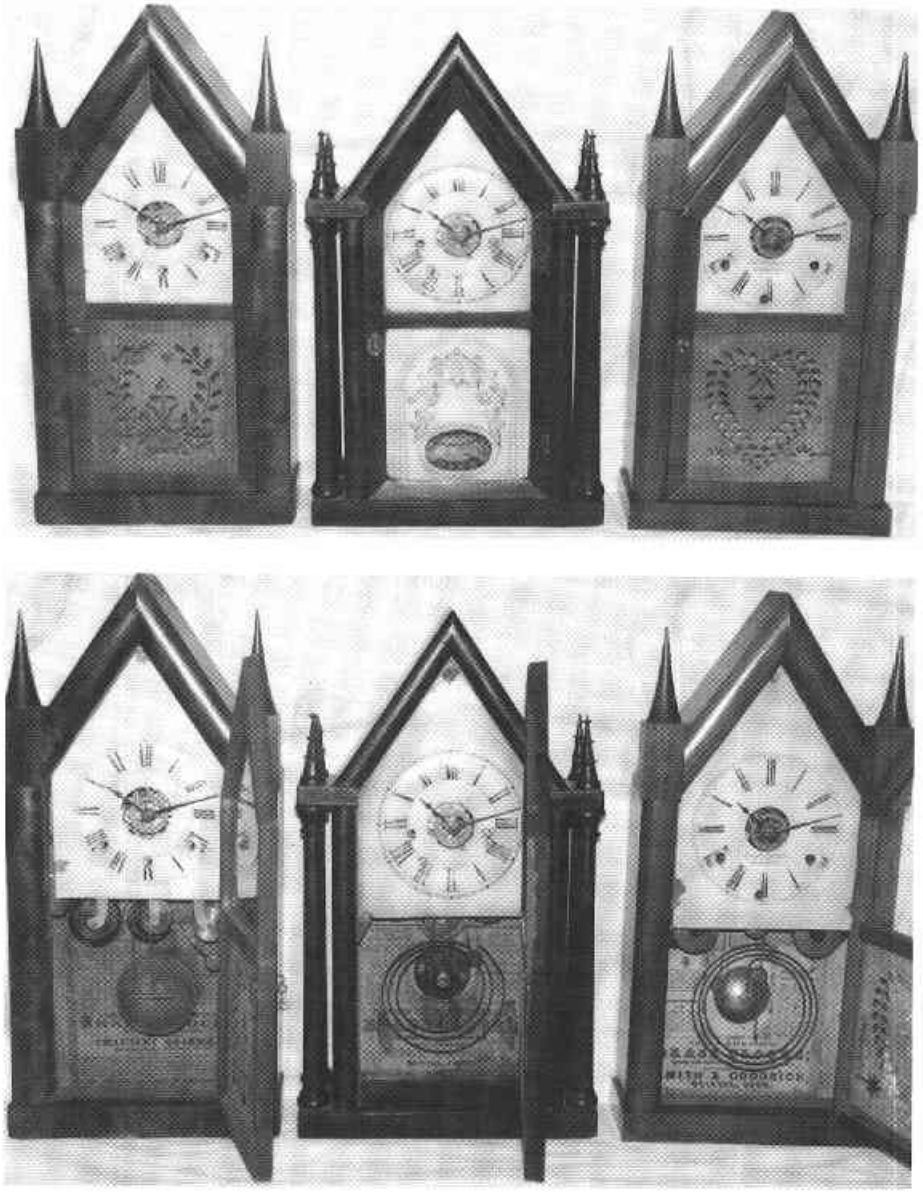
A "triple fusee" movement is one which is fitted with an alarm mechanism integral to the movement. A separate spring is needed to power the alarm and its power is transmitted through an indirect wooden fusee cone and the cord is then attached to the alarm winding arbor within the movement.

The indirect fusee cones on the time and strike trains are understandable because the 1840's springs needed to be equalized. Otherwise, the clock would run very fast at full winding and slow down as the spring wound down.

However, it has always amused me that a small wooden fusee cone was supplied by some makers to the alarm portion. One might question the effectiveness of American wooden fusees in general but certainly one could question their necessity when used for 10-20 second alarm ringing. Wasn't it more costly to turn a cord groove into an indirect fusee cone than simply supply a plain spool for the alarm cord? Eighteenth and early nineteenth century artisans are well-known to have been very frugal with regard to time, money, and energy.

Having a sense for the eclectic, I went about collecting clocks with triple fusees. They are a relatively rare breed and I have found only three manufacturers of this odd movement configuration: Chauncey Boardman, Brewster & Ingrahams, and Smith and Goodrich. The following are some comparative notes on three "triple fusee" steeple clocks.

The first is the alarm version of Boardman & Wells' 1847 patent fusee



JOSEPH ARVAY (2)

Three steeple clocks with 30-hour triple fusee movements. Left: Chauncey Boardman; center: Brewster & Ingrahams; right: Smith & Goodrich. Figure 1A (top): Doors closed. Figure 1B (bottom): Doors open showing labels.

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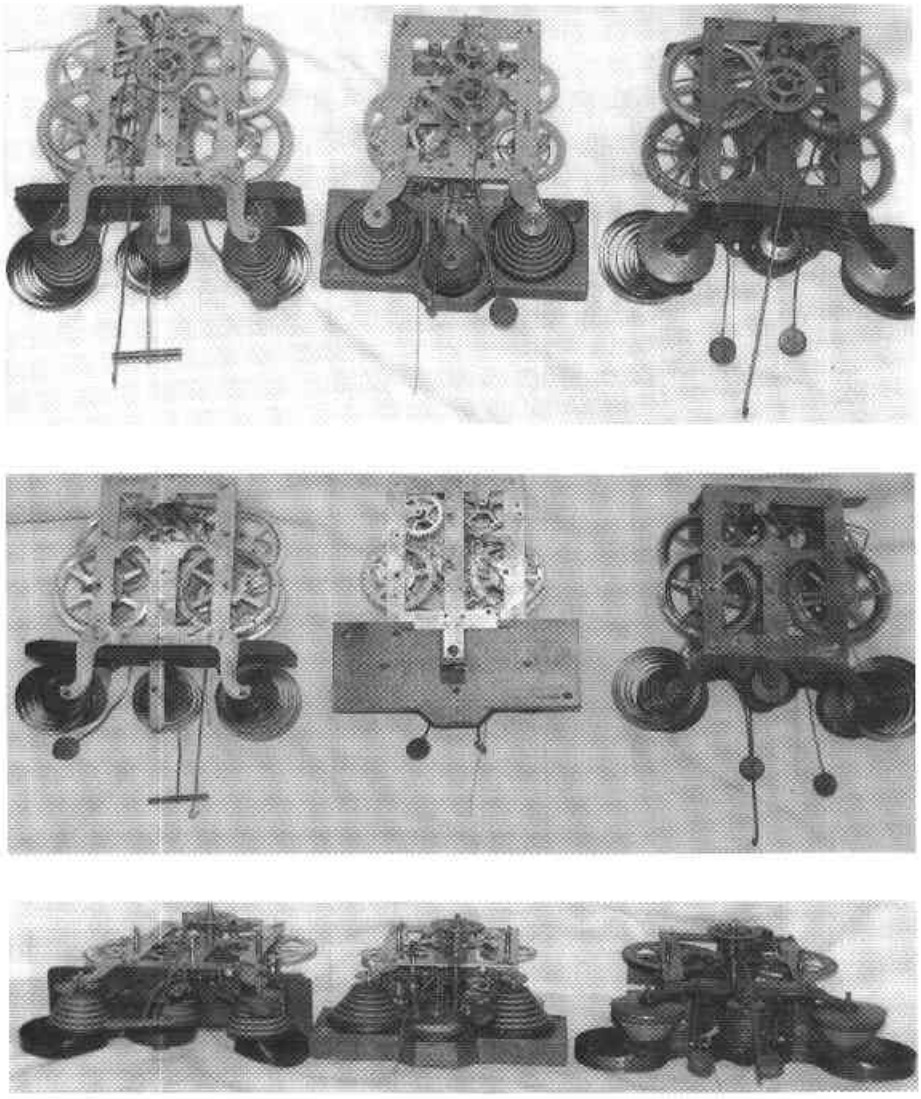
movement. The basic 30-hour movement is Taylor #2.(12)11. See Figures 1A-1E, left side. This clock has its original steel springs whose ends are tacked to the underside of the seat board. It is the only one of the three to have a seat board. The label refers to steel springs "manufactured by the most celebrated Spring Maker in the city of New York." The alarm fusee is tapered and grooved in an indirect fusee pattern.

The next is a Brewster and Ingrahams four column steeple clock which contains a miniature 30-hour movement (Taylor #3.4) made by Hiram Welton. See Figures 1A-1E, center. The patent brass springs, originated by Joseph Shaylor Ives for E.C. Brewster, reside behind the wooden fusee cones and are enclosed in a wooden block. This is reminiscent of the earlier E.C. Brewster brass springs in cast-iron wells in the Kirk patent movements. The label refers to "patent spring equalizing and power retaining." Brewster and Ingrahams were the most practical of the three makers and supplied a non-grooved simple spool for the alarm cord to wind around. The brass bracket which holds the alarm spool is stamped "patent." It is unclear as to what the word "patent" refers, presumably the brass springs.

The third example is by Smith and Goodrich. See Figures 1A-1E, right side. This firm mounted their 30-hour movement (Taylor #5.412) on a cast-iron frame which holds the arbors for the wooden fusee cones. Here again, the alarm spool is tapered and grooved to act as an indirect fusee. Iron plates for the fusee framework had to be cast with three ears, instead of two, for the clocks fitted with alarm mechanisms. The label refers to "springs with equalized power." This clock retains its original steel springs.

Did two of the three firms discussed go to the trouble of supplying a wooden fusee for their alarm mechanisms as a perceived benefit to their customers? They must have placed some importance on this. The quirks of American clockmaking are indeed a fertile ground for the collector. Perhaps the nineteenth century consumer could rest easier knowing their spring-powered alarm would ring evenly in the morning.



JOSEPH ARVAY (3)

Three 30-hour triple fusee movements, from the clocks of Figures 1A and 1B. Left: Chauncey Boardman; center: Hiram Welton (from Brewster & Ingrahams clock); right: Smith & Goodrich. Figure 1C (top): Front views. Figure 1D (center): Back views. Figure 1E (bottom): Bottom views.

VARIANTS OF THE 18-SIZE 7-JEWEL AURORA MOVEMENTS

by Greg Frauenhoff

As a result of recent research on watch movements manufactured by the Aurora Watch Company (1883-1892), several varieties of their 18-size 7-jewel watch have been identified. The major varieties (see Table 1) differ with respect to winding/setting arrangements, open face or hunting style of movement, and whether or not engraved "7 Jewels." Initially, all 7-jewel movements were so marked on the barrel bridge, but later (c. 1887) this practice was discontinued. All 7-jewel movements have gilt plates and nearly all have plain, as opposed to patent, regulators. The most common exceptions to the plain regulator rule are grade number 61 and 63 movements made for J.P. Stevens. Often, but by no means always, such movements have Stevens' patent regulator fitted. Two different materials were used for the index on movements with plain regulators: silver, used on earlier movements, and "oreide," an alloy having the color of brass, used on later movements. Characteristics of dials used on these movements are given in Table 2.

Persons with information concerning the Aurora Watch Company or its products are encouraged to write the author at **35 West Ave. #2N, Riverside, IL 60546.**

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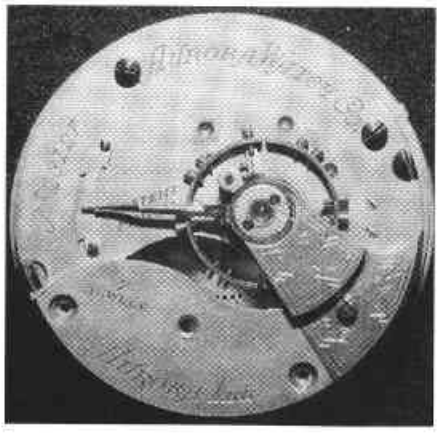
Table 1. Major Variants of 18-Size 7-Jewel Aurora Movements.

Characteristics				Grade Number	Approximate Dates of Manufacture
Stem-wind	Open Face	Pendant Set	Not Marked "7 Jewels"	11	1887-1889
"	"	"	"	63**	1887-1892
"	"	Lever Set	Marked "7 Jewels"	1-OF	1884-1887
"	"	"	Not Marked "7 Jewels"	1-OF	1887-1892
"	Hunting	Lever Set	Marked "7 Jewels"	1-Htg	1884-1887 (Figure 2)
"	"	"	Not Marked "7 Jewels"	1-Htg	1887-1892 (Figure 3)
"	"	"	"	61**	1887-1892 (Figure 4)
Key-Wind	Hunting*	Key Set	Marked "7 Jewels"	1-KW	1884-1887
"	"	"	Not Marked "7 Jewels"	1-KW	1887-1889 (Figure 5)

*Key-wind movements can be cased either as open face or hunting since they have no winding stem. However, like their stem-wind hunting counterparts they lack the "fifth" pinion feature present on stem-wind open face movements.

**Grade numbers 61 and 63 are "New Model" movements. This model differs from the regular production model in the shapes of the barrel and balance bridges. The majority of grade number 61 and 63 movements are private label marked movements made for either J.P. Stevens of Atlanta or Charles Stark of Toronto. Most grade number 63 movements are pendant set but some lever set examples are known.



Above, Figure 2. Remnants of an early grade number 1-Htg (serial number 13127). Note the markings "7 Jewels" on the barrel bridge and "Patent Pinion" on the train plate under the regulator arm.

Table 2. Characteristics of Dials on 18-Size 7-Jewel Aurora Movements

Feature(s)	Comment(s)
Single sunk, hard enamel, hour numerals inside of minute track, Arabic 10-second numerals on seconds bit, no minute numerals, no decorative circle inside of hour numerals.	These features are common to all dials believed to be original to their respective movements.
Roman hour numerals.	Two varieties: one has taller numerals than the other (6mm vs. 5mm in length). The short variety is more common (Figures 7-9). The tall variety has generally been observed on very early movements (manufactured c. 1884-1885) (Figure 6). Arabic hour numeral Aurora dials are rare and none have yet been observed on any 7-jewel movements.
Ten-second numerals.	On some dials the numbers 20, 30 and 40 are right side up (Figures 8 and 9) while on others they are upside down (Figures 6 and 7). The upside down type appears to be more common on earlier movements.
"AURORA" in plain block letters	Several minor letter variants are known (e.g., see Figures 7 and 8).
"AURORA" in banner.	Less common than plain block letters style. Generally observed on movements believed to have been manufactured after c. 1888. (See Figure 9.)

Left, Figure 3. A grade number 1-Htg movement made for O.L. Rosenkrans & Thatcher Co. of Milwaukee (serial number 16608). This is a very unusual 7-jewel movement in that it has Hurd's patent regulator fitted. Though this regulator could have been added after the movement left the factory, all indications are that it is original equipment.

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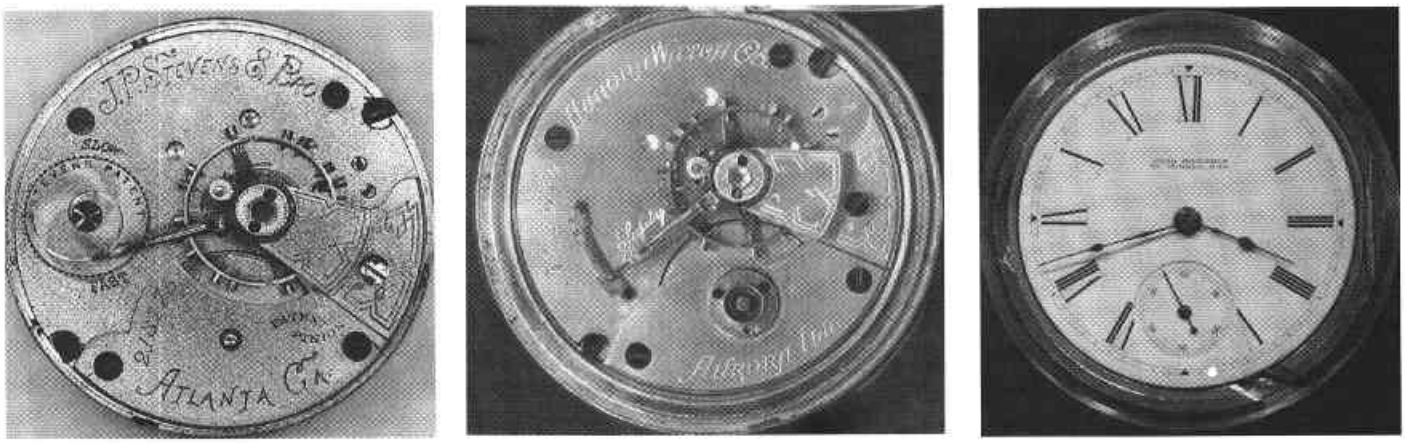
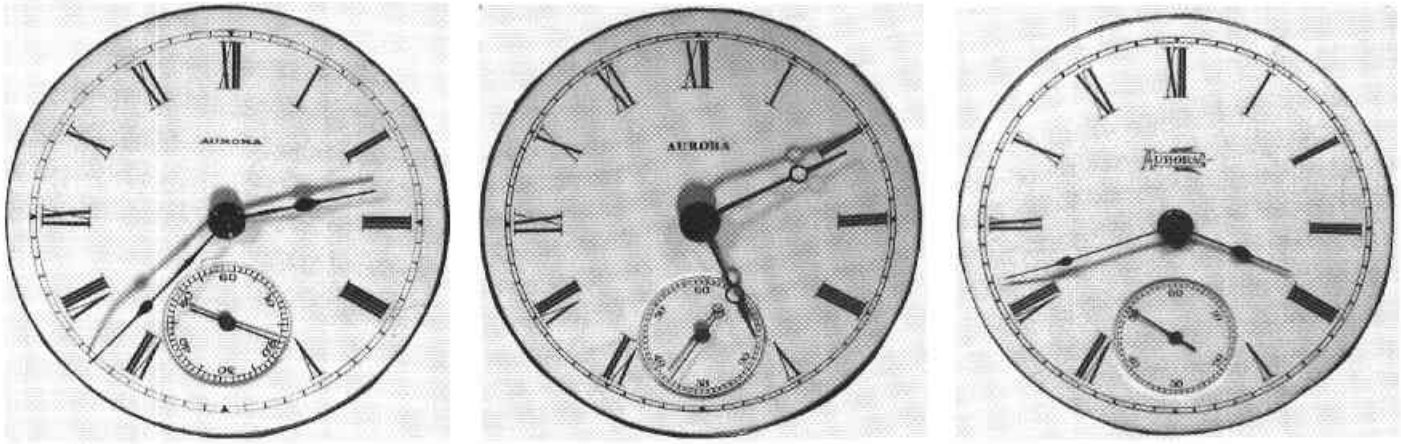


COURTESY/ROBERT E. BROWN

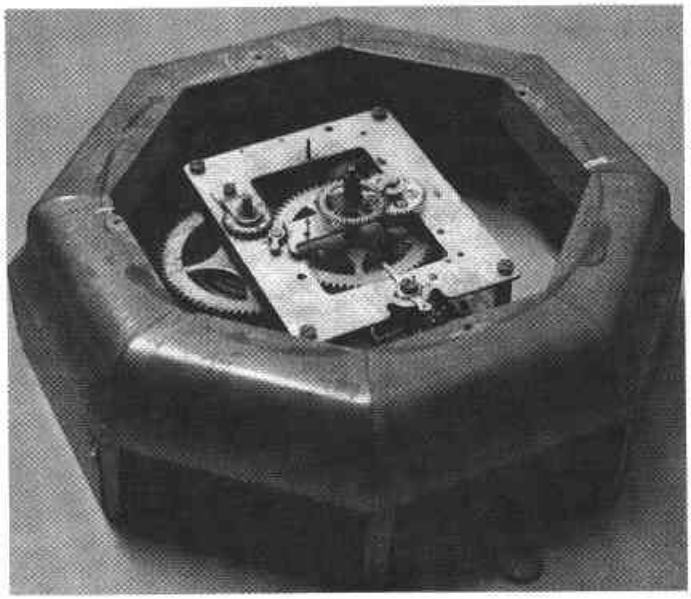
Left, Figure 4. A grade number 61 movement made for J.P. Stevens (serial number 213175). Compare the shapes of the barrel and balance bridges on this "New Model" movement with those on the movements in Figures 2,3 and 5. Also note the Stevens patented disc regulator. This particular movement was completed on August 23, 1889, and sent by mail the following day to Stevens. Center, Figure 5. A late grade number 1-KW (serial number 115775). Note the absence of the marking "7 Jewels." "Safety Pinion" is engraved on the train plate under the regulator arm. Right, Figure 6. Dial marked "Chas. Richards El Dorado Kan." found on movement number 11487. This early dial has tall Roman hour numerals (6mm in length).



Left, Figure 7. Dial with "Aurora" signed in plain block letters (found on movement number 16234). The hour numerals on this dial are short (5mm in length). Note also the upside down numerals 20, 30 and 40 on the seconds bit. Center, Figure 8. Dial with "Aurora" signed in plain block letters and short hour numerals (found on movement number 115775). Compare with the dial in Figure 7. Note also the right side up numerals 20, 30 and 40 on the seconds bit. Right, Figure 9. Dial with "Aurora" in banner. Dials such as this are usually found on 7-jewel movements made late in the life of the company. Below, Figure 10A. Seth Thomas 30-hour lever timepiece, dial and bezel removed.

SETH THOMAS LEVER CLOCKS — AND WATERBURY CLOCK CO. — AND E.N. WELCH MFG. CO.

Michael Tkacz (Australia) has sent photos of a Seth Thomas 30-hour lever timepiece (Figures 10A-10D). Note the contour of the octagon case (Figure 10A). The movement is shown in Figure 10B. The great wheel, on the right, drives the center arbor, which in turn drives the 3rd arbor, lower left. This drives the seconds arbor, bottom center, and the 4th arbor, left. The train continues clockwise, with the escape wheel and lever at upper left, and the balance wheel at center top. This arrangement seems quite typical, and is quite similar



MICHAEL TKACZ

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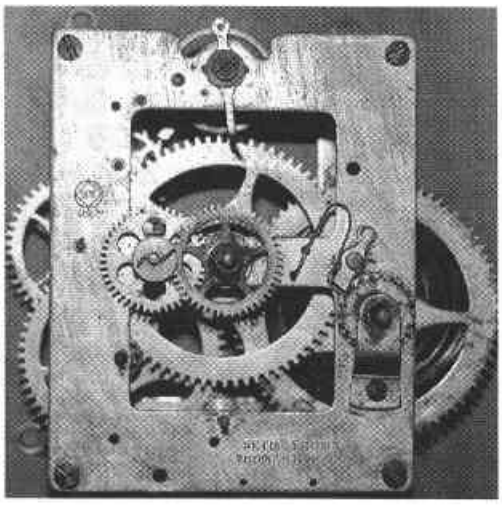
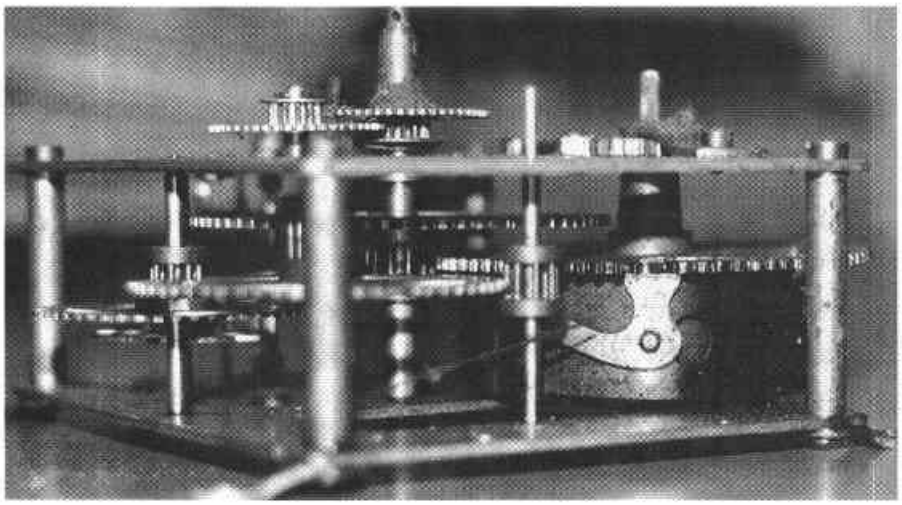
MICHAEL TKACZ (3)





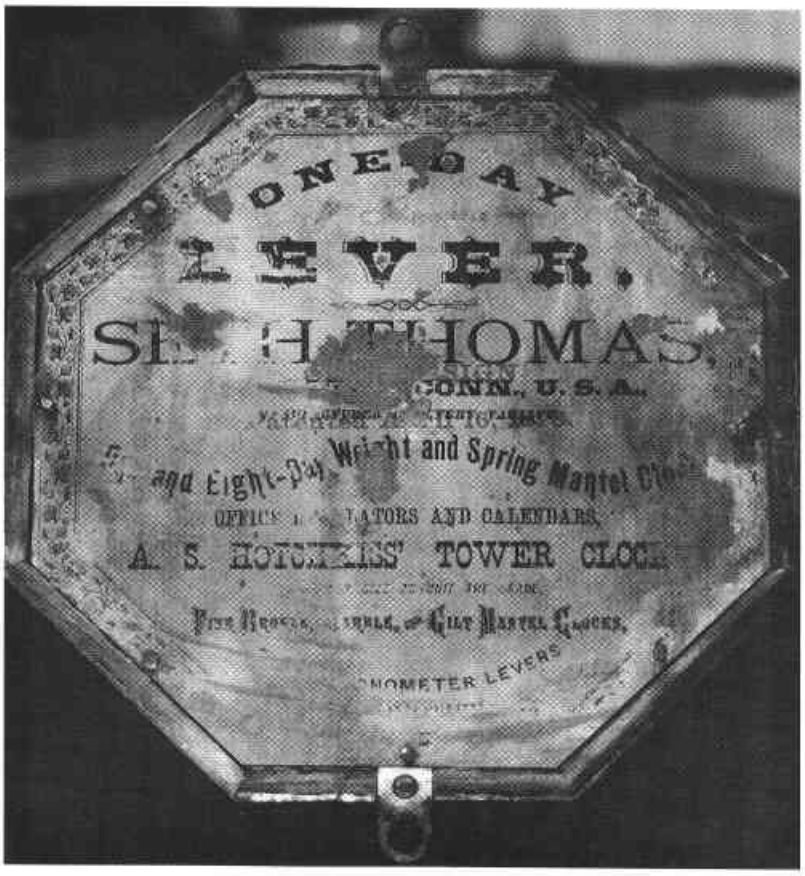
Left, Figure 10B. Movement of timepiece of Figure 10A. Note ST logo, and "SETH THOMAS" stamping. Right, Figure 10C. Bottom left view of movement of Figure 10B.

to the layout in other lever timepiece movements shown in this column in the February 1994 and June 1993 BULLETINS. Note the decorative fence on the great wheel in Figure 10C, which makes that wheel the mechanical equivalent of the "going barrel." The label on the back of the case is shown in Figure 10D. Note, stamped on the center of the label after the original printing, "[? D]ESIGN / Patented April 16, 1878."

Pat Tomes, our Museum Curator, searched the patent files and found *two* design patents of the above date, both assigned to the Seth Thomas Clock Co. Figures 11A and 11B show Design Patent No. 10628, "Clock-Case," awarded to Merwin C. Jones. This is exactly the case of Figure 10A. Figures 12A and 12B show Design Patent No. 10625, "Clock-Face," awarded to George Ager. Mike Tkacz's dial and bezel are off for restoration. But see the right-hand dial in Figure 13; it is the patent dial.

Lee Smith (MI) has sent pictures of two 30-hour lever clocks (time and strike), both with dials marked "SETH THOMAS." Figure 13 shows that both cases and the right-hand dial (but not the left) are covered by the above patents. The left-hand and right-hand movements are shown in Figures 14 and 15 respectively. The Figure 14 move-

Left, Figure 10D. Seth Thomas label on back of timepiece of Figure 10A. Note patent information stamped in center (see text). Right, Figure 11A. Design Patent No. 10628, page 1.



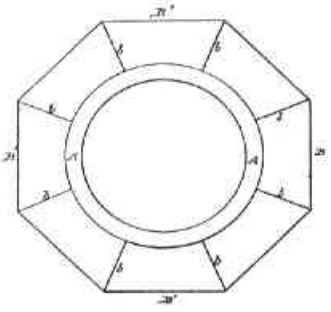
DESIGN.

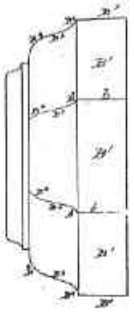
M. C. JONES.

Clock-Case.

No. 10,628. Patented April 16, 1878.

Fig 1. Fig 2.





Witnesses:-
J K Culahan
H A [illegible]

Inventor:-
Merwin C. Jones
by his Attorney
Thomas D. Stetson
New York

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UNITED STATES PATENT OFFICE.

MERWIN C. JONES, OF THOMASTON, CONNECTICUT, ASSIGNOR TO SETH THOMAS CLOCK COMPANY, OF NEW YORK, N. Y.

DESIGN FOR CLOCK-CASE.

Specification forming part of Design No. **10,628**, dated April 16, 1878; application filed March 5, 1878. [Term of patent: 7 years.]

To all whom it may concern:

Be it known that I, MERWIN C. JONES, of Thomaston, in the county of Litchfield, State of Connecticut, have originated a new Design for Clock-Cases, of which the following is a full and exact description, reference being had to the accompanying drawing, making a part of this specification.

Figure 1 is a face view, and Fig. 2 an edge view.

Similar letters of reference indicate like parts in both figures.

A is the ordinary molded ring forming the edge of the door. The case proper is formed of eight equal pieces, united by radial joints *b*. The contours of the exterior and of the face of these parts are similar. One portion, B', of each of the parts has a plane face. The combination of these form the octangular periphery of the case. Forward of each part B' the surface is first sunk or contracted rapidly, concaved with a graceful curve, as indicated by B²; next continued forward plane, but tapering for a little distance, as indicated by B³; next rounded inward with a convex curve, as indicated by B⁴, and thence extended directly inward to the back of the ring A.

The effect is pleasing in every direction in which it is viewed. The material is preferably richly-grained or veneered wood; but the design may be carried out in any material.

I claim—

The design for clock cases, as herein set forth and described.

M. C. JONES.

Witnesses:
SETH THOMAS,
L. S. PARSONS.

Figure 11B. Design Patent No. 10628, page 2.

UNITED STATES PATENT OFFICE.

GEORGE AGER, OF THOMASTON, CONNECTICUT, ASSIGNOR TO SETH THOMAS CLOCK COMPANY, OF NEW YORK, N. Y.

DESIGN FOR CLOCK-FACE.

Specification forming part of Design No. **10,625**, dated April 16, 1878; application filed March 6, 1878. [Term of patent 14 years.]

To all whom it may concern:

Be it known that I, GEORGE AGER, of Thomaston, in the county of Litchfield, State of Connecticut, have originated a Design for Clock-Faces, of which the following is a clear and exact description, reference being had to the accompanying drawings, which form a part of this specification.

A represents the body of the dial, which is provided with the ordinary numbers, and divisions for the passage of the hand-spindles, key, and regulator-pin.

The dial A is surrounded by an ordinary border or rim, B, by means of which it is attached to the clock. It is a plane or flat sheet of metal or other material, on which is mounted a facing-sheet of paper, *c*, having the desired numbers and divisions marked or printed thereon, representing hours, minutes, &c.

C represents a sunk seconds-dial, which is a plane sheet of metal or other material, on which is fixed a facing-sheet of paper, *c*, with the proper figures and divisions.

The central plate *a* is surrounded by a broad ring, *c'*, which is stamped or otherwise formed with a heavy bead at the exterior and a lesser bead at the inner edge, the beads being separated by a deep concentric groove.

The sheets *c* and *c'*, by preference, coated or covered with varnish or other suitable material, so as to give the same the effect and appearance of porcelain, china, or enamel, as desired.

What I claim as my invention is—

A design for a clock-face having a plane or flat dial, A, and a sunk seconds-dial, C, surrounded by a heavy molded ring, *c'*, of the contour described, substantially as set forth.

GEORGE AGER.

Witnesses:
L. S. PARSONS,
GEO. P. NORTH.

Figure 12B. Design Patent No. 10625, page 2.

Figure 12A. Design Patent No. 10625, page 1.

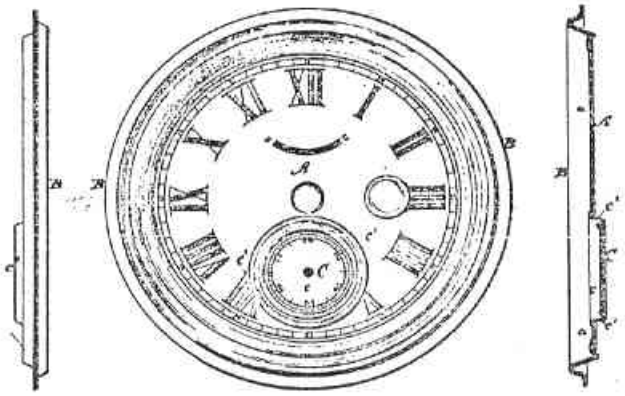
DESIGN.

G. AGER.

Clock-Face.

No. 10,625. **Patented April 16, 1878.**

Fig. 3 *Fig. 1.* *Fig. 2.*

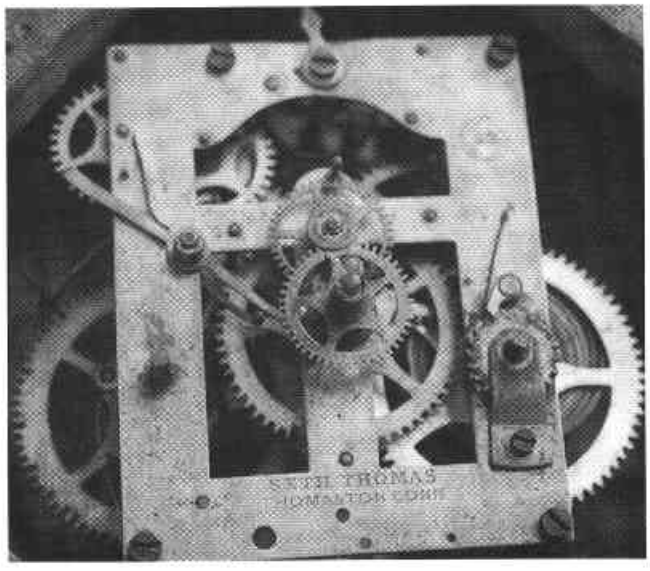


Witnesses:-
H. C. Aulahan
H. A. Johnston

Inventor:-
George Ager
by his Attorney
Thomas D. Stetson
New York

Figure 13. Two Seth Thomas 30-hour lever clocks (time and strike). Note "SETH THOMAS" on both dials.

Figure 14. Movement of left-hand clock of Figure 13. Note ST logo, and "SETH THOMAS" stamping.



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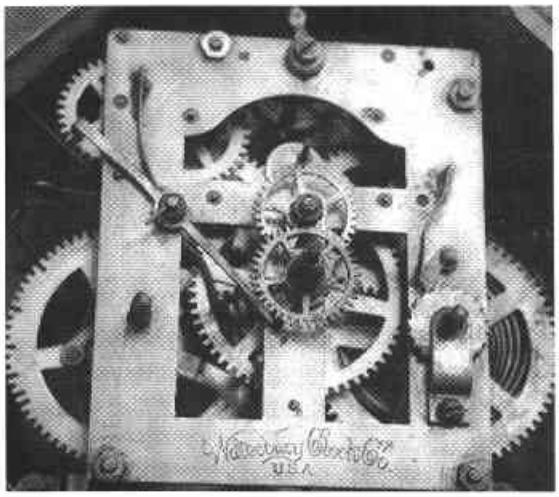


A. LEE SMITH

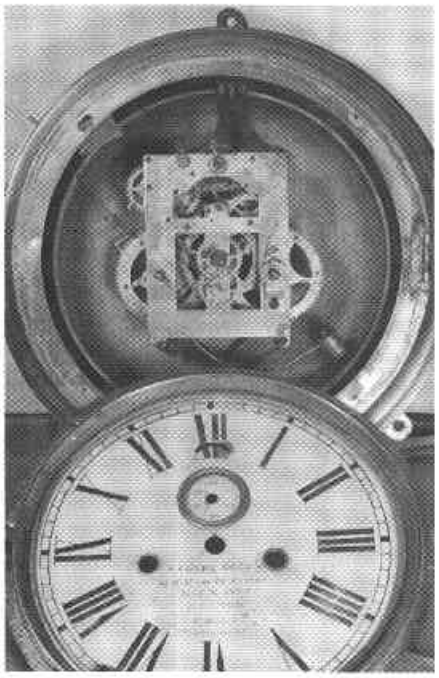
Figure 15. Movement of right-hand clock of Figure 13. Note "Waterbury Clock Co." stamping.

WATCH FACTORIES OF AMERICA

Figure 17. Label on back of clock of Figure 16, stating, "HAMS/Ship Bell Clock/../E.N. [WELCH] MFG. CO./FORESTVILLE, CONN. U.S.A./..."

ment is stamped with "SETH THOMAS/THOMASTON CONN" and the ST logo, much like the timepiece movement of Figure 10B. However, the Figure 15 movement, very similar, is stamped "Waterbury Clock Co./U.S.A."! Note that the layouts of the clocks in Figures 14 and 15 are again conventional (see the June 1993 BULLETIN). The great time wheel, lower right, drives the center arbor, and the train continues counterclockwise to the top.

Figure 16. E.N. Welch Mfg. Co. 30-hour ship's bell lever clock. Dial notes patent information (see text) and states "Off'd Only/By The E.N.. Welch Mfg Co/Forestville Conn USA." Movement stamped "E N WELCH."



BRYSON MOORE (2)

To add to the confusion, Bryson Moore (OR) sent, some time ago, Figures 16 and 17. These show a ship's clock; case, movement and dial (Figure 16) and label (Figure 17). Label and dial indicate E.N. Welch Mfg. Co., and the movement is stamped E.N. Welch. Between dial and label, one learns that this is H.H. Ham, Jr.'s Ship Bell Clock, patented May 6, 1879. Presumably, this patent detailed the tripping, count wheel, etc. necessary to accomplish "ship's bells" striking. That is not our concern here. Rather, Figure 16 shows a lever clock almost identical to those of Figures 14 and 15.

To the Chairman, the Figure 10B timepiece seems to have details which match the Figure 14 clock. These two along with the Figure 16 clock have semi-circular wheel cutouts, reminiscent of Gilbert movements. Possibly the Figure 15 clock has the most small differences. However, it shares nuts on its movement posts (instead of machine screws) with the Figure 16 clock. Of Seth Thomas, Waterbury Clock Co., E.N. Welch Mfg. Co., and maybe even Gilbert, who actually manufactured which movements?

TOWER TALK

The October 1993 issue of *Tower Talk*, newsletter of Tower Clock Chapter #134, Alton (Andy) DuBois, president and editor, has been received. This issue is eight pages with interesting news clips on the Sayville, NY, street clock by McClintock; the Morris L. Green street clock at Waterbury, CT, by Seth Thomas still wound by hand, now presented to the city; the old Howard "roundtop," from the Central Methodist Church of Detroit, now headed for the El Paso, Texas Science Museum; and "Gastown" Steam Clock, of Vancouver.

MORE ON S.B. JEROME PATENT CLOCKS

Bill Mather (VT) has reported a clock with label "S.B. Jerome, New Haven, Conn." marked "Pat'd June 16 1863." This is the first reported use of the "Design for Clock Case," Design Patent No. 1763, illustrated in this column in the August 1990 BULLETIN.

MORE ON A.S. PLATT & CO MOVEMENTS

These movements were discussed in this column in BULLETINS 272, 274, 276, 278, and 279, spanning the time June 1991 through August 1992. As stated in the first discussion, A.S. Platt & Co. is dated 1849-1856. The latter date probably means that the firm was taxed in the fall of 1856, but by the fall of 1857 it was no longer in business.

Coleman Bynum (NY) has reported the sad remains of a steeple clock, but appearing all original. This clock contains the same 30-hour A.S. Platt & Co. movement, stamped with their name, as shown in several of the above BULLETINS. The label reads, "WATERBURY CLOCK CO. / WATERBURY, CONN. / EIGHT DAY [AND] 30 HOUR / Brass Clocks, / TIMEPIECES. / Also

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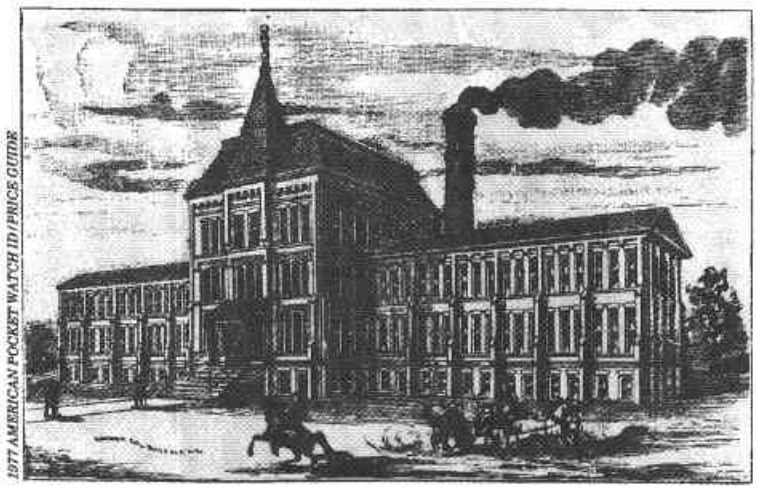

Left, Figure 18. The Peoria Watch Factory. Right, Figure 19. A.T. & S.F. RR standard for C.W. Smith, Kansas City, Mo. 18 size, 15 jewel, by Peoria Watch Co.

REGULATORS IN EVERY STYLE." The Waterbury Clock Co. started in 1857.

This is a very late use of the Platt movement, and suggests that the firm was "in production" until "the end."

REQUEST FOR ASSISTANCE

Gene Fuller Request — The Peoria Watch Story

For the past four years, I have been gathering material for a comprehensive series of BULLETIN articles on the Peoria Watch Company. At the present time, Part I has been completed and is in the hands of our editor.

To tell the complete story of the Peoria concern, it is necessary to bring in the story of predecessor, related, and successor companies. To achieve this goal, the Howard Bros., Independent Watch Co., Fredonia Watch Co., Non-Magnetic Watch Co. of America, Paillard Non-Magnetic Watch Co., Parsons Horological Institute, etc., will also be covered, albeit in less detail than the Peoria Watch group.

A better sketch, or preview, of this work is hopefully provided by the "Introduction" presented here.

Introduction

The Peoria Watch Story has many of the ingredients of a TV soap opera. It is the story of Clarence Howard and J.C. Adams, two of the most talented entrepreneurs and/or "promoters" ever associated with the American watch industry: J.B. Greenhut, a civil war hero who became a millionaire businessman, whiskey trust baron and friend of presidents; Lydia Bradley, a millionaire business woman, philanthropist and benefactor to a city and higher education; Will Hammond, an astute and dedicated attorney who managed Mrs. Bradley's business affairs for 35 years. It is also the story of Eustace Smith, a St. Louis wholesale grocer and bachelor that came to Peoria to take care of a wealthy, widowed sister and soon became president of a watch company; A.C. Smith, an ex-Waltham man that gave the word "non-magnetic" meaning in the watch business; two watch factory superintendents, Gustave Benezet and Ferdinand F. Ide, one that became a downtown watchmaker and jeweler, the other that eventually proved to be much better building bicycles than watches — and these are just some of the major characters.

It is the story of success and failure followed by success and failure; the story of embezzlement (they preferred the term "defalcation" in the late 19th century) and jail sentences; the story of broken agreements and lawsuits; the story of a "mysterious and curious" factory fire; a vacated watch factory that became the home of J.R. Parson's horological school, followed by a watch tool and eventual bicycle manufacturer, then a corn popper and coffee roaster company that ended up making automobiles; finally to be absorbed in the name and cause of higher education.

Watch enthusiasts will surely not be surprised to learn that Crossman and Abbot only cover the Peoria Story with the broadest of brush strokes; there are errors and many significant omissions, not the least of which is an adequate explanation of Peoria's relationship to the various Non-Magnetic Watch enterprises. In all fairness to Messrs. Crossman and Abbott, by the very nature of their works, they were forced to be generalists. Without their efforts and those that followed, present day and future researchers would have little foundation upon which to build and develop a more complete story of any American watch company.

The purpose of this work is simply to consolidate and build on the efforts of previous historians to develop a more complete description of the people, products and events relative to the Peoria Watch Company.

Many non-members and NAWCC members have already helped greatly, but I still could especially use photographs of any unusual, exceptional, or just interesting products of these various companies. Full credit for such watch photos will be given in the Photo and Collection Credits of the completed work.

For many years, a photo of Clarence Howard (1849-1924) has eluded past historians and watch researchers. Contacts with the Fredonia and Buffalo, New York, libraries and historical societies have not been able to help. Hopefully, one of our NAWCC members may know some of the Clarence Howard descendants, or of some other source that could provide his photo for inclusion in this current work!

No one of us can have all the answers. If any member can provide any information on these companies, or even good descriptions of watches they may have in their own collections, I would be very grateful. **Gene Fuller, 846 Chevy Chase, Sugar Land, TX 77478.**