

**FOUR SINGULAR CLOCKS
FROM THE
WILLIAM SCOLNIK
COLLECTION OF
RARE AND INTERESTING
ELECTRIC CLOCKS
PART 3**

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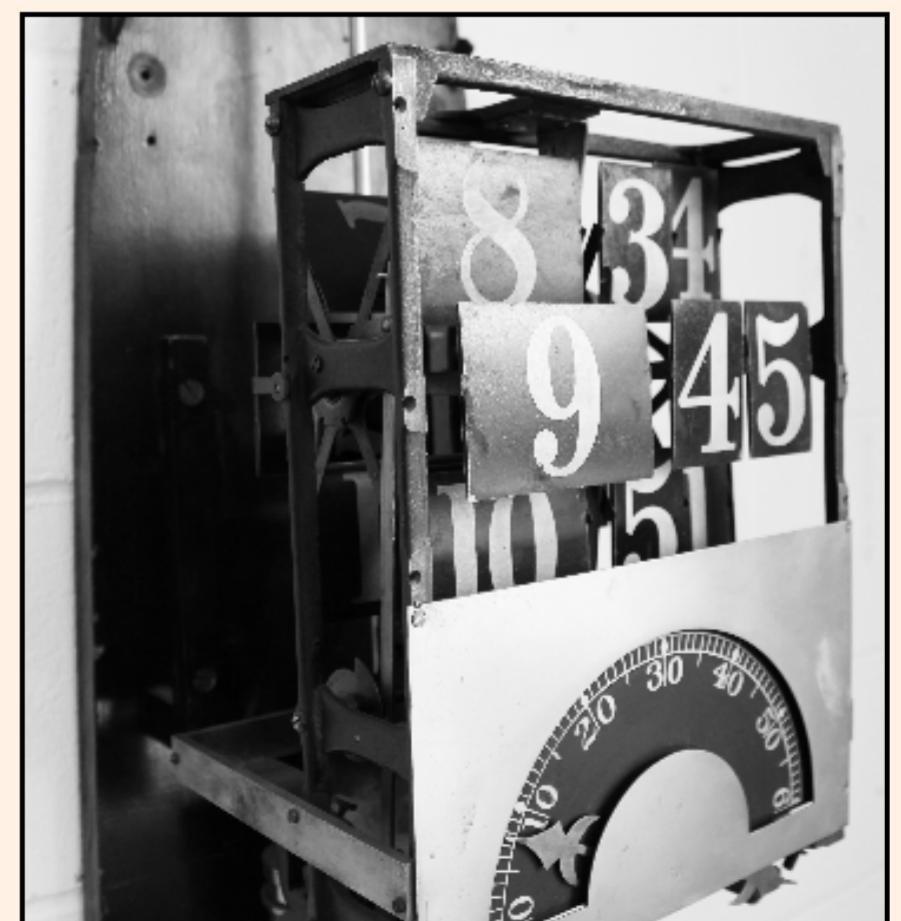
A RARE AND UNUSUAL DIGITAL ELECTROMECHANICAL MASTER CLOCK BY S.P. THRASHER Ca. 1907



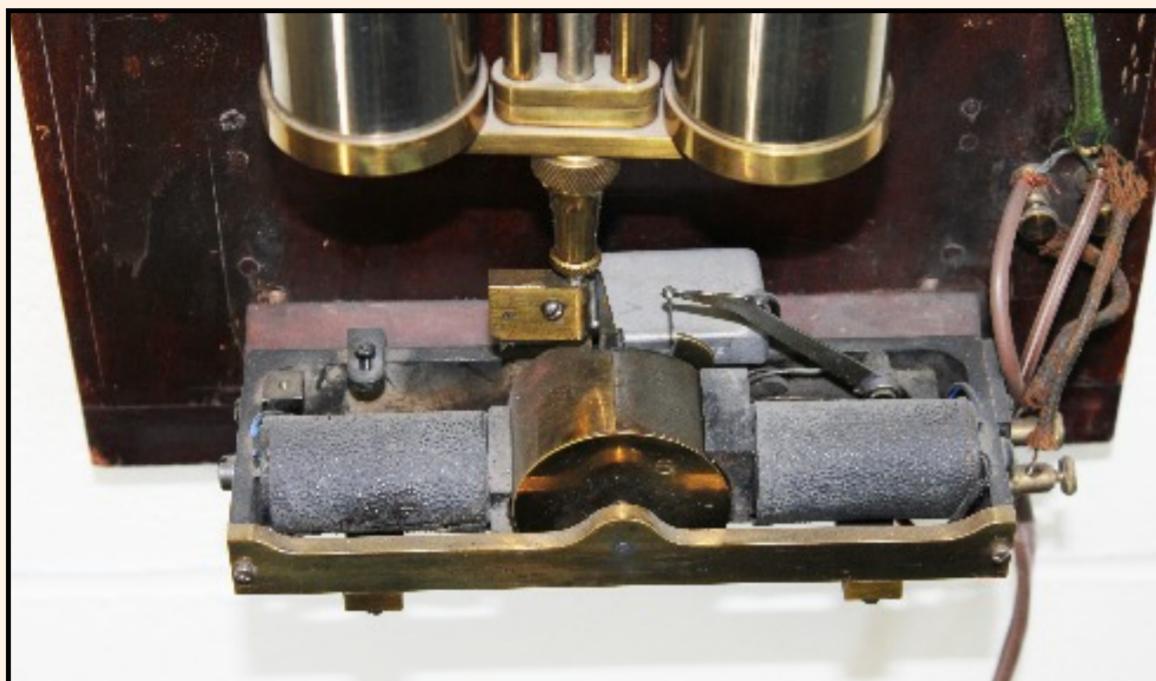
The Thrasher Digital Master Clock is perhaps one of the most unusual clock systems ever devised particularly with regard to the somewhat bizarre and really unique method of displaying the time. Samuel Powers Thrasher was a resident of New Haven Connecticut when he filed his first patents describing his system of timekeeping sometime around 1897. This first American patent was granted three years later in July 1900 and this patent was followed by several others, the last that I'm aware of having been granted in February 1908. These patents show the evolution of his system culminating in the final version of which this clock is an extremely rare example, one of only two known to exist.

Sometime after his last patent was issued, he produced a prospectus that evidently was an effort to raise money and interest in manufacturing his system. This small booklet was marked "Strictly Confidential" and is reproduced here in the following pages because it's so interesting. In it, there are a number of line drawings showing various iterations of his clock - a tower clock, a tallcase clock and a mantle clock which I believe to be a slave. He also describes in some detail why the digital dial is far better than the ordinary analog type dial with two hands and I have to admit his logic is compelling. In the prospectus, there are two letters extolling the virtues of the Thrasher system from well known executives in the clock industry, in particular C.D. Warner subsequently of the Standard Electric Time Company. Warner was a seminal figure in the invention and development of electrically impelled clocks and his praise of the Thrasher clock was interesting and important.

The Thrasher clock itself was a bit "Rube Goldberg-ish" in its design. The seconds beating pendulum operated directly on a very large 120 tooth 'scape wheel which cleverly did away with any other gearing in the going train. Mounted on the 'scape wheel were two pins that operated a set of contacts every 60 seconds. These contacts in turn operated a type of solenoid that caused the dial digits to index each minute. The scape wheel also directly operated a seconds indicating hand in the dial in a 180 degree arc.

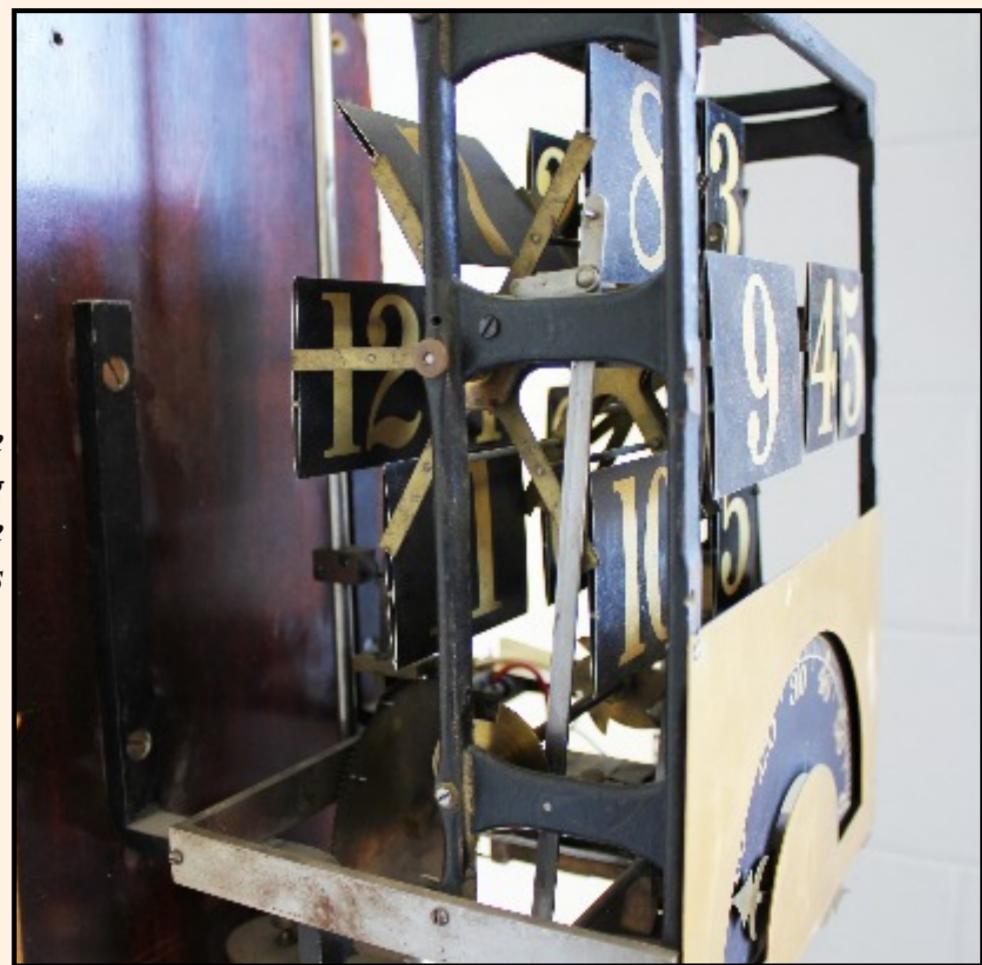


A RARE AND UNUSUAL DIGITAL ELECTROMECHANICAL MASTER CLOCK BY S.P. THRASHER Ca. 1907



(Left) The pendulum impulse mechanism showing the reset solenoids and the hipp toggle mounted below the pendulum bob.

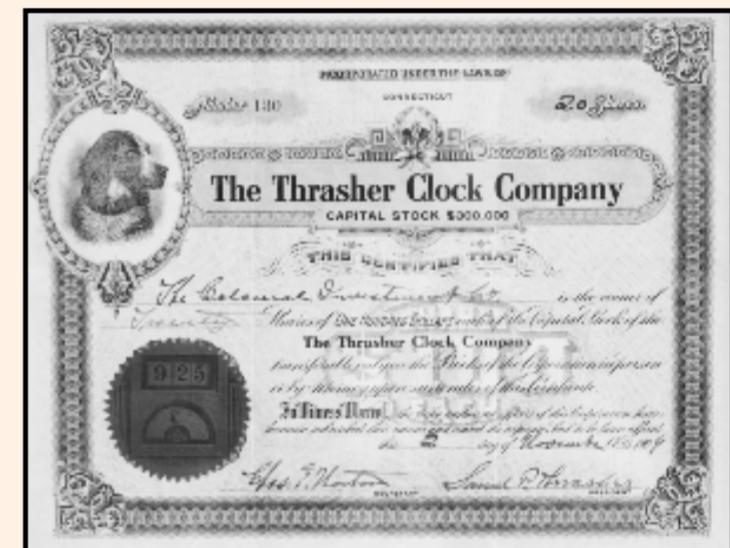
(Right) A side view of the dial mechanism showing the carousel and the hanging numeral tags



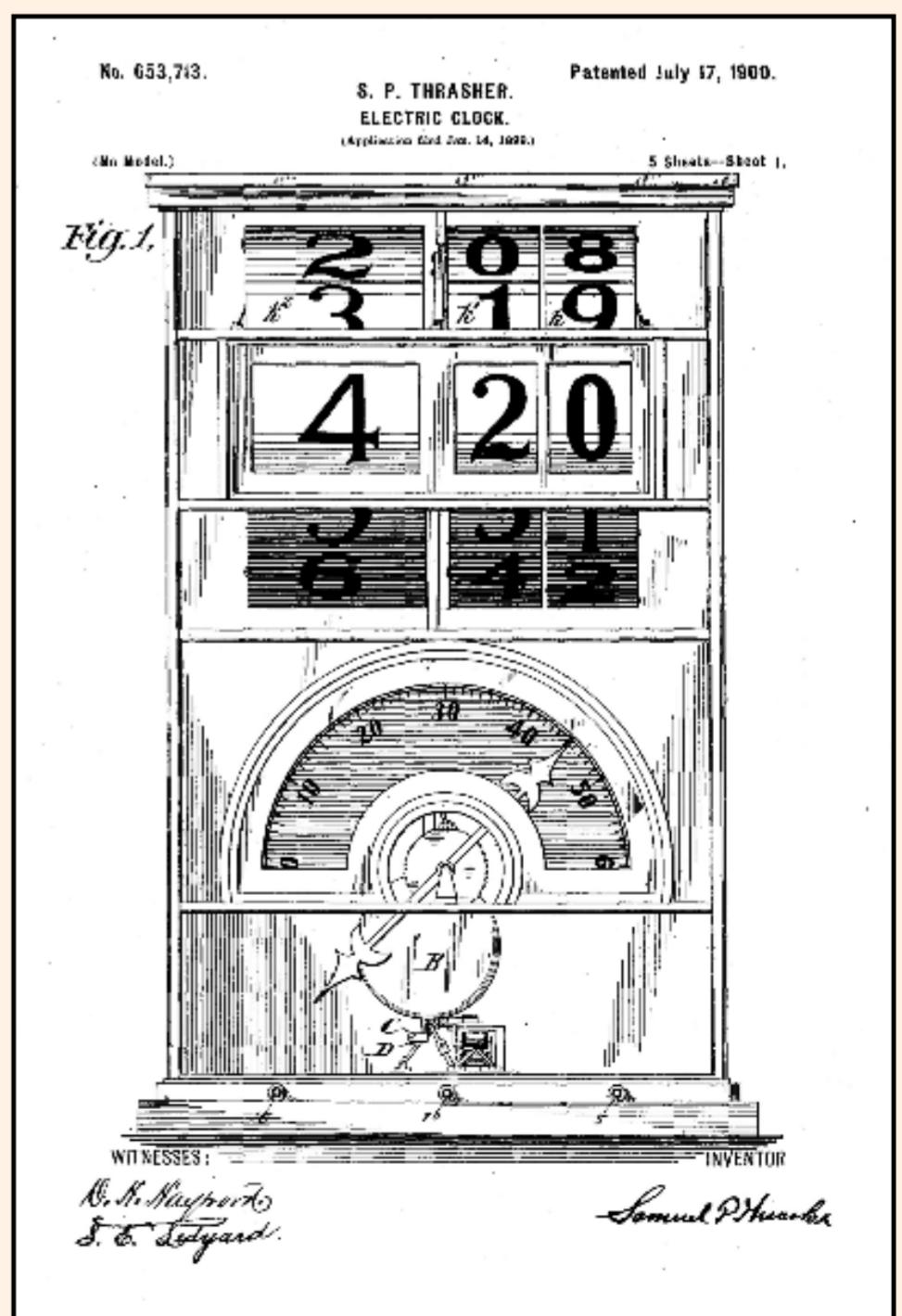
The pendulum impulse mechanism is also clever and interesting. A hipp toggle is located below the pendulum bob that mechanically releases a weighted lever (when the pendulum amplitude drops) that pushes against a small extension below the bob giving impulse to the pendulum. A pair of solenoids reset the lever until it is released again by the hipp toggle. The arrangement is reliable and works well. I had the clock running in my office for a number of years with few problems.

The digital dial readout is delight of complication and really clever. The dial movement consists of three “carousels”, one for the hour indication and two for the minute indications. The hour carousel has 6 positions, each position holding a hanging (vertically) metal tag which is painted with a numeral on each side. The numerals on the front side of the tags run from 12 to 5 and on the back side of the tags from 6 to 11. As the hours change, the carousel indexes and the hanging tag’s numeral becomes visible in a cutout in the dial. Each time the carousel indexes, the tag that is at the top of the carousel is flipped over so that the numeral on the back of it will become visible the next time it appears in the dial. This happens continuously so that all of the numerals 1-12 are shown on the dial in a 12 hour period. The minute numerals operate in exactly the same fashion with the numeral tags each flipping over as the tag reaches the top of the carousel. The system is surprisingly robust and it does work well.

There are only two clocks known to exist at this time and I speculate that very few clocks were produced at all. These clocks and perhaps a few more were probably made as examples to show prospective investors. The system was designed to operate as a master clock system with digital slaves as indicators. For its time it was quite innovative and certainly unique.



(Above) A Thrasher Clock Company Stock Certificate dated Nov., 1904 valued at \$5/ share

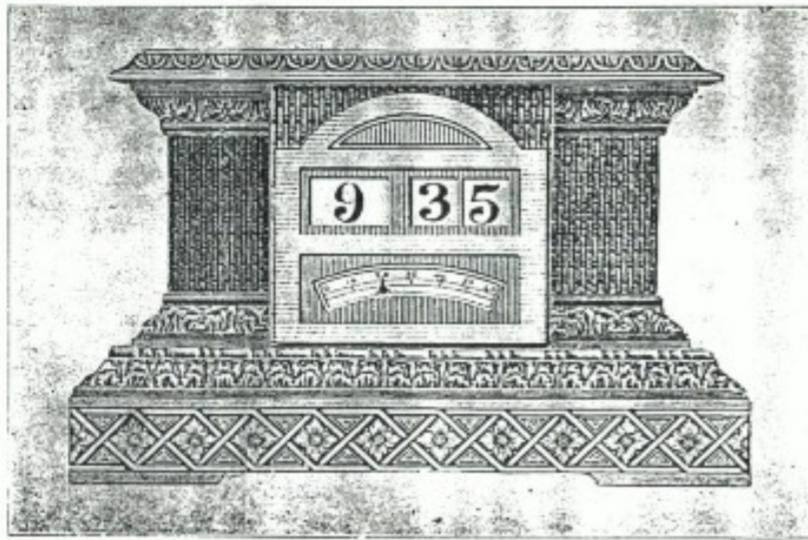


(Right) An illustration of a Thrasher slave clock from the July 1900 patent

A NEW TIME SYSTEM - INVENTED BY S.P. THRASHER

A contemporary prospectus describing Thrasher's invention ca. 1897

A NEW TIME SYSTEM



INVENTED BY

S. P. THRASHER,

NEW HAVEN, CONN.

U. S. A.

LONDON ADDRESS—

15, KEPPEL STREET, W.C.

in combination therewith a seconds pointer travelling over a graduated arc each minute, as shown in the illustrations. The face or dial of such a clock can be made attractive and also to give accurate time.

My "Independent" clock, or mechanical time indicator is for ordinary use in homes, offices and shops, where a single time-keeper is needed; my electric device is especially adapted for hotels, public buildings, factories, and railroad stations. By this system I am enabled to show the time exactly alike in every room in a hotel or public building and at every railroad station along any particular line. All the clocks in any one plant may be controlled and operated simultaneously by one time-piece or "Master Clock," which may be synchronised from the Observatory, thus giving accurate time, plainly readable, wherever the indicators are placed.

Railway guides do not read "twenty minutes past two" but just plainly "2.20." Why not permit the clock to tell the same story?

The next train leaves at "2.48," not at "fifteen minutes to three." If the station clock said "2.40" in bold figures, the traveller would know without any mental effort that he must wait five minutes for his train.

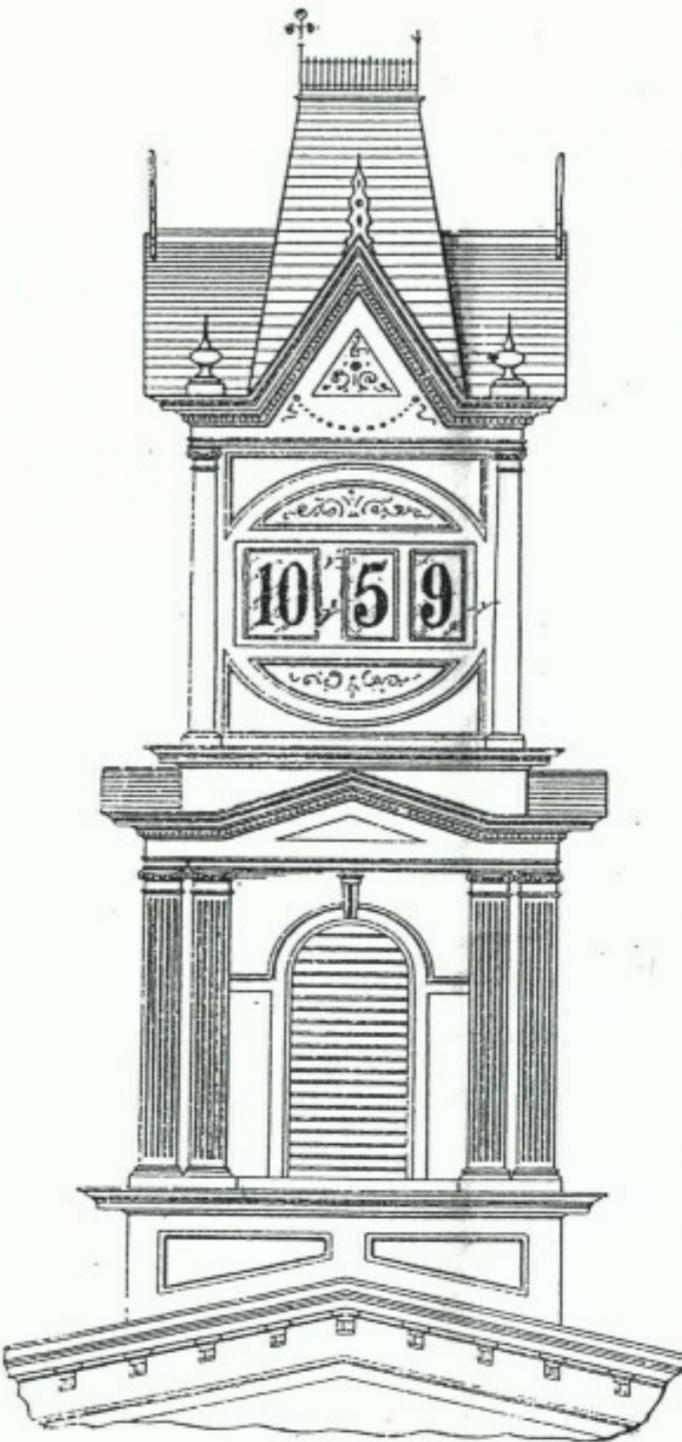
Everybody is familiar with tower and public clocks, and it is well understood that it is quite difficult to make large outdoor clocks keep good time, unless they are very expensive. The vibrations of the tower, the change of temperature, the effect of wind upon the large hands or pointers on the outside, interfere materially with good time-keeping. By my system, large figures can be shown in a tower or other public place so as to enable the public to read the time plainly and accurately, and at a much greater distance than on the ordinary clock; and the "Time" may be imparted from an accurate "Regulator," located in any convenient place, where it would be free from the influences above-mentioned. It will be seen that the field is thoroughly covered by this system, that is to say, my invention provides single or "Mantle" clocks for all who need them, an electric time system for hotels, public buildings, railroads, and a system for showing time in towers and large outside clocks.

STRICTLY CONFIDENTIAL.

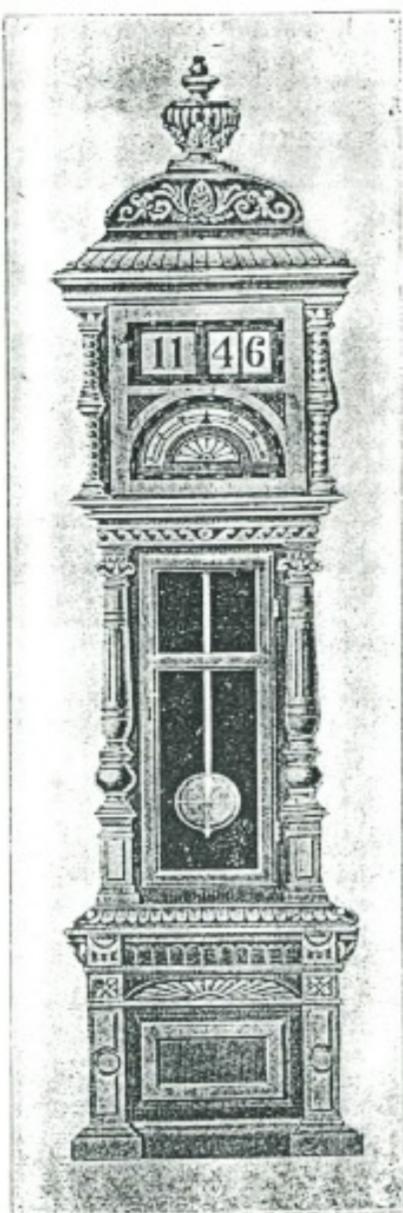
A NEW TIME SYSTEM.

WE have become so accustomed to inaccurate time-keeping and inaccurate time-reading that we do not realise just what it means. Appointments are not kept, trains are missed, business opportunities lost, and the public generally inconvenienced, because so many clocks are not reliable and because it is next to impossible to read time quickly and correctly even on a good time-keeper. This is not at all strange, when we consider that there has been no improvement to speak of in clocks for hundreds of years. Nearly all the improvements in that line have been in the method of producing clocks, but there has been no change in the system. The same old dial and hands have been used for centuries, and while we have become accustomed to it the clock face is really a complicated affair. There are seven hundred and twenty minute combinations or changes on the face of the ordinary clock and forty-three thousand two hundred every twelve hours, if you count the seconds. If you stand directly in front of a particular clock and near enough to see the seconds pointer, or hand, you may be able to read the hour, the minute and the second without much difficulty, but ordinarily this is not so.

Every house in all the world is supplied with from one to a dozen clocks, no two of which tell the same story, and in many instances not one is correct; so it is in all factories, shops, offices, public buildings, railroad stations, and with public clocks generally. What is needed is a "Time System," which can be depended upon to tell the time plainly and accurately. The most natural way to read time is by numerals or figures, which show only the hour and the minute in bold figures at the time you are looking at the device, and



A contemporary prospectus describing Thrashers invention ca 1897



The advantages of this system are—(1) It provides a "time indicator" which enables any person to read time more quickly and accurately than is possible with the ordinary clock. I have proved this again and again with the clocks in my own home and office. No one will deny that it takes a child a good while to learn to tell time on the common clock. Many children are well advanced in their studies at school before they are able to read the face of a clock. I have known children who could solve perplexing mathematical problems with ease who could not master the time on a common clock. With my system, any child who knows the numerals can tell time without a thought. Why? Because there is nothing else to be seen on the dial. (2) The system makes it possible for hotels and other public buildings to be provided with accurate time for every room, from one centre. (3) It provides means by which correct time may be shown in towers and in public places, night or day, and be seen at a greater distance than at present, and without the possibility of mistake.

The commercial value of this invention depends, as with all other enterprises, upon the way it is handled. It must be apparent that this system is a great improvement over the common way of telling time. Clocks are used by everybody everywhere in the world. Millions of money has been made in the clock business. The people of the world will have to be supplied with some system of telling time as long as the world stands. There seems no good reason why this invention cannot be developed to very great proportions. I have submitted the device to the critical examination of experts and have their unqualified endorsement. I consider that the subjoined letters are sufficient endorsement to warrant confidence in the invention. Mr. C. D. Warner is the inventor of the best electric clock on the market in America, and, so far as I know, in the world, and is at present the treasurer and manager of the "Ansonia Telephone Co., General Electrical Contractors. Mr. Luther E. Jerome has been officially connected with one of the largest clock concerns in the world for twenty-five years.

"THE ANSONIA TELEPHONE CO.,
"General Electrical Contractors,
"Ansonia, Conn., March 30th, 1897.
"S. P. THRASHER, New Haven, Conn.

"Dear Sir—I was quite interested in your new clock, shown me to day, as beyond the novelty and convenience of noting the time of day, over the ordinary clock dial, the mechanical operation and arrangement of same is very ingenious, effective, and decidedly positive in its results.

"There are some features that are remarkably simple, which is the one great point looked for in all kinds of mechanism.

"As an electrical indicator of the time of day, I consider it far ahead of the ordinary electric clock (of which I am an inventor), and I have made the study of this plan of distributing time for many years.

"We shall be glad to adopt your indicator as soon as it is ready for the market.—Very respectfully,
(Signed) "C. D. WARNER."

"NEW HAVEN, March 17th, 1897.
"My dear THRASHER,—Really your time device is a good thing. I have examined it with a great deal of interest, and, while for a clock the idea of telling time by numerals without dial or hands is certainly novel, it will, I believe, be a taking one.

"Its great point is simplicity, the changes make regularly and work perfectly, and I can see no way in which the attachment can affect or interfere with the working of the clock movement proper. I believe it will be a great success.—Yours truly,
(Signed) "LUTHER E. JEROME."

As the inventor of this time system, which is protected in all the important countries of the world, I am prepared to devote my time and energies, under any reasonable contract, for the development of the enterprise, and I can give any bond which may be required, conditioned upon the faithful performance of my part of the agreement.

Respectfully submitted,
S. P. THRASHER.
15, Keppel Street, W.C.



A TALL CASE ASTRONOMICAL PLANETARIUM ELECTRICALLY IMPULSED CLOCK



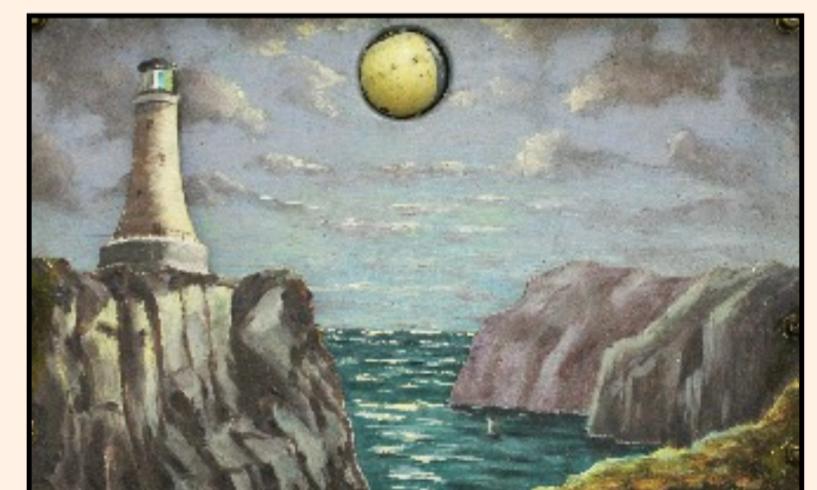
An extremely complicated tallcase clock made by Charles H. Harvey with its associated slave movement also with considerable complication. Built over a period of more than 30 years, the clock has numerous complications, all electrically impaled and controlled by a Synchronome type movement of Mr. Harvey's design. The clock is elegant in its look and proportion and the numerous complications include:

1. Tide Indicator dial marked High, Ebb, Low, Flow. The hand for this dial incorporates a small sailboat.
2. To the right of the Tide Dial is a dial indicating the times of Moonrise. The hand for this dial incorporates a small crescent moon cutout.
3. An automaton painting. Located above the moon and tide dials. As the tide ebbs and flows, it's depicted in the painting and the water can be seen moving up and down between the mountains. A three dimensional moon ball located at the top of the painting turns as the moon waxes and wanes throughout the month.
4. Day night alarm with manual setting arms.

At the top of the clock

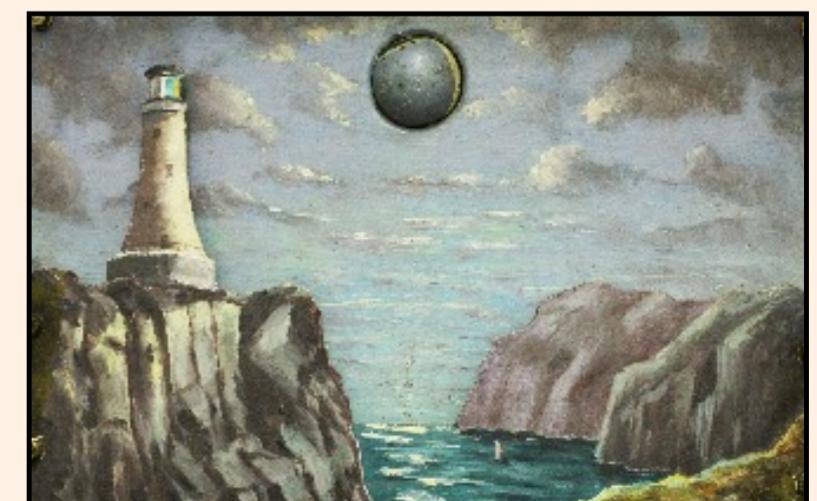
5. Four time dials indicating time in New Zealand, North America, Australia and India.
6. Automatic Zodiac Indicator with enameled insets.
7. In the center is a large Earth Globe that automatically rotates. Over the globe there is a sun indicator that moves according to the Earth's declination. It varies from approximately $23\frac{1}{2}$ degrees below the equator to $23\frac{1}{2}$ degrees above the equator.
8. Equation of Time dial. This operates in conjunction with the sun indicator and shows the difference between time that is measured using a sundial (true or apparent solar time) and time that is measured using a clock (mean solar time).

The slave clock/orrery itself is also quite complicated. At the top is the dial indicating the time. In the center is an unusual automatic orrery which rotates once a year operated by impulse from the main clock. The orrery depicts the Earth and its moon as well as the planets Mercury and Venus. As the orrery rotates, it points to the month and to the



(Above) The painting showing Full Moon and High Tide.

(Below) The painting showing New Moon and Low Tide



A TALL CASE ASTRONOMICAL PLANETARIUM ELECTRICALLY IMPULSED CLOCK



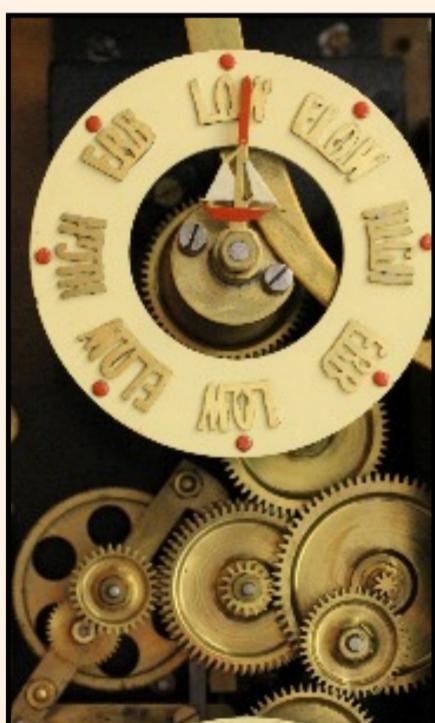
These pictures (above and below) show the movement of the Sun illustrating the Earth's declination. You can see the Equation of Time dial also move in conjunction with the Sun's movement



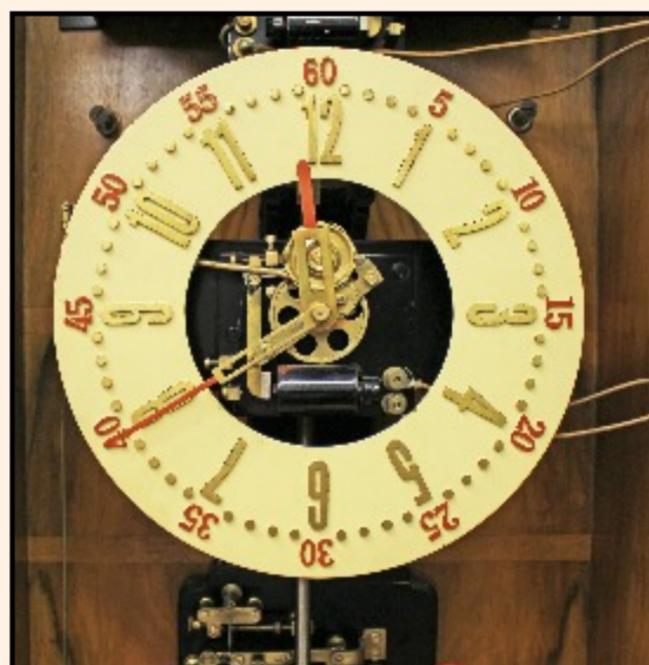
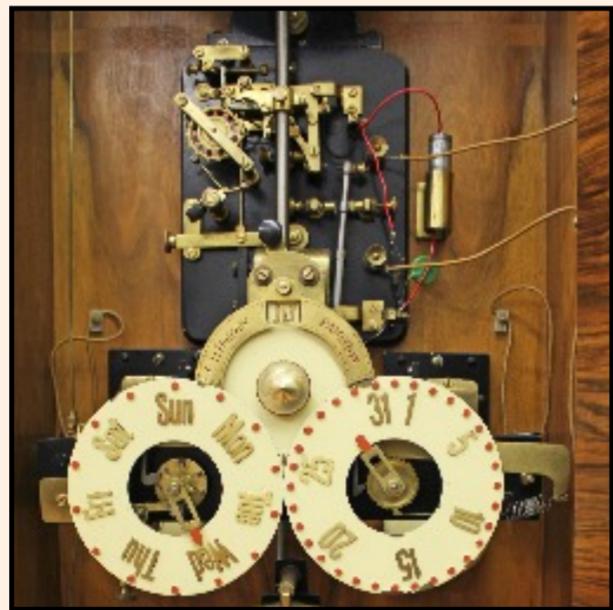
appropriate sign of the Zodiac. It makes a complete revolution in one year. The orrery depicts the three planets closest to the sun. The sun is represented by a brass hemispheric dome around which all of the planets rotate. Mercury and Venus can be seen as small balls which rotate around the sun in their respective orbits. The earth is depicted by a painted dome and the moon can be seen rotating around the Earth as the orrery moves and as the earth rotates and moves around the Sun. Although the workmanship and execution are fairly ordinary, taken as a whole, the clock is quite spectacular and the the design is clever and impressive. The clock is large measuring approximately 92" high, 16" wide and 7½" deep. The orrery/slave measures approximately 29" high, 24" wide and 7" deep and is connected to the main clock by a pair of wires. I've owned this clock for more than 35 years and when I first acquired it I ran it for several years and found it quite fascinating. Since I haven't run it for the past 30 years I expect it's time for an overhaul.



(Below) The Tides dial and associated gearing. The hand is in the shape of a sailboat

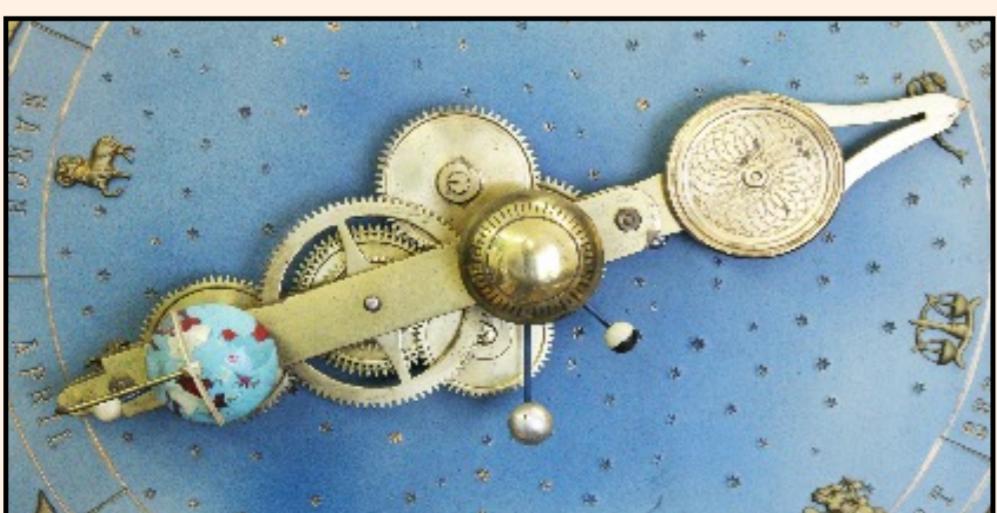


(Below) The calendar work and the Synchronome style movement.



(Above) Illustrating the main time dial and it's movement.

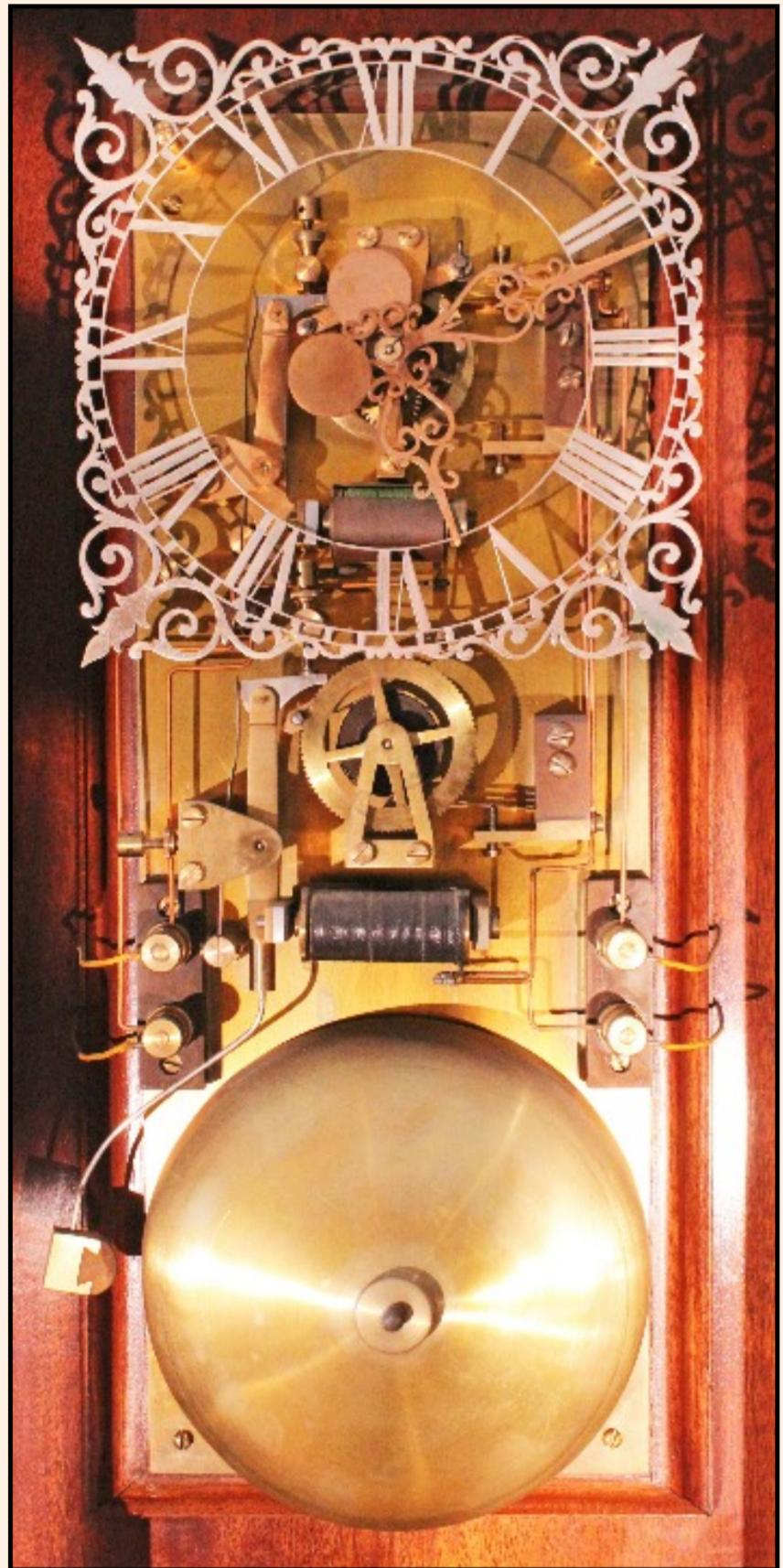
(Right) The Zodiac dial



Left and Right: Illustrating the movement of the planets around the sun, the rotating Earth and movement of the Moon around the Earth as the entire orrery assembly rotates around the dial.

AN UNCOMMON SYNCHRONOME CLOCK WITH UNIQUE SKELETONIZED STRIKE WORK

Frank Hope-Jones was a seminal figure in the development of the electric clock and in particular the precision electric clock. His invention of the Synchronome and later in conjunction with William Hamilton Shortt revolutionized precision timekeeping with the Shortt Free Pendulum (see part 1 of my collection). This Synchronome Clock is most unusual in that



The unique striking mechanism

there is an electric striking mechanism that strikes the hours and half hours on a large and prominent bell. The mechanism is cleverly designed and is completely solenoid operated. It utilizes an electrical count wheel, something that is really clever and quite uncommon. Even the bell is struck by means of a solenoid operated arm. It operates as follows:

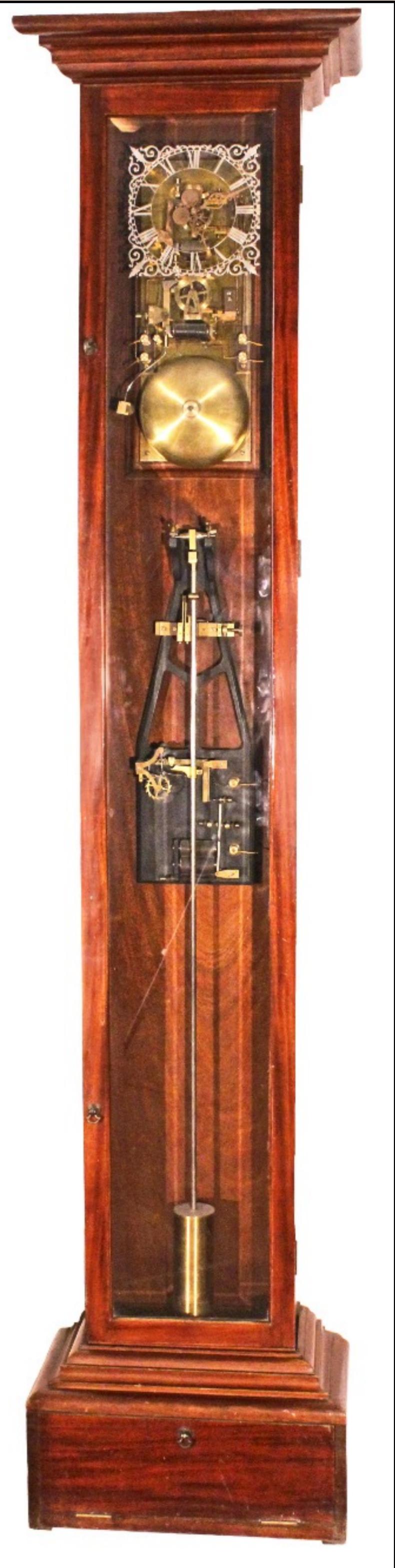
As the pendulum swings, and the countwheel is indexed, every 30 seconds, an impulse is provided to the dial mechanism which moves the hands and at the same time indexes a specially machined brass and bakelite cylinder on which a pair of contacts rest. This cylinder is machined in a way that permits the contacts to connect on the hour and half hour. When this happens, a second solenoid is then connected to the "strike count wheel" which is a similarly machined brass and bakelite cylinder. This cylinder is indexed by means of a solenoid that is connected to an adjustable switch that is operated by the pendulum rod itself. As the

pendulum swings, the strike count wheel is indexed. Attached to the armature of the indexing solenoid is a small hammer that strikes the bell loudly with each pendulum stroke. Because the contacts on the strike count wheel are of varying length depending on what the hour is, the clock strikes until the contact for that particular hour runs out and the clock stops striking and waits for the next hour when it's activated again. The striking mechanism is mounted on a heavy brass plate which is in turn mounted a mahogany plinth. The clock, of very elegant proportion, is 81" tall.

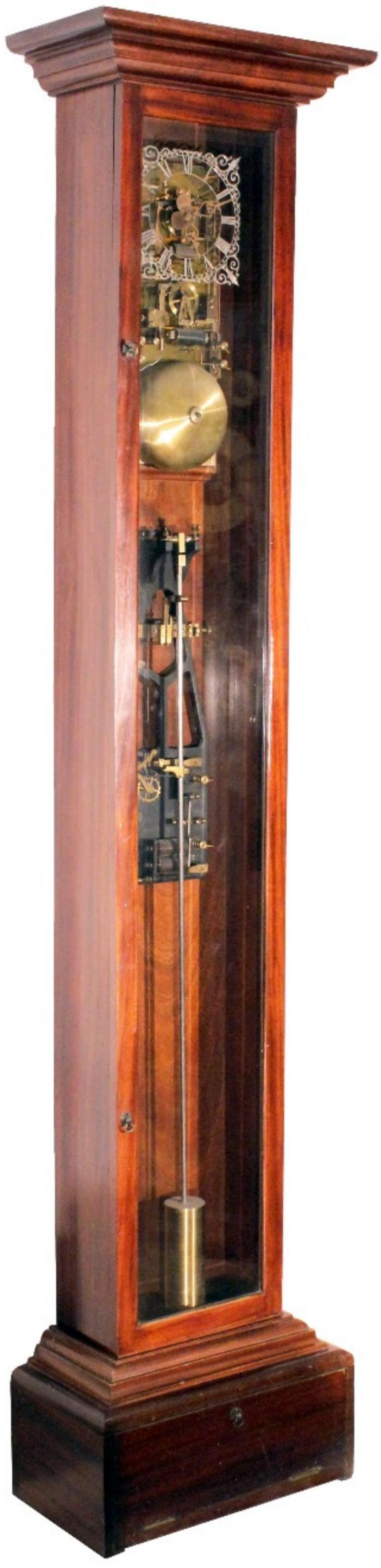


(Left) The adjustable pendulum switch.

(Right) A picture of the "striking countwheel" cylinder

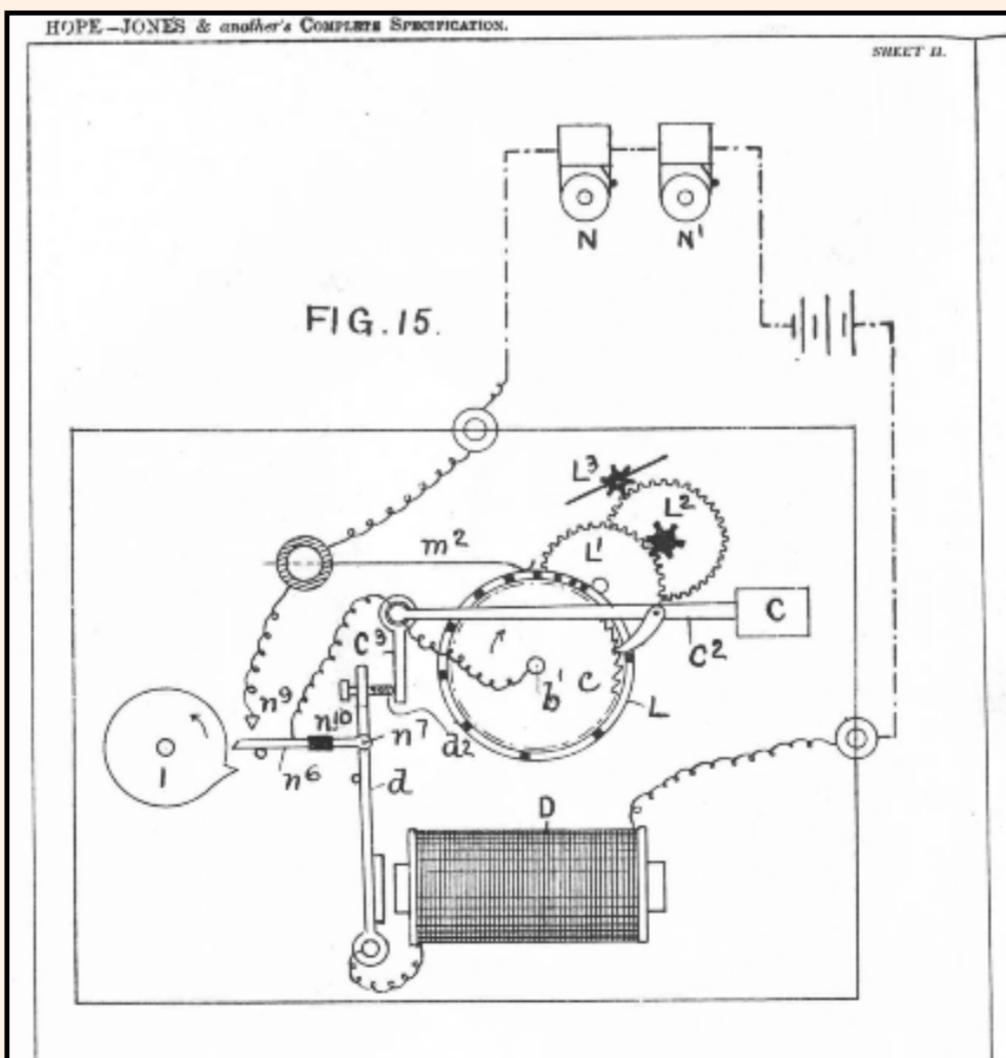


AN UNCOMMON SYNCHRONOME CLOCK WITH UNIQUE SKELETONIZED STRIKE WORK



I acquired this clock almost 25 years ago and I believe it to be a unique example of a striking Synchronome. I've certainly never seen another one in my more than 50 years of collecting. The method of using an electrical count wheel to strike the hours was patented by Frank Hope Jones in his patent of 1895. The type of striking mechanism used in this clock is identical to the method described in the Hope-Jones patent. The clock itself is beautifully proportioned and most attractive. I ran the clock in my home for a number of years because I was intrigued by the strike mechanism. The bell was quite loud and I had to muffle it with a small felt piece on the bell hammer which did the trick for me.

I've reproduced the drawing from sheet 12 of the Hope Jones patent below and you can clearly see the count wheel mechanism and the method of indexing it.



(Above) An illustration from the Hope-Jones Patent of 1895 which shows a method of striking the hours using an electrical count wheel - identical to the one used in this clock.



You can see the dial is completely skeletonized with matching filigreed hands. The hands are counterbalanced.

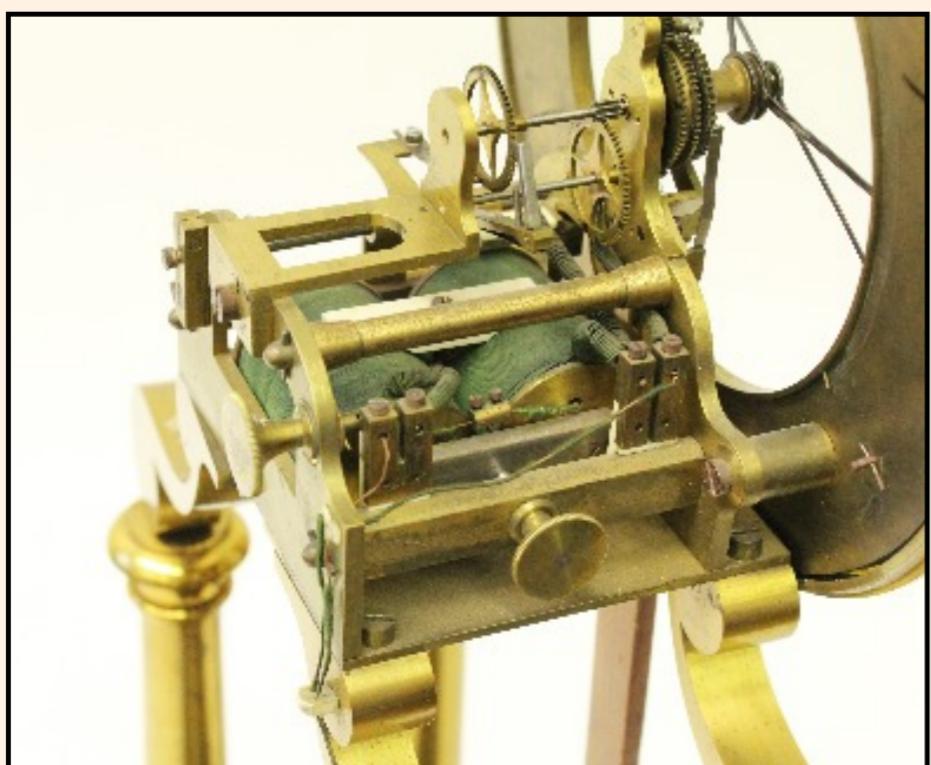
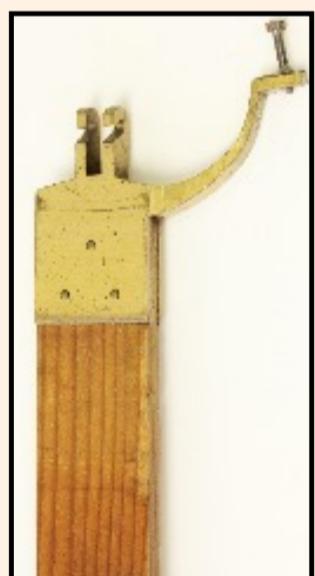
AN IMPORTANT ELECTRIC SKELETON CLOCK BY PAUL GARNIER, FRANCE CIRCA 1850

Paul Garnier, 1801 - 1869 was one France's most important and celebrated horologists. His interest in electrical horology probably derived from his company's early entry into railway time and electric synchronization. He experimented with electrical horology as early as 1847 when he was granted a patent "*pour horloge dispersant l'action électrique à un nombre illimité d'horloges*" This is an extremely rare clock, one of only a handful made by Garnier at the time and represents a milestone in Garnier's formulation of his 1847 patent. He first exhibited his patent in the 1849 Paris Exhibition where he received a Gold Medal.*

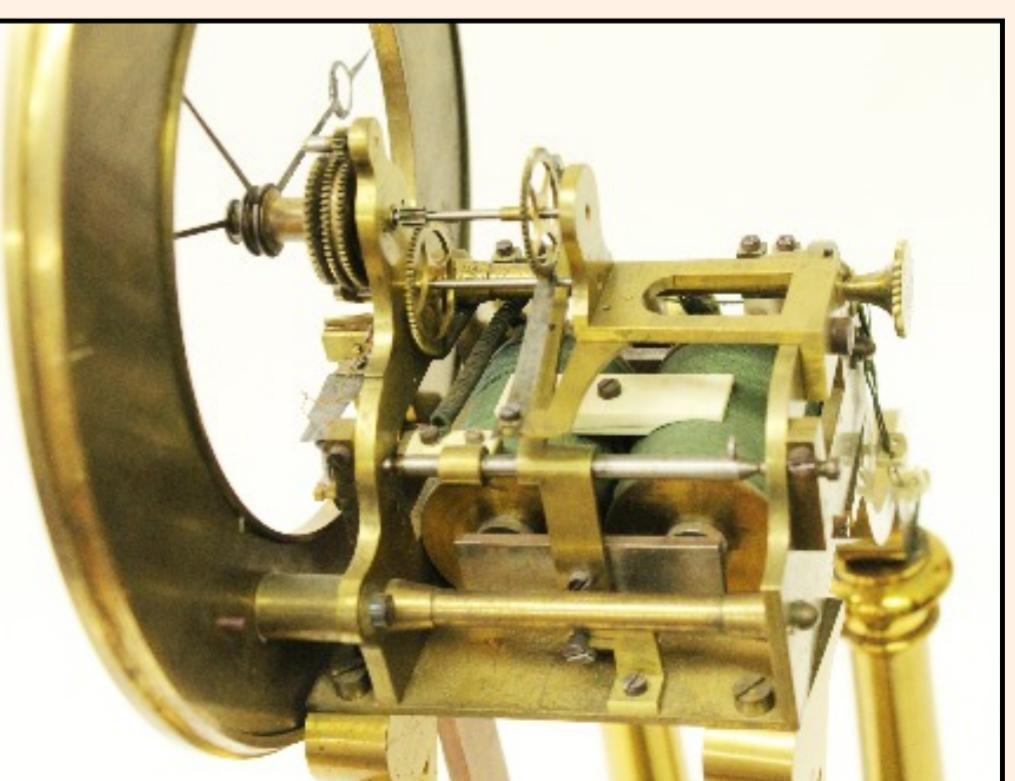
Electric clocks made by Garnier during this early period are exceedingly rare and this is an excellent example. The annular dial is excellent with Roman numerals and fine steel blued moon hands. The sweep second hand is counterpoised. The pendulum is suspended from the front plate of the movement with a wood rod and a massive gilt brass bob. The operation of the clock is very clever and reminds me of the way the Princeps Type 1 (or "F"- see Collection Part 2) operates because the way it operates is very much the same. As the pendulum moves from side to side, the small curved arm attached to the pendulum rod hits a small spring contact mounted on the right side of the front plate of the movement. When contact is made, a pair of solenoids mounted in the movement are activated and pull the spring back briefly so that it clears the arm attached to the pendulum rod and then releases the spring so that it falls on the arm attached to the rod giving impulse to the pendulum. At the same time, the solenoids act on a small articulated detent arm that moves the second hand. It's very clever and fairly simple in its operation. The clock has never been restored but the mechanisms are complete and a restoration should be fairly straightforward.



(Right) The pendulum rod showing the curved impulse/contact arm



(Left) A closeup of the left side of the movement. You can see the detent arm acting on the seconds wheel

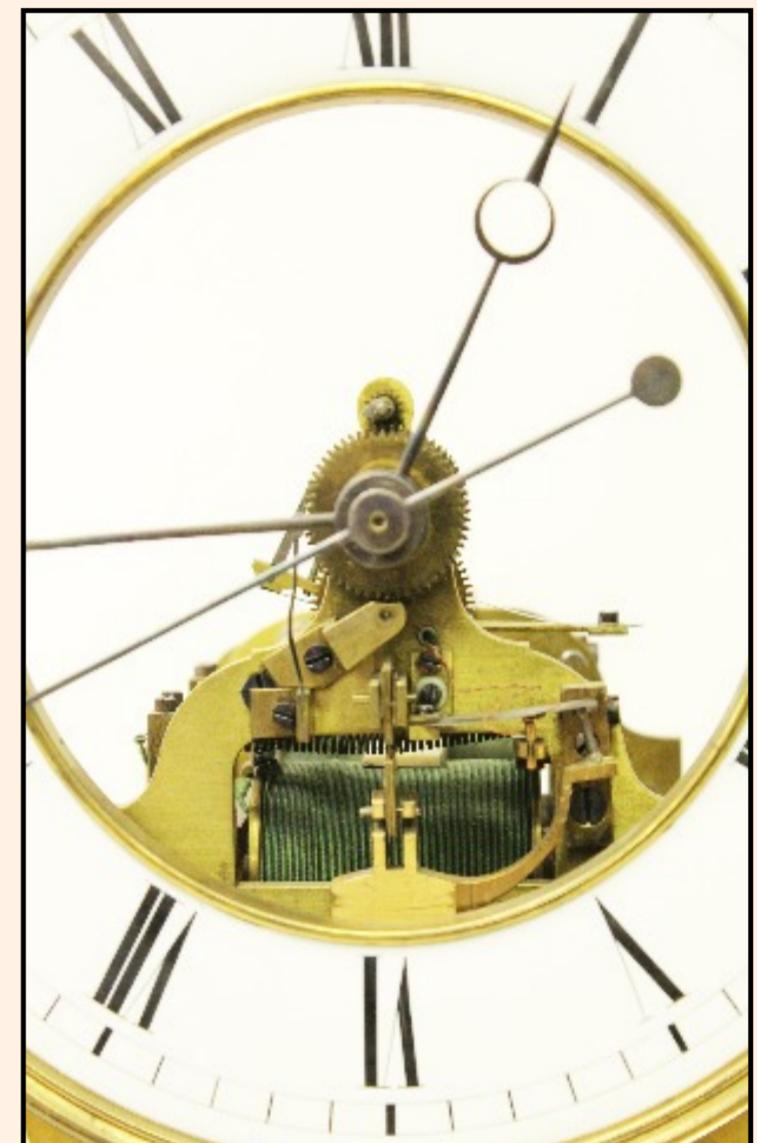
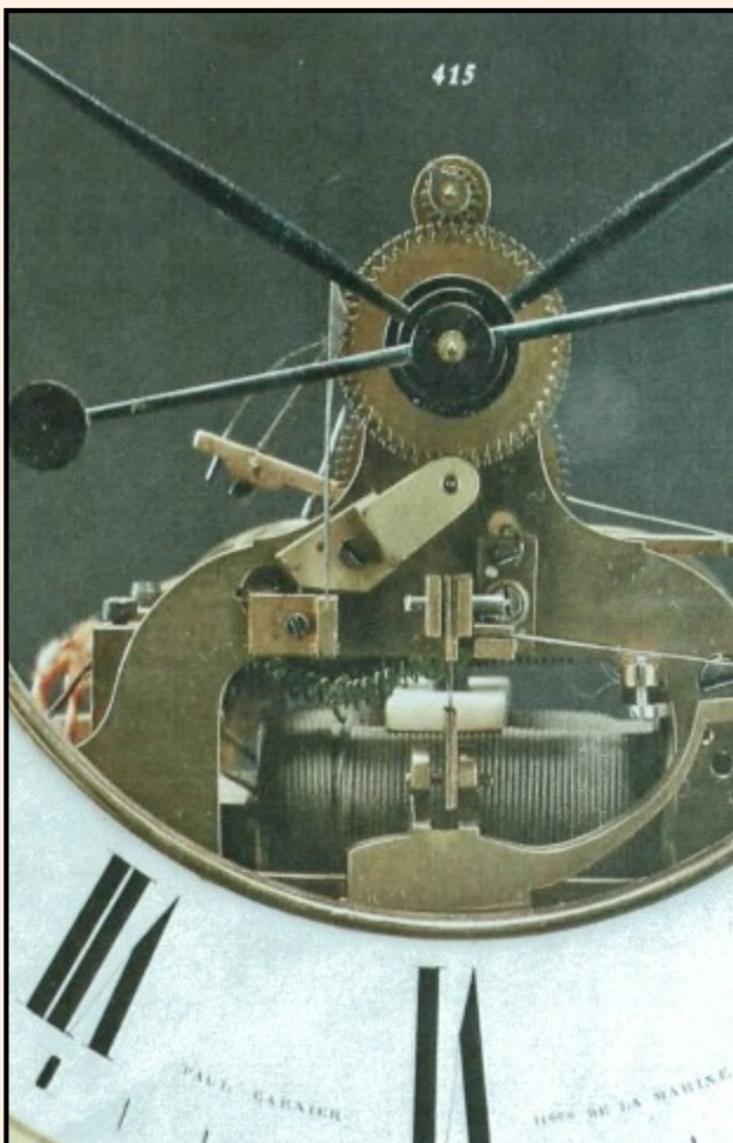


(Right) A closeup of the right side of the movement. The solenoids can be clearly seen. The ivory insulators are also visible

A IMPORTANT ELECTRIC SKELETON CLOCK BY PAUL GARNIER, FRANCE CIRCA 1850



Although this clock is unsigned, The movement and other details are identical to a clock sold at Christies in 1998 which was signed *Paul Garnier, Hger. De la Marine*. I expect that the clocks were produced at the same time because they are exactly similar as can be seen in the two illustrations below. The picture on the left is a closeup of the movement in the Christies Clock and the one on the right is the clock



we have here. The placement of the cocks, shape of the plates, placement of the solenoids and pendulum attachment, the contacts etc. are all exactly the same. There is really no question that they came from the same hand. Notice also in the illustrations (below) that even the column and scroll mounts are ALMOST identical.

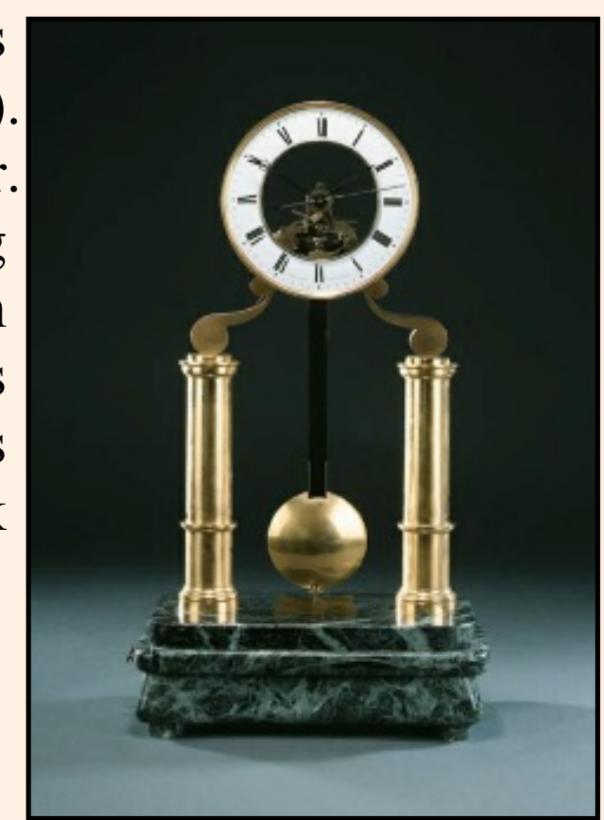
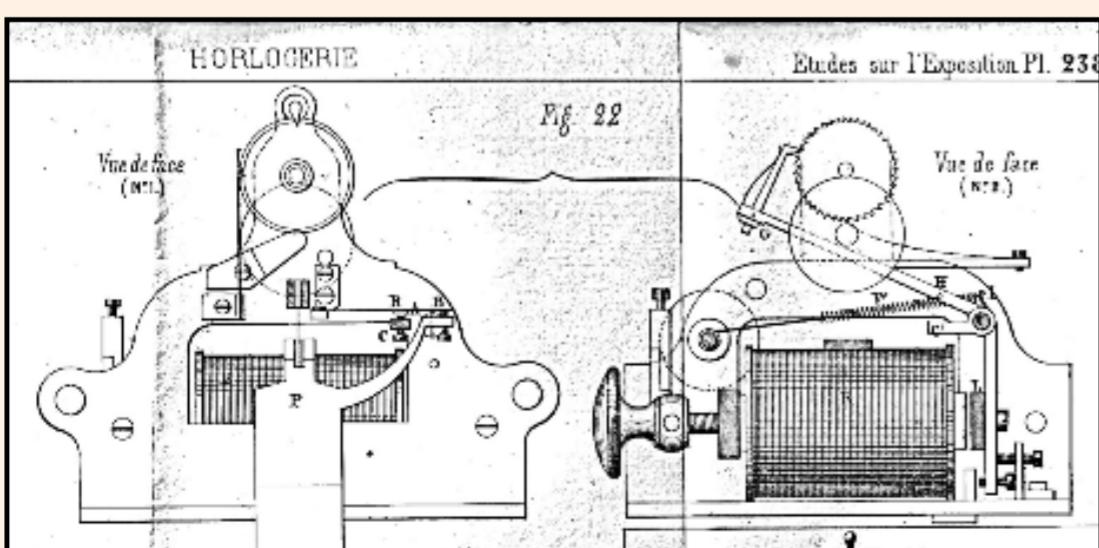


(Above) The clock being discussed here with identical scroll mounts.



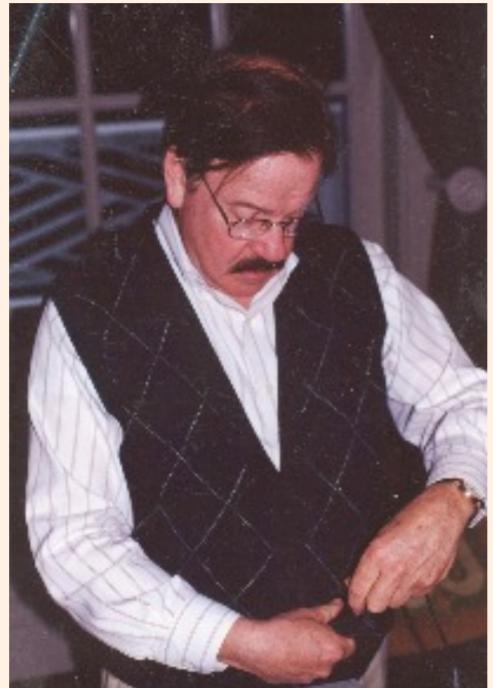
(Above) The clock illustrated in the 1998 Christies catalog.

I have in my horological library a French booklet entitled (translated) *Watchmaking In All Its Parts Including Electric Clocks* by M.J. Berlioz, Des Arts et Metiers XLVII. It appearsd to have been published Ca 1845 - 55 and an illustration of the movement of this very clock is included (shown below, left). and attributed to Paul Garnier. There is also an interesting discussion of contact oxidation with regard to electric clocks and Paul Garnier's observations. The operation of the clock is also discussed.



(Above) Illustration from the 1998 Christies catalog

A little additional information about Bill Scolnik and the collection



For almost all of my adult life, I've had an abiding interest in time. I really can't say why that's the case but I realize now at 74, that most of the things I've done over my lifetime led in one direction. My interest in things related to time and timekeeping, precision time in particular, took me along an interesting and at times a rewarding path. After graduating as an Electrical Engineer, I worked at that profession quite successfully for a few years, but it wasn't completely satisfying. In the early 60's I started a business restoring and dealing in mechanical musical instruments which eventually lead to repairing, restoring, buying and selling rather interesting timepieces and automata. One day while visiting a dealer

friend of mine, I noticed in his basement a rather unusual clock. I made an offer for it and it was eventually mine. The clock was a fine 18th Century organ clock made by Pierre Jacquet-Droz. I spent several months restoring the clock and advertised it for sale. One evening I received a telephone call from Seth Atwood. He had seen my advertisement and had recently become interested in clocks. He eventually purchased this clock and visited me in New Jersey. He told me that it was his first clock purchase and he appeared to be extremely pleased when he saw the clock. Seth eventually went on to create the Time Museum, one of the great clock museums in the world which has since been dispersed. Years went by and in the late 60's I became interested in pocket watches. I apprenticed to a well trained Russian watchmaker for many years and became a restorer, dealer and expert in complicated pocket watches.

During my frequent horological travels in Europe during that period, I had the opportunity to visit many museums in England and on the Continent. I became aware of an unusual class of clocks that were amazingly interesting to me and were directed to one end – precision timekeeping. They appealed to me from many points of view. They were invariably mechanically interesting and they combined mechanics with electricity to create precision time and the creators and inventors of these clocks were scientists in the true sense of the word.

I started collecting precision electromechanical timepieces more than 40 years ago. As the years passed, I refined my collection to what I thought were the best and most interesting of these clocks. Because of the esoteric nature of precision time, by most standards, few of these clocks were produced. I expect that because they were not "decorative" in appearance, and as they fell into disuse and as better standards were produced, they were not preserved. As a result of this, very few really important precision electromechanical clocks survived. The fact that clocks of this type were produced for only 50 years or so also added to the few surviving number. I've had a great deal of pleasure and excitement over the years pursuing these clocks, understanding them and working on them. It has been a great part of my life and I would have to say most satisfying.