Eugene L. Fitch . . . .

and the

PLATO CLOCK

(CLOCKS)

by Charles O. Terwilliger, Jr.

The "Plato Clock," first patented in 1902, was the work of a fifty-four-year-old inventor who had had no previous experience or interest in horology. The clock (Figure 1) just happened to be the culmination of a group of unrelated inventions for which he received United States patents.

The inventor's name was Eugene L. Fitch, and it is unfortunate that more facts about his life are unavailable. He was born in New York City on August 15, 1846, and little further is known about him until 1880, when, at the age of thirty-four, he was living with his family in the hamlet of Breda, Wheatland Township, Carroll County, Iowa, about 90 miles northwest of Des Moines.

The westward migration was in full swing at the time of his birth, and it may be that his parents, while he was still a child, moved from New York to follow the land-hungry hordes across the Mississippi. On the other hand, perhaps it was Eugene Fitch as a young man who found his imagination stirred by the expanding frontier and went west on his own. It is certain, at least, that he was in Minnesota as early as 1869, for a daughter, Gracie, was born there in that year. He could not have been older than twenty-two when he married, and census records indicate that his wife "Souny" was three years younger.

Sometime between 1869 and 1873 Fitch moved his wife and daughter to Iowa, a fact also established by census records, which show that a second daughter, Jessie, was born in 1873 in that state, although her birthplace is unknown. It could not have been Breda, because that village was not laid out until 1877, when the Maple River branch of the Chicago & Northwestern Railroad was built. It can only be conjectured that Fitch was attracted to Breda because he expected the infant settlement to develop—in the manner of many a whistle stop of the time—into a flourishing city. If so, he was destined to be disappointed.

In 1880 he worked in a Breda dry goods store; his occupation was listed as "general merchant (dry)." Two other facts were recorded in

No. 715,776. Patented Dec. 16, 1902.

E. FITCH.

TIME INDICATOR.

Application filed Jan. 3, 1901;

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

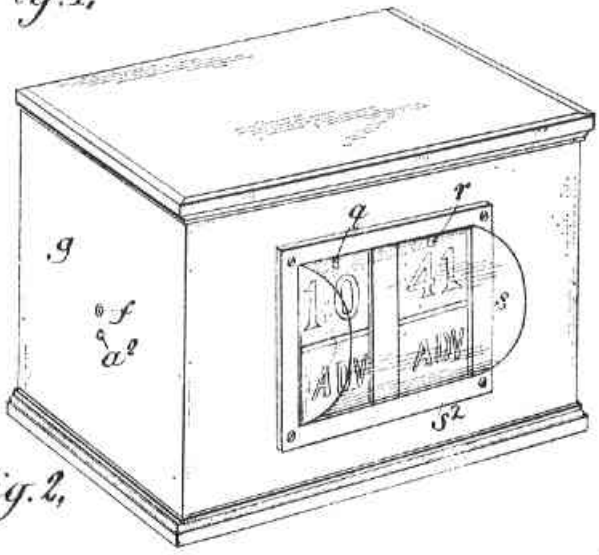


Fig. 2.

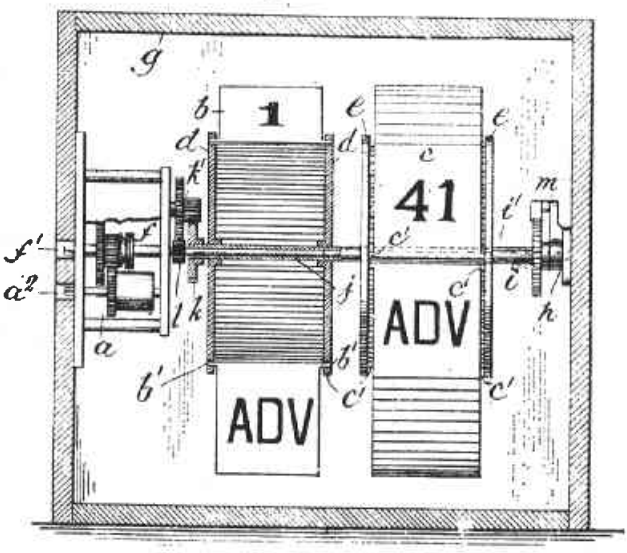
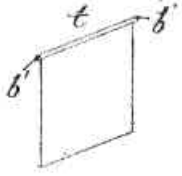


Fig. 5.



INVENTOR
Eugene Fitch.

WITNESSES:
D. W. Kaufford.
Herman Marshall.

BY
Alfred Theodork.
ATTORNEY.

Fig. 1 The first "Plato Clock" patent was for a horizontal model: 1902

(Model.)

E. L. FITCH.
Thread Case.

No. 231,027. Patented Aug. 10, 1880.

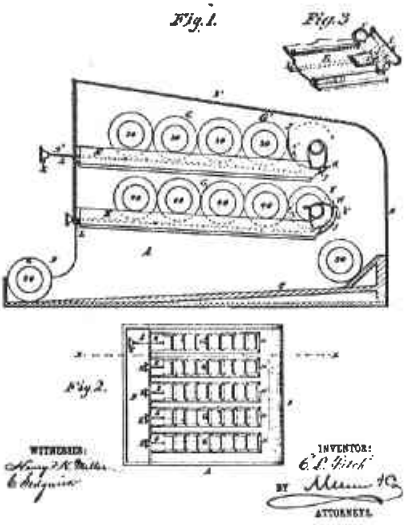


Fig. 2 In 1880, Mr. Fitch was awarded his first U. S. patent: A Thread Case

(No Model.)

E. L. FITCH.
THREAD CASE.

No. 265,400. Patented Oct. 3, 1882.

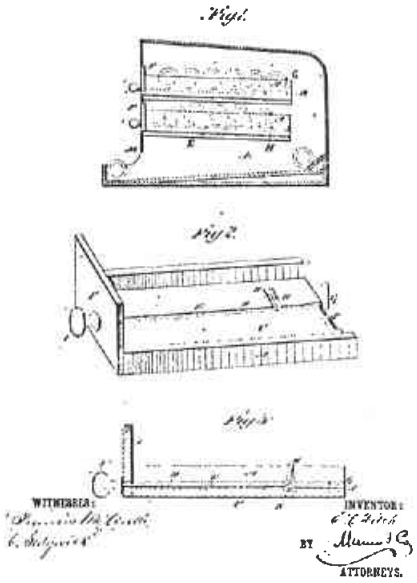


Fig. 3 In 1882, Mr. Fitch patented an improvement on his Thread Case

that year: a third child, Frederick, was one year old; and the Fitch household included a boarder named William Wade, whose occupation was "general mechandizer." One may surmise that opportunities for advancement were not encouraging in the little community that failed to grow. This may well have been what spurred Fitch's mind to invention, for it was here that his life as an inventor began. On August 10, 1880, United States patent No. 231,027 (Figure 2) was issued to Eugene L. Fitch of Breda, Iowa, for a *Thread Case*. His idea for the spool case, which "exhibits the thread to the greatest advantage, and permits of getting any desired kind of thread instantly and in a simple manner," undoubtedly resulted from his experience in handling spools in the store.

With the granting of this patent, Fitch apparently changed his *modus vivendi*, for he moved to Des Moines the following year, and records indicate that he lived there alone. Whether he left Breda to escape domestic cares or to improve his financial position, from 1882 to 1885 he served as bookkeeper for I. N. Rice Company, Des Moines wholesalers of tinware.

On October 3, 1882, another *Thread Case* patent, No. 265,400 (Figure 3) was issued to him. It was for an improvement of his previous patent "to facilitate releasing the outer-end spool of a row of spools in a drawer."

While living in Des Moines, Eugene Fitch maintained an interest in Breda. If he did not return for the purpose of visiting his family, he must at least have seen something of his former boarder, William Wade, who worked for Breda's first business house, a general store known as Arts & Manerman, for in 1885 Arts & Manerman was sold to Fitch & Wade: Eugene L. Fitch and William Wade. Obviously Fitch's interest in this venture must have been slight, for at this time he was busy in

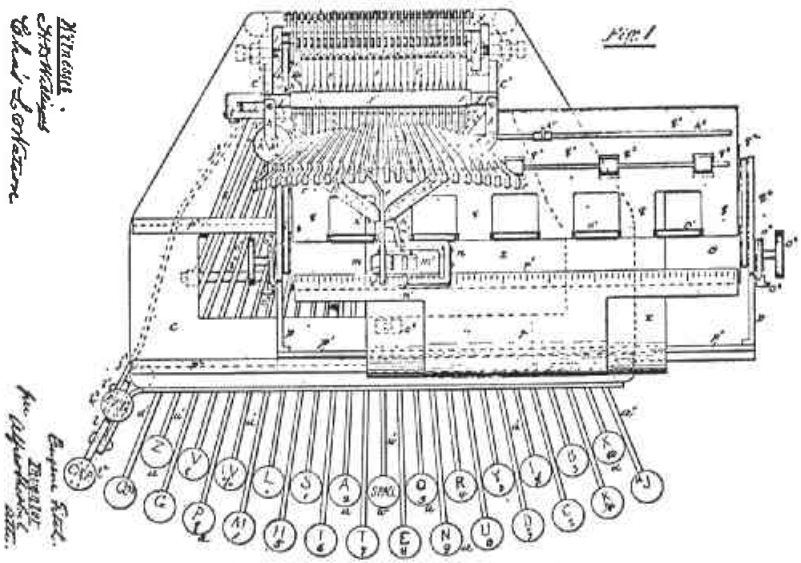


Fig. 4 Mr. Fitch's first Type Writer patent: 1886

Des Moines working on other inventions, particularly the mechanical developments of the new *Type Writer*.

In 1886, while listed in the Des Moines directory as a traveling salesman, Eugene Fitch (he had dropped the "L") was awarded the first of two patents on a *Type Writing Machine*. The first one, No. 345,836, issued July 20, 1886 (Figure 4), had to do with a shift key (the capital key on today's typewriter) which made it possible to place more than one letter number or character on the end of each type bar. His patent illustrates three such positions on a model with 27 keys arranged in two rows. The second No. 366,577, issued July 12, 1887 (Figure 5), related,

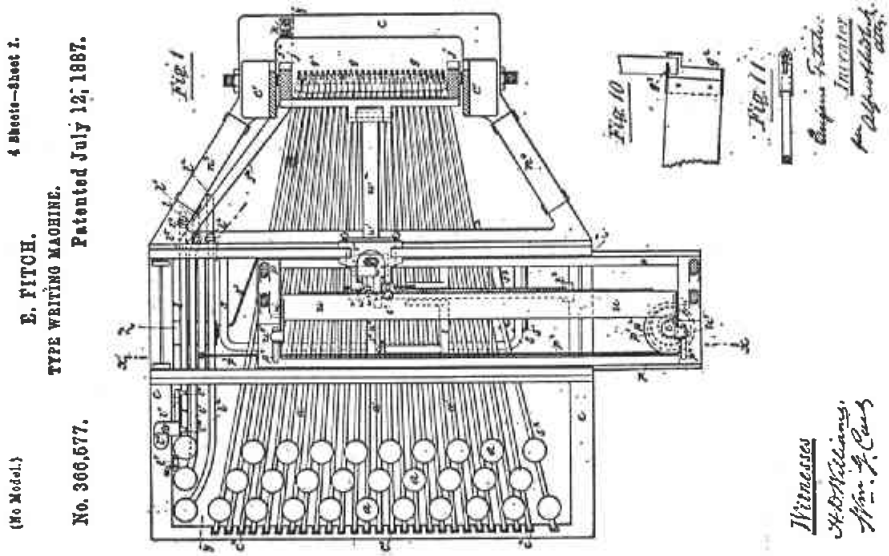
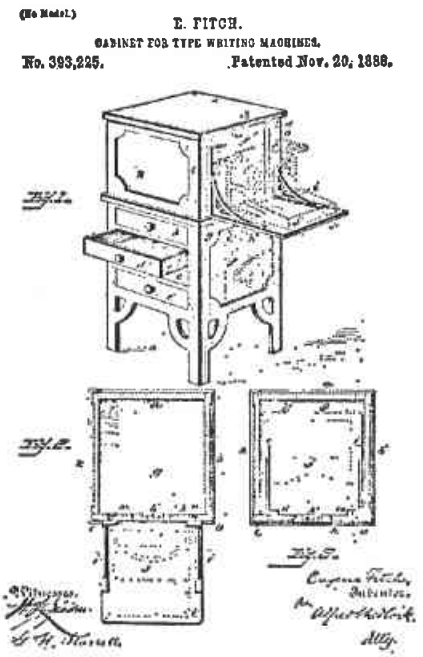


Fig. 5 Mr. Fitch's second Type Writer patent: 1887


(No Model.)

E. FITCH.

CABINET FOR TYPE WRITING MACHINES.

No. 393,225. Patented Nov. 20, 1888.

Fig. 6 In 1888, Mr. Fitch patented a Type Writer Cabinet

among other things, to the spacing mechanism which made the carriage move a greater distance for capital than for lower-case letters. It is interesting that although this idea was not ultimately adopted for the ordinary typewriter, it exists today in typewriters such as the IBM *Executive* model, for instance.

Whether Mr. Fitch's two typewriter patents represented significant contributions to development of the machine would require special research. (A compilation of excerpts from typewriter patents, available for study, runs to forty-two volumes!) The name Fitch does not appear in the *Story of the Typewriter*: 1873-1923, by the Herkimer County Historical Society, published in commemoration of the fiftieth anniversary of the invention of the "writing machine," although many names of important contributors are credited.

He next designed a *Cabinet for Type Writing Machines* for which he was awarded patent No. 393,225 on November 20, 1888 (Figure 6). This cabinet was the forerunner of today's secretarial desk with its built-in collapsible platform that will allow the typewriter to be swung down and inside of the desk.

The typewriter must have occupied his full interest about this time, for in 1888 and 1889 he is listed as president of the Fitch Typewriter Company, with business address at 317 West 6th Street, Des Moines.

At this point Eugene Fitch disappears and for eleven years his whereabouts and activities are a mystery; a search of the more accessible sources yields no clue. He apparently found the administration of a typewriter company incompatible with his creative urge and abandoned it. But where did he go? It is known that he was granted no more patents during this period. Then suddenly on December 16, 1902, he received a patent for a *Time Indicator*—the invention later known as the Plato Clock. He was fifty-six at the time, and still living alone. New York's 1902-03 city directory (in which his name appears for the first time) shows his residence as 505 West 147th Street and lists him as an inventor.

How long he had been interested in clocks no one knows; the application for his first patent on the "time indicator" — January 3, 1901 — was certainly the result of considerable thought and experimentation. But we do know that his life was dedicated to horology at least until 1904, for after his original patent was granted, he was forced to unravel unexpected complications before a workable timepiece evolved.

The basic idea Eugene Fitch had for his clock was that it be an instant time-telling device that would attract attention to advertising messages. (Although his use of two sets of sixty rotating plates showing the hours and minutes was unique, clocks and watches as early as the eighteenth century had been made with dials revealing only the number of the nearest hour and minute.)

Today, when the accent is on *Instant-This* and *Instant-That,* one would expect the Plato Clock to be

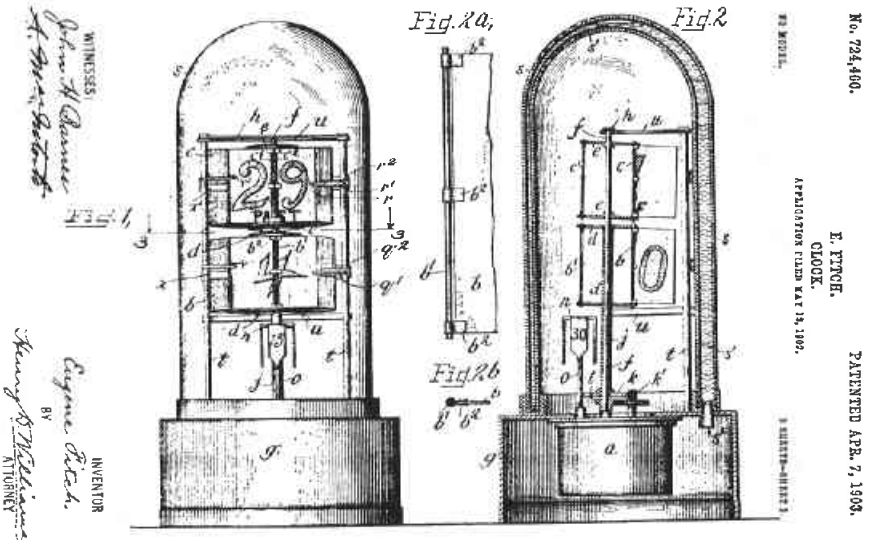


Fig. 7 Mr. Fitch patented a vertical model of his "Plato Clock" in 1903

in fashion, and the standard clocks and watches, with hour and minute hands, to seem archaic. If the minute hand of your watch is pointing to six minutes after the half-hour, for instance, and someone asks you for the time, you must make a split second's calculation before you come up with the answer of, say, either 24 minutes to 5 or 4:36. The Plato Clock was ahead of its age in its simplified time-telling ability. It gave "timetable" time (i.e., 4:36) at a glance. Eugene Fitch thought that the seconds that people would save by getting instant time from his clock could be used to absorb advertising messages.

Figure 1 (from Mr. Fitch's first patent) shows the two sets of plate-holding disks in a vertical position. For at least three good reasons the disks were later changed to a horizontal position as shown in Figure 7 (from his second patent). First, the proportions of the case seemed more attractive, less boxlike; second, both backs and fronts of the plates could be used for the numbers, and therefore they could be made larger; and third, depending upon whether he decided to put the hour or minute plates on top, the clock could be made to read either 29 past 4, 29 of 4, etc., or 4:29, 4:31, etc. Figure 7 also shows that Mr. Fitch envisioned the desirability of a third set of smaller plates near the bottom of the clock to show seconds to the nearest quarter-minute making it possible to read the time even more accurately, as 4:31:15, for instance. However, no American models are shown to have been made with this feature. Still another innovation, shown in Figure 7, which did not reappear in subsequent patents, was a double-walled glass dome cover for the clock that could be filled with plain or colored water and sealed with a stopper in its base. The purpose of this design was obviously to create the novel illusion that the clock's mechanism operated while immersed in liquid.

As can be seen in Figure 1, Eugene Fitch originally designed the clock as an advertising "gimmick." Note that all plates show "ADV" on their exposed backs. The text in the patent explains that "the adaption of a time-indicator series of plates consecutively exposed provides an advantageous and suitable display apparatus, the display matter whether simply picture or advertisements . . . thus exposing to view a new subject as each of the plates falls in chronometrical order."

The suggestion that advertisers

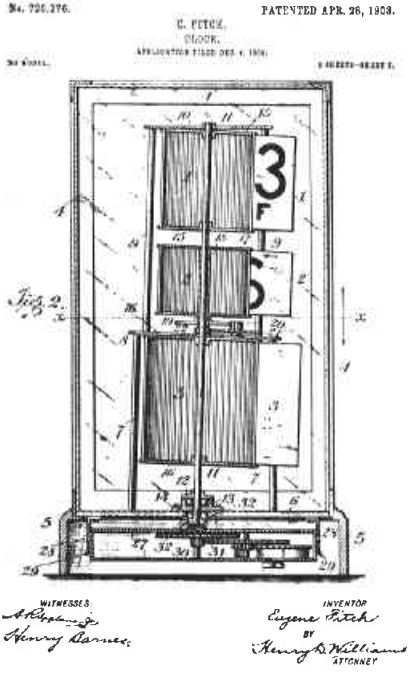


Fig. 8 The third clock model which Mr. Fitch patented became complicated: 1903

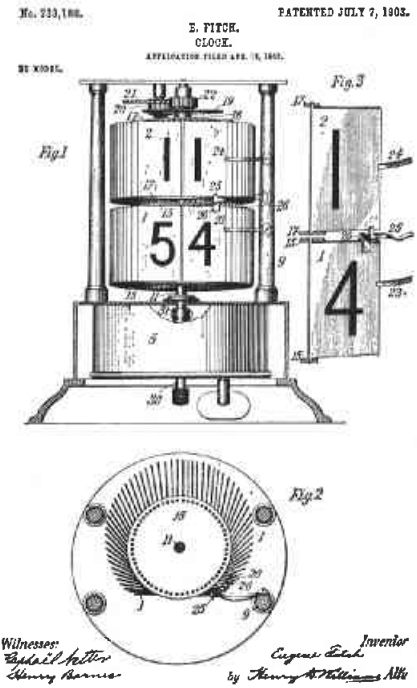


Fig. 9 Mr. Fitch's final clock patent was the prototype of the original production and of all reproductions

might find the clock a medium of display was not referred to in his second patent, and one might assume that, for a time at least, Mr. Fitch felt the usefulness of the clock was limited to home or desk. If such a thought did enter his head, it exited quickly for a major point is made of the clock's potential use in advertising in both his third and fourth patents.

Whereas Mr. Fitch was convinced that the ideal clock must have its plate numbers revolving horizontally as in Figure 7, a multiplicity of mechanical problems was presented by this arrangement, the solutions of which he found it necessary to cover in subsequent patents.

When the plate-holding disks were in the original vertical position, each plate, as it was released, dropped onto the previously released plate by the pull of gravity. But when the disks were shifted to the horizontal position, some expedient was needed to keep the released plates in a tight bundle. First, the inventor changed the angle of the vertical drive-shaft around which the plate-holding disks revolved, so that it leaned slightly backward. (This is clearly shown in Figure 8.) The tilt allowed gravity to come into play again, and now each plate had the tendency to drop onto the previous plate when released. The new angle was an improvement, but it was still not an efficient measure; a flipped plate would occasionally fail to fall presenting its edge to the front. This unpredictable waywardness of the plates became a major difficulty, and Mr. Fitch went to work designing a series of releasing levers and traps of various types as means of assuring that each pair of plates would always lie flat and be fully exposed. But the sum total of these supposedly curative measures proved to be fatal instead. The weight of the plates, spindles, levers, etc., created so much friction that the movement stopped entirely.

The inventor, still hopeful, tried again. The third patent (Figure 8) shows that he met the challenge by means of a ball bearing inserted at the point where the vertical drive shaft made contact with the movement. The plate material at this time was "thin metal," and each plate unit was made up of five pieces: the plate, the three clips that held it, and the pin—whose ends served as pivots—on which the clips were mounted. According to the patent, this arrangement "simplifies the work of assembling and the renewal" of the plates; and the purpose of the ball bearing was to "minimize strains on the clock movement which rotates the indicating plates by relieving said movement of the weight of these plates and their supports and to facilitate the attachment and removal of the clock movement."

By this time Eugene Fitch, having routed all the mechanical "bugs," must have been proud of his accomplishment—until he took a good look at his brain-child and found it wanting in another respect: it cost so much to manufacture that its marketability was *nil*. The number of individual parts in just the three sets of plates shown in Figure 8 totaled *nine hundred*!

The fourth and final patent (Figure 9) brought the clock back to production practicality. The plates were made of lightweight celluloid—in one piece—and were die-cut with "ears" which served as self-contained pivots, making pivot pins unnecessary. The reduction in total weight also made the cumbersome ball bearing unnecessary. But, most importantly of all, the fourth patent provided the solution to a problem that had been plaguing Mr. Fitch from the beginning—a device to prevent the occasional premature exposure of a succeeding *hour* plate before the sixtieth *minute* plate of the previous hour came into view. For example, during the latter minutes of an hour, the plates might show a time sequence such as 3:56, 3:57, 4:58, 4:59; 4 o'clock. This naturally unnerved him.

The remedy for this disorder was accomplished by small cams that were made an integral part of each minute plate 54 through 59. In Figure 9, the cams (Nos. 26) at the top of the plates caused a small lever (No. 25) to be raised in front of the last hour plate blocking its premature release until the lever dropped off the final cam on the fifty-ninth minute plate. The new hour plate then flipped into view at the same time the "o'clock" (or "O") appeared on the minute plates.

The clock described in the fourth patent was actually the prototype not only of the first ones manufactured about 1905, but also of all the reproductions that have been made since then.

No information is available on how Mr. Fitch attempted to market his clock. However, his patent attorney, the late Henry D. Williams of Williams, Rich & Morse, New York, supplied some interesting information in a letter to Jesse Coleman of Nashville, Tennessee, in May, 1942, of which the following is a summary:

> Mr. Williams first met Mr. Fitch about 1885 at the time he began to work with him on several patents relating to the typewriter. It was in 1900 that Mr. Fitch came to him with a model of the clock. After working with him for three years on the details of his four patents, Mr. Williams said that Mr. Conrad Hubert, president of the American Everready Company, became interested in the clock, financed its production and put it on the market. About 40,000 clocks were sold, but he understood that sale of the timepiece was handicapped by the fact that the retail trade would not recognize it as a clock and it had to be sold as a novelty.
>
> Mr. Hubert was interested in having a name for the clock and Mr. Williams proposed "Plato" (Plateo) as suggestive of the clock's time-telling plates. The general public, however, has always looked for some association between the clock and the Greek philosopher.

Although Mr. Williams' information is helpful, it leaves several questions unanswered. For instance:

Was Mr. Hubert's interest in the

Fig. 10 An original "Plato," circa 1905 (Clarence Stemmer collection)

Fig. 12 An original "Plato," circa 1905 (Clarence Stemmer collection)

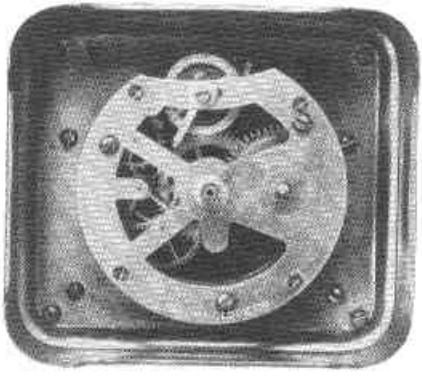


Fig. 11 Movement of Fig. 10 showing "Ansonia Clock Co." on the plate

Fig. 13 Movement of Fig. 12 showing plate with no manufacturer's name

Fig. 14 An original "Plato," circa 1905 (Charles O'Neil collection)

Fig. 16 An original "Plato," circa 1905 (Horolovar collection)

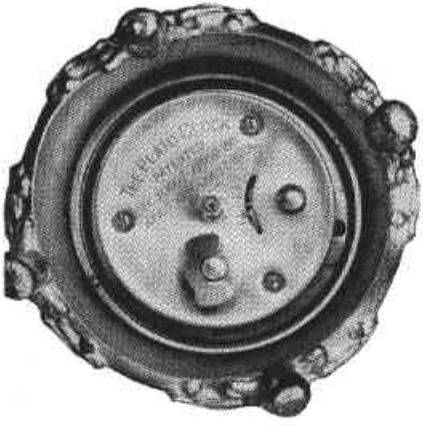


Fig. 15 Movement cover plate of Fig. 14 showing attached winding key

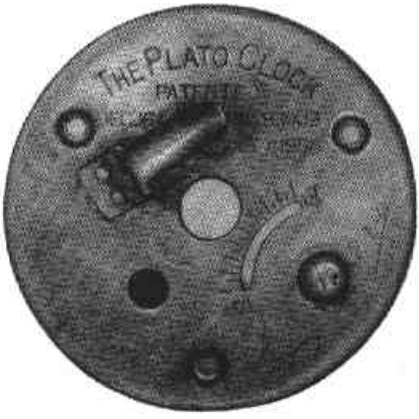


Fig. 17 Movement cover plate for models having detached key. Note special key-holding clamp

Fig. 18 French catalogue page, circa 1908, showing availability of both 30-hour and 8-day models of the "Fitch Clock" (Tom Armstrong collection)

clock strictly personal, or was its production under the sponsorship of the American Everready Company? (The American Everready Company was the first manufacturer of the well-known Everready flashlight and Everready battery and was sold to National Carbon Company in 1914.)

Was the Plato Clock Company owned by Mr. Hubert, Mr. Fitch or the American Everready Company?

Some of the original clocks have the name "Ansonia Clock Co." on the movement plate (Figure 11); others, which are otherwise identical, do not (Figure 13). Which of the two types is older?

Apparently only four basic models of the Plato Clock were made. In addition to the ones shown in Figures 10 and 12 are those in Figures 14 and 16. The latter model is the only one covered with a glass dome.

Some minor differences exist in the models shown in Figures 10 and 12:

(1) The movement cover may, or may not, have the name "The Plato Clock Co." along with the patent dates, as shown in Figures 15 and 17.

(2) The movement plate may, or may not, have the name "Ansonia Clock Co.," as shown in Figures 11 and 13.

(3) The movement-winding arbor may be square, as shown in Figure 11, or the key may be of the screw-on type as shown in Figure 13. For the models requiring a separate key, some cover plates were equipped with a small clip into which the key could be inserted for safe-keeping (Figure 17).

The reason for the difference in markings on the movement covers and plates is not apparent, but it would be fair to assume that the order of production of the movements was (1) separate key without the holding clip, (2) same, with holding clip, (3) screw-on key.

One variation in the case in Figure 14 is the addition of a five-pointed star with the figure 60 in its center, cast in the front, lower section of the case.

All of the clocks that were produced in the United States were made over a period of only two years, probably 1904 to 1906. Patents were not applied for in foreign countries, but one license to manufacture the clocks was granted to a French firm whose name is not known. Figure 18 is a page from a catalogue describing the "Fitch-Clock" and shows that both 30-hour and 8-day models were available. Figures 19 and 20 show the actual French production of case and movement for the 30-hour model, both of which differ from the Ansonia production in almost every detail. No information appears to be available about the extent of this French clock production, but it is doubtful that many were made.

At least one French and three German manufacturers made copies of the Plato Clock prior to World War I. Since the Plato Clock had no patent protection outside the United States, copying it was perfectly legal. Figures 21 and 22 show a German 8-day model manufactured by Lenzkircher

Fig. 19 French "Fitch Clock" 30-hour model (Horolovar collection)

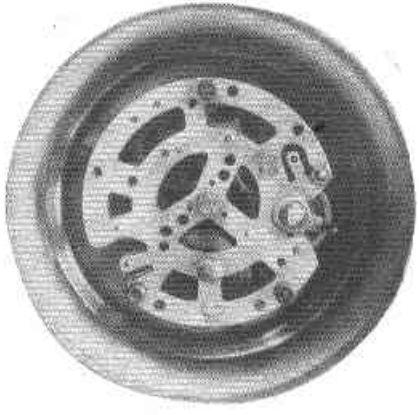


Fig. 20 Movement plate of French 30-hour model

Fig. 21 German 8-day model manufactured by Lenzkircher Uhren Fabrik, circa 1912 (Norman Weeks collection)

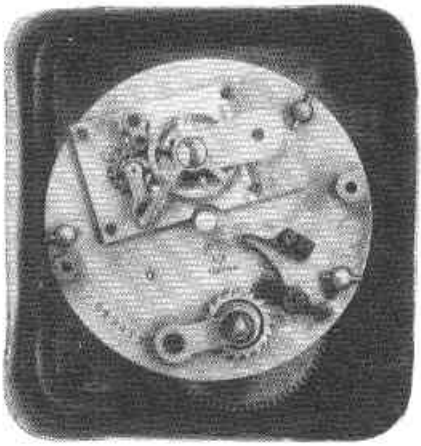


Fig. 22 Movement of the Lenzkircher 8-day model

Uhren Fabrik. Figures 23 and 24 show one of several models made by Gebr. Junghans.

The clocks were also made by the Hamburg-American Clock Company, a large pre-World War I manufacturer whose trademark (crossed arrows) usually appears on the dials of the clocks they manufactured. A French copy, in the typical French beveled glass and brass case, is still another version known to exist. This clock has three sets of plates (similar to the design shown in Eugene Fitch's second patent—Figure 7), one set for the hours, another for the minutes, and a third set of four for the seconds, 15, 30, 45 and 60.

In all the pre-World War I productions, the plate material used was celluloid. As happened to most of the original Plato Clocks, the plates became warped, making it difficult, and in most cases impossible, to effect a functional repair. (A warning to repairmen!)

About eight years ago, a young German named Josef Mergenhagen became interested in the clock while he was associated with Uhrenfabrik Laufamholz Kohler Company. His design of the time-telling plates is almost identical with that of the original Plato, but he improved the movement from 30-hour, non-jewel, to 8-day, 7 jewel. His cases are modern in design and available in a variety of colors. Several hundred of the

Fig. 23 German 30-hour model manufactured by Gebr. Junghans, circa 1912 (Horolovar collection)

Fig. 24 Movement of Junghans 30-hour model

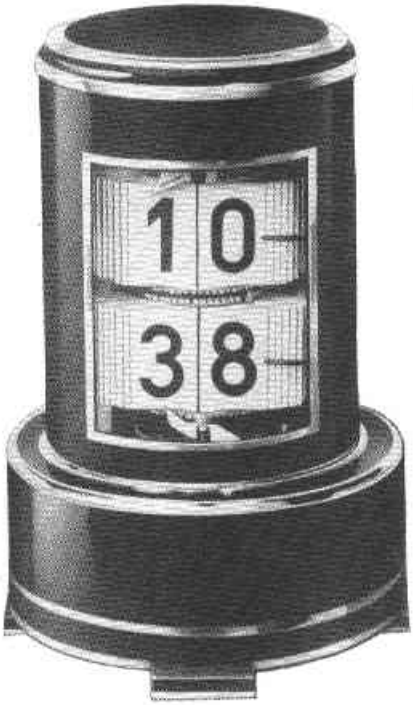


Fig. 25 Modern "Plato" reproduction manufactured by Jos. Mergenhagen, West Germany

clocks were made and distributed throughout the world (a few stores in the United States bought some) before Mr. Mergenhagen learned that his plastic plate material was suffering the fate of all the clock's predecessors: it warped, thereby preventing the mechanism from functioning properly. These clocks, incidentally, can usually be identified by the marking "Kohler" or "Abessi" under the base.

After two or three years of search, Mr. Mergenhagen found a superior plastic made by a large German industrial manufacturer. The material is unaffected by temperature or humidity changes and will remain permanently flat. Models now in production with the new plastic carry the trademark "J. Mergenhagen West Germany" under the base.

Now, more than sixty years after Eugene L. Fitch's invention, a version of his clock has finally been produced that is perfect in every detail. At the

Fig. 26 Horizontal model manufactured by Jos. Mergenhagen which follows the first Fitch clock patent design. (See Fig. 1)

present time, Mr. Mergenhagen has the sole rights to the clock, the Kohler Company having gone out of business. His factory is in Dachsbach, a small town just northeast of Nuremberg. Only two basic models are being made: a vertical model (Figure 25) which follows the lines of the original Plato Clock and is distributed exclusively in the United States by The Horolovar Company; and a horizontal model (Figure 26) similar to the one illustrated in the original Fitch patent, that is made to order for advertising use.

Except for the fact that the clock in current production has an 8-day movement and a modern case design, the vertical model appears to be almost exactly the same as the one made in 1905 by the Ansonia Clock Company. However, only the time-telling plates in the new clocks are interchangeable with the old.

*

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