

J. A. MILLER.

Improvement in Automatic Meridian Time-Adjusters.

No. 129,244.

Patented July 16, 1872.

Fig. 1.

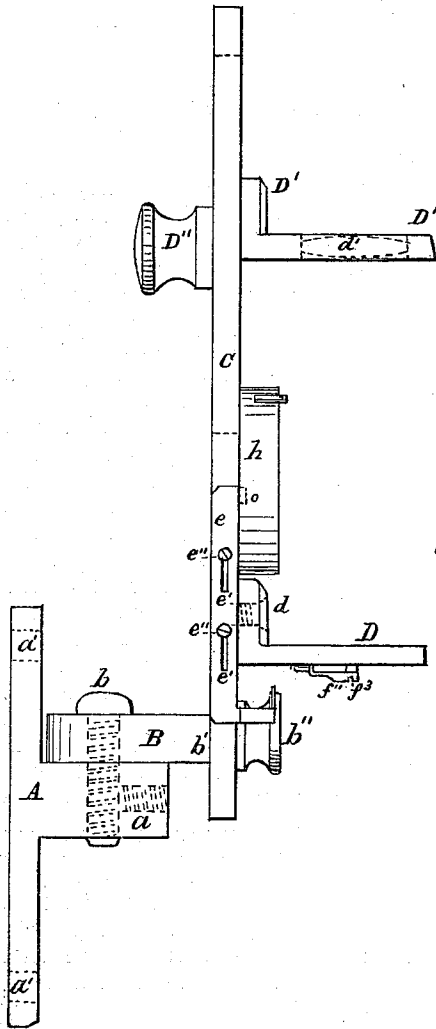


Fig. 2.

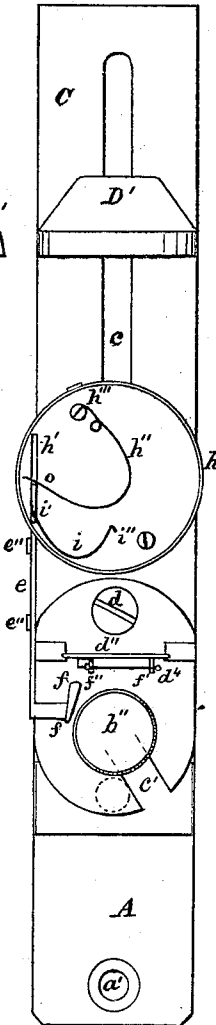


Fig. 3.

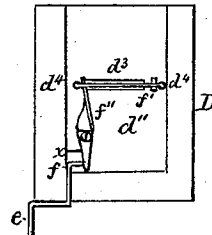
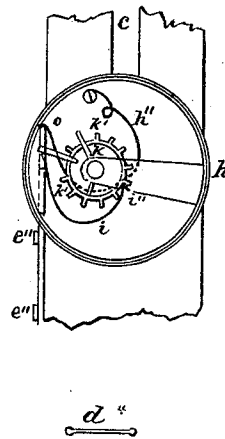


Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOHN A. MILLER, OF PADUCAH, KENTUCKY.

## IMPROVEMENT IN AUTOMATIC MERIDIAN TIME-ADJUSTERS.

Specification forming part of Letters Patent No. 129,244, dated July 16, 1872.

I, JOHN A. MILLER, of Paducah, in the county of McCracken, in the State of Kentucky, have invented certain Improvements in Time-Regulators, of which the following is a specification:

It is known to most persons that it is very difficult in most places to know or determine the exact or true time, or when the sun is on the meridian; and watch-makers or repairers, especially, want to keep the true time in order to adjust, regulate, and set the watches or time-keepers of their customers, and the object of this invention is to introduce into use a cheap and reliable device that will in any clear day determine the true time, when the sun is on the meridian; and it consists in the construction and arrangement of the parts that compose the device, as will be more fully hereinafter described.

In the drawing, Figure 1 is an upright side view; Fig. 2 a face or front view; Figs 3 and 4 details or parts of the device.

A is a strong metal bracket having the horizontally-projecting arm *a*, and held to any fixed body, such as the corner of a house or post, by the transverse screws *a'*. B is an adjustable rotating arm resting upon arm *a* of bracket A by the holding-screw *b* that screws into arm *a*, so that arm B can be adjusted to any angle upon arm *a*. The outer or face end *b'* of arm B is straight and true, with a hole-screw tapped into the center of the face to receive the thumb-screw *b''*. C is a metal plate of the proper length, say eight to ten inches in length, and a longitudinal slot, *c*, centrally therein; also an inclined slot, *c'* at the lower end. D is a horizontally-projecting bracket with a right-angled foot, by which it is made fast to plate C by the holding-screw *d*. D' is an adjustable sliding bracket so constructed as to be adjusted upon plate C at any desired point by the thumb-screw D''. *d'* is a glass lens secured in the projecting bracket D'. *d''* is a thin plate of metal fast in bracket D, and has a transverse slot, *d<sup>3</sup>*, centrally placed therein, the center of which is the same distance from the face of plate C as the center of lens *d'*. *d<sup>4</sup>* represents a thread, horse-hair, or pin of gum-shellac, collodion, or other small fibrous or other substance that will burn or melt and separate quickly under heat. *e* is a sliding bar secured to the edge of plate C by

the screws *e''* in slots *e'*, as seen in Fig. 1, so that it can freely slide upon the plate C, and yet be held securely thereon, and at its lower end is bent, to form an arm at right angles, and so as to come forward of the face of plate C and then bend outward and upward, and form the wedge-shaped part *f*, which has its widest part forward or at the end. *f'* is a stud on the under side of plate *d''*, and situated at one end of slot *d<sup>3</sup>* in plate *d''*, in the end of which is a minute slot. *f''* is a pivoted and bent lever fast to, and so as to freely oscillate on, the under side of plate *d''*—has a minute slot *f<sup>3</sup>* in its lower edge at the upper end, to coincide with the slot in the projecting stud *f'*. *h* is a circular box to receive the works of a good watch—is made fast to the face of plate C, and projecting at one side so that slot *h'* in it will receive stud *o*, that projects from sliding bar *e*, and slide within slot *h'*. *h''* is a bent spring made fast to box *h* at *h'''*, and bent around, as seen in Figs. 2 and 4, to be fast to stud *o* on bar *e*, and force the bar in the position seen in Fig. 1. *i* is a wire spring secured to stud *o* at *i'*, and bent in the form seen in Fig. 2, with the hook end *i''*. *k* is the balance-wheel of a watch, and is connected in the usual way to the works of a watch with the projecting pins *k'* on its periphery. In ascertaining the correct time that the sun is on the meridian, the bracket A is secured firmly to the corner of a house or post. The face *b'* of rotating arm B is secured to be exactly north and south in horizontal direction. The upright plate C is then secured in position with relation to the position of the sun at noon, so that the rays of the sun will pass directly through and from the lens to the little thread-pin, or what is placed under the narrow slot through, which the concentrated heat is thrown by the lens upon the thread or pin. The operating parts of a good watch or time-piece are secured in a box or other proper position, with the balance-wheel exposed so that anything pressing upon its outer rim will stop the movements of the watch and prevent motion. The watch being wound up, and the hands set at 12 o'clock, is now placed and secured in the box *h*; the sliding bar *e* is now forced upward until the wedge-end *f* is forced into hole *x* in plate *d''*, when the lower end of the pivoted and bent lever *f''* is forced over

against the side of  $f$ , and the pin, thread, or other substance  $d^4$  is placed in the minute slots in lever  $f''$  and stud  $f'$ , which holds the spring  $i$ , with its hook-end  $i''$ , against the balance-wheel of the watch and stops its movement, and it will remain so until the sun has come to the position to pass its rays through the lens  $d'$  and pass through the slot  $d^3$  of plate  $d''$ , and in contact with the thread or pin  $d^4$ , and instantly the thread is burned or the pin is melted, when the pivoted lever  $f''$  will give way and the spring  $h''$  will force the sliding arm  $e$ , with its wedge-shaped part  $f$ , back to its original position, freeing the balance-wheel from the stop, when the watch commences its movement and records the time from that instant.

Some watches are so constructed that in applying a stop to the balance-wheel the movement is stopped when on what is called the dead-point. When that is the case, unless some action is taken to start the balance-wheel forward, the watch will not move, and consequently not record time; and in order to avoid such result the spring  $i$  that bears upon the balance-wheel is bent around to such point of direction as that in releasing the pressure of the spring upon the balance-wheel it will cause the wheel to revolve and throw it off the dead-point, and thereby insure the motion of the watch from the instant that the spring is off of the wheel. The lens  $d'$  can be adjusted to the proper focal distance from the

thread or pin  $d^4$  by sliding the bracket  $D'$  to the proper point on plate  $C$ , when it is clamped there by holding-screw  $D''$ .

By this method the apparent or solar time is correctly got, and by adding to or subtracting from, as the case may be, the difference between the true time and the sun or apparent time, the true time will be ascertained, as astronomical tables of calculation will give this difference, and can always be obtained.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The sliding bar  $e$  having stud  $o$ , and spring  $i$  with hook  $i''$ , in combination with the balance-wheel  $k$  of a watch, in the manner and for the purpose substantially as described.

2. The adjustable lens  $d'$ , in combination with the pin or thread  $d^4$ , plate  $d''$  with slot  $d^3$ , pivoted lever  $f''$ , sliding lever  $e$ , springs  $h''$  and  $i$ , and the balance-wheel of a watch, substantially in the manner and for the purpose described.

3. The fixed bracket  $A$ , swinging arm  $B$ , plate  $C$ , fixed bracket  $D$ , and adjustable lens  $d'$ , in combination with plate  $d''$  having slot  $d^3$ , pin  $d^4$ , lever  $e$ , and springs  $h''$  and  $i$ , with the balance-wheel of a watch, substantially in the manner and for the purpose specified.

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Witnesses:

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