

D. J. MOZART.
Self-Winding Watches.

No. 141,373.

Patented July 29, 1873.

Fig. 1.

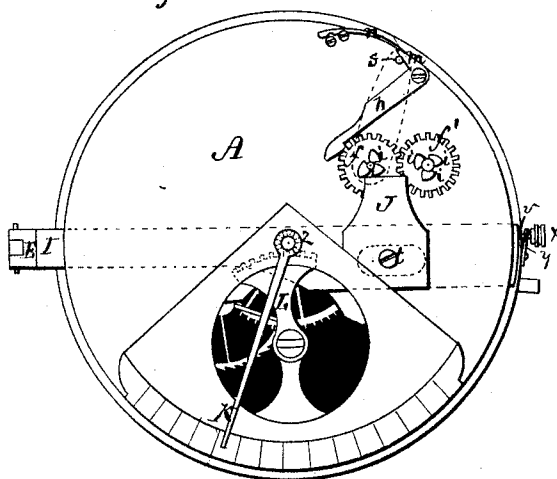


Fig. 2.

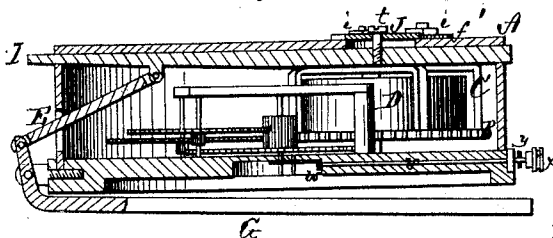


Fig. 3.

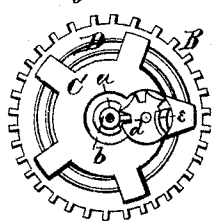


Fig. 4.

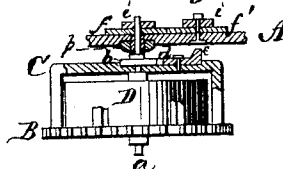
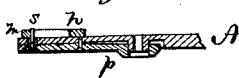


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

DON J. MOZART, OF ANN ARBOR, MICHIGAN.

IMPROVEMENT IN SELF-WINDING WATCHES.

Specification forming part of Letters Patent No. **141,373**, dated July 29, 1873; application filed May 14, 1873.

To all whom it may concern:

Be it known that I, DON J. MOZART, of Ann Arbor, in the county of Washtenaw and in the State of Michigan, have invented certain new and useful Improvements in Watches; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of an automatic winding device for watches, as will be hereinafter more fully set forth. It also consists in particular devices for setting the hands.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a view of the inner casing. Fig. 2 is a longitudinal section of the same. Figs. 3, 4, and 5 are detached views of certain parts thereof.

A represents the cap or interior casing, in which the works of a watch are inclosed. B represents the main driving-wheel of the watch, with a frame, C, and central shaft *a*, said shaft and wheel being connected by the usual pawl-and-ratchet movement. D represents the mainspring of the watch, placed within the frame C, and its inner end attached to the shaft *a*, while the other end is attached to the wheel B or frame C, in the usual manner. On the shaft *a*, in a recess in the upper surface of the frame C, is attached a wheel, *b*, having a single tooth, as shown in Fig. 3, and this single-toothed wheel gears with another wheel, *d*, pivoted also in a recess on the frame C, and provided with three or more cogs, and having also a beveled flange or projection, *e*, on its upper surface. The shaft *a* extends through the casing A, and has upon its outer end a cog-wheel, *f*, which gears with a similar cog-wheel, *f'*, pivoted on the casing. Both of these wheels are provided with three cams or teeth, *i i*, on their upper surface, as shown in Fig. 1. *h* represents a pawl engaging with the cog-wheel *f*, and provided at its pivot end with a projecting arm, *m*, upon which a spring, *n*, bears to hold the pawl against the cog-

wheel *f*. On the under side of the casing A is a rocking plate, *p*, through the inner end of which the shaft *a* passes, and the outer end is provided with a pin, *s*, passing through a slot in the casing directly against the inner side of the arm *m* on the pawl *h*. G represents a part of the outer hinged casing of the watch, which, by a hinged bar, E, is connected with a sliding bar, I, moving in slots immediately beneath or on the inside of the interior casing A; and to this sliding bar is connected a tooth or projection, J, by means of a screw or stud, *t*, said tooth or projection being located on the outer side of the interior casing A, and the screw passing through a slot in said casing. The tooth or arm J is of such size as to fit over the cog-wheels *f f'*, and between the cams *i i* on the same. As the outer casing G is opened to see the time, it moves the sliding bar I so that the arm J will operate against one of the cams *i* on the cog-wheel *f'*, and turn the same one-third of a revolution. This wheel being of the same size as and gearing with the wheel *f*, this latter wheel is also revolved one-third of a revolution, and as this wheel *f* is secured on the shaft *a*, and the inner end of the spring D attached to said shaft, the spring will be wound up just that much, and the pawl *h*, engaging with the wheel *f*, will prevent the same from turning back. Upon closing the outer case the slide I is moved in the opposite direction, causing the arm J to operate on one of the cams of the wheel *f*, turning the same again one-third of a revolution, and winding the spring up that much more. These devices are so arranged that opening and closing the outer case five or six times will wind up the spring completely; and to prevent its being wound too tight and breaking, I employ the wheels *b* and *d* and rocking bar *p*. For each revolution of the shaft *a*, the single-toothed wheel *b* will turn the wheel *d* the distance of one tooth or cog, so that when the spring has been wound up sufficiently tight, the flange *e* on the wheel *d* will come against and force up the inner end of the rocking bar or plate *p*. This causes the pin *s* at the outer end of this bar or plate to force the pawl *h* away from the cog-wheel *f*; and when the pawl is away from the said wheel, the outer case may be opened and closed as often as desired without

interfering with the spring, because the wheels *f* and *f'* will then return to their places as soon as they are turned by the arm J.

As it is not probable that any watch, when in use, will be opened less than five or six times during twenty-four hours, there is no other manipulation of any kind required to keep the watch wound up.

Through or under the dial-plate of the watch is passed a shaft, *v*, extending from the circumference to near the center, and carrying on its inner end a pinion, *w*, to gear with a wheel connected with the hands of the watch in such a way that by turning the shaft *v* the hands may be set. The shaft *v* is, at its outer end, provided with a knob, *x*, and a spring, *y*, is suitably arranged to throw the shaft outward far enough to disengage the pinion *w* from its cog-wheel. When it is necessary to set the hands, the shaft *v* is pressed inward, and turned by its knob *x*. K represents the regulating-hand, on the pivot or shaft of which is attached a pinion, *z*, on the under side of the interior casing A. This pinion gears with a cogged segment, L, to which the hair-spring of the watch is to be attached. By this means the watch may be regulated to a nicety, as a comparatively large movement of

the hand K effects only a small movement of the regulating-segment L.

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

1. The combination of the hinged part G of the outer casing, the connecting-bar E, slide I, with tooth or arm J, and the wheels *f f'*, having the cams *i i*, substantially as and for the purposes herein set forth.

2. The combination, with the shaft *a* and mainspring D, of the cog-wheels *f f'*, with cams *i i*, and the spring-pawl *h*, constructed and arranged substantially as and for the purposes herein set forth.

3. The combination of the single-toothed wheel *b*, wheel *d*, with flange *e*, and the rocking bar *p*, with pin *s*, constructed and arranged substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of May, 1873.

DON J. MOZART.

Witnesses:

C. L. EVERT,
A. N. MAER.