

(No Model.)

J. E. FULTZ.

STEM WINDING AND SETTING WATCH.

No. 484,359.

Patented Oct. 11, 1892.

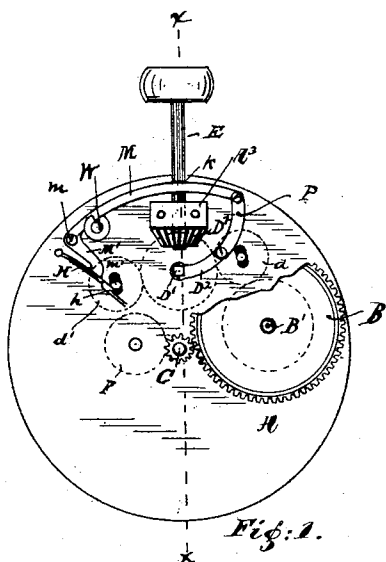


Fig. 1.

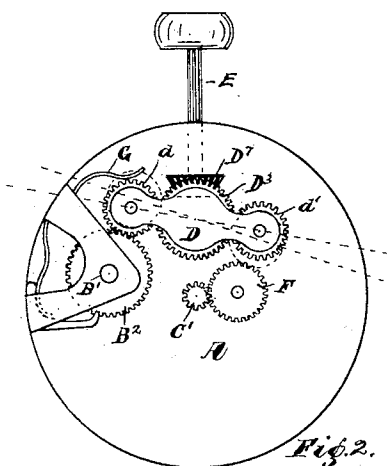


Fig. 2.

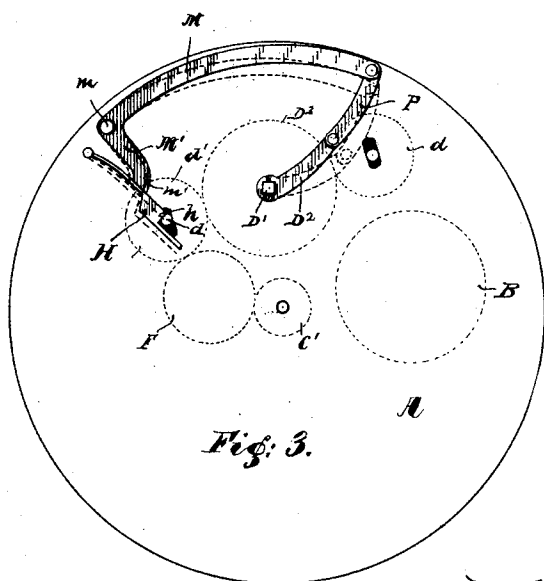


Fig. 3.

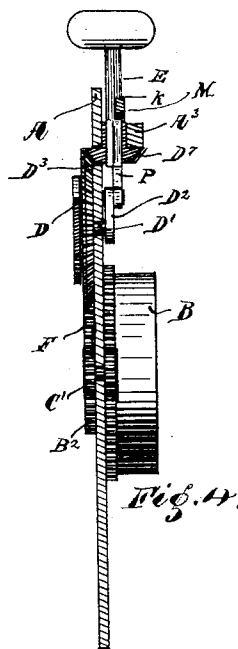


Fig. 4.

Witnesses:

W. L. Bushong.

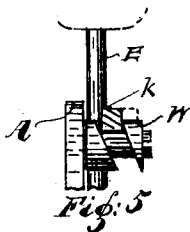


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN E. FULTZ, OF COATESVILLE, INDIANA.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 484,359, dated October 11, 1892.

Application filed February 20, 1892. Serial No. 422,272. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. FULTZ, a citizen of the United States, residing at Coatesville, in the county of Hendricks and State of Indiana, have invented certain new and useful Improvements in Stem Winding and Setting Watches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pendant winding and setting watches, the object of the invention being to simplify and strengthen the mechanism in order to produce a watch that will be cheaper to manufacture, will be more durable and less liable to get out of order, and that can be repaired with greater ease and less expense.

The object, also, is to provide a stem winding and setting mechanism that can be applied to any watch, especially to watches of American manufacture.

The invention consists, primarily, in an oscillating plate carrying a toothed wheel journaled on the same arbor to which the oscillating plate is pivoted and meshing with a bevel gear-wheel on the end of the pendant-stem and with wheels to each side on the ends of the oscillating plate, one of the said wheels at times meshing into and driving a toothed wheel fixed upon the winding-arbor to wind up the mainspring, and the other at times meshing with a toothed wheel connected with the hands-arbor.

The invention also consists in the construction and arrangement of levers to shift the oscillating plate by pulling out the fluted knob on the end of the pendant.

The invention also consists in certain details of construction, such as will be fully described, and pointed out in the claims.

The objects of this invention are accomplished by the mechanism illustrated by the accompanying drawings, in which—

Figure 1 is a detail showing inside view of the plate of a watch-movement having my improvement. The barrel for the mainspring is shown broken away to better illustrate the construction, and only such parts of the mechanism of the "works" necessary to a good understanding of the construction and

application of my improvement are shown. The positions of the oscillating bar and wheels on the opposite side of the plate are shown in dotted lines. Fig. 2 is a view of the opposite side of the plate from that shown in Fig. 1. The position shown in Figs. 1 and 2 is that assumed in winding up the mainspring, the dotted lines in Fig. 2 indicating the position of the wheels and oscillating plate for setting the hands. Fig. 3 is a detail view of the levers for shifting the oscillating plate, the full lines showing the adjustment for setting the hands and the dotted lines that assumed for winding the mainspring. The size of the levers is exaggerated to better illustrate the construction. Fig. 4 is a vertical cross-section through the line *xx* of Fig. 1; and Fig. 5 is a detail showing the construction of the double-cam lock for securing the pendant-arbor by means of the intersecting-lever, upon which the cam operates.

Similar letters refer to like parts throughout the several views.

A is the plate of the watch-works, to which the various parts of my improvement are attached. It is of usual construction.

B is the barrel, within which the mainspring of the watch is inclosed. It is geared to the operative parts of the watch in the usual manner.

B' is the arbor of the barrel and is projected through the plate A and is provided with a toothed wheel B² on the opposite side of the plate.

C is the arbor to which the index-hands are attached, and C' a pinion on the same side of the plate A as the wheel B² and turning with the arbor C, but not meshing with the wheel B².

D is the oscillating yoke on the same side of the plate A as the wheels B² and C'. Its arbor D' is integral therewith and is projected through the plate A a suitable distance to give engagement to the lever D², which lever is provided with a square opening or hole to receive the correspondingly-shaped shank of the arbor, which is inserted in the said opening so the movement of the lever D² will move the oscillating plate in like manner. Loosely journaled upon the arbor D' between the plate or yoke D and the plate A is a toothed wheel D³. The inner half of the teeth on the wheel D³ are beveled to mesh with the cogs

on the bevel-wheel D^7 on the lower end of the pendant-bar E, and the remaining portion of the teeth are straight to mesh with the teeth of the cogged wheels d and d' . These wheels
 5 d and d' are arbored to the outer ends, respectively, of the oscillating plate D, and the inner ends of the arbors are projected through suitable openings made for that purpose in the plate A, which openings serve as guides
 10 to prevent the displacement of the arbor. The wheels d and d' are in constant engagement with the wheel D^3 and are so proportioned and arranged that in certain positions the wheel d will be in engagement with the
 15 toothed wheel on the barrel and in certain other positions the wheel d' will be in engagement with toothed wheel F. The toothed wheel F is in constant engagement with the wheel C' on the hands-arbor. A suitable
 20 spring G presses the wheel d into engagement with the wheel B^3 of the barrel unless otherwise restrained. When it is desired to overcome the action of the spring G, as in setting the hands, it will be done by means of a
 25 spring-catch H, which will engage the end of the arbor of the wheel d' , which is projected through the plate A and contacts with the spring H. A shoulder h is formed on the spring H, and the end of the arbor is squared
 30 to fit into the shoulder, and both are so adjusted that when the wheel d' is thrown down into engagement with the toothed wheel F the squared shank of the arbor will drop into the notch or shoulder on the spring
 35 and will be securely held until the spring is forced back sufficiently to release the arbor when the latter will return to the position acquired by the action of the spring G on the wheel d . The lower end of the pendant-post
 40 E is square in cross-section and is inserted into the elongated hub of the bevel-wheel D^7 , and by rotating the pendant-post E the wheel D^7 will be actuated. The wheel D^7 is journaled to the plate by means of the boxing A^3 .
 45 The operation of the oscillating plate D is controlled from the pendant-rod E in the following manner: A notch k is formed in the rod, and a lever M, pivoted at m to the frame A, is placed in this notch, so that a vertical or

longitudinal movement of the rod will oscillate the lever. Attached near the pivotal point to the lever is an arm M' , having a foot m' , which bears against the spring H and when the lever is lowered presses the spring back out of contact with the projected end of the arbor d , thereby releasing the arbor. The
 55 opposite end of the lever M is pivotally secured to a link P, which in turn is pivotally secured to the end of the lever D^2 on the arbor D' , so that the raising or lowering of the
 60 lever M will oscillate the yoke or plate D, so that the adjustment for winding or for setting the watch is brought wholly within the control of the pendant-stem.

The operation of my improved mechanism will be apparent without further description.

W is a double cam whose cam-faces contact at times with the lever M and act like a screw-thread to shift the lever into and out of the notch in the pendant-rod. This is for
 70 convenience in removing or inserting the pendant-rod.

I claim—

1. The combination, with the lever M, pivotally secured to the plate of the works and having an arm M' for the purposes described, of the pendant-rod E, notched to engage the lever, link P, lever D^2 , and attached plate D, carrying the wheels D^3 , d , and d' , the spring G, and the spring H, with its shoulder h , and the squared arbor d , all for the purpose of
 80 producing a mechanism that can be changed automatically from a stem-winding to a stem-setting device and the reverse, subject to the control of the pendant-rod.

2. In combination with the oscillating plate D and its wheels D^3 , d , and d' , arranged with relation to the hands-arbor and the winding-arbor, and the lever D^2 , the lever M, link P, and the pendant-rod K, arranged and operating as shown and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN E. FULTZ.

Witnesses:

W. N. LAKIN,
 JOHN S. ROBERTS.