O. DOMON

Stem-Winding and Setting Device for Watches.

No. 200,380. Patented Feb. 19, 1878.

Fig. I.

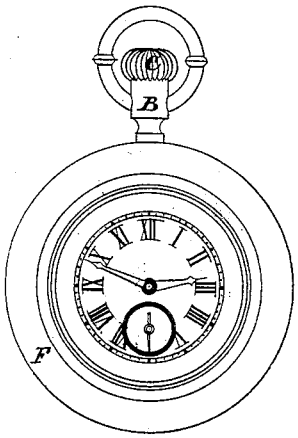


Fig. II.

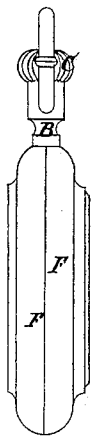


Fig. III.

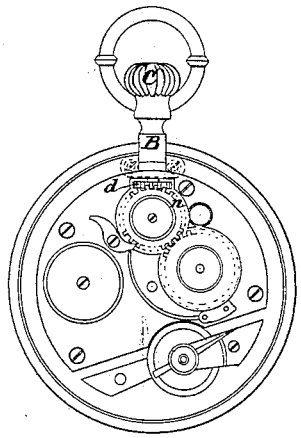


Fig. IV.

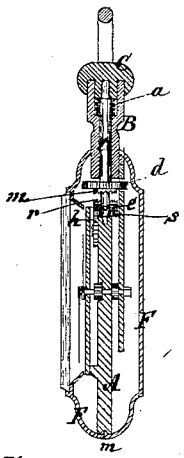
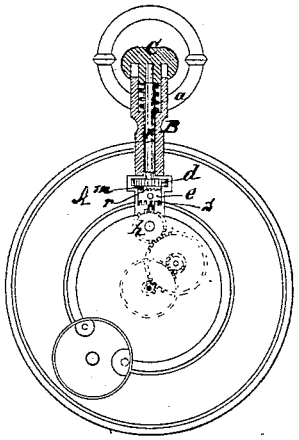


Fig. V.



Witnesses.

John F. Allen

Wm. Ehret.

Inventor:

O. Domon

per Henry E. Roeder

Attorney.

UNITED STATES PATENT OFFICE.

OVIDE DOMON, OF BIENNE, SWITZERLAND.

IMPROVEMENT IN STEM WINDING AND SETTING DEVICES FOR WATCHES.

Specification forming part of Letters Patent No. **200,380**, dated February 19, 1878; application filed December 13, 1876.

To all whom it may concern:

Be it known that I, OVIDE DOMON, of Bienne, in the Republic of Switzerland, have invented certain new and useful Improvements in Watches, of which the following is a specification:

The invention subject-matter of this patent relates particularly to the watch-winding and hand-setting mechanism, and has for its object the performance of these operations—namely, the winding and hand-setting—by means of the crown-piece in the pendant or stem of the watch, and without the use of any auxiliary or accessory devices, by which the gear of the minute-hand and the gear of the winding mechanism are engaged with and disengaged from the gear directly operated by the crown-piece.

My said invention consists in the combination, with a watch-plate and a stem or pendant directly attached thereto, of a central and longitudinally-movable spindle rigidly connected with the crown-piece, and provided with a Breguet click and suitable gear-wheel, arranged in relation to the watch-winding gear and the hand-setting gear, substantially as hereinafter described, and of a helical spring located in a chamber in the stem surrounding said spindle, and acting against the bottom of said chamber and the under side of said crown-piece, as and for the purposes hereinafter shown and described.

As before stated, the watch is provided with a Breguet click, and the winding of the watch-movement and the setting of the hands are each affected independently of the other. The engaging and disengaging with the respective gears are effected by means of the crown-piece, which, being rigidly connected with a spindle carrying a Breguet click, is, in its normal condition, engaged or connected with the winding mechanism, while, when depressed, it is disengaged from the winding mechanism to engage with the hand-setting mechanism. A helical wire spring located in the chamber of the stem throws the crown-piece, when released from pressure, together with its spindle, out of gear with the hand-setting mechanism, to engage it again automatically with the winding mechanism. By this arrangement it will be seen that the watch can be finished entirely without a case and without a rim, and therefore can be produced at a greatly-reduced cost, inasmuch as this most difficult and tedious operation is entirely dispensed with; and also obviates the necessity of using any extraneous or projecting pieces, such as slides, knobs, &c., which are generally used in connection with stem-winders, in order to shift connection of the stem-gear from the winding to the hand-setting mechanism, and vice versa.

In the watch shown in the drawings the stem is shown directly attached to the watch-plate by means of a suitable metal strap, by screws; but the stem may be otherwise secured, according to the judgment of the manufacturer.

In the accompanying drawings I have shown a watch constructed in accordance with my said invention, Figures 1 and 2 representing exterior views of the watch face and side. Fig. 3 shows the same with the back plate removed. Fig. 4 is a transverse view of the same with a section of the stem. Fig. 5 represents the watch seen from the side of the minute-wheel, with a section of the stem, showing the Breguet click disengaged from the hand-setting mechanism.

In said drawings, the plate is shown at A, against or upon which is mounted the watch mechanism, which it is unnecessary here to particularly describe, except so far as to indicate by reference to the figures the gear-wheel and click.

In the head of the plate, by means of screws, is secured the stem B, through the center of which passes the spindle *t*, which is connected at its upper end with the crown-piece C, and its lower end laterally fits in a journal-bearing, yet so as to admit of a longitudinal movement therein.

The stem B is provided with a chamber, within which a helical wire spring, *a*, surrounding the spindle, is located. This spring bears on the one end against the bottom of the chamber in the stem, and on the other end against the lower side of the crown-piece. The latter is provided on its under side with an annular recess, which allows of its being depressed to slide a given distance upon the stem.

The spindle *t* of the crown-piece passes, at its lower end, through the center of the helicoidal wheel *d*, which is loose upon its axis, and is arranged to engage with the spring-barrel. This wheel is rigid with the toothed circle of the Breguet click, whose second part *e* is fast upon the spindle at its lower extremity.

The lower portion of the Breguet click is indented to gear with the minute-hand wheels. The tendency of the spring *a* is to throw up the spindle, and with it the Breguet click, the upper part of which engages with the corresponding portion projecting from and making body with the helicoidal wheel, and in that position it is always ready to act upon the barrel-gear for the purpose of winding the watch. On pressing upon the crown-piece the Breguet click engages with the minute-hand gear.

Having thus described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

The combination, with a watch-plate and a stem or pendant directly attached thereto, of a central and longitudinally-movable spindle rigidly connected with the crown-piece, and provided with a Breguet click and suitable gear-wheel, arranged in relation to the watch-winding gear and the hand-setting gear, substantially as herein described, and of a helical spring located in a chamber in the stem surrounding said spindle, and acting against the bottom of said chamber and the under side of said crown-piece, as and for the purposes herein shown and described.

In witness whereof I have hereunto set my hand this 8th day November, 1876.

DOMON.

Witnesses:

RUDOLF ASCHMANN,

O. B. DUNCHERT.