O. HOYT.

Stem Winding and Setting Watch.

No. 206,674. Patented Aug. 6, 1878.

Fig. 1.

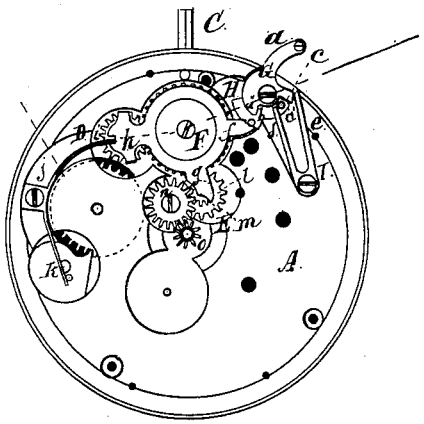


Fig. 2.

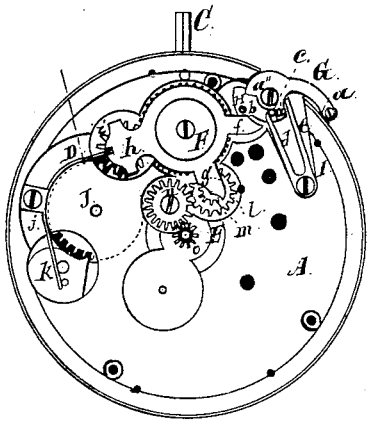


Fig. 3.

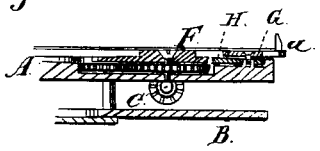
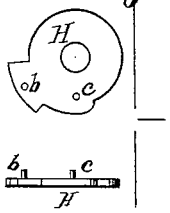


Fig. 5.



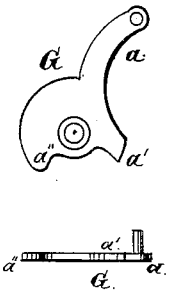


Fig. 4.

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UNITED STATES PATENT OFFICE.

OTIS HOYT, OF SPRINGFIELD, ILLINOIS, ASSIGNOR TO ILLINOIS SPRINGFIELD WATCH COMPANY, OF SAME PLACE.

IMPROVEMENT IN STEM WINDING AND SETTING WATCHES.

Specification forming part of Letters Patent No. **206,674**, dated August 6, 1878; application filed February 7, 1878.

To all whom it may concern:

Be it known that I, OTIS HOYT, of Springfield, Sangamon county, State of Illinois, have invented a new and useful Improvement in Stem Winding and Setting Watches, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is a top or plan view, showing the devices in position for setting the hands; Fig. 2, a similar view, showing the devices in position for winding; Fig. 3, a section on line *x x* of Fig. 2; Figs. 4 and 5, details of the lever and lever-plate for insuring the engagement of the train of gears.

All the figures are enlarged.

This invention relates to that class of watches known as "stem-winders," and to that particular class of such watches in which the watch is wound or the hands set by turning the stem or pendant, the wheels for winding and setting being supported on an oscillating plate, and a lever being employed to throw the wheels of the oscillating plate into engagement with the train of gear for winding or setting the watch, as desired.

An objection to this class of watches arises from the fact that the crowns of the wheels will sometimes engage with each other in such a manner that they prevent the stem from being turned, and lock it, so that it is inoperative.

To remedy this defect is the object of this invention; and its nature consists in mounting a lever having a projection upon a plate, which plate is provided with two pins, one of which engages with the oscillating plate and the other with the end of one of the spring-arms of a fork, the other spring-arm engaging with the lever-projection, so that in case the crowns of the wheels become locked a slight movement of the stem will be sufficient to cause the spring-arms of the fork to turn the plate so as to bring the wheels into proper gear.

In the drawings, A represents the upper plate, and B the lower plate, of a watch; C, the winding stem or key; D, the mechanism for winding the watch; E, the train of gear for setting the hands; F, the oscillating plate carrying the engaging-gear; G, the lever; H, the lever-plate; I, the fork; J, the mainspring-barrel; *a*, the arm of the lever; *a' a''*, the projections; *b c*, the pins on the plate H; *d e*, the arms of the fork I; *f*, the arm or projection for moving the plate F; *g h*, the arms on the plate F, supporting the gear-wheels which engage with the winding and setting devices; *i*, the winding-wheel; *j k*, the spring and ratchet; *l m n o*, the train of gear for setting the watch.

The plates A B may be of any of the forms used in this class of watches, connected together by pillar-posts, the ordinary movement being located between the plates in the usual manner.

The stem or key C for winding and setting the watch may be of any of the well-known forms for stems of this style of winding and setting, and is provided with the necessary wheels for operating the train of gear for winding and setting, which gears are of the usual construction, the winding mechanism D consisting of the wheel *i*, which meshes with the gear on the mainspring-barrel J, and the ratchet *k* and spring *j*, the parts being arranged and operating in the usual manner, and the setting mechanism or gear E consisting of the gear-wheels *l m n o*, constructed and operating in the usual manner.

The oscillating plate F is provided with a projection or arm, *f*, with which the devices for changing its position engage, and with the arms or projections *g h*, which carry the wheels *i l* for winding and setting, said wheels *i l* being engaged with a wheel beneath the plate F, operated through the stem, the construction of these parts being the same as those of similar parts in watches of this class.

The lever G is provided with an arm, *a*, which projects outside of the case, by means of which the lever is operated, and two projections, *a' a''*, the lever operating the oscillating plate through the plate H, on which it is secured by means of a screw, the projection *a''* forming a broad bearing-surface for the lever on the plate, so as to insure ease in operating the parts.

The plate H is supported on the upper plate, A, of the watch in a suitable opening provided for that purpose, and is held in place by a small boss or projection on the plate, which

boss is provided with a screw-thread, into which the screw which holds the lever G in place is screwed. This plate H is provided with two small pins, *b c*, the pin *b* being located so as to engage with the arm *f* of the oscillating plate F, as the plate H is moved by the action of the lever, and the pin *c* being so located that it will be in contact with the projection *a'* when the arm *a* is pressed down, as shown in Fig. 2. On each side of the pin *b* on the plate H is a shoulder, which shoulders form stops to prevent the plate H from being turned too far around, the shoulders coming in contact with the walls of the opening in which the arm *f* moves, so that the movement of the plate is limited. The lever G is mounted on the plate H, but is so connected therewith that either the lever or plate can be operated independent of the other.

The fork I is made from steel, and is supported in a suitable opening in the plate A, being held securely in place by means of a screw which passes through its head. This fork I is provided with two arms, *d e*, so formed as to act as springs, which arms are so arranged that the pin *c* and projection *a'* will be between them, the pin *c* being in contact with the arm or spring *d*, and the projection *a'* being in contact with the arm or spring *e* when the arm *a* is pressed down, as shown in Fig. 2, the pin *c* being between the arm or spring *d* and the projection *a'*.

By this arrangement it will be seen that if the arm of the lever be raised it will cause the fork to turn the plate H, by reason of the engagement of the projection *a'* with arm *e* of the fork and the engagement of the arm *d* of the fork with the pin *c* of the plate, the projection *a'*, as it is raised, carrying the arm *e* with it, which also moves the arm *d*, and, through the pin *c*, the plate H. As the plate H is carried around by the raising of the arm *a* it will bring the pin *b* into contact with the arm *f* of the oscillating plate, carrying the plate to the proper position for the stem to operate the setting mechanism.

If the arm *a* be pressed down after it is raised, the projection *a'* will come in contact with the pin *c*, and thereby revolve the plate H in the opposite direction, and at the same time return the arms *d e* of the fork, by reason of the engagement of the pin *c* with the arm *d*, which movement of the plate H disengages the pin *b* from the arm *f* of the oscillating plate, so that the plate can be thrown by the action of the spring *j* into position for operating the winding mechanism.

When the arm *a* of the lever is raised, or in the position shown in Fig. 1, the engagement will be with the train of gear which sets the watch, the teeth of the wheel *m* being brought into mesh with the teeth of the wheel *n*, and when the arm *a* is depressed, or in the position shown in Fig. 2, the engagement will be with the winding mechanism, the teeth of the wheel *i* being brought into mesh with the teeth on the mainspring-barrel.

By arranging the lever G and plates H so that they can operate independently of each other, it will be seen that, if from any cause the lever is operated and does not carry with it the plate H, such plate will be moved by the spring-arm independently of the lever, because the lever, if operated, will throw the arms *d e* apart, and these arms will spring together again as soon as the obstacle which prevented their operation is removed, so that in changing the engagement of the gears, if the crowns of the wheels come in contact so as to prevent the proper mesh thereof, a slight movement of the winding-stem will throw them into mesh through the arms *d e*, which are sprung apart slightly in operation, acting upon the plate H independently of the lever G.

What I claim as new, and desire to secure by Letters Patent, is—

1. The plate H, provided with the pin *b*, arranged to engage with the oscillating plate, and the pin *c*, arranged to engage with an operating-lever, in combination with such lever, whereby either can operate independent of the other, substantially as specified.

2. The plate H, provided with the pins *b c*, in combination with the lever G, provided with a projection, *a'*, and fork I, having spring-arms for insuring the proper engagement of the train of gear, substantially as specified.

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Witnesses:
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