

(No Model.)

W. E. PORTER.
STEM WINDING AND SETTING WATCH.

No. 575,168.

Patented Jan. 12, 1897.

Fig 1

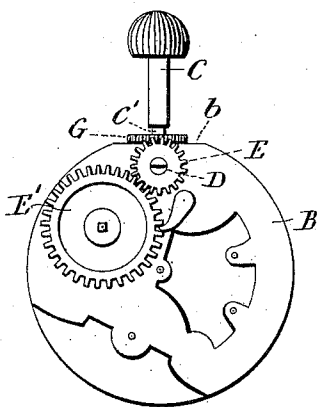


Fig 2

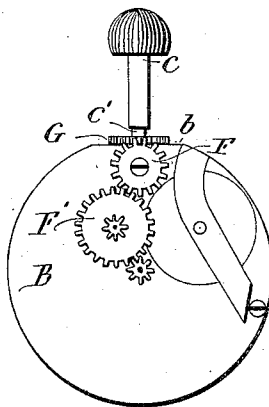


Fig 3

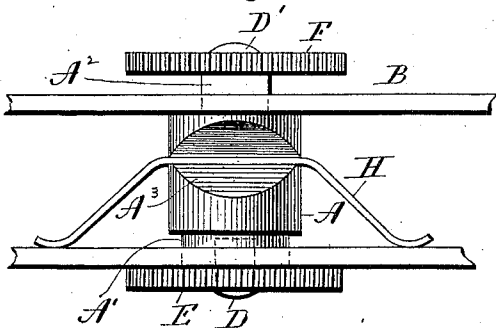


Fig 4

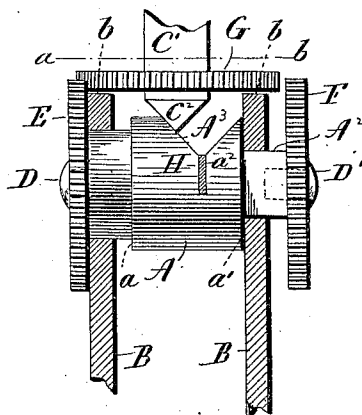


Fig 5

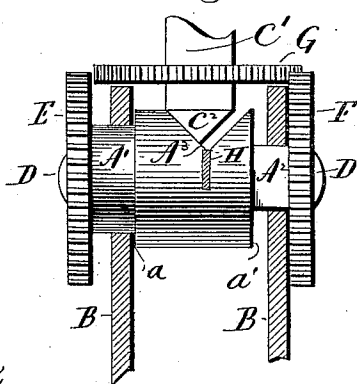
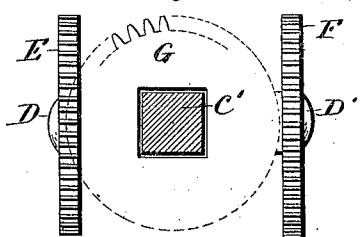


Fig 6



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UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
NEW HAVEN CLOCK COMPANY, OF SAME PLACE.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 575,168, dated January 12, 1897.

Application filed October 15, 1894. Serial No. 525,922. (No model.)

To all whom it may concern:

Be it known that I, WILSON E. PORTER, of New Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Stem-Winding and Stem-Setting Watches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear,
10 and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of a watch-movement constructed in accordance with my
15 invention, and showing the main and intermediate winding-wheels; Fig. 2, a similar reverse view showing the minute-wheel and the intermediate setting-wheel; Fig. 3, an enlarged broken plan view showing the movement-plates and the longitudinally-movable
20 arbor mounted therein and carrying the intermediate winding and setting wheels; Fig. 4, a view in vertical section showing the said arbor and wheels and showing also the winding and setting wheel and arbor, the parts being
25 in their normal positions, in which the watch is adjusted for winding; Fig. 5, a similar view showing the conversion of the watch for setting by the inward movement of the
30 winding and setting arbor and the consequent movement of the arbor carrying the intermediate winding and setting wheels; Fig. 6, a view, partly in plan and partly in transverse section, on the line *a b* of Fig. 4.

35 My invention relates to an improvement in stem-winding and stem-setting watches, the object being to provide a simple, compact, and convenient construction adapted to be produced at a low cost for manufacture, containing few parts, and not liable to derangement.

45 With these ends in view my invention consists in a stem-winding and stem-setting watch having certain details of construction and combinations of parts, as will be herein-
after described, and pointed out in the claims.

In carrying out my invention I mount a longitudinally-movable or sliding non-rotatable
50 of the movement-plates *B B* of the watch, and

in line with but at a right angle to the inner end of the winding and setting arbor *C* thereof. One end of this arbor is reduced to form a cylindrical hub or bearing *A'* and a shoulder
55 *a*, while the other end is reduced to form a flattened bearing or hub *A²* and a shoulder *a'*. The central portion of the arbor is thus virtually enlarged. The flattened hub *A²* prevents the arbor from rotating, for which
60 purpose the said hub may have any irregular form instead of the form shown. The same effect will be accomplished by flattening the hub *A'* or making it otherwise irregular in form, and if desired both hubs may be
65 adapted to resist the rotation of the arbor. The shoulders *a* and *a'* engage with the inner faces of the movement-plates and limit the reciprocating movement of the arbor.

The hub *A'*, as herein shown, has secured to it by means of a screw *D* the intermediate
70 winding-wheel *E*, which meshes into the main winding-wheel *E'*, the same being of any ordinary construction. On the other hand, the hub *A²* has secured to it by means of a screw
75 *D'* the intermediate setting-wheel *F*, which meshes into the minute or dial wheel *F'*, which may be of any approved construction. Both of the intermediate wheels are engaged, though not at the same time, with the main
80 winding and setting wheel *G*, the lower face of which rests upon the edges of the movement-plates *B B*, which are thereto cut away to form bearing-surfaces *b b*. It will be seen that the wheel *G* is located in a horizontal
85 plane, and therefore at a right angle to the wheels *E* and *F*. The said wheel *G* has a square central opening receiving the squared lower end *C'* of the rotatable and longitudinally-movable winding and setting arbor *C*,
90 which is mounted in the usual manner in the watch-pendant (not shown herein) and which is thus coupled for rotation with the said wheel, of which, however, it is free as to longitudinal movement.

For the purpose of moving the arbor *A* longitudinally to throw the intermediate wind-
95 ing-wheel out of engagement with the main winding and setting wheel and to move the intermediate setting-wheel into engagement with the said main winding and setting wheel 100

I construct the arbor with a transverse wedge-shaped notch A^3 , one inclined face of which forms an inclined operating-face and is engaged by a bevel-point C^2 , forming the termination of the squared portion C' of the winding and setting arbor. A spring II, fitting into a slot a^2 , formed transversely in the arbor at the bottom of the wedge-shaped notch therein, and bearing at its ends upon one of the movement-plates B, holds the arbor in position for maintaining the intermediate winding-wheel E in engagement with the main winding and setting wheel G and the intermediate setting-wheel F out of engagement with the said winding and setting wheel G, as clearly shown in Fig. 4 of the drawings. When, however, the winding and setting arbor is pushed inward, its tapered point C^2 coacts with the adjacent beveled face of the notch A^3 and overcomes the tension of the spring II and causes the arbor to be moved out of its normal position and so as to throw the intermediate winding-wheel E out of engagement with the main winding and setting wheel G and the intermediate setting-wheel F into engagement with the said wheel G, in which adjustment of the watch it may be set so long as the inward pressure upon the winding and setting arbor is maintained; but the moment this pressure is relieved the arbor C moves outward and permits the spring II to reassert itself in moving the arbor A transversely and reengaging the intermediate winding-wheel with the main winding-wheel and disconnecting the intermediate setting-wheel from the main winding and setting wheel, leaving the watch normally in condition for winding. Inasmuch, therefore, as the intermediate setting-wheel is normally out of action there is no chance of accidentally changing the set of the watch.

If desired, the parts may be constructed so that when the intermediate winding-wheel is disengaged from the winding and setting wheel it will also be disengaged from the main winding-wheel, but that construction is not at all essential, inasmuch as the main winding-wheel revolves only when the watch is being wound. On the other hand, it is desirable that when the intermediate setting-wheel is disengaged from the winding and setting wheel it should also be disengaged from the minute-wheel, for otherwise the watch would be under the necessity of normally driving the intermediate setting-wheel, which it would do, but the load is unnecessary.

As herein shown, as before stated, the watch is normally adjusted for winding, and shifted from that into adjustment for setting.

It is apparent that in carrying out my invention some changes in the construction herein shown and described may be made, and I would therefore have it understood that I do not limit myself thereto, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable sliding arbor mounted therein, an intermediate winding-wheel loosely mounted upon one end of the said sliding arbor adjacent to the outer face of one of the said movement-plates and normally meshing into the main winding-wheel of the watch, an intermediate setting-wheel loosely mounted upon the other end of the said sliding arbor adjacent to the outer face of the other movement-plate, and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel, and means for shifting the said sliding arbor so as to throw the wheels loosely mounted upon it into and out of engagement with the said winding and setting wheel.

2. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable sliding arbor arranged therein and having its central portion formed with an inclined operating-face, an intermediate winding-wheel loosely mounted upon one end of the said arbor adjacent to the outer face of one of the said movement-plates, and normally meshing into the main winding-wheel of the watch, an intermediate setting-wheel loosely mounted upon the other end of the said arbor adjacent to the outer face of the other movement-plate, and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel located in position to be alternately meshed into by the said intermediate winding and setting wheels carried by the said sliding arbor, a winding and setting arbor passing through the winding and setting wheel with which it is coupled for rotation, and having its inner end adapted, when it is pushed inward, to engage directly with the said inclined operating-face of the sliding arbor for sliding the same in one direction, and a spring for sliding the arbor in the opposite direction when the winding and setting arbor is drawn longitudinally outward.

3. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable, sliding arbor mounted therein and having its central portion formed with a transverse notch having an inclined operating-face, an intermediate winding-wheel loosely mounted upon one end of the arbor adjacent to the outer face of one of the movement-plates, and normally meshing into the winding-wheel of the watch, an intermediate setting-wheel loosely mounted on the other end of the arbor adjacent to the outer face of the other movement-plate, and adapted to mesh into the minute-wheel of the watch, a winding and setting wheel located in position to be alternately meshed into by the said intermediate winding and setting wheels carried by the said ar-

bor, a longitudinally-movable and rotatable winding and setting arbor passing through the winding and setting wheel with which it is coupled for rotation, and having its inner end adapted to enter the said notch and engage with the said inclined operating-face for sliding the sliding arbor in one direction, and a spring for sliding the said arbor in the opposite direction.

10 4. In a stem-winding and stem-setting watch, the combination with the movement-plates thereof, of a non-rotatable, sliding arbor mounted therein, of an intermediate winding-wheel loosely mounted upon one end
15 of the arbor, and normally meshing into the winding-wheel of the watch, an intermediate setting-wheel loosely mounted upon the other end of the arbor and adapted to mesh into the minute-wheel of the watch, a winding and
20 setting wheel located in position to be alter-

nately meshed into by the said intermediate winding and setting wheels, a longitudinally-movable winding and setting arbor coupled with the said winding and setting wheel for rotating the same and coacting with the said
25 sliding arbor for sliding the same in one direction, and a spring connected directly with the said sliding arbor at a point between the movement-plates and engaging with the inner face of one of the same for sliding the
30 sliding arbor in the opposite direction from that in which it is moved by the winding and setting arbor.

In testimony whereof I have signed this specification in the presence of two subscrib-
35 ing witnesses.

WILSON E. PORTER.

Witnesses:

G. E. STEVENS,
WALTER C. CAMP.