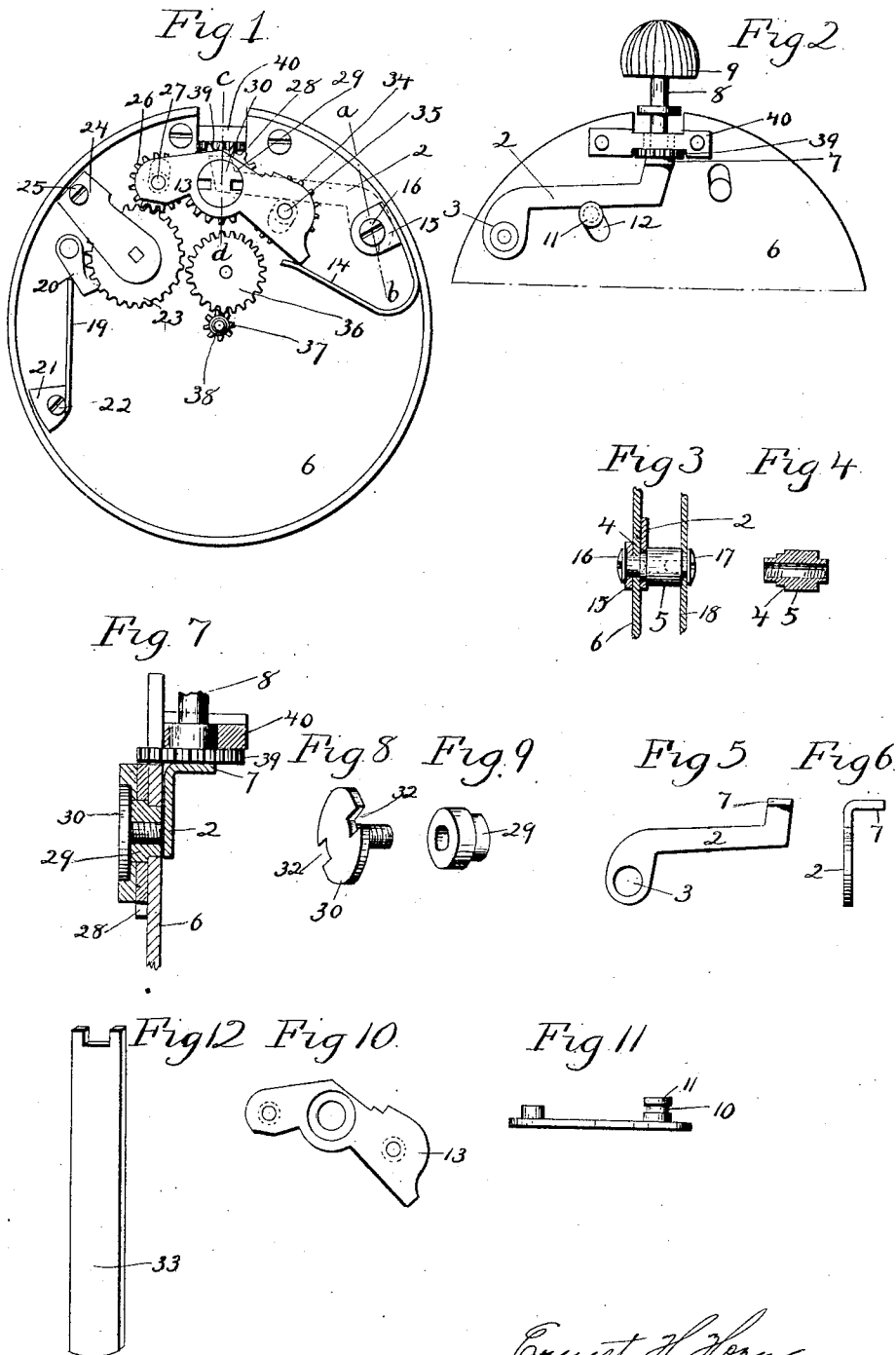


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E. H. HORN.
STEM WINDING AND SETTING WATCH.
APPLICATION FILED APR. 15, 1907.



Witnesses
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UNITED STATES PATENT OFFICE.

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STEM WINDING AND SETTING WATCH.

No. 865,642.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST H. HORN, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful 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, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a view in front elevation of a watch-movement constructed in accordance with my invention. Fig. 2 a broken view showing the upper portion of the front movement-plate in inside elevation. Fig. 3 a sectional view on the line *a—b* of Fig. 1. Fig. 4 a detached view in longitudinal section of the pillar shown in the preceding figure. Fig. 5 a detached view in side elevation of the setting lever. Fig. 6 an edge view thereof. Fig. 7 a broken view in vertical section on the line *c—d* of Fig. 1. Fig. 8 a detached perspective view of a removable yoke-retaining screw. Fig. 9 a detached perspective view of the yoke-stud. Fig. 10 a detached view in elevation of the yoke. Fig. 11 a plan view thereof. Fig. 12 a view of the key employed for removing and replacing the yoke-retaining screw.

My invention relates to an improvement in stem-winding and stem-setting watches, the object being to simplify their construction, reduce the number of their parts, facilitate their initial assemblance as well as their repair, and to make their action freer and more responsive to the winding and setting crown than in such watches as at present constructed.

With these ends in view my invention consists in a watch having certain details of construction and combination of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention, as herein shown, I employ a long sheet-metal setting-lever 2 furnished at one end with a circular opening 3 adapting the lever to fit over a special bearing-shoulder 4 formed near the outer end of the movement pillar 5 located on the right hand side of the movement and closest of all the pillars to the winding-and-setting mechanism thereof, the said pillar 5 corresponding in construction to the other pillars except in so far as it is furnished with the said special bearing-shoulder 4. The said lever 2 swings upon the pillar 5 as upon a center and bears against the inner face of the front movement plate 6, sufficient space being left between the bottom of the said shoulder 4 and the inner face of the plate 6 to permit the lever 2 to swing freely. In this way I utilize one of the parts of the watch for the mounting of the lever 2 and avoid the use of a separate pivot or stud for the purpose. At its inner end the lever is formed with an arm 7 turned

down at a right angle to the plane of the lever and receiving the thrust of the inner end of the longitudinally movable and rotatable stem 8 which is provided with the usual crown 9. The inner or lower edge of the said lever enters an annular groove 10 in the projecting inner end of the yoke-stud 11 which extends inward through a slot 12 in the plate 6 from the inner face of the oscillating and winding-and-setting yoke 13, whereby the lever is prevented from being displaced with reference to the said stud. The said lever 2 is normally held in its winding position by means of a yoke-spring 14 located upon the outer face of the front movement-plate 6 in the position to be engaged with the right hand or setting-end of the said yoke, the outer end of the spring being formed with a relatively large perforated lug 15 receiving the outer pillar-screw 16 of the said pillar 5 the inner end of which receives a corresponding pillar screw 17 passing through the rear movement-plate 18. These pillar screws 16 and 17 are the screws ordinarily employed for holding the pillar in place. Under my construction they also hold the lever 2 in place, while the screw 16 holds the yoke-spring 15 in place.

By removing the screw 16 the spring 15 may be removed and renewed, while by removing both screws, the pillar 5 may be removed and the lever 2 renewed without otherwise disturbing the watch-movement which under ordinary circumstances would have to be taken apart for the introduction of a new setting-lever 2.

As herein shown, also, the spring 19 of the click 20 is formed at its outer end with a plate-like lug 21 receiving the front pillar-screw 22 of another of the movement pillars which is not shown, but of which it may be said that it corresponds to the pillar 5 barring that it has no shoulder 4. The click 20 engages with the ratchet wheel 23 which is held in place by a bridge 24 secured to the plate 6 by a screw 25 and meshes into a winding-wheel 26 mounted upon a stud 27 in the left hand or winding end of the yoke 13. The wheel 26 in turn is constantly in mesh with a winding-and-setting wheel 28 turning as upon a center upon a stud 29 mounted in the front movement-plate 6 and having a threaded opening receiving the threaded stem of a yoke-retaining screw 30 having a large head which enters a circular recess 31 in the outer face of the yoke 13 which turns upon the stud 29. The head of the screw 30 is formed with a pair of oppositely located notches 32 for the reception of a key 33 by means of which the screw may be quickly removed for the removal, when desired, of the yoke 13. The said winding-and-setting wheel 28 is constantly in mesh with the winding wheel 26 aforesaid and also constantly in mesh with a setting-wheel 34 mounted upon a stud 35 in the right hand or setting end of the yoke 13, the setting wheel 34 being normally disengaged from the minute wheel 36 which is

constantly engaged with a cannon pinion 37 at the inner end of a minute hand socket 38. The winding-and-setting wheel 28 is constantly meshed into by a horizontally arranged winding pinion 39 mounted in a bridge 40 receiving and rotated by the stem 8. Normally the parts of the watch occupy the position shown in Fig. 1 in which the spring 14 maintains the yoke in its winding position from which it is swung into its setting position by an inward thrust upon the stem 8, whereby the tension of the spring 14 is overcome and the setting end of the yoke allowed to swing downward and inward so as to cause the setting wheel 34 to mesh with the minute wheel 36. As soon as the user of the watch lets up on the inward pressure which he is exerting upon the crown 9, the spring 14 will reassert itself to restore the parts to their normal or winding positions. Inasmuch as the setting-lever and yoke-spring 14 are located on opposite sides of the front movement-plate, the spring operates under conditions of leverage very favorable, whereby the crowding or jamming of the parts is avoided and the action of the winding and setting mechanism made very responsive and free.

I claim:—

1. In a stem-winding and stem-setting watch, the combination with the front and rear movement plates thereof, of a fixed pillar connecting the same, a setting-lever located between the said plates and hung upon the said pillar at a point close to the inner face of the front movement-plate, a rotatable and longitudinally movable stem for coaction with the inner end of the said lever, and a spring-pressed oscillating yoke operated upon by the said lever midway the length thereof.

2. In a stem-winding and stem-setting watch, the combination with the front and rear movement-plates thereof, of a fixed pillar connecting the said plates and provided near the inner face of the said front movement-plate with a bearing-shoulder, a setting-lever mounted upon the said shoulder of the said pillar so as to swing thereupon close to the said inner face of the said front movement-plate, a

longitudinally movable and rotatable stem for co-action with the inner end of the said lever, and a spring-pressed oscillating yoke operated upon by the said lever at a point midway the length thereof.

3. In a stem-winding and stem-setting watch, the combination with the front and rear movement-plates thereof, of a pillar located between the said plates, a setting-lever located between the said plates and swinging upon the said pillar at a point close to the inner face of the said front movement-plate, a longitudinally movable and rotatable stem coacting with the inner end of the said lever, an oscillating yoke, a spring located upon the outer face of the front movement-plate and engaging directly with the said yoke, and a stud carried by the yoke and co-acting with the said lever.

4. In a stem-winding and stem-setting watch, the combination with the front and rear movement plates thereof, of a pillar located between the said plates and formed with a bearing shoulder, a setting-lever located between the said plates and mounted upon the said shoulder, a stem coacting with the said lever, a winding and setting yoke, a yoke-spring located upon the outer face of the front movement plate and coacting with the yoke and adapted to be held in place by the outer screw of the said pillar.

5. In a stem-winding and stem-setting watch, the combination with the front and rear movement plates thereof, of a ratchet wheel, a click therefor, a click-spring, a pillar located between the said plates, and a screw passing through the said spring for holding the same in place and also passing through the front movement plate and entering the said pillar.

6. In a stem-winding and stem-setting watch, the combination with the front movement-plate thereof, of a stud located therein, a winding and setting wheel turning upon the said stud, an oscillating yoke mounted upon the said stud, and a removable yoke retaining screw directly entering the said stud and holding the yoke in place thereupon.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

ERNEST H. HORN.

Witnesses:

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C. W. SHADER.