

A. SIM.
STEM WINDING AND SETTING MECHANISM.
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991,552.

Patented May 9, 1911.

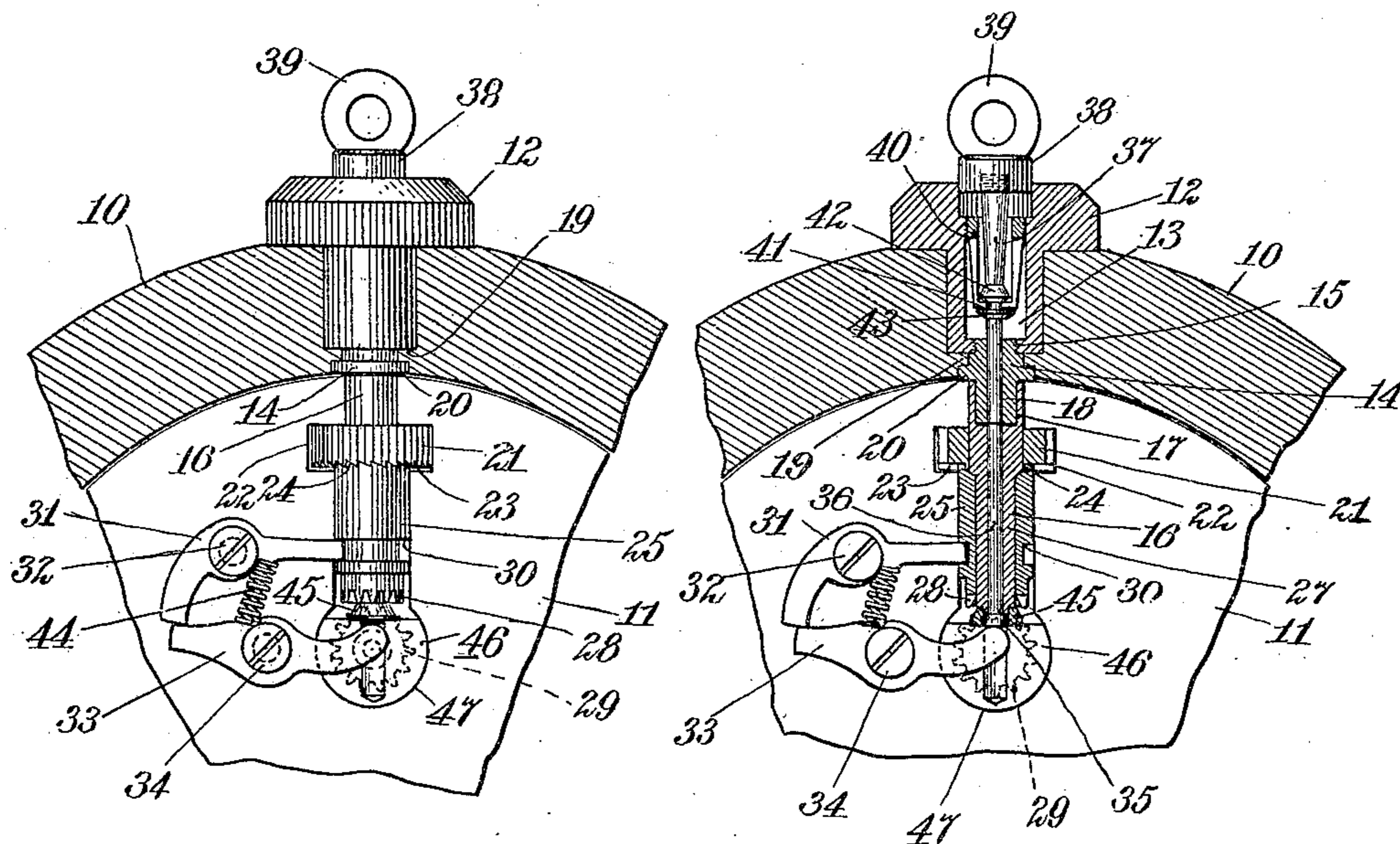


Fig. 1.

Fig. 2.

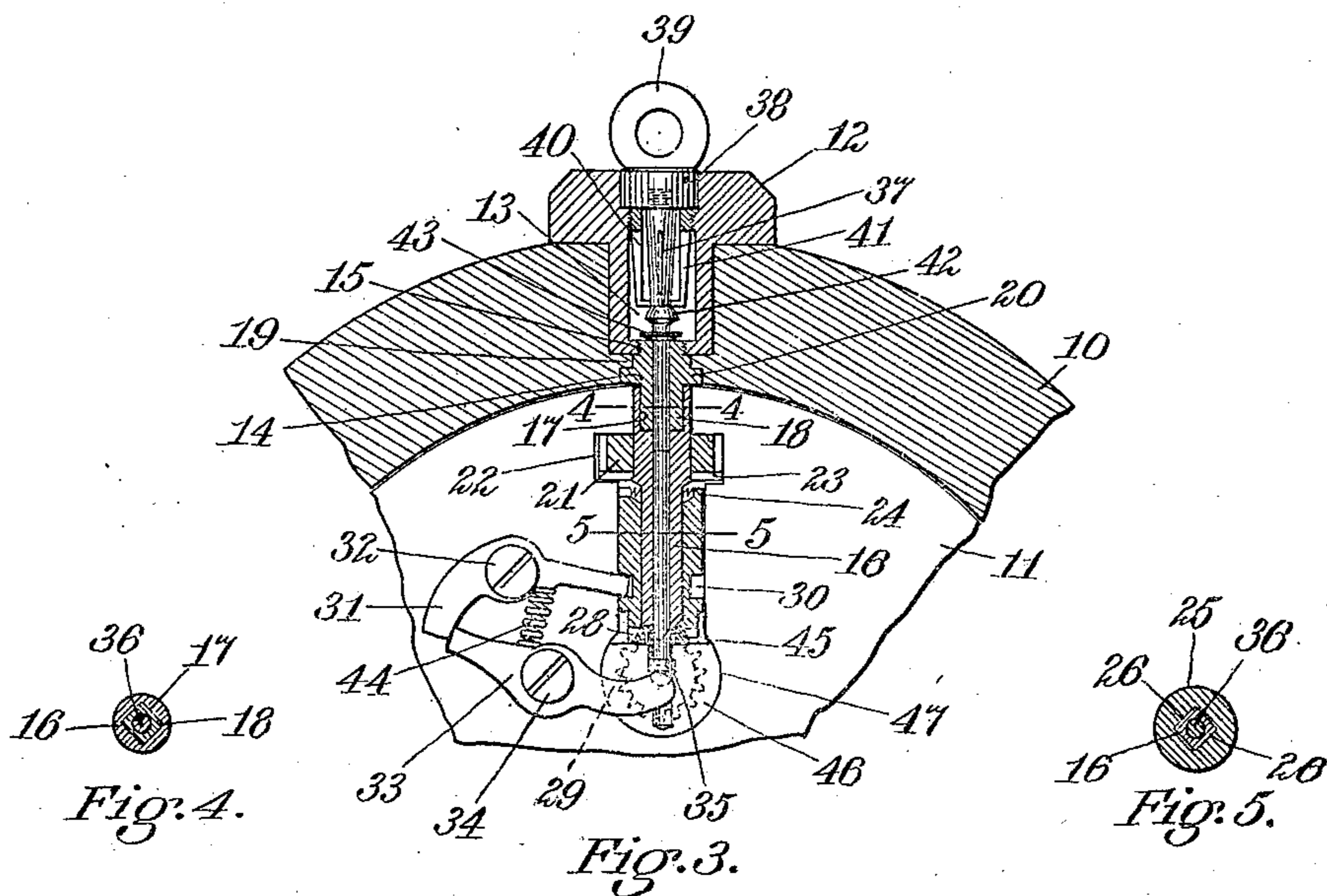


Fig. 4.

Fig. 3.

Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

ALEXANDER SIM, OF EAST MILTON, MASSACHUSETTS.

STEM WINDING AND SETTING MECHANISM.

991,552.

Specification of Letters Patent.

Patented May 9, 1911.

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To all whom it may concern:

Be it known that I, ALEXANDER SIM, a citizen of the United States, residing at East Milton, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Stem Winding and Setting Mechanism, of which the following is a specification.

This invention relates to improvements in stem winding and setting watches and more particularly to the winding and setting mechanism, and the object is to provide a watch of this class in which the reciprocating member for changing the mechanism from winding to setting position and vice versa shall be in its outermost position when the mechanism is in its winding position so that it shall be possible to provide said member with means such as a ring for attaching the watch to a chain or chatelaine so that the watch may be suspended therefrom without danger of the mechanism being accidentally changed from winding to setting position. In the attainment of this object I have produced a winding and setting mechanism including a hollow stem and crown in which is located an actuating member projecting outwardly beyond the crown, this actuating member constituting a swivel having thereon a ring serving as a means of attaching the watch to a chain or chatelaine.

The invention consists in the novel features of construction and in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the appended claims.

Referring to the drawing: Figure 1 is an elevation of a part of a watch movement embodying my invention, the case center being shown in section, the parts being shown in their normal position. Fig. 2 is a sectional view taken in the plane of the axis of the stem and crown, showing the parts in their normal or winding position. Fig. 3 is a sectional view similar to Fig. 2, showing the parts in the setting position. Fig. 4 is a sectional view taken on line 4—4 of Fig. 3. Fig. 5 is a sectional view taken on line 5—5 of Fig. 3.

Like numerals refer to like parts throughout the several views of the drawing.

Referring to the drawing, 10 is the watch case center, 11 is the movement and 12 is the crown which is journaled in a suitable bearing provided in the case center. The crown 12 which is provided with a cylin-

dricai recess 13 is secured to a hollow stem 14 in any suitable manner as by means of a screw 15 formed on the stem and having screw-threaded engagement with the crown. 60 Connected to the stem 14 is a hollow winding arbor 16 having therein a square recess 17 in which is located a square projection 18 formed on the stem 14, whereby said stem and said arbor are non-rotatably connected 65 to each other, but are capable of being withdrawn one from the other when it is desired to disassemble the parts.

The crown 12, stem 14, and arbor 16 when taken together constitute in effect a single 70 rotatable body extending through the case at its opposite ends, respectively, and this body is referred to in the claims as a winding and setting sleeve.

The stem 14, it will be observed, must be 75 introduced into its place from the inside of the case center 10 and the crown 12 introduced from the outside and said parts when screwed together are held against longitudinal displacement in their respective bearings 80 by an annular flange 19 located between the small end of the stem 12 and a flange 20 formed upon the stem 14. Loosely mounted upon the winding arbor 16 is a winding pinion 21 which is held against longitudinal 85 displacement upon said arbor by the engagement of said pinion with the walls of a recess 22 in the movement 11. This winding pinion, it will be understood, will in practice form a part of the usual winding train 90 of the movement.

The winding pinion 21 is provided with a series of ratchet clutch teeth 23 adapted to normally interengage with a corresponding series of teeth 24 formed upon a sleeve 25, 95 said sleeve being slidably and non-rotatably mounted upon the winding arbor 16 in any convenient manner as by providing said sleeve with a square hole 26 in which is located a square part 27 of the winding arbor. 100 It will be readily understood that when the teeth 24 are held in engagement with the teeth 23 and the crown 12 is rotated in the proper direction, the winding pinion 21 will be rotated therewith and when the teeth 24 105 are held out of engagement with the teeth 23 the winding arbor 16 will turn freely within said pinion without rotating the same.

Formed on the lower end of the sleeve 25 110 is a crown gear 28 adapted to mesh with a setting pinion 29 which will, in practice,

be connected in any usual or desired manner to the hands of the watch. When the sleeve 25 is moved to carry the clutch teeth 24 out of engagement with the clutch teeth 23 the teeth of the crown gear 28 are moved into mesh with those of the setting pinion 29. To accomplish this the sleeve 25 is provided with a circumferential groove 30 in which is located one end of a lever 31 pivoted at 32 on the movement 11, said lever engaging at its other end a lever 33 pivoted at 34, the latter lever bearing against a head 35 formed on a sliding pin 36 located within the hollow arbor 16, the upper end of said pin engaging the lower end of an actuating member 37 extending through the crown 12 and stem 14. The pin 36 constitutes in effect a part of the actuating member 37, it being formed separate therefrom for convenience in manufacturing and assembling the parts.

The actuating member 37 has formed thereon or fast thereto a head 38 having thereon a ring 39 serving as a means of attachment to a chain or chatelaine, not shown, the normal position of this head being shown in Figs. 1 and 2. Located in the recess 13 is a sleeve 40 secured to the crown 12 in any suitable manner as, for example, by convenient screw-threaded engagement therewith, as shown, said sleeve being provided with a series of resilient arms 41 extending between two annular flanges 42 and 43 formed on the actuating member 37, the flange 42 having two oppositely beveled or frusto-conical surfaces whose angle is such that when the ring 39 is grasped and pushed forcibly downward from the position shown in Figs. 1 and 2, the resilient arms 41 yield and allow the flange 42 to pass therebeyond into the position shown in Fig. 3. When this occurs the pin 36 is forced downwardly, thereby rocking the lever 33 upon its pivot, said lever acting in turn to rock the lever 31 upon its pivot and thus the sleeve 25 is carried downwardly into the position shown in Fig. 3 so that the teeth 24 are moved out of engagement with the teeth 23 and the teeth of the crown gear 28 are moved into engagement with the teeth of the setting pinion 29. When the parts are thus positioned the crown 12 may be rotated in either direction to cause the rotation of the setting pinion 29 in the proper direction to set the hands, after which the parts are returned to their normal position by grasping the ring 39

and pulling the actuating member 37 forcibly upward, the fingers 41 yielding to allow the beveled flange 42 to pass therebeyond into the position shown in Figs. 1 and 2. When the actuating member 37 is in this position the clutch teeth 24 are held in yielding engagement with the teeth 23 by a helical compression spring 44 bearing at one end against the lever 31 and at its other end against the lever 33, the arrangement being such that rotation of the crown 12 in one direction causes a positive rotation of the winding pinion 21 and rotation of said crown in the opposite direction causes the rotating sleeve 25 to yield downwardly against the tension of the spring 44 thus allowing the teeth 24 to slip by the teeth 23. The winding arbor 16 is supported and journaled at its lower end in a bearing 45 having a base 46 located in a recess 47 provided therefor in the plate of the watch movement 11.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. A stem winding and setting mechanism having, in combination, a case, a hollow rotatable winding and setting sleeve extending through said case at its opposite ends, respectively, a winding pinion, a setting pinion, driving means connected to and driven by said sleeve, and shiftable actuating means distinct from said driving means and said sleeve and extending through the interior of said sleeve and beyond opposite ends thereof and adapted to move said driving means into driving connection with said winding pinion or said setting pinion.

2. A stem winding and setting mechanism having, in combination, a case, a rotatable winding and setting sleeve extending entirely through said case into the interior thereof and to the exterior thereof, a winding pinion, a setting pinion, driving means connected to and driven by said sleeve, longitudinally shiftable actuating means rotatably mounted in said sleeve adapted to move said driving means into driving connection with said winding pinion or said setting pinion, and means to normally hold said actuating means in fixed position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALEXANDER SIM.

Witnesses:

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