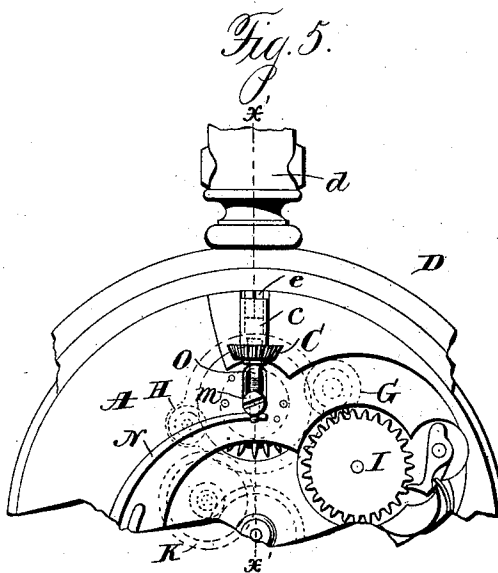
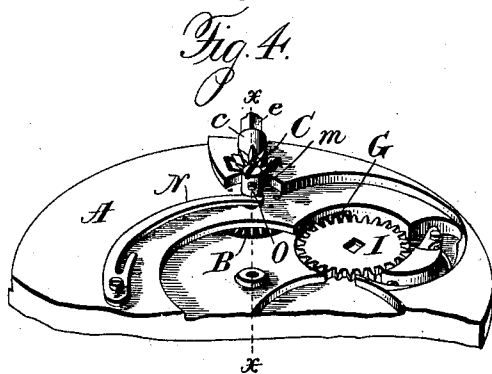
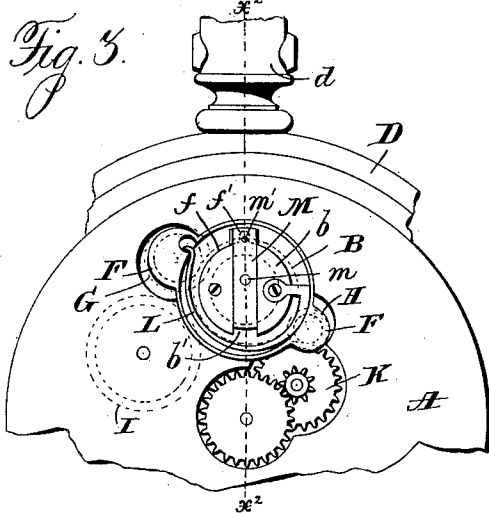
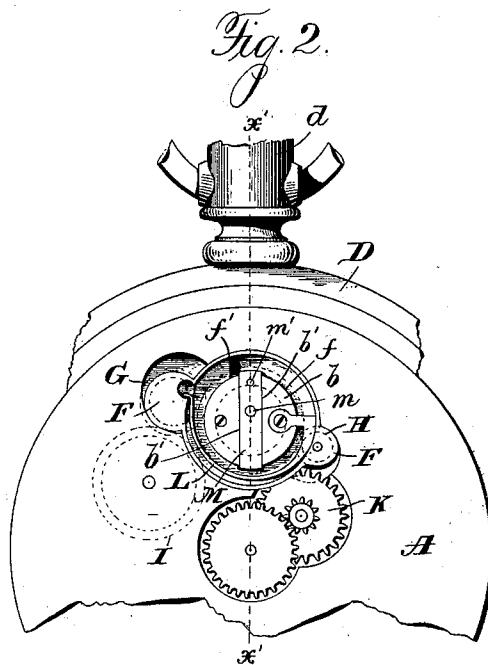
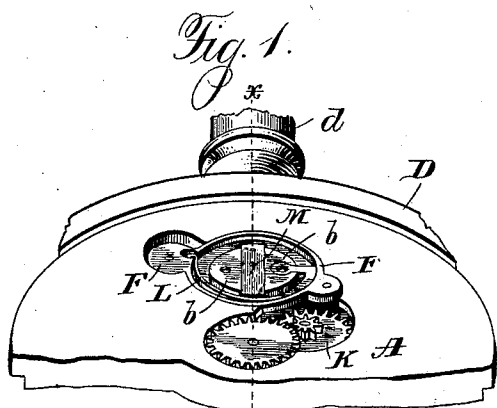


C. H. BAGLEY.
STEM WINDING AND SETTING WATCH.

No. 508,800.

Patented Nov. 14, 1893.



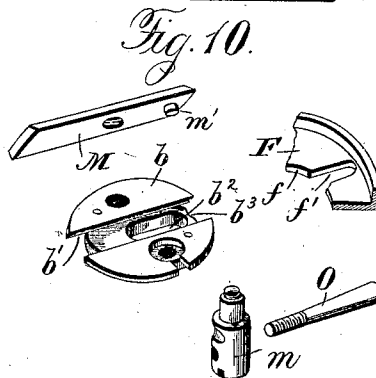
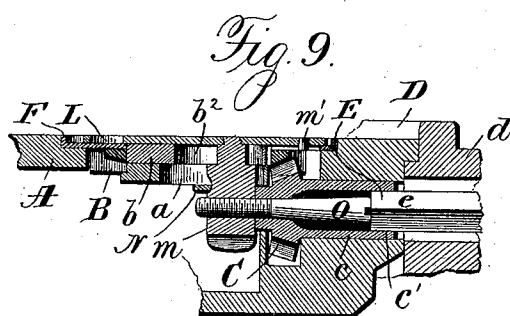
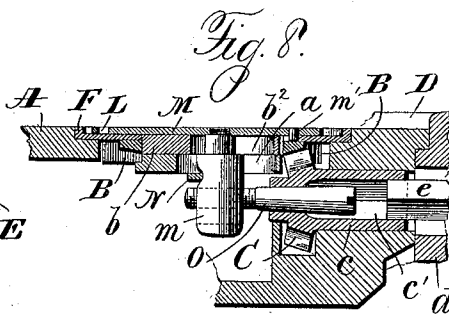
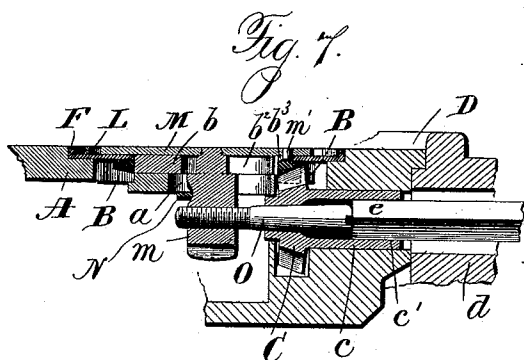
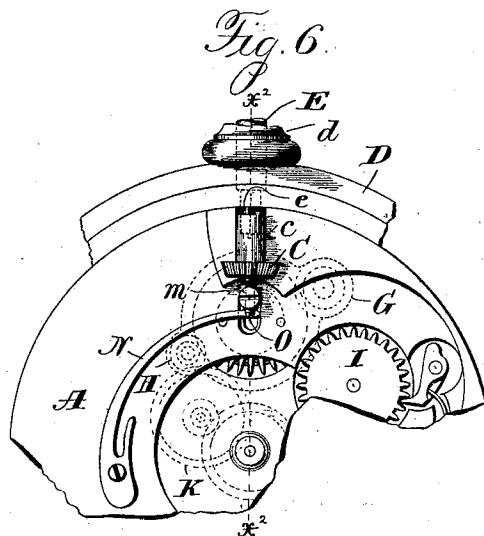
Witnesses:
Jas. Hutchinson
Henry C. Hazard.

Inventor.
Charles H. Bagley, by
Erindle & Russell, his Attys.

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UNITED STATES PATENT OFFICE.

CHARLES H. BAGLEY, OF THOMASTON, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ROYAL E. ROBBINS, OF BOSTON, MASSACHUSETTS, AND THOMAS M. AVERY, OF CHICAGO, ILLINOIS, TRUSTEES.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 508,800, dated November 14, 1893.

Application filed May 18, 1892. Serial No. 433,403. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BAGLEY, a citizen of the United States, residing at Thomaston, in the county of Litchfield and State of Connecticut, have invented certain Improvements in Pendant Set Devices for Stem-Winding Watches; and I do hereby declare that the following to be a full, clear, and exact description of the said invention, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view from the front of a watch containing my improvements, the dial being removed, and the parts arranged in position for winding. Fig. 2 is a plan view of the same after the stem arbor has been drawn to the outer limit of its longitudinal motion, and before the setting engagement has been effected. Fig. 3 is a like view of said watch after the setting engagement has been produced. Fig. 4 is a perspective view of the watch from the rear, the back plate being removed, and the parts shown as arranged when in winding engagement. Figs. 5 and 6 are plan views of the same, and show, respectively, the positions of parts after the stem arbor has been drawn to its outer limit, and after the setting engagement has been effected. Figs. 7, 8 and 9 are, respectively, sections upon lines x , x' , x'' , and x^3 , of Figs. 1 and 4, 2 and 5, and 3 and 6, and Fig. 10 is a perspective view of the locking bar and its connecting parts separated from each other.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to produce in a cheap and efficient form, a watch, in which the winding and setting engagements are effected wholly through a stem arbor that has no positive connection with the movement, and such movement and case are readily interchangeable with like movements and cases, and to such end my said invention consists, in a stem winding and setting watch in which the winding and setting engagements are effected entirely through the action of a rotatable, longitudinally movable stem arbor which has no positive connection with the movement, substantially as and for the purpose hereinafter specified.

In the use of my invention, any one of the usual forms or constructions of mechanism between the stem arbor and the winding and dial wheels may be employed, but it will sufficiently illustrate the principle and advantages to show its application to one of such forms, in which there is journaled upon the front side of the dial plate A of a watch movement, a toothed wheel B that engages with and is rotatable by means of a cannon pinion C, which pinion is journaled upon the lower side of said plate, with its barrel c extending to or near the edge of the same. Journaled within the pendant or stem d of the watch-case D, is an arbor E, which has its inner, squared end e in engagement with the correspondingly shaped axial opening c' of said pinion, is made longitudinally adjustable within said stem, and preferably, is locked with a yielding force at the inner limit of its longitudinal motion by means of a spring detent.

Pivoted upon the axial bearing b of the wheel B, is a yoke F which has journaled upon opposite ends, two pinions G and H, that are in mesh with said wheel, and are, respectively, adapted to be engaged with or disengaged from the winding wheel I and dial wheel K by the oscillation of said yoke upon its pivotal bearing. A spring L, having its free end in engagement with said yoke, operates to hold the latter in position to maintain a yielding winding movement, so that by the rotation of said stem arbor in one direction, the main spring will be wound, while when rotated in an opposite direction, the teeth of said pinion G and winding wheel I will slip over each other and produce what is known as a "back ratchet" action.

Within the upper side of the bearing b , is formed a groove b' , which is in substantially a line with the stem arbor E, and in a line with a short, narrow slot b^2 that is provided within said bearing, directly beneath the same and over a second, coinciding slot a , which is formed in the dial plate A. The groove b' contains a bar M, which loosely fills and is adapted to slide longitudinally within the same and is provided with a stud m that projects through the slots b^2 and a , and has its lower end engaged upon the side toward

the center of the movement, by a spring N, which operates to hold said stud and bar, with a yielding pressure at the outer limits of their longitudinal motion. From the opposite side of said stud there projects a pin O that is in a line with, and in contact with the stem arbor E, and operates, as an extension thereof, to communicate the inward thrust of said arbor to said stud, and to cause the same and said bar M to be moved longitudinally inward.

The relative proportions of parts are such that when the stem arbor E is pushed to and locked at the inner limit of its longitudinal motion, the bar M occupies the same position, and in no manner interferes with the free action of the yoke F, but in order that the setting engagement may be effected, a stud m' is secured within the lower side, near the outer end of the bar M, and projects downward into a groove b^3 , which is formed in the bearing b . Said groove extends to and through the side of said bearing, and, within the edge of the axial opening f of said yoke, is provided a notch f' that coincides with the end of such groove, when said yoke is turned so as to produce setting engagement, but when the same is turned to winding engagement, said notch is at one side of the end of said groove. If now the stem arbor is pulled to the outer limit of its motion, the stud m' will engage with the side of the opening f of the yoke F, and, by friction, will hold said yoke in position to insure winding engagement as long as the stem arbor E is turned to the right, but when said arbor is turned to the left, the movement of the yoke produced by the "back ratcheting" of the teeth of the pinion G and winding wheel I, is sufficient to enable the said stud m' to partially enter the notch f' , after which the spring N overcoming the force of the weaker spring L, will force said stud entirely into said notch, and, thereby, turn said yoke to position to complete the setting engagement. To place the stem driven train in winding engagement, the said stronger spring N is now forced out of action by an inward movement of said stem arbor, and said spring L again permitted to act.

Having thus described my invention, what I claim is—

1. A stem winding and setting watch in which are combined a rotatable, longitudinally movable stem arbor and a stem winding and setting train that is placed in setting position upon the longitudinal and partial rotary movement of said stem arbor, substantially as and for the purpose specified.

2. A stem winding and setting watch in which are combined a rotatable, longitudinally movable stem arbor and a stem winding and setting train that tends normally to

setting position and is permitted to move into such position upon the longitudinal and partial rotary movement of the stem arbor, substantially as and for the purpose shown.

3. A stem winding and setting watch in which are combined a rotatable, longitudinally movable stem arbor, a winding and setting train that tends normally to setting engagement and moves thereto upon the longitudinal outward and partial rotary movement of said arbor, and is held in winding engagement when such arbor is at the inner limit of its motion, substantially as and for the purpose set forth.

4. As an improvement in stem-winding and setting watches, the combination of a winding and hands setting train, which, by the unobstructed action of a spring, tends normally to setting engagement, a rotatable and longitudinally movable stem arbor that has no positive connection with the movement, and when moved to the inner limit of its longitudinal motion renders said spring inoperative, and when moved to the outer limit of its longitudinal motion frees said spring from its constraint, and a device which then operates to lock said train out of setting engagement until released by a partial rotation of said arbor, substantially as and for the purpose shown and described.

5. As an improvement in stem winding and setting watches, the combination of a rotatable and longitudinally movable stem arbor, which has no positive connection with the movement, and a stem operated train that tends normally to setting engagement, is in winding engagement when said arbor is at the inner limit of its longitudinal motion, and, by the longitudinal outward movement and partial rotation of the same, is permitted to pass into setting engagement, substantially as and for the purpose specified.

6. As an improvement in stem winding and setting watches, the combination of a rotatable, longitudinally movable stem arbor which has no positive connection with the movement, and a stem operated train that tends normally to setting engagement, is in winding engagement when the stem arbor is at each limit of its longitudinal motion, and is permitted to pass into setting engagement when said stem arbor is moved to the outer limit of such longitudinal motion, and then partially rotated, substantially as and for the purpose shown and described.

In testimony whereof I hereunto set my hand this 27th day of April, 1892.

CHARLES H. BAGLEY.

Witnesses:

FRANK B. EDDY,
ABNER ALLEN.