

(No Model.)

2 Sheets—Sheet 1.

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

No. 503,516.

Patented Aug. 15, 1893.

Fig. 1.

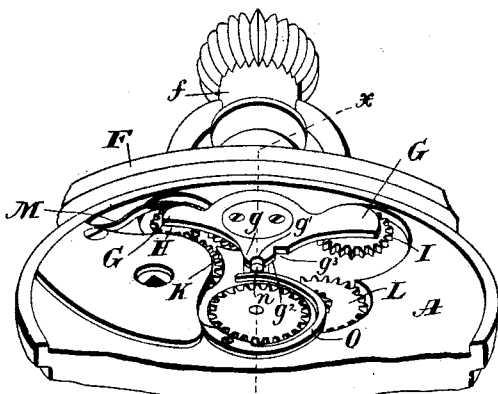


Fig. 2.

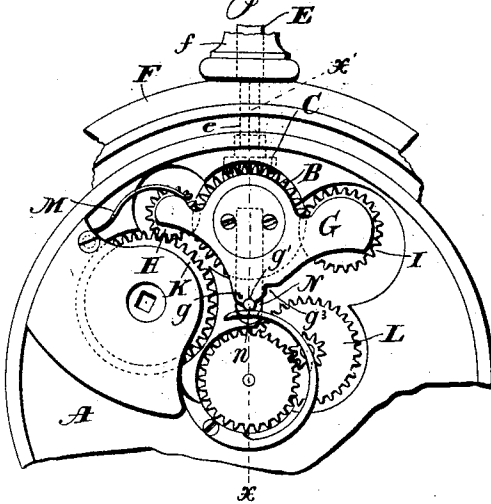


Fig. 3.

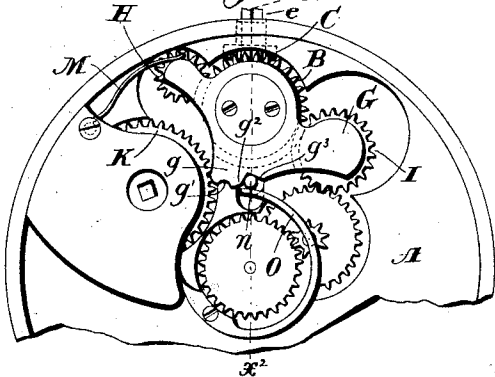


Fig. 4.

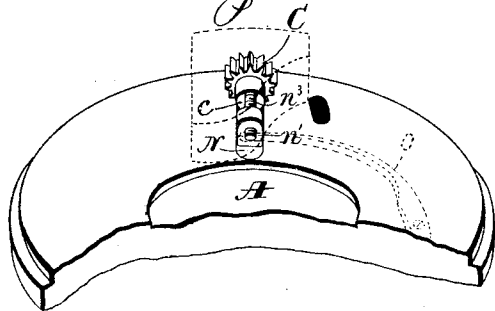
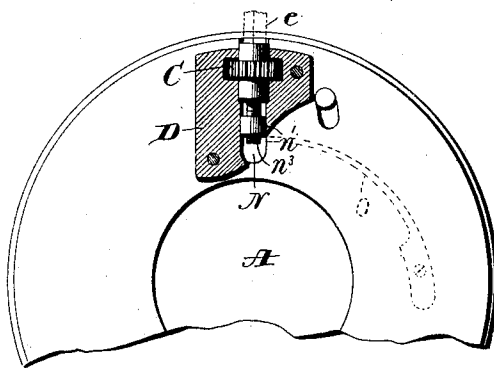


Fig. 5.



Witnesses:
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Henry C. Hazard.

Inventor:
Charles H. Bagley, by
Kimble and Russell, his Attys.

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2 Sheets—Sheet 2.

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Fig. 6.

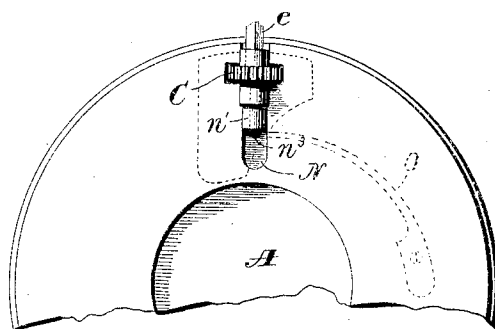


Fig. 7.

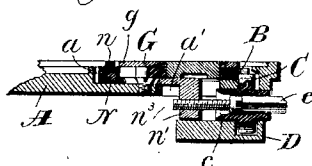


Fig. 8.

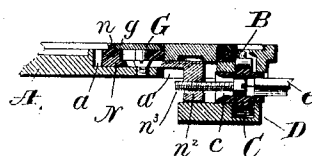


Fig. 9.

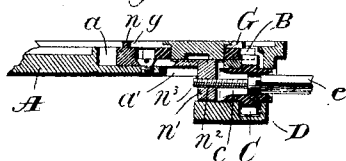
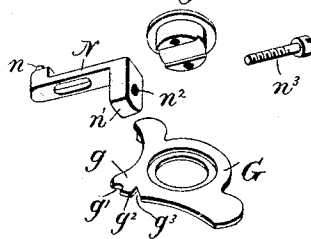


Fig. 10.



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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. 503,516, dated August 15, 1893.

Application filed March 29, 1893. Serial No. 468,100. (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 in the State of Connecticut, have invented certain new and useful Improvements in Stem Winding and Setting Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, 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, respectively, sections upon lines xx , $x'x'$ and x^2x^2 of Figs. 1, 2 and 3, and Fig. 10 is a perspective view of the locking device and its connecting parts separated from each other.

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

My invention has for its object increased safety in the use of pendant setting watches and to such end my said invention consists in the means employed for locking the stem driven train out of setting engagement and for releasing such train when desired, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into practice, I employ a watch movement in which there is journaled upon the front plate A a toothed wheel B that is in constant engagement with a pinion C, which pinion is journaled between said plate and a bridge D upon the lower side of the same and is adapted to receive the squared end e of an arbor E that is journaled within the pendant or stem f of the case center F and is adapted to have a certain amount of longitudinal motion therein

and to be yieldingly locked at each limit of such motion. Pivoted centrally upon the axis of the wheel B is a yoke G which has pivoted upon opposite ends two pinions H and I that are in constant mesh with said wheel and by the oscillation of said yoke are respectively adapted to be caused to successively engage with the winding wheel K and one of the dial wheels L, by which arrangement the rotary motion of the stem arbor E will cause said winding wheel or said dial wheel to revolve so as to wind the main spring or change the position of the hands of the watch. A spring M secured at one end upon the plate A and having its opposite end in engagement with the contiguous end of said yoke, holds the latter, with a yielding pressure in position to cause engagement between said pinion H and the winding wheel K.

Fitted into and adapted to slide longitudinally within a groove a in the plate A beneath the yoke G is a flat bar N that upon its inner end is provided with a stud n which projects outward a distance equal to the thickness of said yoke, and upon its opposite end has a lug n' that projects inward through a slot a' in said plate, in front of the pinion C and in a line with the axial opening c of the latter. Within such lug is a threaded opening n^2 which receives the threaded end of a screw n^3 that from thence projects into said opening c and is adapted to have its head in engagement with the inner end e of the stem-arbor E, and to be adjusted longitudinally toward or from said arbor. A spring O attached at one end to said plate A has its free end in engagement with said stud n with a yielding pressure at the outer limit of its motion.

Upon the edge of the yoke G adjacent to the stud n is an extension g which within its end is provided with a notch g' that is in position to be engaged by said stud when said yoke is in winding engagement—as shown in Figs. 1 and 7 and is thus engaged when the stem arbor E is drawn outward so as to permit the bar N to be moved in the same direction by the spring O—as seen in Figs. 2 and 8—while upon the side of the extension toward the pinion I there is provided an inclined face g^2 which terminates in a second notch g^3 that is engaged by said stud n when said yoke is turned to setting engagement.

The construction is now complete and operates as follows, viz:—When the stem arbor is at the inner limit of its longitudinal motion, the adjustment of the screw n^3 is such as to cause the bar N to be held in the position shown in Figs. 1 and 7, the stud n being sufficiently removed from the extension g of the yoke G to permit the latter to swing freely when “back ratcheting” while winding, but when said stem is drawn to the outer limit of its longitudinal motion, said bar is freed and, by the action of the spring O, is pressed longitudinally outward until said stud engages with the notch g' and operates to lock said yoke in winding engagement, as shown in Figs. 2 and 8. Should the stem-arbor be accidentally pulled outward while the watch is being removed from the pocket, the locking of the yoke in winding engagement—as described—will effectually prevent displacement of the hands, but when it is desired to set the hands, the setting engagement may be effected after the stem arbor has been drawn outward by turning said arbor to the left, or backward when, as the winding wheel K is held against backward movement, the pinion H will be forced out of engagement with said wheel and thereby cause said yoke to turn upon its pivotal bearing until the stud n is forced out of engagement with the notch g' and bears upon the inclined face g^2 , when the outward pressure of the stronger spring O upon the bar N will cause said stud to pass over such inclined face into engagement with the notch g^3 so as to turn said yoke into and lock it in setting engagement. To place the stem-driven train in winding engagement again, the stem arbor is moved to the inner limit of its motion so as to remove the stud n from engagement with the yoke G and, at the same time place the spring O out of action, when the spring M being permitted to act, will swing said yoke into winding engagement. By turning the stem arbor backward and then pulling it outward, the setting engagement may be effected directly without the locking the yoke in and unlocking it from winding engagement, as by the rearward rotation of said arbor, the “back ratchet” action will cause said yoke to be swung sufficiently upon its pivotal bearing to present the inclined face g^2 directly to the engagement of the stud n . While the spring O is preferably placed upon the front side of the movement plate A, as shown in Figs. 1, 2 and 3, it may, if desired, be attached to the rear side of such plate, as seen in Figs. 4 and 5. The screw n^3 which is interposed between the sliding piece N and the stem-arbor E, furnishes a means whereby the longitudinal positions of the latter may be caused to produce the exact movements of the former as are necessary for its proper action upon and in connection with the yoke G.

Having thus described my invention, what I claim is—

1. In a stem winding and setting watch,

the combination of a pivoted yoke which carries a portion of a stem actuated train and by movement upon its pivotal bearing is adapted to effect the winding and setting engagements, a spring that operates to hold such yoke with a yielding pressure in winding engagement; a longitudinally movable or sliding part which is adapted to be engaged with the edge of said yoke and to lock it in winding and setting engagements; a second stronger spring that holds said sliding part with a yielding pressure in engagement with said yoke, and a stem arbor which has no positive connection with the movement and by longitudinal and rotative movement is adapted to control the engagements of said sliding part with said yoke, substantially as and for the purpose specified.

2. As an improvement in stem winding and setting watches, the combination in a winding and setting train which is actuated by a rotatable, longitudinally movable stem arbor that has no positive connection with the movement, of a pivoted yoke between the stem arbor and the winding and setting wheels, a spring which is adapted to hold such yoke, with a yielding pressure in position for winding engagement and a sliding part that is adapted to be moved into or out of engagement with the notched edge of said yoke by the action of a second, stronger spring and the longitudinal movements of said stem-arbor, substantially as and for the purpose shown.

3. As an improvement in stem winding and setting watches, the combination of a pivoted yoke which carries a stem actuated portion of the winding and setting train and is provided upon one edge with a notch and an adjacent, relatively inclined face, a spring that operates to hold such yoke in position for winding engagement, a longitudinally movable or sliding piece which when permitted is adapted to engage with such notch and with such inclined face, a second, stronger spring that is adapted to hold said sliding part with a yielding pressure in engagement with said yoke and a rotatable, longitudinally movable stem-arbor which has no positive connection with the movement and by longitudinal movements is adapted to control the movements of said sliding part, substantially as and for the purpose set forth.

4. In combination with the rotatable, longitudinally movable stem arbor and the longitudinally movable sliding part, the longitudinally adjustable piece which is interposed between said parts, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of March, 1893.

CHARLES H. BAGLEY.

Witnesses:

GEO. S. PRINDLE,
D. F. WEBSTER.