(No Model.) 2 Sheets—Sheet 1.

G. E. HART.

STEM WINDING AND SETTING WATCH.

No. 457,197. Patented Aug. 4, 1891.

Fig. 1.

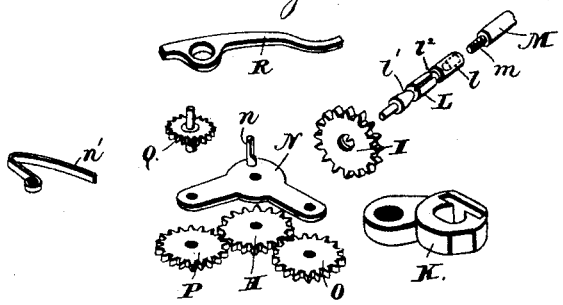


Fig. 2.

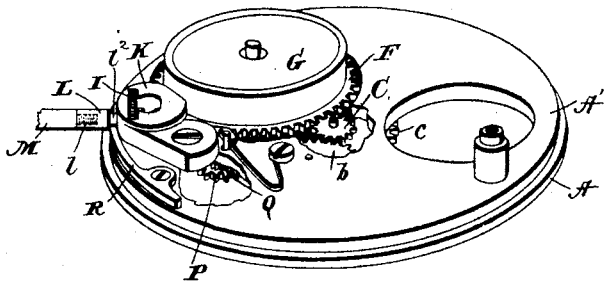
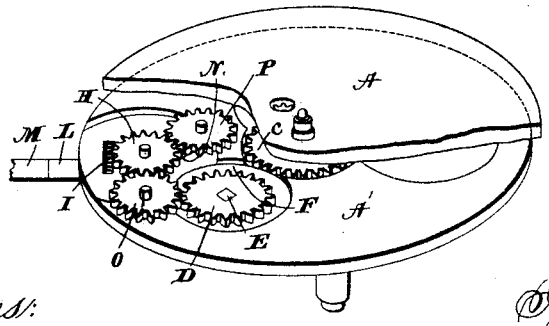


Fig. 3.



Witnesses:
Jas. E. Hutchinson.
Chas. F. Williamson.

Inventor.
Geo. E. Hart. by
Prindle & Russell, his Attys

(No Model.) 2 Sheets—Sheet 2.

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STEM WINDING AND SETTING WATCH.

No. 457,197. Patented Aug. 4, 1891.

Fig. 4.

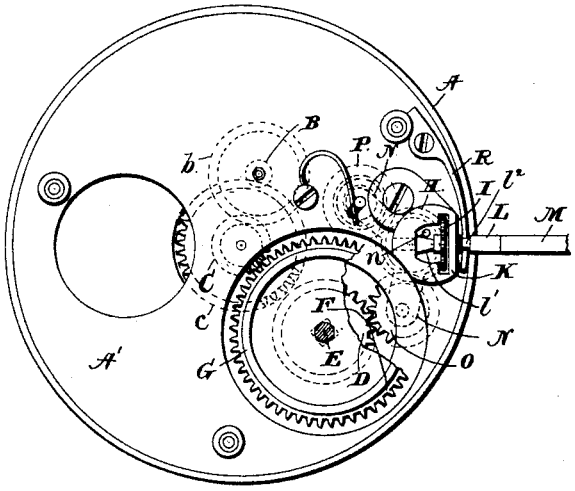
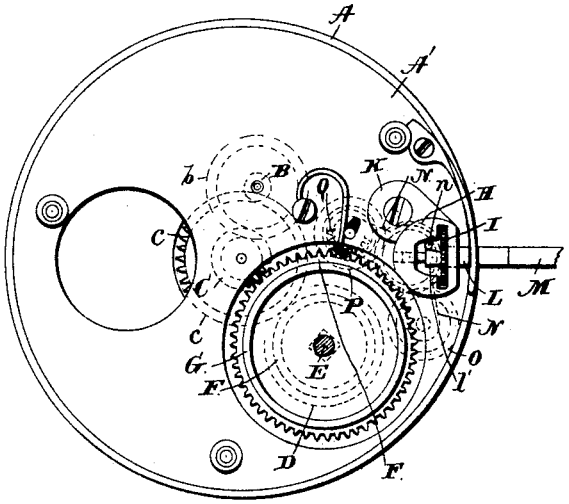


Fig. 5.



Witnesses:
Jas. E. Hutchinson.
Chas. F. Williamson.

Inventor.
Geo. E. Hart, by
Brindle and Russell, his Attys.

UNITED STATES PATENT OFFICE.

GEORGE E. HART, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY WATCH COMPANY, OF SAME PLACE.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 457,197, dated August 4, 1891.

Application filed October 16, 1890. Serial No. 368,256. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. HART, of Waterbury, in the county of New Haven, 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 of the parts of my winding and setting mechanism separated from each other. Fig. 2 is a like view of the same combined from the front side of the movement, a portion of the front plate being broken away. Fig. 3 is a perspective view of said mechanism from the rear side; and Figs. 4 and 5 are plan views of said mechanism from the rear side, and show, respectively, the relative positions of parts when the normal or winding and the setting engagements are effected.

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

My invention has for its object such construction of the winding and hands-setting mechanism of a watch as will enable the same to be manipulated wholly through the stem-arbor; and to such end my said invention consists in the construction of the parts composing the stem-actuated train and their combination with each other and with the winding-wheel and the dial-wheels of a watch-movement, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into practice I preferably employ a watch-plate, which is composed of an outer section A and an inner section A′, that have substantially the same thickness and are secured together to constitute the front movement plate by means of screws and dowel-pins. Within suitable recesses that are partly formed in the inner face of each of the sections A and A′ are the usual dial-wheels and pinions B *b* and C *c*, and within other adjacent recesses are contained a winding-wheel D, that is secured upon the mainspring-arbor E, and a wheel F, which is journaled upon the mainspring-barrel G, and by friction is held thereon with sufficient force to enable it to communicate motion to the dial-pinion *c*, with which it meshes.

Journaled between the sections A and A′ in a line with the stem of the watch is a spur-wheel H, which meshes with a second similar wheel I, that is journaled within a bridge K upon the outer face of said section A′ upon an axis that has a right angle to the axis of said wheel H. The arbor L, upon which said wheel I is journaled, is upon a line axially with the stem-arbor M, is adapted to have an independent longitudinal movement within certain limits, and within its outer end is provided with a threaded axial opening *l*, that is adapted to receive and contain a correspondingly-shaped teat *m* upon the end of said stem-arbor, by which arangement said arbors when combined are practically one, so that by rotating said stem-arbor said wheel H will be correspondingly rotated. Upon the pivotal bearing of the wheel H is pivoted a yoke N, which has the form shown, and upon one end has pivoted a spur-wheel O, that is always in mesh with said wheel H, and by the swinging of said yoke may be caused to mesh or to be moved out of mesh with the winding-wheel D. Upon the opposite end of said yoke is journaled another spur-wheel P, which is in mesh with said wheel H, and upon its upper side carries a smaller wheel Q, that by the swinging of said yoke in the direction necessary to disengage said wheels D and O will be caused to engage with the wheel F. As thus arranged it will be seen that when said yoke is turned to cause the engagement of the wheels D and O the rotation of the stem-arbor in the right direction will cause the mainspring to be wound, while by turning said yoke until the wheels F and Q are engaged the rotation of said arbor will cause the dial-wheels to be moved and enable the hours and minutes hands to be set. The swinging of the yoke N is effected through the longitudinal movements of the stem-arbor M by means of a stud *n*, that projects from said yoke into a peripheral groove *l*′, which is formed in the arbor L adjacent to the inner side of the wheel I. The inner portion of said groove has an inclined face, so

that when said arbor is drawn outward said stud will be moved laterally, so as to swing said yoke into position for setting engagement, while when said arbor is moved to the inner limit of its motion said yoke, by the action of a spring n' upon the projecting end of one of the pivots of the wheel Q, will be automatically moved to position for winding engagement and will be held in such position with a yielding pressure. A spring R, secured upon one of the plate-sections and engaging with a peripheral groove l^2 in the arbor L, holds the same with a yielding pressure at the inner limit of its motion without interference with perfect freedom of rotation. As thus constructed the normal position of the stem-driven train is in winding engagement, and when it is desired to effect a setting engagement the stem-arbor must be drawn outward. By making the stem-arbor in sections which are readily separable the movement can be placed in and removed from a case without disturbing any of its parts, and such movements and cases can be made interchangeable.

Having thus described my invention, what I claim is—

1. As an improvement in stem winding and setting watches, in combination with the barrel and the dial-train, the two wheels having the same axis as the former to wind the spring and move the hands respectively, and the stem-driven train adapted to engage either one or the other of said wheels, substantially as and for the purpose specified.

2. As an improvement in stem winding and setting watches, in combination with the barrel and the dial-train, the two wheels having the same axis as the former, adapted the one to wind the mainspring and the other to move the hands, the swinging yoke carrying wheels to engage the former wheels, and the longitudinally-movable stem-arbor to vibrate said yoke and rotate its wheels, substantially as and for the purpose shown.

3. As an improvement in stem winding and setting watches, in combination with the barrel and the dial-train, the winding-wheel on the barrel-arbor, the wheel engaging the dial-train having an axis concentric therewith, the swinging yoke carrying wheels to engage both of said wheels alternatively, and the longitudinally-movable stem-arbor to vibrate said yoke and rotate its wheels, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of July, A. D. 1890.

GEORGE E. HART.

Witnesses:
GEO. S. PRINDLE,
GEO. E. TERRY.