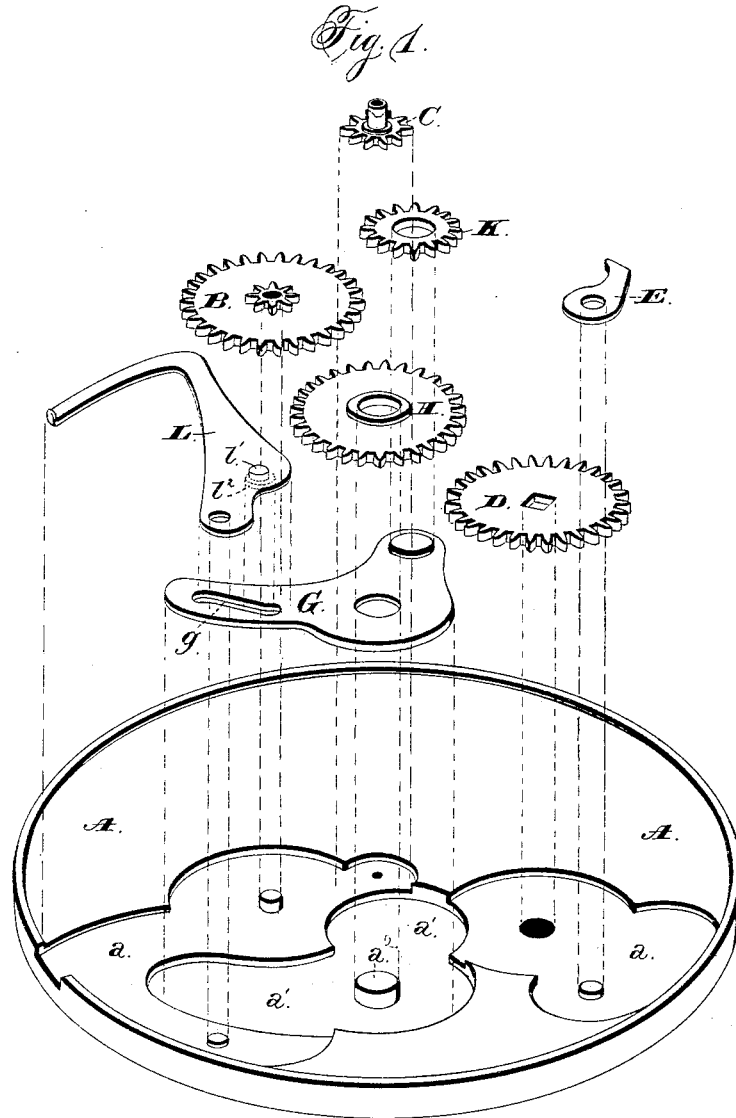


G. S. HEATH & A. F. CHAMPLIN.

STEM WINDING AND SETTING WATCH.

No. 348,009.

Patented Aug. 24, 1886.



Witnesses:
Just C. Hutchinson.
Henry C. Hazard

Inventors
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Grindle & Russell, their Attys

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Fig. 2.

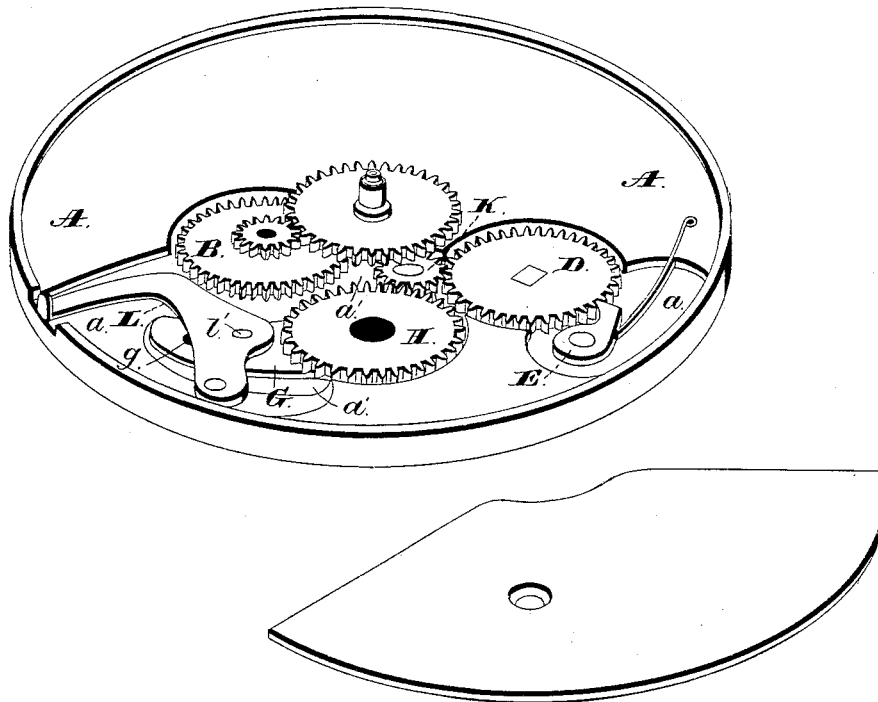
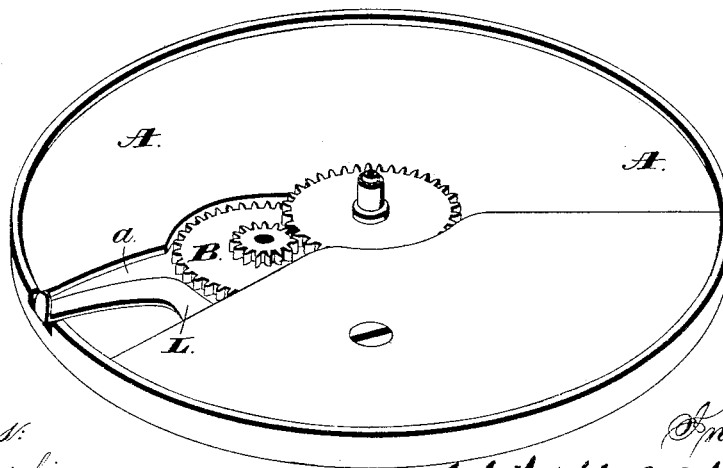


Fig. 5.



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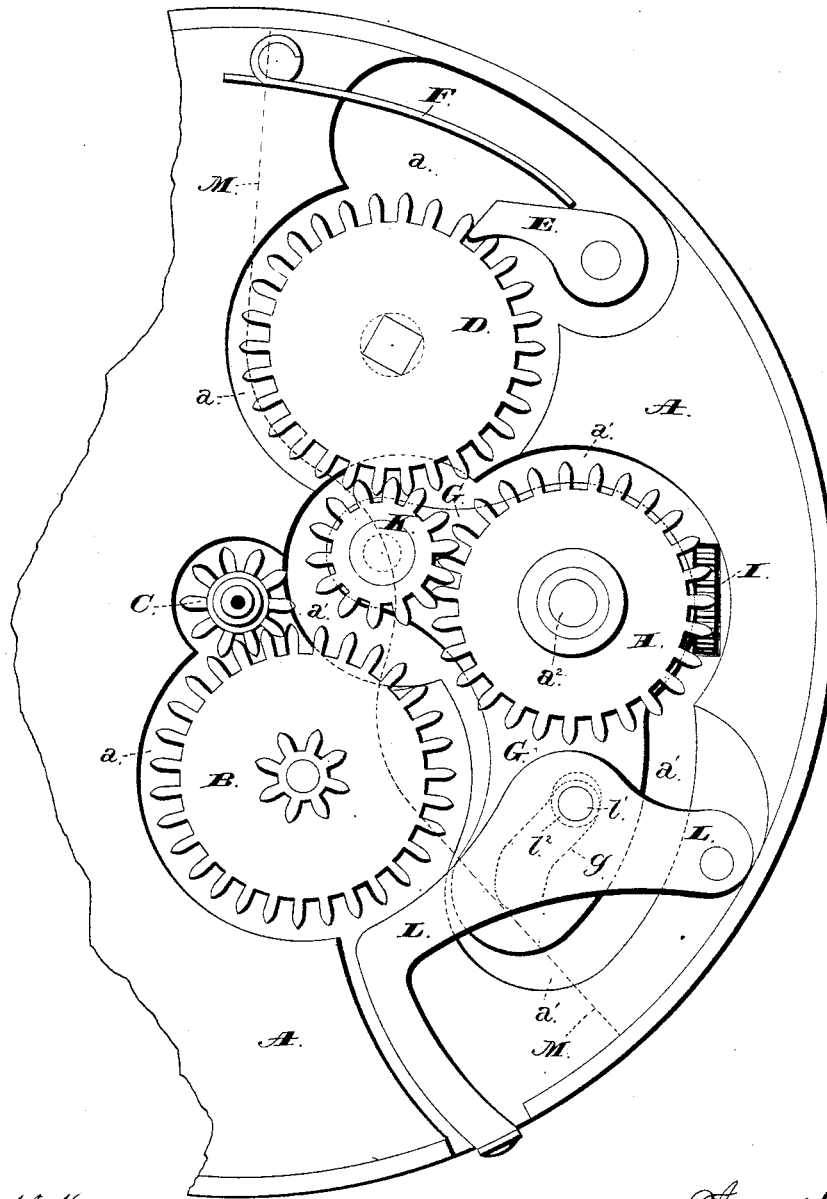
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Fig. 4.



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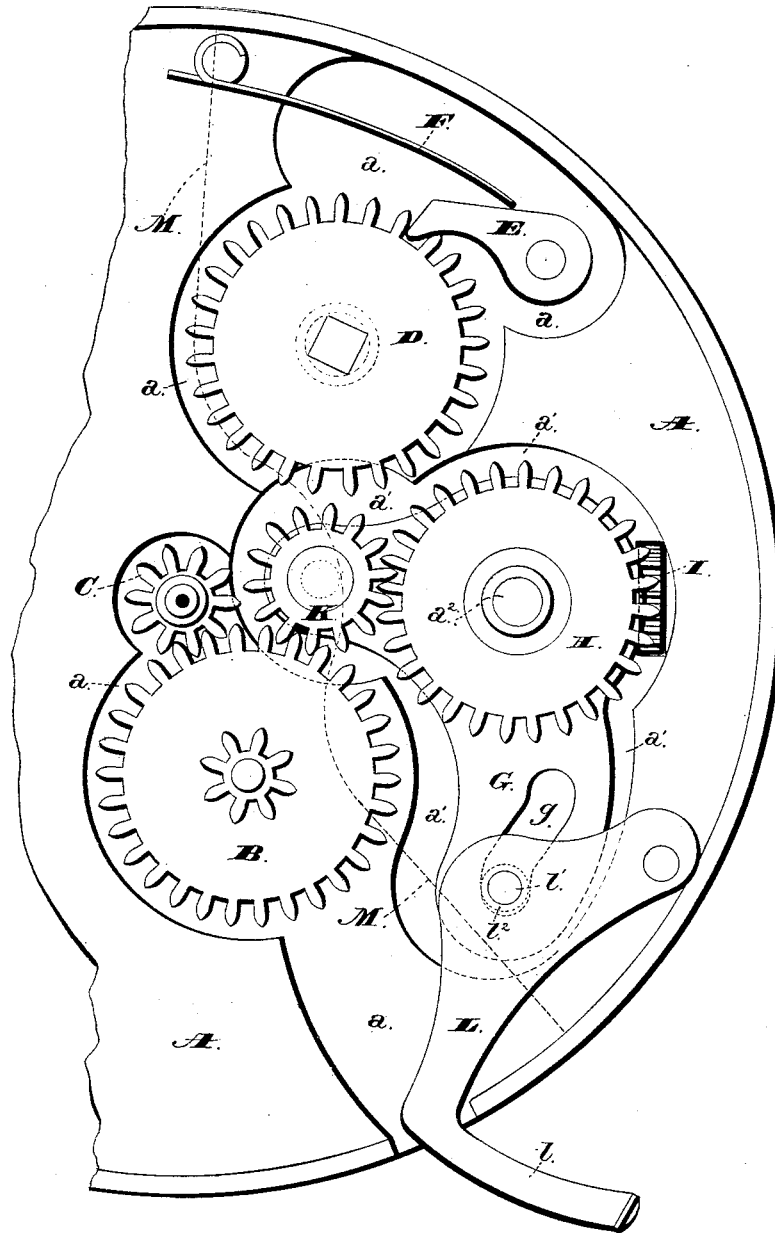
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Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE S. HEATH AND AMOS F. CHAMPLIN, OF HARTFORD, CONNECTICUT.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 343,009, dated August 24, 1886.

Application filed September 9, 1885. Serial No. 176,619. (No model.)

To all whom it may concern:

Be it known that we, GEORGE S. HEATH and AMOS F. CHAMPLIN, of Hartford, in the county of Hartford, and in the State of Connecticut, have invented certain new and useful Improvements in Stem Winding and Setting Watches; and we 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 our train separated from each other. Fig. 2 is a like view of said train in position within and upon the pillar-plate. Fig. 3 is a perspective view of said parts inclosed by the bridge. Fig. 4 is an enlarged plan view of said pillar-plate and train united, the latter being in position for winding the mainspring; and Fig. 5 is a like view of the same in position for setting the hands.

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

The object of our invention is to simplify the construction and to increase the efficiency of stem winding and setting mechanism, to which end said invention consists in the construction and arrangement of parts substantially as and for the purpose hereinafter specified.

In the carrying of our invention into effect a pillar-plate, A, of usual form, is provided with a recess, *a*, which has the form shown in Fig. 1, and contains the usual dial-wheels, B and C, and the spring-arbor wheel or winding-wheel D, its pawl E, and the pawl-spring F, said parts occupying the same plane. A second deeper recess, *a'*, having the form seen, is provided in the plate A, for the reception of a yoke, G, which yoke has the general shape of a bell-crank, and is pivoted at the intersection of its arms upon a boss, *a*², that is left upon said plate A in the cutting of said recess. Said yoke is cut from a plain sheet of metal, and has a thickness substantially equal to the depth of said recess *a'*, so that its upper face is flush with or slightly above the bottom of the recess *a*.

Pivoted upon the boss *a*², above the yoke G, is a toothed wheel, H, which meshes with and is moved by a stem-driven pinion, I, and also meshes with and drives a pinion, K, that is

pivoted upon the short arm of said yoke between the winding-wheel D and the minutes-wheel B, and which by the movement of said yoke upon its bearing may be caused to engage with either of said wheels.

Pivoted at one end, within the recess *a*, is a lever, L, which has the general form of a bell-crank, and at its center rests upon or is located over the long arm of the yoke G. When in its normal position, as seen in Fig. 2, the end *l* of said lever that is opposite to its pivotal bearing projects slightly beyond the edge of the movement-plate A, and is hooked so as to be readily engaged by the finger-nail for the purpose of being drawn outward to the position shown in Fig. 3.

From the lower side, near the center of the lever L, a stud, *l'*, projects downward into a slot, *g*, that is formed within the long arm of the yoke G. Said slot has a general direction slightly oblique to the longitudinal axis of said arm and to the path of said stud, and at each end for a short distance has the same curvature as the said path. Its length is such as to enable said lever to be moved to the limit of its motion in each direction without causing said stud to impinge upon its ends.

The relative positions of the slot *g* and stud *l'* are such that when the lever L is at the inner limit of its motion the yoke G will be turned to the position shown in Fig. 2, with its intermediate pinion, K, in engagement with the winding-wheel D, while by moving said lever to the outer limit of its motion said yoke will be turned to the position seen in Fig. 3, and thereby said intermediate pinion will be disengaged from said winding-wheel and caused to engage with the minutes-wheel B, the first-named arrangement of parts enabling the mainspring to be wound from the stem, while by the last-described arrangement of parts the hands may be set through said stem.

In consequence of the curved ends of the yoke-slot *g*, the yoke G has a period of rest after the stud *l'* passes into each curved part, and is locked in place until said stud is withdrawn therefrom. A friction-roller, *l*², may be journaled upon said stud and travel within said slot, or said stud may substantially fill the latter transversely and have direct contact

with its sides; but in either case the movements of said lever are communicated directly to said yoke, and the intermediate pinion is positively moved into and out of engagement with the winding and dial wheels.

In consequence of the placing of the yoke G below the plane of the dial-wheel B, the wheel H, the pinion K, and the lever L are all slightly below the surface of the pillar-plate A upon a level with the winding-wheel D, by which arrangement said parts are adapted to be covered and held in place by means of a single bridge, M, (that, like the said yoke, is cut from a plain sheet of metal,) and a single screw, *m*, that passes through said bridge into the boss *a'*. The yoke and bridge thus made from plain sheet metal, which is rendered practicable by the arrangement of said yoke below the plane of the minutes-wheel, materially lessens the cost of the movement and reduces its thickness.

Having thus described our invention, what we claim is—

1. In a stem winding and setting watch, a yoke which is adapted to carry a portion of the stem-operated train, and is placed within a recess in the pillar-plate below the plane of the minutes-wheel, substantially as and for the purpose specified.

2. In a stem winding and setting watch, a yoke cut from a plain sheet of metal, which is adapted to carry a portion of the stem-operated train, and is placed within a recess in the pillar-plate below the plane of the minutes-wheel, substantially as and for the purpose set forth.

3. In a stem winding and setting watch, in combination with the winding-wheel and the minutes-wheel, a yoke which is placed wholly below the plane of the dial-wheels and is pivoted upon the axis of a stem-driven wheel, and a pinion that is journaled upon said yoke between said winding and minutes wheels, is in constant engagement with said stem-driven wheel, and by the oscillation of said yoke is capable of engagement with said winding-wheel or said minutes-wheel, substantially as and for the purpose shown.

4. In a stem winding and setting watch, in

combination with the winding and dial wheels, a pivoted yoke which is placed wholly below the plane of the dial-wheels, and carries a pinion that is in constant engagement with a stem-driven wheel, and is arranged between the winding-wheel and minutes-wheel, and a pivoted lever which is adapted to move said yoke in opposite directions to cause said pinion to engage with said winding-wheel or said minutes-wheel, substantially as and for the purpose set forth.

5. The combination, with the winding-wheel and the minutes-wheel, of the stem-driven wheel, the pivoted slotted yoke, the intermediate pinion, and the lever provided with the engaging stud, substantially as and for the purpose shown and described.

6. As an improvement in stem winding and setting watches, a pivoted yoke, operating-lever, stem-driven wheels, winding-wheel, and dial-wheel, combined with and held in position within a movement-plate by means of a plain bridge and a single screw, substantially as and for the purpose specified.

7. In a stem winding and setting watch, a bridge which is cut from a plain sheet of metal, in combination with a recessed pillar-plate and with stem winding and setting mechanism that are contained within such recesses wholly below the surface of said pillar-plate, and are covered by said bridge, which is secured upon the surface of the latter, substantially as and for the purpose set forth.

8. In combination with the pivoted yoke carrying the stem-driven and the intermediate wheels, and provided with an oblique slot having its ends curved in opposite directions, the pivoted operating-lever provided with a stud which engages with said slot, substantially as and for the purpose shown.

In testimony that we claim the foregoing we have hereunto set our hands this 2d day of September, A. D. 1885.

GEORGE S. HEATH.
AMOS F. CHAMPLIN.

Witnesses:

T. R. LAUGHTON,
WALTER T. CHAMBERLIN.