

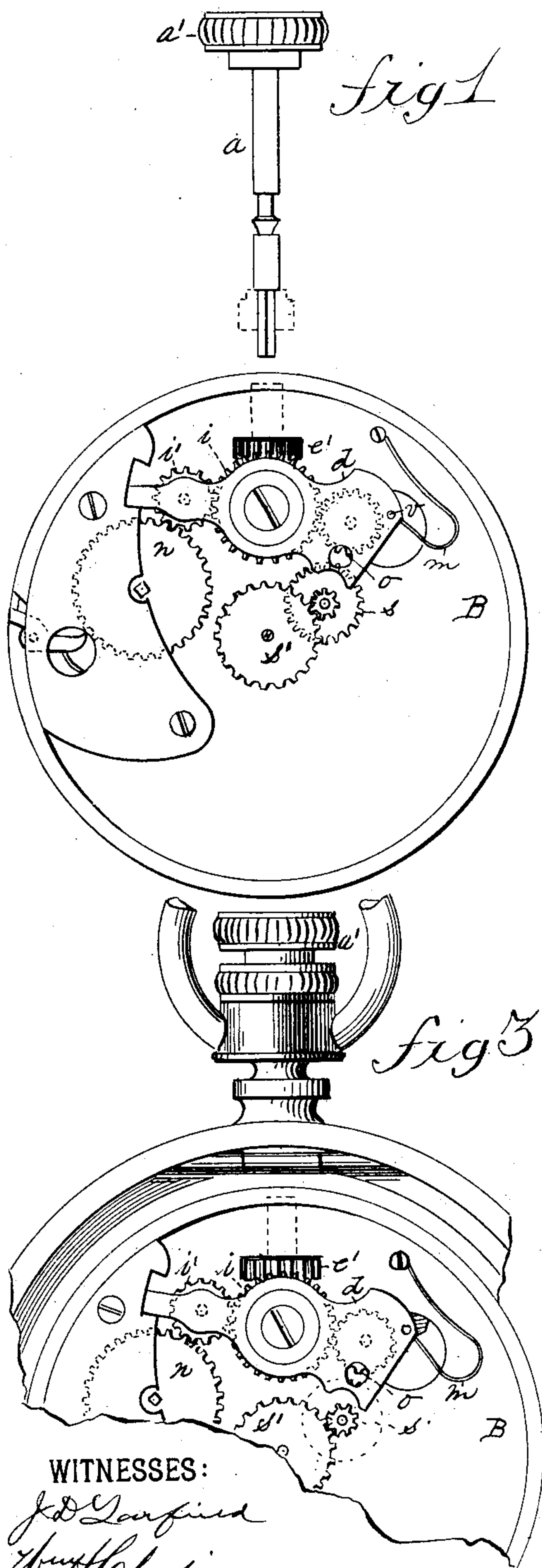
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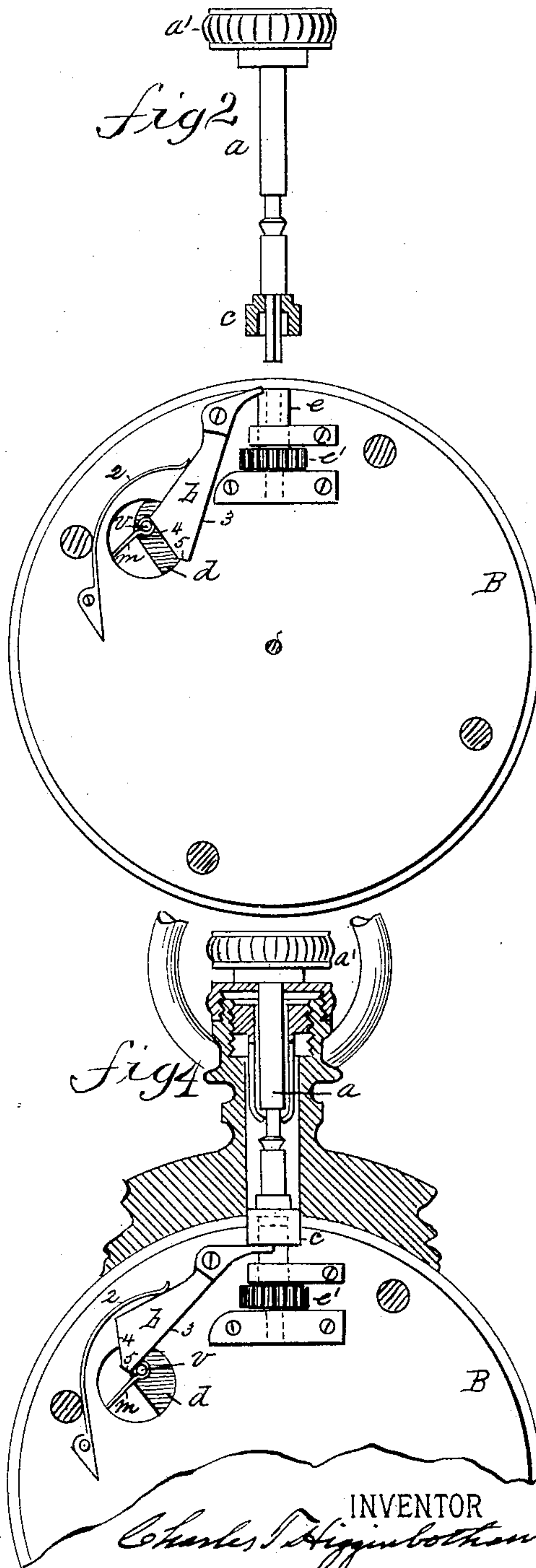
C. T. HIGGINBOTHAM.
STEM WINDING AND SETTING WATCH.

No. 330,401.

Patented Nov. 17, 1885.



WITNESSES:
J. D. Garfield
Wm. H. Chapin



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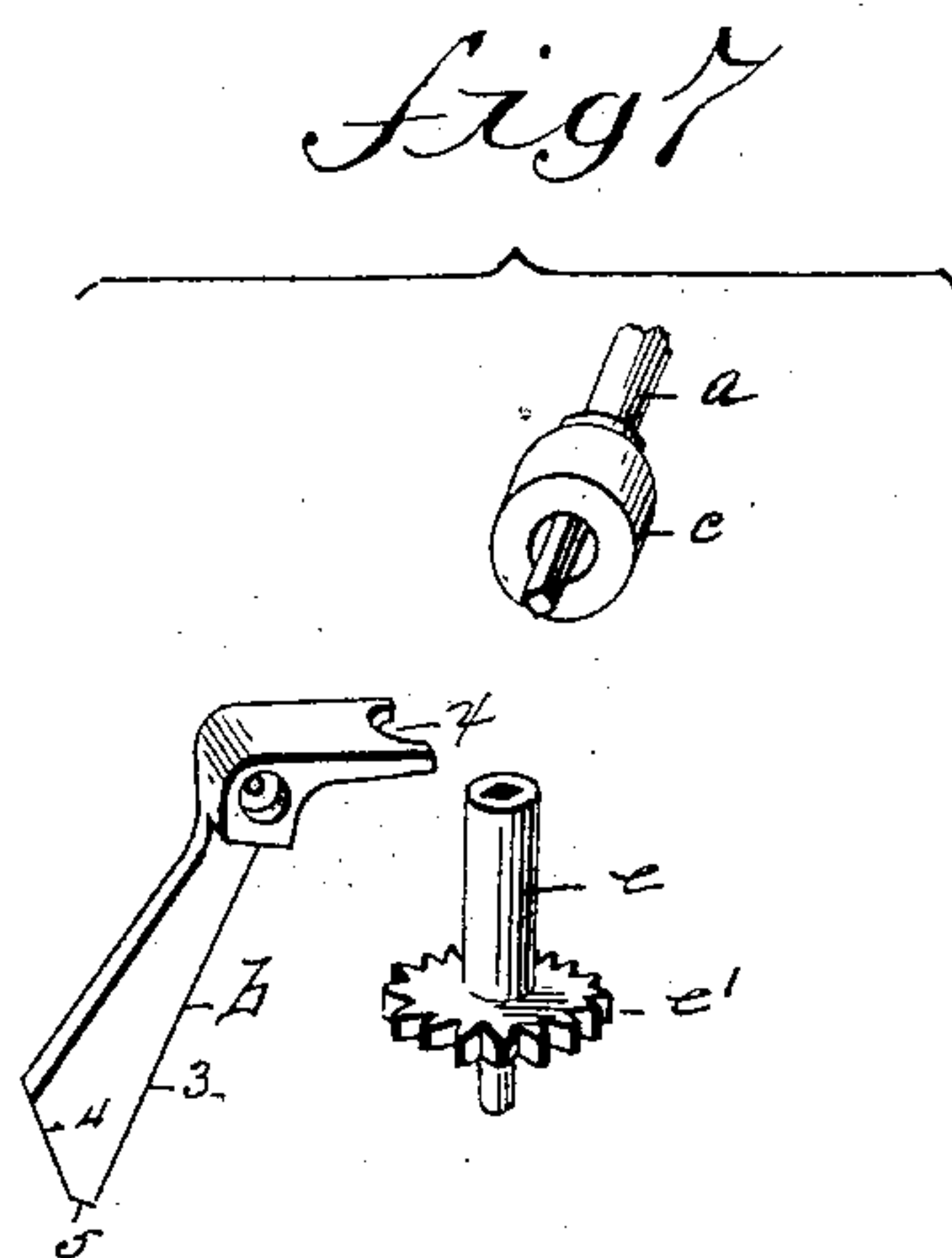
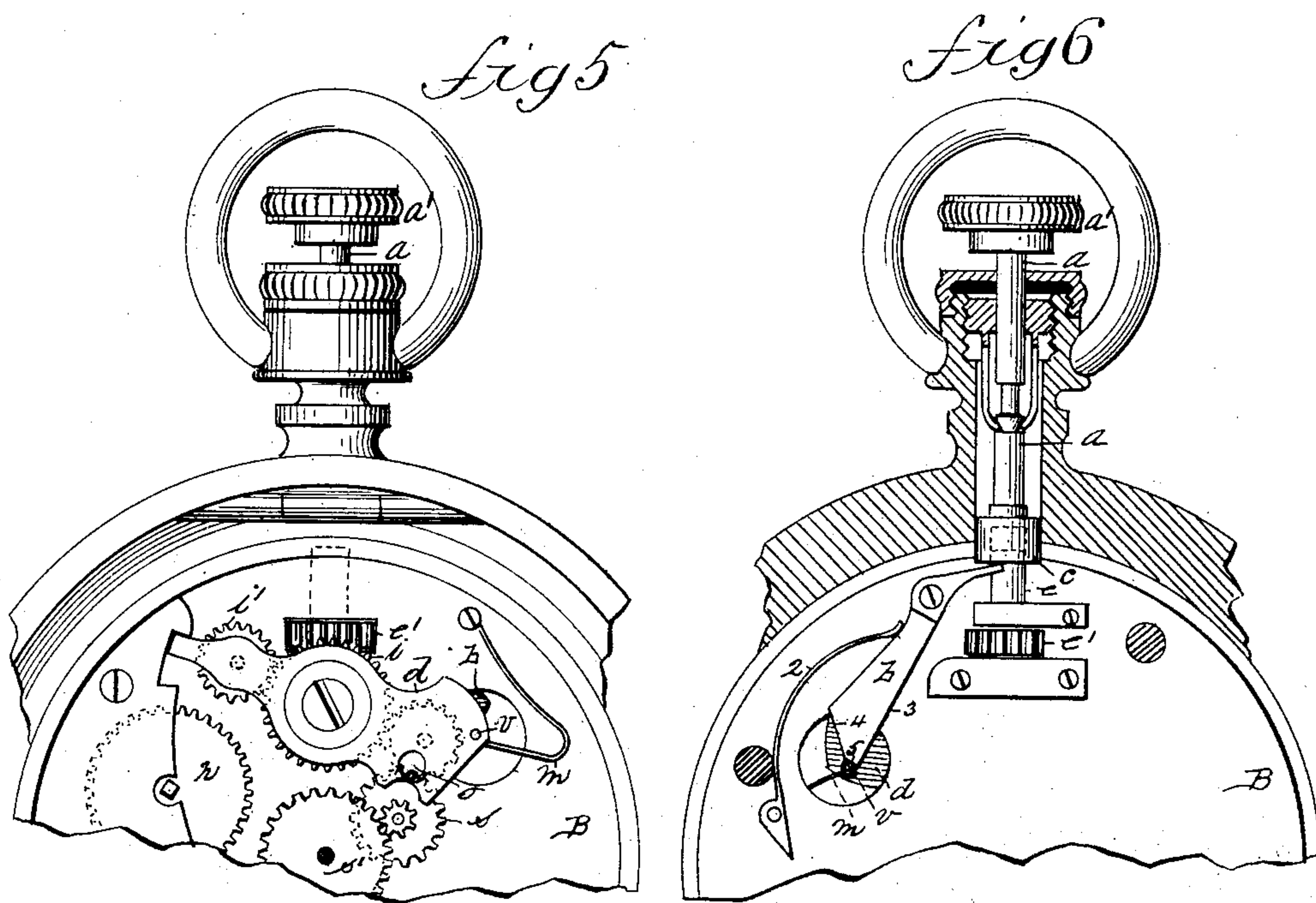
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

CHARLES T. HIGGINBOTHAM, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR
TO THE HAMPDEN WATCH COMPANY, OF SAME PLACE.

STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 330,401, dated November 17, 1885.

Application filed March 9, 1885. Serial No. 158,131. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. HIGGINBOTHAM, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Stem Winding and Setting Watches, of which the following is a specification.

This invention relates to improvements in stem winding and setting watches, the object being to provide in such watches improved mechanism for operating the swing-yoke by means of a winding-stem having an end movement in the stem-pipe of the watch-case, to the end that the winding-pinion of said yoke shall be held normally in engagement with the winding-wheel independently of the winding-stem, that the inward or outward movement of the latter shall swing the yoke from the winding-wheel to engage with the hand-setting pinions, afterward permitting it to return the said winding-pinion to its said normal position.

A further object of this invention is to provide improved devices for permitting a free movement of the winding-stem, whereby the case-spring is operated without moving the swing-yoke.

In the drawings forming part of this specification, Figures 1 and 2 show, respectively, the upper and the under side of the pillar-plate of a watch having applied thereto stem winding and setting mechanism embodying my invention, Fig. 1 showing, in proximity to said plate, the ordinary winding-stem and its crown, and Fig. 2 showing a similar stem adapted to co-operate with my improvements. Fig. 4 shows the upper section of said pillar-plate and the same side thereof as is shown in Fig. 2, and shows a section of the case and stem-pipe of the watch, with the winding-stem in engagement with the yoke-actuating devices. Fig. 3 is a similar view to Fig. 4, but shows the reverse side of the pillar-plate and section of the case. Figs. 5 and 6 are similar views to Figs. 3 and 4, but showing the stem winding and setting parts in different positions. Fig. 7 illustrates detail parts.

The improvements hereinafter described and shown in the drawings are so arranged and applied to a watch-movement that said movement is practically interchangeable with another relative to a watch-case, which is pro-

vided with a winding-stem terminating about at the inside of the case, as shown in Fig. 6.

In the drawings, B is the pillar-plate of the watch. *a* is the winding-stem, provided with the usual crown, *a'*, and having fixed thereon the hollow collar *c*, through and beyond which the squared end of the winding-stem projects, as clearly shown in Figs. 2 and 7. Said winding-stem *a* is adjustably secured in the stem-pipe of the watch-case in any suitable manner, whereby it is capable of being moved toward and from the movement and temporarily held in different positions, and is permitted to be freely rotated. The swing-yoke *d* is of the usual construction, except that it is provided with a stud, *v*, projecting from its under side through an aperture in plate B and a little beyond the under surface thereof. A spring, *m*, having one end attached to plate B and one to the stud *v* on the yoke, acts to swing the latter and carry the pinion *i'* into engagement with the winding-wheel *n*. The yoke *d* is pivoted to plate B in the usual manner, having thereunder the pinion *i*, which engages with pinion *e'*, and pinions *i'* and *o* engage with pinion *i*, pinions *i'* and *o* being pivoted at opposite ends of the yoke.

When pinion *e'* is rotated, pinions *i*, *i'*, and *o* are all turned and either the winding-wheel *n* is rotated or the hand-setting wheel *s'* is turned through the intermediate pinion, *s*, according to the position of the yoke—that is to say, whether pinion *o* engages pinion *s*, or whether pinion *i'* engages wheel *n*—and the herein-described improvements provide for operating said yoke at pleasure by means of the stem *a*, for the purposes above set forth, as hereinafter described.

The journal *e* of the pinion *e'* extends to or nearly to the border of the plate B, and is provided with a square socket, as shown, to receive the squared end of the winding-stem *a*, said socket being of sufficient depth to permit of the requisite longitudinal movement of the end of the stem therein, the pinion *e'* being rotated by turning said stem.

The hollow collar *c* incloses the end of the journal *e* when the stem *a* and the latter are in operative connection, as in Figs. 4 and 6, leaving the thickness of the sides of collar *c* beyond the side of the journal *e* to engage with the short arm of lever *b*.

As above described, the stud *v* on the under

side of yoke *d* projects a little above the face of plate B in Figs. 2, 4, and 6.

A two-armed lever, *b*, is pivoted on plate B, the form of which is shown in Fig. 7. The short arm of said lever extends near to the side of the journal *e*, under the collar *c*, the end of said arm being slightly bifurcated at *x*, as shown. The end of the long arm of lever *b* terminates near the stud *v* on the yoke *d*, the said end of the long arm having an edge partly inclined to the edge 3 of the lever, as at 4, and partly at right angles to said edge, as at 5. A spring, 2, secured to plate B, bears against the outer edge of lever *b*, holding the latter, when not interfered with by the stem *a* and collar *c*, in the position shown in Fig. 2, so that stud *v* on yoke *d* stands at the point on the inclined edge 4 of said lever nearest the pivot of the latter, and the pinion *i'* on the yoke is in engagement with the winding-wheel *n*, as in Fig. 1, that position of the yoke being its normal one.

Upon putting the movement into a watch-case the stem *a* and collar *c*, together with lever *b* and the stud *v*, occupy, by preference, the positions shown in Fig. 4, although they may occupy one wherein the lever *b* and stud *v* stand as in Fig. 2; as hereinafter described. When said operative parts occupy the positions shown in Fig. 4, the collar *c* bears on the end of the short arm of lever *b*, swinging its long arm quite by the stud *v*, and allowing the yoke *d*, actuated by spring *m*, to swing free of said lever to its said normal position. The stem *a* may have from the position shown in Fig. 4 a further end movement against the lever *b*, the latter meanwhile swinging clear of stud *v*, which end movement serves to actuate a case-spring when necessary.

With the parts in the positions shown in Figs. 4 and 3, they are in proper relation with the wheel *n* for winding the watch by turning stem *a* in the usual way and for operating said case-spring. Drawing the stem out to the position shown in Fig. 6 lets spring 2 swing lever *b* to the position there shown, bringing stud *v* opposite the right-angle line 5 of said lever, and thereby the yoke *d* is caused to swing to the position shown in Fig. 5, carrying pinion *i'* away from wheel *n*, and engaging pinion *o* with the intermediate wheel, *s*, which engages with the hand-setting wheel *s'*, whereby the watch is set.

As aforesaid, the stem *a* may be operated against lever *b* from the position of the latter shown in Fig. 2, which position leaves the winding parts in proper connection. A slight movement inward of the stem would swing the lever to the positions shown in Figs. 5 and 6 for setting, and a further inward stem movement would bring the parts to the positions shown in Figs. 3 and 4, which are above described. Thus the inward or outward movement of the stem *a* from an extreme position in either direction has substantially the same

effect upon the winding and setting mechanism; but it is preferable, from a practical point of view, that the normal position of the stem should be inward, or such as is shown in Fig. 4, so that it may be always ready to act on a case-spring, and may, by a slight withdrawal, bring the hand-setting devices into gear.

What I claim as my invention is—

1. In a stem winding and setting watch, a swing-yoke having pinions thereon for alternate engagement with the winding and hand-setting wheels, said yoke-pinions being held by a yielding force normally in engagement with the winding-wheel, and having a stud on one side thereof, and a lever, *b*, pivoted to swing in the plane of said yoke, having a portion, 4, of the end of one arm adjoining said yoke-stud inclined to the edge 3 of the lever, and a portion thereof, 5, at right angles to said edge, and having the end of its other arm engaging with the endwise-moving winding-stem of the watch, combined and operating substantially as set forth.

2. In a stem winding and setting watch, an end-moving winding-stem, substantially as described, provided with a collar near its squared end, a pinion having a hollow journal to receive the square end of the winding-stem, a swing-yoke having a stud on one side and pinions thereon for engagement with said stem-connected pinion, and for alternate engagement with the winding and hand-setting wheels of the watch, a spring holding said yoke-pinions normally in engagement with the winding wheel, and a lever having the end of its long arm formed with the surfaces thereof, 4 and 5, respectively, at an incline and at right angles to the edge 3 of said arm, and its other arm engaging with the winding-stem, combined and operating substantially as set forth.

3. In a stem winding and setting watch, the stem *a*, the pinion *e'*, having the hollow journal *e*, the swing-yoke *d*, having stud *v* thereon, and its winding and hand-setting pinions, substantially as described, spring *m*, holding said yoke normally in engagement with the winding-wheel *n*, the lever *b*, having the end of its long arm formed with the surfaces thereof, 4 and 5, respectively, at an incline and at right angles to the edge 3 of said arm, and its other arm engaging with the winding-stem, and spring 2, combined and operating substantially as set forth.

4. The combination, with the yoke *d*, having stud *v* thereon, of spring *m*, lever *b*, having the end of its long arm formed with the surfaces thereof, 4 and 5, respectively, at an incline and at right angles to the edge 3 of said arm, and its other arm adapted to engage with the winding-stem, and spring 2, combined and operating substantially as set forth.

CHAS. T. HIGGINBOTHAM.

Witnesses:

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J. D. GARFIELD.