

(Model.)

J. BACHNER.  
STEM WINDING WATCH.

No. 355,752.

Patented Jan. 11, 1887.

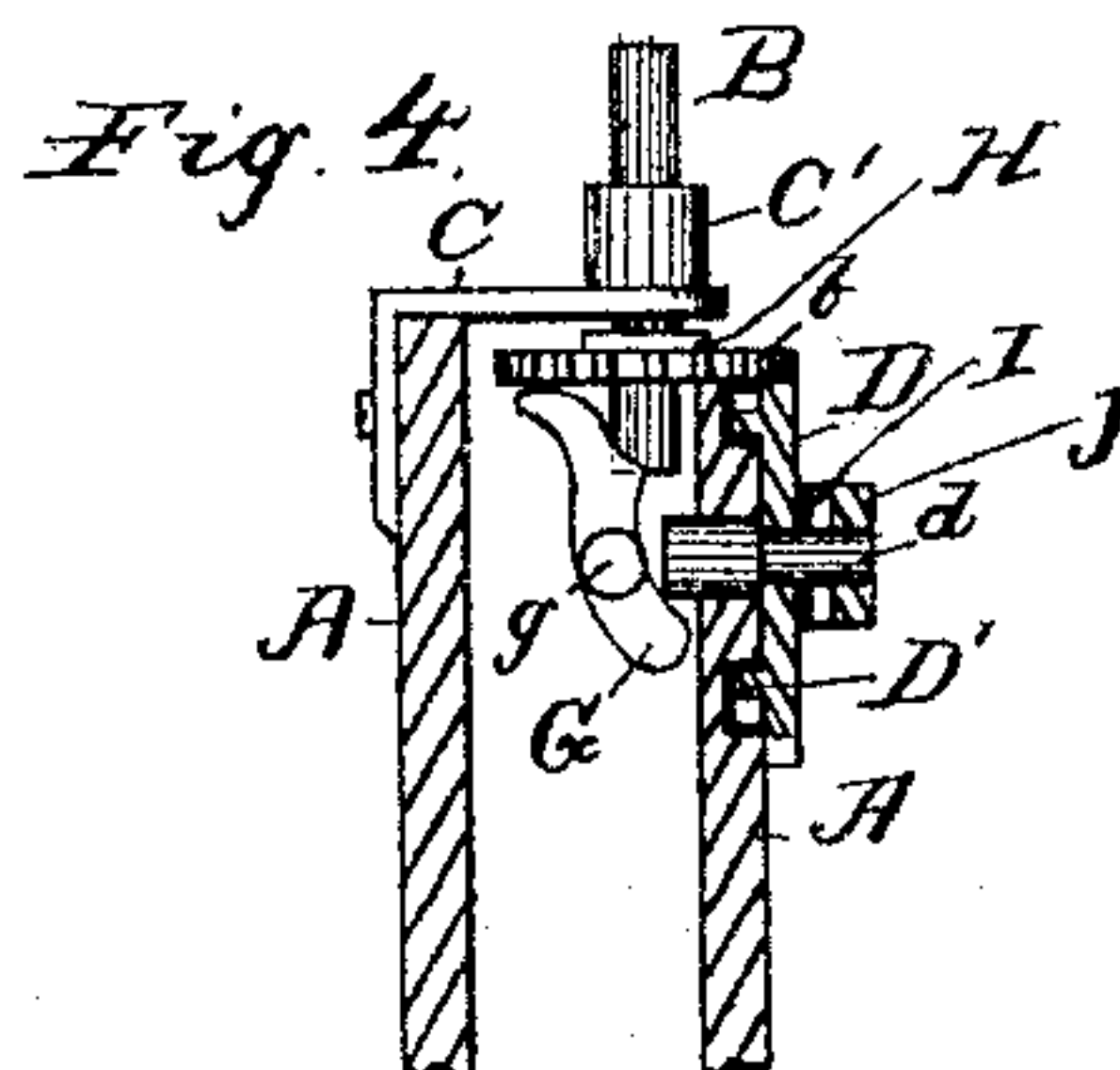
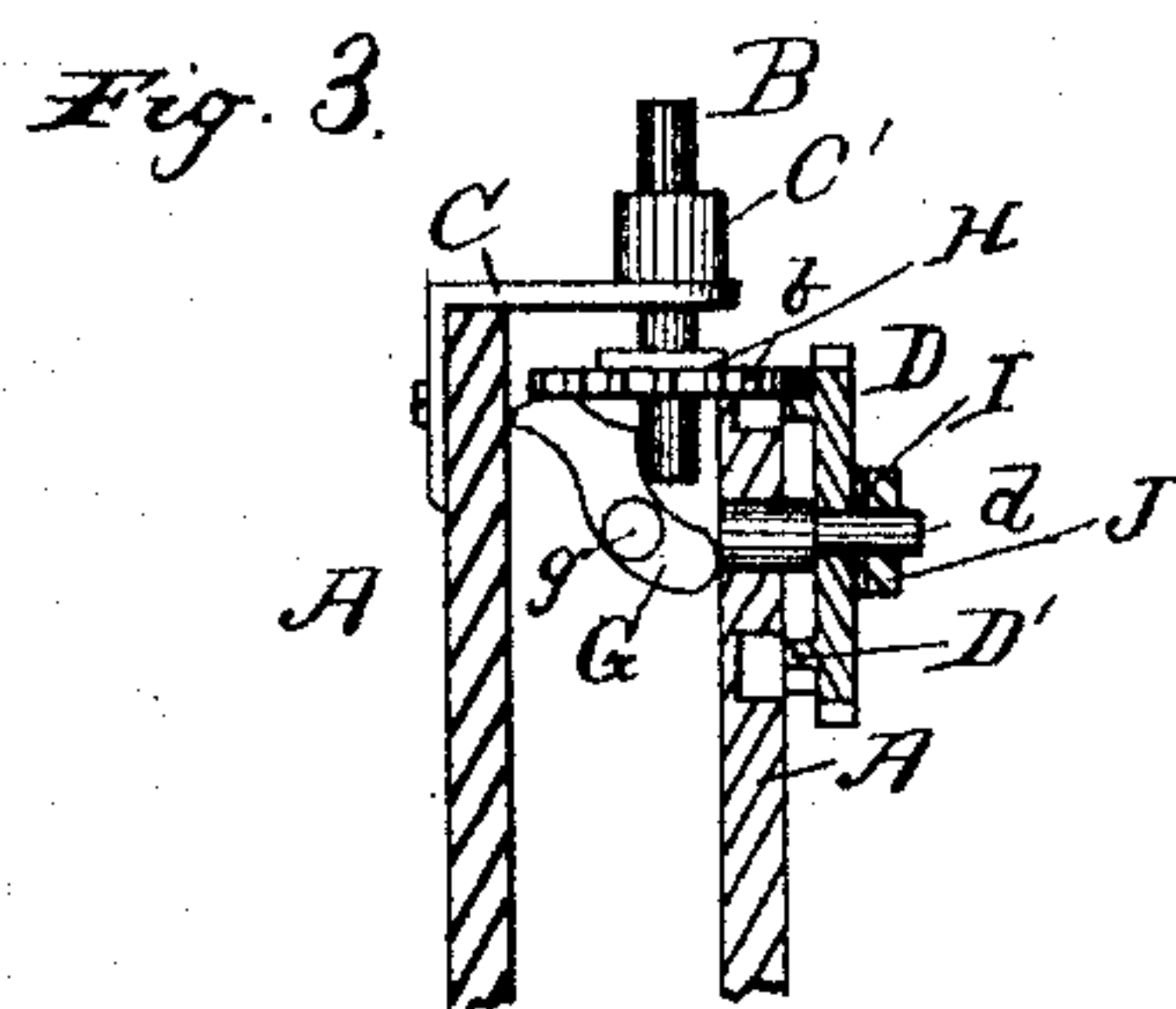
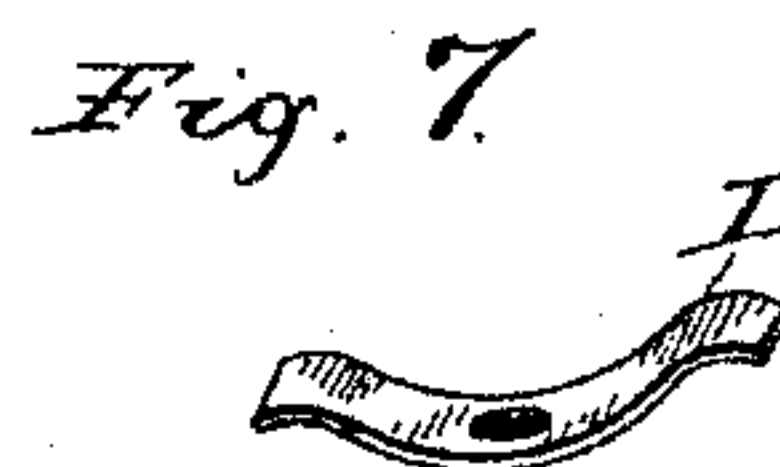
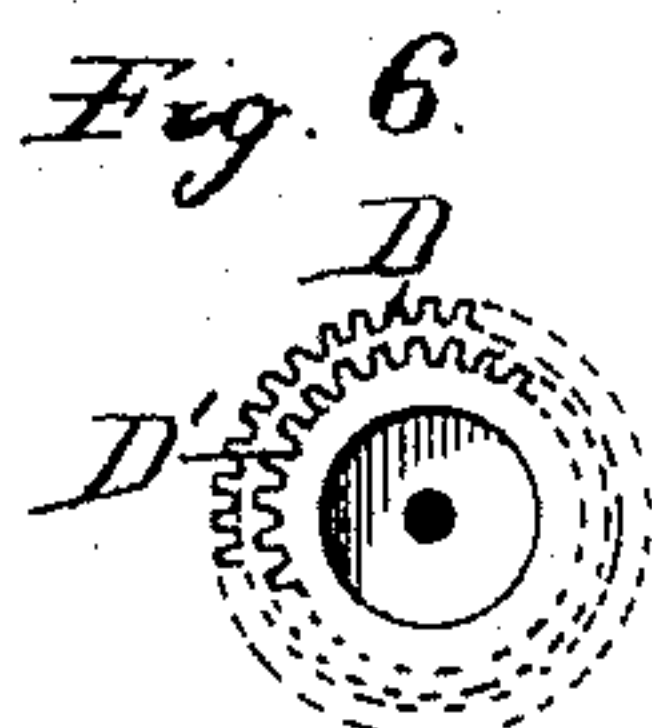
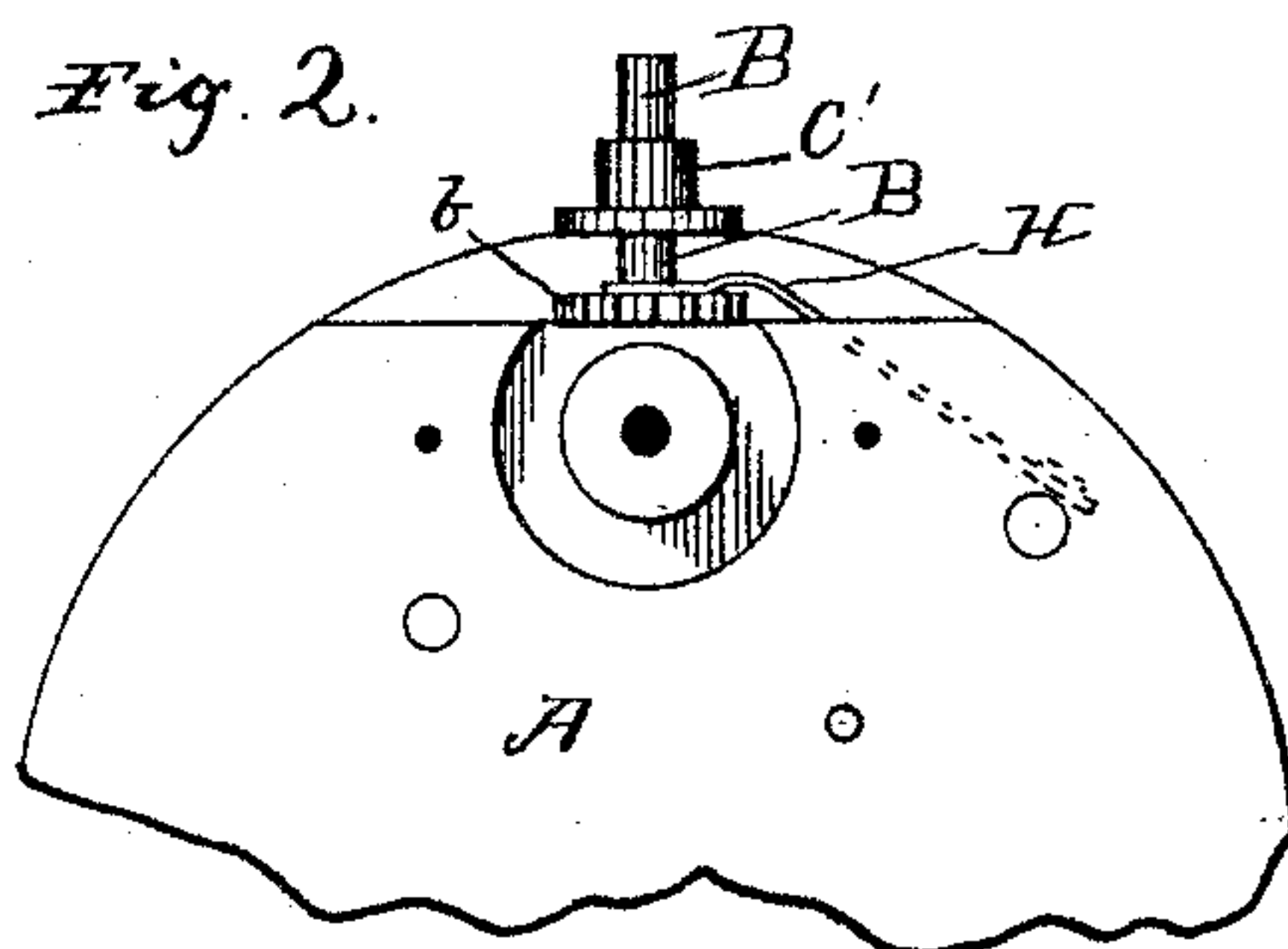
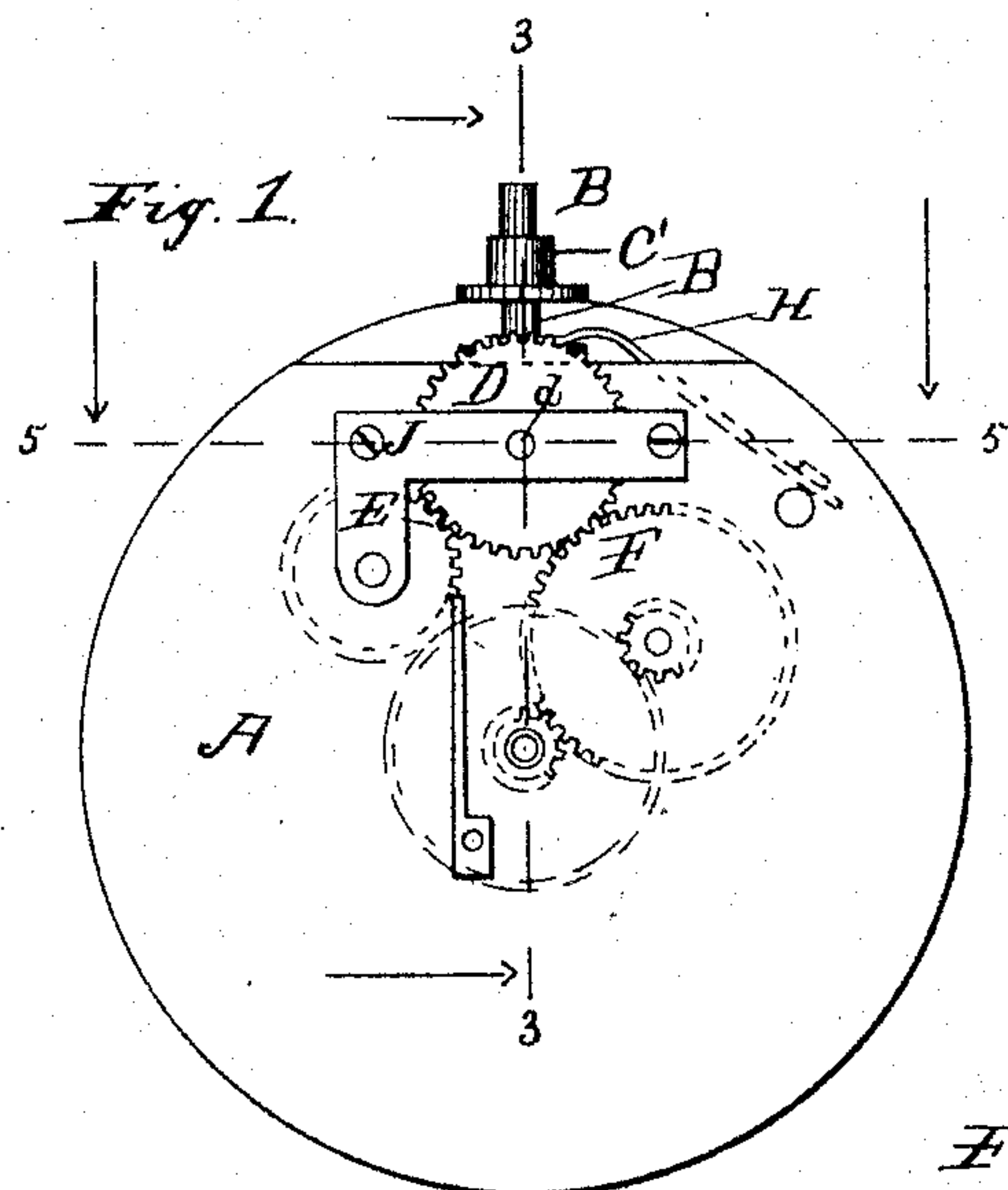


Fig. 5.

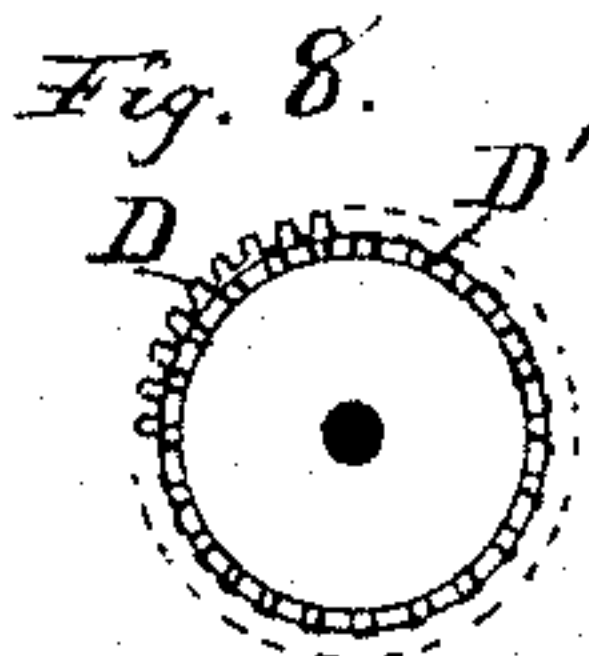
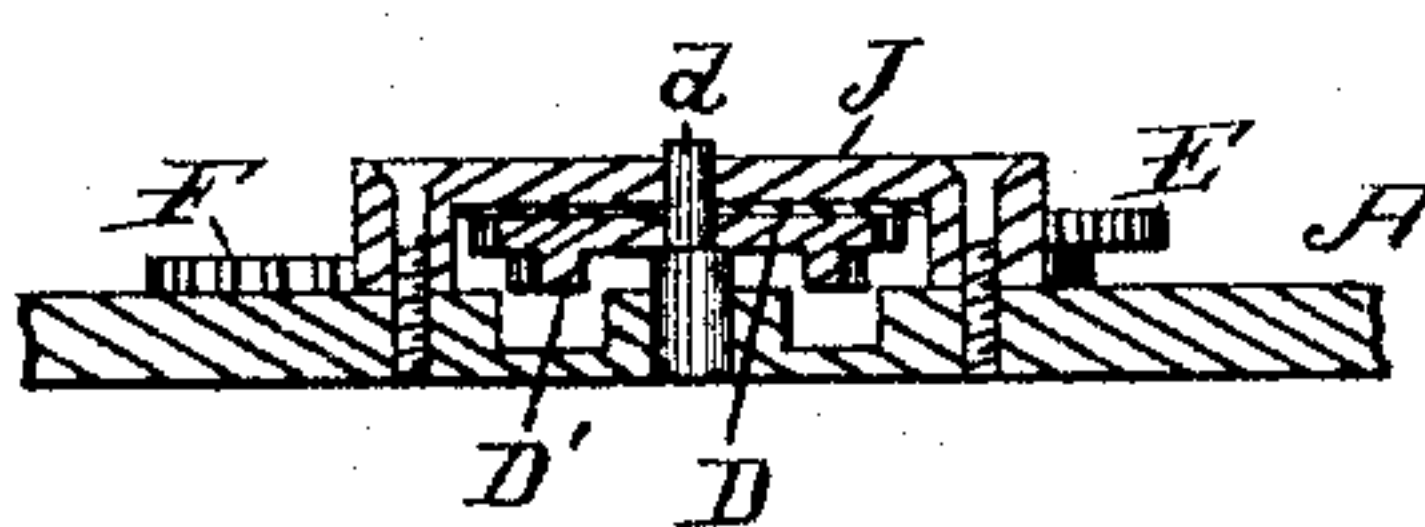
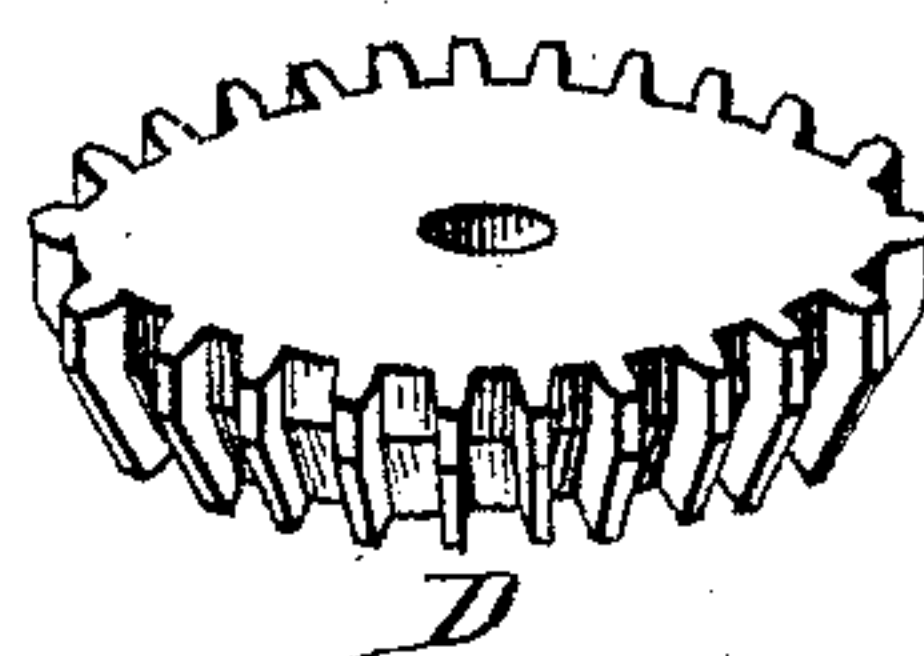


Fig. 9.



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# UNITED STATES PATENT OFFICE.

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## STEM-WINDING WATCH.

SPECIFICATION forming part of Letters Patent No. 355,752, dated January 11, 1887.

Application filed February 23, 1886. Serial No. 192,748. (Model.)

*To all whom it may concern:*

Be it known that I, JOSEPH BACHNER, a citizen of the Republic of France, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Stem-Winding Watches, of which the following is a specification.

This invention relates to the stem winding and setting mechanism of that class of watches and clocks in which the shifting from the winding to the setting movement is brought about by sliding the stem, and is designed to simplify the mechanism employed.

In carrying out the invention I make the winding-stem capable of a slight longitudinal adjustment, so it may be rotated in either of two positions, one being the winding and the other the setting position, and combine with such movable stem two concentric wheels of different diameters, whereby to convey motion from the stem to the spring and hands. These wheels are preferably secured together upon a single arbor, and are movable laterally to and from the stem, so the stem-wheel will mesh with one of said wheels when in the winding position and with the other when in the setting position. The larger of these wheels is utilized to communicate motion both to the mainspring-shaft and the hand shaft, as it meshes in one position with the pinion connected with the former and in the other position with a pinion connected with the latter, such connecting-pinions being located in different planes. The lateral movements of the concentric wheels may be caused in one direction by the longitudinal movement of the stem, and in the return direction by a spring.

The invention consists in the combination of a longitudinally-adjustable winding-stem, the laterally-movable wheels, one engaging with the stem-wheel when in one position and the other engaging therewith when in the other position, and connecting-wheels meshing with said movable wheels and carrying motion to the spring-shaft and hands, as desired, respectively.

The invention further consists in a winding-stem, longitudinally adjustable, as set forth, combined with laterally-movable wheels with

which, respectively, the stem-wheel meshes, as set forth, and through which motion is conveyed from the stem to the winding or the setting mechanism, as desired, and a lever or equivalent device for shifting said wheels when the watch is to be set.

The invention consists in a winding-stem longitudinally adjustable, as set forth, combined with laterally-movable wheels which respectively mesh with the stem-wheel in the two positions and a lever for shifting said wheels, so located relative to the stem as to be actuated thereby when the latter is adjusted.

The invention further consists in the novel construction, arrangement, and combinations of parts hereinafter set forth, and pointed out in the claims.

In the drawings which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a side view of a watch-movement to which my invention has been applied, and Fig. 2 is a similar view with the wheels removed. Figs. 3 and 4 are partial sections on the line 3 3 of Fig. 1, the first section showing the parts in position to wind and the second in position to set. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a detail of the laterally-movable wheels. Fig. 7 is a detail, in perspective, of the spring for returning the movable wheels to the winding position after the watch has been set. Figs. 8 and 9 show modifications of the movable wheels, which may be employed.

In the drawings, A A represent the side plates of a time-movement.

B B represent the longitudinally-adjustable winding-stem.

C is a bridge supporting a bearing, C', in which the stem revolves.

b is the usual toothed wheel carried by the stem. D D' are the movable wheels, meshing at different times with said wheel b, and having different diameters and a common arbor, d. The inner and smaller of these wheels, D', may be formed, as shown, of a simple toothed rim secured to the side of the larger wheel, D, or it may be a solid toothed disk like the latter.

The outer and larger wheel, D, meshes in its different positions with connecting-gears E



and F, the former carrying motion to the main-spring-shaft and the latter to the hands. These gears E and F are in different planes, as shown, and the movable wheels are given a slight lateral movement to insure engagement therewith, as follows: Below the stem and in its path is located a rocking lever, G, stationarily pivoted at *g*, with the upper limb of which the stem comes in contact when moved inward, and rocks said lever from the position in Fig. 4 to that shown in Fig. 3. This rocking of the lever G by the stem slides the arbor *d* outward, thereby disengaging both wheel *b* and wheel F from gear D, and causing the meshing of wheel *b* with wheel D' and of wheel D with gear E. The parts are now in the normal or winding position, and are held therein by the spring H, encircling the stem and pressing downward upon the wheel *b*.

When the connection is to be shifted to enable the watch to be set, the stem is pulled outward against the spring H, thereby freeing the rocking lever and enabling the arbor *d* to move inward in obedience to a spring, I, which is confined between the bridge-guard J and the wheel D, as shown. The outward movement of the stem disengages the stem-wheel and wheel D', and the inward movement of arbor *d* brings both the stem-wheel and the setting-wheel F into mesh with wheel D, thereby bringing the parts into the setting position. When the setting has been done, the stem is pushed in again, and the parts return to the position first described and shown in Figs. 3 and 5.

The spring H should be of sufficient strength to control spring I. The side plate should be recessed, preferably, to receive the wheel D'.

The wheels D and D' may be made as a single wheel, one form of the single wheel being shown in Fig. 8 with one set of spur-teeth, D, and one set of crown-teeth, D', and another form being shown at Fig. 9 with a single set of bevel-teeth, D<sup>2</sup>. In these modifications the spur-teeth in the one case or the outer portion of the bevel-teeth in the other case engage with the stem-wheel when in its outer position, while the crown-teeth or the inner end of the bevel-teeth engage therewith in its inner position. The outer portion of the bevel-teeth

also engages with the connecting-wheels, thus discharging all the functions of wheel D.

I claim—

1. The combination, in a watch or clock, of a longitudinally-adjustable winding-stem, a laterally-movable wheel or wheels engaging with the stem-wheel in one position for winding and in the other for setting, and connecting-wheels for carrying motion to the spring-shaft and hands, substantially as specified.

2. The winding-stem longitudinally adjustable, as set forth, combined with a laterally-movable wheel or wheels meshing with the stem-wheel and carrying motion to the winding and setting trains, respectively, and a lever for shifting said wheel or wheels, substantially as set forth.

3. The winding-stem longitudinally adjustable, as set forth, combined with a laterally-movable wheel or wheels meshing with the stem-wheel and carrying motion to the winding and setting trains, respectively, and a lever operated by the stem for shifting said gears, substantially as specified.

4. The winding-stem longitudinally adjustable, as set forth, and the wheel or wheels mounted upon a shifting axis, in combination with the lever for shifting the wheel or wheels in one direction and the spring for shifting it or them in the other direction, substantially as set forth.

5. The spring-depressed longitudinally-adjustable winding-stem and stem-wheel, in combination with the shifting wheel or wheels and the spring I, substantially as specified.

6. The combination, with the longitudinally-adjustable stem and stem-wheel and the laterally-movable wheel or wheels, of the connecting-gears E and F, located in different planes, substantially as specified.

7. The combination, with the stem and its wheel, adjustable as set forth, of the laterally-movable wheels D D', having different diameters and a common arbor, or the equivalent of such wheels, substantially as specified.

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Witnesses:

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