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PATENTED DEC. 4, 1906.

L. HAUBROE.
STEM WINDING AND SETTING WATCH.
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Fig. 1.

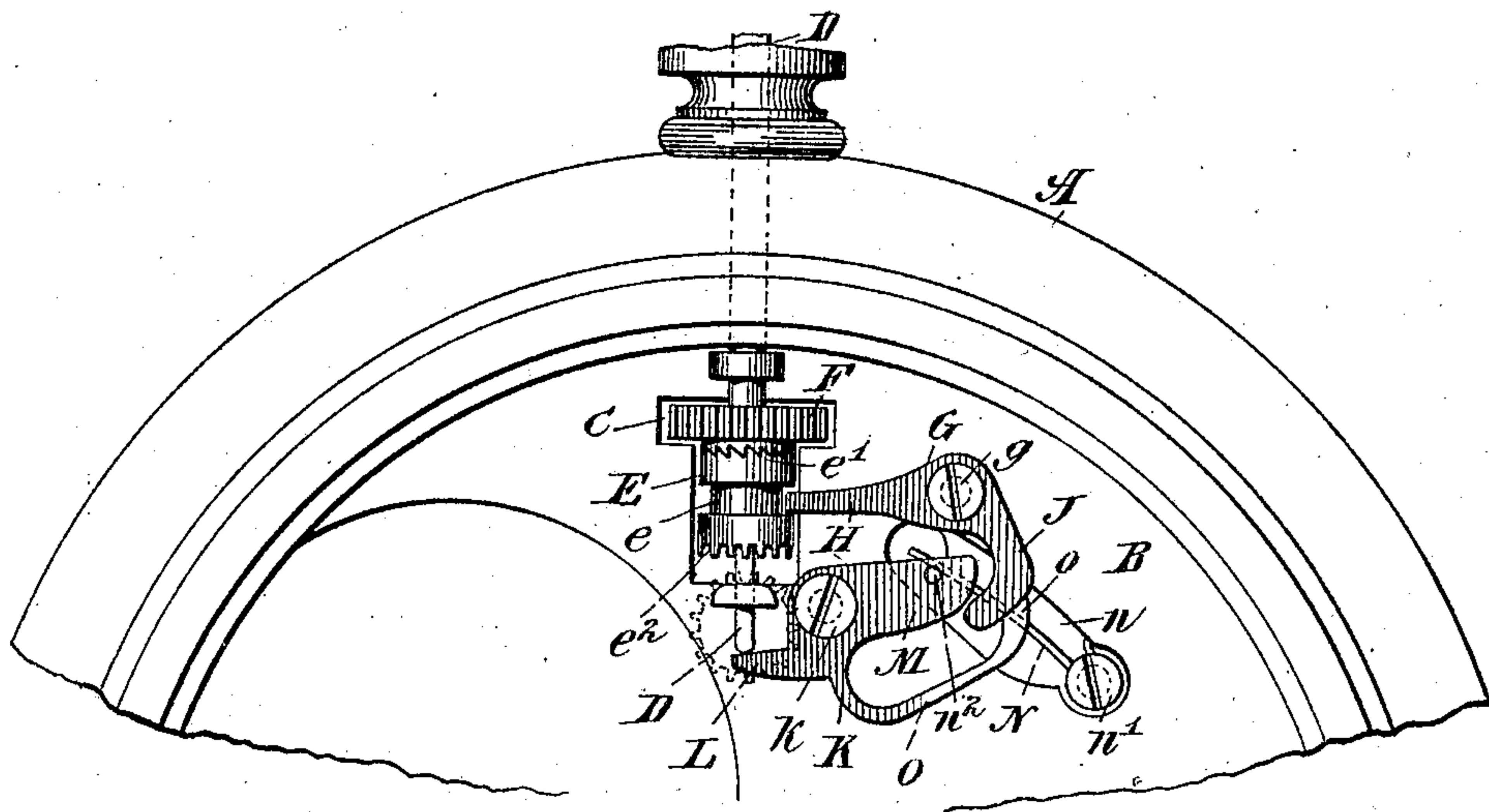


Fig. 2.

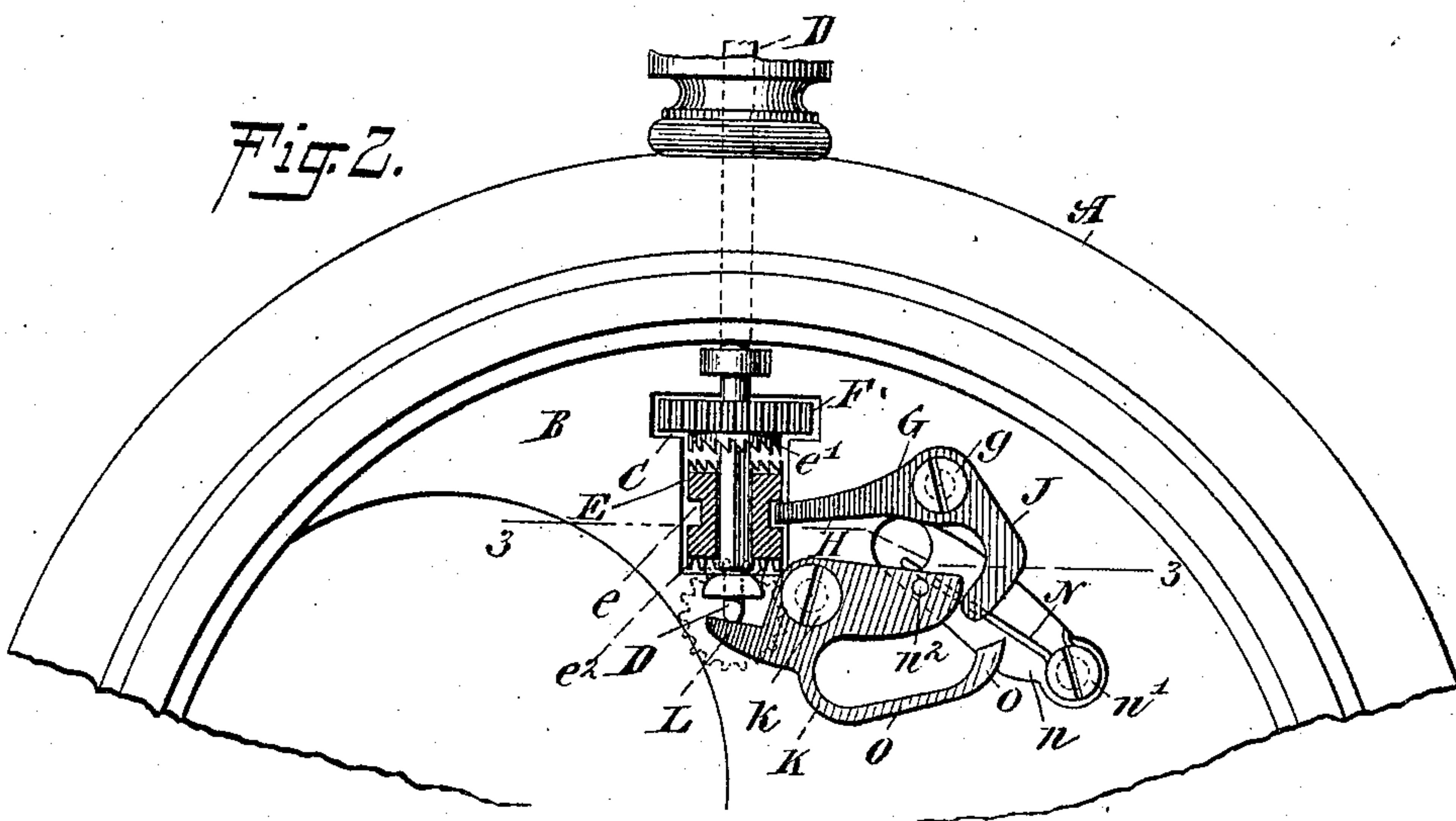
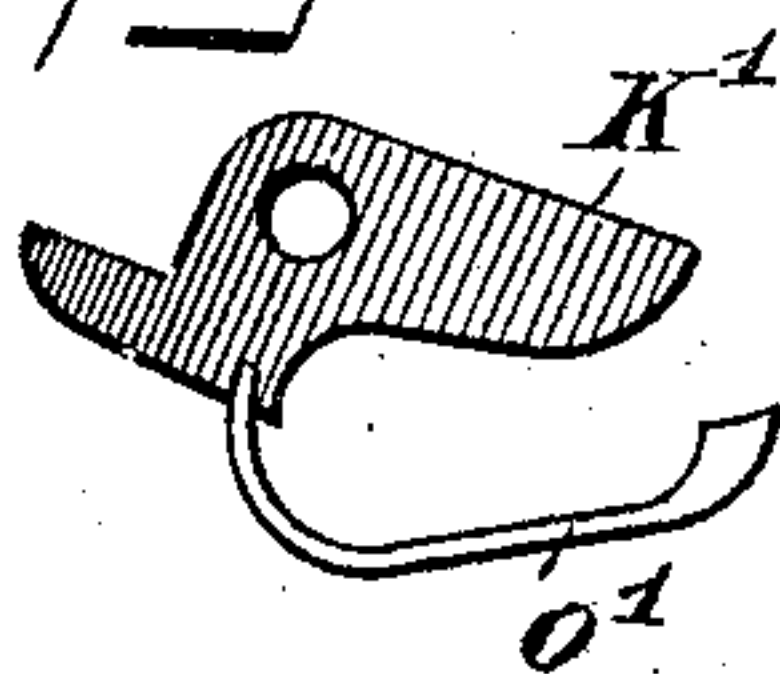


Fig. 3.



Fig. 4.



WITNESSES
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STEM WINDING AND SETTING WATCH.

No. 837,564.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed April 3, 1906. Serial No. 309,670.

To all whom it may concern:

Be it known that I, LARS HAUBROE, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have made and invented certain new and useful Improvements in Stem Winding and Setting Watches, of which the following is a specification.

My invention relates to an improvement in stem winding and setting watches, and more particularly to the mechanism employed for shipping the clutch to engage with the winding or setting trains, the object being to simplify and cheapen the cost of this mechanism, to thereby render it more effective and less liable to get out of order. Heretofore in mechanism devised for this purpose it has been usual to employ two springs, one having a greater tension than the other, so that when the winding stem or arbor is adjusted lengthwise the spring having the greater tension will overcome that of the other. In other instances a single or differential spring has been employed; but in all those instances of which I am aware one portion of the spring is employed to overcome the tension of the other, usually by operating upon levers having arms differing in length.

One object of my present invention is to avoid the action of one spring against the other—that is, when it is desired that the shipping-lever shall lower the clutch to engage with the setting-train the tension of the spring on said shipping-lever, which normally holds the clutch in engagement with the winding mechanism, will be entirely removed, thereby imposing no work on the second spring other than to exert such tension on the shipping-lever as will cause the latter to lower the clutch, which freely slides on the winding-stem; further, to so construct and arrange the parts that when it is desired to raise the clutch on the winding-stem to engage with the winding mechanism the spring which indirectly retains the clutch in its raised position will not exert its tension on the shipping-lever until such clutch has been raised into engagement with said winding mechanism. By thus avoiding the necessity of one spring overcoming the tension of the other in order to perform its functions it is possible to use a much lighter spring for raising and lowering the clutch than has heretofore been possible.

With these and other ends in view the invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a part of a watch-movement, showing the improved mechanism in its winding adjustment. Fig. 2 is a similar view showing the mechanism in its setting adjustment. Fig. 3 is a sectional view taken on the line 3-3 of Fig. 2, and Fig. 4 is a modified form of the locking-lever and "click-spring."

Referring to the drawings, A represents a watch-case center of ordinary construction, in which is mounted the front plate B of the watch-movement, said plate being provided with the opening C to accommodate a portion of the winding and setting mechanism. The movement is provided with the usual winding stem or arbor D, adapted to rotate to wind and set the movement and also adapted to be vertically adjusted by a push or pull upon the crown, (not shown,) usually secured to the outer end thereof, the stem being held in its different adjustments by a mechanism contained within the pendant. As such parts are of the usual construction and well known to those skilled in the art and form no part of the present invention, no illustration or further description thereof is necessary.

On the winding stem or arbor is mounted the clutch E, adapted to move vertically on the winding-stem D and rotate therewith, said sleeve being provided with the groove e to accommodate one end of the shipping-lever, at its upper end with the ratchet-teeth e' to engage with similar ratchet-teeth on the winding-pinion F, and at its lower end with the teeth e'' on its lower end to engage with the teeth of the setting-pinion (not shown) when said clutch is lowered into its setting adjustment. As is usual with mechanism of this character, it is necessary to raise and lower the clutch E to engage with the winding and setting trains, respectively, and in order to effect this movement of the clutch on the winding-stem D, I secure to the plate B the shipping-lever G, pivoted at g and comprising an arm H, the extreme end of which fits in the circumferential groove e on the clutch, and an arm J, the inner edge j of which is recessed or curved for the purpose hereinafter described. When the arm J of

the shipping-lever is moved outwardly, the arm H will be lowered, thereby lowering the clutch E into its setting position, as illustrated in Fig. 2, and when said arm J is moved inwardly the arm H will be raised, thereby raising the clutch E into engagement with the winding-pinion F, as illustrated in Fig. 1.

To operate the shipping-lever G, I pivot to the plate B at *k* the locking-lever K, one end or arm L of which projects below and engages with the lower end of the winding stem or arbor D, the other arm M within the curve or recess of the lever J when the parts are in the winding adjustment, as illustrated in Fig. 1. When, however, the winding stem or arbor D is pulled outwardly, as illustrated in Fig. 2, and the arm M of the lever lowered, the extreme end of the latter will engage with the lower end of the arm J, thereby forcing the same outwardly and the arm H and clutch E downwardly, thereby locking the lever G and clutch E against movement while the parts are in the setting adjustment. In order to effect this downward movement of the arm M, outward movement of the arm J, and downward movement of the arm H and clutch E, I employ a spring N, resting in the recess *n* in the plate B, one end of said spring being secured under the screw *n'* and the opposite end bearing against the pin or projection *n''*, formed on or secured to the outer end of the arm M, the tendency of said spring being to lower the latter so that when said winding-stem D is pulled upwardly, as illustrated in Fig. 2, the tension of said spring N will lower the clutch E into its setting position. By reason of this construction and arrangement of parts the spring N may be a comparatively light one, as it is in no way operating against the tension of any other spring, the work to be performed thereby being simply to lower the arm M, the arm H, and, in turn, the clutch E, and as these parts move or slide freely on their bearings the tension of the spring may be a very slight one. When now the winding stem or arbor D is forced downwardly, as illustrated in Fig. 1, it carries downwardly with it the arm L, thereby raising the arm M into the hollow or recess of the arm J, and at the time that the winding-stem D has almost reached its lowest adjustment the end *o* of the spring O strikes the outer side of the arm J and forces the latter inwardly, this movement effecting an upward movement of the arm H, carrying with it the clutch E. This spring O, usually termed the "click-spring," is preferably made in one piece with the lever K, a space being left between the extreme ends of the arm M and spring O for the entrance of the curved arm J when the parts are in their winding adjustment, as illustrated in Fig. 1, and in which position the end *o* of said spring bears very lightly upon said arm J, thereby

holding the clutch E in yielding engagement with the pinion F. When the stem D, however, is pulled upwardly or outwardly and the arm M lowered by the spring N, the end *o* of the spring O is immediately lowered with said arm M and withdrawn from contact with the arm J, whereby to allow the spring N to perform its functions without the necessity of working against the tension of said spring O, the latter coming into play at such time only as when necessary to raise the clutch into its winding position. During such movement of the parts it will be understood, of course, that the tension of the spring N on the arm M is overcome by the downward movement of the stem D on the arm L, so that at no time is either spring called upon to work against the tension of the other.

Instead of forming the click-spring O in one piece with the locking-lever K it will be understood that it may consist of a separate piece, as illustrated in Fig. 3 of the drawings, K' representing the locking-lever and O' the click-spring secured thereto.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a winding stem or arbor, of a clutch sliding thereon and rotating therewith, a locking-lever, one arm of which engages the lower end of said stem, a spring engaging with the opposite end of said locking-lever and adapted to lower the same, a shipping-lever, one arm of which engages with said clutch, and a "click-spring" connected with said locking-lever and adapted to alternate with said locking-lever to engage with the other end of said shipping-lever when said clutch is raised and lowered, substantially as described.

2. The combination with a winding stem or arbor, of a clutch adapted to slide thereon and rotate therewith, a locking-lever, one arm of which engages with the lower end of said stem, a spring adapted to engage with the other arm of said locking-lever to lower the same, a shipping-lever, one arm of which engages with said clutch to raise and lower the same, and a "click-spring" connected with said locking-lever and adapted to engage with the outer edge of the other arm of said shipping-lever to raise said clutch, the one arm of said locking-lever adapted to engage with the inner edge of one arm of said shipping-lever to lower said clutch, substantially as described.

3. The combination with a winding stem or arbor, of a clutch sliding on said stem and adapted to rotate therewith, a locking-lever, one arm of which is adapted to engage with the lower end of said stem, a spring adapted to engage with the other arm of said locking-lever to lower the same, a shipping-lever, one

arm of which engages with said clutch, the
other arm engaging with said spring-actu-
ated arm of the locking-lever to lower said
clutch, and a "click-spring" formed integral
5 with said locking-lever and adapted to en-
gage with said shipping-lever to raise said
clutch, substantially as described.

Signed at New York, borough of Manhat-
tan, in the county of New York and State of
New York, this 2d day of April, A. D. 1906.
LARS HAUBROE.

Witnesses:

M. VAN NORTWICK,
N. B. SMITH.