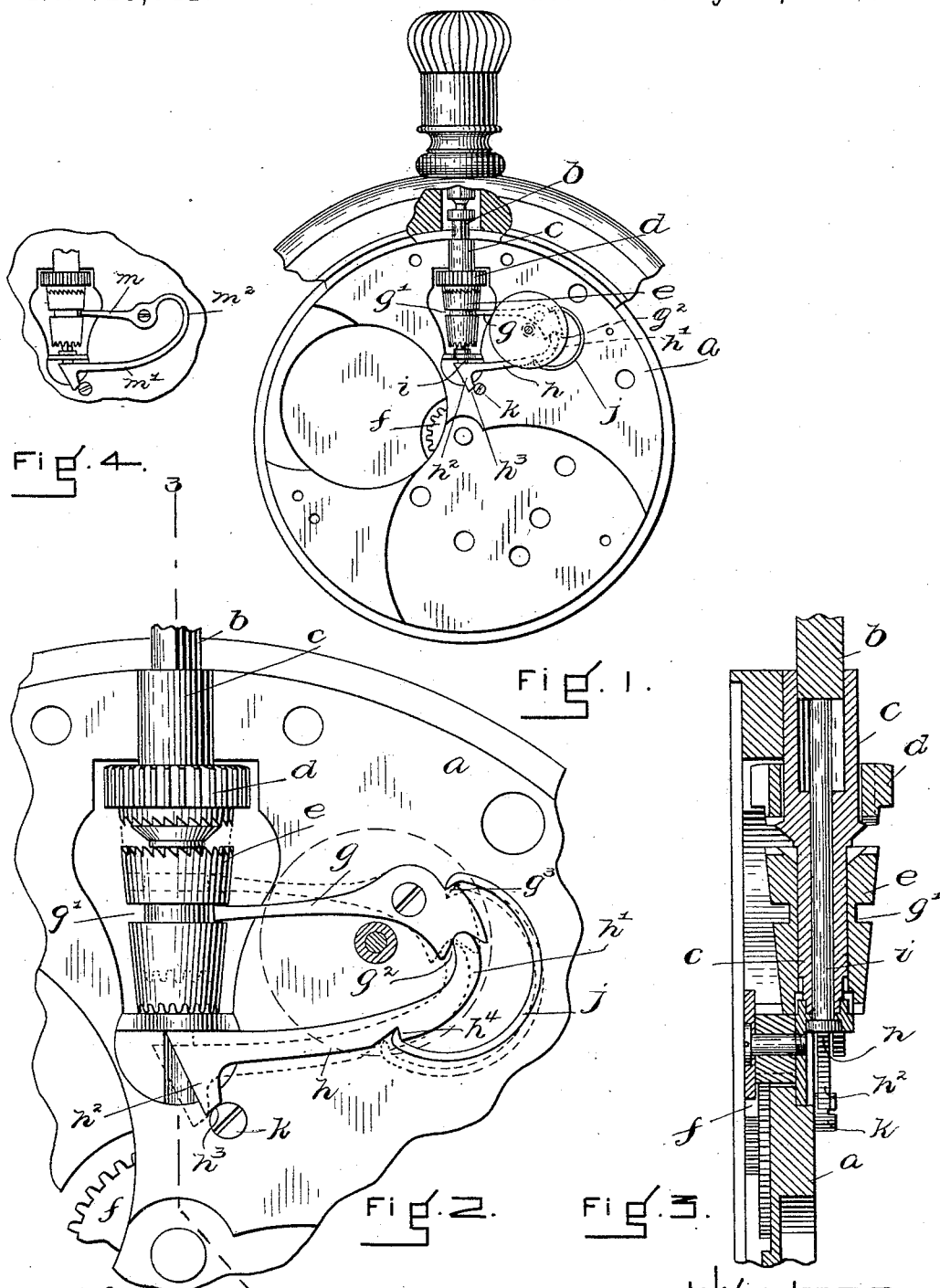


(No Model.)

O. O. MARTINELL.  
STEM WINDING AND SETTING WATCH.

No. 523,841.

Patented July 31, 1894.



WITNESSES.  
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# UNITED STATES PATENT OFFICE.

OLOF O. MARTINELL, OF WALTHAM, MASSACHUSETTS.

## STEM WINDING AND SETTING WATCH.

SPECIFICATION forming part of Letters Patent No. 523,841, dated July 31, 1894.

Application filed December 16, 1893. Serial No. 493,837. (No model.)

*To all whom it may concern:*

Be it known that I, OLOF OHLSON MARTINELL, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Stem Winding and Setting Watches, of which the following is a specification.

The object of the present invention is to provide more simple means in a stem winding and setting watch for operatively connecting the stem with the setting mechanism by an outward longitudinal movement of said stem.

To this end the invention may be said to consist in the combination with the longitudinally movable stem and the clutch for operatively connecting the same with either the winding or the setting mechanism, of a shipper which comprises a pivotal part or member engaging the clutch and adapted by its vibrations to shift the same, a member whose longitudinal movement vibrates said pivotal member and which extends transversely of the stem, and means whereby a longitudinal movement of the said stem produces a longitudinal movement of the said transversely extending member and consequent shifting of the clutch.

The accompanying drawings illustrate embodiments of the invention.

Figure 1 shows a rear elevation of a sufficient portion of a watch movement to illustrate the invention which is embodied therein, the parts appearing as adjusted for winding. Fig. 2 shows a similar view on a greatly enlarged scale with the parts appearing as adjusted for setting, broken lines indicating the winding adjustment. Fig. 3 shows a section on line 3 3 of Fig. 2. Fig. 4 shows a modification.

The letter *a* designates the pillar-plate; *b* the winding stem which has a squared head engaging a correspondingly formed socket in the winding arbor; *c*; *d* the winding pinion loosely mounted on said arbor, and *e* a double ended clutch longitudinally movable on the arbor and rotatable therewith and adapted by its longitudinal movement to connect the arbor with either the winding pinion or with the train of hand-setting gear *f*. The clutch is normally connected with the winding pinion, and is designed to be disconnected therefrom and connected with the hand-setting

gear by an outward movement of the stem. My invention resides in means whereby this is brought about, and those shown in Figs. 1, 2 and 3 are constructed and arranged as follows: A shipper lever *g* is pivoted to the plate *a* out to one side of the clutch *e*, and its longer arm engages an annular groove *g'* in the clutch *e* said long arm extending approximately at right angles to the clutch, so that its vibrations will shift the clutch in both directions. The shorter arm of the shipper lever extends inward on an obtuse angle to the longer arm and is formed in its end with a notch or socket *g<sup>2</sup>*, and at a point in its outer side near the pivot of the lever, with a shoulder *g<sup>3</sup>*. A loose bar *h* is disposed transversely of the winding arbor and extends across the inner end of the same, so as to bear against the head of a rod or pin *i*, which extends loosely through the arbor and bears against the inner end of the stem *b*. The said bar is made at its inner end opposite its point of bearing against the pin *i* with a lateral arm *h<sup>2</sup>* having an oblique or inclined end *h<sup>3</sup>* which bears against a screw *k*, fastened in the plate *a*. By this construction the thrust of the pin *i* imparted by inward movement of the stem, and acting transversely against the bar, produces longitudinal movement of said bar as well as lateral movement. The bar *h* is formed at its outer part with a lateral arm *h'* whose end engages the notch *g<sup>2</sup>* in the short arm of the lever *g*, whereby longitudinal movement of the said bar may produce vibration of the lever. At a point in the outer side of the bar *h* back of its lateral arm *h'* a shoulder *h<sup>4</sup>* is made and a semicircular spring *j* embraces the outer ends of the lever *g* and bar *h*, and its ends are formed with inward projecting fingers which engage the shoulders *g<sup>3</sup>* and *h<sup>4</sup>* respectively, said spring being under tension so as to exert pressure against said shoulders and also tending to move the bar inward about the end of the shorter arm of the lever as a fulcrum, thereby maintaining a constant pressure of said bar against the head of the pin *i*.

It will now be seen that the engagement of the spring *j* with the shoulders *g<sup>3</sup>* and *h<sup>4</sup>*, establishes an elastic connection between the bar and the lever through the medium of

which connection a longitudinal thrust of the bar in one direction turns the short arm of the lever in that direction, and the long arm in an outward direction to throw the clutch into engagement with the winding pinion (see broken line representation in Fig. 2). Such a longitudinal movement is imparted to the bar by the pin  $i$ , when the winding stem is pushed inward, and this is the normal adjustment of parts, the stem being operatively connected with the winding mechanism. While this adjustment obtains the bar is immovably held, and the tension of the spring is exerted on the lever to hold the clutch in engagement with the pinion. Added tension is placed on the spring in this initial adjustment of parts by reason of the fact that the shoulder  $h^4$  moves through a greater extent than the shoulder  $g^3$ . It is to be noted that the point of engagement between the bar and the lever at  $g^2$ , is out of alignment with the points of engagement between the spring and said parts at  $h^4$  and  $g^3$ , and hence the spring tends to press the bar against the pin  $i$ , as previously stated.

Upon pulling out the winding stem, the bar  $h$  under impulse of the spring pushes the rod  $i$  back, following up the stem, and the bar now being released, the spring also exerts a longitudinal pull upon the bar causing its inclined edge  $h^3$  to ride on the screw  $k$ , and its lateral arm  $h'$  by acting against one side of the notch  $g^2$  to move the shorter arm of the lever outward, and its long arm inward carrying the clutch into mesh with the setting gear, the lever having been relieved of the stress of the spring upon the release of the bar and the spring now holding the clutch in engagement with the setting gear.

It is within the scope of this invention to combine the shipper lever, bar and spring all in one piece as shown in Fig. 4 where  $m$  designates the pivotal member which engages the clutch,  $m'$  the longitudinally movable member engaging the pin which is acted upon by the stem, and having an incline engaging the screw in the plate, and  $m^2$  designates a resilient portion of the piece which constitutes a spring resisting longitudinal movement of the member  $m'$  in a direction to shift the clutch and engage it with the winding pinion.

It will be seen that the invention is not limited to any specific form of device.

Having thus explained the nature of the invention, what I claim, and desire to secure by Letters Patent, is—

1. In a stem-winding and setting watch the combination with a longitudinally movable stem, and a clutch for operatively connecting the same with either the winding or setting mechanism, of a shipper comprising a pivotal part or member engaging the clutch and a member operatively connected therewith and extending across the line of movement of said stem and movable transversely thereof,—provisions existing in virtue of which a thrust

of the stem produces movement of the said latter shipper-member transverse to the stem and vibration of the pivotal member.

2. In a stem-winding and setting watch the combination with a longitudinally movable stem, and a clutch for operatively connecting the same with either the winding or setting mechanism, of a shipper comprising a pivotal part or member engaging the clutch and a spring-actuated member operatively connected therewith and extending across the line of movement of said stem and movable transversely thereof,—provisions existing in virtue of which a thrust of the stem produces movement of the said latter shipper-member transverse to the stem and vibration of the pivotal member.

3. In a stem-winding and setting watch the combination with a longitudinally movable stem, and a clutch for operatively connecting the same with either the winding or setting mechanism, of a shipper comprising a pivotal part or member engaging the clutch, a member operatively connected therewith and extending across the line of movement of said stem and movable transversely thereof, and an elastic connection between the said shipper-members,—provisions existing in virtue of which a thrust of the stem produces movement of the said latter shipper-member transverse of the stem and vibration of the pivotal member.

4. In a stem winding and setting watch, the combination with a longitudinally movable stem and a clutch for operatively connecting the same with either the winding or setting mechanism, of a shipper lever engaging said clutch, a longitudinally movable bar fulcrumed on said lever and extending transversely of the stem, a spring connecting the lever and bar and tending to move the latter in its fulcrum and to resist its longitudinal movement in one direction, and means for converting inward movement of the stem into longitudinal movement of the bar in that direction.

5. In a stem-winding and setting watch the combination with a longitudinally movable stem, and a clutch for connecting the same with the winding or the setting mechanism, of clutch-shipping means comprising a pivoted member engaging the clutch, a member movable transversely of the stem, and a double-acting spring connecting said members and tending to hold the clutch yieldingly in either of its two positions under different adjustments.

6. In a stem-winding and setting watch the combination with a longitudinally movable stem, and a clutch for connecting the same with the winding or setting mechanism, of clutch-shipping means comprising an angular lever engaging the clutch, an angular bar having one arm in engagement with one end of said lever and fulcrumed thereon, and the other arm extending across the line of movement of the stem, and a spring embracing the

lever and bar and engaging the same at points out of alignment with the fulcrum of the bar,—provisions existing in virtue of which a thrust of the stem produces a movement of the bar transverse thereto.

5 7. In a stem-winding and setting watch, the combination with a longitudinally movable stem, and a clutch for connecting the same with the winding or setting mechanism, of  
10 clutch-shipping means comprising a pivotal part or member engaging the clutch, a longitudinally-movable spring-actuated member operatively connected with said pivotal mem-

ber and extending across the line of movement of the stem and having an oblique back surface or edge, and an abutment for said surface, substantially as and for the purpose described. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses, this 1st day of December, A. D. 1893. 20

OLOF O. MARTINELL.

Witnesses:

A. D. HARRISON,  
F. PARKER DAVIS.