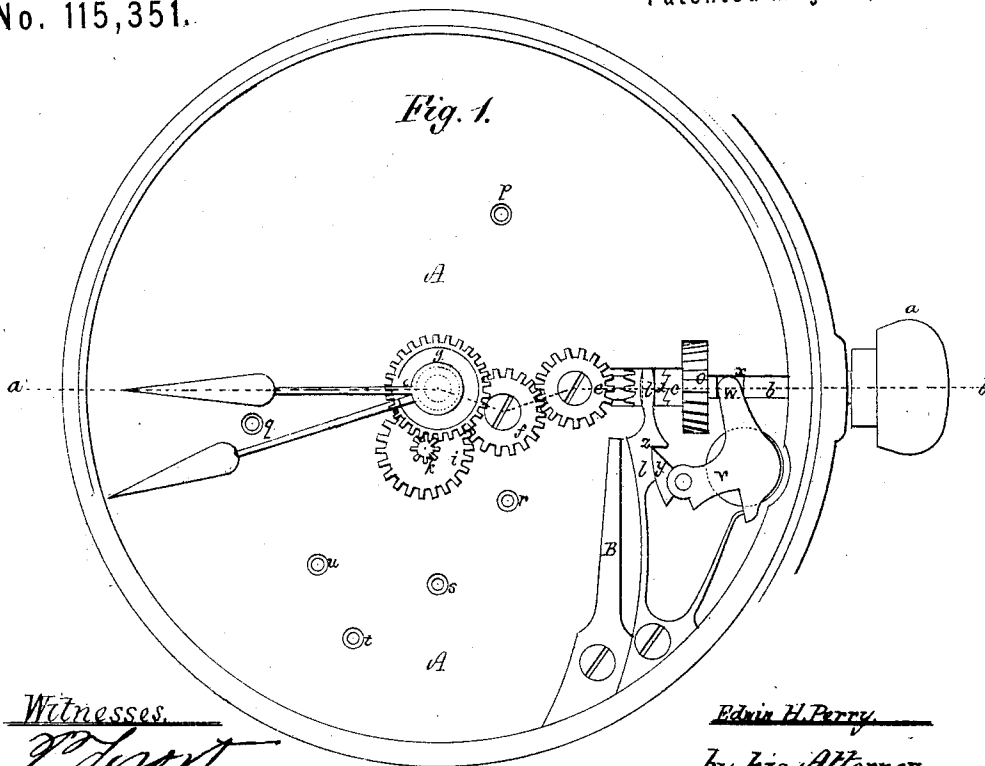


E. H. PERRY.

Improvement in Stem Winding Watches.

No. 115,351.

Patented May 30, 1871.



Witnesses.

J. Frost

Edward Giffiths.

Edwin H. Perry

by his Attorney

Frederick Curtis

Fig. 2.

on dotted line a.b. of Fig.1.

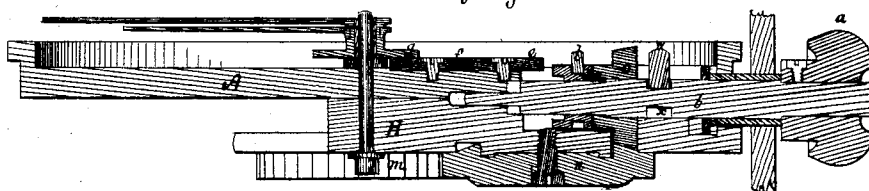
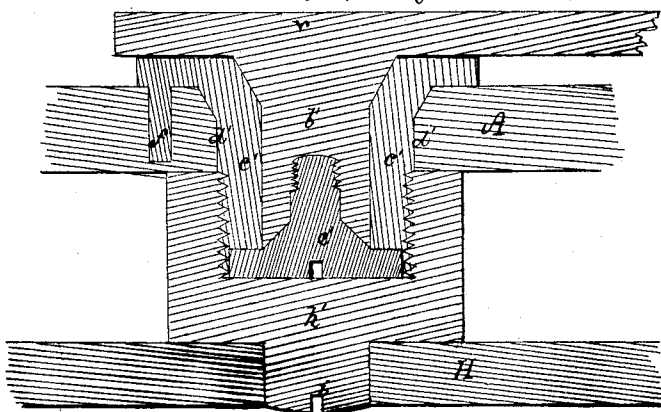


Fig. 3.

Enlarged from Fig. 1.



UNITED STATES PATENT OFFICE.

EDWIN HATHAWAY PERRY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STEM-WINDING WATCHES.

Specification forming part of Letters Patent No. 115,351, dated May 30, 1871.

To all to whom these presents shall come:

Be it known that I, EDWIN HATHAWAY PERRY, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have made an invention of a new and useful Stem-Winding Mechanism for Watches; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawing making part of this specification, and in which—

Figure 1 is a plan or dial-face view of the winding-works of a watch-movement embodying my improvements; Fig. 2 being a transverse section of the same; while Fig. 3 is a section on an enlarged scale of the toggle-lever and its adjuncts, to be hereinafter explained.

The nature of my present improvements consists, first, in the combination, with the winding spindle or arbor, its clutch, and the shipper which actuates the latter, of a toggle-jointed lever, so situated that its rigid arm takes into a peripheral channel cut in said spindle, while its swiveled arm or toggle takes into a notch formed in a spring shipping-lever, which in turn takes into the above-named clutch, which connects with the intermediate pinion, constituting a portion of the hand-setting mechanism of the watch-movement, the spring shipping-lever serving in itself to maintain the clutch in connection with the winding mechanism, while the toggle-jointed lever, in its turn, effects the shipping or reversal of such shipper, substantially as hereinafter stated; the advantages of this toggle-jointed lever being that, while it is a powerful means of effecting the said reversal of the shipper and of maintaining it in position after reversal, it is easily operated by the spindle, the whole being as hereinafter explained. Secondly, these improvements consist in the adoption, in combination with the toggle-jointed lever and shipper above named, of a stiff yielding bar or abutment, against which the shipper impinges when maintaining the contact of the clutch and hand-setting mechanism, the purpose of this spring-bar being not only to insure a reliable and positive union of such elements, but to prevent any play or backlash of the parts, and to permit such a delicate or flexible shipper to be employed as will exert very little

friction upon the spindle while in the act of winding and permit the winding mechanism to be operated with great ease and with little noise; and, thirdly, these improvements consist in a peculiar mode of attaching or swiveling the toggle-jointed lever before mentioned to the plate A, whereby the setting and winding spindle may be permitted to be removed from the watch by the simple turning of a screw, without derangement or disturbance of any other portion of the movement.

Construction and Operation.

The drawing accompanying this specification, and which illustrates the character of the improvements herein embodied, represents at A the main bed or circular plate, which in all watches receives and supports the various portions of the movement, the stem through which the ring passes being shown at *a*. The winding spindle or shaft is shown at *b*; the stationary portion of the clutch affixed thereto at *c*; the loose or movable portion of such clutch at *d*; the first intermediate toothed wheel of the hand-setting mechanism, which the latter actuates, at *e*; the second intermediate wheel of the hand mechanism at *f*; the hour-wheel at *g*; its "canon"-pinion at *h*; the minute-wheel at *i*; and its pinion at *k*; and the shipper, which effects the throw or reversal of the clutch, at *l*; such parts being the elementary features of the hand-setting mechanism at present employed in many watches, and, in themselves considered, constituting no part of my invention; the winding-wheel of the main-spring-barrel, which is situated on the opposite side of the plate A, being shown at *m*, and the intermediate toothed wheel, which takes into and drives it, at *n*, the toothed wheel which in turn drives the latter and is affixed to the spindle *b* being shown at *o*. The location of the pivot of the main wheel of the train is exhibited at *p*; of the balance, *q*; of the third wheel at *r*; of the fourth wheel at *s*; of the fifth wheel at *t*; and, finally, of the pallet at *u*. I pivot to the face of the main plate or base A, and close to its periphery, a bell-crank or bent lever, *v*, the rigid arm *w* of which takes into a peripheral channel, *x*, cut in the spindle *b*, the opposite arm of the lever extending inward toward the hands' arbor, and having pivoted to its extremity a toggle arm or joint, *y*,

the end of such joint extending into a notch, *z*, formed in the outer face of the shipper *l* and near its inner extremity, such extremity entering a notch cut in the circumference of the movable semi-clutch *d*, and so as to effect the movements of the latter to and fro of the spindle. Upon seizing the knob of the spindle *b* and pulling out the latter to its greatest extent the toggle-joint is straightened and the movable semi-clutch, by the action of the shipper *l*, which such toggle actuates, locked into the first intermediate wheel *e*. Under these circumstances a turn of the spindle in either direction effects a corresponding proportional movement of the two hands in a like direction. Upon pushing in the spindle to its greatest extent the toggle-joint is contracted and shortened, and the movable semi-clutch removed from contact with the hand-setting mechanism and engaged with the wheel *n*, which actuates the winding wheel and barrel. *B* in the drawing represents a semi-flexible bar, whose outer end is affixed to the plate *A* near its periphery, and which is disposed alongside of the shipper *l* in such manner that its outer and free end is immediately adjacent to that of the shipper, and in fact so near the latter that when it (the shipper) is forced inward by the straightening of the toggle it shall impinge forcibly against such bar, and so as to avail of its spring or elasticity. To permit the spindle *b* to be removed without disarranging the various parts of the movement I step the pivot *b'* of the lever *v* in a tubular sleeve, *c'*, which is inserted within a cylindrical orifice, *d'*, formed in the plate *A*, a screw, *e'*, being screwed into the lower end of the pivot *b'* and overlapping the lower end of the sleeve in order to prevent separation of the two and yet permit the pivot to revolve in such sleeve, the latter being prevented from revolving in its socket in the plate *A* by a pin, *f*, extending

from it into a hole bored in the said plate, or by any other suitable means. The sleeve *c'* protrudes beyond the lower face of the plate *A* and has a thimble or cup-shaped female screw, *h'*, screwed upon its lower end, the annular end of such thimble abutting against the face of the plate, while its opposite end is inclosed in the top plate *H* and nicked, as shown at *i*, in order that it may be revolved by means of a screw-driver.

Rotating the thimble *h'* in one direction elevates the sleeve or carrier *c'*, and with it the lever *v*, until the latter has been raised out of connection with the spindle *b*, in which case the spindle may at once be withdrawn without further proceeding, a subsequent reversal of the rotation of the screw serving to force the sleeve and lever back to their original position.

The readiness with which the spindle *b* may be withdrawn under my system without deranging any other elementary feature of the works entitles this portion of my invention to considerable attention.

The lever *v*, in order to be lifted or lowered, is operated from the rear of the plate *A*, and when thus operated is not separated from, but can still remain connected with, the plate.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. The combination, with the plate *A*, of the spindle or stem-holding lever, operated from the rear of the plate, substantially as shown and described, in order to release or engage with said spindle or stem.

2. The combination of the lever *v*, sleeve *c'*, and thimble *h'*, united and operating substantially as herein described, and for purposes stated.

EDWIN H. PERRY.

Witnesses:

FRED. CURTIS,
EDW. GRIFFITH.