J. THOMSON.

Stem-Winding Device for Watches.

No. 197,686. Patented Nov. 27, 1877.

Fig. 1.

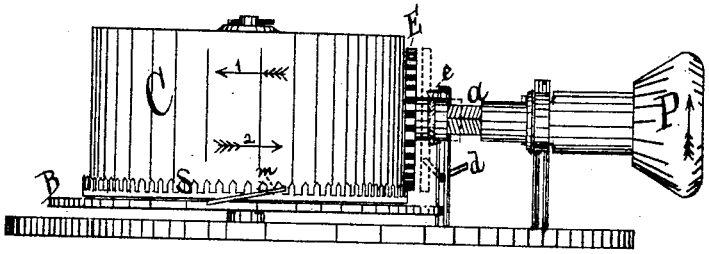
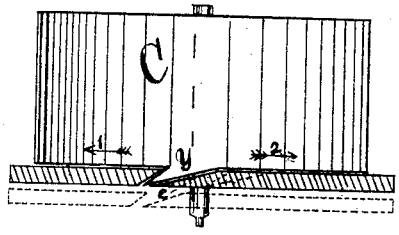


Fig. 2.



Witnesses:—

Inventor:—

John Thomson

UNITED STATES PATENT OFFICE.

JOHN THOMSON, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN STEM-WINDING DEVICES FOR WATCHES.

Specification forming part of Letters Patent No. **197,686**, dated November 27, 1877; application filed October 18, 1877.

To all whom it may concern:

Be it known that I, JOHN THOMSON, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Combined Stem-Winding Device and Safety Mainspring-Barrel, of which the following is a specification:

This invention relates to certain improvements in the construction of watches and other similar time-keepers; and has for its object to furnish a stem-winding device, at a trifling advance upon the cost of key-winders, to be employed in connection with my improved safety mainspring-barrel.

My invention consists in the combination, with the mainspring-barrel and its independent toothed disk, of an adjustable stem-winding device adapted to engage a cog-gearing formed on the periphery of the barrel, whereby the mainspring may be wound without the use of a key, as more fully hereinafter specified.

In the drawings, Figure 1 represents a side elevation, showing the improved mainspring-barrel and its stem-winding device; and Fig. 2 represents a modification of my improvement, showing the same as applied to an ordinary key-winder.

This letter C represents the mainspring-barrel mounted upon the mainspring-shaft, and B a plate or disk mounted upon the same shaft, and capable of a movement independent of that of the barrel thereon. Said plate or disk is cogged at its periphery, and the barrel, on its periphery, is provided with a series of gear-teeth, S, in which is adapted to operate a pawl, *m*, secured to the plate B in such manner as to cause the barrel and disk to move together in proper direction to drive the train of gearing, and to move independently of each other upon the recoil of the barrel.

The letter P represents an ordinary push-pin or stem-winder, having a squared or keyed end, on which is secured a pinion, E, capable of a slight longitudinal movement on said squared or keyed end, and adapted to be shifted into and out of gear with the teeth S on the barrel by means of a lever, *e*, pivoted to the supporting-frame of the watch.

In operating the winder to wind the spring, the barrel is to be turned in the direction of the arrow No. 1, the pawl *m* working over the sides of the gear S, preventing the barrel from returning without carrying with it the plate B, which operates the train, in the direction of arrow No. 2. When the mainspring is fully wound, the pinion E on the winder is thrown out of gear and away from the barrel, leaving said barrel free to perform its operation of transmitting motion to the train. Upon the breaking or slipping of the mainspring, the recoil being in an opposite direction to that of the driving-strain, the barrel is turned in direction of arrow No. 1, the pawl *m* allowing it to thus move without carrying with it the plate B, or effecting any injury to the teeth, pawls, or other portions of the movements.

In the modification shown in Fig. 2, the barrel C is formed without the gears S, the disk B being provided with gear-teeth, said disk and barrel being capable of an independent movement with respect to each other, and a movement together similar to that before mentioned. The lower edge of the barrel is provided with one or more inclined beveled lugs, *y*, which are adapted to engage similarly-shaped recesses on the adjoining portions of the face of the disk B, the disk and barrel being capable of a slight longitudinal movement upon their arbor in respect to each other, in such manner that said lugs will be disengaged from each other upon a reverse or recoil movement of the barrel freeing said barrel from the disk B, and relieving the main-work from all strain, as before.

For cheaply-constructed watches, the hands may be constructed to be set by a key, in the ordinary manner; but the setting of the hands may be readily effected, in combination with the stem-winding device, in a variety of ways. For instance, the pinion E may be set to such a position relative to the winding-pinion, by means of the lever-action *d*, as to then connect with the hour and minute wheel, so that the hands can be set.

The gear S of the barrel may be cut ratchet-shaped on the side for the better action of the pawl *m*, and there may be any number of ratchets or pawls, as required by the strength of the mainspring used.

The pawl and spring are made in one piece, and should be of good length, so as to be strong and durable.

If it is desirable to have the barrel come close up to the teeth or cogs in the plate, or for other reasons, the barrel-gear S may have ratchet-shaped teeth on the bottom, with the pawl working up through a slot in the plate; or the pawl may be in the barrel, working into a ratchet in the plate, or working into the cogs of the plate which connect with the train, in which case the base of the plate-cogs should be cut ratchet-shaped. In the case of the lugs or clutches *y*, Fig. 2, they may be attached either to the plate or the barrel, so that, upon the breaking of the mainspring, they are simply thrown up, and neither the barrel nor plate disturbed.

The advantages of this combination are the extreme simplicity, cheapness of construction, and durability.

Even after long-continued use, and consequent wear of the parts, everything may be so constructed as to be readjusted with little trouble, and only ordinary skill of workmanship.

What I claim, and desire to secure by Letters Patent, is—

In combination with the mainspring-barrel, and with the disk having an independent movement with respect thereto, the gearing forming part of said mainspring-barrel, the pawl adapted to operate therein, and the adjustable pinion secured to the stem-winder, the whole constructed to operate substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

JOHN THOMSON.

Witnesses:
I. W. MOORE,
CHAS. M. EVEREST.