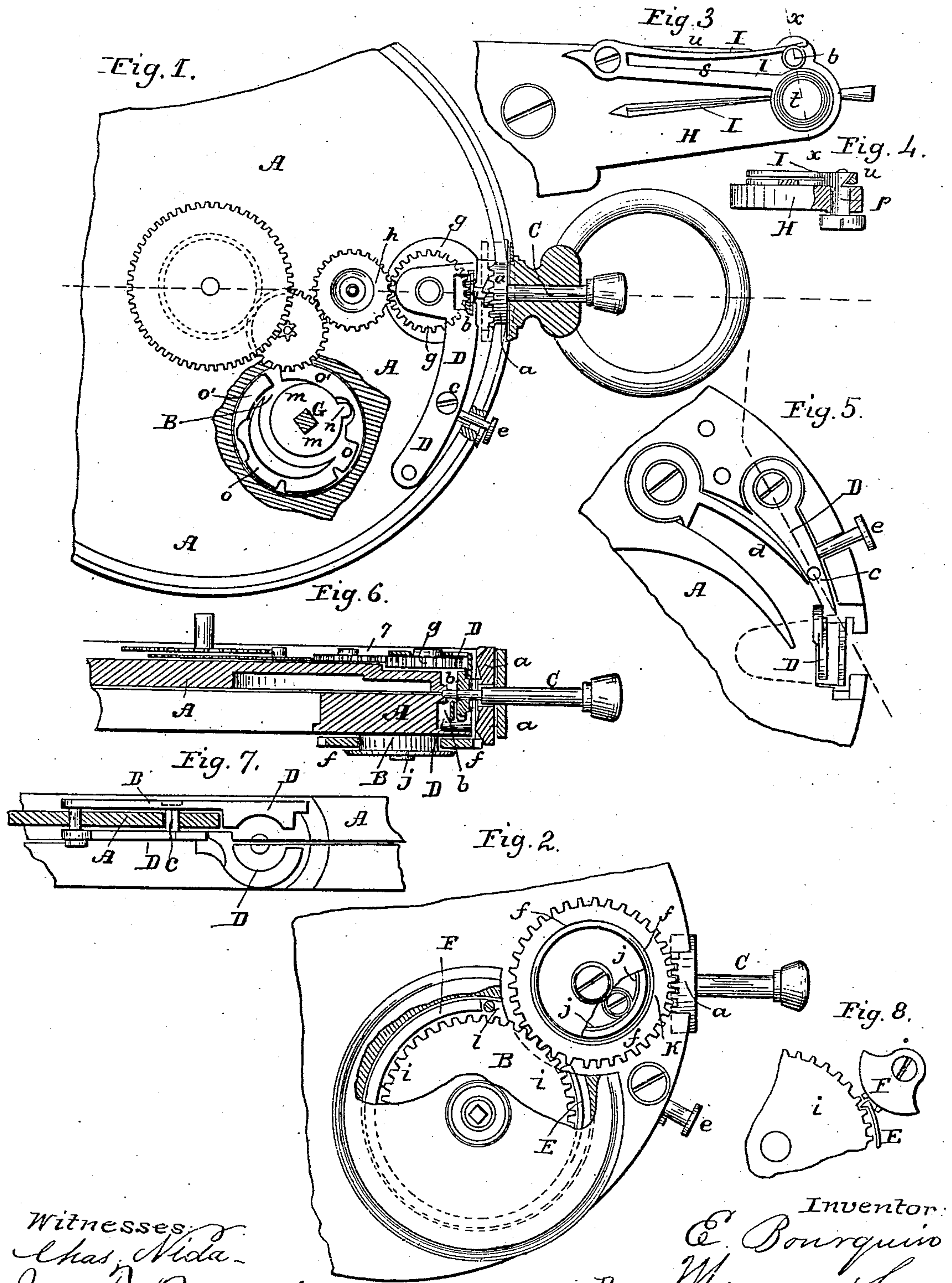


E. BOURQUIN.  
Stem-Winding Watch.

No. 97,346.

Patented Nov. 30, 1869.



Witnesses:  
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# United States Patent Office.

EDOUARD BOURQUIN, OF NEW YORK, N. Y.

Letters Patent No. 97,346, dated November 30, 1869.

## IMPROVEMENT IN STEM-WINDING WATCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EDOUARD BOURQUIN, of the city, county, and State of New York, have invented a new and useful Improvement in Stem-Winding Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 represents a face view, partly in section, of my improved watch.

Figure 2 is a detail back view, on an enlarged scale, of the same.

Figure 3 is a detail face view of the spring for holding the hair-spring pin.

Figure 4 is a vertical section of the same, taken on the plane of  $x x$ , fig. 3.

Figure 5 is a detail inverted-plan view of the spring for holding the setting-pinion.

Figure 6 is a detail vertical section of the winding and setting-mechanism.

Figure 7 is a vertical end view of the same.

Figure 8 is a detail plan view of a modification of parts shown in fig. 2.

Similar letters of reference indicate corresponding parts.

This invention relates to various improvements in the setting, winding, and entire working-apparatus of watches, and consists in the construction of the various devices pertaining thereto, with an object of obtaining greater power with less friction than could heretofore be produced, and also to provide for greater facility of controlling the whole movement.

A, in the drawing, represents the frame of the watch.

B is the drum, containing the main-spring.

O is the stem, which fits loose through a crown-wheel,  $a$ , and with a squared portion through another toothed wheel,  $b$ .

The wheel  $b$  is held in a forked lever, D, which is pivoted to the main plate of the frame A, and which consists of two parts, one on each face of said plate, as in fig. 7.

The two parts are connected by a pin,  $c$ .

A spring,  $d$ , fig. 5, throws the lever D outward, so as to hold the wheel  $b$  against  $a$ .

Both the last-named wheels are provided with ratchet-teeth, and they are therefore coupled together by said spring  $d$ .

By means of a knob,  $e$ , projecting from the lever D through the side of the watch, the wheel  $b$  can be thrown in or out of gear with  $a$ .

The stem fits always with a square part into the wheel  $b$ , and will therefore always revolve such wheel when the stem is revolved.

When the spring  $d$  is allowed to hold  $b$  and  $a$  together, the latter will also be turned, and will, as it meshes into the winding-wheel  $f$ , which gears into the wheel  $i$  of the drum, (as in fig. 2,) wind the spring.

When, however, the knob  $e$  is pressed, it will throw the winding-device out of gear, and the pinion  $g$  will be carried by the lever D into gear with a wheel,  $h$ , of the setting-train, as in fig. 1.

The pinion  $g$ , carried by D, is constantly in gear with  $b$ , but out of gear with  $h$ , when the winding-apparatus is in gear.

I also fit the wheel  $f$ , which is annular, upon a circular block,  $j$ , that projects from the plate A, and that contains, at or near the edge, a small friction-roller, K, as in fig. 2.

This roller, working against the inner edge of the wheel  $f$ , will materially reduce the friction of the winding-action.

The click is a bent spring, E, with a hook at one end, and placed upon the drum, so that it will embrace the wheel  $i$ , as in fig. 2, and fits with its hook between two teeth of the same. When the wheel  $i$  is turned to wind the main-spring, the hook will slip, but in the opposite direction it will securely hold said wheel, and prevent it from turning.

The hook of the spring E is held in place by the wheel  $f$ , so that it cannot be thrown off the wheel  $i$ , and a pin,  $l$ , on the drum, prevents the hook from being withdrawn, by holding the other end of the spring E.

In case the watch is not provided with a stem-winding attachment, the spring E can be used with the same success, by using, in place of the wheel  $f$ , a toothed segment, F, as in fig. 8, which will hold the hook in the proper position.

The invention consists, first, in the employment of an eccentric arresting-attachment to the winding-apparatus.

G is the arbor, to which the main-spring is fastened.

On it is mounted a disk,  $m$ , carrying a projecting lug,  $n$ .

This lug, as it is revolved, fits into recesses or notches of a curved plate,  $o$ , which is placed into a countersunk portion of the drum, eccentric to the axis G, as in fig. 1.

Whenever the arbor G is revolved, the pin  $n$  carries the plate  $o$  a portion further, until a thick part,  $o$ , of it is brought so near to the arbor that the disk  $m$  will bind against it, and thereby arrest further winding.

Heretofore, the small pin  $n$  had to bear all strain, and was very liable to be broken. By using the disk  $m$  itself to arrest, and the pin  $n$  only for moving or setting the arresting-plate  $o$ , said device is not as liable to get out of order as heretofore.

The invention also consists in providing a spring-

lock for the hair-spring stud *p*, so that said pin can be easily removed, whenever desired, from the plate *H*.

One arm, *S*, has an eye at the end, which fits upon the pivot *t*, on which the hair-spring regulator *J* turns. It rests on said regulator, and retains it in place.

The other arm, *u*, of *J*, catches into a notch of the stud *p*, to which pin the outer end of the hair-spring is secured.

The pin *p* is thus securely held, and can still be readily removed, if desired. Heretofore, it was held by a very fine screw, which was difficult to make and put in, and apt to be lost.

Having thus described my invention,

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

1. The disk *m* on the arbor *G*, and the pin *n*, on said disk, in combination with the notched curved plate *o'*, which carries the thicker portion *o*, and moves eccentric to the arbor, substantially as herein shown and described, so that the winding-action will be arrested by the edge of the disk *m*, substantially as herein shown and described.

2. The V-shaped spring *I*, arranged to lock the escapement-regulator, and also the hair-spring stud *p*, substantially as herein shown and described.

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Witnesses:

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