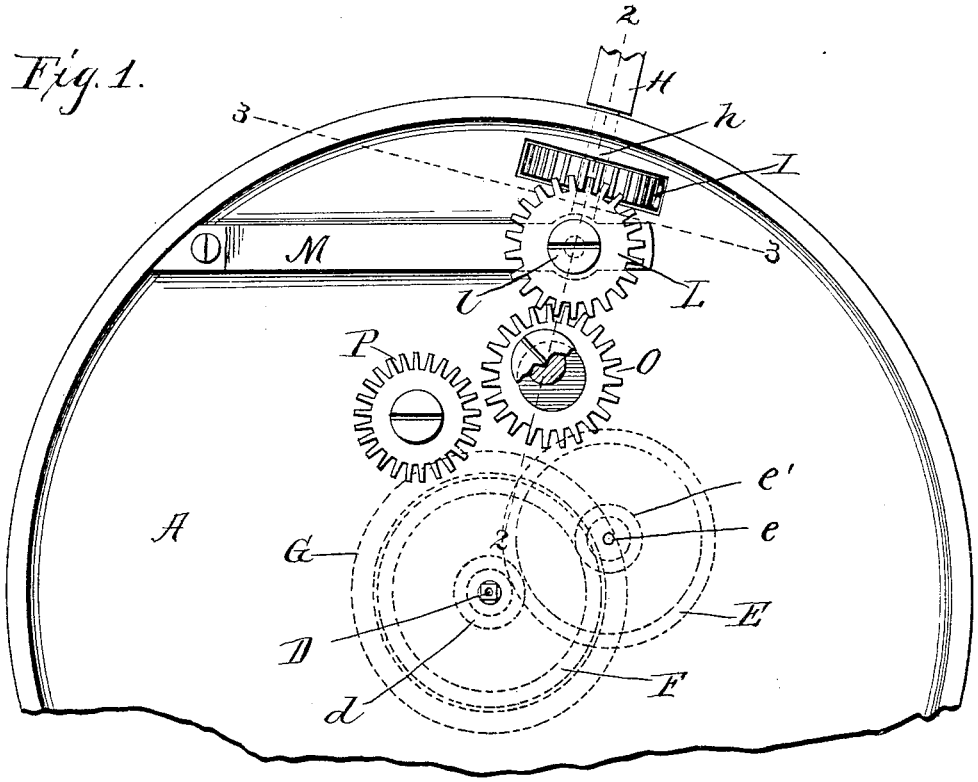
(No Model.) 2 Sheets—Sheet 1.

J. W. NUNAMAKER.

STEM WINDING AND SETTING MECHANISM FOR WATCHES.

No. 493,643. Patented Mar. 21, 1893.

Fig. 1.



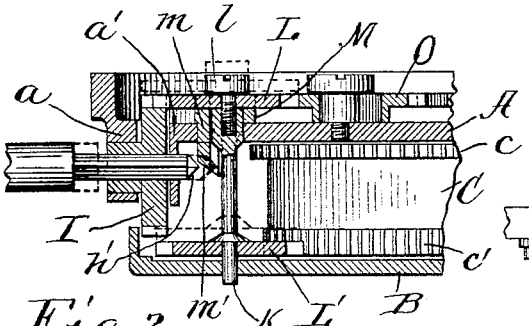


Fig. 2.

Fig 3.

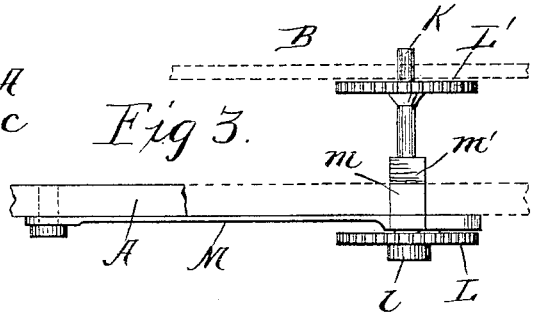
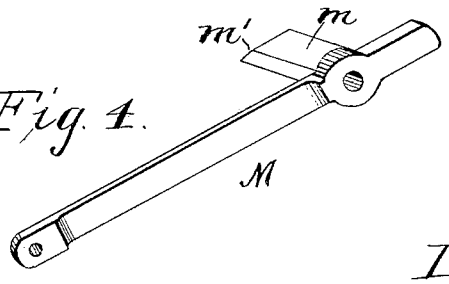


Fig. 4.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

J. W. NUNAMAKER.

STEM WINDING AND SETTING MECHANISM FOR WATCHES.

No. 493,643. Patented Mar. 21, 1893.

Fig. 5.

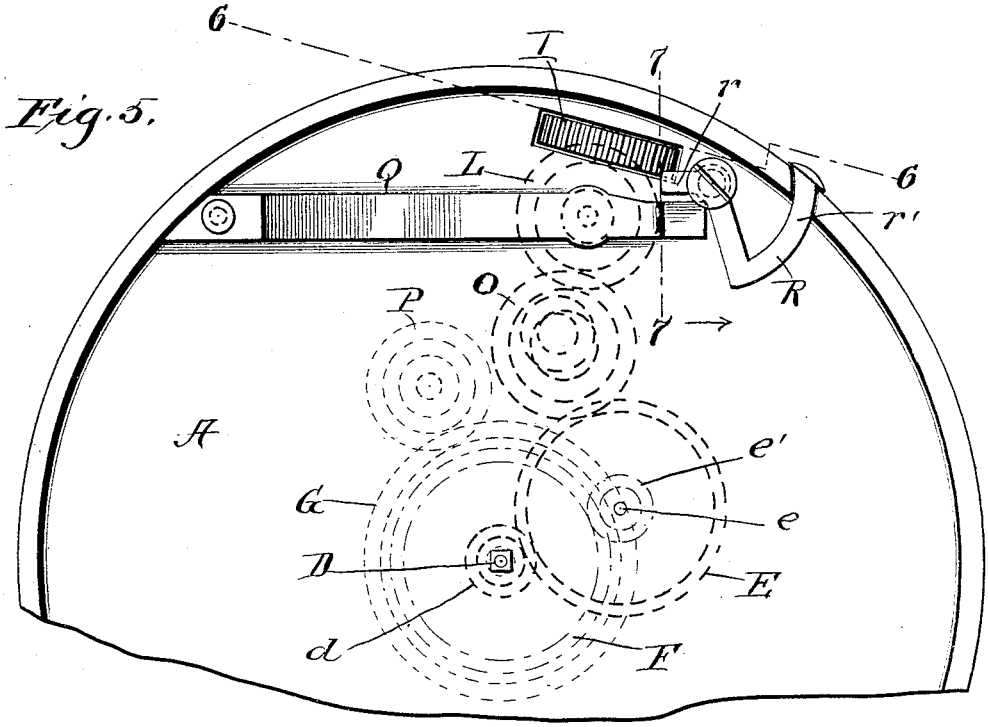


Fig. 6.

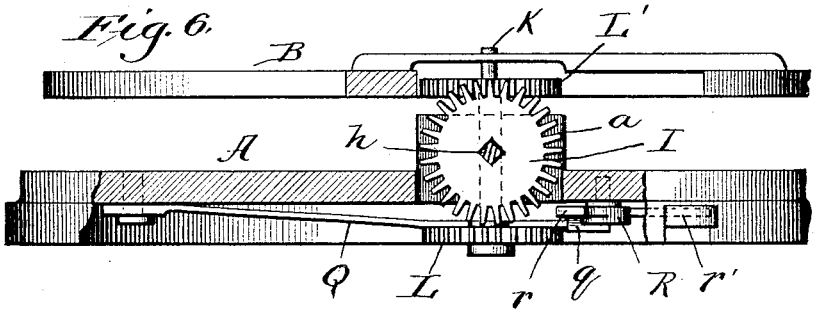


Fig. 8.

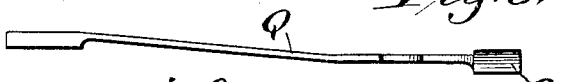


Fig. 7.

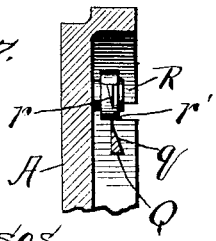
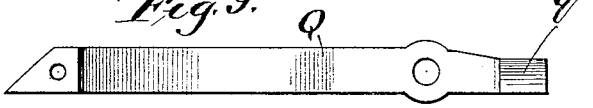


Fig. 9.



Witnesses

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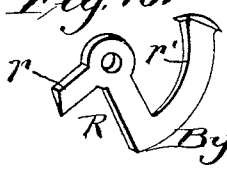
Martin H. Olsen.

Fig. 10.



Inventor

John W. Nunamaker

By, Coburn & Thacher

Attys

UNITED STATES PATENT OFFICE.

JOHN W. NUNAMAKER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-FOURTH TO HARVEY L. HOPKINS, OF SAME PLACE.

STEM WINDING AND SETTING MECHANISM FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 493,643, dated March 21, 1893.

Application filed March 1, 1892. Serial No. 423,347. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. NUNAMAKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hand Setting and Winding Mechanism for Watches, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1, is a plan view of a part of a watch movement with my invention applied thereto. Fig. 2, a detail section taken on the line 2—2 of Fig. 1; Fig. 3, a similar section taken on the line 3—3 of Fig. 1 reversed; Fig. 4, a perspective view of the spring support detached for the sliding arbor; Fig. 5, a plan similar to Fig. 1 showing a modification in the devices; Fig. 6, a detail section taken on the line 6—6 of Fig. 5 reversed; Fig. 7, a detail section taken on the line 7—7 of Fig. 5, looking in the direction of the arrow; Fig. 8, a side elevation of the sliding arbor spring support detached; Fig. 9, a plan of the same, and Fig. 10, a perspective view of the spring adjusting lever detached.

My invention relates to mechanism for setting the hands of watches by means of a pendant, which is also employed for winding the watch, this class of watches being generally known as stem winders. The hand setting mechanism is not, however, necessarily connected with winding mechanism, but may be employed in watches of the key winding type. In my prior application, Serial No. 420,911, filed February 9, 1892, I have shown and described a mechanism of this nature, one of the salient features of which is the arrangement of the adjusting devices outside of the movement; my present invention relates to a construction and organization of devices whereby a mechanism of the same general type is provided with the adjusting device arranged within the movement plates.

I have shown in the drawings only so much of a watch or watch movement as is necessary to an understanding of the construction and operation of a hand setting and winding mechanism embodying my present invention, and this I will now describe in detail, and then set forth more definitely in the claims the particular improvements which I believe to be new and wish to secure by Letters Patent.

In the drawings, A, represents the front plate, and B, the back plate of a watch movement, between which is mounted as usual the barrel C. A driving gear *c*, on the drum engages a pinion on the main arbor D, and above the front plate is a pinion *d*, sleeved on the upper end of the arbor and fixed thereto, which engages with a gear E, mounted on an arbor *e*, on which is a fixed pinion *e'*, that engages with the hour hand wheel F, the latter being loosely sleeved on the hub of the pinion *d*. Above the hour hand wheel is a large gear G, which is sleeved on the hub of the former, the friction between the two being sufficient to cause them normally to move together. The wheel G, may be organized with an alarm mechanism as set forth in my prior application, Serial No. 419,288; but the alarm is no part of my present invention, and so is not here shown and described.

The pendant arbor H, is mounted so as to slide back and forth as is usual in stem winding watches, and is to be provided with the common spring or yielding stop, to hold it in position when thrust inward, while yielding to permit it to be pulled outward when desired. The square stem *h*, of the pendant passes in underneath the front plate; it is square or angular in form and terminates in a bevel point *h'*. The gear pinion I, is mounted on the inner end of this square stem, which passes through the pinion and slides back and forth therein, but turns the latter with it because of its angular shape, the pinion is journaled by means of a sliding hub *i*, mounted in an arm *a*, depending from the front plate, and inside of the pinion is a similar arm *a'*, which serves to hold the latter in place, and is perforated to permit the pendant to slide in and out and also to turn therein.

A vertical arbor K, is mounted just within the pendant stem and in line therewith, being journaled so as to permit a sliding movement lengthwise. A pinion L, is secured to the upper end of this arbor by means of a screw pin *l*, but between the pinion and the arbor is arranged the inner and free end of a flat spring M, the pin *l*, passing down through this spring, and the other end of the

latter being fastened to the front plate near its outer edge. A pinion L′, is also fixed on the arbor K, near its lower end and engages with the winding gear c'. The spring M, is provided with a pendant arm m which extends down by the side of the arbor and terminates in a beveled end m', just in front of the pendant stem, as seen in Fig. 2. The upper pinion L, on the arbor K, is for setting the hands and for this purpose acts in connection with pinions O and P, the same as in my said prior application; these latter therefore require no further description of their construction and operation.

The operation is as follows: It will be understood of course, that in ordinary use the hand setting device should be out of working adjustment, as it is required to set the hands only occasionally, while the winding of the watch is of frequent occurrence. For this ordinary adjustment the pendant arbor is thrust inward and its beveled end coming in contact with the beveled end of the depending arm m, lifts the latter, thus raising the spring M, and so lifting the pinion L, out of engagement with the driving pinion I, where it is held by the engagement of the pendant with its spring stop; this position of the devices is seen in dotted lines in Fig. 2. In this adjustment the winding pinion L′, is brought into engagement with the driving pinion I, so that the watch may be wound at any time. If it is desired to set the hands, the pendant arbor is pulled outward, when obviously the spring M, being released will slide the arbor K, and drop the pinion L into engagement with the driving pinion I, and with the hand setting gearing, as seen in full lines in Fig. 2.

In Fig. 5, and the succeeding figures, a modification in the devices is shown, whereby provision is made for adjusting the mechanism by means of a device other than the pendant arbor, while the mechanism is operated by the pendant arbor the same as above. In this modification the parts are all the same as described above, with the exception of the spring attached to the sliding arbor K. This spring is marked Q, in the drawings and is the same as the spring M, except that at its inner or free end it is extended a little beyond the pinion L, and this extension is provided with a bevel or incline q, running across the spring. A small bell crank lever R, is pivoted on the upper face of the front plate, the pivot being arranged close to the beveled end of the spring, and the inner end r, of the lever projects inward from the pivot by the side of the beveled end of the spring Q, and is provided with a similar bevel. The parts are arranged so that when this end of the lever is turned inward it will pass underneath the beveled end of the spring, and thus raise the latter to effect the adjustment already described in connection with the spring M. The lever R, is provided with an arm r', at its outer end which is extended outward and passes through a slot or notch in the rim of the front plate, as seen in Fig. 5. When out of action this end of the lever just projects through the rim of the front plate and terminates in a little head, but in ordinary adjustment to hold the spring Q, up for the purpose of unshipping the setting gear, as already explained, this projecting arm is pulled outward thereby turning the bevel of the lever under the end of the spring, and lifting the latter as described. It will be seen that this is the ordinary adjustment; and when it is desired to set the hands, the lever is disengaged from the end of the spring by simply pushing the arm r' inward, when of course the spring drops and engages the pinion L, with the driving pinion as above described. The driving pinion is rotated by the pendant arbor and with the same effect as in the construction first described.

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

1. The sliding pendant arbor H, in combination with a driving pinion I, mounted on the square stem thereof, a sliding arbor K, hand setting and winding pinions L and L′, mounted thereon, and the spring M, connected to said arbor and provided with an arm extending down below the front plate just in front of the pendant stem, substantially as described.

2. The pendant arbor H, in combination with a driving pinion I mounted on the stem thereof, a sliding arbor K, hand setting and winding pinions L and L′ mounted thereon, a spring attached at one end to a fixed support and at the other or free end connected with the sliding arbor and having an arm adapted to engage with the actuating device, and an actuating device adapted to be operated from the outside of the watch movement, substantially as described.

JOHN W. NUNAMAKER.

Witnesses:
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JOHN W. ADAMS.