No. 670,364. Patented Mar. 19, 1901.

T. R. BOLTON.

WATCH REGULATOR.

(Application filed Apr. 24, 1897.)

(No Model.)

Fig. 1

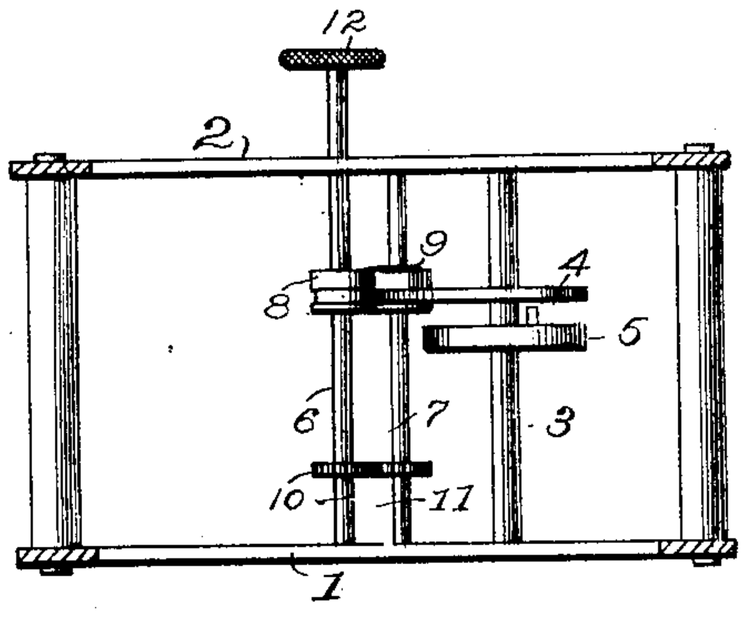
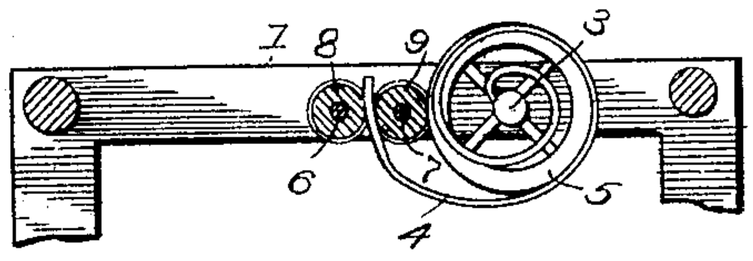


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS R. BOLTON, OF NEW YORK, N. Y.

WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 670,364, dated March 19, 1901.

Application filed April 24, 1897. Serial No. 633,570. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. BOLTON, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Watch and Clock Regulating Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in clocks.

The object of the present invention is to improve the construction of clocks and to provide a simple, inexpensive, and efficient device designed to take the place of the wedge for securing the outer end of the hair-spring and capable of ready adjustment to enable the hair-spring to be lengthened and shortened.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is a plan view, partly in section, illustrating an adjusting device constructed in accordance with this invention. Fig. 2 is a vertical sectional view.

Like numerals of reference designate corresponding parts in both figures of the drawings.

1 and 2 designate front and back plates which inclose the works and form the bearings for the shafts or arbors of the clock mechanism, and 3 designates the spindle to which the inner end of the hair-spring 4 is attached in the usual manner. A balance-wheel 5 of the ordinary construction is mounted upon the spindle 3. The outer end of the hair-spring is arranged between a pair of disks or rollers 8 and 9, having slight annular grooves or recesses located between their ends to guide the spring and hold the same against lateral movement, and thereby insure the proper engagements, said recesses or grooves not being deep enough to interfere with the frictional contact between the disks or rollers and the spring. The disks or rollers 8 and 9 are mounted upon parallel shafts 6 and 7, journaled in suitable bearings of the frame of the clock mechanism and movement and carrying gear-wheels 10 and 11, meshing with each other and adapted to cause both shafts and their disks or rollers to rotate in unison. One of the shafts is extended beyond the casing and is provided at its outer end with a suitable knob or wheel 12, by means of which the shafts are rotated. By placing the outer end of the hair-spring between the rollers or disks 8 and 9 and gearing the shafts together by pinions 10 and 11 it will be apparent that the turning of one of the shafts will rotate both of the disks or rollers to either take up the hair-spring or let it out, according to the direction in which the disks or rollers are rotated.

The adjusting mechanism is designed to be substituted for the means usually employed in inexpensive clocks for adjusting the hair-spring and for securing it in its adjusted position. It is the ordinary practice in adjusting hair-springs of this character to draw the outer end through an opening of the arm or portion of the frame or casing and to insert a wedge in the opening to clamp the hair-spring. This means, while being simple and effective, is attended with considerable inconvenience, and it will be apparent that the adjusting device herein shown and described will enable the hair-spring to be readily lengthened or shortened and will permit the same to be quickly changed by simply rotating the shaft. It will also be apparent that it will securely hold the outer end of the hair-spring in its adjusted position.

What I claim is—

In a device for holding the hair-spring of a clock, the combination of a frame, a pair of parallel shafts journaled in suitable bearings of the frame, one of the shafts being extended beyond the frame and provided with means for rotating it from the exterior, an arbor arranged parallel with the said shafts, a hair-spring connected at its inner end to the said arbor and having its outer end located between the said shafts, the disks fixed to the shafts and provided with circumferential grooves receiving and conforming to the configuration of the hair-spring and forming shoulders for engaging the side edges of the said hair-spring to prevent lateral movement thereof, said disks frictionally engaging and

adapted to clamp the hair-spring in its adjusted position, and gearing connecting the shafts, whereby the latter are positively rotated to permit the outer end of the hair-spring to be moved inward and outward from the exterior of the frame, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS R. BOLTON.

Witnesses:
A. THOMPSON MCEWEN,
JOHN F. BOLTON.