

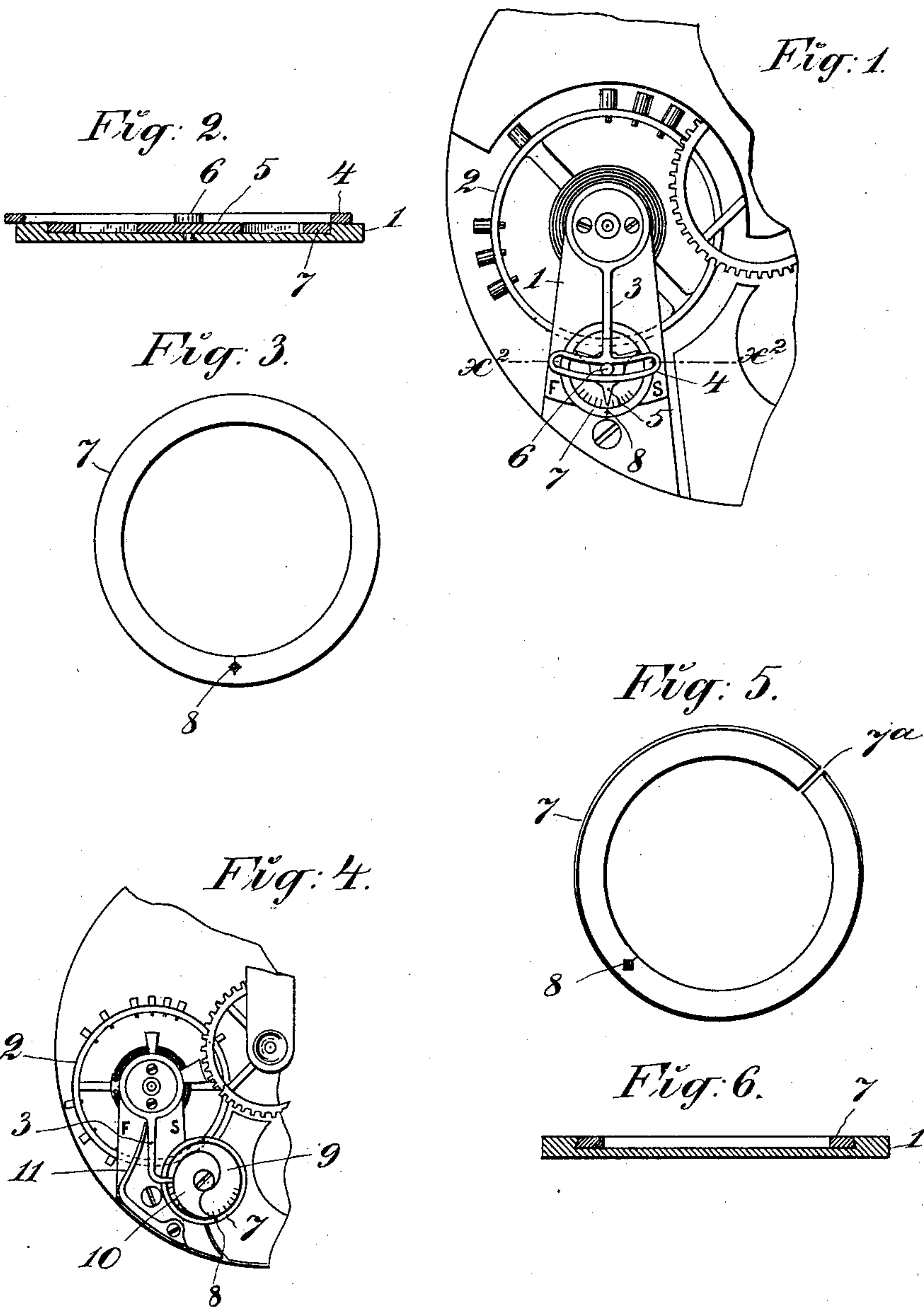
No. 627,053.

Patented June 13, 1899.

C. K. COLBY.  
WATCH REGULATOR.

(Application filed Sept. 6, 1898.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 627,053, dated June 13, 1899.

Application filed September 6, 1898. Serial No. 690,284. (No model.)

*To all whom it may concern:*

Be it known that I, CALEB K. COLBY, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings and city and State of New York, have invented certain new and useful Improvements in Watch-Regulators, of which the following is a specification.

My invention relates to regulating devices for watches, and particularly to that class of such regulators wherein means are provided for ascertaining in the regulation of the watch just how far and in what direction the regulator bar or arm was last moved.

In the manufacture of watch-movements one of the first requirements is compactness in the direction of thinness, or, in other words, it is desirable to make the movement as thin as possible, and one of the features of my invention is a construction tending to reduce the thickness of the movement.

Another feature of the invention is a construction which obviates a difficulty inherent in this class of regulators—namely, the liability of disturbing one adjustment of the parts while effecting another, owing to the friction of one moving part on another.

In the drawings which illustrate one embodiment of the invention, Figure 1 is a face view, on a somewhat exaggerated scale, of a part of a watch-movement and illustrating the regulating mechanism. Fig. 2 is a cross-section at line  $x^2$  in Fig. 1, but on a larger scale. Fig. 3 shows the indicating-ring detached and on the same scale as Fig. 2. Fig. 4 shows the invention as applied to a movement having a Swiss regulator. Fig. 5 shows a cut indicator-ring, and Fig. 6 shows this ring in section.

In Fig. 1 the numeral 1 represents the cock or bridge, 2 the balance-wheel, and 3 the regulator arm or bar, provided with a loop-like rack 4 in a well-known way. In this class of movements there is a circular recess in the bridge, and in this recess is set an operating device called a "star-wheel," rotatively mounted and carrying a pinion which engages the rack 4. On the bottom of this circular recess are marked usually a series of graduations to be traversed by a point on the star-wheel.

In carrying out my invention in its appli-

cation to this form of movement I substitute for the ordinary star-wheel a similar star-wheel 5, but of a little less diameter than the ordinary one, said star-wheel carrying the ordinary pinion 6, and I fit into the circular recess in the bridge an indicator-ring 7, having on it a mark 8. (Seen best in Fig. 3.) The outer periphery of this ring is made to fit snugly and frictionally in the circular recess, so that it can be moved concentrically about the star-wheel, but will remain where set. The rack 4 takes over this indicator-ring 7 and keeps it down in place in the recess, and preferably the ring will be of substantially the same depth as the recess, as shown in Fig. 2. The ring 7 will be free from the star-wheel or out of contact therewith, and the graduations in the bottom of the recess will appear inside of the ring, as seen in Fig. 1.

The purpose of the present invention is to enable the person who may be adjusting or regulating the watch to set the mark 8 on the ring 7 opposite to a point on the star-wheel 5 before he begins the adjustment, and he will then be able to know to just what extent and in what direction the star-wheel was moved at the last adjustment when he comes to adjust again.

By means of the construction described the indicator-ring may be applied to watch-movements as now made at a very little cost, as it is only necessary to supply the ring and a new star-wheel of less diameter than the one in the movement, and these will cost but a trifle. Nothing is added to the thickness of the movement.

The ring 7 may be cut, as shown at 7<sup>a</sup> in Fig. 5, so as to be sprung into the circular recess in the plate of the movement, and this construction is preferred, as it provides friction at the periphery; but if the ring is made to fit snugly this cut is not absolutely necessary.

Where the movements are made with a view to receive the indicating-ring, the wall of the recess may be slightly undercut and the cut ring be beveled at its outer periphery to fit therein, as shown in the sectional view Fig. 6.

Fig. 4 shows the application of the indicating-ring 7 to a watch-movement having what is known as a "Swiss" regulator. This



regulator comprises a disk 9, rotating in a recess in the bridge or movement-plate. Fixed on the disk 9 is a volute cam 10, against which bears a laterally-projecting tip on the regulator-arm. A spring 11 keeps the said arm pressed up into contact with the cam. The indicator-ring 7 occupies an annular recess around the disk 9, and the mark 8 thereon may be set to register with the tip of the cam 10 at starting the regulation of the watch.

By the terms "cock" or "bridge" as herein used is meant any of the various forms of plates in watch-movements so designated in the art. These plates vary in shape according to the styles of movements produced by different makers, two of such styles being illustrated in Figs. 1 and 4. It will be obvious also that the operating plate, disk, or part herein called the "star-wheel" may be of any suitable form. The disk 9 in Fig. 4 corresponds to and is the equivalent of the triangular plate forming the star-wheel 5 of Fig. 1.

Having thus described my invention, I claim—

1. In a regulator for a timepiece, the combination with the regulator-arm, the star-wheel, rotatively mounted in a recess in a plate of the movement, and means whereby said star-wheel is connected operatively with the regulator-arm, of the indicator-ring mounted in said recess and surrounding said star-wheel, said ring having an exterior bear-

ing on the wall of said recess and being out of contact with the star-wheel, substantially as set forth.

2. In a regulator for a timepiece, the combination with the star-wheel mounted in a circular recess in a plate of the movement, the regulator-bar provided with a curved rack extending over said star-wheel, and the pinion carried by the star-wheel and gearing with said rack, of an indicator-ring in said recess and surrounding said star-wheel but out of contact therewith, said ring having an exterior bearing on the wall of the recess and said rack extending over said ring, substantially as set forth.

3. In a regulator for a timepiece, the combination with the regulator-arm, the star-wheel mounted rotatively in a circular recess in a plate of the movement, and means whereby said star-wheel is connected operatively with the regulator-arm, of the indicator-ring mounted in said recess and surrounding said star-wheel, said ring being cut and beveled exteriorly so that it may be sprung into an undercut in the wall of said recess, substantially as set forth.

In witness whereof I have hereunto signed my name, this 2d day of September, 1898, in the presence of two subscribing witnesses.

CALEB K. COLBY.

Witnesses:

HENRY CONNETT,  
PETER A. ROSS.