(No Model.)

D. H. CHURCH.

WATCH REGULATOR.

No. 312,253. Patented Feb. 17, 1885.

Fig. 1.

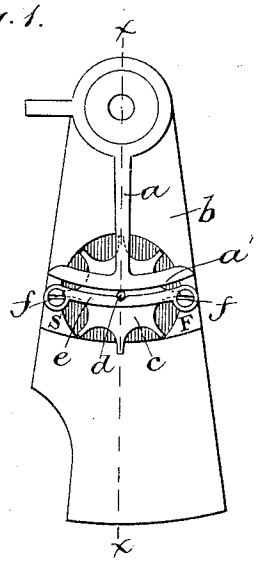


Fig. 2.

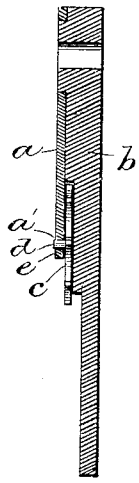
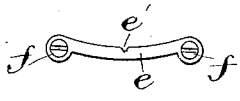


Fig. 3.



Witnesses.
H. Brown.
A. L. White

Inventor
D. H. Church
by Wright & Brown
Attys.

UNITED STATES PATENT OFFICE.

DUANE H. CHURCH, OF WALTHAM, MASSACHUSETTS.

WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 312,253, dated February 17, 1885,

Application filed March 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, DUANE H. CHURCH, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Watch-Regulators, of which the following is a specification.

This invention has for its object to provide simple and durable watch-regulator-operating devices adapted to effect very fine adjustment, and to prevent accidental movement of the regulator, and also adapted to permit rapid or coarse adjustment when the same is desirable.

To these ends my invention consists in the improved devices which I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a plan view of a balance-cock provided with my improved regulator. Fig. 2 represents a section on line *x x*, Fig. 1. Fig. 3 represents a view of a part detached.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I provide the outer end of the arm *a* of a watch-regulator with lateral extensions projecting at both sides of the arm, and presenting a segmental edge or end, *a'*, which is formed in the arc of a circle having its center in the center on which the regulator-arm *a* moves.

On the surface of the cock *b*, I place loosely a star-wheel, *c*, having at one side a journal or trunnion, *d*, which is pressed against the segmental edge or end of the regulator-arm by a spring, *e*. Said spring is secured at its ends to the cock by screws *f f*, and is provided with a notch, *e'*, (see Fig. 3,) which engages the journal *d* of the spur-wheel, and prevents displacement of said journal and wheel. The spring, before application to the cock, is curved at a greater radius than the segmental edge of the regulator-arm. The holes that receive the attaching-screws *f f* are so arranged that after the spring is attached at one end the presence of the journal *d* between its central portion and the segmental edge *a'* will prevent the screw-hole in the other end of the spring from coinciding with the corresponding screw-hole in the cock until the end of the spring is pressed toward the segmental edge, thus causing the spring to exert a considerable pressure against the journal, and to press the latter closely against the segmental edge. It will be seen that when the wheel *c* is rotated the frictional bearing of the journal *d* against the segmental edge of the regulator-arm will cause the journal to move said arm, and thus effect as fine an adjustment of the regulator as may be desired. The yielding pressure of the journal against the segmental edge *a'* enables the regulator to be moved more rapidly without recourse to the wheel *c*, the edge *a'* slipping on the journal. Said pressure is sufficient, however, to prevent the regulator from being moved accidentally by jars to which the watch may be subjected. The yielding pressure also compensates for wear of the journal and of the segmental edge, so that the operative relation between said parts will not be affected by any wear which they may experience. The wheel *c* has no engagement with the cock, so that it is free to be moved thereon by the spring, which is thus enabled to adjust the journal to the segmental edge. It will be seen that the notched spring not only presses the journal against the segmental edge of the regulator-arm, but also furnishes a bearing for said journal, which prevents it from being displaced.

I claim—

1. In a watch-regulator, the regulator-arm having a segmental edge or end, *a'*, combined with a star-wheel having a journal, *d*, placed on the balance-cock, and a spring whereby said journal is pressed against the segmental end of the regulator-arm.

2. In a watch-regulator, the combination of the regulator-arm having the segmental end *a'*, the star-wheel placed loosely on the balance-cock, and having a journal, *d*, and a notched spring whereby said journal is pressed against the segmental end of the regulator-arm and held in place, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 18th day of March, 1884.

DUANE H. CHURCH.

Witnesses:
C. F. BROWN,
A. L. WHITE.