M. C. HAWKINS & C. T. HIGGINBOTHAM.

WATCH REGULATOR.

No. 180,579. Patented Aug. 1, 1876.

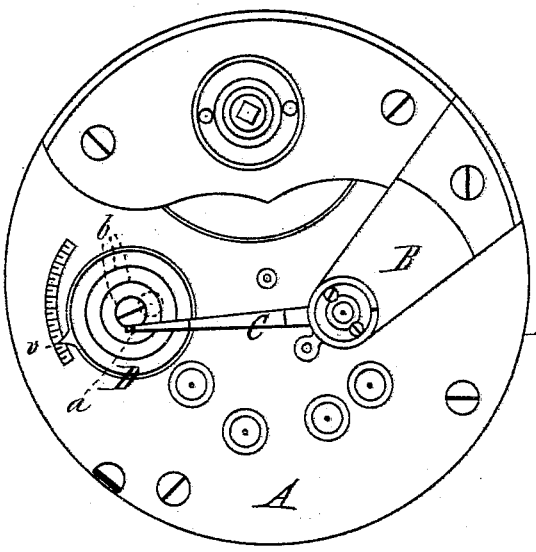


Fig. I

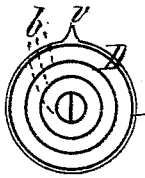


Fig. II

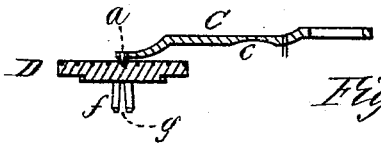


Fig. IV

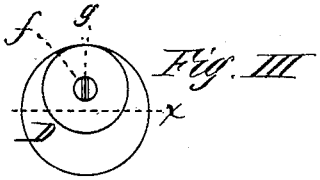
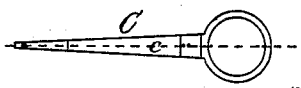


Fig. III

Fig. V



Witnesses.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN WATCH-REGULATORS.

Specification forming part of Letters Patent No. **180,579**, dated August 1, 1876; application filed December 6, 1875.

To all whom it may concern:

Be it known that we, MOSES C. HAWKINS, of Edinborough, in the county of Erie and State of Pennsylvania, and C. T. HIGGINBOTHAM, of Springfield, Hampden county, in the State of Massachusetts, have invented a new and useful Improvement in Watches; and that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification and description.

The object of our invention is to obtain a quick and nice adjustment of the regulator of a watch, and to accomplish the same without lost motion; and to this end our invention consists of a plate or disk having a series of concentric grooves made upon one side, and secured to the top plate of the watch by a split-spring pivot made upon the other side of the disk, upon which the latter is rotated, said concentric grooves being made as described, from a center which is eccentric with the pivot upon which the disk is rotated. The regulator-arm used in combination with the said disk is made elastic, so that the projection thereon may readily be lifted out of one of the circular grooves and placed in another, to accomplish a quick and approximate regulation of the watch.

Figure I is a plan view of the top plate of a watch having our invention applied thereto. Fig. II is a plan view of the outside of the grooved disk. Fig. III is a reverse plan view of the disk, showing the split-spring pivot upon which it rotates, and by which it is secured to the top plate of the watch. Fig. IV is a vertical section of the same and the regulator-arm at line *x*, and Fig. V is a reverse plan view of the regulator.

In the drawings, A represents the top plate of a watch; B, the balance-cock; C, the regulator, and D the grooved disk. The regulator C may be of the ordinary form to hold the balance-spring, except that near its end, or at any desirable point along its length, it is provided with a pin, *a*, or a projection, which is inserted into any one of a series of grooves, *b*, made on the outside of a disk, D, of which grooves there may be any desirable number, with a short straight groove at the center, if desirable; and these grooves *b* may be described from a common center near the center of the disk. Upon the opposite side of the disk is a projection, *f*, which is split at *g*, the two parts of the pivot being somewhat spread apart at the end, as shown clearly in Fig. I; and this pivot *f* is located somewhat out of the center of the disk, or eccentric with the center of grooves *b* upon the other side of the disk D. The regulator C is cut away or recessed somewhat at *c*, to allow the arm to spring sufficiently to be lifted from one groove to another, as may be desired, and yet cause the pin *a* to be kept in any groove in which it may be placed. A hole is made in the top plate A of the watch, of such size as to permit the pivot *f* to be inserted when its two parts are brought together; and when once inserted in the hole, the two parts of the pivot spring apart again, and fit the hole so closely that there will be no lost motion of the pivot in its bearing, and yet the disk may be moved without the least trouble, as it will easily rotate to make the desired adjustments by a slight pressure against either side of the point *v*.

The operation of our invention is as follows: The end of the regulator-arm C is raised to lift the pin *a* out of one of the grooves *b*, and drop it into another, until the proper regulation of the watch is approximated, and the final adjustment is effected by swinging or rotating the disk upon its pivot *f*, when, the grooves being eccentric with the pivot, the movement of the pin *a* and regulator C will be very limited. When the pin *a* is in the short straight groove across the center of the disk, the movement of the regulator may be made exceedingly nice and limited.

It is obvious that, instead of the grooves *b*, the disk may have a series of annular ribs arranged in a similar concentric manner, with a forked projection to straddle the rib; but as the grooves are more easily made, and the arrangement of the pin is more simple, we prefer the grooves.

We are aware that a wheel with spiral grooves and a regulator having two pins work-

ing therein has heretofore been used for the purpose of regulating a watch; but that arrangement is objectionable on account of the impossibility of moving the regulator independently of the wheel or disk in making the approximate regulation of the watch, and on account of the necessity of greater accuracy of fitting the pivot, and the liability of lost motion from side stroke; and we do not claim the same nor any part thereof.

Having therefore described our invention, what we claim as new is—

1. A disk, D, having a series of concentric grooves, made concentric with the pivot upon which the disk rotates, in combination with the elastic regulator C, provided with a projection to operate or move in said grooves, substantially as described.

2. A watch-regulating disk, D, having its rotating pivot *f* split longitudinally, and its parts spread open, so that when inserted in its bearing the parts of said pivot will spring outward and cause the pivot to fit its bearing closely and prevent side stroke, substantially as set forth.

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