

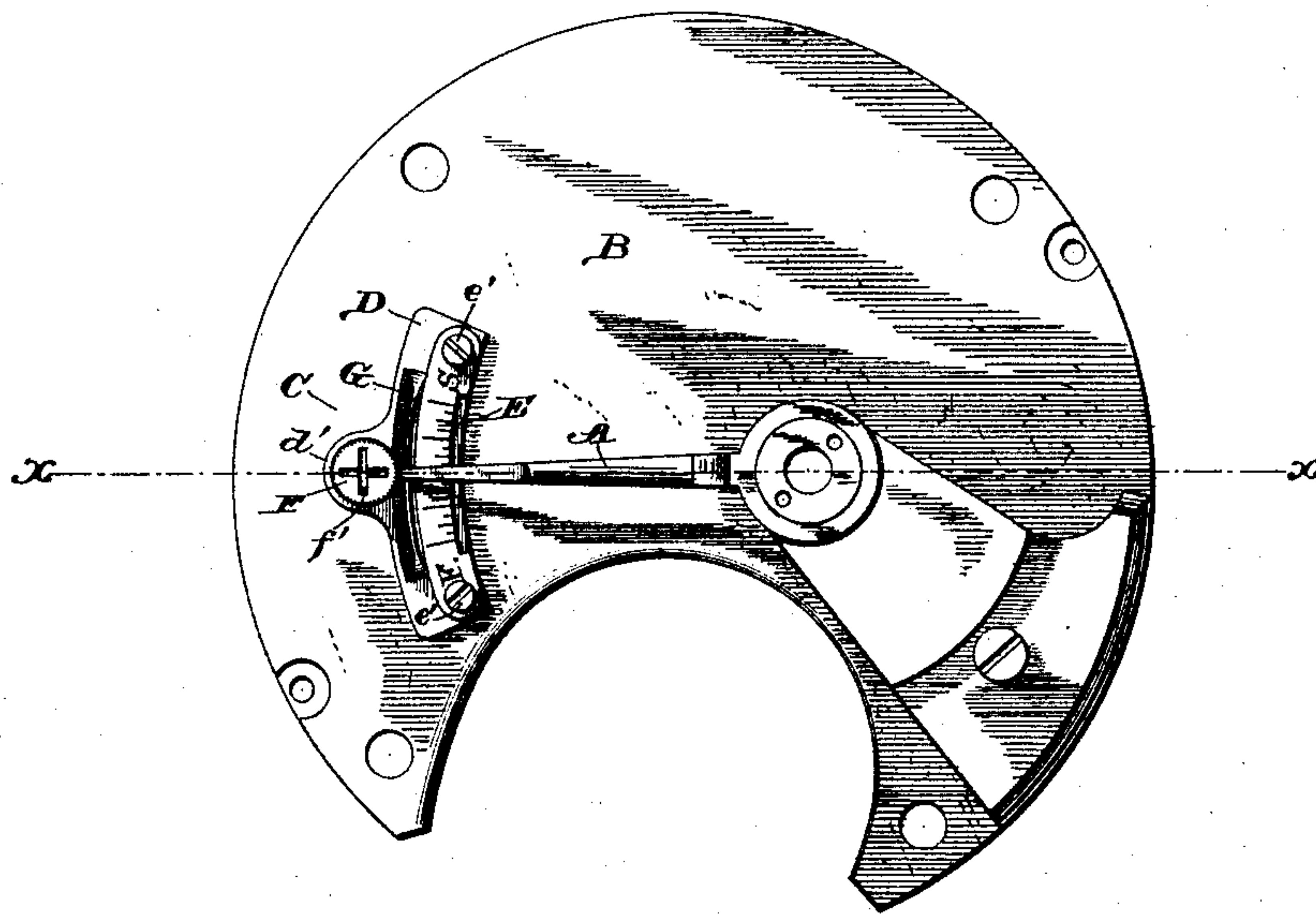
(No Model.)

J. W. HURD.  
WATCH REGULATOR.

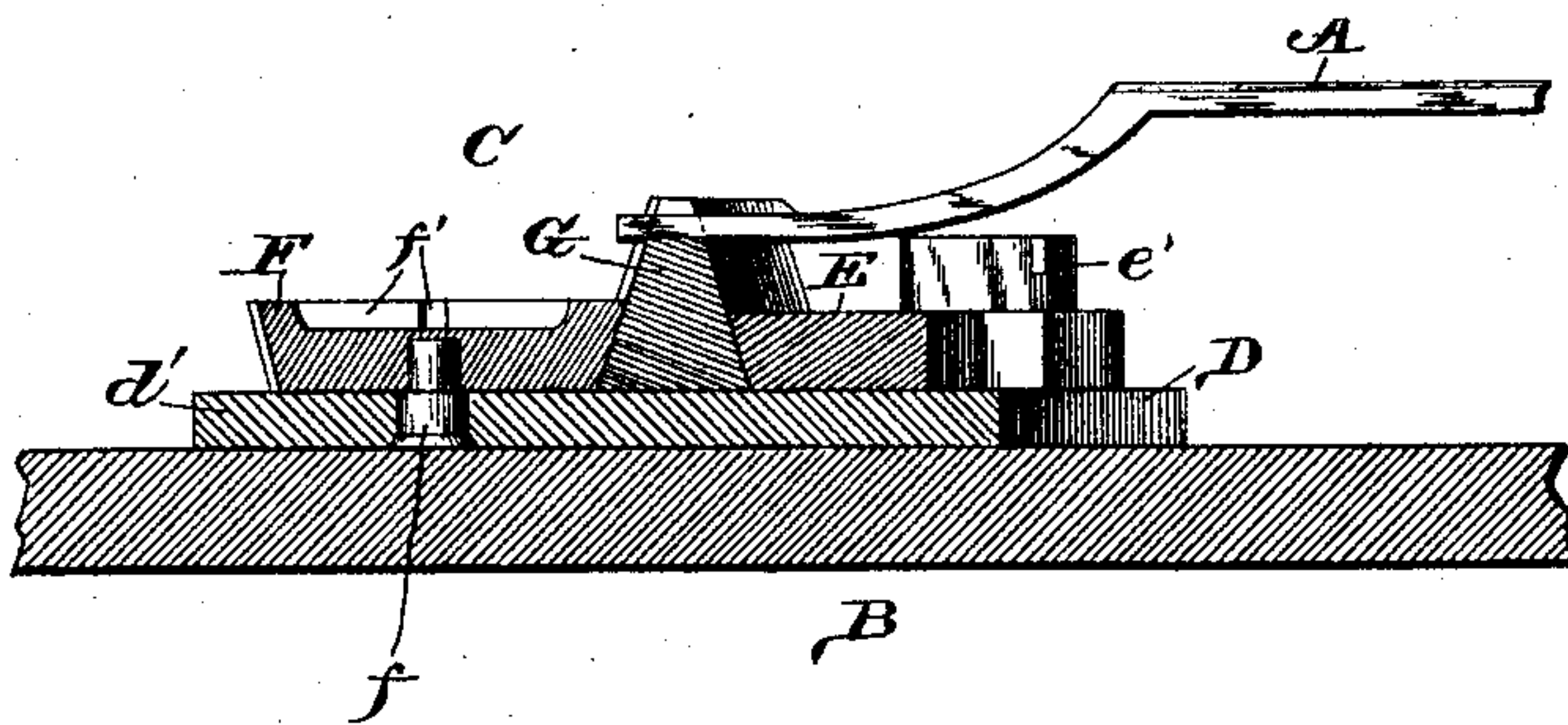
No. 369,006.

Patented Aug. 30, 1887.

*Fig. 1.*



*Fig. 2.*



Witnesses

*Percy C. Bowen.*  
*Wm. Nelson Moore.*

Inventor,

*Joseph W. Hurd;*

By his Attorneys

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

JOSEPH W. HURD, OF AURORA, ILLINOIS, ASSIGNOR TO THE AURORA  
WATCH COMPANY, OF SAME PLACE.

## WATCH-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 369,006, dated August 30, 1887.

Application filed July 21, 1886. Serial No. 208,644. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH W. HURD, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented new and useful Improvements in Watch-Regulators, of which the following is a specification.

My invention relates to improvements in watch-regulators; and it consists of the peculiar combination and novel construction and arrangement of the various parts for service, substantially as hereinafter fully set forth, and specifically pointed out in the claims.

The object of my invention is to provide an improved watch-regulator which can be easily and readily applied to watches of any class and which shall possess superior advantages in points of simplicity and durability of construction and ease of application and adjustment.

In the accompanying drawings, which illustrate a watch regulator embodying my invention, Fig. 1 is a top plan view, on an enlarged scale, of so much of a watch-movement as is necessary for a proper understanding of my invention; and Fig. 2 is a vertical sectional view on the line *x x* of Fig. 1.

Referring to the drawings, in which like letters of reference denote corresponding parts in both figures, A designates the regulator, and B the plate of the watch-movement, which are of any preferred pattern, my improvements being applicable to any style of watches.

C designates my improvement, which consists, essentially, of a base-plate, D, an index, E, having a scale or the usual subdivisions thereon, a pinion or gear-wheel, F, and a slide, G, to be actuated by the pinion and carrying the free end of the regulator to adjust the latter for the purpose of varying the tension of the hair-spring and regulating the rapidity of the strokes of the balance-wheel. The index is made curved or segmental in form, and at its ends it has transverse holes or openings formed therein, through which are passed screws *e'*, to secure it to the base-plate. The base-plate is also curved or made segmental in form to correspond with the index, which bears or rests thereon, and the ends of the base-plate are also provided with transverse openings or apertures. When the index is fitted or

adjusted on the base-plate, the openings therein align with the openings in the base-plate, and through these aligned openings are passed the screws *e'*, to secure both the base-plate and index to the plate B of the watch-movement. One of the vertical faces at the sides of the index is inclined inwardly and downwardly, as clearly shown in the sectional view, and against this inclined face of the index bears a similar face of the slide G, which is curved longitudinally or made segmental in form to bear closely against the segmental index, which serves to guide and prevent displacement of the slide during its movements.

The slide is made approximately V shape in cross-section to form the two inclined faces, with the apex thereof uppermost and the base resting on the base-plate D, over which it moves freely. One of the side faces is left smooth and bears against the index, and the opposite side face is provided with a series of very fine teeth, with which mesh corresponding teeth on the periphery of a gear-wheel or pinion, F. The sides of this gear-wheel are beveled or inclined to correspond to the inclination of the toothed face of the slide which the gear-wheel actuates, and the said wheel is journaled on a screw or rivet, *f*, which is secured on the base-plate D, the said plate being provided with a laterally-extended lug, *d'*, for the support of the gear-wheel and its shaft.

The gear-wheel has transverse incisions or cuts *f'* in its upper exposed face, into which the end of a screw-driver or other implement can be readily inserted to turn or rotate the gear-wheel in either direction, and thus move the slide back or forth, and the said slide has a recess or groove formed in the upper edge thereof, in which is fitted one end of the swinging regulator, so that when the slide is moved the free end of the regulator is carried with it.

The teeth on the slide and gear-wheel are made very fine, for securing a minute adjustment of the regulator, as is essential in watches of very fine make.

The operation of my invention will be readily understood. The gear-wheel is turned in the proper direction by inserting a screw-driver or other suitable implement in the grooves of the same, and the slide is thus actuated in the proper direction, and carries with it the free



end of the regulator to vary the tension of the hair-spring and the strokes of the balance-wheel.

In applying the device to a watch-movement the gear-wheel is first affixed to the base-plate, and the index and slide are then properly adjusted on the said plate with relation thereto and the gear-wheel, so that the openings in the index register with the openings in the base-plate and the teeth on the rack mesh with the teeth of the pinion, after which the screws *e'* are passed through the aligned openings in the index and base-plate to secure them to the plate B of the watch-movement, the free end of the regulator being fitted in the recess of the slide.

It will be obvious that if any of the parts or elements of this improved regulator become broken or out of order they may be removed and replaced at pleasure. The regulator proper, A, being merely set in a slot in the slide, need not necessarily be removed when the slide is taken out, but may be operated by hand in the ordinary manner.

My improvements are simple and durable in construction, easily applied to a watch, readily adjusted, and effective for the purposes designed.

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

1. In a regulator for watches, the gear-wheel F, in combination with the slide G, actuated by the gear-wheel, a regulator detachably connected to the slide, and a stationary index, separate from the slide, over which the regulator sweeps in its movements, as set forth.

2. In a regulator for watches, the gear-wheel F, in combination with the base-plate D, the

endwise-moving slide G, V-shaped in cross-section, seated in guides or ways on the base, said slide being actuated by the gear-wheel, and the regulator A, detachably connected to the slide, as set forth.

3. The combination of a base-plate, a gear-wheel carried by the said plate, an index affixed to the plate, and a slide bearing on the plate and against the index and having teeth meshing with the gear-wheel, one end of the regulator being connected with the slide, substantially as described.

4. The combination of an index having an inclined face, a slide, substantially V shape in cross-section, and having a smooth face bearing against the inclined face of the index, and its opposite face provided with fine teeth, and a gear-wheel having the periphery thereof inclined and meshing with the teeth of the slide to actuate the latter, substantially as described.

5. The combination of a base-plate having the transverse openings, an index having openings at its ends which align with the openings of the base-plate, the screws passing through the aligned openings of the base-plate and index to secure the same to the watch-movement, a slide guided by the index and having a groove or recess in which one end of the regulator is fitted, and a gear-wheel carried by the base-plate for actuating the slide, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSEPH W. HURD.

Witnesses:

ALONZO L. HURD,  
D. ILIFF.