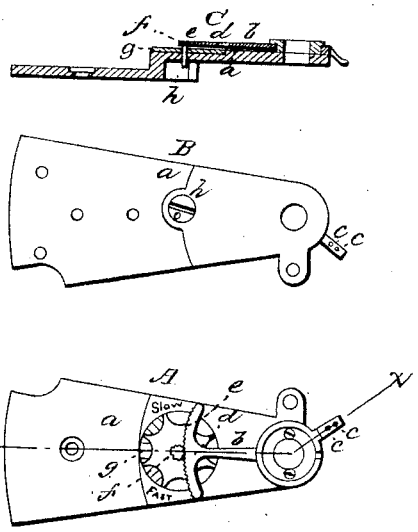
C. V. WOERD.

Watch Regulator.

No. 110,614. Patented Dec. 27, 1870.



Witnesses
C. Warren Brown
C. H. Latimer

Inventor
C. V. Woerd
By his Attys
Crosby, Halstead & Gould

UNITED STATES PATENT OFFICE.

CHARLES V. WOERD, OF WALTHAM, MASSACHUSETTS.

IMPROVEMENT IN WATCH-REGULATORS.

Specification forming part of Letters Patent No. **110,614**, dated December 27, 1870.

To all whom it may concern:

Be it known that I, CHARLES V. WOERD, of Waltham, in the county of Middlesex and State of Massachusetts, have invented an Improved Watch-Regulator; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to the construction and arrangement of the regulator mechanism of watches, with particular reference to provision for nice manipulation or adjustment of the regulator-lever.

The drawing represents a balance-cock (or cock-plate, regulator-lever, and lever-actuating mechanism) embodying my invention.

A shows an outer-side view of the cock-plate; B, an inner-side view thereof; C, a section on the line *x x*.

a denotes the cock or bridge plate; *b*, the regulator-lever between the pins *c c*, on one arm of which the balance-spring plays. *d* is the long arm of the regulator lever, at the end of which is the curved or segmental rack *e*, which is moved in either direction by means of a pinion, *f*, meshing into the rack-teeth, as seen at A. This pinion is fixed upon the end of a pivot-pin, carrying beneath the pinion the star or pointed wheel *g*, whose peripheral points form accessible lever-arms, by means of which the pinion can be not only very easily turned, but to the minutest extent desirable in adjusting the position of the regulating-lever.

In slipping the lever and pinion into position, the meshing teeth are liable either to interlock too tightly for free movement, or so loosely as to "backlash."

To remedy this I journal the pinion-shaft in an eccentric, *h*, which passes through and turns in the cock-plate, the eccentric being made frusto-conical in form, or with a lip or flange on one end, and riveted or spread at the other, and to keep it in the plate while allowing it to turn therein.

It will be obvious that by turning the eccentric the pinion may be moved either toward or from the lever-rack to whatever extent may be desirable to produce a proper interlocking of the pinion and rack-teeth.

It will readily be seen that this improved regulator mechanism is very simple and inexpensive, easy to manipulate, and adapted to that nice regulation so desirable in a reliable watch, and so difficult of attainment in watches with the regulator mechanisms now in use.

My regulator is an improvement upon the common regulator at the back of a watch.

By means of the peripheral points on the wheel there are always points at the plate which bear the words "Fast" and "Slow," or the letters "F" and "S," so that whatever may be the position of the wheel, it is never such but that a hand or index-pointer is between these words or letters, and the manipulation is exactly the same as in a common watch, while the adjustment is finer and more accurate, by means of the rack and pinion.

If one pointer only were used, then it would at certain times be brought under the arm *b*, where it would be invisible, or partly so, and inaccessible.

On the front of a watch nothing but the time-indicating hands are generally wanted. Adjusting and all other mechanism should be concealed.

I claim—

In combination with the actuating-pinion, the eccentric for adjusting the pinion relatively to the segment-rack, substantially as described.

CHAS. V. WOERD.

Witnesses:

J. B. CROSBY,

FRANCIS GOULD.