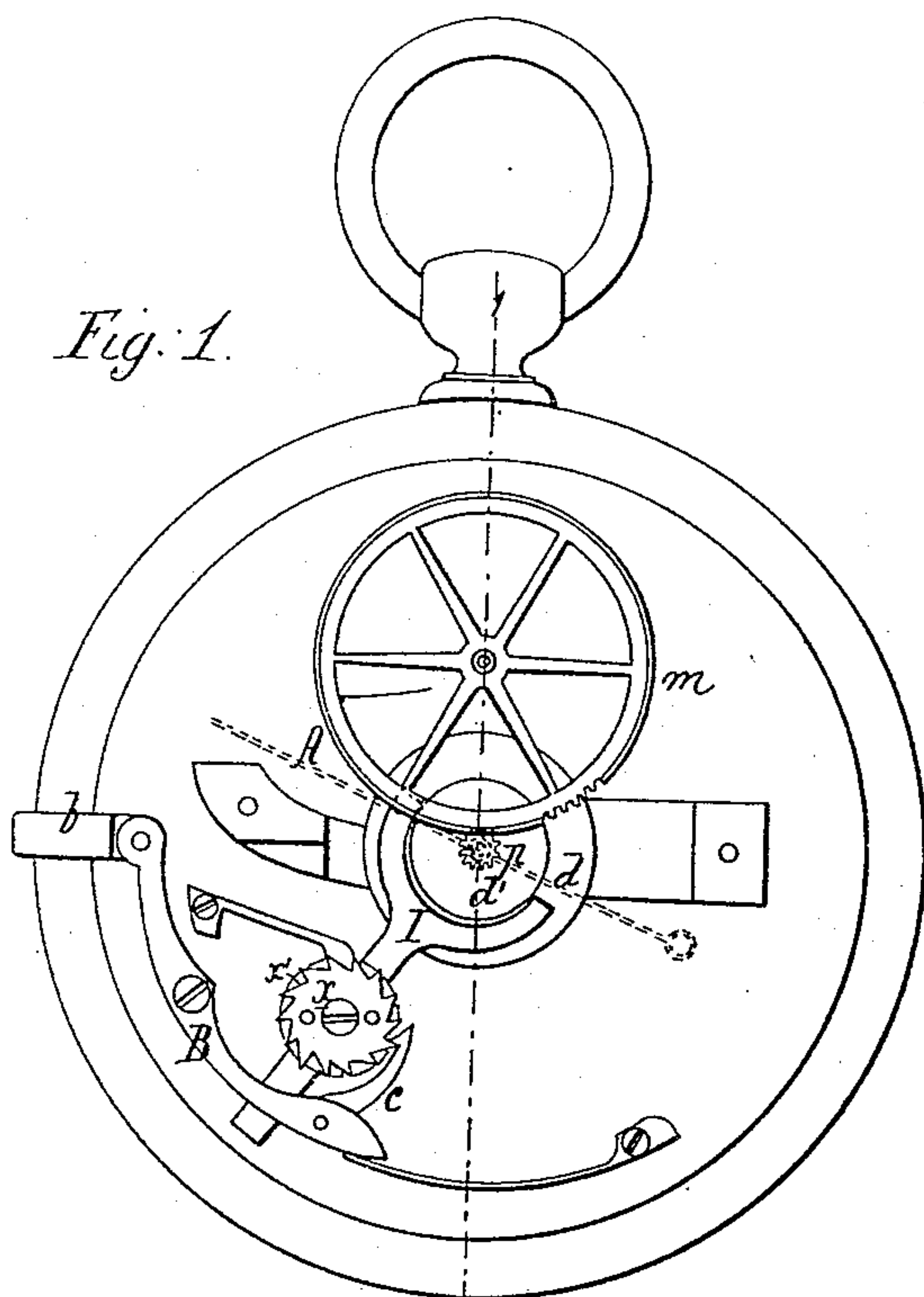


*H. R. Ekegren.*

*Watch Stop.*

*N<sup>o</sup> 89,747.*

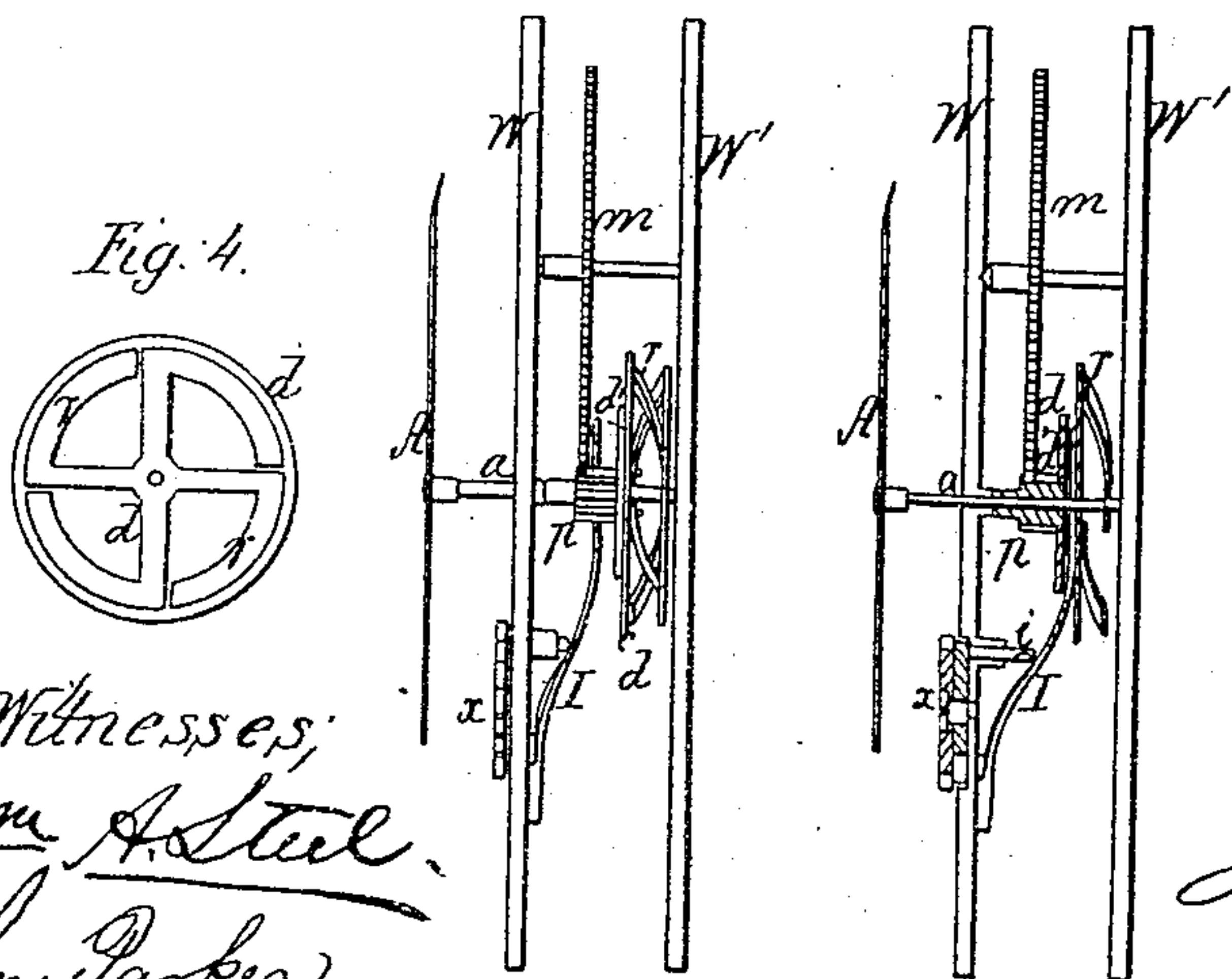
*Patented May 4, 1869.*



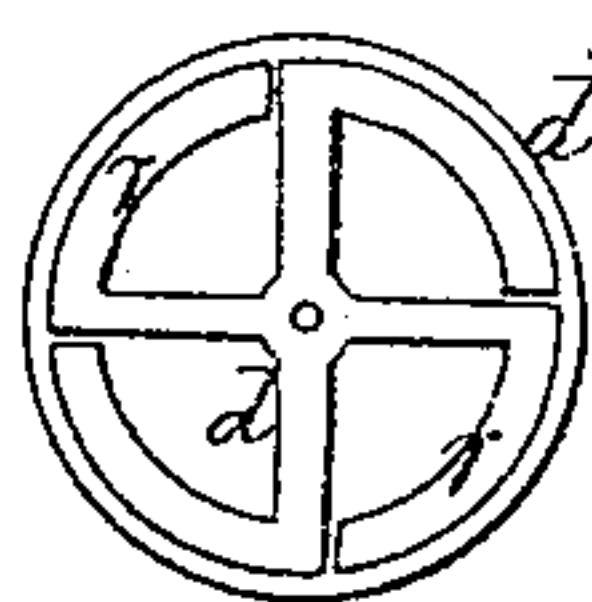
*Fig. 1.*

*Fig. 2.*

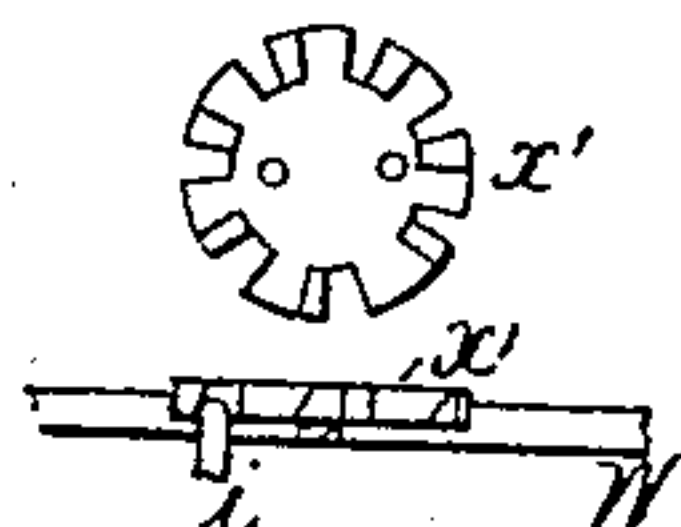
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses;*  
*Wm. A. Steel.*  
*John Parker*

*Inventor;*  
*H. R. Ekegren*  
*By His Atty*  
*H. Howson*



# United States Patent Office.

HENRI ROBERT EKEGRÉN, OF GENEVA, SWITZERLAND.

Letters Patent No. 89,747, dated May 4, 1869.

## IMPROVEMENT IN STOP-WATCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRI ROBERT EKEGRÉN, of Geneva, in the Republic of Switzerland, have invented an Improvement in Watches; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists of certain mechanism, fully described hereafter, for instantaneously stopping and starting the independent seconds' hand of a watch.

In order to enable others skilled in the art to make and apply my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a face view of my improved mechanism for instantaneously stopping or starting the independent second-hand of a watch;

Figure 2, an edge view;

Figure 3, a transverse section on the line 1-2, fig. 1; and

Figures 4 and 5, detached views of parts of my invention.

W and W' represent portions of the two plates of a watch, and on a spindle turning in those plates is a large wheel, *m*, with ninety teeth, this wheel being shown by red lines.

Into the wheel *m* gears a pinion, *p*, having twelve teeth, this pinion being hung loosely to, and so as to be capable of moving independently of a spindle, *a*, carrying the independent second-hand *A* of a watch.

To the inner end of the spindle *a* is secured a circular spring, *r*, illustrated in the detached view, fig. 4, which spring is secured to and bears against a metal disk, *d*, causing the latter, in turn, to bear against another metallic disk, *d'*, this latter disk being permanently secured to the pinion *p*.

A spring-lever, *I*, is secured, at its outer end, to one of the plates of the watch, and has its inner end forked, as illustrated in fig. 1, so as to pass round, and be free from contact with the disk *d'*, and on the application of pressure in the manner described hereafter, to bear against the disk *d*.

A ratchet-wheel, *x*, having fourteen teeth, is also hung to one of the plates of the watch, and secured to or forming a part of this wheel *x*, a wheel, *x'*, having on its outer face seven inclined projections.

Different devices may be used for operating the ratchet-wheel *x'*. The operating-mechanism employed in the present instance is shown by red lines, and consists of a pawl, *c*, secured to one arm of a lever, *B*, and to the opposite arm of this lever is pivoted a button, *b*, which projects through the outer casing of the watch, and by pressure against which the lever *B* is operated.

In watches having independent second-hands, as heretofore made, it has been impossible to attain as much accuracy in stopping the second-hand as is desirable for important observations.

By my invention, however, not only is perfect accuracy attained, but the mechanism for effecting the stopping and starting of the hand is exceedingly simple in its operation, as will be seen from the following description.

On the application of pressure to the button *b*, that end of the lever *B* to which is hung the pawl *c*, is swung outward, causing the pawl to move the ratchet-wheel *x* to the extent of one tooth, the ratchet-wheel being prevented from moving backward by means of a counter-pawl, as illustrated in fig. 1 of the drawing.

With the wheel *x* revolves the wheel *x'*, having teeth with inclined edges and flat under surfaces, either one of the teeth, or one of the intermediate recesses being above one end of a loose pin, *i*, passing through the plate of the watch, the other end of this pin bearing against the lever *I*.

When by pressure upon the button *b* the inclined edge of one of the teeth of the wheel *x'* is brought against the pin *i*, the latter is depressed, and presses against the lever *I*, causing its forked end to bear upon the disk *d*, on the spindle *a*, the flat under side of the tooth now being above the pin *i*, and preventing the latter from rising until the next movement of the wheel *x'*. This disk is thus removed from contact with the disk *d'*, secured to the pinion *p*, the latter being consequently left free to move with the wheel *m*, without carrying with it the spindle *a* of the independent second-hand, the instantaneous stoppage of which is thus secured.

Upon a recessed portion of the wheel *x'*, however, being brought opposite the outer end of the pin *i*, the latter is pressed back by the action of the spring-lever *I*, the forked end of which is now released from contact with the disk *d*.

This disk being thus freed, is pushed, by the circular spring *r*, into contact with the disk *d*, on the pinion *p*, and the friction between the two disks instantly causes the spindle *a* and its independent second-hand to move with the pinion.

In this way, as the wheels *x* and *x'* revolve, they cause the independent second-hand to be alternately stopped or started, the stopping or starting being absolutely instantaneous.

I claim as my invention, and desire to secure by Letters Patent—

The spring *I*, in combination with the pin *i* and disk *x'*, having teeth constructed with inclined sides, so as to operate on the pin substantially as specified.

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

H. R. EKEGRÉN.

Witnesses:

E. HEISAM,  
CHAS. H. UPTON.