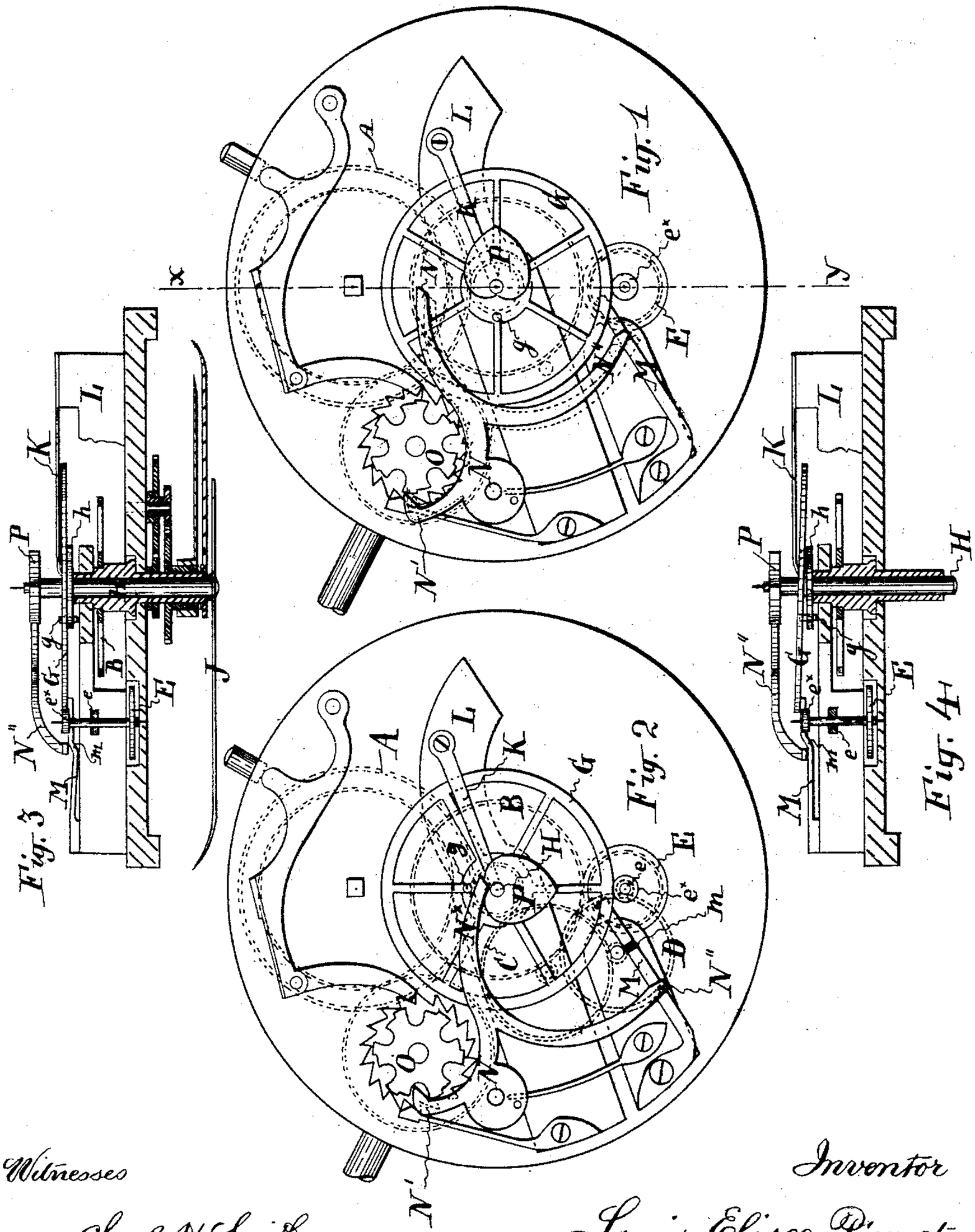
(No Model.)

L. E. PIGUET.

STOP WATCH.

No. 449,915. Patented Apr. 7, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

LOUIS ELISÉE PIGUET, OF BRASSUS, SWITZERLAND.

STOP-WATCH.

SPECIFICATION forming part of Letters Patent No. 449,915, dated April 7, 1891.

Application filed October 8, 1890. Serial No. 367,419. (No model.) Patented in Switzerland December 31, 1888, No. 235.

To all whom it may concern:

Be it known that I, LOUIS ELISÉE PIGUET, watch-manufacturer, of Brassus, in Switzerland, have invented certain new and useful Improvements in Watches, of which the following is a specification.

This invention relates to the combination, with any ordinary time-movement, of a stop mechanism having an independent seconds-hand. I make use of an ordinary star or cam wheel that is moved around progressively. The first push connects the independent seconds-hand with the time-train, so that such seconds-hand is rotated in unison with the time-movement, the second push and movement of the star-wheel disconnects the independent seconds-hand gearing from the train of gearing in the watch and holds the independent seconds-hand stationary, and the third push and movement of the star-wheel restores the independent seconds-hand to "0," ready to be again connected by the first movement before mentioned.

In carrying out this invention a continuously-rotating pinion upon the ordinary time mechanism of the watch is adjacent to a wheel that is upon the arbor of the independent seconds-hand, and this wheel is so constructed that it may be moved laterally sufficiently to engage its teeth with the pinion or disengage them therefrom, and when the disengagement takes places the spring-lever that separates the parts also acts as a brake to hold the wheel and the independent seconds-hand in the position to which the same may have been rotated.

I do not limit myself to any particular character of time mechanism, as the present invention is easy of application to almost any form of time mechanism.

In the drawings, Figure 1 is a plan view of the mechanism, showing the position of the levers when the seconds-hand is going. Fig. 2 is a similar view showing the position of the levers when the seconds-hand is set to "0." Fig. 3 is a cross-section on the line $x\,y$ in Fig. 1 with the seconds-hand going, and Fig. 4 is a similar section in which the seconds-hand is stopped.

In all the figures the same letters refer to the same pieces.

A is the mainspring-barrel in gear with the pinion of the central wheel B, which drives the second wheel C. The latter drives the pinion of the third wheel D, which drives the pinion e of the escapement-wheel E. The axis of the latter carries a pinion $e^{\times}$, which acts upon the independent seconds-hand mechanism. For that purpose the pinion $e^{\times}$ gears with a wheel G, which is not fixed to the axis H of the independent seconds-hand J, but is pressed upon a disk h of said axis by means of a spring K, fixed to the bridge L. The wheel G is furthermore provided with a pin or projection g, engaged into a suitable hole of the disk h, so as to have said wheel driving said axis when turned by the pinion $e^{\times}$. There is further provided a spring-lever M beneath the circumference of the wheel G in proximity to the pinion $e^{\times}$ and about diametrically opposite to the aforesaid spring K. The spring-lever M is provided with a bevel or incline m, and when abandoned to itself it lifts the wheel G, as shown in Fig. 4, so as to place it out of gear with the pinion $e^{\times}$. The stop-lever N, however, may press said spring-lever M downward by means of its arm N^2, as shown in Figs. 1 and 3, when its arm N′ bears upon one of the high steps of the star-wheel O. Then the wheel G falls into its lower position, bearing upon the disk h under the action of the spring K, and it is in gear with the pinion $e^{\times}$.

The position of the stop-lever N shown in full lines in Fig. 1 corresponds to the position of said lever shown in elevation in Fig. 3. The position of the stop-lever N shown in dotted lines in Fig. 1 corresponds to the position of said lever shown in elevation in Fig. 4, the arm N′ bearing upon one of the lower steps of the star-wheel O. The position of the lever N shown in Fig. 2 is that in which the arm $N^{\times}$ of said lever bears upon the heart-piece P to set the independent seconds-hand to zero when the arm N′ passes into one of the notches of the star-wheel O.

I claim as my invention—

1. The combination, with the star or cam wheel of the stop-watch and the independent seconds-hand and arbor, of a continuously-rotating pinion actuated by the time-train, a disk permanently connected with the arbor of the independent seconds-hand, a gear-wheel upon the same arbor, and a projection for

connecting the wheel and the disk, a spring for pressing the wheel toward the disk, a spring-arm for acting upon the wheel near the continuously-rotating pinion to separate the same from such pinion, and a lever acted upon by the cam-wheel of the stop mechanism for moving the spring-arm out of contact with the gear-wheel, substantially as set forth.

2. In a stop-watch mechanism, the combination, with the independent seconds-hand and arbor, of a gear-wheel upon said arbor adapted to receive a lateral movement at one side of its periphery, a spring to restore the wheel to its normal position and bring it into gear with the continuously-rotating pinion of the time-train, a heart-cam upon the arbor of the independent seconds-hand, a spring-arm capable of separating the gear-wheel from the continuously-rotating pinion, and a lever acted upon by the cam or star wheel of the stop-watch and having two arms acting in opposite directions, one to restore the independent seconds-hand to its normal position by acting upon the heart-cam and the other to move the spring-arm away from the gear-wheel and allow the same to engage the teeth of the pinion, substantially as set forth.

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

LOUIS ELISÉE PIGUET. [L. S.]

Witnesses:

ELMER SELMIN,

E. PRENTICE NAYLOR.