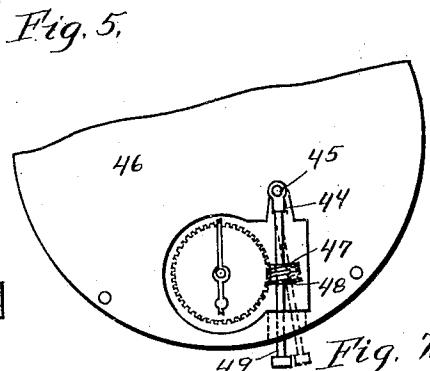
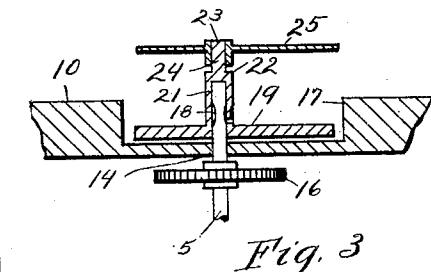
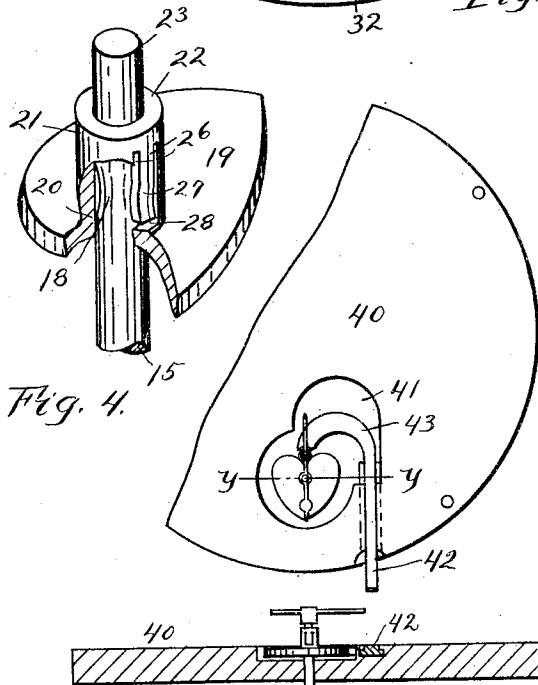
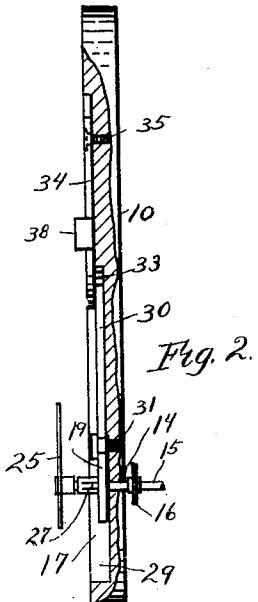
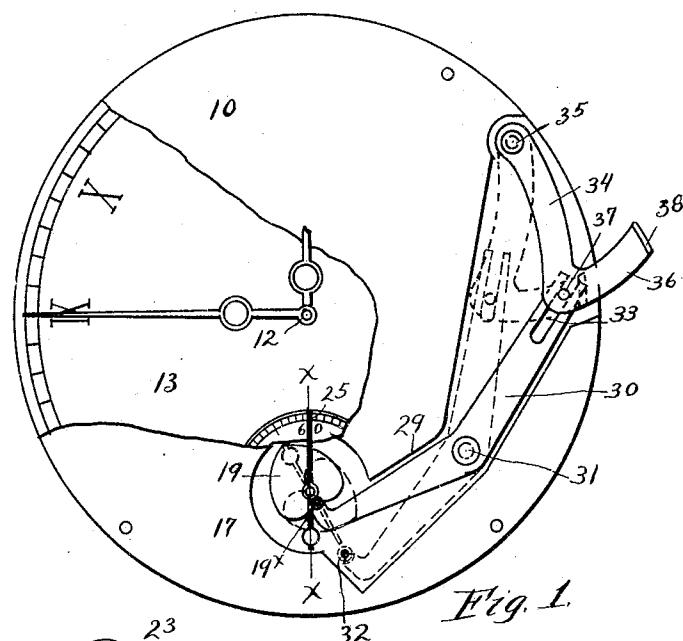


No. 809,196.

PATENTED JAN. 2, 1906.

A. C. LOKER.  
STOP WATCH.  
APPLICATION FILED APR. 21, 1906.



*Witnesses*

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# UNITED STATES PATENT OFFICE.

ALBERT C. LOKER, OF KANSAS CITY, MISSOURI.

## STOP-WATCH.

No. 809,196.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed April 21, 1905. Serial No. 256,706.

*To all whom it may concern:*

Be it known that I, ALBERT C. LOKER, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Watches; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of the specification.

The invention has for its object to correct the variation in the indicators of time, or the relative positions of the seconds and minute hands of a watch or timepiece, so that the indicator or seconds-hand will register at the same relative point on the time-scale as the minute-hand.

The invention consists in the novel construction and combination of parts, such as will be first fully described and then specifically pointed out in the claims.

In the drawings, Figure 1 is a view of the bottom plate supporting the movements of a watch, showing the recessed outer surface, the seconds-hand, a broken portion of the dial-plate, the minute-hand, and the novel devices therein for moving the seconds-hand in position for starting from the prescribed point. Fig. 2 is a view looking toward the edge of the bottom plate, the plate being broken away to show the pivoted levers. Fig. 3 is a broken vertical sectional view of the bottom plate, taken upon the line  $x-x$  of Fig. 1, showing the recess and the devices for controlling the movements of the seconds-hand. Fig. 4 is a detail enlarged view of the indicator-shaft of a watch-movement for the seconds-hand, showing the cam and sleeve on the shaft and the shoulder on the sleeve for the seconds-hand. Fig. 5 is a broken view of a bottom plate for a watch-movement, showing the cam for operating the seconds-hand, as in Fig. 1, and also showing a modification of the devices for controlling the movements of the cam. Fig. 6 is a vertical sectional view of the bottom plate, taken upon the line  $y-y$  of Fig. 5. Fig. 7 is a broken view of a bottom plate for a watch-movement, showing a modification of the cam and means for throwing the operating-levers in and out of engagement with the bottom plate. Fig. 8 is a detail view, enlarged, of a portion of the contracting end of the cam-operating lever, showing the cam-contracting wheel.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Referring to the drawings, 10 indicates the bottom plate, which supports the movement of a watch or other timepiece and with the outer surface of which the dial-plate 13 is connected in the well-known manner.

12 indicates the opening in the center of the plate for the sleeve and shaft of the minute and hour hands, the hour-hand not being shown, and 14 indicates the opening in the direction of the lower edge of the plate through which extends the outer end of the rotary shaft 15, actuating the seconds-hand of the watch. The shaft is broken away on the inner side of the bottom plate and a pinion 16 of an ordinary watch-movement shown thereon, which is sufficient to illustrate the invention, it being understood that the usual power in the mechanism of a watch is applied to the pinion to cause the measurement of time of one minute's duration and the fractional parts of a minute indicated in the usual way upon the dial, which parts are one-sixtieth of the measure of a space upon the dial indicating the minutes.

In the outer surface of the plate 10, concentric with the opening 14, is an annular recess or depression 17. For the purposes of the invention the outer end of shaft 15, which extends through the dial-plate, is considerably reduced in length, and in the surface of the shaft, a short distance inwardly from the end, 90 is an annular groove 18 of considerable width in the direction of the length of the shaft. Within the recess is a heart-shaped cam 19, in which is an opening 20, through which the shaft 15 extends, the portion of the edge of the cam nearest the shaft having a notch 19<sup>x</sup> formed at the meeting of the curved lines of the cam nearest the said shaft.

Upon the outer end of shaft 15 is an independent shaft-bearing 21, within the lower end of which bearing is socket 21, which socket extends around the shaft 15 and is connected with the upper surface of the cam 19. The upper end portion of the shaft-bearing 21, which extends a short distance beyond the outer end of shaft 15, is formed in a solid piece, the inner end of the socket 21 bearing upon the outer end of the shaft 15 and retaining the lower surface of the cam 19 a slight distance above the bottom of the recess 17. The solid portion of the bearing 21 is reduced in circumference, as at 23, to form

the annular bearing for the seconds-hand and the shoulder 22, and upon the reduced portion 23 is fitted the thimble 24, and with the thimble is connected the seconds-hand 25 of the watch. In the side of the socket 21, extending downwardly, are the parallel slits 26, between which is a tongue 27, the lower end of the tongue being separated from the socket by a transverse slit 28. The tongue or catch 27 is bent or curved inwardly, the inner surface of the tongue fitting snugly within the groove 18 in the outer end of the shaft 15, the frictional contact being sufficient to cause the cam to move in unison with the said shaft 15 until it is desired to arrest the movement, as further described.

In the outer surface of the plate, extending from the recess 17 and the lower portion of said recess upwardly and through the upper portion of the edge of the bottom plate, is a depression or recess 29. The lower portion of this recess communicating with recess 17 is of considerable width and narrows at a point upwardly about one-half the distance, then increases in width past said point. Within the recess or depression 29 is an operating-lever 30. This lever is pivoted upon the pivot 31 in the narrow portion of the recess. One end of the limb of the lever 30 extends from the pivot to a position opposite the cam 19 and is bent at an angle to the upper end of the lever, and upon said lower end of the lever is a halved projection 32, extending at right angles thereto and in which is pivoted a small wheel 32<sup>x</sup>, which wheel comes into contact with the edge of the cam 19. In the upper end of the lever 30 is a slot 33. 34 indicates a suspended arm, the upper end of which is pivoted upon the pivot 35 at the upper end of the recess 29. The lower portion of the arm 34 is bent at an acute angle and a portion 36 extended outwardly and upwardly and also above the upper surface of the slotted portion of the lever 30. Upon the lower surface of the arm 34, at the point at which the arm is bent, is a pin 37, which enters the slot 33 in the upper end of the arm 30. Upon the outer end of the extended portion 36 of the arm 34 is a portion 38, bent outwardly and at right angles to the said portion to form a lip, and by means of which the portion of the arm may be drawn outwardly from or extended within the recess.

The normal position of the lever 34 is shown in dotted lines in Fig. 1, the portion 36 of the arm 34 being within the recess in the bottom plate and the bent portion 32 of the lever 30 out of engagement with the cam 19. The cam is then free to rotate with the shaft 15. In order to correct the variance between the minute and seconds hands, the lip 38 is seized by the fingers and the arm 34 drawn outwardly, which movement throws the projection 32 on the lever 30 into contact with the edge of cam 19. The movement of

the cam is then away from the projection and independently of the shaft 15, the movement being continued until the projection enters the notch 19 of the cam, when the action of the cam ceases and the seconds-hand is retarded in the return movement, the position of the hand or indicator being at the "60" mark on the scale on the dial for the seconds with which it registers. This position of the seconds-hand is held until the minute-hand is in position upon the lines of the scale indicating the minutes, when the arm 34 is moved within the recess 29 in the bottom plate, thus releasing the contact of lever 30 with the cam, and both the minute and seconds hands move on in such relations that while the seconds-hand is moving through the space indicated upon the scale of sixty seconds the minute-hand moves an equal space of the time from one of the minute-scale lines to the one adjacent thereto.

Instead of the arm and lever, as seen in Fig. 1, the construction as seen in Fig. 6 may be employed. In this construction the cam is employed, as in Fig. 1, to control the seconds-hand, and above the annular recess, as in said figure, is a curved recess 41, communicating therewith, in which is the curved end 43 of an operating-rod 42, which curved end engages with the notch in the heart-shaped cam upon the completion of its movement. The outer end of rod 42 extends within the recess or passage leading downwardly to the edge of the bottom plate 40. The recess 41 forms a stop when the rod 42 is moved inwardly to disengage the curved end from the cam.

Instead of the cam, as shown in Fig. 1, a worm-wheel may be employed, as seen in Fig. 7. In this construction a worm-shaft 44 is pivoted at 45 at one end upon the outer surface of the bottom plate 46. A recess 47 of the requisite width is made on the plate 46 for the worm 48. Separate notches 49 are made in the bottom plate near the edge, and the worm-shaft is moved from one notch to the other to engage or disengage the worm. The action of the worm would, of course, occasion a slow movement of the seconds-hand, the result being obtained, however, in like manner as in Fig. 1. The hand-controlling devices may be arranged upon the surface of the bottom plate when the dial-plate is the proper distance from the movements, as in the case of a clock, the recesses being preferably employed where the dial-plate is connected and comes into contact with the bottom plate. It is obvious that instead of suspending the arm 34 in Fig. 1 the extended portion may be employed to move the lever 30, the object being that when the arm 34 is moved inwardly the position of the lever 30 and the arm 34 are in line, and an accidental movement of the lever is prevented until such time as the arresting of the movement

of the seconds-hand is desired and its return movement effected. In whatever position the cam 19 may be the contact of the lever 30 moves the cam around so as to enter 5 the notch, and this contact overcomes the friction of the spring 27 in the bearing 21. Such other modifications may be employed as are within the scope of the invention.

Having fully described my invention, what 10 I now claim as new, and desire to obtain by Letters Patent, is—

1. In a watch or timepiece the combination with a hand-setting lever having a slot at its upper end, a suspended arm pivotally 15 connected with the slotted end of said lever and an operating branch portion extending outwardly therefrom.

2. The combination with the bottom plate of a watch or timepiece supporting the watch- 20 movement of a time-indicator shaft, an independent bearing for the hands of the watch, having a socket adapted to receive the end of said indicator-shaft, a cam upon said bearing, a pivoted lever upon the bottom 25 plate, an extension of one end of said lever adapted to engage with the cam, said lever

having a slot at the other end, a suspended arm pivotally connected with the slotted end of said lever, and an operating branch portion of said arm extending outwardly there- 30 from.

3. The combination with the bottom plate of a watch or timepiece supporting the watch- movement having a recess, a shaft opening therein, an indicator-shaft extending through 35 said opening, an independent bearing for the hands, having a socket adapted to fit the end of said shaft, a cam having a notch upon said bearing within said recess, said bottom plate having a recess communicating with 40 the recess near the shaft, opening and extending to the edge of the bottom plate, a lever pivoted in said latter recess, a projection at one end engaging with the notch in said cam; said lever having a slot in the upper end, a 45 suspended arm having a bent portion and a pin extending in the slot in the said lever.

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Witnesses:

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