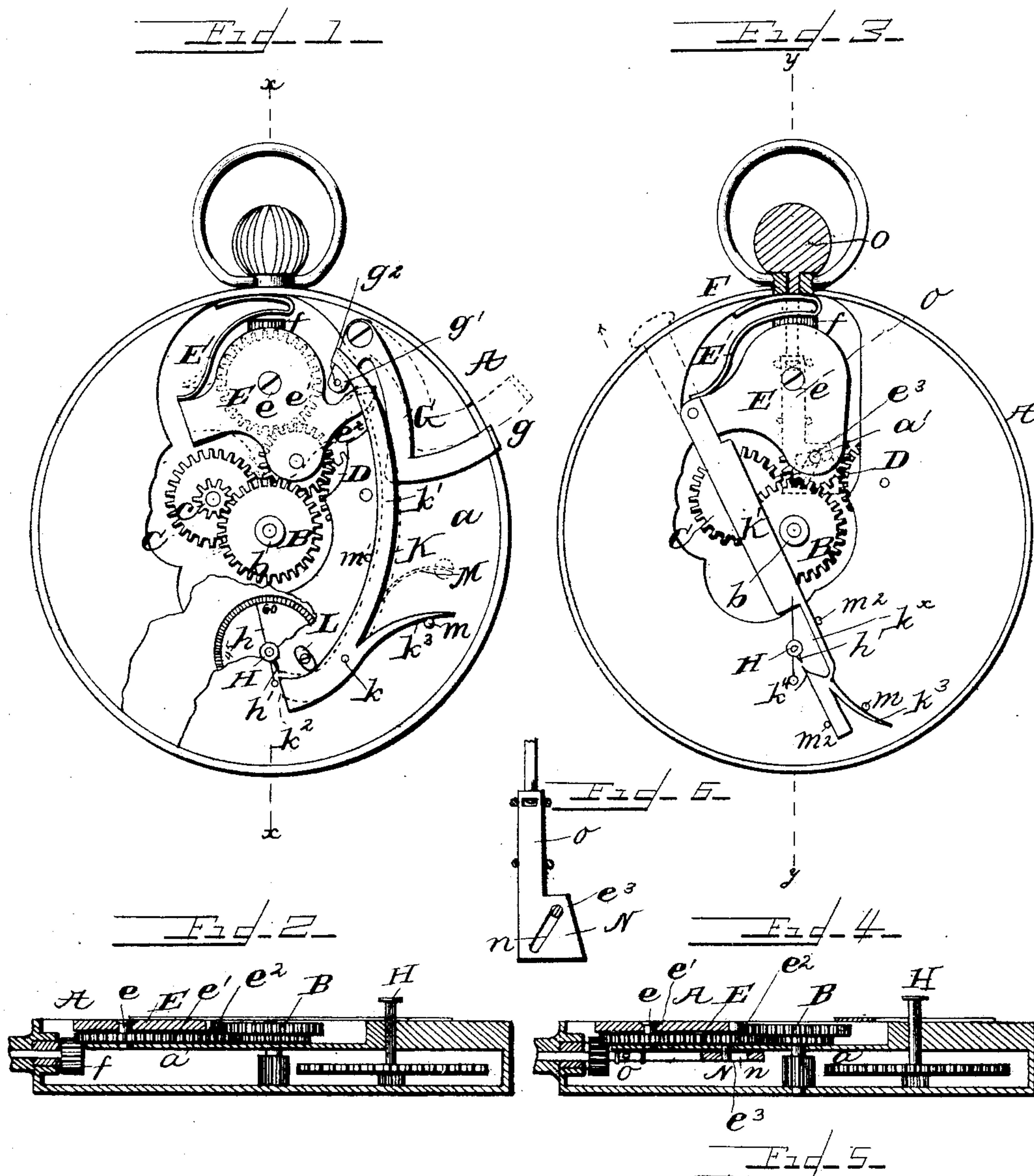


(No Model.)

N. JENSEN.
STOP WATCH.

No. 458,460.

Patented Aug. 25, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

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STOP-WATCH.

SPECIFICATION forming part of Letters Patent No. 458,460, dated August 25, 1891.

Application filed April 16, 1891. Serial No. 389,183. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAY JENSEN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Watches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improvement in watches; and it consists in the novel features of construction and combination of parts hereinafter fully described.

In the accompanying drawings I have illustrated two forms in which I have contemplated embodying my invention, and the same is fully disclosed in the following description and claims.

Referring to said drawings, Figure 1 represents a top plan view of a watch provided with my improvement, part of the dial being removed to show parts located beneath. Fig. 2 is a section on line $x\ x$, Fig. 1. Fig. 3 is a top plan view of a watch with the dial removed, showing a slightly-modified construction. Fig. 4 is a section on line $y\ y$, Fig. 3. Figs. 5 and 6 are details of parts of the mechanism.

The object of my invention is to provide means for arresting the movement of the seconds-hand of a watch at a predetermined point in the course of its movement around the dial and stopping the watch-movement, thus permitting the hands of the watch to be set without injury to the movement and enabling the minute-hand and seconds-hand to be readily set in proper relation to each other. This mechanism can be operated by means of an operating lever or rod extending to the outside of the casing; but I have shown my invention applied to stem-winding lever or pendent-set watches, and I attach my improved device in such a manner that the simple drawing out of the lever or crown, as the case may be, will throw into operation the means for arresting the seconds-hand and stop the watch, while at the same time throwing the setting mechanism into gear. The seconds-hand will then continue to traverse its dial until it reaches the predetermined point, which is preferably 60, and will then

be arrested and the watch stopped while the watch is set. As soon as the watch has been set the lever or crown is restored to its normal position, and this releases the device for arresting the seconds-hand and permits the watch to resume its movement.

In the drawings, A represents the movement of a watch, to which the operating parts are secured, a being the plate or platen lying beneath the dial.

B is the hour-hand wheel, having the sleeve b to receive the hour-hand.

c is a small pinion in gear with the pinion B, and a larger wheel C is secured to rotate with the pinion c and is in position to be engaged by the operating devices for setting the watch. I term the pinions B, C, and c the "dial-train."

D is a wheel forming a part of the winding devices, which constitute no part of my invention and may be of any desired form.

E is the yoke, pivoted at e and provided with gears e' and e^2 for transmitting motion from a pinion f on a revolving sleeve F, which is engaged by the winding-stem attached to the crown to either the setting or winding gears, according to the position of said pivoted yoke. The yoke is held in normal position by a spring E' with the gear e^2 in engagement with the winding-gear D, as shown in the drawings. A pivoted lever G, which I term the "setting-lever," is provided with an arm g , which extends without the watch-casing, and a short arm g' , which extends into a position to engage a projection from the yoke E and move it against the force of its spring when the setting-lever is drawn out, so as to move the gear e^2 into engagement with the dial-train and out of engagement with the winding devices.

H is the seconds-hand staff, and h the seconds-hand of any usual or preferred construction.

The parts just described do not form part of my invention, but are described in order to show the application of my device to and their co-operation with the parts of an ordinary watch, and it will be obvious that by slightly varying the details of construction my devices can be applied to watches of different styles and having a different arrangement of parts.

On the plate a is secured a pivoted stop-
 ping-lever K , pivoted at k and having a long
 operating-arm k' extending to a point adja-
 cent to the setting-lever G and operatively
 5 connected therewith. In this instance I have
 shown the short arm g' of the setting-lever pro-
 vided with a pin, stud, or projection g^2 ,
 which is adapted to engage the lever-arm k'
 and operate the same when the lever g is
 10 drawn out, as indicated in dotted lines.

The seconds-hand staff H has a short pro-
 jection h' extending from the same, one side
 at least of which has a face extending at an
 angle to the curved surface of the arbor or
 15 staff. This projection I prefer to form of
 elastic material, and the end k^2 of the lever
 K extends into close proximity of the path of
 the projection, so that when the arm g of the
 setting-lever is drawn out the end k^2 of the
 20 lever K will be moved inward to engage with
 the angular face of the projection when the
 arbor shall have revolved far enough to bring
 the same into engagement with the end of
 the lever.

25 In order to prevent the lever K from being
 moved too far toward the staff H , I provide
 an adjustable stop L , located in the path of
 lever K , which consists in this instance of a
 screw provided with a head having unequal
 30 diameters. This head may be eccentric or
 elliptical, as shown in the drawings, and by
 turning the screw the lever may be permitted
 a greater or less movement toward the staff H .

The lever K is preferably provided with a
 35 spring k^3 , which is formed integrally there-
 with and engages a pin m in the plate a , a
 suitable pin or stop m' being provided to limit
 the movement of the lever under the influ-
 ence of the spring. This construction en-
 40 ables me to form the lever K with spring and
 arm k' out of a single piece of metal, and it
 can thus be made very cheaply. If I desire,
 however, I may provide a separate spring, as
 indicated at M in dotted lines. The spring
 45 will restore the lever K to its normal posi-
 tion, when the arm g of the setting-lever is
 pressed in and thus release the seconds-hand
 staff.

The operation of my device is as follows:
 50 When it is desired to set the watch, the arm
 g of the setting-lever is drawn out, as shown
 in dotted lines, thus operating lever K and
 moving the part k^2 into position to engage
 the projection on the staff H . When the
 55 seconds-hand reaches 60, the arm h' will en-
 gage the stopping-lever and stop the hand
 and the movement of the watch, and the sec-
 onds-hand will be so adjusted on its staff that
 when the arm h' and lever K are in engage-
 60 ment the said hand will be at 60. The watch
 is then set and the minute-hand set on an
 even minute. When the setting-lever is
 pushed in, the arm h' will be released and the
 watch will resume its movement. By making
 65 the arm h' of elastic or spring material the
 said arm will form a cushion and thus avoid
 a jar in stopping, which will prevent strain-

ing the parts, and by this means also the bal-
 ance-wheel will continue to vibrate for a con-
 siderable time after the watch has been 70
 stopped, as the parts yield slightly, and when
 the staff H is released the balance-wheel will
 resume its movements more quickly and read-
 ily than if it had been brought to complete
 rest.

75 It is obvious that I might provide the stop-
 ping-lever with a yielding part to engage a
 rigid arm on the staff, if desired, and I have
 indicated this construction in Fig. 3 of the
 drawings in connection with a slightly-modi- 80
 fied form of apparatus.

In Figs. 3 and 4 I have shown a slightly-
 different form of stopping-lever applied to a
 watch in which the yoke is shifted by draw-
 ing out the crown and winding-stem. In 85
 these figures I have shown a stopping-lever
 which has a sliding movement instead of a
 pivoted lever, as in the other figures. The
 lever or rod K' is secured in this instance to
 the yoke E at a point at a distance from its 90
 pivot, and a portion k^4 of said stopping rod
 or lever extends into the range of the arm h'
 on the seconds-hand staff H . In this instance
 I have shown the rod K' as provided with a
 yielding or spring portion k^4 for engaging a 95
 rigid arm h' ; but the spring may be dis-
 pensed with or rigid parts may be employed, if
 desired. Suitable pins $m^2 m^2$ retain the rod
 K' in position and permit its longitudinal
 movement. The rod K' will preferably be 100
 cut away, as at k^x , to allow the arm h' to move
 freely around until it comes into contact with
 the part k^4 . In this instance when the yoke
 is shifted to throw the setting mechanism
 into operation the rod K' will be moved lon- 105
 gitudinally and the projection k^4 brought
 into the path of the arm h' , so as to stop the
 minute-hand on 60.

In order to operate the yoke by pulling out
 the crown O and winding-stem o , any pre- 110
 ferred mechanism may be used. I have
 shown a sliding plate N , having a cam-slot n
 engaged by a pin e^3 , extending down from the
 yoke E through a slot a' in the plate a . The
 winding-rod is made polygonal or square, as 115
 is customary, and is capable of sliding longi-
 tudinally through the pendent sleeve F and
 pinion f , and is connected to the plate N by
 a swivel-joint, as shown in Fig. 6, so that it
 may be turned to rotate the pinion f and 120
 also drawn out to move the plate longitudi-
 nally. When said plate N is moved by draw-
 ing out the crown and winding-stem, the cam-
 slot engaging the pin e^3 will force the yoke to
 move laterally and throw wheel e^2 into en- 125
 gagement with the setting-train and out of
 engagement with the winding mechanism.
 When the crown and stem are pressed in, the
 arm h' of the seconds-hand staff will be re-
 leased. I may provide a catch to hold the 130
 crown and winding-rod on their outward po-
 sition, if desired.

It is obvious that by slight variations this
 stopping mechanism can be attached to any

form of watch, and I therefore do not desire to be limited to the exact constructions herein shown and described.

It is also obvious that my invention can be applied to watches which do not have a stem-winding attachment and may be connected with a part extending through the casing for operating the stopping mechanism, as indicated in dotted lines, Fig. 3.

What I claim, and desire to secure by Letters Patent, is—

1. In a watch, the combination of the seconds-hand and its staff or arbor, said arbor having formed upon it a face extending at an angle to the surface of the staff or arbor, and a stop movable toward and from said arbor, whereby it may be made to engage said angular face and arrest the arbor and staff at one point, and one point only, in its revolution, substantially as described.

2. In a watch, the combination, with the seconds-hand, of an arbor or staff provided with a projection or lug, and a stop movable toward and from the arbor, whereby said stop can be moved inward into the path of said lug to arrest the movement of the arbor and seconds-hand when they shall be revolved far enough to bring said lug into contact with said stop, substantially as described.

3. In a watch, the combination of the seconds-hand and its arbor or staff provided with a projection extending outward from the same and a stop movable toward the ar-

bor to engage said lug, one of said engaging parts being elastic, whereby the said seconds-hand and its arbor can be stopped at one point, and one point only, of their revolution, substantially as described.

4. In a watch, in combination with the seconds-hand, a staff or arbor having an elastic projection extending beyond the surface of the shaft and a stop movable into and out of the path of the said projection to arrest the movement of the arbor and hand at one point, and at one point only, of their revolution, substantially as described.

5. In a watch, the combination, with the seconds-hand staff and means for moving it continuously, of a movable stopping-lever adapted to engage a part connected with said staff to arrest the movement of said staff and an adjustable stop for said lever, substantially as described.

6. In a watch, the combination, with the seconds-hand staff provided with an elastic projection, of a movable stopping-lever having a part adapted to engage said projection and a rotatable stop for said lever having unequal diameters, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

NICHOLAY JENSEN.

Witnesses:

L. P. WHITAKER,
J. D. KINGSBERRY.