

(No Model.)

A. G. WISEMAN.

WINDING INDICATOR FOR WATCHES.

No. 335,666.

Patented Feb. 9, 1886.

Fig. 1.

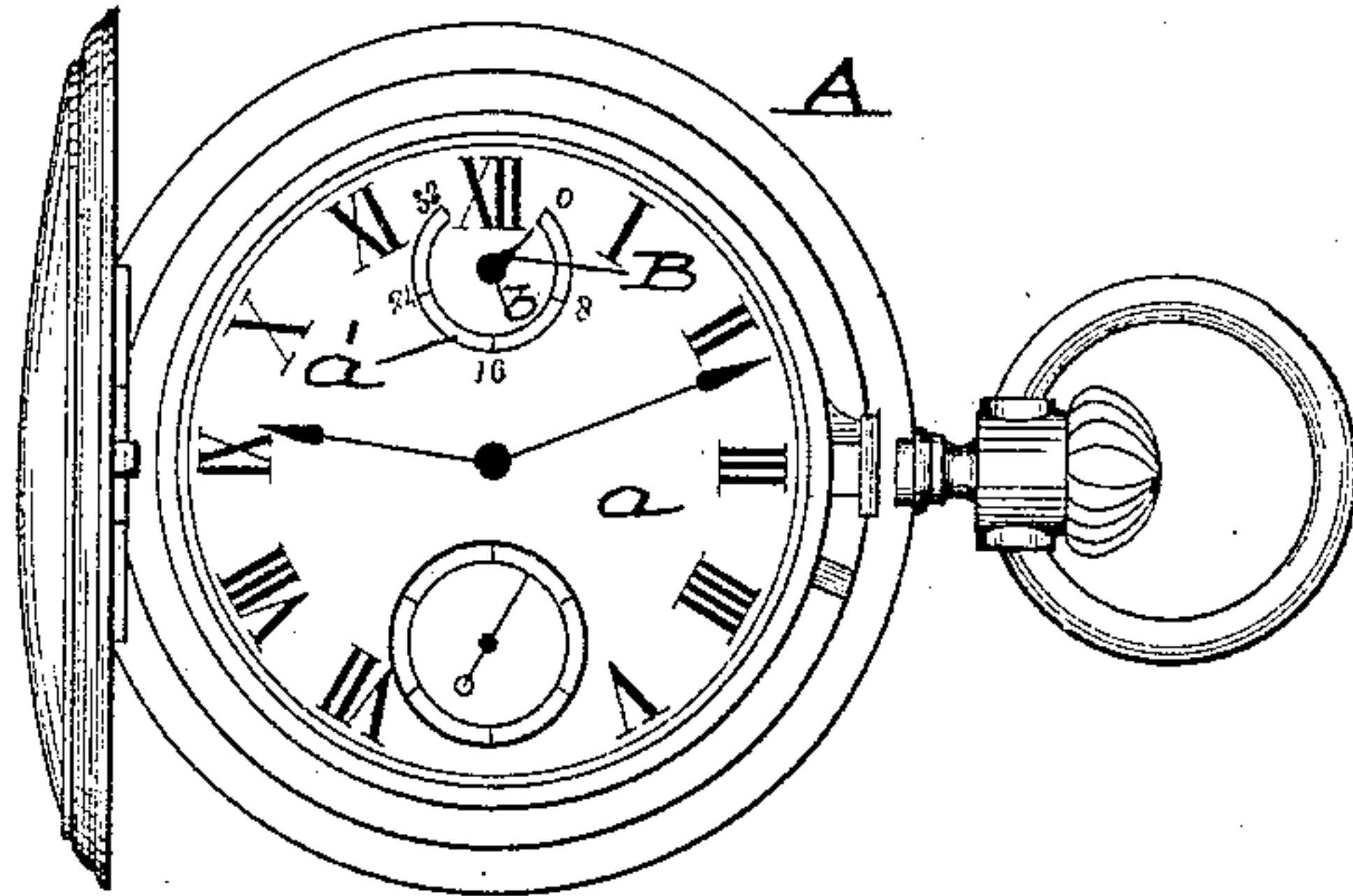


Fig. 2.

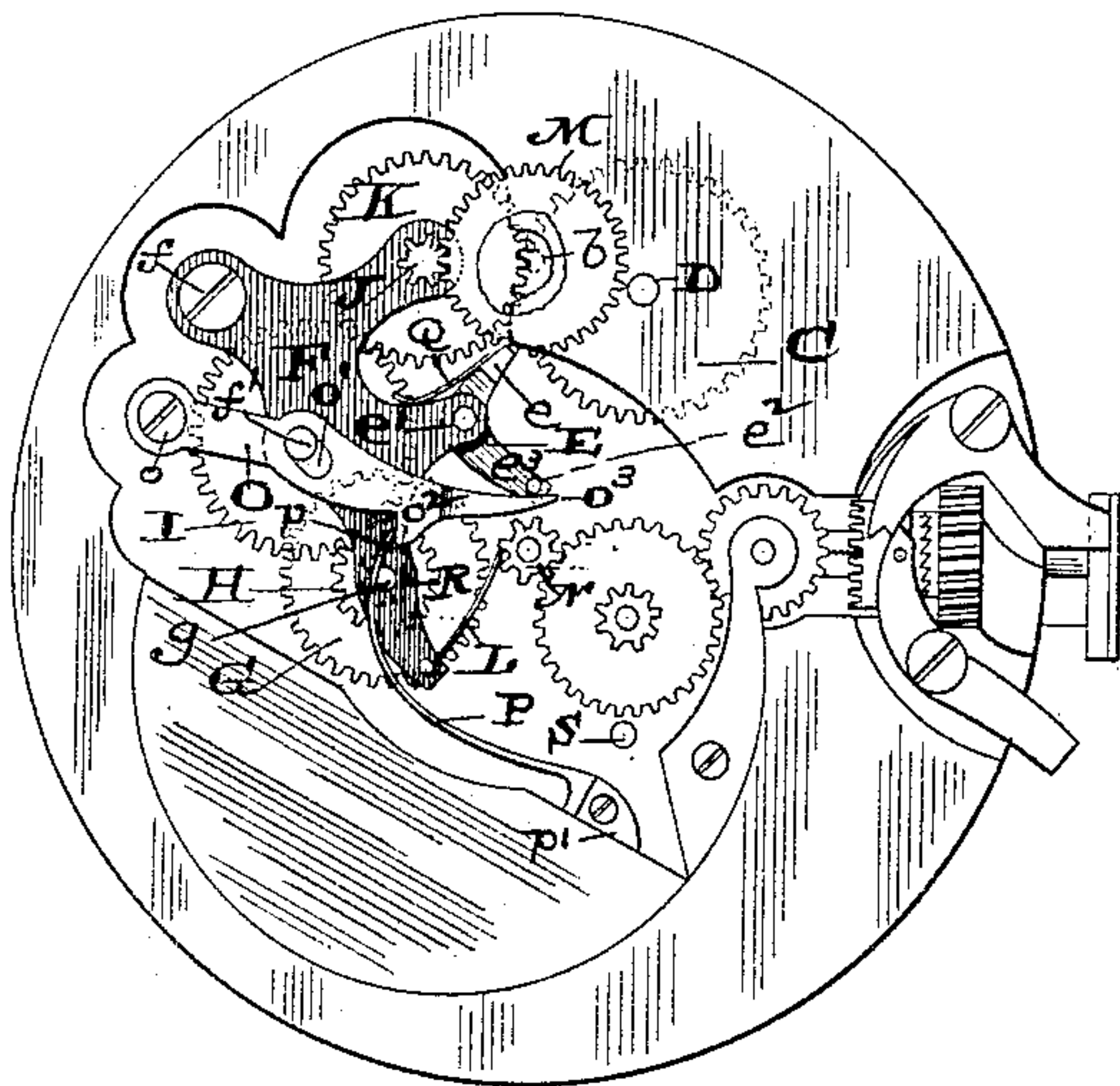


Fig. 3.

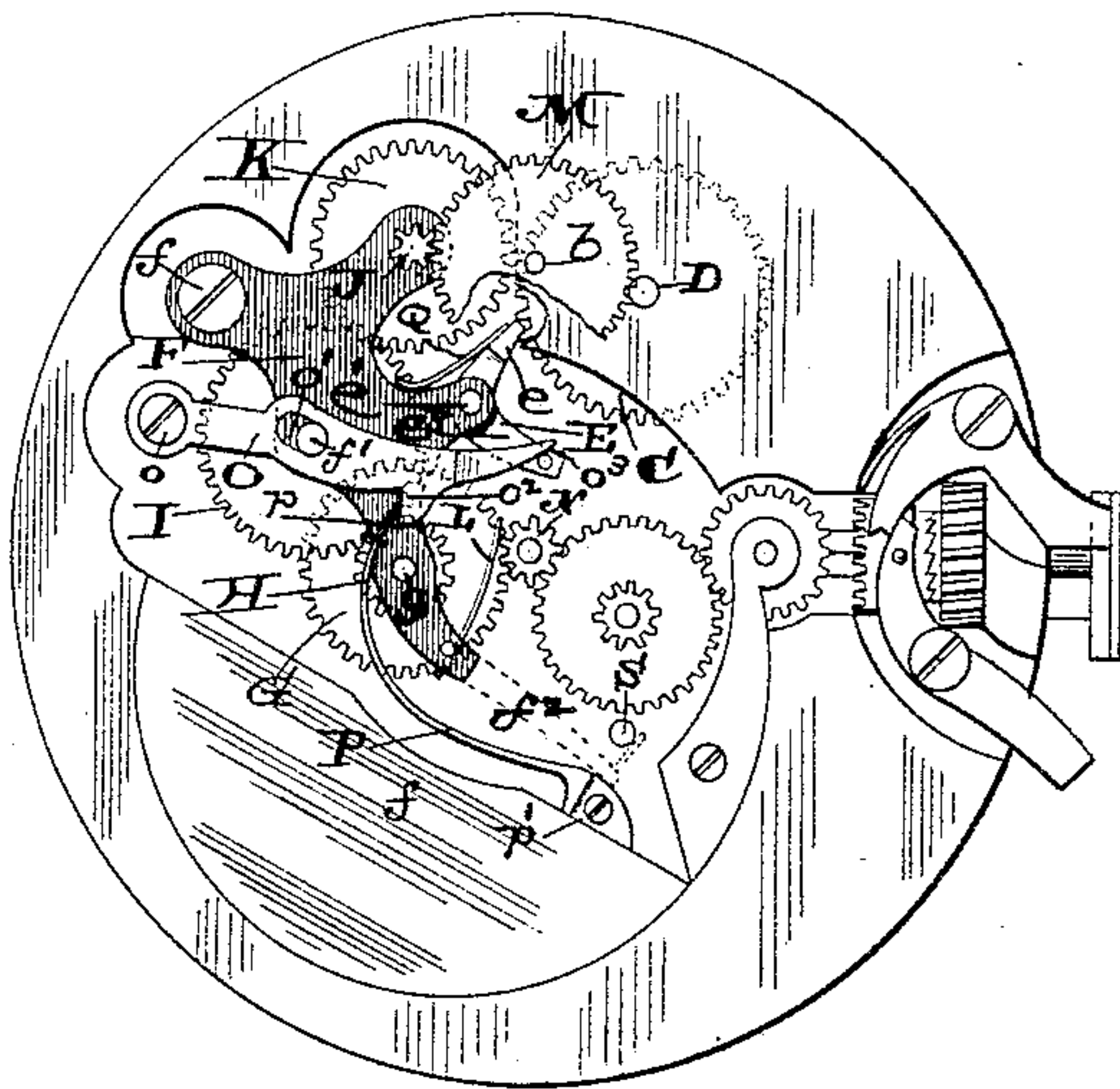
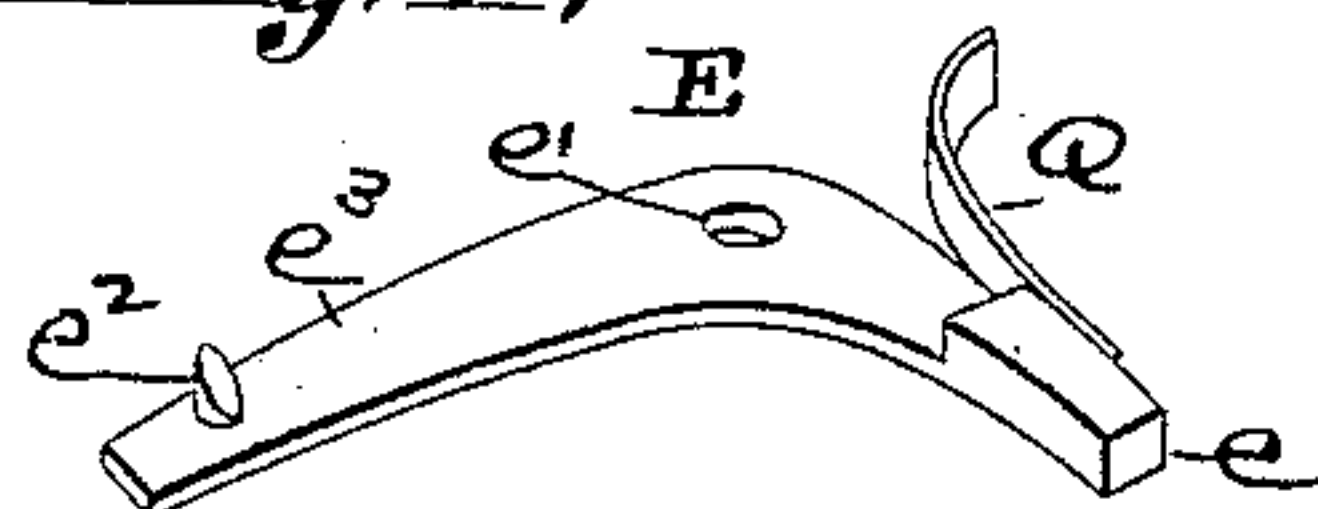


Fig. 4.



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ARTHUR G. WISEMAN, OF WEBSTER GROVES, MISSOURI.

WINDING-INDICATOR FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 335,666, dated February 9, 1886.

Application filed September 25, 1885. Serial No. 178,192. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR G. WISEMAN, of Webster Groves, St. Louis county, Missouri, have made a new and useful Improvement in
5 Watches, of which the following is a full, clear, and exact description.

The improvement relates to the indicator, or the mechanism, which shows when the hands of the watch are stationary, whether
10 the watch has run down, or has stopped for other cause. In English watches, in which the winding-post turns one way during the winding and the opposite way during the unwinding of the watch, it has been a simple
15 matter to operate the indicator by means of a train leading directly from the winding-post to the indicator-shaft, which train, post, and shaft turn first one way in winding the watch and then the opposite way as the watch runs
20 down; but in watches in which the winding-post, after the watch has been wound, remains stationary while the watch runs down and until the watch is rewound it has hitherto been impracticable to employ an indicator; and to
25 provide means whereby an indicator can be used in such last-named watches is the aim of the present improvement.

The annexed drawings, making part of this specification, exhibit a watch whose winding-
30 post is stationary during the unwinding. Only such portion of the watch mechanism is shown as is essential to an understanding of the improvement, for aside from the improvement, and saving as modified by it, the watch is of
35 the customary form.

Figure 1 is a view showing the face of the watch. Fig. 2 is a view of the movement-plate with which the parts composing the im-
40 provement are immediately connected. The view shows the parts as after the watch has been wound and about to unwind. Fig. 3 is a view similar to that of Fig. 2, but showing the parts as after the watch has been unwound and about to be wound; and Fig. 4 is a detail
45 upon an enlarged scale, being a view of the bell-crank used in shifting the swinging frame of the improvement.

The same letters of reference denote the same parts.

50 The watch A shows the indicator-hand B in the same place upon the dial *a* as in an En-

glish watch. The hand works in connection with the graduation *a'*, Fig. 1.

C, Figs. 2, 3, represents the ordinary spur-wheel attached to the winding-post D. In
55 winding the watch this wheel engages the arm *e* of the bell-crank E, Figs. 2, 3, 4. The bell-crank is pivoted at *e'* to what may be denominated the "swinging frame" F, as this last-named part is pivoted at *f* and adapted to be
60 swung to and from its two positions shown, respectively, in Figs. 2 and 3, and carries the wheels and pinions G H I J K, as well as the bell-crank E and a dog, L. The engagement of the wheel C with the bell-crank causes the arm
65 *e* thereof to act as a thrust-bar, and by continuing to rotate the winding-post as in winding the frame F is swung from the position of Fig. 3 into that of Fig. 2. By means of and during
70 this movement of the swinging frame several results are attained. The wheel K is brought into engagement with the wheel C, and the pinion J remains in engagement with the wheel M upon the indicator-shaft *b*, and the
75 indicator-hand is thereby turned around backward to the zero-mark, as in Fig. 1. The wheel G is disengaged from the hour-hand pinion N, leaving the wheel K at the other
80 end of the swinging frame-train free to be turned, as above stated, by the wheel C. The dog L drops into the teeth of the hour-hand pinion N, and the parts are thereby held in the position of Fig. 2. The following also oc-
85 curs: O represents an arm pivoted at *o*, slotted at *o'* to receive the pin *f'*, that projects from the swinging frame provided with the
90 shoulder *o''*, and extended across and beyond the swinging frame to form an extension, *o'''*, with which a projection, *e''*, upon the arm *e'* of the bell-crank E operates—that is, as the
95 swinging frame approaches the end of its stroke in moving in the direction now under consideration the extension *o'''* encounters the projection *e''*, which in turn encounters the hour-hand pinion N. The extension *o'''* is in
effect a spring, and can be sprung or made to yield in an upward direction. The projection
100 *e''*, at the side, then toward the extension *o'''*, is beveled, as seen in Fig. 4. The extension *o'''* may be, and preferably is, correspondingly beveled. (Not shown.) The result is the ex-
tension *o'''* lifts sufficiently for the projection *e''*

to pass beneath it, and by the time the swinging frame has completed its stroke the parts $o^3 e^2$ assume the relative position shown in Fig. 2. At the same time the arm e of the bell-crank E is disengaged from the wheel C, and, by means of the extension o^3 being now upon the opposite side of the projection e^2 , the arm e cannot accidentally fall into engagement with the wheel C. The arm O and the swinging frame are relatively arranged to bring the pin f' at the outer end of the slot o' , as shown in Fig. 2, and the free end p of the spring P, which at p' is fastened to the movement-plate, presses against the shoulder o^2 of the arm O. The watch now begins to run down.

As soon as the hour-hand pinion begins to rotate, the dog L, which in practice is a thin piece of steel, is turned out of engagement with it, and the free end of the dog rides on the ends of the pinion-teeth, as in Fig. 3. The spring P now acts to press the arm O upward, as seen in Fig. 3. The arm O in turn, by means of the slot o' and pin f' , acts to swing the swinging frame on its pivot f in the opposite direction from that above described and into the position shown in Fig. 2. The wheel G is thereby brought into engagement with the hour-hand pinion, and the wheels K C are disengaged. The pinion J and wheel M remain in engagement. The movement of the hour-hand pinion is now communicated through the train G H I J K to the indicator-shaft, and the indicator-hand is rotated in the opposite direction. As the swinging frame moves in the direction last described the outer end of the arm O recedes sufficiently for the projection e^2 to pass around it, whereupon the spring Q acts to turn the bell-crank E on its pivot and to bring the parts E O into the relative position shown in Fig. 3, and the arm e of the bell-crank is again put into engagement with the wheel C.

It is possible to operate the swinging frame and its train without using the dog L, in which case the train may be allowed to drop immediately into engagement with the hour-hand pinion on ceasing to wind the watch. Nor is it necessary, in order to establish a connection between the swinging-frame train and the watch-train during the unwinding, to use the wheels G N. The shaft g of the wheels G N may be extended, and beneath the movement-plate may have a pinion (shown at R, Fig. 2, in dotted lines) adapted, when the swinging frame is moved by the spring P, to engage

with the ordinary barrel or the center pinion of the watch. It is also within the principle of the improvement to provide another movable shoulder than the hour-hand pinion to hold the free end of the dog L. The swinging frame may be extended, as indicated by the dotted lines f^2 , Fig. 3, and the dog may be attached to the extension, and so as to operate in connection with the ordinary third wheel-pinion (not shown) upon the shaft S in manner similar to its operation in connection with the hour-hand pinion. The graduation a' is adapted to a run of forty hours.

I claim—

1. The combination of the swinging frame F, carrying the train G H I J K, with the wheels M C N, and the arm e , substantially as described.

2. The combination of the swinging frame F, carrying the train G H I J K, with the wheels M C N, the bell-crank E, having the projection e^2 , the arm O, having the slot o' , the shoulder o^2 , and the extension o^3 , the pin f' , and the spring P, substantially as described.

3. The combination of the swinging frame F, the dog L, and the pinion N, substantially as and for the purpose set forth.

4. The combination of the swinging frame F, having the pin f' , the pivoted and slotted arm O, and the spring P, substantially as described.

5. The combination of the swinging frame F, the wheel C, and the pivoted arm e , substantially as described.

6. In combination with the indicator-wheel M and the pinion N, the swinging frame F, having a train of gearing adapted when engaged with the pinion N to transmit the movement of said pinion N to said indicator-wheel M, substantially as described.

7. The combination of the swinging frame F, the bell-crank E, the spring Q, and the pivoted arm O, substantially as described.

8. The combination of the swinging frame F, carrying the train G H I J K, with the wheels M C N, the bell-crank E, having the arms $e e^3$ and projection e^2 , the spring Q, the arm O, having the slot o' , the shoulder o^2 , and the extension o^3 , the pin f' , and the spring P, substantially as described.

Witness my hand.

ARTHUR G. WISEMAN.

Witnesses:

C. D. MOODY,
J. W. HOKE.