

(No Model.)

J. W. NUNAMAKER.
TIME INDICATOR.

No. 576,275.

Patented Feb. 2, 1897.

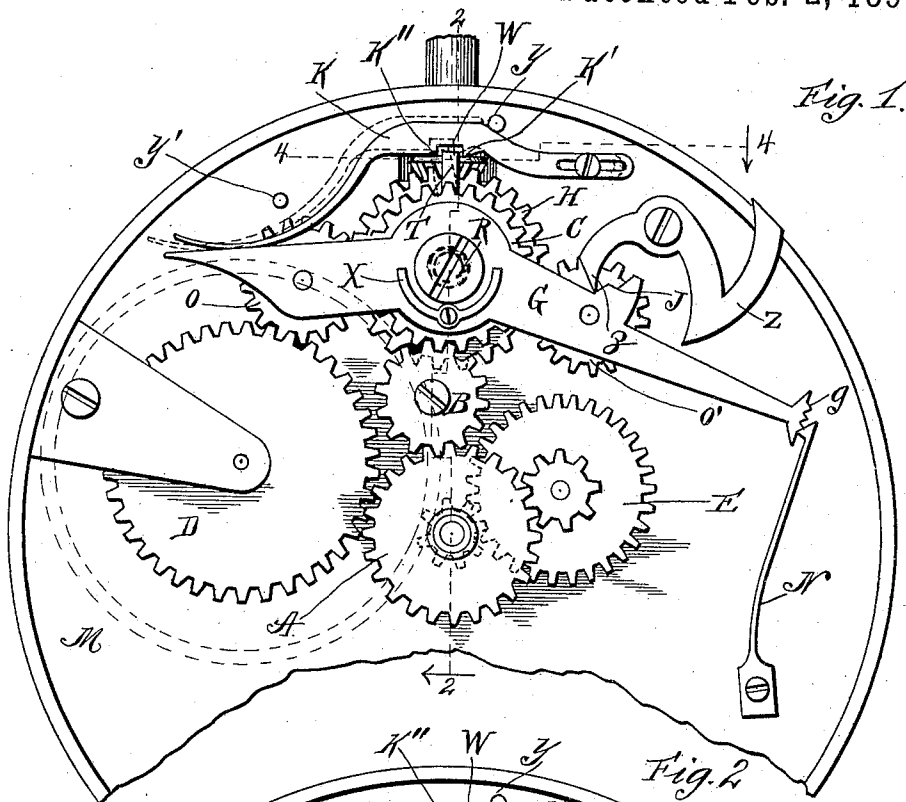


Fig. 1.

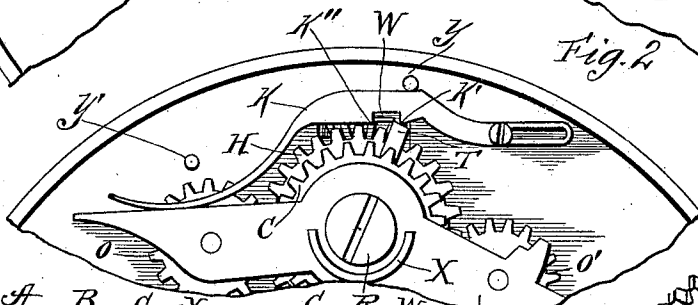


Fig. 2.

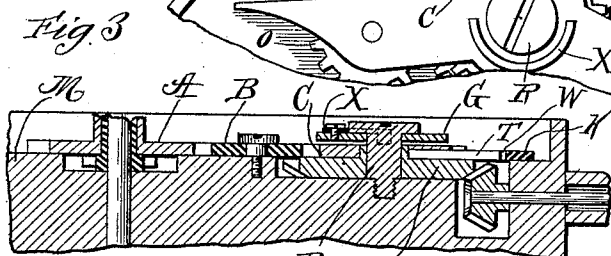


Fig. 3.

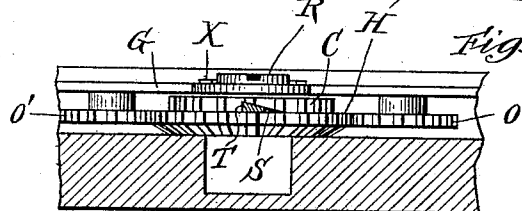


Fig. 4.

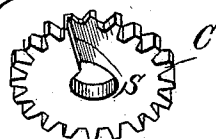


Fig. 7.

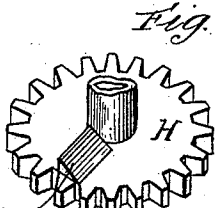


Fig. 8.

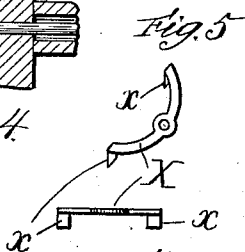


Fig. 5.

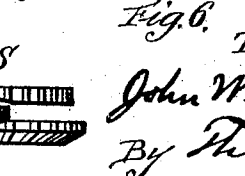


Fig. 6.

Witnesses:
Edwin J. Rhoades
John Pfeiffer.

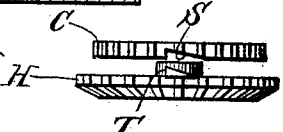


Fig. 9.

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UNITED STATES PATENT OFFICE.

JOHN W. NUNAMAKER, OF CHICAGO, ILLINOIS.

TIME-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 576,275, dated February 2, 1897.

Application filed January 30, 1895. Serial No. 536,692. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. NUNAMAKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Time-Indicator for Watches, of which the following is a specification.

My invention relates to improvements in keyless or stem-winding watches; and the objects of my improvements are, first, to utilize the clicks of the click-spring when the winding mechanism of the watch is reversed to indicate by sound the time, and, second, to adapt my improvements to existing watches with but little change and expense. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a watch with the dial-plate removed; Fig. 2, a detail top view showing one position of yoke-spring; Fig. 3, a cross-section of Fig. 1 through the line 2 2; Fig. 4, a cross-section of Fig. 1 through the line 4 4; Fig. 5, a detail in perspective of semicircular finger-spring; Fig. 6, a side view of same; Figs. 7 and 8, details in perspective of hour-wheel and loose wheel, showing slot and shoulder to engage therein; Fig. 9, a side view of crown-wheel and loose wheel, showing slot and shoulder.

Similar letters refer to similar parts throughout the several views.

M is the plate, provided with the ordinary mechanism of a watch. In addition thereto an intermediate wheel B is geared into the hour-wheel A and a loose wheel C. The loose wheel C turns freely upon the crown-wheel post R and is provided with a slot S, of shape shown in Figs. 4 and 9, and placed upon its under side. The crown-wheel H is provided with the shoulder T, of shape and size to engage in the slot S, and extends beyond the periphery of the crown-wheel, as shown in Figs. 1 and 2, so that its outer end may engage in a slot W, with which the yoke-spring K is provided. Upon the crown-wheel post R is pivoted the yoke G, provided with the saw-toothed ratchet g, into which engages the click-spring N, the latter being fastened to the plate M, as shown in Fig. 1. Attached to the upper side of the yoke G is the semicircular finger-spring X, provided with two fingers x x, which extend downward through

the yoke G and press upon the upper side of the loose wheel C, so that the slot S and shoulder T, with which the loose wheel C and crown-wheel H are respectively provided, may engage in any position in which the watch may be placed.

My improved time-indicator for watches operates as follows, viz: As the watch is wound up through turning the winding-stem the shoulder T, fastened upon the crown-wheel H, passes the slot S, with which the loose wheel C is provided, because of the shape of the slot and shoulder, as shown in Figs. 4 and 9. The crown-wheel H revolves under the loose wheel C because the loose wheel is geared into the intermediate wheel B and the latter into the hour-wheel A, so that the loose wheel is locked, so far as this motion of the crown-wheel is concerned, and the watch may be wound without my additional parts interfering therewith.

In order to use the watch as an indicator, the following adjustment of the parts is necessary: The end of the shoulder T is engaged with the slot W of the yoke-spring K, the loose wheel C is so placed that its slot S is engaged with the shoulder T of the crown-wheel H, and the hands of the watch are set at any convenient hour, say twelve, thus giving a starting-point.

The diameter and number of teeth of the hour-wheel and loose wheel are the same and one revolution of the former, which takes place in twelve hours, will cause one revolution of the latter in the same time. The crown-wheel may be provided with any number of teeth desired, for convenience say forty-eight, so that one reversed revolution of the crown-wheel will make forty-eight clicks as its teeth operate in succession the click-spring K. Hence one click indicates fifteen minutes. As the hour-wheel turns its motion and direction are communicated to the loose wheel through the intermediate wheel B, and the shoulder T, with which the loose wheel is provided, moves away from the slot S in the loose wheel at the same speed as the hour-wheel travels. Suppose the hour-wheel to have turned so that the hands, if looked at, show it is 12:45. Then the loose wheel will have turned the same space as the hour-wheel, and if the winding-stem of the

watch be turned backward there will be three clicks heard before the crown-wheel shoulder engages with the slot of the loose wheel and further turning is prevented. As the winding-stem is thus reversed the shoulder T, which is engaged with the slot W in the yoke-spring K, carries the yoke-spring with it in its direction until the yoke-spring comes in contact with the pin Y, which rides upward upon the yoke, as shown in Fig. 2. This compresses the yoke-spring, so as to put more pressure onto the yoke, and causes a louder click than usual. Continuing the turning of the winding-stem three clicks will be heard before the stem is stopped by the shoulder T catching in the slot S. As each click represents fifteen minutes, the time, 12.45, will be ascertained.

If it is desired to ascertain the time within more accurate limits than fifteen minutes, this is done as follows: Should there be some play of the winding-stem after the last click and the locking of the loose wheel and crown-wheel, then turn the stem forward and the ratchet *g*, having any desired number of teeth, say three, will then click once for five minutes and twice for ten as the spring N engages with its teeth, because the space traveled by the yoke in fifteen minutes is the same as the length of the ratchet.

Referring back to the yoke-spring K, which was left by the movement of the shoulder T in position shown in Fig. 2, so that the shoulder passed under the point K', and the time is again desired, the stem is then turned forward until the shoulder T comes in contact with the point K'. This throws the yoke-spring in the opposite direction until it assumes the position indicated by the dotted lines in Fig. 1, and the increased friction due to this movement of the yoke indicates that the point twelve has been reached, when you reverse the movement of the winding-stem and count clicks, as first above described.

It will be noted that when the winding-stem is turned forward it winds the watch. To obviate this, the yoke-lever Z is thrown in half way, which disengages the winding-gear O from the ratchet-wheel of the barrel D, through the point *z* of lever riding upward into the notch J of the yoke and depressing the same during its passage.

In winding the watch the shoulder T strikes the slanting side of the point K, and throws the yoke-spring outward until it strikes the pin *y*, which serves to throw the yoke-spring back into position.

If I desire, I can put the loose wheel C on top of the hour-wheel A and use the same

intermediate wheel geared into the crown-wheel. In this case the loose wheel does not move, while the hour-wheel turns under it and is provided with a shoulder T to engage with a slot S in the loose wheel, as shown in Figs. 7 and 8. The operation is the same as above described, the crown-wheel being provided with a pin to operate the yoke-spring.

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

1. In a time-indicator for watches in combination with the winding mechanism a loose wheel C operated by the mainspring and provided with a locking device to engage with the crown-wheel II, substantially as described.

2. The combination in a time-indicator for watches of the winding mechanism, and the crown-wheel II, provided with the shoulder T, the loose wheel C provided with the slot S, and intermediate wheel B, geared into the hour-wheel A, and loose wheel C, substantially as shown.

3. In a time-indicator for watches in combination with the winding mechanism the crown-wheel II, and loose wheel C, both provided with a locking device and loose wheel C, operated by the mainspring and the yoke G provided with the ratchet *g*, and the spring N, substantially as described.

4. In a time-indicator for watches in combination with the winding mechanism, the crown-wheel II provided with the shoulder T, to engage with the slot S of the loose wheel C, and the click-spring K, provided with the slot W for reception of shoulder T, substantially as described.

5. In a time-indicator for watches in combination with the winding mechanism the crown-wheel II and loose wheel C, both provided with a locking device and the latter operated by the mainspring, the yoke G provided with the ratchet *g*, and shoulder J, the yoke-lever Z, and spring N, substantially as described.

6. In a time-indicator for watches in combination with the winding mechanism, the crown-wheel II provided with the shoulder T, the loose wheel C, provided with the slot S, the intermediate wheel B, geared into the hour-wheel A, and loose wheel C, the yoke G, provided with the ratchet *g*, shoulder J, and finger-spring X, the yoke-spring K provided with the slot W, the pins *y*, and *y'* and yoke-lever Z, substantially as described.

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Witnesses:

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