No. 609,235. Patented Aug. 16, 1898.

A. G. JACOBS.

WINDING INDICATOR FOR WATCHES.

(Application filed May 25, 1898.)

(No Model.)

Fig. 1.

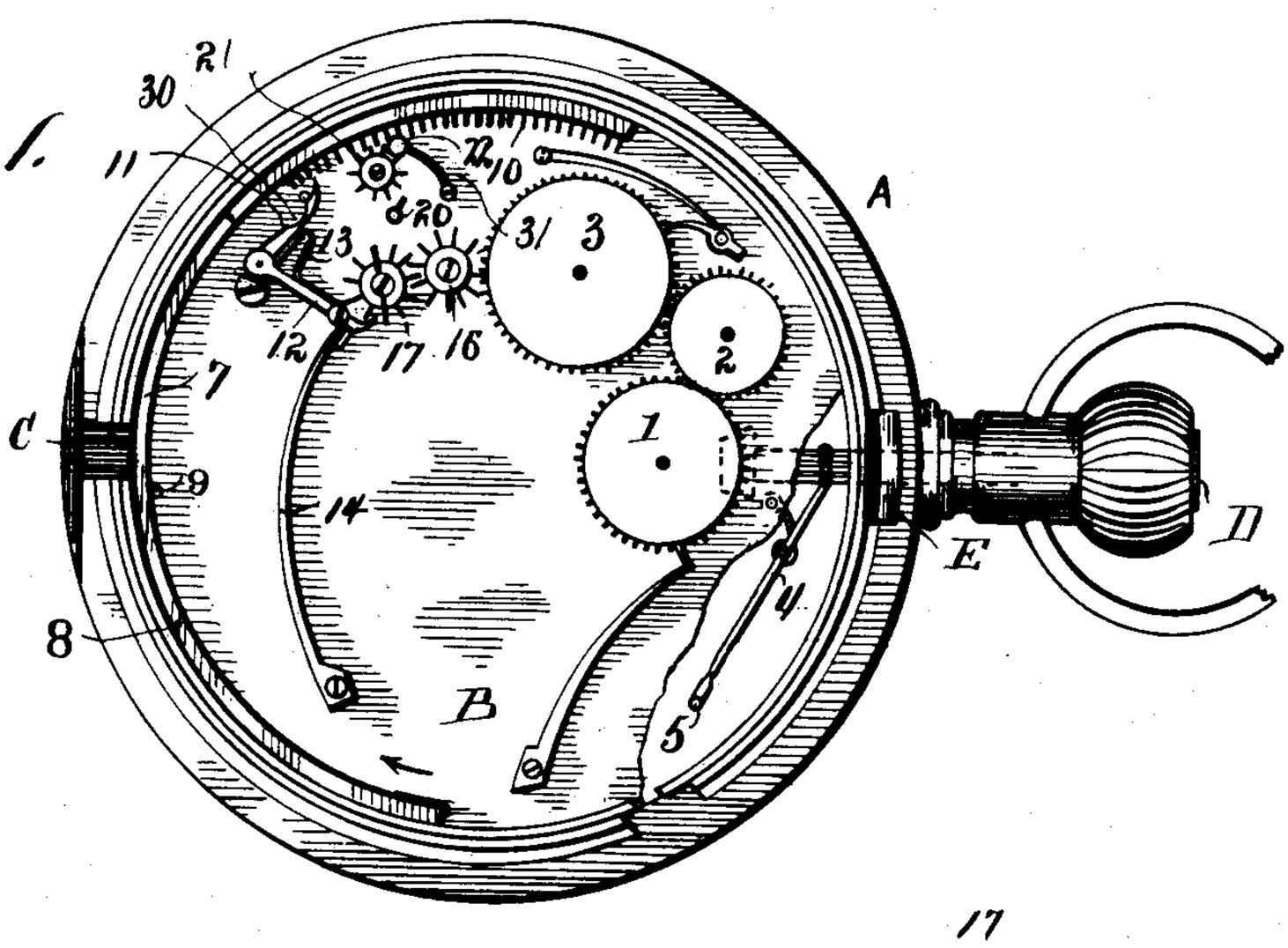

Fig. 3.

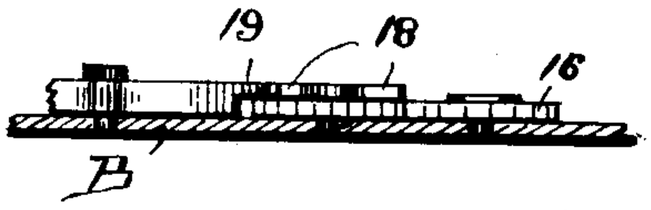

Fig. 4.

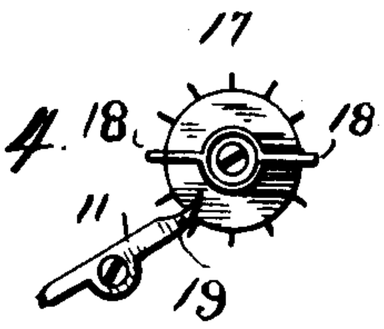

Fig. 5.

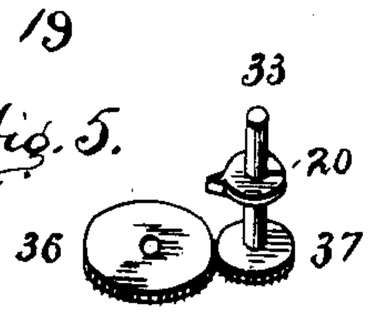

Fig. 2.

WITNESSES

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AUGUSTUS G. JACOBS, OF JONESTOWN, MISSISSIPPI.

WINDING-INDICATOR FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 609,235, dated August 16, 1898.

Application filed May 25, 1898. Serial No. 681,732. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS G. JACOBS, residing at Jonestown, in the county of Coahoma and State of Mississippi, have invented certain new and useful Improvements in Winding-Indicators for Watches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to indicator mechanisms which show when a watch is nearly run down.

The object of the invention is to produce an indicator which will lock the push-pin which actuates the case of a hunting-case watch when the watch is nearly run down, so that it will be necessary to wind the watch before the case can be opened.

Figure 1 is a plan view of the watch with the face or dial removed, showing the train of mechanism by which the push-pin may be locked and some other of the mechanism, the movement-plate of the watch being partly broken away. Fig. 2 is a plan showing the mechanism in position for locking the push-pin. Fig. 3 is a broken detail elevation of the movement-plate and some of the gears, as will be explained; and Fig. 4 is a plan of pinion and lever. Fig. 5 is a perspective detail of one-tooth gear and connections.

Let A indicate the case of a watch provided with the usual movement, the plate B of said movement being below the usual dial. The hinge C of the hunting-case is opposite the push-pin D, as usual, and the catch E is actuated by the push-pin and engages the hunting-case in usual manner. The push-pin operates the winding-train, as usual, and by usual engagement may wind the train of pinions 1 2 3.

The push-pin D is locked against being pressed inward by a lever 4, pivoted below the plate B and engaging a groove in or shoulder on the push-pin. The other end of the lever 4 has a pin 5, extending through a slot 6 in the movement-plate. A segment 7 of a ring lies against the inner rim of the casing, being held in place by suitable confining-pins 8 9, so that the segment may be moved in the direction of the circumference of the casing. When the segment is moved so that any part of it lies between the pin 5 and the rim of the casing, so that pin 5 cannot be moved outward to the rim of the casing, the push-pin will be locked against inward movement by reason of the engagement of lever 4 with said push-pin. Therefore when segment 7 lies in the position of Fig. 2 or any part of said segment closes slot 6 the push-pin will be held so that it cannot press in the usual catch E to release the case in the usual way. The segment 7 is provided with a curved rack 10 for part of its length. This rack 10 is engaged by a spring-pressed pawl 11. Pawl 11 is pivoted to lever 12, which lever is pivoted to the movement-plate. A spring 13 causes the pawl to engage the rack 10, and a spring 14 presses the lever 12 toward the curved rack.

When the inner end of lever 12 is actuated intermittingly to swing on its pivot, the pawl 11 is drawn back and then pressed forward by the springs, so as to move the segment by its engagement with the rack. This movement in the direction of the arrow, Fig. 1, removes the end of the segment 7 from between pin 5 and the casing, so that the push-pin may be pressed inward to open the watch-case.

The reciprocation or rocking of lever 12 on its pivot is effected when the watch is wound by means of the pinion 16, suitably mounted and engaging pinion 3 on the winding-train, and also engaging pinion 17. Pinion 17 has teeth to engage pinion 16 and also has two teeth 18 projecting from its face. The body of pinion 17 runs in a recess under the end of lever 12; but these teeth or projections rise high enough to engage the arm 19 of lever 12 as the pinion rotates, and thus actuate lever 12, and thereby draw back segment 7 by the engaging mechanism described. Thus whenever the watch is fully wound the segment 7 is moved back to its extreme position. When the segment 7 has been fully retracted, the last tooth of the curved rack 10 will be in engagement with the pawl 11. Thus the winding of the watch will at any time draw back segment 7, so that it will not be between pin 5 and the proximate side of the casing, and therefore the winding of the watch unlocks the push-pin.

A slow-moving gear 20 is actuated from the watch-movement, preferably from the barrel-wheel. This gear 20 has but one tooth, and

said tooth engages pinion 21, which pinion 21 engages the rack 11. A pawl 22 prevents backward movement of the pinion 21. Thus each rotation of slow gear 20 moves pinion 21 one tooth, and the pinion moves segment 7 a corresponding distance.

The number of teeth in the curved rack is such that the slow gear 20 moves the segment 7 far enough to lock the push-pin by the time the watch has nearly run down, say in about twenty-four hours from the winding of the watch. Then if the person desiring to consult the watch finds that he cannot press in the push-pin to open the watch he will be warned to wind the watch, and the locking-segment will be withdrawn.

The pawl 11 has an enlargement, which engages a pin in the movement-plate and presses back the pawl, when the watch movement drives the segment toward the position of Fig. 2, so that the pawl 11 shall not prevent the movement of the segment 7 under the impulse of pinion 21. The connection between the pawl 11 and lever 12 being a pivot and the contact of the pawl with the rack 10 being made by spring-pressure, the pawl can be pressed back out of operative engagement with the rack by the rack movement in locking the push-pin, but will be effective in unlocking.

The pinion 21 is held by a friction device to prevent movement except when actuated. A spring 31 may bear against the ends of the teeth of the pinion, either directly or by means of an antifriction-roll. Any other usual friction device may be employed.

The one-tooth wheel 20 is connected to its staff 33 by friction. Fig. 5 shows the connection of said staff to barrel-wheel 36 by means of pinion 37. Should the watch be wound when the tooth of wheel 20 is in engagement with pinion 21, the pinion will turn on its staff and not break. As very little power is required to move the segment, the frictional engagement of wheel 20 with its staff may be amply strong to actuate the segment and yet yield when the parts might otherwise be broken. Assuming the one-tooth gear 20 to rotate once an hour, the effect will be to move pinion 21 and segment 7 about the space of one tooth. The segment will have about as many teeth as the number of hours the watch will run when wound up—say about 28. Then when the segment is drawn fully back to near the position of Fig. 1 the hourly rotation of the one-tooth wheel 20 will move the segment a distance of one tooth an hour, and when the segment 7 passes behind the pin 5 the push-pin will be locked until the watch is wound.

I have described a construction which in use I have found very serviceable; but it may be modified in many particulars without departing from my general invention, which is believed to be as broad as the claims.

What I claim is—

1. In a watch-winding indicator, the push-pin and case-spring catch, a detent by which said push-pin may be held, and a segmental ring actuated from the watch-movement to lock said push-pin, and by the winding mechanism to unlock said push-pin, substantially as described.

2. In a watch, the time-train and a driving connection therefrom, the segmental ring having a rack engaged by the said driving-train, the push-pin and connections therefrom whereby the pin is locked against inward pressure by the movement of said ring, and means for unlocking the push-pin, all combined.

3. In a watch, the segmental ring acting as a lock to the push-pin, a train connected to the watch-movement by which such segment is moved, and means connected to the winding mechanism by which said segmental ring is moved and the push-pin freed, substantially as described.

4. In a watch, the segmental ring provided with rack-teeth and held in proximity to the rim of the case, a pinion engaging the rack on said segmental ring, a one-tooth wheel driven from the movement to rotate hourly and move the segmental ring one tooth, and means for retracting the segmental ring, substantially as described.

5. In a watch, the push-pin whereby the case is opened, a locking-detent by which said push-pin is held, a toothed segmental ring against the rim of the case, and actuated from the watch-movement to lock said push-pin, a lever, actuated by the winding mechanism, and a pawl connected to said lever and operating on the teeth of the segmental ring to retract the same as the watch is wound, all combined substantially as described.

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

AUGUSTUS G. JACOBS.

Witnesses:

J. FALKNER,

H. C. MCALISTER.