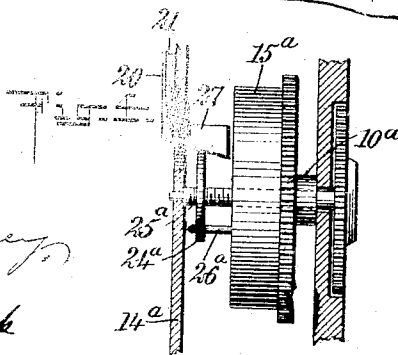
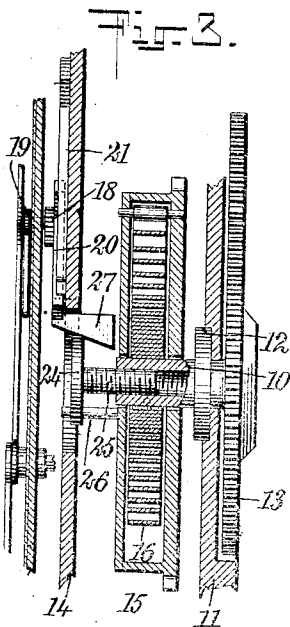
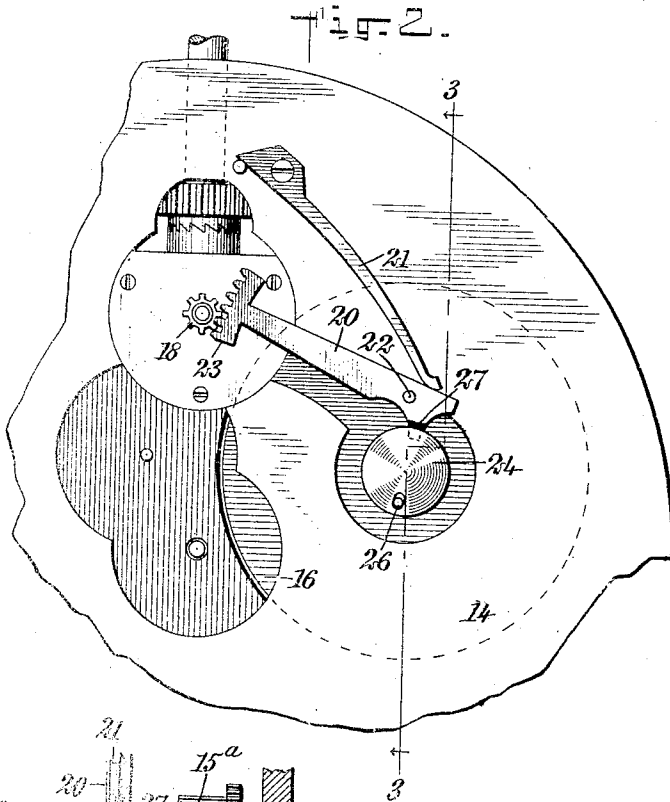
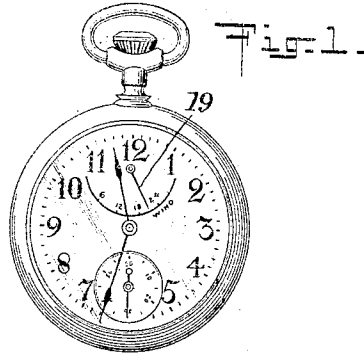


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WINDING INDICATOR.
APPLICATION FILED APR. 9, 1908.

904,332.

Patented Nov. 17, 1908



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SAMUEL KAHAN, OF NEW YORK, N. Y.

WINDING-INDICATOR.

No. 904,332.

Specification of Letters Patent.

Patented Nov. 17, 1908.

Application filed April 9, 1908. Serial No. 426,025.

To all whom it may concern:

Be it known that I, SAMUEL KAHAN, a subject of the King of Great Britain, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Winding-Indicator, of which the following is a full, clear, and exact description.

10 This invention relates to certain improvements in winding indicators for watches, clocks, and other instruments in which a main spring is employed.

15 The invention is especially adapted to that type of instrument in which one end of the main spring is connected to the going barrel, and the opposite end thereof is connected to the central arbor, the barrel and arbor being rotatable in the same direction, and one rotating only during the winding of the spring and the other rotating during the unwinding of the spring or running of the instrument.

25 My invention includes the operating mechanism for moving an indicating hand, said mechanism including a member movable longitudinally and also rotatable, the movements of the member being dependent upon the movements of both the arbor and the barrel.

30 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which

35 Figure 1 is a front view of a watch having a winding indicating hand; Fig. 2 is a front view of a portion of such a watch, the dial and some of the wheels being removed; Fig. 3 is a transverse section on the line 3-3 of Fig. 2; and Fig. 4 is a view similar to Fig. 3, but showing a slightly modified form.

40 My improved winding indicator is adapted to be applied to any watch, clock, or other instrument of the type described, but particularly to that type of watch known as a "going barrel" watch, that is, one in which the barrel and arbor are connected to opposite ends of the main spring and rotate in the same direction.

45 In Figs. 2 and 3, I have illustrated a portion of a watch having what is known as a "hanging barrel", that is one which is supported entirely from one of the two plates of the frame, as shown. The winding arbor

10 extends through the back plate 11 of the watch, and is provided with a collar 12 engaging with one side of said plate, and the winding ratchet 13 engaging with the opposite side of the plate, so as to support the arbor and avoid the necessity of securing the opposite end of the arbor to the front plate 14 of the watch. Mounted upon the arbor 10, is the barrel 15, serving to inclose the main spring 16. One end of the spring is secured to the arbor, and the opposite end is secured to the barrel, as is customary in watches of this type. The dial 17 of the watch is spaced a short distance from the front plate 14, and in this space there is mounted a pinion 18, the arbor of which extends through the dial and carries a winding indicating hand 19. Also mounted between the front plate 14 and the dial are a lever 20 and a spring 21. The lever is mounted upon a pivot 22 and one end of the lever is provided with a curved rack 23 in operative engagement with the pinion 18. The spring 21 is of any suitable type and serves merely to take up backlash in the engagement of the rack bar with the pinion, and to tend to rotate the pinion in one direction.

85 The main feature of my invention is the means employed for operating the lever. This means includes a member mounted coaxially with the arbor and rotatable in respect to the arbor and movable longitudinally in respect to the arbor and barrel. This member, as shown in Figs. 2 and 3, includes a circular plate 24 and a threaded stem 25, fitting into a threaded socket in the arbor. The barrel carries a pin 26 parallel to the arbor and stem and extending through an aperture in the plate 24. The lever 20 terminates in a downwardly-extending arm 27, having a cam surface in the path of the plate 24 during its longitudinal movement. During the winding of the watch, the arbor 10 is rotated by the gear wheel 13, while the barrel remains substantially stationary. The barrel prevents the plate 24 from rotating, and the rotation of the arbor draws the plate 24 downward to a position adjacent the barrel, due to the threaded engagement of the stem and arbor. The engagement of the plate with the cam surface of the lever 20 swings the latter on its pivot 22 and rotates the pinion 18 and the swinging indicating hand 19 carried by said pinion. As the main spring unwinds, that

is, when the watch is running, the arbor 10 remains stationary, but the barrel 15 rotates in the same direction as the arbor during the winding. This rotation of the barrel causes the plate 24 to be rotated by reason of the engagement of the pin 26, and this rotation of the plate 24 while the arbor remains stationary, moves the plate longitudinally and permits the lever 20 to move in the reverse direction under the action of the spring 21. Thus, the indicating hand 19 is operated in one direction during the winding of the watch, and in the reverse direction during the running. The entire mechanism for rotating the pinion of said hand comprises only three essential elements, namely; the member including the plate 24, the lever including the arm 27, and the spring 21. These elements may be varied widely without departing from the scope of my invention.

In case the indicating mechanism is used on a stationary instrument, gravity may be relied upon to move the lever 20 in one direction, and thus the spring 21 may be omitted. In case it is desired to support the winding arbor at both ends, I may modify the construction as shown in Fig. 4. In this case, the arbor 10^a is provided with a reduced threaded extension 25^a, having bearing in the front plate 14^a of the instrument. The plate 24^a is threaded to this reduced extension of the arbor, and is rotated with the barrel 15^a by the pin 26^a. The operation of the plate upon the lever 20 and its cam surfaced arm 27, is identically the same whether the plate be threaded to a stem extension of the arbor, or whether it be provided with a stem having threaded engagement with the arbor. In either case, the plate is rotated during the running of the watch, and is also moved longitudinally in one direction, while during the winding of the watch it is moved longitudinally in the reverse direction.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In combination with a main spring and a barrel and an arbor rotatable in the same direction and connected to opposite ends of said spring, of a winding indicator including an oscillatory hand, an operating member having threaded connection with the arbor and movable in one direction during the rotation of the arbor and movable longitudinally in the opposite direction during the rotation of the barrel, and connections between said member and said oscillatory hand.

2. In combination with a main spring, and

a barrel and an arbor connected to opposite ends of said spring and rotatable in the same direction, one during the unwinding and the other during the winding of the spring, of a winding indicator, and operating means therefor, including a lever and a member for swinging said lever, said member being rotatable and movable longitudinally and controlled by the movements of both the arbor and the barrel.

3. In combination with a main spring, and a barrel and an arbor connected to opposite ends of said spring and rotatable in the same direction, one during the unwinding and the other during the winding of the spring, of an indicating hand, a pinion for oscillating said hand, a lever having a segment in engagement with said pinion, an arm carried by said lever and presenting a cam surface, and a plate carried by said arbor and rotatable and longitudinally movable in respect thereto and having engagement with said cam surface.

4. In combination with a main spring and a barrel and an arbor connected to opposite ends of said spring, of a winding indicator including an indicating hand, an operating member having a disk portion and a threaded stem concentric with said arbor and extending into the same at one end, means for holding said disk against rotation in respect to the barrel, and connections between said disk and said indicating hand.

5. In a going-barrel watch, the combination of a main spring, an arbor having a threaded bore, a barrel, and a winding indicator including a member having a threaded stem extending into the threaded bore of the arbor, and means for holding said member against rotation in respect to the barrel.

6. In combination, an arbor having a threaded bore, a member having a threaded stem extending into said bore, a hand, a pinion for moving said hand, and a lever operatively connected to said pinion and said member.

7. In combination, an oscillatory hand, a pinion connected thereto, a lever terminating in a segment in engagement with said pinion, and an operating member movable in opposite directions and having engagement with said lever for oscillating the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL KAHAN.

Witnesses:

CLAIR W. FAIRBANK.

JOHN P. DAVIS.