

1

2,982,085

WINDING AND SETTING DEVICE FOR TIMEPIECES

Friedrich Meyer, Grenchen, Switzerland, assignor to Ebauches S.A., Neuchatel, Switzerland

Filed Nov. 27, 1957, Ser. No. 699,414

Claims priority, application Germany Mar. 1, 1957

3 Claims. (Cl. 58—71)

The present invention relates to a winding and setting device for timepieces, in which a setting lever or detent controlled by the axially movable winding stem acts upon a clutch lever or rocking bar. The clutch lever or rocking bar actuates in a known manner a clutch wheel or carries the ratchet-winding wheel, the setting wheel for minute wheel and one or more transmission wheels placed between these two wheels. In the latter case, according to the position of the rocking bar, either the ratchet-winding wheel engages the ratchet wheel of the spring barrel or the setting wheel for minute wheel engages the minute wheel. The setting lever is subjected to the action of a spring which, in the known devices, acts upon the setting lever in a place remote from the winding stem and has to be mounted before all of the other parts of the device are put in place. The point of engagement of the setting lever spring on the setting lever at a distance of the winding stem offers the drawback that nothing counteracts the moment of rotation which the winding stem upon its axial motion transmits to the guard or pin of the setting lever, so that this moment of rotation exerts a detrimental action on the setting lever and can, for instance, loosen the setting lever screw. This danger is rather great when the said guard or pin is long. Moreover, in the known devices, the spring acting upon the setting lever is disposed on the same side of the winding stem as the setting lever itself.

The invention aims at overcoming these drawbacks. According to the invention the spring acts upon the setting lever in the vicinity of the winding stem, for instance directly on the guard or pin of the setting lever. Preferably, the spring is situated on the side of the winding stem opposite to the setting lever. This makes it possible to arrange the setting lever spring in such a manner that it can be mounted only after putting in place all of the other parts of the device. In addition, it is possible, according to the invention, to place the setting lever spring in such a manner that it is held in its position only by its own elasticity, being engaged for instance with its end remote from the winding stem in the recess of a bridge or the like and being guided by a pin in the vicinity of the winding stem.

The accompanying drawing shows, by way of example, one embodiment of the invention. There is shown in the drawing only what is necessary for an understanding of the invention.

Fig. 1 is a top view of this embodiment.

Fig. 2 is a cross-sectional view taken along the line II—II in Fig. 1.

The winding stem 1 which is axially slidable in the frame of the timepiece carries in the known manner a winding pinion 2 which meshes with the transmission wheel 4 pivoted on the rocking bar 3. The spring 20 bears against a pin 23. As may be seen in Figure 1 the rocking bar 3 is urged in the counterclockwise direction by the action of the spring 20. The axis of rotation of the rocking bar 3 coincides with the axis of rotation of the transmission wheel 4. On the rocking bar 3 are

2

in addition pivoted: The ratchet-winding wheel 5 which permanently engages the transmission wheel 4 and which, according to the position of the rocking bar 3, engages or not the ratchet wheel 6 of the spring barrel, the setting wheel 7 which, according to the position of the rocking bar 3, engages or not the minute wheel 8, and the intermediate wheel 27 which permanently meshes with both wheels 4 and 7. The rocking bar 3 is controlled in a manner known per se by a setting lever or detent 9 pivoted by means of a setting lever screw 15 in a bridge 18 and a pillar plate 26. The setting lever 9 has a guard or pin 10 engaging a groove 11 of the winding stem 1. On the side of the winding stem opposite to the setting lever 9 lies a setting lever spring 12 which, in the example illustrated, directly bears against the setting lever pin 10 and thus acts upon the setting lever 9 in close vicinity to the winding stem 1 and tends to rotate it in the clockwise direction of Fig. 1. Since it is supported in the vicinity of the stem 1, the setting lever spring 12 counteracts the moment of rotation which occurs when the winding stem 1 is axially moved, which moment of rotation lies in the axial plane of this stem perpendicular to the plane of Fig. 1.

The setting lever spring 12 has approximately in the middle of its length a U-shaped bent portion 13, and its head-shaped end 14, remote from the winding stem 1, enters a lateral recess 21 of the bridge 18. The end near the winding stem 1 of the spring 12 forms a jaw 16 which bears against the pin 10 by means of a protuberance 22 and is freely arranged around a guiding pin 17 secured to the bridge 18, between this bridge and the conical head 19 of the pin 17. The spring 12, therefore, bears, on the one hand, against the pin 10 of the setting lever 9 and, on the other hand, in the recess 21 only owing to its own elasticity and is guided upon its elastic deformation between the head 19 of the pin 17 and the bridge 18. As may be seen from Fig. 1 the jaw 16 provides clearance for the lateral direction from the pin 17, so that as the setting lever 9 is swung on its pivot 15 by upward and downward movement of the winding stem 1, the jaw 16 moves laterally permitting the setting lever pin 10 to slide over the back portion or outer edge of the jaw 16.

It will be seen on the drawing that owing to the particular arrangement of the setting lever spring 12, the other parts of the winding and setting device, as for instance the rocking bar 3 and the setting lever 9, can be put in place before the spring 12 is inserted and mounted. For mounting the spring 12, the said spring is first brought into the position shown in dotted lines in Fig. 1, in which position it enters between the walls 24 and 25 and projects beyond the periphery of the movement. The jaw 16 of the spring 12 then lies between the setting lever pin 10, the winding pinion 2 and the pin 17. The spring 12 is thereafter turned from the position illustrated in dotted lines in the counter-clockwise direction of Fig. 1, until the head-shaped end 14 snaps into the recess 21 and the jaw 16 comes around the pin 17 between the head 19 and the bridge 18. The spring 12 is now held in place by its own elasticity and there is no need of any fixing means such as a screw or the like. If the spring 12 has to be removed, the bent portion 13 is compressed, in the position shown in full lines in Fig. 1, until the head 14 comes out of the recess 21 of the bridge 18, and the spring is brought into the position shown in dotted lines in Fig. 1, whereafter the spring can be lifted and taken out of the movement.

While I have described and illustrated one embodiment of my invention, I do not wish to unnecessarily limit the scope thereof, but reserve the right to make such modifications and rearrangements of the several parts as may come within the purview of the accompanying claims.

What I claim is:

1. In a winding and setting device for timepieces, a bridge, an axially slidable winding and setting stem, a rocking bar adapted to be moved between winding and setting positions responsive to axial movement of the winding and setting stem, the rocking bar carrying gearing adapted in winding position to engage conventional winding mechanism and in the setting position to engage conventional time setting mechanism, a rockable setting lever having a first end in operative engagement with the rocking bar for control thereof and a second end in operative engagement with the winding stem for movement thereby, a guiding pin, and a removable spring having one end turned back forming a jaw positioned about at least a portion of the guiding pin and in radial sliding relationship with the guiding pin upon axial movement of the winding and setting stem, the jaw end of the spring limited in outward lateral movement by the setting lever and being in engagement with said lever at its second end, the other end of the spring limited in lateral outward movement by the bridge, the spring removable by

moving its said other end inwardly and swinging it around the guiding pin, to disengage its jaw end from contact with the setting lever.

2. A winding and setting device according to claim 1 in which the spring has a generally bent portion between its ends and the spring is held in position solely by end compression.

3. A winding and setting device according to claim 1 in which the second end of said setting lever includes a pin extending from the setting lever and contacting the outer edge of said spring jaw.

References Cited in the file of this patent

UNITED STATES PATENTS

323,985	Varney	Aug. 11, 1885
408,573	Boyd	Aug. 6, 1889
503,517	Bagley	Aug. 15, 1893
2,640,311	Stamm	June 2, 1953
2,655,784	Ducommun	Oct. 20, 1953