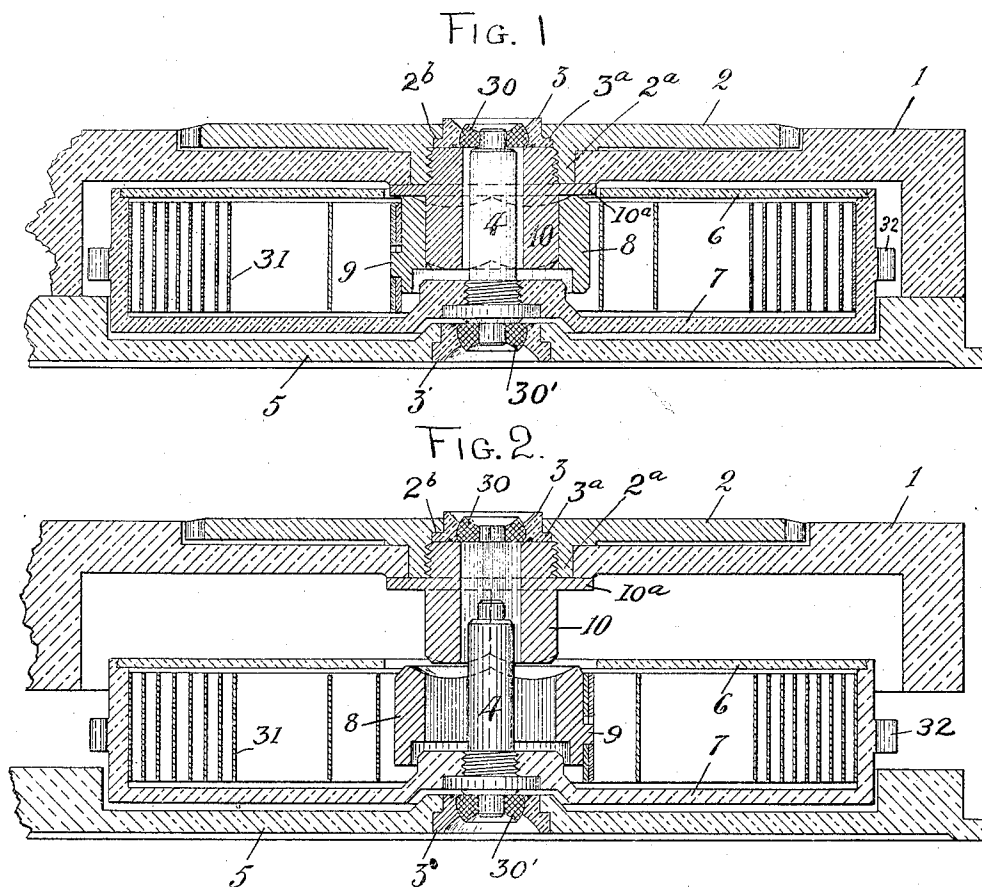


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WATCH BARREL.  
APPLICATION FILED MAY 1, 1909.

1,008,793.

Patented Nov. 14, 1911.



WITNESSES:

Henrietta Stewig  
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# UNITED STATES PATENT OFFICE.

CHARLES E. DE LONG, OF KANKAKEE, ILLINOIS.

WATCH-BARREL.

1,008,798.

Specification of Letters Patent.

Patented, Nov. 14, 1911.

Application filed May 1, 1909. Serial No. 493,397.

*To all whom it may concern:*

Be it known that I, CHARLES E. DE LONG, a citizen of the United States, residing at Kankakee, in the county of Kankakee and State of Illinois, have invented certain new and useful Improvements in Watch-Barrels, of which the following is a specification.

My invention relates to that type of motor barrel for watches wherein the ratchet wheel is made rigid with a hollow winding arbor set co-axially within the spring barrel and surrounding the main arbor of the barrel, and wherein the spring is wound from its inner end, being detachably connected to said hollow winding arbor.

Among the principal objects of the invention are to simplify the construction of this part of the watch movement; to facilitate the assembling of the parts; to secure a high degree of accuracy in the positioning of the parts; to make possible the removal of the plate or bridge with the ratchet intact, by simply removing the plate screws, leaving the barrel and spring and the attachments of the spring to both the barrel and the hollow winding arbor intact.

To these ends my invention comprises, among its principal novel structural features, the provision of a compound or two-part hollow winding arbor, one part of which is secured to the ratchet and is removable with the latter and the bridge plate while the other is connected to the inner end of the spring; a threaded connection of the ratchet with the removable section of the winding arbor by means of a depending boss on the ratchet engaging the threaded upper end of the winding arbor, such connection also providing for the secure mounting of the upper jewel bearing; the provision of an annular shoulder on the upper or removable section of the winding arbor which constitutes an abutment or stop for the upper end of the lower section to which the spring is attached; and other features of minor importance which will be apparent from the following detailed description, when taken in connection with the accompanying drawings, in which—

Figure 1 is a central vertical section through the motor barrel and its immediately associated parts; and Fig. 2 is a similar sectional view but showing the upper plate removed together with the ratchet and one section of the winding arbor secured thereto.

Referring to the drawings, 1 designates a portion of the upper plate or barrel bridge, and 5 a portion of the lower plate.

2 designates a winding ratchet formed with an internally threaded depending bearing boss 2<sup>a</sup> which exactly fits and revolves in a circular bearing in the barrel bridge 1. The boss 2<sup>a</sup> is formed with an internal shoulder 2<sup>b</sup> against which bears an annular flange 3<sup>a</sup> formed at the base of the jewel setting 3, this latter containing the upper jewel 30.

10 designates the upper or inner section of a compound or two-part hollow winding arbor, of which 8 designates the outer or lower section. The section 10 is externally threaded at its upper end to engage the bearing boss 2<sup>a</sup> of the ratchet and clamp the jewel setting 3 securely in position. Immediately below the threaded portion, said winding section 10 is provided with a lateral annular shoulder or flange 10<sup>a</sup> which constitutes an abutment or stop for the upper end of the lower section 8 of the winding arbor. The sections 10 and 8 are adapted to telescope, and their interfitting surfaces are made non-circular, (preferably square) so that, when telescoped, the rotation of the inner section imparted by the ratchet wheel is transmitted without lost motion to the outer section, to a lug 9 on which is anchored the inner end of the usual main spring 31. This main spring is housed within a main spring barrel 7 having the usual external gear 32 formed thereon for transmitting the motive power of the spring to the watch train. The barrel 7 is rigidly mounted, by threaded engagement, upon the lower end of the main arbor 4, which latter lies within the sectional winding arbor and at its reduced ends is journaled in the upper jewel 30 and a similar lower jewel 30' carried in a lower jewel setting 3'.

6 is a cap plate, in this case being sprung into the head of the barrel 7 and, of course, turning with the latter, said cap plate having a central aperture of sufficient size to accommodate the section 10 of the winding arbor and its annular shoulder 10<sup>a</sup> without contact with the latter.

To facilitate the assembling of the parts, and particularly the telescoping of the sections 10 and 8 of the hollow winding arbor, the upper end of the section 8 is concaved and the lower end of the section 10 is correspondingly convexed, so that, when brought together and turned so as to register

with each other, the section 10 readily drops within the section 8, at the same time accurately centering the latter. It will be noted that the anchor lug 9 is located somewhat below the vertical center of the winding arbor section 8, so that the pull of the spring thereon exerts a slight lifting effect on section 8 forcing the latter against the shoulder 10<sup>a</sup> of the companion section 10 and raising its lower end out of frictional drag on the central boss of the barrel 7 through which the main arbor 4 passes.

From the foregoing it will readily be seen that when the bridge plate with the ratchet is removed from the bridge, the male portion 10 of the winding arbor will readily separate from the female portion 8, leaving the complete barrel with the main spring and the portion 8 inclosed, all intact in proper position on the lower plate 5. Hence, in order to get at the main spring for renewal or repairs it is necessary only to remove the screws which secure the bridge 1 in place, and raise the latter with the ratchet wheel, upper jewel and its setting, and upper section of the winding arbor all intact therein and replaceable into working position by simply replacing and securing the bridge plate. By dispensing with the necessity of removing numerous screws and taking out separate parts in order to get at the main spring, the device of my invention obviously presents a considerable saving in the time and expense involved in assembling and repair work, aside from affording a simpler, more accurate, more reliable, and less expensive construction than those now in use.

I claim:

1. In a watch-winding mechanism, the combination with a bridge plate, of a ratchet wheel journaled thereon, a main arbor, a spring barrel fast on said main arbor, a main spring in said barrel, and a hollow two-part telescoping winding arbor having one of its parts secured to said ratchet wheel and the other of its parts constituting an anchor for the inner end of the main spring, said parts having a straight longitudinal sliding fit the one within the other, substantially as described.

2. In a watch-winding mechanism, the combination with a bridge plate, of a ratchet wheel having a depending boss mounted to turn therein, a spring barrel, a main spring therein, a main arbor carrying said barrel, and a hollow two-part telescoping winding arbor having one of its parts secured to said ratchet wheel and the other of its parts constituting an anchor for the inner end of the main spring, said parts having a straight longitudinal sliding fit the one within the other, substantially as described.

3. In a watch-winding mechanism, the

combination with a bridge plate, of a ratchet wheel having an internally threaded depending boss mounted to turn therein, a spring barrel, a main spring therein, a main arbor carrying said barrel, and a hollow two-part telescoping winding arbor, one of the parts whereof has threaded engagement at its upper end with the depending boss of said ratchet wheel, and the other of which parts constitutes an anchor for the inner end of the main spring, substantially as described.

4. In a watch-winding mechanism, the combination with a bridge plate, of a centrally apertured ratchet wheel having an internally threaded and shouldered depending boss mounted to turn therein, a jewel setting mounted in the aperture of said ratchet wheel and having a flange engaging the internal shoulder of said boss, a jewel in said setting, a spring barrel, a main spring therein, a main arbor having an upper bearing in said jewel and carrying said barrel, and a hollow two-part telescoping winding arbor surrounding said main arbor, the upper of whose parts has threaded engagement at its upper end with the depending boss of said ratchet wheel and clamps said jewel setting against said shoulder, and the lower of which parts lies within said barrel and constitutes an anchor for the inner end of the main spring, substantially as described.

5. In a watch-winding mechanism, the combination with a bridge plate, of a ratchet wheel having a jewel bearing and a depending boss mounted to turn therein, a spring barrel, a main spring therein, a main arbor carrying said barrel and at its upper end journaled in said jewel bearing, and a hollow two-part telescoping winding arbor having one of its parts secured in the boss of said ratchet wheel and formed with an annular flange below said boss and the other of its parts constituting an anchor for the inner end of the main spring and at its upper end abutting against said annular flange, substantially as described.

6. In a watch-winding mechanism, the combination with a bridge plate, of a ratchet wheel having a depending boss mounted to turn therein, a spring barrel, a main spring therein, a main arbor carrying said barrel, and a hollow two-part telescoping winding arbor, one part of which is secured in said boss, and the other part of which constitutes an anchor for the inner end of the main spring, the meeting ends of said parts being respectively convexed and concaved to facilitate their registration, substantially as described.

CHARLES E. DE LONG. [L. S.]

Witnesses:

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H. S. DIXON.