No. 864,785. PATENTED SEPT. 3, 1907.

E. H. HORN.

RATCHET WHEEL CLICK SPRING.

APPLICATION FILED JAN. 7, 1907.

Fig. 1

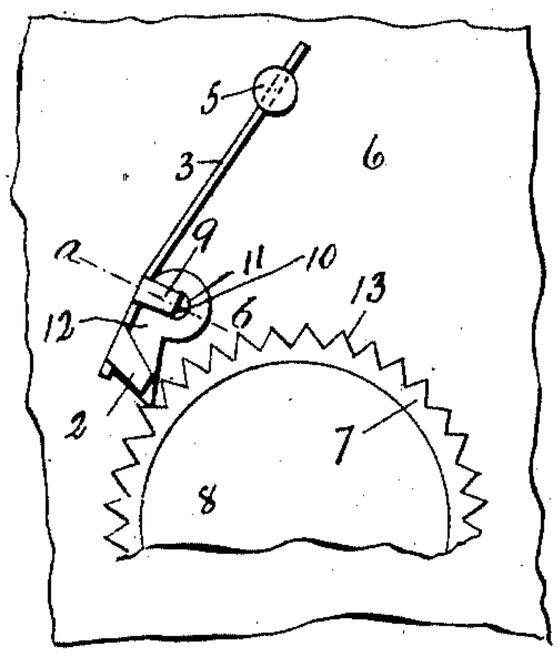

Fig. 2

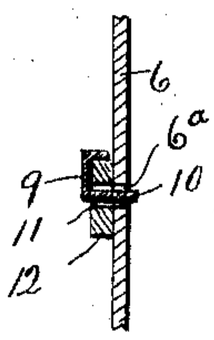

Fig. 3

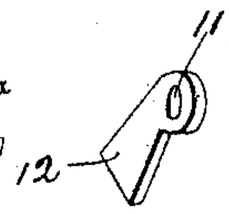

Fig. 4

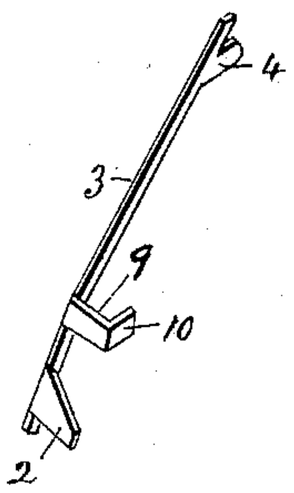

Fig. 5

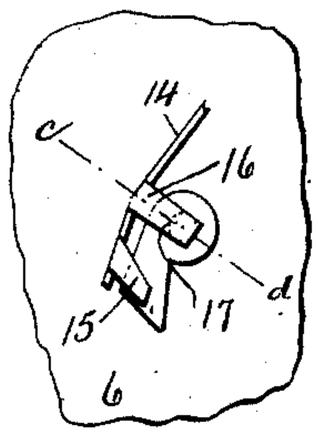

Fig. 6

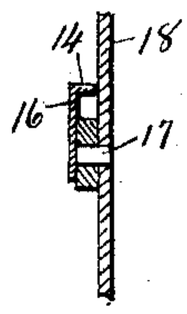

Fig. 4a

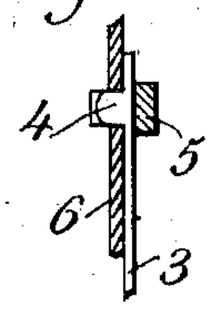

Fig. 4b

Witnesses.
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UNITED STATES PATENT OFFICE.

ERNEST H. HORN, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE WATERBURY CLOCK CO., OF WATERBURY, CONNECTICUT, A CORPORATION.

RATCHET-WHEEL CLICK-SPRING.

No. 864,785. Specification of Letters Patent. Patented Sept. 3, 1907.

Application filed January 7, 1907. Serial No. 351,143.

To all whom it may concern:

Be it known that I, ERNEST H. HORN, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Ratchet-Wheel Click-Springs; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a broken view in elevation showing my invention applied to the spring-barrel and click of a watch. Fig. 2 a sectional view on the line *a—b* of Fig. 1. Fig. 3 a detached perspective view of the click. Fig. 4 a corresponding view of my improved spring. Fig. 4ª a broken sectional view showing the attachment of the click-spring to the plate or backing. Fig. 4ᵇ a perspective view of the slotted stud employed for fastening the spring to the plate or backing. Fig. 5 a broken view showing one of the modified forms which my improved ratchet-wheel click-spring may assume. Fig. 6 a sectional view thereof on the line *c—d* of Fig. 5.

My invention relates to an improved spring for the clicks or pawls of ratchet-wheels, the object being to produce a spring constructed with particular reference to preventing the nose of the click or pawl from being pushed sidewise with respect to the teeth of the ratchet-wheel, with the result of wearing the teeth and ultimately preventing the coaction of the click and wheel altogether.

With these ends in view my invention consists in a click-spring having certain details of construction as will be hereinafter described and pointed out in the claims.

In carrying out my invention as shown in Figs. 1 to 4 inclusive of the drawings, I locate a guard-finger 2 upon the outer edge and at or near the free end of the sheet-metal click-spring 3 with which the finger is preferably formed integral and to the plane of which it stands at a right angle. The spring is formed with a fastening lug 4 located at or near its fixed end which, as shown, is entered into a slotted stud 5 mounted in a plate 6 which may be the rear-movement plate of a watch. But the particular means employed to secure the fixed end of the spring in place is immaterial. The said plate 6 has mounted in it a ratchet-wheel 7 which may be of any approved construction and used for any purpose for which such wheels may be used. As shown the said ratchet-wheel 7 forms a part of the spring-barrel 8 of a watch. The said spring 3 is also formed with a secondary guard and click-carrying finger 9 made integral with it, located near its said guard-finger 2 than which it is longer and having its inner end bent inward at a right angle to form a pivot-bearing 10 which passes through the pivot hole 11 of the click 12, and into a clearance-hole 6ª in the plate 6 the said hole 11 being just enough larger in diameter than the width of the finger 10 to permit the click to have a slight longitudinal movement with respect to the finger, as well as an oscillating movement thereupon. Under this construction the click is carried by the finger 9 and a separate pivot for the click dispensed with. The guard-finger 2, it will be noticed, engages with the outer face or exposed side of the click 12 at or near the nose thereof so as to effectually prevent the click from being worked or pushed sidewise with respect to the teeth 13 of the ratchet-wheel 7, whereby the nose of the click is kept fully and squarely engaged with the face of the teeth. This insures the best possible coaction of the click and teeth and prevents the latter from wearing as they will inevitably do if the click is pushed sidewise. The main portion of the secondary finger 9 engages with the exposed side of the click arbor near the heel thereof and prevents the displacement of the click at its heel-end.

In the modified construction shown by Figs. 5 and 6 of the drawings, the click-spring 14 is formed upon the outer edge of its outer end with an integral guard-finger 15 corresponding to the guard-finger 2 before described. The click spring is also provided with a secondary guard-finger 16 corresponding in construction and in function to the secondary guard-finger 9 before described but not having its end turned inward to form a pivot-bearing for the click which in this case is mounted upon a headless pin 17 in the plate 18. The finger 16 aforesaid engages with the outer or exposed face of the click at the heel thereof and holds the click upon the headless pin 17 with which the click may be assembled and from which it may be removed by simply lifting the spring sufficiently to clear the finger 16 from the click.

I claim:—

1. The combination with a ratchet-wheel, of a click engaging with the teeth thereof, and a click-spring provided with a guard-finger engaging with the click at the nose thereof to prevent the lateral displacement of the nose with respect to the teeth of the wheel, and the said spring being

also provided with a secondary finger engaged with the heel of the click for preventing the lateral displacement thereof.

2. The combination with a ratchet wheel, of a click engaging with the teeth thereof, a click-spring having a guard-finger for engaging with the nose of the click to prevent the lateral displacement thereof with respect to the teeth of the ratchet wheel, and the said spring being also formed with a secondary finger engaging with the heel of the click and turned inward to form a pivot-bearing therefor.

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

ERNEST H. HORN.

Witnesses:
CLIFFORD H. HALL,
CLEMENT I. GRIGGS.