H. AXTELL.

CROWN FOR THE WINDING STEMS OF WATCHES.

APPLICATION FILED MAY 2, 1908.

909,515. Patented Jan. 12, 1909.

Fig. 1.

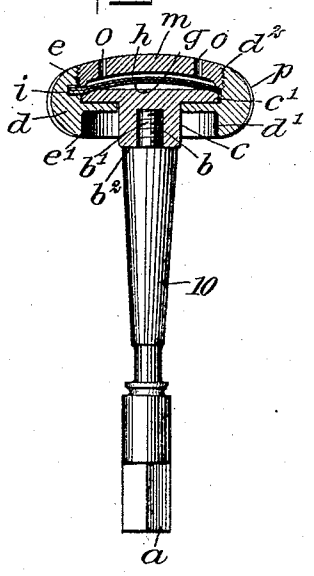


Fig. 4.

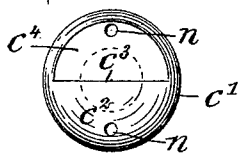


Fig. 5.

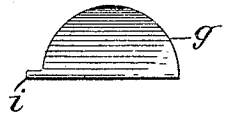


Fig. 6.

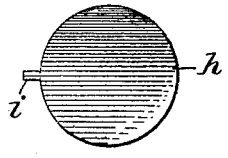


Fig. 3.

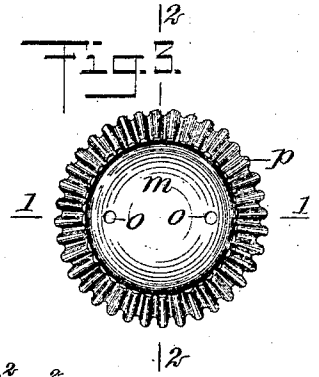
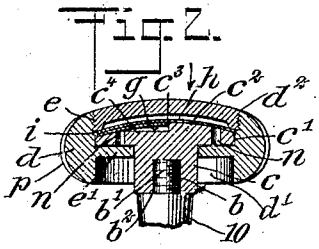


Fig. 2.



WITNESSES

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CROWN FOR THE WINDING-STEMS OF WATCHES.

No. 909,515. Specification of Letters Patent. Patented Jan. 12, 1909.

Application filed May 2, 1908. Serial No. 430,475.

To all whom it may concern:

Be it known that I, HENRY AXTELL, a citizen of the United States, and a resident of Berkeley, in the county of Alameda and State of California, have invented a new and Improved Crown for the Winding-Stems of Watches, of which the following is a full, clear, and exact description.

This invention relates to stem winding mechanism for watches, and has for its object to provide novel details of construction for the crown and connecting portions of the winding stem, which will reliably indicate when the main spring of the watch is wound up, and prevent breaking of said spring or injuring the winding gears.

The invention consists in the novel construction and combination of parts as is hereinafter described and defined in the appended claims.

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 views.

Figure 1 is a transverse sectional view of the improvement mounted upon a winding stem of a watch, the drawing being enlarged to clearly show interior details of construction, the section being taken substantially on the line 1—1 in Fig. 3; Fig. 2 is a transverse sectional view of the same, substantially on the line 2—2 in Fig. 3; Fig. 3 is an enlarged plan view of the improved crown seen in direction of the arrow in Fig. 2; Fig. 4 is a plan view of a winding stem head that is a detail of the invention; Fig. 5 is a plan view of a disk spring of novel construction; and Fig. 6 is a plan view of a reinforce spring that is a novel detail of the invention.

The body 10 of the winding stem, that in use is directly connected with the winding gears of a watch, not shown, is of ordinary form having an angular extremity *a* that in service is engaged with said gears. The opposite end of the stem 10 is reduced in diameter, as shown at *b*, affording a cylindrical nipple *b'* that is threaded and terminates in a radial shoulder b^2, where it joins the stem.

A head block employed, consists of a cylindrical hub *c* that is axially bored, producing a socket therein which is threaded in its wall, said socket receiving the nipple *b'*, that is screwed therein so that the shoulder b^2 contacts with the true end wall of the hub *c*. Upon the opposite end of the hub *c* a radial flange *c'* is formed, which constitutes the head block proper, and, as shown in Figs. 2 and 4, the normal upper surface of the flange or head *c'* is convexed on one-half its surface, said convexed surface c^2 ending at a central transverse shoulder c^3. The remaining half portion c^4 of the top face of the head block *c'* is flattened, as appears in Figs. 2 and 4.

The crown that affords means for manipulating the head block, consists essentially of a metal block *d*, having a flattened spheroidal form and a transverse diameter somewhat greater than that of the head block or flange *c'*. In the lower side of the crown *d*, a circularly walled flat-bottomed recess *d'* is formed, of a diameter that adapts said recess to receive the free end of a pendant of usual form, that projects from the rim of a watch case and whereon the crown is loosely fitted. In the normally upper side of the crown *d* and directly opposite the recess *d'* therein, a deeper recess d^2 is formed having a flat bottom and circular side wall, said wall having a screw thread therein, as indicated at *e* in Figs. 1 and 2, and it will be seen in said views that the bottoms of the recesses *d'* and d^2 are separated by a centrally apertured partition *e'*.

The aperture in the partition *e'* is of slightly greater diameter than that of the hub *c*, and the diameter of the upper recess d^2 slightly exceeds that of the head block or flange *c'*, so that the hub may be inserted down through the circularly edged aperture in the partition *e'* and the head block or flange *c'* be simultaneously introduced within said recess d^2 and be seated upon the partition.

On the semicircular flattened upper surface c^4 of the head block or flange *c*, a correspondingly shaped plate spring *g* is seated, said spring being dished a degree that will slightly elevate its surface from the surface c^4 and cause it to rest thereon at the semicircular edge of said plate spring.

A co-acting spring *h* is provided, having a circular edge and a thin plate-like body that is dished so as to give it concavo-convex shape in cross section when in position for service. The disk spring *h* and semi-circularly-edged spring *g*, have each a small toe *i* projected therefrom laterally, which toes

are embedded in a small perforation formed in the side wall of the recess d^2 and serve to prevent the springs from turning edgewise.

A cap plate m is a completing detail of the improved crown, and as shown, consists of a circularly-edged plate of metal of suitable thickness, and having concavo-convex shape in cross section, the edge thereof being threaded and adapted for screwed engagement with the threaded side wall of the recess d^2.

Two spaced small holes n, n, are formed in the head block flange c' for the accommodation of an ordinary pin wrench in mounting the head block on the stem 10, and in the cap plate m, similar spaced perforations o, o, are formed for a like purpose, and it will be seen that graduated pressure may be applied upon the springs g and h by an adjustment of the cap plate m.

The compression of the plate springs g and h produces friction between said springs and the upper surface of the head block flange c' and greater friction between said head block flange and the partition wall e'.

Upon the periphery of the crown block d, the usual corrugations p are formed, that give such roughness thereto as will facilitate the rotation of the crown for effecting the rotation of the stem 10.

Assuming that the device in complete condition, has been mounted upon a watch having stem winding gear therein, and that the stem 10 is coupled therewith in the usual manner, the adjustment of the cap plate m may be readily effected to produce proper friction between the crown and stem for winding the main spring of the watch, and slip when the latter is wound up a safe degree, thus avoiding breaking the spring or stripping the teeth of the winding gear.

Slight changes may be made in minor details, as relates to proportion and design, without exceeding the scope of the invention, and I claim all such changes as are covered by the claims.

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

1. In a device of the class described, the combination with a winding stem, provided with a head, a crown containing the head, a spring plate in connection with the crown, the head having a shoulder for engagement by the spring, said connection being adapted to yield to prevent over winding the spring.

2. In a device of the class described, the combination with the winding stem provided with a head having a transverse shoulder, a crown in which the head is received, a spring plate arranged between the crown and the head, and engaging the shoulder, whereby to constrain the head to rotate with the crown, and to permit the disconnection of the head and crown to prevent over winding.

3. A crown for a watch spring winding stem, consisting of a body having opposite recesses in its top and bottom, a partition wall between said recesses having a central aperture therein, a head block comprising a hub and a radial flange, the hub passing through the aperture and the flange seating on the partition, a spring device in the upper recess, bearing on the radial flange of the head block, and a cap plate adjustable in the recess above the spring device, said cap plate by its adjustment controlling the friction of the head block flange on the partition wall.

4. A crown for a watch spring winding stem, embodying a body, recessed in the top and bottom thereof forming a partition wall therebetween, said partition having a central circular aperture therein, a head block having a hub securable on a winding stem, and inserted down through said aperture and also having a radial flange that is seated upon the partition wall, dished plate springs mounted upon the radial flange, a cap plate having a threaded edge, and the side wall of the upper recess having a mating thread into which the cap plate is screwed, an adjustment of said cap plate controlling friction between the radial flange, the springs and the partition wall, for a safe rotation of the winding stem.

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

HENRY AXTELL.

Witnesses:
GEORGE H. WRIGHT,
SAMEL L. EARLEY.