Oct. 22, 1940. F. MARTI 2,218,889

TIGHT WINDING DEVICE

Filed April 21, 1939

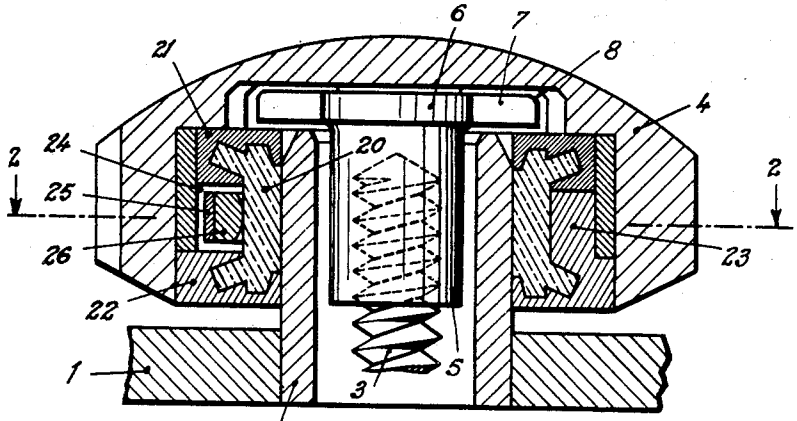


FIG. 1

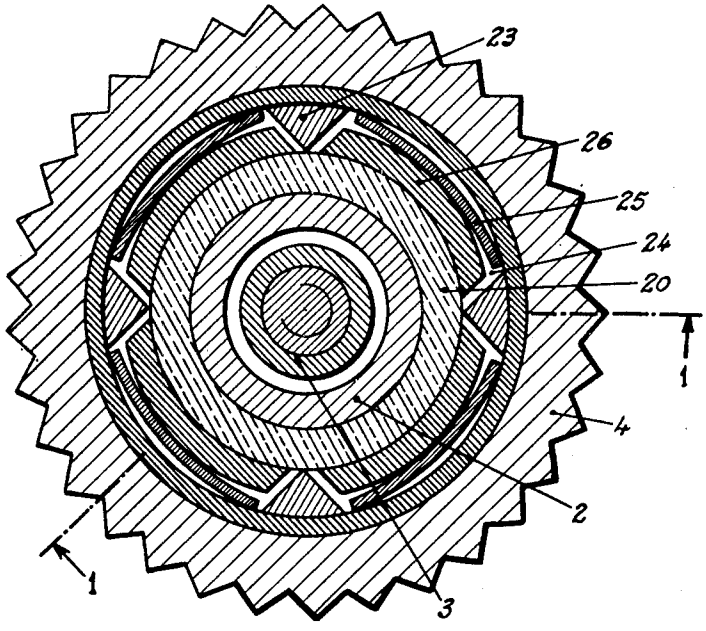


FIG. 2

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Patented Oct. 22, 1940

2,218,889

UNITED STATES PATENT OFFICE

2,218,889

TIGHT WINDING DEVICE

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Application April 21, 1939, Serial No. 269,241
In Switzerland May 11, 1938

3 Claims. (Cl. 58—90)

The invention relates to tight winding devices and more particularly to a type used on tight watches and having a packing ring disposed between the recessed winding crown and the pendant tube of the watch case.

The object of the present invention is the provision of two rigid rings disposed in the recess of the crown round the pendant tube, of which at least one is rigidly fixed to the crown, and the provision of a deformable packing ring having its two rims inserted in said two rigid rings, respectively, and having its inner surface closely applied round said pendant tube.

It is a further object of the invention to provide an elastic device in the recess of the crown, which is adapted to act upon said deformable packing ring so as to tend to render said inner surface thereof axially convex whereby a perfect tightening round the pendant tube is obtained.

In the drawing:

Figure 1 represents an axial section through the embodiment of the invention along line 1—1 of Fig. 2, and Fig. 2 shows a horizontal section through line 2—2 of Fig. 1.

The illustrated embodiment is seen in connection with a fragmentary portion of the movement case 1 and it comprises a pendant tube 2, a winding stem 3 and a winding crown 4. The stem 3 is screwed into a sleeve 5 reaching almost with its full length into the pendant tube and having at its top end above the pendant tube a circular disc 6 which presents two diametrically opposite noses 7. A metal ring 21 is placed in the recess of the crown round the pendant tube and it is provided with two notches 8 into which said noses 7 of the disc penetrate. Thanks to this device which is known and, therefore, not needs further explanations, the winding stem 3 can be entrained for rotation by the crown, with a certain play between each other, and can also be axially moved.

A ring 20 made of deformable, elastic material, for instance synthetic resin, is fitted with its inner surface to the pendant tube 2. This ring 20 has two rims of dovetail or like sectional shape, and the upper rim thereof is rigidly inserted in the above mentioned metal ring 21, and the lower rim thereof is rigidly inserted in another metal ring 22 which is fixed to the crown 4 within the recess. The ring 22 presents four vertical pillars 23 of triangular shape in cross section, which subdivide the room above said ring 22 in four equal chambers 24. In each one of these chambers is disposed a leaf spring 25 applied with its both ends against the cylindrical wall of the crown and with its median portion against a movable segment 26 which in turn acts radially upon the deformable ring 20 in order to tend to render the inner surface thereof axially convex, so as to strongly apply it against the pendant tube 2. This bending causes a small downward displacement of the metal ring 21 if the latter is movable; if not, the axial convexity of said inner surface is exclusively produced on account of the elasticity of the packing ring 20.

In this way the ring 20 constitutes a perfect tightening ring, the medial portion of which is strongly pressed against the pendant tube, while the two terminal edges of the tightening surface of the ring are not exposed to deterioration when the ring with the whole crown is axially shifted on the pendant tube. Whereas said edges would soon be deteriorated if they would not be inserted in and protected by the rigid rings, that is to say, if said terminal edges would abruptly project beyond the inner cylindrical surfaces of the two metal rings.

I claim:

1. In a tight winding device having in combination a recessed winding crown, a pendant tube, two rigid rings disposed in the recess of the crown round the pendant tube, at least one of said rings being rigidly fixed to the crown, a deformable packing ring having its two rims inserted in said two rigid rings, respectively, and having its inner surface closely applied round the pendant tube, and an elastic device disposed in the recess of the crown and adapted to act upon the deformable packing ring so as to render said inner surface thereof axially convex.

2. In a tight winding device having in combination a recessed winding crown, a pendant tube, two rigid rings disposed in the recess of the crown round the pendant tube, at least one of said rings being rigidly fixed to the crown, a deformable packing ring having its two rims inserted in said two rigid rings, respectively, and having its inner surface closely applied round the pendant tube, and a plurality of leaf springs circularly arranged between said two rigid rings and adapted to press radially upon the median portion of the outer surface of the deformable packing ring so as to render said inner surface thereof axially convex.

3. In a tight winding device having in combination a recessed winding crown, a pendant tube, two rigid rings disposed in the recess of the crown round the pendant tube, at least one of said rings being rigidly fixed to the crown, a deformable packing ring having its two rims inserted in said two rigid rings, respectively, and having its inner surface closely applied round the pendant tube,

a plurality of movable segmental members applied against the median portion of the outer surface of said deformable packing ring, and a plurality of leaf springs disposed between the wall of the crown and the segmental members, each leaf spring having its tow ends applied against the crown and its median portion against one of the segmental members for exerting radial pressure through said member upon the median portion of the outer surface of said deformable packing ring so as to render the inner surface thereof axially convex.

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