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3,520,130

SUSPENDING DEVICE FOR TIMEPIECE MOVEMENT

Filed July 5, 1968

FIG. 1

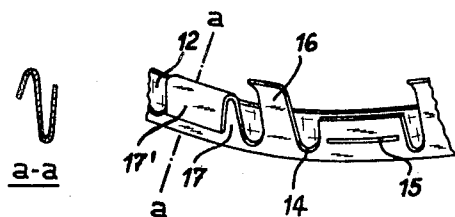


FIG. 3

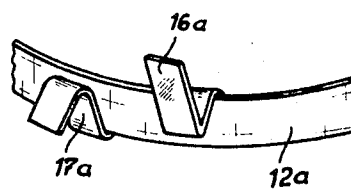


FIG. 2

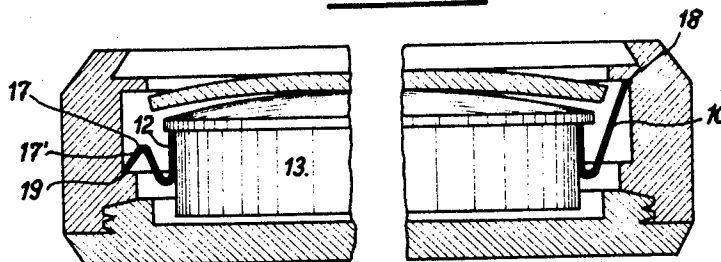


FIG. 4



FIG. 5

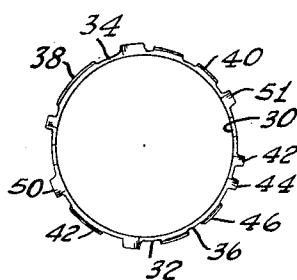
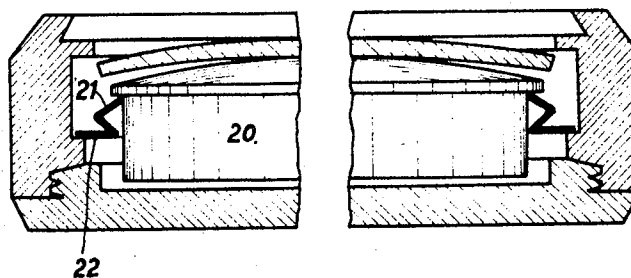


FIG. 6

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SUSPENDING DEVICE FOR TIMEPIECE MOVEMENT

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Int. Cl. G01d 11/10; G04b 37/04

U.S. Cl. 58—94

9 Claims

ABSTRACT OF THE DISCLOSURE

Device for suspending in a shockproof manner a timepiece movement in a case by means of an axially extending part for holding the movement and a radially projecting flange part supported by the inner wall of the case, at least one of these two parts having elastic teeth for resiliently suspending the movement in the case in both axial and radial directions.

This application is in part a continuation of my previous application Ser. No. 620,527 filed Mar. 3, 1967.

Various suspending systems have been described in which an adjusting ring used to adapt the diameter of a timepiece movement to that of the timepiece case serves as a means of suspension for the movement.

In certain of these systems, the cylindrical part of the adjusting ring supports, at its upper part, the movement while a horizontal collar on this ring bears cut-out portions forming elastic tongues enabling the ring to rest on a shoulder of the timepiece back.

If this arrangement assures a certain protection for the movement against axial impacts, it remains without effect in the case of radial impact. There are also used certain cylindrical securing rings which have cut-out portions forming tongues and give the movement some protection against radial shocks. Other cut-out portions of these rings are in principle provided to give axial elasticity. Nevertheless, this elasticity is limited by the fact that the metal constituting the ring only bears against the timepiece case by its narrow edge.

The main object of the present invention is to provide support means for the movement in the case while giving it an efficient protection against shocks in both axial and radial directions.

The present invention will be better understood by referring to the accompanying drawings which represent, by way of example, several particular embodiments of the invention.

In the drawings:

FIG. 1 is a perspective view of a first embodiment of the invention;

FIG. 2 is a cross-sectional view of a timepiece using the suspension device shown in FIG. 1;

FIGS. 3 and 4 are perspective views of other modifications, and

FIG. 5 is a cross-sectional view of a timepiece using the suspension device shown in FIG. 4.

FIG. 6 is a bottom view of a modification.

FIGS. 1 and 2 show variants in which the ring has a cylindrical part 12 which is not slotted and which bears against the movement 13. This part 12 has two diametrically opposite openings 15 only one of which is shown which permits the securing of the ring to clamps usually present on the movement which engages in these openings. The radially extending part is slotted to form a piece having teeth 16 which are bent in order to give them axial as well as radial elasticity the extremity 17 of one tooth out of two being additionally downwardly

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folded at 17 so that half the teeth 10 are supported in the upper part 18 of the case while the others are supported in the lower part 19 of the case, the movement thus being completely suspended.

In a modification of the version shown in FIG. 1, it is possible to replace teeth 9 by a flange which is not slotted, teeth 8 ensuring radial as well as axial suspension.

In the modification shown in FIG. 3, teeth are positioned alternately on the upper and lower edges of cylindrical part 12a and are bent so that the free end of one tooth 16a is upwardly directed while the free end 17a of the next is downwardly directed.

In the modification shown in FIGS. 4 and 5, the cylindrical part of the ring is formed by teeth which are bent in a general V-shape, the apex of the V being radially outwardly directed, the free ends 21 of the teeth gripping the periphery of movement 20, while the other part 22 of the ring rests on a projection of the case shown in FIG. 5.

Obviously it is possible to modify the various embodiments above shown. Thus while in FIG. 1 both teeth 16 and 17 are positioned along the lower edge of cylindrical part 12, it is clear from FIG. 2 that one tooth can be on the lower edge while the next, 16a, is on the upper edge of part 12. The modification of FIG. 2 can be provided with slot 15 if desired.

The modification of FIG. 1 shown from below in FIG. 6 has a U-shaped cross section through line a—*a*. Aperture 15 allows passage of a projection of the movement for rigid fastening.

As shown it comprises a resilient, metallic inner part 30 folded upon its outer part which is provided with teeth of different sizes and shapes to form a peripheral groove 32 which is interrupted at 34 and 36 by bringing the teeth thereat which are of about the same height as the inner part against this inner part. Teeth 38 to 50 are folded on themselves like teeth 17a of FIG. 3 but are of different width as can be seen on the figure. Randomly arranged therewith are other teeth 51 which are similar to teeth 17 of FIG. 1. The presence of the groove between the inner and outer parts gives added resiliency.

What is claimed is:

1. Device for suspending a timepiece movement in a case, said device comprising an axially extending part for holding the movement and a radially outwardly projecting flange part supported by the inner wall of the case, at least one of said two parts having a plurality of resilient teeth having edges extending along lines which project both radially and axially of the case, wherein said movement is resiliently suspended in said case in both axial and radial directions of the case.

2. Device according to claim 1, wherein said teeth are positioned alternately on the upper and lower portions of said axially extending part, each of said teeth having a free extremity, said free extremity of one of said teeth being upwardly directed while the free extremity of the next tooth is downwardly directed.

3. Device according to claim 1, wherein said axially extending part consists of a plurality of V-shaped teeth, each having an apex directed radially outwardly; said V-shaped teeth each having a free end which grips the periphery of said movement, and said case having an inner wall provided with a projection for receiving said flange part of said device.

4. Device according to claim 1, wherein said flange part is slotted to form said teeth, said teeth being bent, alternate teeth being bent a second time so that some teeth bear axially against the movement in one direction and the other teeth bear axially in the opposite direction against said case.

5. Device according to claim 1, wherein at least the periphery of the axially extending part and the flange part

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are slotted to form said teeth some of which are vertical and carry the movement and the others are horizontal and serve as a seat, the device being arranged in such a way that said teeth on said flange part ensure mainly the radial suspension of said movement, and the teeth on the axially extending part ensure principally the axial suspension of said movement.

6. Device according to claim 1, wherein both of said parts have teeth, each tooth of said flange part being aligned with a recess in said axially extending part and vice versa.

7. Device according to claim 1, wherein the teeth are formed both on the flange part and on the axially extending part and are bent in order to provide radial and axial elasticity respectively.

8. Device according to claim 1, comprising an inner part integral with an outer part folded thereagainst to provide a groove, said outer part having said plurality of

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teeth thereon, at least some of said teeth being bent away from said outer part, some of said teeth being bent a second time parallel to said outer part.

9. Device according to claim 8, made of resilient metal.

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