UNITED STATES PATENT OFFICE.

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WATCH, ETC.

1,418,427. Specification of Letters Patent. Patented June 6, 1922.

Application filed October 6, 1921. Serial No. 505,764.

To all whom it may concern:

Be it known that I, JOSEPH BRUN, a citizen of Switzerland, residing in Chaux de Fond, Switzerland, have invented certain new and useful Improvements in Watches, Etc., of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

This invention has for its object to provide improved means whereby the pivot of the balance wheel of a watch and particularly the cap jewels which form the end-thrust bearings of the pivot are protected against injury due to shocks. It has been proposed heretofore to accomplish this purpose by cushioning or yieldingly supporting the cap jewels so that they yield slightly with sudden endwise movements of the pivot and thereby avoid being broken by a hammer like blow of the pivot. The devices heretofore produced for this purpose have not come into general use, probably because they have not been well adapted for the purpose, the spring support being cumbersome or permitting too much movement of the jewel or, on the other hand, not being sufficiently delicate to prevent breakage of the fragile jewel. By the present invention there is provided for the cap jewel an improved yielding support which is readily applied, involves the use of no long, flat spring, does not permit undue movement of the jewel, and presses the jewel toward the pivot with such delicacy that the jewel can yield with any endwise movement of the pivot sufficiently to take up the shock and prevent breakage. In accordance with the invention the jewel is supported by a minute star-like or spider-like flat spring, the ends of the arms of which are received in an annulus or frame which is itself secured to the cock or other plate in which the pivot bearing is mounted. The invention will be explained more fully hereinafter with reference to the accompanying drawing in which it is illustrated and in which—

Figure 1 is a top view of a portion of a watch movement, showing particularly the mounting of the balance wheel in the cock.

Figure 2 is a detail view, on a larger scale, in vertical central section, showing the staff or pivot, the jewels at each end, and the supporting devices therefor.

Figure 3 is a detail view of the spring which supports the cap jewel at each end of the staff.

Figure 4 is a detail view of the cap jewel setting shown in Figure 2.

Figure 5 is a detail view in elevation, partly broken away, of the annulus or frame at the lower end of the staff as shown in Figure 2.

Except as hereinafter indicated the staff a of the balance wheel b of a watch may be mounted substantially as usual in the cock c and the opposite plate d of the movement frame. At each end the staff or pivot a is received in a perforated jewel e, which may be secured in a ring f which in turn is secured in the cock c or frame plate d. At each end of the staff or pivot a there is also provided a cap jewel g which forms an end-thrust bearing for the staff or pivot. In the drawing this cap jewel is shown as mounted in a cap jewel setting h provided with a central boss h', although such setting might be dispensed with if desired. The boss h' is received in the central opening i' of a star-like or spider-like spring retainer i, which has radiating arms i^2. The extremities of the arms i^2 are snapped into an undercut groove k' which is formed in the wall of an annulus or frame k which, in the construction shown in the upper part of Figure 2, is secured to the cock c by screws k^2. In the construction shown in the lower part of Figure 2 the annulus or frame k^3 which receives the ends of the arms of the retainer i in its undercut groove k', is shown as threaded into its seat in the plate d so that adjustment of the cap jewel toward and from the staff a can be effected if desired, a screw k^4 being provided for the purpose of securing the annulus or frame k^3 in adjusted position. The resilience of the delicate arms i^2 of the spring retainer or seat i, holds the cap jewel lightly toward or in contact with the end of the staff and yield sufficiently to cushion the jewel against sudden endwise movement of the pivot and thereby prevent the breaking of the fragile jewel which often occurs when the jewel is supported rigidly. At the same time the jewel is so supported that it does not have undue movement. It will be understood that the spring retainer is seated in the annulus or frame k or k^3 as the case may be by slightly cupping the retainer and allowing the ends of

the arms to spring into the undercut groove k'.

Changes in details of construction and arrangement can be made to suit different conditions of use and the invention therefore, is not limited to the precise construction shown and described herein, except as pointed out in the accompanying claims.

I claim as my invention:

1. A jeweled bearing for watches, etc., comprising an annulus adapted to be secured to a frame plate, and a jewel-retainer having radiating arms engaged with the annulus, and adapted to support a cap jewel.

2. A jeweled bearing for watches, etc., comprising an annulus adapted to be secured to a frame plate and having in its inner wall an undercut groove and a jewel-retainer having radiating arms engaged in the groove of the annulus and adapted to support a cap jewel.

3. A jeweled bearing for watches, etc., comprising an annulus adapted to be secured to a frame plate, a jewel-retainer having radiating arms engaged with the annulus, and a jewel setting supported by the retainer.

4. A jeweled bearing for watches, etc., comprising an annulus adapted to be secured to a frame plate, a jewel-retainer having a central aperture and radiating arms engaged with the annulus and a jewel setting supported by the retainer and having a central boss to engage the aperture of the retainer.

5. A jeweled bearing for watches, etc., comprising an annulus adapted to be mounted adjustably in a frame plate and a jewel retainer having radiating arms engaged with the annulus and adapted to support a cap jewel.

This specification signed this 23d day of Sept., A. D. 1921.

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WATCH, ETC.

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Fig. 1.

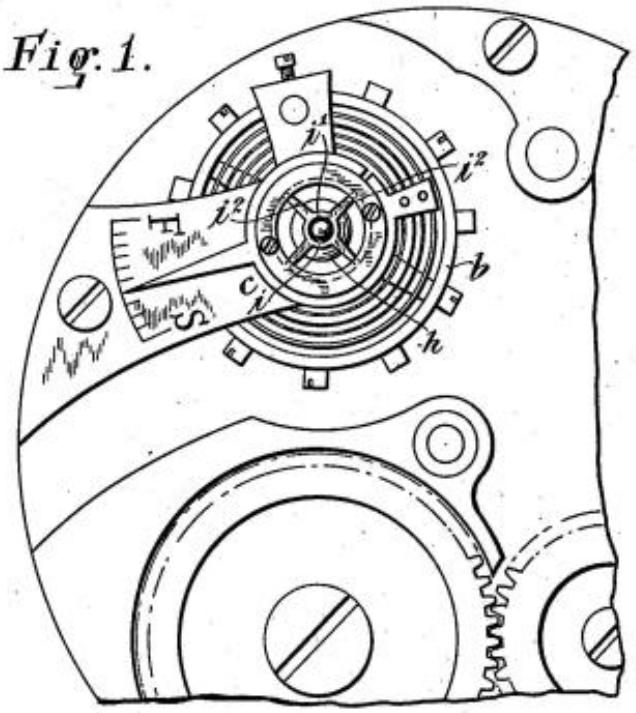


Fig. 2.

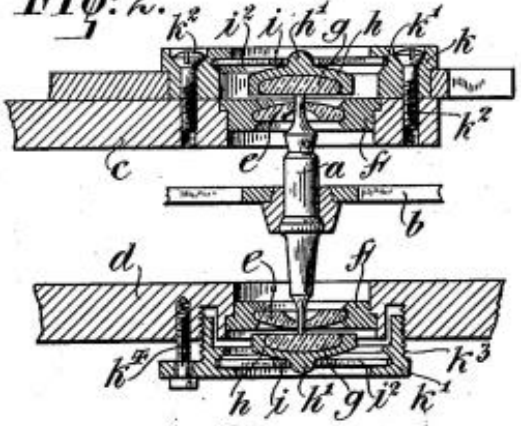
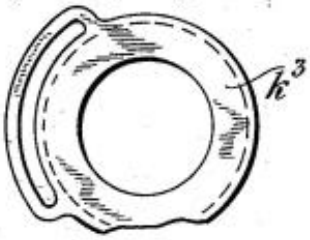


Fig. 3.

Fig. 4.

Fig. 5.



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