Dec. 1, 1936. A. BULOVA 2,062,637

WATCH CONSTRUCTION

Filed April 15, 1936

Fig. 1.

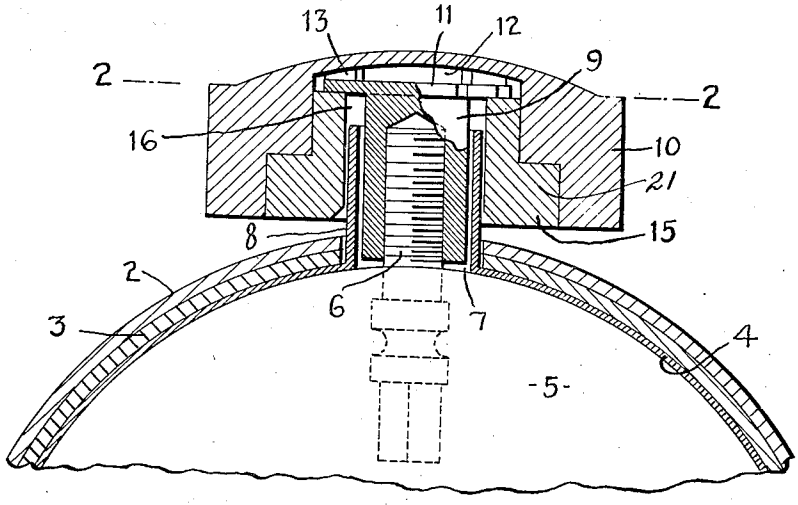
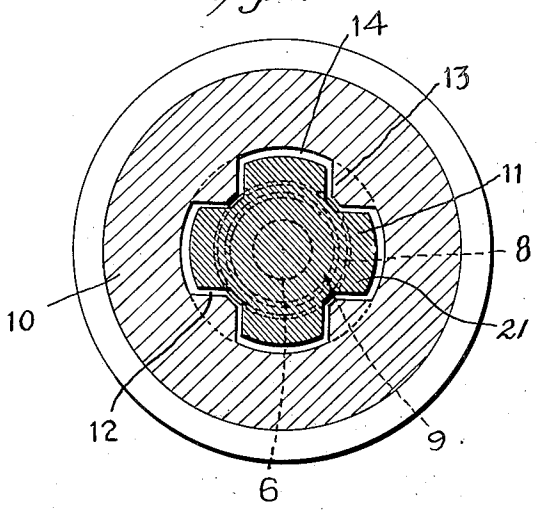


Fig. 2.



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WATCH CONSTRUCTION

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1 Claim. (Cl. 58—90)

It is known that the winding and setting stems of watches, and more especially those of watches of small size, are subject to breakage. Among small watches the number of stems broken is large, which means that many owners are inconvenienced and put to expense. Moreover it is significant that a considerable number of stems are broken in the casing of watches.

One cause of stem breakage is a blow or shock received by the crown and transmitted directly to the stem. Rusting of the stem may also be a predisposing cause. It appears that slight lack of alinement between the part of the movement into which the stem fits and a part of, or a part associated with, the case, which may bear against the stem above the movement, may put the stem under a strain which will cause or conduce to breaking. Thus, means for protection of the movement and stem from dust and moisture, much to be desired, or for supporting the stem, or both, may as the result of small inaccuracy give rise to such a condition of strain. Considering the unavoidable fragility of many of the winding stems, it is doubtless true that there are other causes of stem breakage.

It is an object of this invention to minimize or materially reduce the breaking trouble with winding stems, and to this end the invention comprises a simple construction, well adapted for application to extremely small parts, in which the crown has a floating connection with a post which is fast on the stem.

It is a further object, however, to combine either a dust and moisture proofing, or a support for the stem or crown, or all of these, with a floating connection between the crown and stem, to the end that the movement and stem may have a high degree of protection.

The accompanying drawing illustrates the preferred embodiment of the invention, but it will be understood that the embodiment may be varied.

In the said drawing:

Figure 1 is a fragmentary section of a watch taken in a plane substantially midway between the front and the back, the portion of the movement being shown in elevation without details, and a small portion of the post being in elevation; and

Fig. 2 is a section taken on the line 2—2 of Fig. 1.

For clearness of illustration the views are on a greatly enlarged scale, and relative proportions need not be taken to be accurate. In a small watch it is desirable that the crown be a very small part, not merely for reason of appearance but also because the less the extent of the crown the more likely it is to escape knocks. The stem is apt to be extremely slender.

In Fig. 1 the parts 2 and 3 represent the case, which is usually composed of a front and a back part fitting one over the other. The part 4 is a thin dust band which is interposed frictionally between the case and the periphery of the movement 5, and which may overlie only the top of the movement or may extend all the way around it. At the region of the winding stem 6 the dust band has an opening 7 larger than the stem, and extending upward from this region of the dust band through an opening in the case there is a tube 8. This tube and dust band enter into the combination of the preferred form of execution of the invention, but in certain instances, though with less advantage, one or both may be omitted. The dust band and neck are intimately associated with the case and may be considered as a part of the case as distinguished from the movement.

Screwed or otherwise made fast on the upper portion of the stem there is a crown post 9, which is in floating relation to the crown 10, or, conversely, the crown is in floating relation to the post but has driving connection therewith. The construction illustrated in the drawing is admirably adapted for the purpose and constitutes a more specific feature of the invention.

In this construction the post 9 has a flat head 11 composed of one or more lugs 21 which project laterally from the top of the post, and these lugs occupy a cavity 12 in the crown, where one or more internal lugs 13 and recesses 14 coact with the lugs 21, or their recesses, to provide a driving engagement so that turning of the crown will turn the stem for winding and setting. It is to be noted that there is substantial clearance between the formations 21 of the post 9 and the formations 13 inside the crown, so that there can be movement in all directions laterally between the post and the crown. Preferably, also, there is sufficient head room in the cavity 12 to permit of relative vertical or tilting movement.

The parts just described are retained in loose engagement by a bushing 15 which is inserted tightly into the crown from beneath, and underlies the projections 21 of the post 9.

The construction of the crown, crown post and stem which has been described will, without other provisions, relieve the stem of the severity of various shocks to which it might otherwise be subjected.

With the presence of the neck 8, however, better protection of the stem, as well as a high degree of dust and moisture proofness, may be realized. It will be observed that the neck 8 extends upward within an annular recess between the post 9 and the bushing 15 which forms virtually an integral part of the crown. Between the inside of the neck 8 and the outside of the post 9 there is a space or clearance 16 which is so designed as to be large enough to prevent strain being imposed on the stem 6 notwithstanding such degree of misalinement as may exist between the neck 8 and the portion of the movement in which the stem is engaged. This overcomes a difficulty which has been found to exist in dust-proofing constructions having a neck of this character. On the outside of the neck 8, however, between it and the cylindrical internal wall of the crown or bushing there is little or no material clearance. Preferably, indeed, the crown turns on the outside of the neck 8 as a journal bearing. Thus dust and moisture are quite effectively excluded from access to the stem and movement, and the neck 8 relieves the stem 6 of shocks against the crown, since because of the floating connection between the crown and the post 9 the force of a blow on the side of the crown will be taken by the neck 8 and not be communicated to the stem.

Even though the spacing between the neck 8 and the inside of the crown were larger, the circuitous course which would have to be followed by foreign matter before it could get in around the stem would be a material protection in that respect; and even though the play between the crown 10 and the post 9 should be taken up under shock before the crown bore laterally against the outside of the neck or the post bore laterally against the inside of the neck, the neck would in many instances give the stem sufficient support to avoid breakage.

In the best construction, however, there is a considerable clearance between the post 9 and the neck 8, whereas the crown encircles the neck with a substantially close, free-turning fit.

I claim:

In a watch having a case, a movement, and a stem, the combination of a dust band between the movement and the case, a tube on the dust band extending from the case about the stem, a crown post on the stem inside the tube, and a crown having loose interengagement with the upper portion of the post and encircling the tube.

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