Nov. 26, 1940. E. MORF 2,222,911

WATCH CRYSTAL

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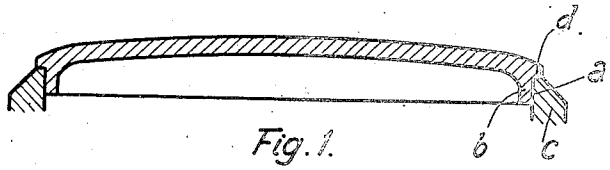


Fig. 1.

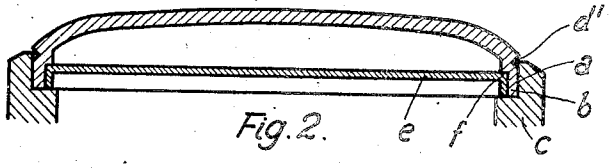


Fig. 2.

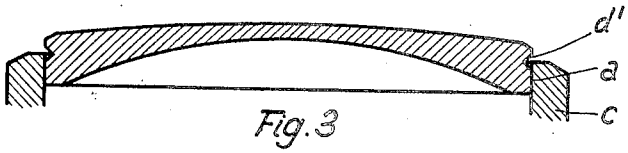


Fig. 3

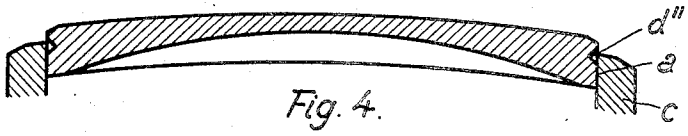


Fig. 4.

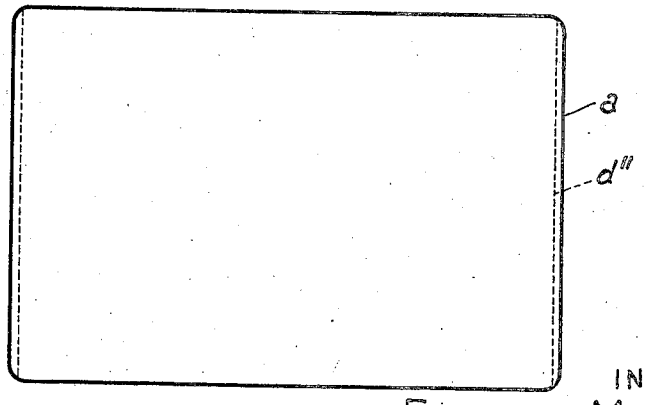


Fig. 5.

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WATCH CRYSTAL

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3 Claims. (Cl. 58—91)

The present invention relates to watch crystals. Firstly the question arises about the tightness of the joint between bezel and case band. In so-called watertight watches the cooperation of the crystal edge with the border of the bezel must be perfect on the whole circumference which is a very hard task especially in fancy watches for which already many proposals have been made even for the most complicated forms. The crystal in general is feather edged and cooperates with a flange or a notch. The problem becomes complicated when a crystal has to be adjusted to a watch case the bottom of which cannot be opened. It should be possible in such a case to withdraw the crystal from the outside without damaging the watch.

The object of the present invention is a watch crystal particularly for watertight watches having an immovable bottom. This watch crystal made of an easily compressible material and elastic material is characterized in that its border is perpendicular to a plane tangent to the center of the crystal and comprises at least on a fraction of the border a notch or an elevated portion for removing it from its rest.

The annexed drawing represents as an example three embodiments of a watch crystal according to the invention.

Fig. 1 is a diametrical section of a first embodiment for a circular crystal,

Fig. 2 is a diametrical section of a second embodiment for a circular crystal,

Fig. 3 is a diametrical section of a third embodiment for a circular crystal,

Fig. 4 shows a rectangular crystal by a section of which

Fig. 5 is a plan view.

In the crystal according to Fig. 1 the edge *a* is constituted of the outer surface of a rim *b* perpendicular to a plane tangent to the center of the crystal. This border is cylindrical and has a certain height and is intended to be introduced with a tight fit into the corresponding cylindrical upper portion *c* of a rest, for instance of a watch bezel made in one piece with the bottom. Since the crystal is made of a slightly compressible and elastic material and its edge is perpendicular to a plane tangent to the center of the crystal it is easily understood that the compression stresses are the largest just parallel to said plane and try to press the edge *a* with a maximum pressure against the wall *c* of the case. In order to have a hold on the crystal from the outside and to be able to remove it when the necessity occurs the edge *a* is provided at its upper portion with a continuous ledge *d* constituting a shutting rim projecting over the wall *c* of the rest.

In the crystal according to Fig. 2 the edge *a* is provided with a peripheral groove *d'* which is also continous and is at the same level with the upper edge of the wall *c* of the rest. This figure shows also an inner supporting member *e* which may be either the dial of the watch or a ring of suitable dimensions and may give a radial pressure to the rim *b* by pressing on its inner wall so as to render perfect the joint between edge *a* and its rest. The inner face of the rim *b* has here a recess *f* securing the relative position of crystal and supporting member *e*.

The crystal according to the Fig. 3 is thickened on its border.

The Figs. 4 and 5 show also a crystal which is thickened on its border, but the crystal is here rectangular and the peripheral groove *d'* is here replaced by notches *d''* arranged on both sides of the small axis of the crystal and made in the two small sides at the same level with the upper edge of the wall *c*.

The crystal according to the invention is preferably made of a plastic transparent material slightly compressible and elastic. The synthetic resins of the acrylic and vinylique type are particularly suited for producing such a material.

What I claim is:

1. The combination with a watch crystal adapted to fit an inner surface of the watch, having a slight curvature and made of a slightly compressible and elastic material, a rim steeply arranged with regard to a plane tangent to the center of the crystal, a fitting surface being provided on said rim, said surface being adapted to be closely pressed against the correspondingly shaped inner surface of the watch, an inner supporting member fitted into said rim and adapted to produce a radial pressure on said rim.

2. The combination with a watch crystal adapted to fit an inner surface of the watch, having a slight curvature and made of a slightly compressible and elastic material, a rim steeply arranged with regard to a plane tangent to the center of the crystal, a fitting surface being provided on said rim, said surface being adapted to be closely pressed against the correspondingly shaped inner surface of the watch, a recess on said rim, an inner supporting member fitted into said recess and adapted to produce a radial pressure on said rim.

3. The combination with a watch crystal adapted to fit an inner surface of the watch, having a slight curvature and made of a slightly

compressible and elastic material, a rim steeply arranged with regard to a plane tangent to the center of the crystal, a fitting surface being provided on said rim, said surface being adapted to be closely pressed against the correspondingly shaped inner surface of the watch, a shoulder and a recess on said rim, an inner supporting member fitted into said recess and kept in place by said shoulder and adapted to produce a radial pressure on said rim.

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