F. WEHINGER.

WATCH CRYSTAL.

APPLICATION FILED SEPT. 22, 1916.

1,216,636. Patented Feb. 20, 1917.

Fig. 2.

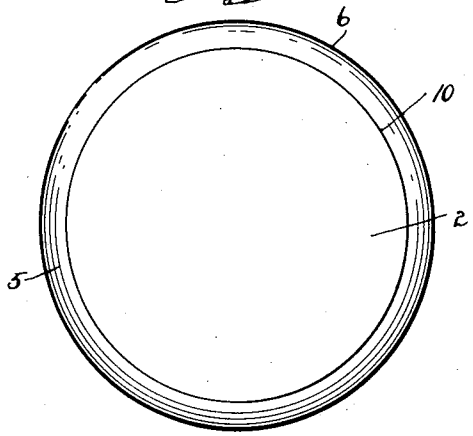


Fig. 1.

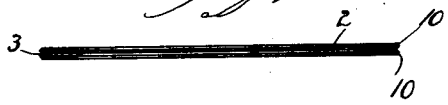


Fig. 4.

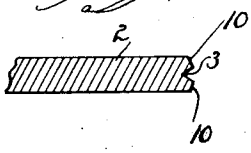


Fig. 6.

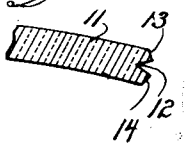


Fig. 3.

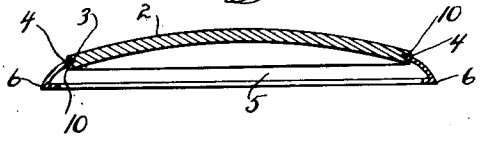
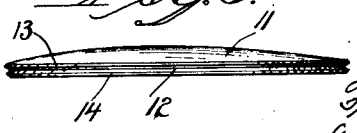


Fig. 5.



Inventor

Frederick Wehinger

by Seymour & Earle

Attys

UNITED STATES PATENT OFFICE.

FREDERICK WEHINGER, OF WATERBURY, CONNECTICUT, ASSIGNOR TO WATERBURY CLOCK CO., OF WATERBURY, CONNECTICUT, A CORPORATION.

WATCH-CRYSTAL.

1,216,636. Specification of Letters Patent. Patented Feb. 20, 1917.

Application filed September 22, 1916. Serial No. 121,575.

To all whom it may concern:

Be it known that I, FREDERICK WEHINGER, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Watch-Crystals; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1 an edge view of an initially flat, unbreakable watch-crystal formed in its edge with a circumferential retaining-groove.

Fig. 2 a plan view showing the crystal inserted into a bezel.

Fig. 3 a view thereof in transverse section.

Fig. 4 a broken detail sectional view on an enlarged scale through the edge of the crystal.

Fig. 5 an edge view of an initially concavo-convex watch-crystal formed in accordance with my invention.

Fig. 6 a broken detail sectional view thereof on an enlarged scale through its edge thereof.

My invention relates to an improvement in watch-crystals and is particularly applicable to unbreakable crystals of celluloid, or kindred material, but also comprehends watch-crystals of glass, the object of my invention being to produce a cheap watch-crystal of superior appearance, to secure permanence of its retention in place under all conditions of use, to compensate for variations of size and shape, and to reduce the cost of insertion.

With these ends in view, my invention consists in a watch-crystal having a circumferential retaining-groove formed in its edge.

My invention further consists in a non-breakable watch-crystal having a circumferential retaining-groove formed in its edge.

My invention further consists in a watch-crystal having a circumferential retaining-groove formed in its edge in combination with a bezel formed with a crystal-retaining edge and adapted to be sprung for the insertion of its retaining-edge into the groove of the crystal.

In carrying out my invention as shown in Figs. 1 to 4 inclusive, an initially flat non-breakable crystal 2 of celluloid, or kindred transparent substance, is formed with a circumferential retaining-groove 3 in its edge for the reception of a crystal-retaining edge 4 formed in a bezel 5 which may be of any approved construction, provided only that its said edge 4 is adapted to enter the groove 3 in the crystal 2. Preferably the crystal 2, prior to its insertion into the bezel 5, will be strained into concavo-convex form as shown in Figs. 2 and 3 and so held while the bezel 5 is sprung open by downward pressure upon its outer edge 6 sufficiently to stretch and so enlarge its said crystal-retaining edge 4 enough to permit the same to enter the groove 3 of the crystal, or, without resorting to springing the bezel as suggested above, the crystal may be strained and concavo-convexed to such an extent as to sufficiently reduce it in diameter to permit it to be set down into the bezel, the crystal being then allowed to expand under its tension for the seating of its groove 3 over the edge 4, after the same are brought into registration. In either case the crystal will be maintained under stress, by the bezel, in concavo-convex form and its effort to resume its flat initial form will assist its groove in holding it in place. Or the crystal might initially be made in concavo-convex form, or permanently set in such form, in which case it would be held in place entirely by the entrance into its circumferential groove of the crystal-retaining edge of the bezel.

As shown in Fig. 5, the circumferential retaining-groove 3 is V-shaped, located exactly in the center of the edge of the crystal and flanked on either side by corresponding bevels 10, whereby a great economy of time is secured in the insertion of the crystals into their bezels, since the operator does not have to discriminate between the two faces of the crystal as has heretofore been necessary, for the reason that one face of the crystal is a duplicate of the other, due to the fact that the groove is located in the center of the crystal and that the edges of the crystal outlying the groove, are exactly alike. Furthermore, by locating the groove in the center of the edge of the crystal, half of the thickness of the crystal at its edge, is entered into the bezel, giving the refined effect of a thin crystal, whereas the crystals of the prior art have been formed with thin

beveled retaining-edges in the plane of their inner faces. Practically the entire edges of crystals so made and held are exposed outside of their bezels, producing a thick and clumsy effect, even when glass crystals of great purity are employed. This effect of thickness is, of course, heightened when crystals of celluloid or kindred material are used, since the edges of such crystals are somewhat opaque and grayish in appearance.

Moreover, the edge of my improved watch-crystal is necessarily made so thick in order to provide room for its circumferential retaining-groove, that the danger of splintering it in inserting the crystal into the bezel, is negligible, whereas one of the greatest sources of expense and trouble in the use of glass crystals as heretofore made, is that their excessively thin edges splinter when sprung into the rabbets formed for their reception in the bezels heretofore used. Furthermore, I am able, owing to the thickness of the edge of the crystal, to form the retaining-groove with a far higher degree of accuracy than it is possible to grind a thin edge. The grinding of the retaining-edges of glass watch-crystals is largely a manual operation and subject to minute and uncontrollable variations due, in particular, to the fact that the crystals themselves being initially slightly concavo-convex, vary enough in such shape to prevent the grinding of their edges with a high degree of accuracy.

In Figs. 5 and 6 I have shown my invention as applied to a watch-crystal made of glass, the concavo-convex crystal 11 being formed in the center of its edge with a V-shaped groove 12 flanked by bevels 13 and 14. This crystal is not only reversible face for face, but has all of the advantages of permanence of retention in the bezel due to its relatively deep circumferential retaining-groove 13 for the reception of the crystal-retaining edge 4 of the bezel which, in case of the use of a glass crystal, would have to be sprung for the reception of the crystal by pressure upon its outer edge.

I do not limit myself to a watch-crystal made of any one material, or to inserting it into its bezel in any particular way, my invention broadly comprehending the formation of the edge of a watch-crystal with a circumferential retaining-groove for the reception of a crystal-retaining edge forming a feature of the bezel.

I claim:—

1. A watch-crystal having a circumferential retaining-groove formed in the center of its edge.

2. A non-breakable watch crystal having a circumferential retaining-groove formed in the center of its edge and flanked on either side by bevels.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

FREDERICK WEHINGER.

Witnesses:
J. R. PUTNAM,
EARL M. BARNUM.