May 1, 1928. 1,668,336

W. E. PORTER

BEZEL FOR NONBREAKABLE CRYSTALS

Filed June 24, 1926

Fig. 1.

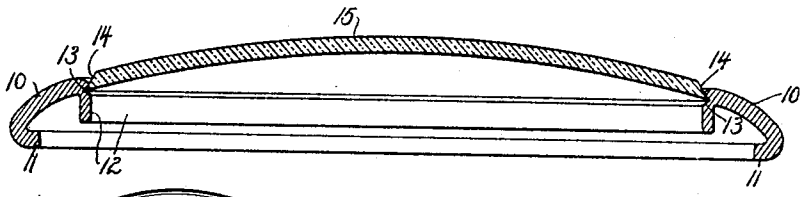


Fig. 2.

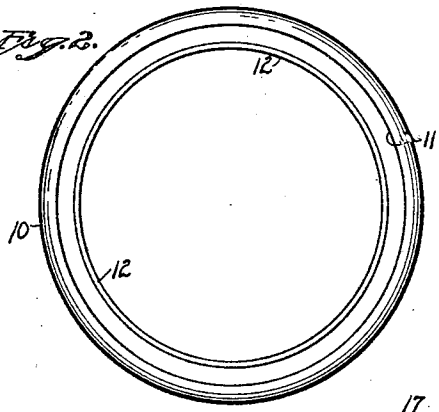


Fig. 3.

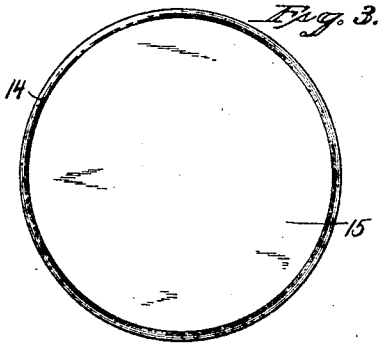


Fig. 4.

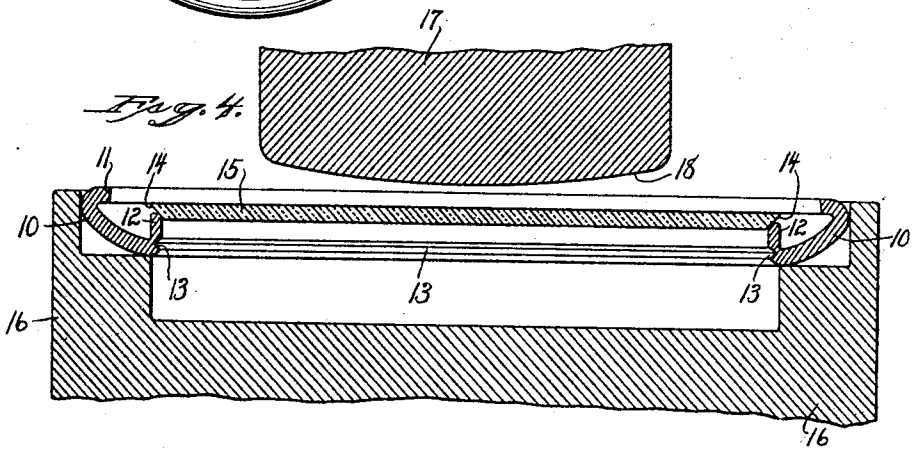
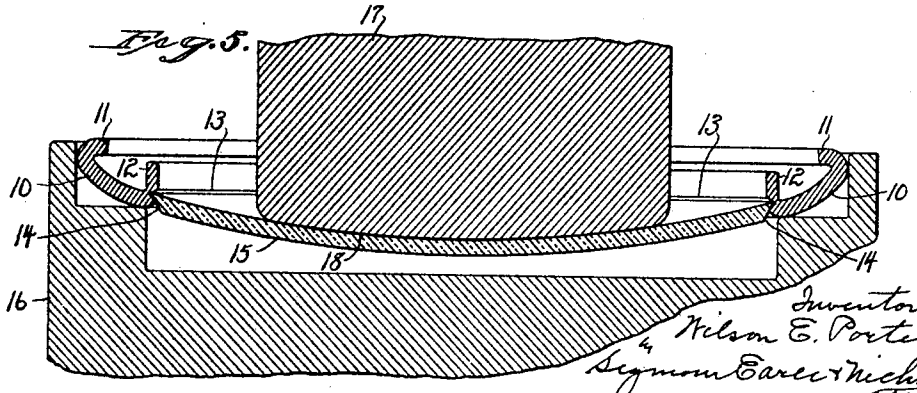


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILSON E. PORTER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE NEW HAVEN CLOCK CO., OF NEW HAVEN, CONNECTICUT, A CORPORATION.

BEZEL FOR NONBREAKABLE CRYSTALS.

Application filed June 24, 1926. Serial No. 118,311.

Fig. 1 is a view in central section of a bezel constructed in accordance with my invention;

Fig. 2 is a detached view in inside elevation of the bezel;

Fig. 3 is a face view of a crystal therefor;

Fig. 4 is a sectional view showing a bezel-holder, a bezel positioned therein, a crystal centered upon the inner face of the bezel, and a plunger, all in the positions due to them preparatory to bowing the crystal and inserting it into the bezel by a rear-to-front movement with respect thereto, and

Fig. 5 is a similar view, showing the position of the several parts at the termination of the crystal-installing operation.

My invention relates to an improved bezel for non-breakable watch-crystals and the like, the object being to reduce to the minimum the cost of installing such crystals, to entirely eliminate the scratching of the outer faces of such crystals in the installing operation, to avoid the virtual contraction of the sight-opening of any given bezel by dispensing with the stop-flange heretofore necessary to provide a seat for crystals inserted into bezels from the front face thereof, as heretofore done, and to improve the appearance of the finished product by eliminating the stop-flange and securing the effect of a mat without employing a mat as such.

With these ends in view, my invention consists in a watch-bezel provided with a rearwardly-turned crystal-installing flange substantially co-incident with its sight-opening and having a crystal-receiving groove formed substantially in front of the rear edge of the said flange.

In carrying out my invention, as herein shown, the bezel 10, which is of the usual crowning form, is provided upon its inner edge with the usual bezel-retaining-flange 11, by means of which it is snapped over and retained upon the usual shoulder formed upon the watch-case for the purpose, the said flange being turned inwardly, parallel with the plane of the bezel. The particular form of the body 10, of the bezel, and of the flange 11 thereof, may be varied as desired. The bezel, whatever its form in other respects, is provided with a crystal-installing-flange or skirt 12 extending inwardly from its outer edge, substantially corresponding in diameter to the sight-opening of the bezel and located at substantially a right angle to the plane thereof, though this flange may be flared at its rear end, if desired. As shown, this flange or skirt is provided at its forward end, where it merges into the body of the bezel, with an annular groove 13, V-shaped in cross-section and designed to receive the beveled edge 14 of a crystal 15 made of transparent resilient material, such as celluloid or any other material having corresponding characteristics. Such crystals are now known in the art and to the trade as "unbreakable" crystals, and will be hereafter so designated in this description and in the claim appended hereto.

The unbreakable crystal 15 is sufficiently larger in its extreme diameter than the extreme diameter of the groove 13 so that, when the crystal has been sprung into domical or concavo-convex form, and its diameter reduced, it will be placed under sufficient tensional compression to thereafter assert itself to retain itself in the groove of the bezel, when snapped into the said groove at the conclusion of the installing operation.

Turning now to the described method of installing such a crystal in such a bezel, the same is placed horizontally by preference in a suitable bezel-holder 16, after which the crystal 15 is centered upon the inner edge of the crystal-installing-flange 12, as shown in Fig. 4, and then subjected by a plunger 17 centered with respect to its center and having its face crowned as at 18, to downward pressure, whereby the crystal is forced from rear to front with respect to the bezel, and thus bowed until it is sufficiently reduced in diameter to permit its bevelled edge 14 to be dragged over the inner edge of the flange 12, after which its said edge will ride over the inner face of the said flange, until it is brought into registration with the annular groove 13, into which the edge of the crystal will then be sharply snapped and seated by the tensional effort of the crystal to resume its initial flat form. Under this method, the crystal 15 is bowed by the plunger 17 moving in opposition to the bezel itself, or the bezel itself might be moved in opposition to a stationary member corresponding to the plunger 17. In either event, the bezel constitutes one of the two elements required for bowing it, and, in either case, the bowing of the crystal is in the same direction

as the movement required to move it into its seat in the bezel.

Under my improved method, it will be observed that the exposed or outer face of the crystal proper is untouched by any tool and so escapes being scratched in the operation of installing it in the bezel, whereas, in the prior art, both faces of the crystal have been engaged during the bowing operation. Moreover, the sight-opening of the bezel is maintained at the maximum, since no stop-flange for the crystal is required, as becomes imperative when the crystal is inserted into the bezel from the front thereof.

Under my invention, by utilizing the bezel itself as one of the two members required for bowing it, I secure ease and rapidity of installation, and hence reduction in the cost of the installing operation. Moreover, the assembling-flange serves as a dial mat and enhances the appearance of the bezel and hence of the watch. While I have described my invention in connection with watch-bezels, it is obvious that it is equally applicable to all bezels designed for instruments having faces or dials requiring the protection of crystals.

I claim:

As a new article of manufacture, a bezel having an inwardly-projecting crystal-installing flange standing at substantially a right angle to its plane, and an annular crystal-retaining groove interposed between the outer face of the bezel and the outer portion of the said flange, larger in diameter than the internal diameter of the said flange and adapted to receive the edge of a crystal when the same is forced from rear to front through the said flange, by which its edge is inwardly deflected for being snapped into the said groove.

In testimony whereof, I have signed this specification.

WILSON E. PORTER.