Feb. 10, 1959 W. KESSI 2,872,777

WATERTIGHT WRIST-WATCH CASE

Filed March 7, 1957

2 Sheets-Sheet 1

Fig. 1

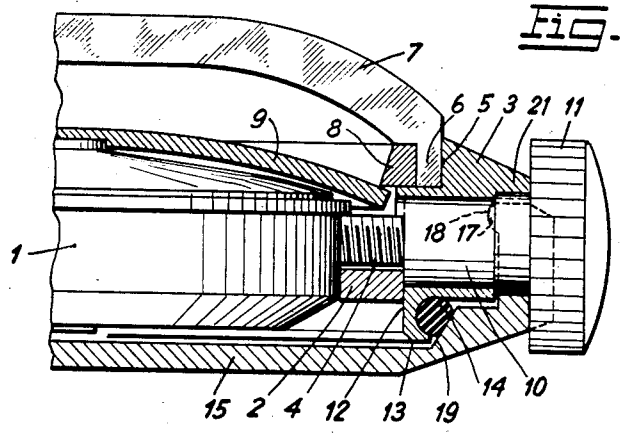


Fig. 2

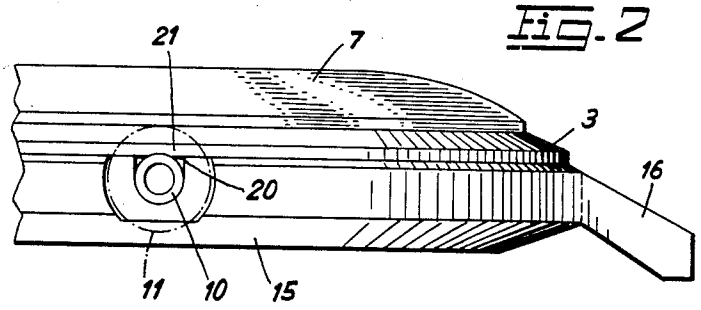
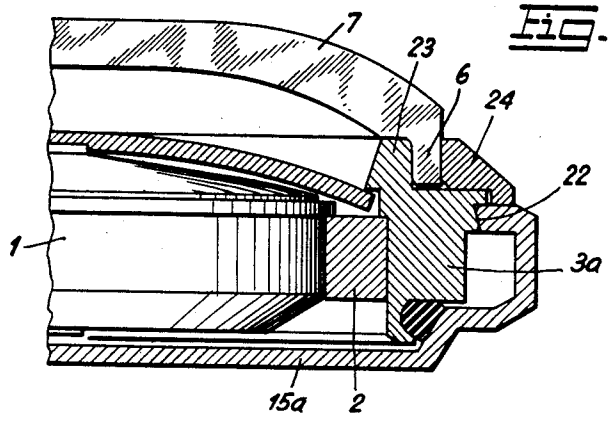


Fig. 3



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Fig. 4

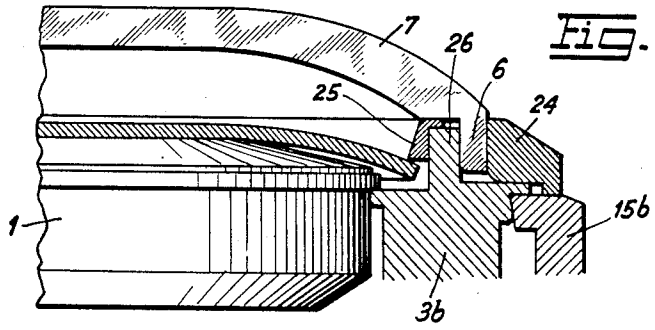


Fig. 5

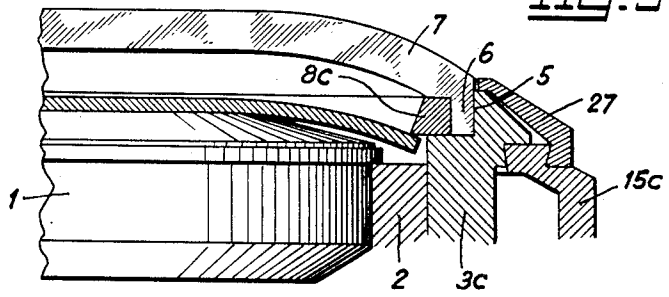
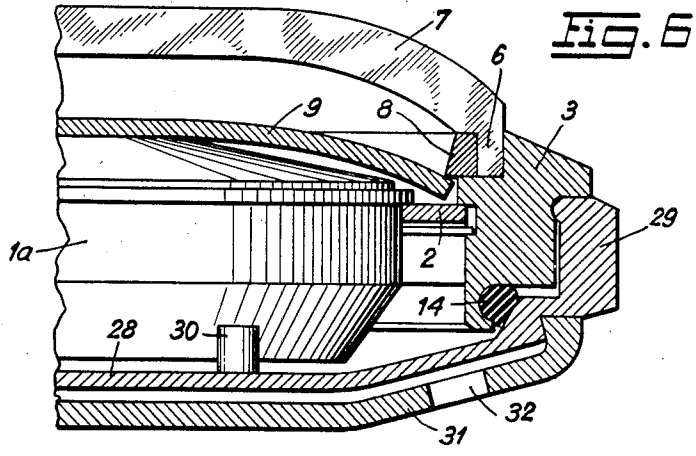


Fig. 6



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WATERTIGHT WRIST-WATCH CASE

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Claims priority, application Switzerland March 10, 1956

1 Claim. (Cl. 58—90)

This invention relates to watertight wrist-watch cases and more particularly to watchcases having no separate bottom.

Watertight wrist-watch cases having no separate bottom are known in the art since several years. In these known watchcases the movement is set in a case part which does not only form the bottom of the watchcase, but which also surrounds the movement as a case-band. The upper portion of the side wall of this watchcase part is provided with a cylindrical rim, and the glass has a peripheral flange set around that rim and tightly pressed thereon by a bezel or by a piece forming the bezel as well as the case-band.

A usual winding and hand setting stem axially held in place by the setting lever screw can, however, not be resorted to with such watchcases, because the stem should be set in place at the moment at which the setting lever screw can no more be approached, i. e. after having introduced the movement in the watchcase part which surrounds it, and which covers in particular the bridge on which the setting lever screw is usually provided. With most of the watchcases without a separate bottom a stem in two pieces is therefore used, although it is more expensive and more delicate to assemble.

During the last few years several new retaining devices for the stem have been proposed to enable using a common winding and hand setting stem with watchcases of the type contemplated above. It is, however, not at all desirable to prepare the watch movement in view of the case into which it will have to be located.

It is therefore an object of the invention to arrange a watertight wrist-watch case having no separate bottom so that it may receive a watch movement with a common winding and hand setting stem axially held in place by a usual setting lever screw. For this purpose the watch movement is located in a ring member surrounding it and forming the bezel of the case, this ring being then set in another watchcase part forming the bottom and the case-band.

It is also an object of the invention to arrange the case of the type and with the particulars mentioned above so that it may receive an alarm wrist-watch.

Still further objects of the invention will appear in the course of the following description.

Some embodiments of the watertight wrist-watch case according to the invention are represented by way of example in the drawings annexed to this specification.

In the drawings:

Fig. 1 is a fragmentary view in transverse section of a wrist-watch embodying the invention, illustrating the mounting of the ring member with the watch movement as an assembly unit snap fitted into the surrounding case;

Fig. 2 is a side view of the embodiment in Fig. 1 viewed in the axial direction of the winding stem;

Figs. 3 to 5 inclusive are transverse sections similar to that of Fig. 1, showing further embodiments of the invention;

Fig. 6 is a similar transverse section of still another embodiment in which the watchcase constitutes an alarm watch case.

The movement 1 of the watch represented in Fig. 1 is surrounded by an enlargement ring 2 fixed by means well known in the art into a case part or mounting ring 3. A groove 5 is provided in the upper face of part 3 to receive a flange 6 of the glass or watch crystal 7. The tightness of the joint between that flange 6 and the cylindrical wall of the groove 5 is ensured by a glass reinforcing ring 8 engaging the dial 9. A sleeve member 10 is tightly set in a cylindrical bore provided radially through the wall of part 3 to form a passage for the winding and hand setting stem 4 of the movement 1. The tightness of the joint between the stem 4 and the sleeve member 10 is ensured by a watertight crown 11 of any type known in the art. A cylindrical rim 12 projects from the lower face of part 3 and an annular groove 13 of semicircular cross-section is provided in rim 12. A waterproof plastic gasket 14 having a circular cross-section is set in the groove 13 so as to be held in place on part 3 of the watchcase.

The part 3 is set in a watchcase part 15 which forms both the bottom and the caseband carrying the lugs 18 of the watchcase for attaching the wrist-watch strap. Both parts 3 and 15 are fixed to one another in the position represented in Fig. 1 by means of an annular rim 17 projecting from the upper portion of the inner wall of part 15 and engaging an annular groove 18 correspondingly formed, which is provided around the part 3.

The tightness of the seal between both parts 3 and 15 is ensured by the gasket 14 surrounding the rim portion 12 and engaging a truncated conical surface 19 formed on part 15.

The gasket 14 is thus located in the watchcase at a level comprised between the watchcase bottom and the sleeve member 10, and the inner watchcase space occupied by the movement 1 is completely insulated from the outside by the case bottom, the gasket 14, part 3 and the crown 11 of the winding stem, and the glass 7 sealed in the ring member 3.

Since the sleeve member 10 is fixed to the watchcase part 3, part 15 thereof is provided with a U-shaped notch 20 visible in Fig. 2. That notch 20, open upwardly, is hidden under a peripheral rim 21 of the watchcase part 3.

Mounting the watch movement in the case described can be achieved in the usual manner by introducing first the movement with the dial, without the stem, into part 3 from the lower side thereof, then introducing the winding and hand setting stem 4 into the sleeve member 10, fixing the stem 4 by means of the setting lever screw (not shown) situated on the bridge side of the movement 1, and by placing the assemblage thus obtained into part 15. Removal of the watch movement from the watchcase may be made by merely engaging, for instance a knife blade, between the rim 21 of part 3 and the upper plane surface of part 15, for prying the assembly open.

Instead of locating the gasket 14 in a groove of part 3, it could also be located in an analogous groove provided in part 15. In this event a truncated conical surface would be provided on the lower face of the inner watchcase part or ring member 3.

The sleeve member 10 could also be dispensed with by providing sealing means between the inner face of the bore of the case part 3, to enable the passage of the winding and hand setting stem, and either a crown or a stem portion.

Since no portion of part 3 extends above the upper faces of the lugs 16, these faces may be machined, and in particular polished much more easily than on watch-

cases in which a bezel portion projects above the wristband attaching lugs, the bezel portion of the caseband thus constituting a hindrance for the tools machining the said upper faces of the lugs.

While the watchcase described may consist of stainless steel or of another cheap metal, such as brass or aluminum, it may, however, also be made of gold as shown in the embodiment represented in Fig. 3.

In this embodiment the movement 1 is located as in Fig. 1, by means of an enlargement ring 2, in an inner case part 3*a* of cheap metal also carrying a pipe for the winding and hand setting stem. The assemblage thus obtained is then also set in an outer case part 15*a* which is made, however, of gold, and which also carries the horns to fix the strap to the case. The parts 3*a* and 15*a* are fixed together by means of dovetailed portions 22. Instead of having the glass flange 6 set into a groove of the inner case part as in Fig. 1, this flange 6 surrounds here a cylindrical shoulder 23 of the inner case part 3*a* and the glass 7 is held in place on that shoulder 23 by means of a golden bezel 24 pressing the glass flange 6 radially on to the shoulder 23.

It will be observed in Fig. 3 that mounting and dismounting the movement with respect to the case may be effected in this embodiment as in the first one.

A visible cheap metal part like the shoulder 23 is actually not desirable in a golden case, even if that part is gold-plated. This drawback can be avoided by covering said shoulder with a golden ring, as shown at 25 in the embodiment represented in Fig. 4. In this latter embodiment the movement 1 is set in its case in a manner which differs somewhat from those described above. This movement 1 is here set in the case part 3*b* from the upper side thereof, and it is fixed therein by means (not shown) well known in the art. The ring 25 is then set over the shoulder 26 of the case inner part 3*b* after the latter has itself been set in the outer case part 15*b*. The glass 7 is then set around the shoulder 26 and the bezel 24 is pressed on the glass flange 6.

Instead of pressing a glass flange on to a shoulder of an inner watchcase part of cheap metal, one could also set this glass flange in a groove of the inner watchcase part, as in the first embodiment, and press this flange against the side wall of said groove by means of a strengthening metal ring. That possibility is shown in Fig. 5. The movement 1 is set in a known manner, by means of an enlargement ring 2, into a case part 3*c* set itself into an outer golden case part 15*c* carrying the horns of the watchcase. Like part 3 of the first embodiment this part 3*c* is also provided with a groove 5 to receive the flange 6 of the glass 7. This glass flange is radially compressed against the cylindrical wall of the groove 5 by a strengthening ring 8*c*. The outside surfaces of part 3*c*, made of cheap metal, and which surround the glass 7, are hidden under a golden bezel 27 engaging the outer watchcase part 15*c* by means of dovetailed surfaces.

As in the examples described above the inner watchcase part 3*c* also carries a sleeve member for the winding and hand setting stem.

The alarm-watchcase represented in Fig. 6 differs from that of Fig. 1 only by the fact that the bottom 28 of that case, which is made integral with the case band 29 carrying the horns (not shown), is much thinner, so that it constitutes a vibrating membrane. A stud 30, against which the alarm hammer weight (not shown) of the movement 1*a* strikes, is fixed to the bottom 28 by an electric soldering point.

That bell bottom is protected by a second bottom 31 snap fitted on to the bell bottom 28, 29. The bottom 31 is provided with openings 32 to enable the audible waves produced by the vibrations of the bell 28 propagate out of the watchcase.

While some embodiments have been described with reference to the drawings, it should be understood that the invention is not limited thereby, since various changes in the shape, sizes, and arrangement of parts could be resorted to without departing from the spirit or sacrificing the advantages of the invention defined by the appended claim.

I claim:

In a watertight case for a wrist-watch movement having a usual winding and hand setting stem, the combination of: a first outer part forming both the case bottom and the caseband and having a notch to enable passage of said stem; a second inner part carrying the watch movement and provided with an opening to enable the passage of said stem, said inner part being set in said outer part and having an annular peripheral rim hiding said notch; a waterproof gasket interposed between said both parts at a level comprised between said opening for the stem and the bottom of said outer part; and a glass tightly fixed to said inner part.

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