

PATENT SPECIFICATION

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(54) A SHAPED WATERPROOF WATCH CASE

(71) I, JEAN-LOUIS KERNEN, a Swiss citizen of 20, Sophie-Mairet — 2300 — La Chaux-de-Fonds, Switzerland, do hereby declare the invention for which I pray that a Patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a coupling device for the back-cover and the body of a shaped (i.e. non-circular external shape) waterproof watch case, in which said body is provided with an opening having a groove in its periphery and said back-cover comprises a forwardly projecting wall provided with at least two outward projections, the dimensions of said wall and of said opening being such that, for at least one angular position of the back-cover relative to the body the back-cover fits freely within the opening, but in at least one other relative angular position they are coupled by engagement of at least a part of said projections in the groove.

It is known to provide as coupling devices between the back-cover and the body of shaped waterproof watch cases, both bayonet fittings and oblique ramp fastenings. The bayonet fitting per se is not particularly suitable for shaped watch cases, because it requires the encasement of coupling elements having circular bearing surfaces. The device with oblique ramps acts by jamming and involves an axial movement for the coupling; this leads to the use of elements with relatively wide bearing surfaces and thereby precludes the manufacture of flat waterproof cases.

There is also known from Swiss patent 488 220 a shaped waterproof watch case, the back-cover of which comprises axial projections provided with catch means engaging with co-acting catch means with which an external body part of the case is provided. The coupling having a certain analogy with a bayonet fitting, is obtained by a rotary movement of the back-cover which is centrally aligned by an internal body element of the case. The practical

realisation of this invention presents several disadvantages among which can be mentioned the following: the necessity of having an internal intermediate body element for guiding the back-cover and of having separate locking means, for example a screw, in order to hinder accidental rotation of said back-cover, the poor watertightness between the back-cover and the internal wall of the external case body, and the difficult and delicate machining of the parts in order to obtain coincidence of the external shapes after assembly and when the back-cover is being fitted.

According to the present invention, there is provided a shaped waterproof watch case provided with a bayonet-type coupling device for coupling the back-cover and the body of the watch case, in which said body is provided with an opening having a groove in its periphery and said back-cover comprises a forwardly projecting wall provided with at least two outward projections, the dimensions of said wall and opening being such that, in at least one angular position of the back-cover relative to the body, the back-cover wall fits freely within said opening, but in at least one other relative angular position, the body and back-cover are coupled by engagement of at least a part of the projections in the groove, said coupled angular position being determined by contact between regions of the back-cover wall and the periphery of the opening with the external shapes of the back-cover and body in coincidence, and the outer surface of the back-cover wall comprising at least one element constituting a locking strong-point which co-operates with the periphery of the opening to lock the back-cover and the body in said coupled angular position, a sealing gasket being disposed between the body and the back-cover surrounding said back-cover wall.

The accompanying drawing illustrates schematically and by way of example one embodiment of watch case according to the invention.

Fig. 1 is a top plan view with the back-

cover and body of a shaped watch case in an uncoupled angular position,

Fig. 2 is a top plan view with the back-cover and body in the coupled angular position,

Fig. 3 is a cross-section view on the lines AA' and BB' of Fig. 2.

The embodiment described by way of example represents a waterproof watch case having a pentagonal external shape and comprising a body 1 and a back-cover 2.

The body 1 comprises an opening 3, having a rectangular shape and being bounded by an internal wall 4. This wall 4 is provided with a continuous groove 5 parallel and close to the lower peripheral end 6 of said case body 1; this end 6 comprises further on its rear or outer face a peripheral groove 7, intended for receiving a waterproof compressible gasket 8.

The back-cover 2 comprises a polygonal annular wall 9, the section of which comprises external rectilinear portions 10 which are inscribed in a shape of the same form and size as that of the opening 3, and having the same central axis as the external form of the back-cover 2; these rectilinear portions 10 are surmounted with projecting ledges 11, which comprise external rectilinear portions 12 similarly inscribed in a shape identical with that of the opening 3 and having the same axis as the external shape of the back-cover 2, but being of a size larger than that of the opening 3 and smaller than that of the groove 5. The annular wall 9 is further provided with external rectilinear portions 13, which are inscribed in a shape identical with that of the opening 3, but of a slightly smaller size than that of said opening, said shape being also offset by an angle α , for example about 15° , with respect to the external shape of the back-cover 2 and to the shapes in which the rectilinear portions 10 and 12 are inscribed. Furthermore, each intersection (for example four) between respective portions 10 and 13 of the wall 9 forms on said wall an edge element 14 constituting a locking strong point.

The general shape of the internal surface of the opening 3, and thereby of the shapes in which the portions 10 and 13 of annular wall 9 and the portions 12 of the ledges 11 are inscribed, may be polygonal, with rounded or sharp angles and with curved or straight sides, elliptical, oval, or of any other shape. The number of ledges 11 is determined by the general shape of the cylindrical or prismatic wall 9, this number is at least 2 for oval or elliptical shapes, and is equal to the number of sides for polygonal shapes.

The general external shape of the watch case, identical or different from that of the internal surfaces of the opening, may also be

polygonal, oval, elliptical, or of any other non-circular shape.

In order to couple the two parts of the shaped watch case, the back-cover 2 is introduced into the case body 1, so that the external shapes of both pieces are relatively offset by the angle α , this corresponding to the disengaged position (see Fig. 1).

The back-cover 2 is then displaced angularly with respect to the body 1, so that the ledges 11 are engaged in the annular groove 5. After having passed over the strong points constituted by the edges 14, the rotary movement is limited by the contact between the rectilinear portions 10 of the wall 9 and the internal wall 4 of the opening 3, which have exactly the same shape and the same size.

In the coupled position, as shown in Figure 2, the external shapes of the back-cover 2 and of the case body 1 coincide.

Locking of the coupling device in its coupled position is obtained by the fact that the edges 14 abut against the internal wall 4 of the hollow 3, as soon as there is any angular displacement of the parts with respect to one another towards the disengaged position.

As shown in Figure 3, the coupling is further made waterproof by compression of the gasket 8 against the frontal surface 15 of the back-cover 2; this waterproof gasket, in another unillustrated embodiment, may be lodged in a peripheral groove of said surface 15 of the back-cover 2.

The back-cover 2 may be further provided with means (not shown) intended to facilitate the rotary movement for locking or unlocking the coupling with the case body 1, that is for passing, in one direction or the other, over the strong points constituted by the edges 14; for example said means could be slots provided near the periphery of said back-cover and which are intended to cooperate with an appropriate spanner.

The coupling device between the back-cover and the body of the waterproof shaped watch case as described above presents, in comparison with the known devices, the following advantages:

- its design, manufacture and use are easy and efficacious;
- it is of minimal size and allows therefore the production of flat and waterproof shaped watch cases;
- the location of the shaped back-cover in coincidence with the shaped case body is easy to obtain;
- it does not require the use of separate locking means (screw, etc.);
- the rotation angle for passing from the free disengaged position over to the locked service position is small; and
- the machining of the parts to be

coupled may be carried out in only one step, this leading to the reduction of the time and costs of manufacture.

WHAT I CLAIM IS:—

5 1. A shaped waterproof watch case provided with a bayonet-type coupling device for coupling the back-cover and the body of the watch case, in which said body is provided with an opening having a groove in
10 its periphery and said back-cover comprises a forwardly projecting wall provided with at least two outward projections, the dimensions of said wall and opening being such that, in at least one angular position of
15 the back-cover relative to the body, the back-cover wall fits freely within said opening, but in at least one other relative angular position, the body and back-cover are coupled by engagement of at least a part
20 of the projections in the groove, said coupled angular position being determined by contact between regions of the back-cover wall and the periphery of the opening with the external shapes of the back-cover
25 and body in coincidence, and the outer surface of the back-cover wall comprising at least one element constituting a locking strong-point which cooperates with the periphery of the opening to lock the back-
30 cover and the body in said coupled angular position, a sealing gasket being disposed between the body and the back-cover, surrounding said back-cover wall.

2. A watch case according to claim 1 in which the periphery of the opening has the same shape as the external shape of the watch case. 35

3. A watch case according to claim 1 in which the periphery of the opening has a different shape from the external shape of the watch case. 40

4. A watch case according to any one of claims 1 to 3 in which said opening is of polygonal shape.

5. A watch case according to any of claims 1 to 3 in which said opening is of oval or elliptical shape. 45

6. A watch case according to any one of claims 1 to 5, in which said sealing gasket is disposed in a peripheral groove in the back-cover. 50

7. A watch case according to claim 6 in which said sealing gasket is disposed in a peripheral groove in the body.

8. A shaped waterproof watch case provided with a coupling device for coupling the back-cover and the body of the watch case constructed and arranged for use substantially as described herein with reference to the accompanying drawing. 55 60

MEWBURN ELLIS & CO,
Chartered Patent Agents,
70—72 Chancery Lane,
London WC2A 1AD.
Agents for the Applicants.



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