

WATCH CASE WITH A SCREWED ON BACK COVER

The present invention relates to a watch case of the type in which the watch glass is fixed in a bezel or flange via a gasket, this bezel or flange being fitted in the middle part of the watch case by screw fixing means.

In a watch case design of this type known from patent application CH 621 908, the flange is fixed to the middle part not only by means of screws but also by a projection of the flange which hooks into a recess in the middle part situated at the opposite side of the watch glass to the side where the screw fixing means are provided. This arrangement has the advantage of enabling a rapid assembly of the flange on the middle part, while guaranteeing that the whole assembly is well sealed. In addition, this design enables watch cases having very different shapes, varying from the conventional round shape to an asymmetrical shape, to be achieved.

As regards the back cover of this watch case, it is driven onto the middle part by means of a snap fitting system.

An object of the present invention is to provide a watch case using a similar arrangement to that disclosed in the aforecited patent, but enabling not only the flange, but also the back cover, to be advantageously screwed to the middle part.

It thus concerns a watch case comprising a middle part, a watch glass mounted in a flange which is fitted to said middle part by a plurality of first screw fixing means, and a back cover also fitted to said middle part, said watch case being characterised in that said back cover is fitted to said middle part by a plurality of second screw fixing means, each pair of first fixing means and second fixing means having a common axis, and in that each of said pairs of first and second fixing means comprise a single stepped passage centred on said common axis.

As a result of these characteristics, it is possible to manufacture the watch case, and in particular its middle part, at low cost, since in order to prepare the middle part, only one passage needs be made by means of a stepped drilling tool, after which the part of the passage which will receive the screw belong to the fixing means having the largest diameter needs only to be threaded. Thus, the screws of the fixing means may be installed one after the other during the assembly of the watch case.

Other features and advantages of the invention will appear during the description which follows, given solely by way of example and made with reference to the drawings in which :

- Figures 1 and 3 show, via partial cross-sectional views, two embodiments of the invention; and
- Figure 2 shows a detail of the watch case before its definitive assembly.

Referring first of all to figures 1 and 2, one sees that the watch case according to the first embodiment of the invention comprises a middle part 1 formed of an external decorative ring 2 and an internal reinforcing ring 3. Decorative ring 2 comprises a peripheral part 2a and a central plate 2b which preferably acts as the watch dial, and an internal cavity 2c which receives reinforcing ring 3. Decorative ring 2 may be made of any appropriate material, but may advantageously be made of wood or a mineral material such as stone, for example.

Reinforcing ring 3 is also formed of a peripheral part 3a and a central plate 3b and it fits into cavity 2c of decorative ring 2 where it can be held in place by an adhesive seal 4. It in turn comprises an internal cavity 3c intended to house the watch movement 5. The latter is held in place by a fitting ring 6, in a conventional manner.

From the side of the opposite face of plate 2b to cavity 2c of ring 2, the latter has an upper cavity 7 into which a flange 8 fits. The latter has a shoulder 9 abutted by a watch glass 10 which is held in the flange by means

of a gasket 11. It will be noted that the upper surface 12 of ring 2 is flush with the upper surface 13 of flange 9 where watch glass 10 projects slightly upwards.

On its lower face, flange 9 has a peripheral groove 14 intended to house a gasket 15 which is compressed against plate 2b during assembly of the watch case.

Likewise, reinforcing ring 3 comprises a groove 16 for housing a gasket 17 which is compressed by a back cover 18 screwed onto the watch case assembly.

It will be noted that in the present embodiment, back cover 18 comprises brackets 19 to enable a wristlet 20 to be attached to the watch case.

According to the invention, the watch case comprises several screw assembly sets 21 enabling all the constituent parts of the watch case which have just been described to be held together.

These assembly sets, which are preferably four or six in number appropriately distributed along the periphery of the watch case, each define only one axis X-X parallel to the central axis of the watch (not visible in the drawings). Each set comprises a stepped passage 22 consisting, from back cover 18 upwards (see figure 2), of :

- a hole 23 with a cylindro-conical inlet 24 made in back cover 18,
- a hole 25 made in reinforcing ring 3 having a first part 25a, threaded with an inside screw thread diameter d_1 , a second part 25b of diameter d_2 which is smaller than diameter d_1 , and a conico-cylindrical connecting part 25c defining a radial support shoulder 26;
- a hole 27, of diameter d_3 , made in plate 1b of middle part 1; and
- a blind hole 28, threaded with an inside screw thread diameter d_4 , arranged in flange 9.

In the present embodiment, passage 22 becomes narrower from back cover 18 towards flange 8, with $d_1 > d_2 > d_4$. Diameter d_3 of hole 27 may be slightly greater than diameter d_2 .

Each assembly set further comprises a first screw 29 of diameter d1 intended to fix back cover 18 onto ring 16, as well as a second screw 30 of diameter d4 for fixing flange 8 onto rings 2 and 3. The head of screw 30 abuts shoulder 26 of connecting part 25c.

The preceding description illustrates the advantages procured by the invention. Indeed, given that fixing screws 29 and 30, respectively for assembling back cover 18 on ring 3 and assembling ring 3 on flange 9, are aligned on the same axis X-X. it is possible to prepare ring 3 in only two steps, one for making hole 25 with the aid of a drill having an external profile which complements the shape of hole 25, and the other for threading, with the aid of an appropriate thread cutter, part 25c of this hole. The manufacturing time and consequently the cost of the watch case are therefore reduced. Further, since back cover 18 is screwed onto reinforcing ring 3, this embodiment enables wristlet 20 to be fixed to back cover 18, which enables particular aesthetic effects to be obtained. Finally, the sealing of the watch case is perfectly guaranteed.

According to an alternative embodiment of the invention which has not been shown in the drawings, it is possible to make the large diameter part of passage 22 open onto surface 13 of flange 8 and to provide a blind hole in back cover 18. This alternative embodiment thus reverses the screw fixing assembly, whose screw is apparent on the upper surface of the watch case. This enables particular aesthetic effects to be obtained, while maintaining the advantages of simplicity of manufacture and low cost brought by the invention.

Figure 3 shows another embodiment of the invention in which, as compared to the embodiment of figures 1 and 2, decorative ring 2 and reinforcing ring 3 have been replaced by a single middle part 31 in which the corresponding part to passage 22 is made. In this case, a dial 32 is mounted on middle part 31 and caught between flange 8 and a radial shoulder 33 of middle part 31.

Furthermore, middle part 31 comprises only a single hole 34 of diameter d_3 which may be made at the same time as hole 25, part 25b of diameter d_2 present in the embodiment of figures 1 and 2, not being necessary in that of figure 3.

CLAIMS

1. Watch case comprising a middle part (1, 2, 3; 31), a watch glass (10) mounted in a flange (8) which is fitted to said middle part (1, 2, 3; 31) by a plurality of first screw fixing means (25b, 26, 27, 28, 30; 26, 30, 34), and a back cover (18) also fitted to said middle part (1, 2, 3; 31), said watch case being characterised in that said back cover (18) is fitted to said middle part (1, 2, 3; 31) by a plurality of second screw fixing means (23, 24, 25a, 29) each pair of first fixing means and second fixing means having a common axis (X-X), and in that each of said pairs of first and second fixing means comprise a single stepped passage (22) centred on said common axis (X-X).

2. Watch case according to claim 1, characterised in that said stepped passage (22) becomes narrower from said back cover (18) towards said flange (8).

3. Watch case according to claim 1, characterised in that said stepped passage becomes narrower from said flange towards said back cover.

4. Watch case according to either of claims 1 or 2, characterised in that in the section (25) through which it traverses said middle part (1, 2, 3; 31), said stepped passage (22) comprises, starting from said back cover (18), a first threaded part (25a) intended to receive a fixing screw (29) from said back cover (18), and a second unthreaded part (25b, 27; 34), intended to receive a fixing screw (30) from said flange (8), the diameter (d1) of said first part (25a) being greater than that (d2, d3) of said second part (25b; 34), and in that between said first and second parts a radial shoulder (26) is provided for supporting the head of the screw (30) of said first screw fixing means (25b, 26, 27, 28, 30; 26, 30, 34).

5. Watch case according to any of the preceding claims, characterised in that said back cover (18) is designed to enable a wristlet (20) to be attached to it.



6. Watch case according to any of the preceding claims, characterised in that said middle part (1) is made in two pieces (2, 3), fitting into each other, one of these pieces being decorative (2) and comprising a central plate (2b) acting as the watch dial.