

# PATENT SPECIFICATION

1,155,337

DRAWINGS ATTACHED.



Date of Application and filing Complete Specification:

22 Nov., 1967.

No. 53210/67.

Application made in Japan (No. 108,573) on 29 Nov., 1966.

Complete Specification Published: 18 June, 1969.

© Crown Copyright 1969.

Index at Acceptance:—G3 TA2C.

Int. Cl.:—G 04 b 37/08.

## COMPLETE SPECIFICATION.

### An Improved Watch Case.

We, KABUSHIKI KAISHA DAINI SEIKOSHA, a Japanese company, of 47, 6-chome, Kam-eido-cho, Koto-ku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to watch cases.

Watch mechanism cases are known in which the case comprises front and back covers which detachably engage each other. These cases, especially when not circular in shape, have the disadvantage that moisture may enter through the joint between the covers, corroding the mechanism and discolouring the dial thereof.

The present invention attempts to overcome the above disadvantages.

Thus the invention provides a watch case including a front cover and a back cover which detachably interengage, and a compressible moisture-resistant packing member which is located by a radially inwardly extending locating surface of a core member which forms part of the back cover and which is adapted to support a watch mechanism, the said packing member being in the assembled condition of the watch case compressed against a portion of the front cover to prevent access of moisture which may penetrate between the covers to the watch mechanism and/or the dial thereof.

The terms "radially inwardly" and "radially outwardly" are to be construed as being relative to an axis perpendicular to the plane of the watch mechanism dial and extending through the centre thereof.

The front cover may have a radially inwardly extending shoulder, the packing member being compressed between this shoulder and the said locating surface.

The back cover may support a member

having a forwardly extending shoulder disposed radially inwardly of, and at a substantial angle to, the locating surface, the packing member being compressed between the said forwardly extending shoulder and the inner side surface of the front cover.

The member having a forwardly extending shoulder may constitute a middle frame adapted to mount the watch mechanism.

The packing member may be substantially laminar in shape, having a substantially centrally disposed aperture adapted to receive the watch mechanism or means supporting such a mechanism.

At least part of the radially outer edge of the packing member may be extended in one direction out of the plane thereof to form a peripheral flange, the flange being compressed between the said locating surface and the shoulder on the front cover, the recess defined radially inwardly of the peripheral flange and behind the front cover being adapted to receive the watch mechanism dial.

The packing member may have a radially outwardly extending groove adapted to receive the winding stem of the watch mechanism.

The core member may be integral with the back cover.

The packing member may comprise rubber or resilient synthetic resin material.

The watch case may be a wrist-watch case.

The invention also includes a watch having a watch case as set forth above.

The invention is illustrated, purely by way of example, in the accompanying drawings, wherein:

Figure 1 is a section through a watch case according to the present invention;

Figure 2 is a perspective view of part of the structure of Figure 1;

[Price 4s. 6d.]

Figures 3 and 4 are alternative forms of the part shown in Figure 2.

Figure 1 shows a wrist-watch case including a front cover 10 and a back cover 11. It will be appreciated that in plan the covers may be circular or rectangular or some other shape depending on the style of the wrist-watch.

The front cover 10 is substantially annular in shape, having an inner side surface 13, and a rear surface 14. A substantially annular step 15 is cut into the front face of the front cover 10 and receives a watch glass 16. The front cover also has a radially inwardly extending, rearwardly facing shoulder 18, the purpose of which is explained later.

The back cover 11 has a backing plate 20, slightly dished in shape to provide a relatively short side wall 21 which has a front surface 22. The back cover 11 further includes a substantially annular core member 23 which is integral with the backing plate 20 having been, for example, soldered thereto. The core member 23 has a radially outer surface 24, a radially inner surface 25 and a front surface 26 and projects forwardly of the backing plate 20.

The front and back covers 10, 11 are dimensioned so as to be detachably interengageable by being pushed towards each other so that the core member 23 slides into the front cover 10. The inner surface 13 of the front cover and the outer surface 24 of the core member are a push fit, so the covers are radially located relative to each other and are held in engagement by the frictional force between the surfaces 13, 24. Relative axial location of the covers is provided by the abutment of the surfaces 14, 22 of the front and back covers respectively.

The interior aperture of the core member 23 defined by the inner surface 25 contains a substantially annular middle frame 28 which has a substantially annular recess 29 in its front surface. A watch mechanism 32 is supported by the middle frame 28, the watch mechanism 32 having a flange 33 which engages the recess 29. The middle frame 28 is mounted on the core member 23 by means of a flange 30. This flange has a radially outwardly facing forwardly extending shoulder 31 which is disposed adjacent and at a substantial angle to the front surface 26 of the core member. The flange 33 of the watch mechanism also is provided with an outwardly facing forwardly extending shoulder 34. The purpose of the shoulders 31 and 34 will be discussed hereinafter.

The watch mechanism has a dial 35 which is located immediately behind the shoulder 18 of the front cover and is axially located thereby. The dial does not extend over the whole surface of the shoulder 18, but leaves

a gap between the periphery of the dial and the inner surface 13 of the front cover.

The watch mechanism also has a winding stem 36 which passes through the watch case and carries radially at its outer end a winding wheel 37.

A moisture-resistant packing member 38, substantially laminar in shape, is disposed upon and located by a radially inwardly extending locating surface constituted by the front surface 26 of the core member 23. The packing member has a substantially centrally disposed aperture 39 (Figure 2) which accommodates the flange 30 of the middle frame 28. The radially outer edge of the packing member is extended forwardly to form a peripheral flange 40 which abuts the rearwardly facing inwardly extending shoulder 18 of the front cover 10 in the gap between the periphery of the dial and the inner side surface 13 of the front cover. A recess 41 is thus defined radially inwardly of the peripheral flange 40 and immediately behind the shoulder 18 to accommodate the dial 35.

The packing member 38 is of resilient material such as, for example, a resilient synthetic resin or rubber, and its axial dimension is such that when the front and back covers 10, 11 are pushed together until the surfaces 14, 22 abut, the packing member 38 is compressed between the front or locating surface 26 of the core member 23 and the shoulder 18. A fluid-tight seal is thus provided which may prevent moisture which may penetrate the case between the surfaces 13, 24 of the covers gaining access to the watch mechanism and/or the dial thereof.

Thus the moisture-resistant packing member 38 is located by a radially inwardly extending locating surface 26 of the back cover, and is compressed against a portion 18 of the front cover.

A radially outwardly extending groove 43 of semicircular section is provided in the packing member 38 to accommodate a tube 45 through which the stem 36 of the watch mechanism passes.

Figure 3 shows an alternative form of the packing member 38. It will be seen that the flange 40 extends along two sides of the member. This embodiment is of use in watch cases the construction of which is such that moisture cannot penetrate other than through regions of the case adjacent the flange 40.

Figure 4 shows another alternative form of the packing member 38 in which a flange 40 is not provided. The member is instead so dimensioned that it is compressed between the shoulder 31 of the middle frame 28 and the inner surface 13 of the front cover 10.

It will be appreciated that if desired the

middle frame 28 could be dispensed with, the watch mechanism then being mounted directly on the core member 23. In that case, if a packing member 38 as shown in Figure 4 is used, it is compressed between the forwardly extending shoulder 34 of the watch mechanism and the inner surface 13 of the front cover. Thus the packing member 38 is still located by the inwardly extending locating surface 26 of the back cover, and is compressed against the inner surface 13 of the front cover.

#### WHAT WE CLAIM IS:—

1. A watch case including a front cover and a back cover which detachably inter-engage, and a compressible moisture-resistant packing member which is located by a radially inwardly extending locating surface of a core member which forms part of the back cover and which is adapted to support a watch mechanism, the said packing member being in the assembled condition of the watch case compressed against a portion of the front cover to prevent access of moisture which may penetrate between the covers to the watch mechanism and/or the dial thereof.
2. A watch case as claimed in claim 1 wherein the front cover has a radially inwardly extending shoulder, the packing member being compressed between this shoulder and the said locating surface.
3. A watch case as claimed in claim 1 wherein the back cover supports a member having a forwardly extending shoulder disposed radially inwardly of, and at a substantial angle to, the locating surface, the packing member being compressed between the said forwardly extending shoulder and the inner side surface of the front cover.
4. A watch case as claimed in claim 3 wherein the member having a forwardly ex-

tending shoulder constitutes a middle frame adapted to mount the watch mechanism.

5. A watch case as claimed in any preceding claim wherein the packing member is substantially laminar in shape, having a substantially centrally disposed aperture adapted to receive the watch mechanism or means supporting such a mechanism.

6. A watch case as claimed in claim 5 when dependent on claim 2 wherein at least part of the radially outer edge of the packing member is extended in one direction out of the plane thereof to form a peripheral flange, the flange being compressed between the said locating surface and the shoulder on the front cover, the recess defined radially inwardly of the peripheral flange and behind the front cover being adapted to receive the watch mechanism dial.

7. A watch case as claimed in any preceding claim wherein the packing member has a radially outwardly extending groove adapted to receive the winding stem of the watch mechanism.

8. A watch case as claimed in any preceding claim wherein the core member is integral with the back cover.

9. A watch case as claimed in any preceding claim wherein the packing member comprises rubber or resilient synthetic resin material.

10. A wrist-watch case as claimed in any preceding claim.

11. A watch case substantially as herein described with reference to and as shown in the accompanying drawings.

12. A watch having a watch case as claimed in any preceding claim.

J. MILLER & CO.,  
Agents for the Applicants,  
Chartered Patent Agents,  
John Kirk House,  
31—32 John Street,  
London, W.C.1.

middle frame 28 could be dispensed with, the watch mechanism then being mounted directly on the core member 23. In that case, if a packing member 38 as shown in Figure 4 is used, it is compressed between the forwardly extending shoulder 34 of the watch mechanism and the inner surface 13 of the front cover. Thus the packing member 38 is still located by the inwardly extending locating surface 26 of the back cover, and is compressed against the inner surface 13 of the front cover.

#### WHAT WE CLAIM IS:—

1. A watch case including a front cover and a back cover which detachably inter-engage, and a compressible moisture-resistant packing member which is located by a radially inwardly extending locating surface of a core member which forms part of the back cover and which is adapted to support a watch mechanism, the said packing member being in the assembled condition of the watch case compressed against a portion of the front cover to prevent access of moisture which may penetrate between the covers to the watch mechanism and/or the dial thereof.

2. A watch case as claimed in claim 1 wherein the front cover has a radially inwardly extending shoulder, the packing member being compressed between this shoulder and the said locating surface.

3. A watch case as claimed in claim 1 wherein the back cover supports a member having a forwardly extending shoulder disposed radially inwardly of, and at a substantial angle to, the locating surface, the packing member being compressed between the said forwardly extending shoulder and the inner side surface of the front cover.

4. A watch case as claimed in claim 3 wherein the member having a forwardly ex-

tending shoulder constitutes a middle frame adapted to mount the watch mechanism.

5. A watch case as claimed in any preceding claim wherein the packing member is substantially laminar in shape, having a substantially centrally disposed aperture adapted to receive the watch mechanism or means supporting such a mechanism.

6. A watch case as claimed in claim 5 when dependent on claim 2 wherein at least part of the radially outer edge of the packing member is extended in one direction out of the plane thereof to form a peripheral flange, the flange being compressed between the said locating surface and the shoulder on the front cover, the recess defined radially inwardly of the peripheral flange and behind the front cover being adapted to receive the watch mechanism dial.

7. A watch case as claimed in any preceding claim wherein the packing member has a radially outwardly extending groove adapted to receive the winding stem of the watch mechanism.

8. A watch case as claimed in any preceding claim wherein the core member is integral with the back cover.

9. A watch case as claimed in any preceding claim wherein the packing member comprises rubber or resilient synthetic resin material.

10. A wrist-watch case as claimed in any preceding claim.

11. A watch case substantially as herein described with reference to and as shown in the accompanying drawings.

12. A watch having a watch case as claimed in any preceding claim.

J. MILLER & CO.,  
Agents for the Applicants,  
Chartered Patent Agents,  
John Kirk House,  
31—32 John Street,  
London, W.C.1.

