

PATENT SPECIFICATION

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(54) WATCH CASE

(71) We, KABUSHIKI KAISHA SUWA SEIKOSHA, a Japanese body corporate, of 3-4, 4-chome, Ginza, Chou-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.

One form of conventional watch case consists of a base member arranged to receive a watch movement and a coating on the external surface thereof. The base member may be made of SUS-base metal (that is to say Japanese Industrial Standard base metal) on which the coating may be sprayed. Many different types of coating material are currently in use, one being made from a mixture of titanium oxide and aluminium oxide. A coating of this material has a Vickers hardness of up to 1,000 and has a beautiful black appearance.

A conventional watch case of the type described above has the disadvantage that during spraying of the coating it is inevitable that pin-holes are formed therein. Consequently water, e.g. sweat or water vapour from the atmosphere, can penetrate the coating and get to the interface between the coating and the base member. Thus electro-chemical corrosion of rusting of the base member will occur and the coating will flake or otherwise be detached from the base member.

To avoid corrosion of the base member, therefore, these pin-holes must be filled by using special techniques. However, even after using such special techniques between 1% and several % of the pin-holes still remain, the percentage remaining depending upon the particular special technique used. Even with this reduced number of pin-holes water can get to the interface between the base member and the coating to cause corrosion.

Some conventional watch cases are made of uncoated SUS-base metal and, even though rust occasionally forms, this rust can be removed to maintain the appearance. However,

when a coating is provided on such a conventional watch case to give it a beautiful black appearance, there is the fatal drawback that the coating will, in time, flake for the reasons discussed above.

According to one aspect of the present invention there is provided a watch case comprising: a base member arranged to receive a movement of a watch, and a coating applied to at least part of the external surface of the base member, the base member being made of titanium or titanium alloy.

The coating may be metallic or, alternatively, non-metallic. In the latter case the coating may be made from a ceramic material. Thus, the coating may be formed from a mixture of titanium oxide and aluminium oxide.

According to a further aspect of the present invention there is provided a watch having a case as recited in either of the preceding paragraphs.

The invention is illustrated, merely by way of example, in the accompanying drawing which shows, in cross-section, part of a watch case according to the present invention.

The watch case shown in the drawing does not have the disadvantages of the conventional watch cases discussed above, has an excellent corrosion resistance and a long-lasting defect free appearance.

The watch case comprises a base member 10 within which is received a watch movement 11, and a coating 12 on the external surface 13 thereof. The base member 10 is made either of pure titanium or titanium alloy. Consequently electro-chemical corrosion or rusting cannot occur as in the case of the conventional watch cases.

Although titanium is well known to have excellent corrosion resistance, if it is used for a watch case, the cost of the watch case is greater than one whose base member is made of SUS-base metal. Furthermore, titanium is difficult to work and for this reason it is unsuitable for watch cases except those of the present invention provided with the coating 12.

Other metals, apart from titanium have good corrosion resistance, such metals being tatalum, zirconium, hafnium and gold. However, these metals are too expensive and difficult to work and so are unsuitable for watch cases.

Any conventional material, such as that discussed hereinbefore, may be used for the coating 12. The coating, therefore, may be made either of metallic material or non-metallic material, for example, ceramic material. The coating may be applied using a spraying technique and may be provided on the whole of the external surface of the base member or on only a part thereof as desired.

the base member being made of titanium or titanium alloy.

2. A watch case as claimed in claim 1 in which the coating is metallic.

3. A watch case as claimed in claim 1 in which the coating is non-metallic.

4. A watch case as claimed in claim 3 in which the coating is made from a ceramic material.

5. A watch case as claimed in claim 4 in which the coating is made from a mixture of titanium oxide and aluminium oxide.

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

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

WHAT WE CLAIM IS:—

1. A watch case comprising: a base member arranged to receive a movement of a watch, and a coating applied to at least part of the external surface of the base member,

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