

PATENT SPECIFICATION

(11) 1 316 569

DRAWINGS ATTACHED

- (21) Application No. 19637/71 (22) Filed 9 June 1971
 (31) Convention Application No. 8600 (32) Filed 9 June 1970 in
 (33) Switzerland (CH)
 (44) Complete Specification published 9 May 1973
 (51) International Classification G04B 37/00, 39/00 // 37/04, 37/08
 (52) Index at acceptance G3T A2B A2C



(54) IMPROVEMENTS IN OR RELATING TO WATCH CASES

(71) We, AMI SCHOLLER, of 3 rue Hugl, Bienne, Switzerland, and EDOUARD BANDELIER, of Neubadrain 10, 4102 Binningen, Switzerland, both Swiss citizens, 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:—

The present invention relates to watch cases in general and has specific reference to tamper-proof watch cases.

The trend towards the putting of increasingly expensive watch movements on the market, notably of quartz-type electronic movements makes it necessary to provide means for preventing persons other than skilled repairers to have access to these movements. It is therefore necessary to enable these qualified repairers to positively ascertain whether or not a watch case has been previously opened by an unqualified and/or unauthorized person. It has already been established that the best solution for exerting this supervision consists in providing an element such that the cases can not be opened unless this element is destroyed.

Thus, a known proposition consisted in utilizing a low melting point material cast on at least one portion of the place where the tool necessary for disassembling the component elements of the case must be inserted, so that the tool could not be inserted unless said material was removed, thus providing a tamper-proof seal enabling a repairer to check whether the case had previously been opened or not. However, even an unskilled person is capable of replacing this material, so that it becomes very difficult to ascertain whether the case was opened or not.

Another known solution applicable to a cup-shaped case bottom consists in assembling the cup-shaped bottom with the glass by means of a ring of relatively soft or ductile material which cannot be removed unless it is destroyed, the replacement of this ring requiring the use of a special tool. However, this solution is only applicable to a particular type

of watch case with a shouldered glass insert. Furthermore, a false frame or bezel must be fitted to conceal the ring.

Under these conditions another solution applicable to watch cases with inserted bottoms or back covers, which meets the desired requirements, must be found, i.e. a device the disassembling of which necessarily involves its partial or complete destruction, and which can be manufactured only with great difficulty by persons other than skilled and qualified repairers.

According to the invention, there is provided a watch case comprising a main body portion and a cover removably fitted on the main body portion, a blind hole in the outer surface of said cover forming gripping means for cooperation with cover removal means, a plug fitted in said blind hole to normally prevent cooperation thereof with the removal means, and a cap of breakable material which is fitted on said plug and which must be at least partially destroyed for removal of the plug from the blind hole, at least a part of said cap being substantially flush with the outer surface of said cover.

The accompanying drawings illustrate on considerably enlarged scales two embodiments of the invention. In the drawings:

Fig. 1 illustrates in fragmentary section a first embodiment;

Fig. 2 is a detail view of the composite plug utilized in the embodiment of Figure 1; and

Fig. 3 illustrates a modified embodiment of the plug of Figure 2.

The watch case illustrated in Fig. 1 comprises a bezel-frame 1 in which are retained, on the one hand, a glass 2 by means of an O-ring 3 engaging a pair of facing grooves 4, 5 formed in the bezel-frame 1 and glass 2 so as to interlock these members while sealing the joint therebetween and, on the other hand, an inner ring 1a. The glass 2 is formed with a bevel 6 for safely preventing the insertion of an extraction tool so that the glass cannot be removed unless a pressure is exerted

on its inner surface. The case 1 is closed by a bottom cover 7 secured to the bezel-frame 1 in the same manner as the glass 2 by means of an O-ring 8.

5 However, this bottom cover 7 can be removed by pulling same outwards, but the only gripping means provided thereon consists of a hole 9 formed radially therein and normally closed by a plug 10 flush with the outer surface of this bottom cover 7, so that to remove this cover it is necessary firstly to free the hole 9 by extracting the plug 10.

10 The plug 10 shown on a larger scale in figure 2 comprises a metal body or piston 11 of a diameter slightly less than the diameter of said hole 9 and formed with an annular groove 12 in which an O-ring 13 is fitted; when compressed, this O-ring 13 will retain the plug 10 in its hole 9. The body 11 further comprises a tapped blind hole 14 in which a screw-threaded pull-out rod can be engaged when it is desired to extract the plug 10 from the hole 9. This tapped hole 14 is covered by a cap 15 for example of mineral glass sealed by cementing or melting on the metal body 11. Under these conditions, it is clear that no access can be had to the tapped hole 14 unless the glass cap 15 is firstly broken. Of course, this cap 15 may consist of any other suitable material, such as organic glass, synthetic glass or other plastics material.

25 To open the watch case the following procedure is adhered to: the cap 15 is firstly broken, and a rod (not shown) having a screw-threaded end corresponding to the tapped hole 14 is introduced into this hole, and the plug 10 is extracted together with the remaining fragments of the glass cap 15. Then, a stud-rod is inserted and the portion thereof which emerges from the hole 9 constitutes a convenient gripping means for opening the bottom or back cover of the watch case. Upon completion of the repair or service work, the back cover is refitted in position and another capped plug is force fitted into the hole 9. Since this plug is flush with the outer surface of back cover 7, it cannot be tampered with and removed without breaking the cap.

30 Figure 3 illustrates a modified embodiment of the plug which consists of a cylindrical metal body 16 formed with a tapped extraction hole 17 covered by a cap 18 of resilient synthetic material. The edge of this socket-shaped cap 18 comprises a shallow bead 19 having a diameter (when outside the hole 9) slightly greater than the diameter of this hole, so that when the plug is force-fitted into the hole 9 the bead 19 is compressed radially inwards. To permit the distortion of the edge of cap 18 the plug body 16 is formed with a corresponding groove 20 into which the bead material is pushed when the cap 18 is fitted home, so that this cap becomes locked to the plug 16 and cannot be pulled out therefrom. To remove the plug

the cap 18 must be torn or stripped so that the necessary extraction rod (not shown) can be screwed into the tapped hole 17.

In order to avoid the manufacture of plugs by unauthorized persons, the cap and/or plug material is preferably of such nature that its origin can be ascertained by analysis. To this end, special alloys may be used, or alternatively reference substances or elements may be added to this material so that the presence or absence of these substances or elements, determined by appropriate methods, may reveal the authenticity of the falsity of the plug. Of course, the tamper-proof means described herein above is applicable not only to watch cases of the type illustrated but also to any watch cases having a separate bottom or back cover, whether this bottom or back cover is secured in the manner set forth hereinabove or press-fitted, screwed or secured by a bayonet system. Furthermore, the tamper-proof means of this invention may be carried out in practice with many modifications and variations without departing from the basic principles of the invention as set forth in the appended claims.

Attention is directed in pursuance of Section 9 of the Patents Act, 1949, to patent No. 1,152,298.

WHAT WE CLAIM IS:—

1. A watch case comprising a main body portion and a cover removably fitted on the main body portion, a blind hole in the outer surface of said cover forming gripping means for cooperation with cover removal means, a plug fitted in said blind hole to normally prevent cooperation thereof with the removal means, and a cap of breakable material which is fitted on said plug and which must be at least partially destroyed for removal of the plug from the blind hole, at least a part of said cap being substantially flush with the outer surface of said cover.

2. A watch case as claimed in claim 1, in which said plug comprises a threaded hole accessible from outside said cover upon breaking said cap.

3. A watch case as claimed in claim 1 or 2, in which said plug comprises an annular groove, an O-ring being compressed in said annular groove by a wall of said blind hole to secure said plug in said hole.

4. A watch case as claimed in claim 1 or 2, in which said plug comprises an annular groove, said cap being socket shaped and made in resilient material, at least a part of said cap being compressed in said annular groove by a wall of said blind hole to secure said plug in said hole.

5. A watch case as claimed in claim 4, in which a skirt forming part of said cap comprises a shallow bead normally projecting from its outer surface.

6. A watch case as claimed in any preceding claim, in which said plug comprises material containing substances capable of being ana-

on its inner surface. The case 1 is closed by a bottom cover 7 secured to the bezel-frame 1 in the same manner as the glass 2 by means of an O-ring 8.

- 5 However, this bottom cover 7 can be removed by pulling same outwards, but the only gripping means provided thereon consists of a hole 9 formed radially therein and normally closed by a plug 10 flush with the outer surface of this bottom cover 7, so that to remove this cover it is necessary firstly to free the hole 9 by extracting the plug 10.

- 10 The plug 10 shown on a larger scale in figure 2 comprises a metal body or piston 11 of a diameter slightly less than the diameter of said hole 9 and formed with an annular groove 12 in which an O-ring 13 is fitted; when compressed, this O-ring 13 will retain the plug 10 in its hole 9. The body 11 further comprises a tapped blind hole 14 in which a screw-threaded pull-out rod can be engaged when it is desired to extract the plug 10 from the hole 9. This tapped hole 14 is covered by a cap 15 for example of mineral glass sealed by cementing or melting on the metal body 11. Under these conditions, it is clear that no access can be had to the tapped hole 14 unless the glass cap 15 is firstly broken. Of course, this cap 15 may consist of any other suitable material, such as organic glass, synthetic glass or other plastics material.

- 20 To open the watch case the following procedure is adhered to: the cap 15 is firstly broken, and a rod (not shown) having a screw-threaded end corresponding to the tapped hole 14 is introduced into this hole, and the plug 10 is extracted together with the remaining fragments of the glass cap 15. Then, a stud-rod is inserted and the portion thereof which emerges from the hole 9 constitutes a convenient gripping means for opening the bottom or back cover of the watch case. Upon completion of the repair or service work, the back cover is refitted in position and another capped plug is force fitted into the hole 9. Since this plug is flush with the outer surface of back cover 7, it cannot be tampered with and removed without breaking the cap.

- 25 Figure 3 illustrates a modified embodiment of the plug which consists of a cylindrical metal body 16 formed with a tapped extraction hole 17 covered by a cap 18 of resilient synthetic material. The edge of this socket-shaped cap 18 comprises a shallow bead 19 having a diameter (when outside the hole 9) slightly greater than the diameter of this hole, so that when the plug is force-fitted into the hole 9 the bead 19 is compressed radially inwards. To permit the distortion of the edge of cap 18 the plug body 16 is formed with a corresponding groove 20 into which the bead material is pushed when the cap 18 is fitted home, so that this cap becomes locked to the plug 16 and cannot be pulled out therefrom. To remove the plug

the cap 18 must be torn or stripped so that the necessary extraction rod (not shown) can be screwed into the tapped hole 17.

In order to avoid the manufacture of plugs by unauthorized persons, the cap and/or plug material is preferably of such nature that its origin can be ascertained by analysis. To this end, special alloys may be used, or alternatively reference substances or elements may be added to this material so that the presence or absence of these substances or elements, determined by appropriate methods, may reveal the authenticity of the falsity of the plug. Of course, the tamper-proof means described herein above is applicable not only to watch cases of the type illustrated but also to any watch cases having a separate bottom or back cover, whether this bottom or back cover is secured in the manner set forth hereinabove or press-fitted, screwed or secured by a bayonet system. Furthermore, the tamper-proof means of this invention may be carried out in practice with many modifications and variations without departing from the basic principles of the invention as set forth in the appended claims.

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1. A watch case comprising a main body portion and a cover removably fitted on the main body portion, a blind hole in the outer surface of said cover forming gripping means for cooperation with cover removal means, a plug fitted in said blind hole to normally prevent cooperation thereof with the removal means, and a cap of breakable material which is fitted on said plug and which must be at least partially destroyed for removal of the plug from the blind hole, at least a part of said cap being substantially flush with the outer surface of said cover.
2. A watch case as claimed in claim 1, in which said plug comprises a threaded hole accessible from outside said cover upon breaking said cap.
3. A watch case as claimed in claim 1 or 2, in which said plug comprises an annular groove, an O-ring being compressed in said annular groove by a wall of said blind hole to secure said plug in said hole.
4. A watch case as claimed in claim 1 or 2, in which said plug comprises an annular groove, said cap being socket shaped and made in resilient material, at least a part of said cap being compressed in said annular groove by a wall of said blind hole to secure said plug in said hole.
5. A watch case as claimed in claim 4, in which a skirt forming part of said cap comprises a shallow bead normally projecting from its outer surface.
6. A watch case as claimed in any preceding claim, in which said plug comprises material containing substances capable of being ana-



lyzed to ascertain the authenticity of the plug.

7. A watch case as claimed in claim 6, in which said cap comprises material containing substances capable of being analyzed to ascertain the authenticity of the cap.

8. A watch case as claimed in any preceding claim, in which a glass is mounted in a bezel formed in said main body portion, said glass

being removable from said bezel of the main body portion only after removal of said cover.

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

P. F. JENNISON,
Chartered Patent Agent,
Agent for Applicants.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1973.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

