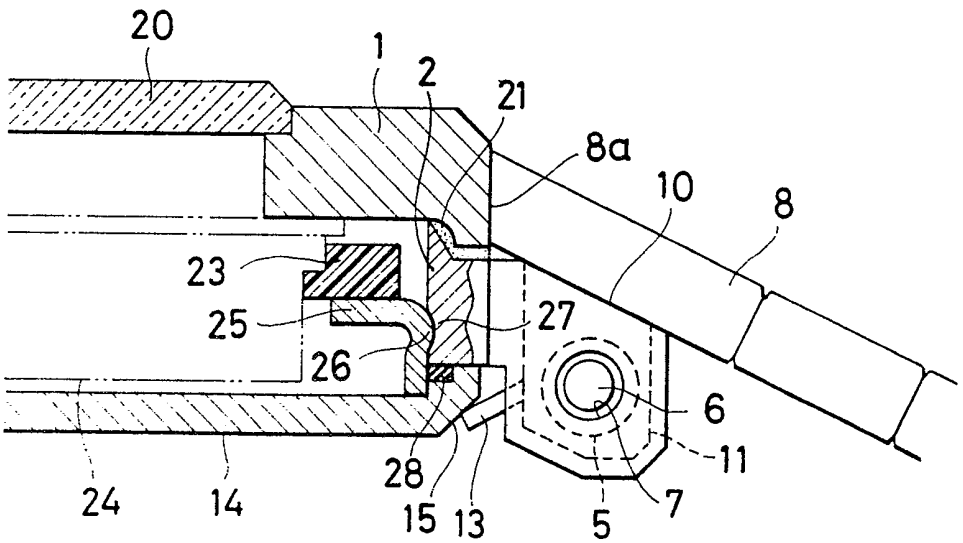
(12) UK Patent Application (19) GB (11) 2 102 992 A

(21) Application No **8219193**
(22) Date of filing **2 Jul 1982**
(30) Priority data
(31) **56/101234**
(32) **9 Jul 1981**
(33) **Japan (JP)**
(43) Application published **9 Feb 1983**
(51) **INT CL³ G04B 37/00 37/16**
(52) Domestic classification **G3T** A2C
(56) Documents cited
GB 1366828
GB 0517807
GB 0448985
GB 0430296
GB 0246719
(58) Field of search **G3T**
(71) Applicant
Citizen Watch Co. Ltd., (Japan), 1—1 Nishishinjuku 2-chome, Shinjuku-ku, Tokyo, Japan
(72) Inventors
Junsuke Kashikie, Shinichi Ogawa
(74) Agents
Michael Burnside and Partners, 2 Serjeants Inn, Fleet Street, London, EC4Y 1HL

(54) Watchcase structure

(57) A watchcase structure is composed of an outer case (1) made of sintered hard alloy and an inner case (2) made of stainless steel having a pair of legs at opposite sides for connecting watch bands. The legs outwardly project from a notch (3) formed in the outer case. The watch band (8) has a connecting member (11) at one end thereof. The watch band (8) is connected to the projected legs by engaging a bar with holes (7) formed in the legs and in the connecting member.

FIG. 2



GB 2 102 992 A

FIG. 1

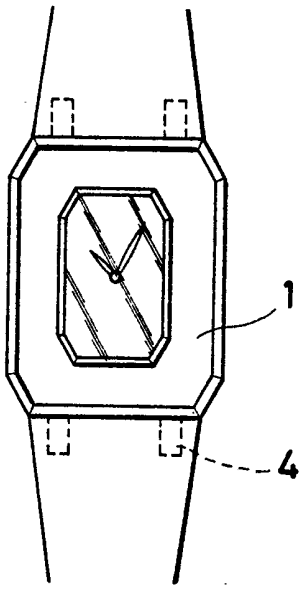


FIG. 3

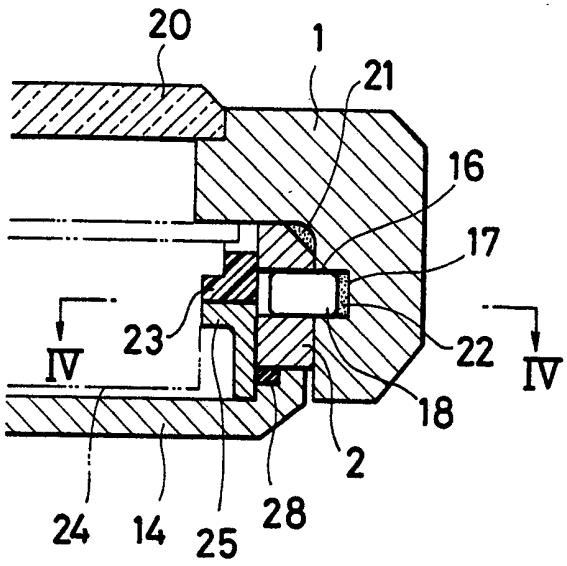
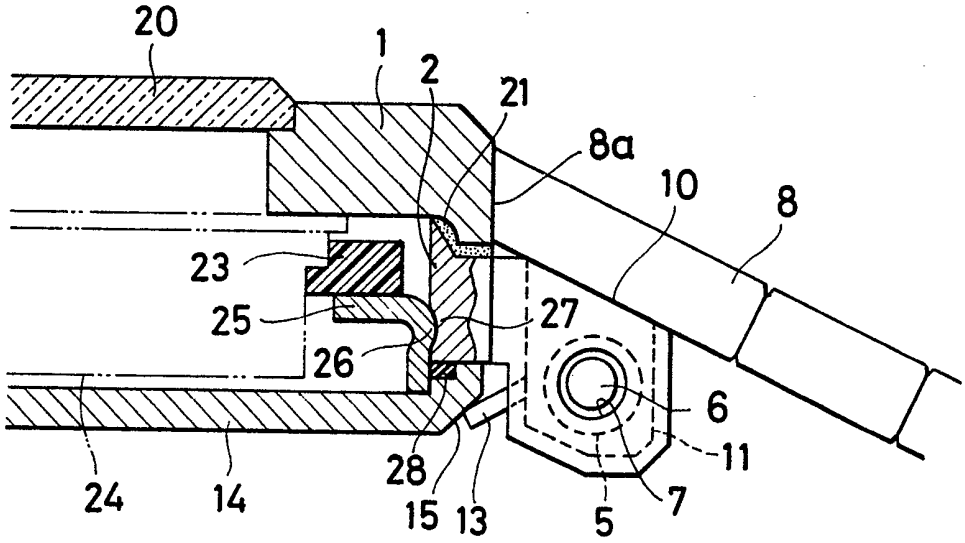


FIG. 2



2102992

FIG. 4

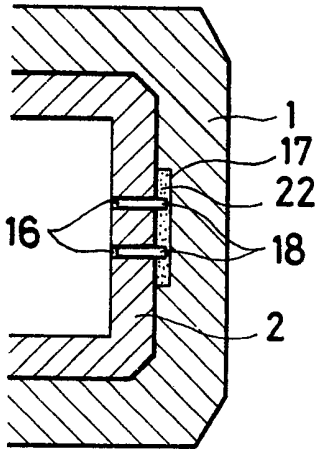


FIG. 5

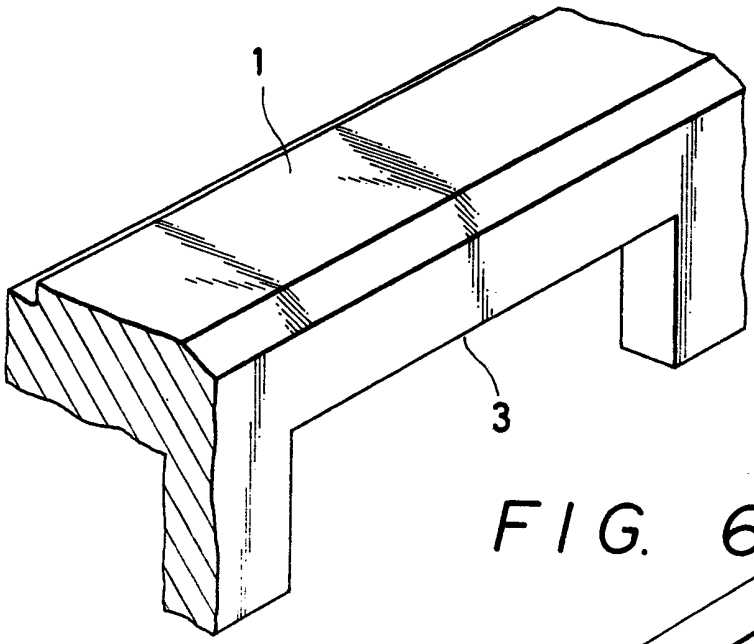
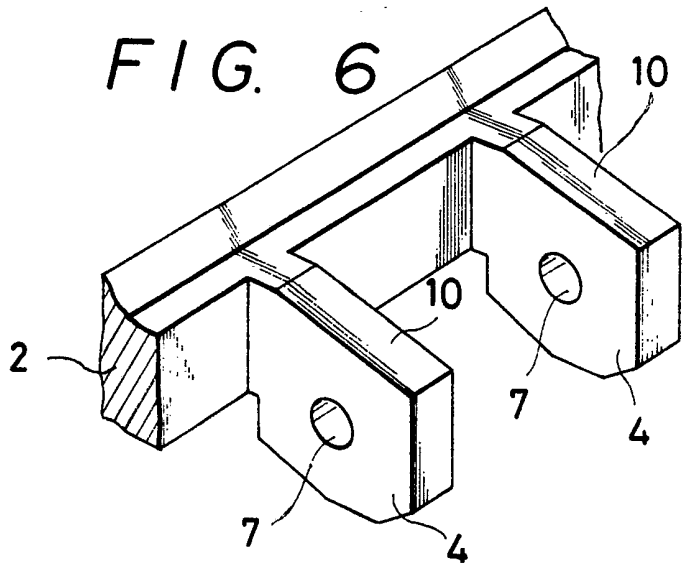
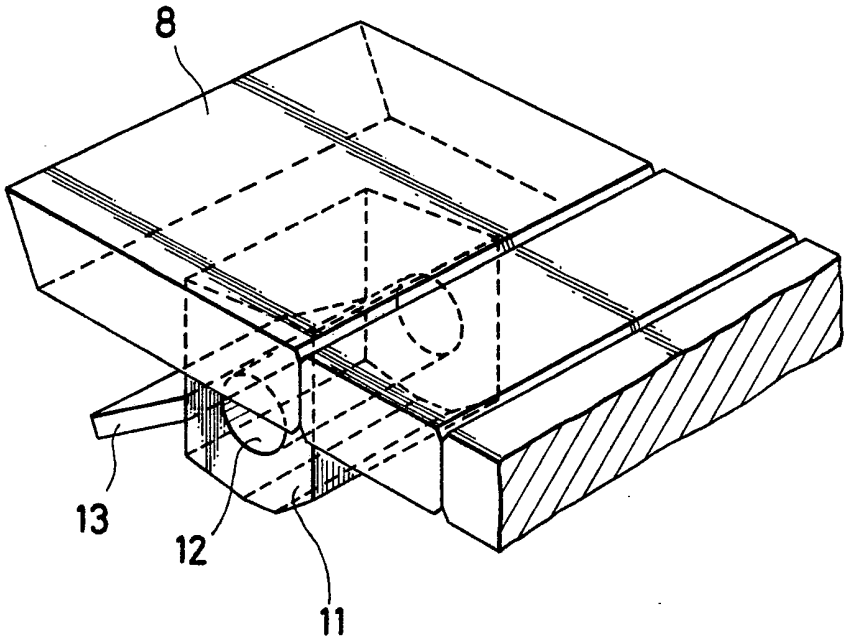


FIG. 6



2102992

FIG. 7



SPECIFICATION

Watchcase structure

The present invention relates to a watchcase structure, and more particularly to a watchcase structure having an outer case made of sintered hard alloy.

The watchcase made of sintered hard alloy has many difficulties in the structure for connecting a watch band thereto. For example, there has been proposed the same structure as a conventional band connecting structure. Namely a band is connected to a pair of legs protruded from the watchcase by a bar having a pair of spring loaded end pins. The spring loaded end pins are adapted to be engaged with holes formed in both legs, respectively. However, it is difficult to bore a hole in the sintered hard alloy and hence manufacturing cost is high. Further, the sintered hard alloy is so brittle that the hole is easily cracked by a shock.

An object of the present invention is to eliminate above described disadvantages in the conventional structure.

According to the present invention, there is provided a watchcase structure comprising an outer case made of sintered hard alloy and an inner case made of stainless steel, which is secured to the inside wall of the outer case. The outer case has an axially extending side wall portion in which downwardly opened notches are formed as watch band connecting sides. A pair of legs are outwardly projected from the inner case at each watch band connecting portion so as to be engaged with the notch of the outer case and outwardly projected from the outer case. A watch band has a connecting member having a hole. The watch band is connected to the legs by engaging a bar with holes formed in legs and in the connecting member.

These and other objects and features of the present invention will become more apparent from the following description with reference to the accompanying drawings.

Fig. 1 is a plan view of a watch having a watchcase structure according to the present invention;

Fig. 2 is a sectional view taken along a line connecting indications of 12 o'clock and 6 o'clock in the watch of Fig. 1;

Fig. 3 is a sectional view taken along a line connecting indications of 3 o'clock and 9 o'clock in the watch of Fig. 1;

Fig. 4 is a sectional view taken along a line IV—IV of Fig. 3;

Fig. 5 is a perspective view showing a part of an outer case;

Fig. 6 is a perspective view showing a part of an inner case; and

Fig. 7 is a perspective view of an end portion of a band.

Referring to the drawings, a watchcase according to the present invention comprises an outer case 1 which is made of sintered hard alloy and an inner case 2. The outer case comprises a radially extending upper portion for engaging a glass 20 therein and an axially extending side wall portion. The inner case 2 comprises a side wall portion which is engaged with the inside wall of the side wall portion of the outer case 1. As shown in Fig. 5, side wall portion of outer case 1 has downwardly opened notches 3 at 12 o'clock and 6 o'clock sides. As shown in Fig. 6, the inner case 2 which is made of brass or stainless steel has a pair of legs 4 at the 12 o'clock and 6 o'clock sides for connecting watch bands. The legs 4 of each side are formed to be engaged with the notch 3 of the outer case 1, and to be outwardly projected from the outer case. Each leg 4 has a hole 7 for engaging bar 5 and a beveled portion 10 formed on the upper side thereof to be engaged with the underside of a metallic watch band 8.

Referring to Fig. 7, the band 8 has a connecting member 11 fixed on the underside thereof by welding so as to be inserted between the legs 4 of the inner case 2. The connecting member 11 has a hole 12 for inserting the bar 5. A resilient pressure plate 13 is secured to a lower portion of the front of the connecting member 11, projecting downwardly. A front end portion of the pressure plate 13 is adapted to engage with a beveled portion 15 of a back 14, so that an end portion 8a of the band may be pressed against the outside wall of the outer case 1 when connected.

Referring to Figs. 3 and 4, a pair of holes 16 are provided in the inner case 2 at 3 o'clock and 9 o'clock sides. Corresponding to the hole 16, a recess 17 is formed in the inside wall of the outer case 1. A pin 18 is adapted to be inserted in each hole 16 and engaged with the recess 17. On the other hand an inner ring 25 is welded to the back 14. The inner ring 25 is to secure the back 14 to the inner case 2, and at the same time, to secure a module 24 to the outer case 1.

To assemble the watchcase, the outer case 1 having the glass 20 is engaged with the inner case 2, projecting the legs 4 from notches 3. The outer case 1 is secured to the inner case 2 by adhesive 21. Then, adhesive 22 is put in the recesses 17 and holes 16. Before adhesive 22 solidifies the pin 18 is inserted in each hole 16 and engaged with the recess 17. Thus, the inner case 2 is securely fixed to the outer case 1. Then the module 24 is put in the outer case 1 together with a plastic holding member 23, thereafter, the inner ring 25 integrated with the back cover 14 is inserted into the inner case 2 interposing a packing 28. Projecting portions 26 formed on the outer side of the inner ring at suitable positions are engaged with corresponding recesses 27 of the inner case 2 so that the back cover 14 is fixed to the inner case 2. Then, the bar 5 is inserted intc the hole 12 of the connecting member 11. Under this condition, the connecting member 11 is inserted between the legs 4 and both end pins 6 are engaged with the holes 7 of the legs 4. Accordingly, the pressure plate 13 is forcibly engaged with the beveled portion 15 of the back 14, so that the end portion 8a of the band is

pressed against the outside wall of the outer case Thus, the band is connected to the outer case 1 without gap. In the assembled state, the outer wall of the inner ring 25 is positioned to cover the end of each pin 18 to prevent the pin 18 from slipping out.

From the foregoing it will be understood that the present invention provides a watchcase structure which is comprised of an outer case made of sintered hard alloy and an inner case made of metal softer than the sintered hard alloy, whereby a band connecting structure having a durable characteristic may be easily manufactured.

Although, in the illustrated embodiment, the inner case 2 and the back 14 are separated, both members may be made by one-piece member.

Claims

1. A watchcase structure comprising:

an outer case made of hard material, said outer case having an axially extending side wall portion in which downwardly opened notches are formed at watch band connecting sides;

a pair of legs outwardly projected from an inner case at each watch band connecting portion so as to be engaged with said notch of said outer case and outwardly projected from the outer case; and

means for connecting a watch band to said legs of said inner case.

2. A watchcase structure according to claim 1 wherein said outer case is made of sintered hard alloy and said inner case is made of metal softer than the sintered hard alloy.

3. A watchcase structure according to Claim 1 or Claim 2 wherein said means comprises a hole formed in each leg, a connecting member secured to the underside of said watch band, so as to be engaged between said pair of legs and having a hole, and a bar engagable with said holes of said pair of legs and hole of said connecting member.

4. A watchcase structure according to any preceding Claim further comprising radially extending holes formed in said inner case, recesses formed in the inner wall of said outer case, and pins engaged with said holes and recesses for securing said inner case to said outer case.

5. A watchcase structure substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1983. Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained