

DESCRIPTION

The patent US-A-3,242,664 discloses a piece of jewellery protected by a hard metal shielding, each external surface part which is, during the wearing, particularly exposed to contact with external objects and comprises a thin shielding element of sintered hard metal, this element covering a corresponding part of a member made out of a material suitable for machining being secured to this member. In this prior attempt, the anchoring of the shielding elements is achieved by welding.

This securing method is, however, not easy. By welding a sintered hard metal thin plate to a steel body member, for instance, the hard metal plate undergoes strong stresses, due to the different coefficients of thermal expansion of the materials involved. Moreover, at the welding temperatures, ranging about 1000°C, it is not possible to give the protecting piece its final appearance before welding. That piece has thus to be finished after welding. It should, however, be noted that these finishing operations, which include polishing, are the most arduous and also the most delicate, so that they cause the most numerous wasters, thereby involving not only the loss of the hard metal piece, but also that of the whole body member already secured thereto. The long sequence of manufacturing operations with that known method has also great delays in delivery as consequence. Finally, if polishing has to be followed by coloring the hard metal piece, the parts of the piece of jewellery, which shall not be colored, have to be masked and then, after coloring, to be uncovered again thus complicating the finishing operations even more while slackening their progress and increasing the risk of wasters.

In practice, one resorted to bulky protecting pieces rather than to thin plates for shielding the pieces of jewellery. Moreover, in order to enable entirely finishing the body members of material suitable for machining and the sintered hard metal protecting pieces every one for itself, gluing these two pieces in one another has been contemplated.

Unfortunately, gluing is not absolutely reliable. Under certain climates, glues undergo a breakup.

For ensuring the required anchoring, mechanical fixing means have also been proposed, even such comprising "latches" made out of a rubber-like material (see patent US-A-3,643,423).

However, that method of securing the two pieces in question to each other requires precise shapes and sizes of both the body member made out of a material suitable for machining and the sintered hard metal protecting piece, thus rendering the manufacture, in particular of the protecting piece, cumbersome, because of the relatively important shrinkage which the latter undergoes during sintering and because it must be given an appropriate shape before sintering, if one will, thereafter avoid expensive machining operations.

Long before using sintered hard metal with pieces of jewellery, those skilled in the art have had the idea of making a body member out of a material which can easily be machined and of protecting that body member by means of a shielding made out of a harder material (see particularly patents CH-A-181,293 and CH-A-236,616). However, that known shielding consisted in a sheet of a material which was still malleable, such as stainless steel, and which can, accordingly, be shaped at will without difficulty, either by folding or

swaging, in order to cover the softer body member of the piece to be protected and to be secured thereto merely by wrapping up the body member or in any other purely mechanical manner (for instance by crimping, pinching and the like).

The means which were used for securing such a shielding to the body member which was to be protected can, however, not be resorted to with a sintered hard metal shielding.

For securing a thin plate onto the body member of a piece of jewellery, mechanical anchoring means operating without an intermediate "latch" are also known in the art (see FR-A-2,264,501). In order to safely retain the dovetailed tenon in the corresponding slide, those known anchoring means, however, require an elastic deformation of the plate, which cannot be expected from a sintered hard metal plate.

The patent US-A-3,837,163 discloses a piece of jewellery or a watchband completely made out of hard metal. However, this solution is not satisfactory as the prior ones since under these conditions one is not free of choosing the shape of the piece and moreover the hard metal is set in contact with the skin.

It is also well known that in the tool manufacturing, the anchoring of a sintered hard metal plate to a body member, for instance of steel, is of common practice. This anchoring is carried out by welding one side face of the hard metal plate to the body member. However, if the plate has relatively large sizes, at least in one direction, it is not welded directly on steel. As already mentioned hereabove, welding occurs at about 1000°C and the hard metal plate would be exposed to breakage risks, because of the stresses appearing therein upon cooling, due to the difference between the coefficients of thermal expansion of steel and sintered

hard metal. Therefore, the hard metal plates of tools are welded to the steel body members thereof while inserting a plate made out of a very malleable material such as copper therebetween.

For the sake of the appearance and also because of the risk of corrosion, the method commonly used with tools for securing a thin plate of sintered hard metal onto a body member being usually of steel, cannot be applied to pieces of jewellery. Furthermore, when the piece of jewellery consists of the casing of a wristwatch whose bezel, i.e. the part surrounding the glass, is mostly exposed to injury, it can be advantageous to form the hard metal protecting piece as bezel and to secure the glass thereto, even to use that piece as closing member of the watch case and consequently make the anchoring of the protecting piece removable and not permanent, the body member being made of a material suitable for machining.

Taking into account the above considerations, it is an object of the present invention to provide a piece of jewellery and in particular a timepiece of the type defined at the beginning of this specification and which avoids all the problems associated with the previous solutions. In particular it is an object of the present invention to secure the piece of hard metal, other than by welding, directly to the piece of jewellery and which thus avoids all the difficulties caused by differences in thermal behaviour of the materials making up the parts of the piece of jewellery.

Thus, according to a general inventive concept which can be put into practice in different ways, the invention proposes to replace the securing means of the prior art which involve welding the protecting piece directly on to the body of the piece of jewellery, by securing means which one can

term "mechanical", which in a surprising manner make it possible to resolve the problems presented by this type of assembly, which, according to the proposal made in the patent US-A-3,242,664 which deals with direct welding, did not give a satisfactory solution. In this connection it should be noted that, taking into account the difficulties caused by the spread of the coefficients of thermal expansion of the materials used in the assembly, the welding method recommended in this earlier document has not been used in actual practice, which can be confirmed by the present applicant, all the more since it is also the owner of this patent.

According to a first embodiment of the invention, it is an object to provide a piece of jewellery protected by a hard metal shielding, each external surface part of which is particularly exposed to contact with external objects during the wearing and comprises a thin protecting piece of sintered hard metal which covers a corresponding part of a body member made out of a material suitable for machining and which is secured to this body member, characterized in that the anchoring of the protecting piece is achieved in a punctual way by at least a plug welded against the side of a protecting piece facing said body member, this plug being retained in a hole provided in the body member made out of a material suitable for machining at a place of said exposed part covered by the protecting piece.

According to a second embodiment of the invention, it is also an object to provide a piece of jewellery protected by a hard metal shielding, each external surface part of which is particularly exposed to contact with external objects during the wearing and comprises a thin protecting piece of sintered hard metal which covers a corresponding

part of a body member made out of a material suitable for machining and which is secured to this body member, characterized in that the anchoring of the protecting piece is achieved in a punctual way, by at least a securing plug having a pin shape comprising a shaft extending through a boring of the protecting piece and retained in a hole of said body member and a ornamental head made integral with said shaft which maintains the protecting piece against the body member made out of a material suitable for machining.

Thus, the shape which it is desired to impart to the piece of jewellery is obtained by conventional methods, effected on the material suitable for machining, of the body of the piece of jewellery. The piece or pieces of hard metal, which have an approximately constant thickness and which are then fixed to the body, no longer modify the shape; they simply increase the volume somewhat. The body made out of material suitable for machining and the shielding of hard metal may each be manufactured entirely on their own and secured the one to the other at the last moment just prior to delivery. Since the securing plugs of the protecting piece only cover a very small part of the surface of the latter, it is not difficult to find a suitable location for them.

Furthermore, in the first embodiment of the invention, they have the advantage of being able to be welded without risk against the surface of the protecting piece adapted to be coated over the body of material suitable for machining.

Since this welding is only punctual and thus affects only a very small part of the protecting piece of hard metal, the risk of rupture caused by internal tension resulting from the welding is completely eliminated. Furthermore, the plug or

plugs welded to the piece of hard metal in the course of its manufacture do not impede any of the finishing operations of this piece since they are carried out on a surface of the latter which is completely hidden.

According to the second embodiment of the invention, the heads of the pins, suitably polished, may create the illusion of being precious stones mounted on the protecting piece of hard metal.

The securing of the pins to the body of the piece of jewellery may be effected in any one of a variety of ways. It may be dismountable or permanent, mechanical or otherwise (welding, bonding). In the case where there is no reason to dismantle the protecting piece, each of the plugs may be permanently held in a hole transversing the body by a rivet from its extremity.

In this connection, it should be noted that it is generally known to assemble parts by riveting. An example of this is given in the work "Technologie générale et de construction" Duroux and Faucard - Editions André Desvignes, 1969, pages 184 to 194. At page 185, the authors set out under a) 3°: "In order to avoid the phenomena of corrosion, rivets and the parts to be riveted must be of the same metal". It is thus the case that according to generally accepted principles, the idea of fixing one piece of hard metal onto a body of another metal by riveting would be immediately rejected by the man skilled in the art. Furthermore, in the first paragraph on page 184 of the work mentioned, it is also set out that the function of rivets is to form a bond between thin parts. Moreover since the piece of hard metal used in the invention is generally thin, it is not the same as that of the body which is destined to receive it (a watch casing form example). This constitutes another reason for the man skilled in

the art to reject rivets for the type of assembly discussed above. Moreover, according to the features discussed above, and in contradistinction to accepted ideas, it is proposed according to the instant invention to use rivets and this has turned out to be entirely satisfactory.

Nevertheless, in certain cases, it is essential that the protecting piece be dismountable. In this case, the securing of the plugs to the body made of material suitable for machining may advantageously be effected by holding them in a corresponding hole in the body of material suitable for machining by screw fixing means fitted in this body transversally to the hole in a manner such that they emerge therein to hold the plug in place. Blocking of this kind is both simple and effective. The securing means thus defined have, in effect, the advantage of being entirely camouflaged but being nevertheless readily accessible.

Thus, since up to now it has not proved possible to mount precious or semi-precious stones in sintered hard metal, the invention permits precisely the association of such ornamental parts to a piece of hard metal, the piece of hard metal being adapted to receive the ornamental element.

The pieces of jewellery which may be protected by means of a sintered hard metal shielding are mainly watch cases, more particularly wristwatches, metallic bracelets, cuff-links, brooches, pendants.

In the case of wristwatch casings, it is essentially the upper surface of the rim which is exposed to contact with foreign bodies. The appearance of the watch depends thereon. It is thus sufficient to shield this surface. When the casing comprises a rim which passes completely round the glass, the protecting piece may itself be this rim and by compressing a sealing member between this rim

and the body of the casing. It thus has the advantage of being able to form the closing member of the casing and consequently to obviate any joint on the bottom, thus imparting the form of a middle-back to the body of material suitable for machining of the casing.

In the situation where the piece of jewellery is a metal bracelet with parts articulated the one about the other it is preferable to employ securing plugs having thin elongated extremities which are bent at a right angle, the part of this piece extending between the extremities being deformable in the longitudinal direction and being welded against a part of the protecting piece.

Even though the welding here affects a much more extended portion of the surface of the protecting piece than in the preceding cases, there is no risk that the difference between the coefficients of thermal expansion of the protection piece and of the part carrying the securing plugs will set up dangerous stresses in view of the deformability of the latter.

Eight embodiments of the piece of jewellery according to the invention are represented, by way of example, in the accompanying drawings.

Fig. 1 is a plan view with some parts broken away of the first embodiment,

Fig. 2 is a cross-sectional view along line II-II of Fig. 1,

Fig. 3 is a plan view of a part of the second embodiments,

Fig. 4 is a partial cross-sectional view of this second embodiment, similar to that of Fig. 2,

Fig. 5 is a plan view on a reduced scale of the third embodiment,

Fig. 6 is a plan view similar to Fig. 5, showing the fourth embodiment,

Figs. 7 and 8 are sectional views similar to Fig. 2, but showing the fifth and the sixth embodiments, respectively,

Fig. 9 is a cross-section of one element of the seventh embodiment,

Fig. 10 is an exploded perspective view of a part of the eighth embodiment, and

Fig. 11 is a cross-section of one element of this eighth embodiment.

The first embodiment of the piece of jewelry according to the invention (Figs. 1 and 2) consists of a wristwatch casing. This casing comprises a cup-shaped bottom section 1 and a combined bezel and case band section 2, both being made out of stainless steel. The watch movement 3 is inserted from the top into section 1 and located in a cylindrical lodging 4 thereof. It is held at the right place therein by a rim 5 of section 1, on which rim 6 of the base plate of the watch movement lies. The dial 7 extends radially outwards, beyond the watch movement periphery into a circular recess 8 of section 1. Section 2 of the watchcase is set around a cylindrical bearing surface 9 of section 1. It carries lugs 10 for the attachment to a watchband. Section 2 lies on a flange 11 of section 1 and it is secured to the latter by means of four screws 12.

The casing described is tightly closed by a flat sapphire glass 13 having bevelled edges 14. The glass 13 is rectangular and located in a slide 15 formed in upward projections 16 of section 2 extending above the lugs 10, therebetween. The two other casing sides are covered by glass 13 which, at those places, extends outwards so as to be flush with the corresponding two side faces of the casing.

The tight closure of the described casing is ensured by an annular gasket 17 which is pressed by the glass 13 against the bottom of a groove formed by the inner cylindrical wall 18 of section 2, the upper face 19 of section 1 and a spacing ring 20. The compressed gasket 17 also prevents the glass 13 from incidentally sliding within slide 15. Therefore, the glass 13 must be inserted into slide 15 before screwing down the screws 12, when closing the watchcase.

It results from the foregoing disclosure and from the drawing that the upper faces 21 of projections 16, operating as bezel, are the sole casing parts which are really exposed to injuries, for instance by scratches, upon coming in contact with rigid foreign bodies when the watch is carried. Accordingly, to save the casing nice appearance, it suffices to protect faces 21.

In the first embodiment that protection is ensured by a sintered hard metal shielding consisting in two plates 22 set on faces 21. Since faces 21 are plane, plates 22 are flat. They have a trapezoidal contour and their two long side edges are bevelled. The manufacture of plates 22 is very easy, because of their very simple shape. The thickness of plates 22 is constant and chosen so that these plates will be able to resist to pressures, especially to impacts, incidentally produced in use by foreign rigid bodies.

The disclosed shielding appears extremely rational, because it is limited to what is really necessary in practice. However, it could not have been warranted without the solution disclosed hereinafter for securing the hard metal plates 22 to

the steel body member of the casing, which, in this embodiment consists of section 2.

In order to secure on faces 21 the hard metal protecting pieces constituted by plates 22, two plugs 23 are welded against the back side of plates 22, which need not be involved in the finishing operations, because it is hidden. Welding of plugs 23 is carried out immediately after sintering plates 22, i.e. before submitting the latter to the finishing operations. The plugs 23 are made out of steel so that they can be made by lathe-turning. Although the surface of contact between plugs 23 and plate 22 is small, the welding disclosed ensures a quite satisfactory attachment of plugs 23.

After the welding disclosed, the visible faces of plates 22 are polished in the conventional manner well known to those skilled in the art. They can also be coated by a colored coating. If plates 22 are made out of sintered tungsten carbide, the coloration can, for instance, be obtained by forming a nitrid coating on the visible faces of plates 22.

Below each face 21 and between lugs 10, cutouts 24 are provided in section 2 and holes 25 are bored in face 21 so as to open in cutouts 24. A recess 26 is formed at the upper end of holes 25 for receiving the larger head portion 27 of plugs 23. In order to avoid any permanent stress in plates 22, the depth of recess 26 can be made a little smaller than the height of portion 27. In that way, it is the head portion 27 which will be pressed against the bottom of recess 26 and not plate 22 against face 21, when the plugs 23 will be entirely set into holes 25.

When the plates 22 have been set in place as disclosed, the ends of plugs 23 are protruding into cutouts 24 of section 2 thus enabling riveting plugs 23 and, accordingly, permanently securing plates 22 to section 2. This riveting does, of course, not produce any stress either in section 2 or in plates 22, which could anyhow injure these pieces. Accordingly, it can be carried out at the last moment, so that section 2 and plates 22 can quite separately be manufactured and entirely finished in the desired manner each one for itself. There is thus no need to proceed with securing the hard metal plates to the steel body member of the casing before undertaking the finishing operations of the plates, thereby risking to lose the whole casing, if either one of the hard metal plates revealed itself improper for sale during polishing.

It clearly appears from the drawing that the shape of the watchcase is entirely determined by sections 1 and 2. Plates 22 merely increase somewhat the height of the casing parts serving as bezel. Since sections 1 and 2 are made out of steel, their manufacturing is easy and quite conventional. Sections 1 and 2 could, of course, also be made out of another material suitable for machining, such as for instance brass, aluminum or even a synthetic material.

For hiding gasket 17 and spacing ring 20 a metallic coating 28 is deposited on the lower face of the glass 13, at the periphery thereof.

The second embodiment (Figs. 3 and 4) only differs from the first one by the presence of precious or semi-precious gems 29 which are located

in openings 30 of the hard metal plates 31. The side walls of openings 30 are slightly undercut in order to hold gems 29 by clamping between the edges of openings 30 and face 21 of projection 16.

The piece of jewellery according to the third embodiment (Fig. 5) also consists of a wrist-watch casing. It comprises a bezel which completely surrounds the glass 32. In that case, the protecting hard metal piece is constituted by a thin frame 33 which wholly covers the bezel of the watchcase. Securing that frame to the body member of the casing made out of a material suitable for machining is ensured by means of four plugs 34 welded against its back face.

The fourth embodiment (Fig. 6) substantially differs from the third one by the fact that shielding is not ensured by a single piece, but by a plurality of square plates 35 which are arranged side by side and individually secured to the watchcase body member of a material suitable for machining, each one by means of a plug 36. Although plugs 36 are cylindrical, like in the preceding embodiments, plates 35 are nevertheless prevented from rotating around their plugs 36, because of their arrangement side by side.

If in other embodiments such a rotation were to be feared, upon fixing a hard metal protecting piece by means of a single plug, that risk could simply be avoided by using a prismatic plug and by inserting the same in a hole having a corresponding shape of the body member of a material suitable for machining.

The fifth embodiment (Fig. 7) is still constituted by a wristwatch casing. It comprises a steel body member 37 which constitutes both the

bottom and the case band and which carries the lugs 38 for the attachment to a watchband, as well as a thin web 39 extending between the lugs located on the same side of the casing. A plurality of recesses 40, 41, 42, 43 are provided in member 37 for accommodation of the watch movement 44, of a watch movement rim 45 ensuring the axial position of the movement within the casing, of the watch dial 46 and a spacing ring 47, and of a tightening O-ring 48, respectively, which encompasses the spacing ring 47 and is thus located in a peripheral groove of the casing.

Movement 44 and dial 46 are held in their recesses by a hard metal bezel 49 carrying a flat glass 50 made out of a tempered silicate or of sapphire. The bezel 49 is also flat and only a little thicker than the glass 50 in order that a recess 51, serving as receptacle for the glass and having a depth at least equal to the glass thickness may be provided therein. The glass 50 can thus be entirely set within the bezel so that its upper corner does not risk to become nicked or jagged upon shocks against foreign rigid bodies. According to the usual practice with hard glasses, as well known to those skilled in the art, a sleeve 52 made out of a material softer than the glass and the bezel is inserted between these two pieces. This sleeve forms a cushion compensating both the manufacturing tolerances of the glass 50 and of its receptacle 51 and the difference between the coefficients of thermal expansion of these two pieces; it also tightens the gap therebetween.

In order to close this casing, bezel 49 is applied on the upper plane face 53 of member 37,

while pressing O-ring 48 in the groove formed by recess 43 and ring 47. The bezel is secured in that position by the heads 54 of four plugs each having a shaft 55 made integral with head 54 and inserted in a hole 56 of member 37 while passing through borings 57 of bezel 49. Locking screws 58, located between the lugs 38 under the webs 39, hold plugs 54, 55 axially in place in a removable manner.

Since the only stresses, which plugs 54, 55 have to support, result from the permanent tensile force produced by the compressed tightening O-ring 48 and from the incidental shearing which may result from transverse impacts, their shaft 55 may have a

1 relatively small diameter, less than one millimeter,
2 especially when the plugs are made out of steel.
3 Their head 54, having a diameter only a little
4 larger than shaft 55, only forms a small projection
5 above the bezel. By judiciously shaping its polished
6 surface, it is even possible to produce the impres-
7 sion that precious stones are set on the bezel 49.
8 By giving the upper portion of bores 57 a conical
9 shape, it is in turn possible to locate the plug
10 head entirely within the bezel.

11 Since the flat bezel 49 has everywhere sub-
12 stantially the same thickness, its manufacture is
13 easy whatever contour it may have. The risk of warp-
14 ing due to the shrinkage in the course of sintering
15 is also small. Since the bezel merely constitutes
16 a thickness increase, but does not modify either
17 the number of faces of the watchcase body member or
18 their orientation, it is clear that the final shape
19 of the watchcase entirely depends on that of member
20 37 which can easily be manufactured in the conven-

tional manner, because it is a body member made out of a material suitable for machining.

Since the disclosed bezel, to its whole extent, lies on member 37, it will safely resist to the strains imparted thereto upon incidentally striking against foreign bodies, as may occur in use. Since it is chiefly the upper surface of the watchcases, which is exposed to such incidental contacts when the watch is normally carried on the arm and since it is principally that surface which is then visible, the hard metal bezel 49, covering the whole upper surface of the casing, constitutes an adequate shielding of the watchcase warranting the perennality of its initial aspect. As regards the two diametrically opposed webs 39 extending between the two watchband attaching lugs on the same side of the casing and which remain uncovered, they do not form part of the very envelope of the watch movement; they rather appear as part of the watchband; especially when the latter is made out of steel.

The sixth embodiment (Fig. 8) differs from the fifth one only by the shape of the upper surface of the casing. Instead of a plane upper face, the member 37a has an inclined upper face 53a. The bezel 49a comprises in this case an inner section 59 having flat side faces and which carries the glass 50 being fully embedded in recess 51. The bezel also comprises an outer section 60 with inclined side faces. The bores 57a provided across section 60 of bezel 49a are perpendicular to the side faces of this bezel section, so that the plug shafts 55 are obliquely inserted into the casing.

The locking screws 58 of the bezel securing plugs remain perpendicular to the shafts 55 thereof.

In this embodiment too, the bezel has an approximately constant thickness and in closed position it lies on member 37a while covering the whole upper face thereof with the exception of webs 39a extending between the two lugs on either side of the watchcase. The part of bezel 49a is accordingly exactly the same as that of bezel 49 in the fifth embodiment.

The piece of jewellery according to the seventh embodiment (Fig. 9) consists of a metallic watchband comprising a row of elements jointed to each other. Fig. 9 is a cross-section of such an element which comprises a body member 61 of stainless steel, but which could just as well be made out of another material suitable for machining. Hinges 62 for jointing the element represented to the neighbouring elements are rigidly fixed to body member 61. They could, however, also be made in one piece therewith.

When the band is carried, it is the upper surface 63 of that element which is exposed to the risk of coming incidentally in contact with foreign rigid bodies. Since that upper surface is substantially the sole visible face of the element represented, it suffices to protect that surface by means of a hard metal shielding. Due to the fact that the surface in question is plane, its protection can be achieved by means of a rectangular hard metal plate 64. Securing that plate 64 to the body member 61 occurs by means of pair of plugs 65 welded against its back side and riveted to body member 61 as disclosed

3. in detail in the case of plates 22 in the first embodiment.

The last embodiment represented in the drawing (Figs. 10 and 11) essentially does only differ from the preceding one by the means ensuring the fixation of the protecting plates 64 to the body members 66 of the watchband elements. In this embodiment the two fixing plugs 67 of a plate 64 are made integral with an elongated rectangular piece 68 of steel, which is welded against the back side of plate 64. Transverse slots 69 alternately extending inwards from the two side edges of piece 68 render this piece easily stretchable in direction of its longitudinal axis, so that it will not produce a dangerous stress of plate 64 upon cooling after welding. The fixing plugs 67 are formed at the ends of piece 68 by bending the end portions of piece 68 at right angle. The plugs obtained thereby are thus flat. They are made resilient by means of a longitudinal slot 70 provided in said plugs from their ends. The two legs formed by that slot move against each other when the corresponding plug is introduced into its hole 71 of body member 66 of the watchband element. Securing plugs 67 to the body members 66 is thus ensured by a resilient clamping. Accordingly, that fixation is removable. In order that the hard metal plates 64 lie on the upper face 72 of body members 66 of the watchband elements, recesses 73 are provided in these upper faces 72 for receiving pieces 68.

Instead of being flat or composed of flat facets, as shown in the eight embodiments disclosed

hereabove, the protecting pieces could also be curved, provided that their thickness be substantially constant and relatively small, so that their shape can be qualified as bidimensional in contradistinction to the three-dimensional shapes encountered heretofore in practice.



CLAIMS

1. Piece of jewellery protected by a hard metal shielding, each external surface part of which is particularly exposed to contact with external objects during the wearing and comprises a thin protecting piece (22; 31; 33; 35; 64) of sintered hard metal which covers a corresponding part of a body member (2; 61; 66) made out of a material suitable for machining and which is secured to the body member, characterized in that the anchoring of the protecting piece (22; 31; 33; 35; 64) is achieved in a punctual way by at least a plug (23; 34; 36; 65; 67) welded against the side of a protecting piece facing said body member (2; 61; 66), this plug being retained in a hole provided in the body member made out of a material suitable for machining at a place of said exposed part covered by the protecting piece.

2. Piece of jewellery protected by a hard metal shielding, each external surface part of which is particularly exposed to contact with external objects during the wearing and comprises a thin protecting piece (49; 49a) of sintered hard metal which covers a corresponding part of a body member (37; 37a) made out of a material suitable for machining and which is secured to the body member, characterized in that the anchoring of the protecting piece (49; 49a) is achieved in a punctual way, by at least a securing plug having a pin shape (54, 55) comprising a shaft (55) extending through a boring (57, 57a) of the protecting piece (49; 49a) and retained in a hole (56; 56a) of said body member (37; 37a) and a ornamental head (54) made integral with said shaft which maintains the protecting piece against the body member (37; 37a) made out of a material suitable for machining.



3. Piece of jewellery according to any one of claims 1 and 2, characterized in that each of said plugs (23, 65) is permanently fixed in a boring (25) extending through said body member (2, 61) by riveting of its end.

4. Piece of jewellery according to any one of claims 1 and 2, characterized in that each of said plugs (54, 55; 67) is removably held in the boring of said body member (37; 37a; 66) made out of a material suitable for machining.

5. Piece of jewellery according to claim 4, characterized in that each of said plugs (54, 55; 67) is held in the corresponding boring of said machinable body member (37; 37a; 66) by a screwed securing member, engaged in this body member transversally to the boring so as to emerge in the latter to tighten the plug.

6. Piece of jewellery according to claims 1 to 4, characterized in that the securing plugs (67) are formed by the end portions bent at right angle of a thin elongated piece (68) and in that the part of said piece extending said end portions is stretchable in longitudinal direction and is welded against a part of the protecting piece (64).

7. Piece of jewellery according to any one of the preceding claims 1 and 3 to 6, characterized in that the protecting piece (31) has at least one opening (30) forming a recess for an ornamental element (29), this element being held against said body member (2) by the edge of said opening.

8. Watertight wrist-watchcase formed by a piece of jewellery according to any one of the preceding claims, characterized in that said protecting piece (49; 49a) is the bezel of this case, the bezel carrying the glass (50) and pressing a watertight gasket (48) between said bezel and said body member (37; 37a) made out of a material suitable for



machining against the top side (53, 53a) of which said gasket is pressed.

9. Band comprising hinged elements, characterized in that each of the hinged elements is formed of a piece according to any one of claims 1 to 7.