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(54) **Item of jewellery and setting therefor**

(57) An item of jewellery (2) is provided which includes a front face (12) and a rear face (14) with an aperture (16) defined between said front and rear face for the location of at least one stone (4) therein. The stone

is attached to the jewellery item via the rear face (14) in such a manner that the top of the stone (4) is substantially flush with or protrudes from the front face (12) of the jewellery item.

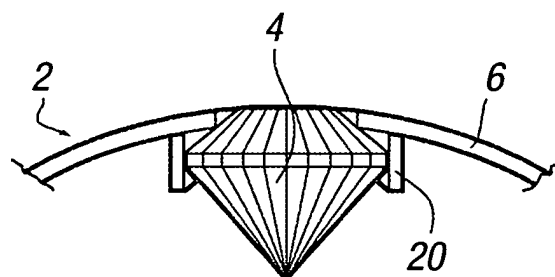


FIG. 2a

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Description

[0001] The present invention relates to an item of jewellery and setting therefor.

[0002] It is known to embed or attach gemstones or other stones in items of jewellery in order to increase the aesthetic appearance of the same. Conventionally, such gemstones or stones are attached to the front of a jewellery item via a claw or collet type of attachment. However, this generally means that the upper surface of the gemstone protrudes outwardly from the front or upper surface of the jewellery item.

[0003] An alternative method of attaching gemstones or stones to an item of jewellery is to provide a claw type of setting 102 which is attached to a rear surface 104 of the item of jewellery 106, as shown in figures 1a-1c. However, a problem with this type of setting is that the gemstone 108 is recessed from the front surface 110 of the item of jewellery, thereby reducing the visibility of the gemstone to a user. In addition, dirt is able to build up in the recessed portion 112 which detracts from the aesthetic appearance and sparkle of the gemstone and, since the gemstone 108 is difficult if not impossible to clean once fitted to the jewellery item, this problem significantly reduces the aesthetic appearance of the jewellery item.

[0004] It is therefore an aim of the present invention to provide an item of jewellery and setting therefor which overcomes the abovementioned problems.

[0005] According to a first aspect of the present invention there is provided an item of jewellery, said item of jewellery including a front face and a rear face, an aperture defined between said front and rear face for the location of at least one stone therein, characterised in that said at least one stone is attached to the jewellery item via the rear face in such a manner that the top of the at least one stone is substantially flush with or protrudes from the front face of the jewellery item.

[0006] The present invention has the advantage that the stone is closer to the upper surface of the jewellery item and is therefore more visible and can be more easily cleaned. Furthermore, the stone is attached in a more robust manner and is less likely to become detached and fall out of the jewellery item.

[0007] Preferably the stone is attached to the jewellery item, at least in part, via setting means. The setting means is typically attached to or integral with the rear face of the jewellery item.

[0008] The setting means preferably undergoes a crimping process to secure the stone to the setting means. The crimping process shapes the setting means to form one or more protrusions which engage against and/or under the stone.

[0009] Preferably at least the rear face surrounding the aperture is provided with a substantially flat seat or edge.

[0010] Preferably the stone is attached to the jewellery item via setting means and the setting means is typ-

ically soldered to the substantially flat seat or edge on the rear surface of the item. In this position, the free edge of the setting means typically protrudes in a direction away from the front surface of the jewellery item.

[0011] Preferably a portion of the stone adjacent the front edge thereof engages with the flat seat or edge of the jewellery item. The stone can also be provided to protrude outwardly of the flat seat on the rear side of the jewellery item.

[0012] Once the setting means is located in a required position on the rear face of the jewellery item, a stone is located in the setting means in a required orientation and is secured in place by securing means.

[0013] Preferably the securing means includes a crimping process.

[0014] In one embodiment the free end of the setting means is substantially planar (i.e. the free edges of the setting means are in substantially the same plane).

[0015] In an alternative embodiment the free end of the setting means can be provided with one or more projections thereon, such as claw type members and/or the like. The projections engage against or under a surface of the stone.

[0016] The setting means in one embodiment is a seating ring but the setting means is typically in the form of a sleeve member (either having continuous or partially continuous side walls) of any required shape with a channel running therethrough. In a preferred embodiment the seating ring is substantially cylindrical in form.

[0017] It will be appreciated that any number of stones can be attached to a jewellery item as required.

[0018] The jewellery item can be formed from any required material in any required shape or size. The present invention could also extend to cover any stone embedded article.

[0019] The item of jewellery can be a pendant, necklace, locket, bracelet, earring, ring, watch and/or the like.

[0020] The rear surface of the item of jewellery or article can be substantially flat or substantially curved.

According to a second aspect of the present invention there is provided a method of setting at least one stone in an item of jewellery, said method including the steps of forming an aperture between a front face and rear face of the jewellery item, attaching at least one stone to the jewellery item via the rear face in such a manner that the top of the at least one stone is substantially flush with or protrudes from the front face of the jewellery item.

[0021] According to a further aspect of the present invention there is provided setting means.

[0022] According to a yet further aspect of the present invention there is provided an ornamental article having at least one stone set therein in accordance with the method of the present invention.

[0023] The advantage of the present invention is that the setting allows the stone to be substantially flush with or protruding from the front surface of the jewellery item, thereby allowing the stone to be polished after it has

been set in the jewellery item, either by the manufacturer or a user. This is not possible with the prior art methods. Alternatively, the stone can be pre-polished prior to setting in the item of jewellery. In addition, the present invention avoids the problem of dirt building up in the recessed area of the ring adjacent the front surface of the stone.

[0024] A further advantage of the present invention is that of the crimping process since it allows stones of the size of one point diamonds to be successfully set in a jewellery item. The seating ring has the advantage that it prevents the stone from escaping sideways. It also acts as a centering device to allow the stone to be set. The crimping method creates a much stronger holding force compared with conventional claw settings. For example, if one claw breaks there is substantial risk that the stone will become disengaged and may get lost.

[0025] It will be appreciated by persons skilled in the art that reference to "stone" could include any precious or semi-precious stone, gem stone, rock, glass and/or a pre-defined shape of any suitable material and/or the like. The stone can be any shape or size. For example, the stone could be substantially cone shaped on a rear surface thereof or could be substantially flat.

[0026] An embodiment of the present invention will now be described with reference to the accompanying figures, wherein

Figure 1a illustrates a side view of a prior art jewellery assembly in which a gemstone is fitted via the rear surface of the item of jewellery;

Figure 1b is a plan view of the gemstone in the prior art setting shown in figure 1a from below with the jewellery item removed;

Figure 1c is a cross sectional view of a prior art claw setting shown in figures 1a and 1b;

Figure 2a illustrates an enlarged side view of an earring with stone assembly according to the present invention;

Figure 2b illustrates a plan view of the stone assembly shown in figure 2a from below with the earring removed;

Figure 3a is a side view of the earring incorporating the stone assembly in figure 2a;

Figure 3b is a front perspective view of the earring in figure 3a;

Figure 3c is a front perspective view of the earring with an aperture punched in a front surface thereof,

Figure 3d illustrates a seating ring according to an embodiment of the present invention;

Figure 3e illustrates a rear perspective view of the earring with the seating ring in figure 3d soldered thereto;

Figure 3f is a side view of a gemstone prior to being set in the earring; and

Figure 3g is a rear perspective view of the earring with the gemstone in figure 3f in position in the seating ring.

[0027] Referring to the figures, there is illustrated an item of jewellery in the form of an earring 2 in which a stone 4 is set into the earring using a setting method according to the present invention.

[0028] The earring 2 in this example is a hinged earring including a first part 6 which is hingedly connected to a second part 8. A fixing rod 10 is integrally formed to first part 6 for location through a piercing in a user's ear or other suitable part of a user's body.

[0029] Earring 2 has a front surface 12 and a rear surface 14. An aperture 16 is punched transversally through the first part 6 of the earring between the front and rear surface thereof, as shown in figure 3c. This step can be undertaken using a toggle press. The earring is held in place over a location former and a working part of the former is brought down onto the front or rear surface 12, 14 to pierce the aperture 16.

[0030] The working part of the tool is typically called a "former" and includes a protruding member or peg of the required cross sectional shape and size which is brought into contact with the earring for forming the aperture. In this example, the aperture is substantially circular in shape.

[0031] The location former punches the earring in such a way that the peripheral edge of the rear surface 14 and the front surface 12 of the earring is provided with a substantially flat seat 18.

[0032] The setting which holds the stone 4 in place on the earring is then attached to the flat seat 18 on the rear surface 14 of the earring. The setting is in the form of a seating ring 20, as shown in figure 3d, and this is placed in position on a solder peg. Solder is located on the seating ring, typically along opposite edges thereof. The solder peg and seating ring are then placed through aperture 16 from the direction of the rear surface 14. The solder peg, seating ring and earring assembly can then be placed in a solder jig for passage through a solder furnace. On removal of the assembly from the solder jig, the solder peg is removed, thereby leaving the seating ring soldered to the flat seat 18 on the rear surface 14 of the earring, as shown in figure 3c.

[0033] With the seating ring in place, the free ends of the seating ring protrude in a direction away from the front surface of the earring. A plurality of cleaning or polishing steps and/or similar can then be undertaken if required to clean the earring of any solder and/or remove any dirt or debris picked up during the soldering process.

For example, once the assembly has been removed from the furnace and the solder peg removed, the earring can be taken through any or any combination of:

- a) A hardening process. The earring is typically located in an oven for about four hours. This acts to harden the surface of the earring. The components are placed in the oven and are saturated by carbon dioxide inside an inert atmosphere.
- b) A dry cut process. The earring can be placed in an OTEC Barrel dry cut apparatus for about two hours. This acts to pre-polish the surface of the earring.
- c) A dry polish process. The earring can be placed in an OTEC Barrel dry polish apparatus for about two hours. This acts to fine polish the surface of the earring.
- d) An ultrasonic process. The earring can be placed in an ultrasonic tank for about seven minutes to clean any deposits of barrel media therefrom.
- e) A drying process. The earring can be placed in drying means at about 70 degrees Centigrade for approximately 10 minutes.
- f) A diamond milling process
- g) A rhodium pen plating process.

[0034] The stone 4 is then set in the seating ring 20 using tweezers or some other means for manipulating the stone into a required position on the earring. The stone is placed through aperture 16 via the rear surface 14 with the front surface 22 of the stone facing in the direction of the front surface of the earring. The front surface 22 of the stone is preferably substantially flush with the front surface 12 of the earring. However, the stone could be placed so as to protrude from the front surface 12 of the earring or recessed from the front surface 12 of the earring.

[0035] The earring and stone are then moved into position on a stone crimping tool and the free edge 26 of the seating ring 20 is crimped into place against the rear surface 24 of stone 4, as shown in figure 2b. This crimping process typically involves the movement of two to eight portions (and possibly more) of the free edge of the seating ring into engagement with the base of the stone. Other engagement processes could be used if required (i.e. Romanset)

[0036] The stone and/or earring can then undergo further cleaning and polishing steps if required. However, the stone could be pre-polished prior to fitting with the earring.

Claims

1. An item of jewellery (2), said item of jewellery (2) including a front face (12) and a rear face (14), an aperture (16) defined between said front and rear face for the location of at least one stone (4) therein,

characterised in that said at least one stone (4) is attached to the jewellery item via the rear face (14) in such a manner that the top of the at least one stone is substantially flush with or protrudes from the front face (12) of the jewellery item.

2. An item of jewellery according to claim 1 **characterised in that** the stone (4) is secured to the jewellery item (2) via setting means.
3. An item of jewellery according to claim 2 **characterised in that** the setting means are attached to or integral with the rear face (14) of the jewellery item (2).
4. An item of jewellery according to claim 3 **characterised in that** the setting means undergoes a crimping process to secure the stone (4) to said setting means.
5. An item of jewellery according to claim 1 **characterised in that** the rear face (14) of the item (2) surrounding the aperture (16) is provided with a substantially flat seat or edge (18).
6. An item of jewellery according to claim 5 **characterised in that** the setting means is soldered to the substantially flat seat or edge (18).
7. An item of jewellery according to claim 5 **characterised in that** a portion of the stone (4) engages with the flat seat or edge (18) defined on the rear face (14) of the item of jewellery (2).
8. An item of jewellery according to claim 2 **characterised in that** the free end of the setting means is provided with one or more projections thereon, the stone engaging against the projections when fitted.
9. An item of jewellery according to claim 2 **characterised in that** the setting means is in the form of a sleeve member or seating ring (20) with a channel defined therethrough.
10. An item of jewellery according to claim 1 **characterised in that** said item is a pendant, necklace, locket, bracelet, earring, ring or watch,
11. A method of setting a stone in an item of jewellery, said method including the steps of forming an aperture (16) between a front face (12) and a rear face (14) of the jewellery item, attaching at least one stone (4) to the jewellery item via the rear face (14) in such a manner that the top of the at least one stone (4) is substantially flush with or protrudes from the front face (12) of the jewellery item.
12. A method according to claim 11 **characterised in**

that with the stone (4) in place on the jewellery item, said item undergoes any or any combination of a hardening process, a dry cut process, a dry polish process an ultrasonic process, a drying process, a diamond milling process or a rhodium pen plating process. 5

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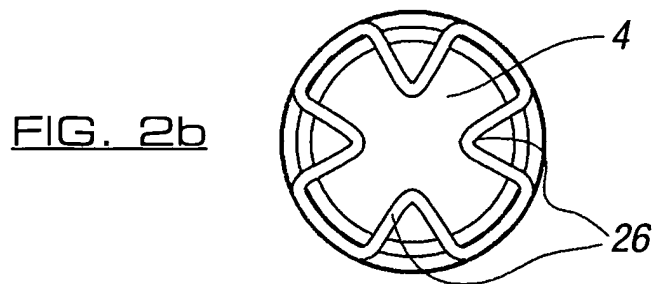
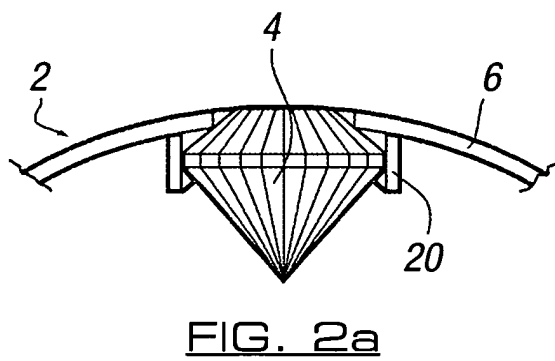
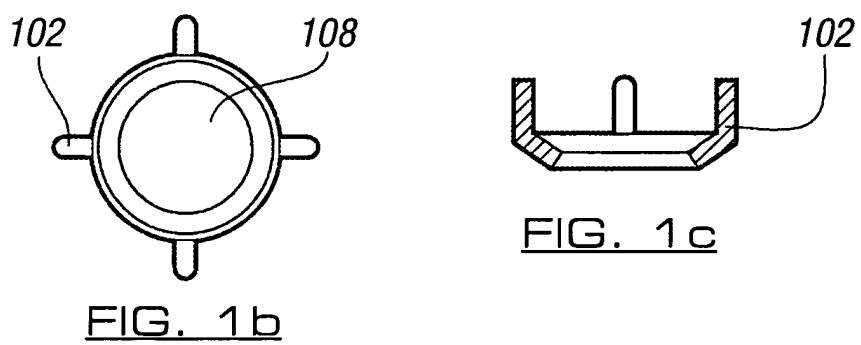
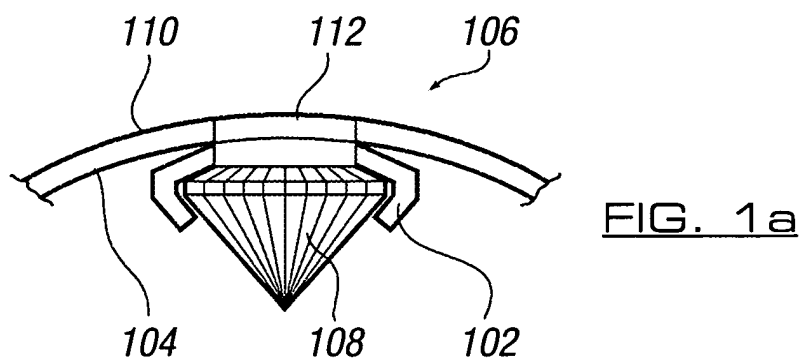
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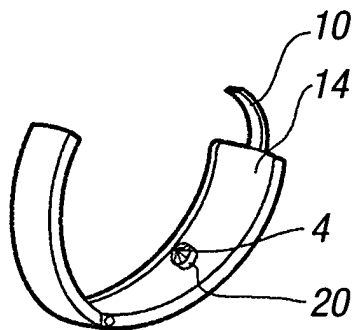
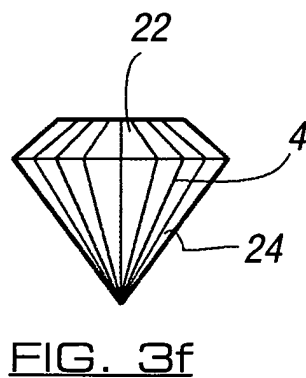
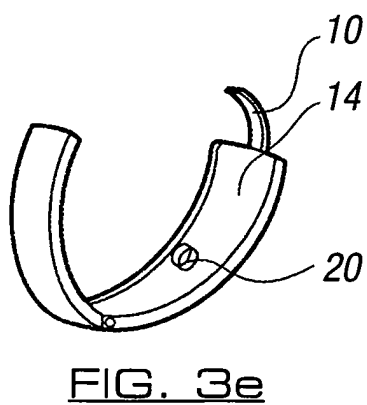
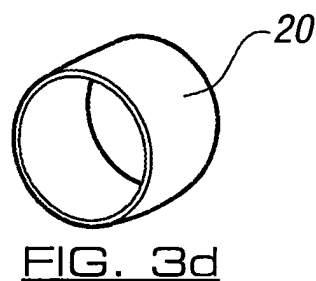
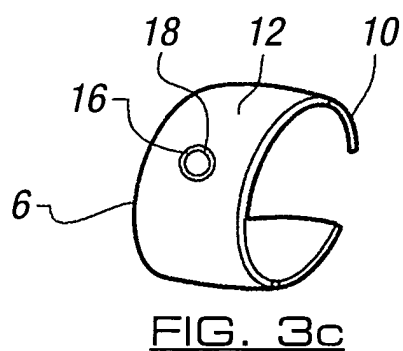
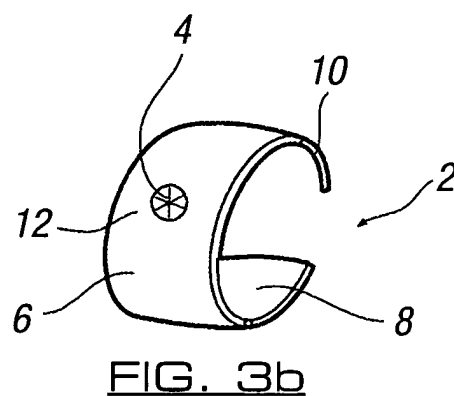
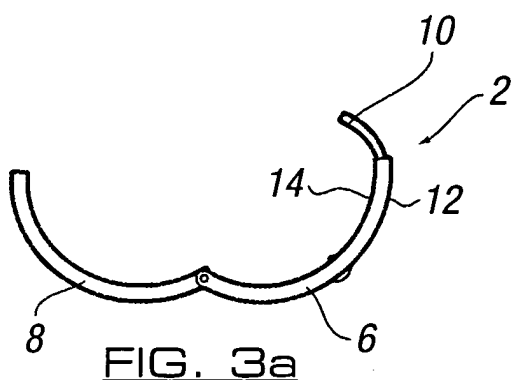
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EUROPEAN SEARCH REPORT

Application Number
EP 05 25 1037

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CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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