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(54) Procedure for manufacturing pieces of jewellery and pieces of jewellery obtained

(57) Applicable to hollow pieces (1) of thin precious metal made by electroforming after melting an interior base model interior and draining it via a breather hole (4), that has previously been galvanised with a coating of the metal. It consists of filling the hollow piece (1) via the breather hole (4) on an opening (2) with one or more resins (3) of different types until it solidifies, then cutting away the breather hole (4) and selectively filing sectors of the surface of the piece (1) and finishing the opening (2) to remove part of the precious metal to reveal the resin (3) inside. The piece thus made has resin (3) inside and on its surface it has sectors with resin (3) together with a thin layer of precious metal.

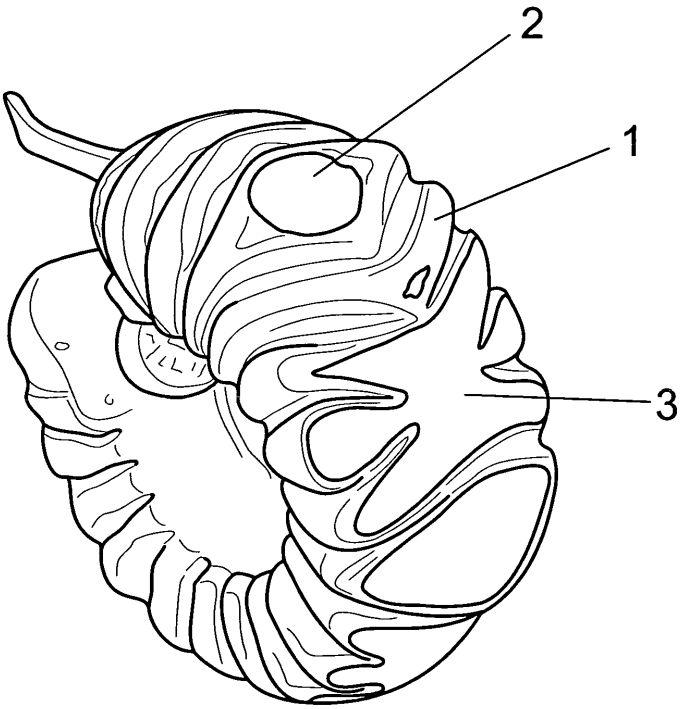

FIG.3

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to an electro-forming process to make pieces of jewellery such as rings, earrings, bracelets, brooches and bracelets, mainly based on noble metals.

[0002] The object of the invention is that the procedure provides a piece that is internally reinforced and of greater weight than a hollow piece but less than that of a solid piece with an attractive finish without the need for surface incrustations or enamelling by using a filler material consisting of a resin that reduces the amount of metal, reducing costs.

[0003] An additional object of the invention is that the piece of jewellery thus obtained combines the noble metal and the ornamentation provided by the resin on its surface.

BACKGROUND OF THE INVENTION

[0004] Invention patent ES 2 159 881 refers to a procedure for setting stones onto the surface of a piece of jewellery made by electro-forming, involving the making of a base containing housings with cavities for the stones. A protective layer is deposited onto this base and then a thin layer of gold; the stones are then set in the above mentioned cavities with the provision for a second, thicker layer of gold via holes in these cavities. Finally, the base and protective layer can be extracted or eliminated.

[0005] Invention patent ES 489 841 is also notable: this refers to a procedure for manufacturing pieces of jewellery in which in an initial phase a solid metal piece is made with the shape of the final piece. A mould of flexible and elastic material is then made from this solid piece. A material with a low melting point, for example, wax, is then placed into this mould to give a solid core and this is then covered by precious metal using electro-plating. The piece is then heated to a temperature above that of the melting point of the core material but below that of the precious metal until the core, in liquid state, is expelled via the opening through which it was introduced; this opening is then soldered closed.

DESCRIPTION OF THE INVENTION

[0006] The present invention refers to a procedure for manufacturing pieces of jewellery that, using a series of stages that are common to other procedures, differs significantly in the fact that it uses a transparent or coloured resin which is injected into the piece and integrates with the layer of precious metal, forming its ornamentation without the need to set stones.

[0007] The procedure is performed according to different steps that start with the initial forming of a solid piece of any material with a flat or ornamentally embossed surface. A mould of flexible and elastic material is then made whose internal shape and dimensions match those of the piece made in the initial stage. This mould is used for manufacturing, using techniques known as electro-forming, of a base series of models based on an alloy of metals with a low melting point.

[0008] The base model is coated entirely by a galvanic procedure with one or more layers of precious metal until it has the required thickness. The base model is then heated until the metal alloy melts and flows out as a liquid through a breather hole, leaving a hollow piece comprising the precious metal only.

[0009] From these techniques, common to other technical procedures, the procedure in this invention stands out fundamentally because after this phase, the entire interior of the hollow piece is filled or injected with a coloured or transparent resin through the breather hole and allowed to set solid.

[0010] When the inside of the hollow piece is filled through the breather hole, this breather hole contains additional resin such that if the resin already injected into the piece contracts more than expected, this additional resin ensures that the piece is fully filled with resin, preventing unwanted pores. The breather hole is then cut away.

[0011] The surface layer of the piece is then filed or polished in the areas of interest, depending on the ornamentation required to expose the resin. The gold removed from these parts is recovered for other uses.

[0012] Once the breather hole through which the metal alloy was drained and the resin injected has been removed, an opening remains that can be filed until the resin is exposed as part of the ornamentation or can be plugged.

[0013] Resins of different colours could be injected at random into a piece so that one piece could have different decorations according to the different combinations of colours.

[0014] It is also possible to use as many breather holes as needed for the filling and remove them once the resin has hardened inside the piece.

[0015] The preferred location for the breather hole would be in at least one of the sections of the piece where the precious metal is to be filed to leave the resin decoration, thus also removing any imperfections at this point.

[0016] The breather hole must be perpendicular to the piece to allow it to be filled completely with resin using gravity.

[0017] This would provide pieces of jewellery consisting of a thin layer or gold with resin decorations, without the need for setting stones.

[0018] This procedure provides a series of advantages:

- The piece of jewellery is filled with resin, providing it with internal reinforcement.
- The consistency of the piece of jewellery prevents the appearance of dents that appear in hollow pieces when they are struck, due to their thinness.

- A very thin layer of precious metal is obtained, thus lowering costs.
- It is heavier than a hollow piece and lighter than a solid piece made entirely of precious metal.
- There is no need to set stones of any type since the resin itself provides a similar and attractive finish.
- There is no need to apply surface enamels since the resin on the surface is itself decorative.
- Pieces of jewellery can be made with different decorations or exclusive pieces.

DESCRIPTION OF THE DRAWINGS

[0019] To complement this description and to aid the better understanding of the properties of the invention, according to a preferred example of its manufacture, this description is accompanied by a series of drawings to illustrate, but not limit, it, as follows:

Figure 1. Shows a perspective view of a plain ring showing the breather hole through which the resin is injected.

Figure 2. Shows a perspective view of the plain ring with the breather hole removed and showing the injected resin protruding from the ring.

Figure 3. Shows a perspective view of an earring with relief decoration, showing the sectors that have been polished where the resin protrudes and showing the opening covered with resin after the breather hole has been removed.

PREFERRED EMBODIMENT OF THE INVENTION

[0020] The procedure for manufacturing pieces of jewellery as proposed by this invention can be applied to a hollow piece (1) of thin hollow precious metal made normally by electro-forming and then emptied by melting an interior base model and pouring it out through a breather hole (4), a base model which has previously been galvanised with the precious metal that makes up the hollow piece (1).

[0021] The phases that make up this procedure are:

- Filling the hollow piece (1) via the breather hole (4), on an opening (2) with a resin (3) that can be coloured or transparent.
- Allowing the resin (3) to set inside the hollow piece (1) until it solidifies.
- Removal or cutting away of the breather hole (4) to reveal the opening (2).
- Selective filing of areas of the surface of the piece (1) to remove part of the precious metal to reveal the resin (3) inside.
- The finishing of the opening (2) consists of filing it to remove part of the precious metal until the resin (3) is revealed and, optionally, an object such as the clasp of an earring, can be put in its place.

[0022] Figure 3 shows that the opening (2) of the earring, once the breather hole (4) has been removed, is covered by the resin (3), giving it a finish similar to that of the contiguous sectors that are already decorated with the resin (3).

[0023] It would be possible during the filling phase of the hollow piece (1) to inject resins of different types and colours via the opening (2), thus obtaining different final decorations from the same hollow piece (1).

[0024] It is also possible to use as many breather holes (4) as required for filling the hollow piece and remove them once the resin (3) has set inside the piece.

[0025] The preferred location of the breather hole (4) would be in at least one of the sectors of the piece where the precious metal is to be filed to decorate it with resin (3) and it must be perpendicular to that sector of the piece to fill the hollow piece with resin (3) by gravity.

[0026] The piece of jewellery made according to the described procedure will be filled with resin (3) and its visible exterior surface will have sectors with resin (3) together with others with a thin layer of precious metal.

Claims

1. Procedure for manufacturing pieces of jewellery based on a hollow piece (1) of thin precious metal obtained normally using electro-forming after emptying a base model from inside it by melting and draining through at least one breather hole (4) located on at least one opening (2), a base model that has previously been galvanised with a coating of the precious metal that forms the hollow piece, **characterised in that** it comprises the following steps:

   - filling the hollow piece (1) through the breather hole(s) (4) on the opening(s) (2) with at least one type of resin (3),
   - allowing the resin (3) to set inside the hollow piece (1) until it solidifies,
   - removing or cutting away the breather hole(s) (4) to reveal the opening(s) (2),
   - the selective filing of sectors of the surface of the piece (1) to remove part of the precious metal to reveal the resin (3) inside,
   - finishing by covering the opening(s) (2).

2. Procedure for manufacturing pieces of jewellery as in claim 1 **characterised in that** in the phase of filling the hollow piece (1), resins of different types and colours are injected through the breather hole(s) (4).

3. Procedure for manufacturing pieces of jewellery as

in claim 1 **characterised in that** the phase of finishing the opening (2) consists of filing or polishing to remove part of the precious metal to reveal the resin (3) inside.

4. Procedure for manufacturing pieces of jewellery as in claims 1 and 3 **characterised in that** in the phase of finishing the opening (2) it is covered with a clasp.

5. Piece of jewellery made according to the procedure described in the previous claims **characterised in that** it has resin (3) inside and its surface includes sectors with resin (3) together with a thin layer of precious metal.

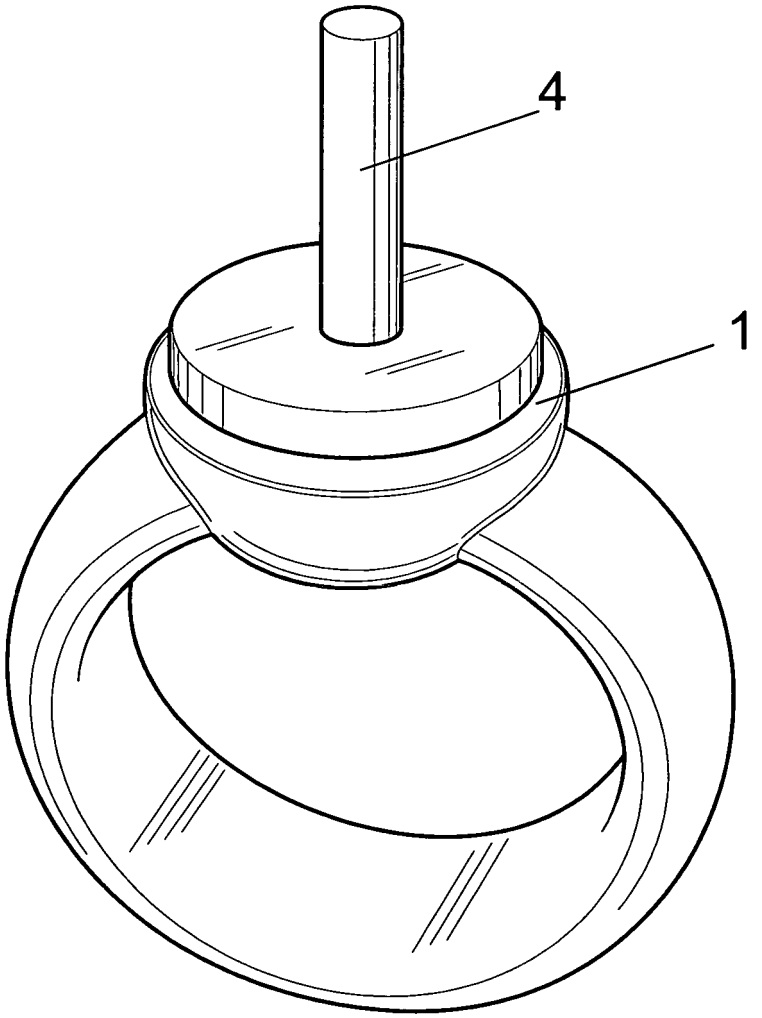

FIG.1

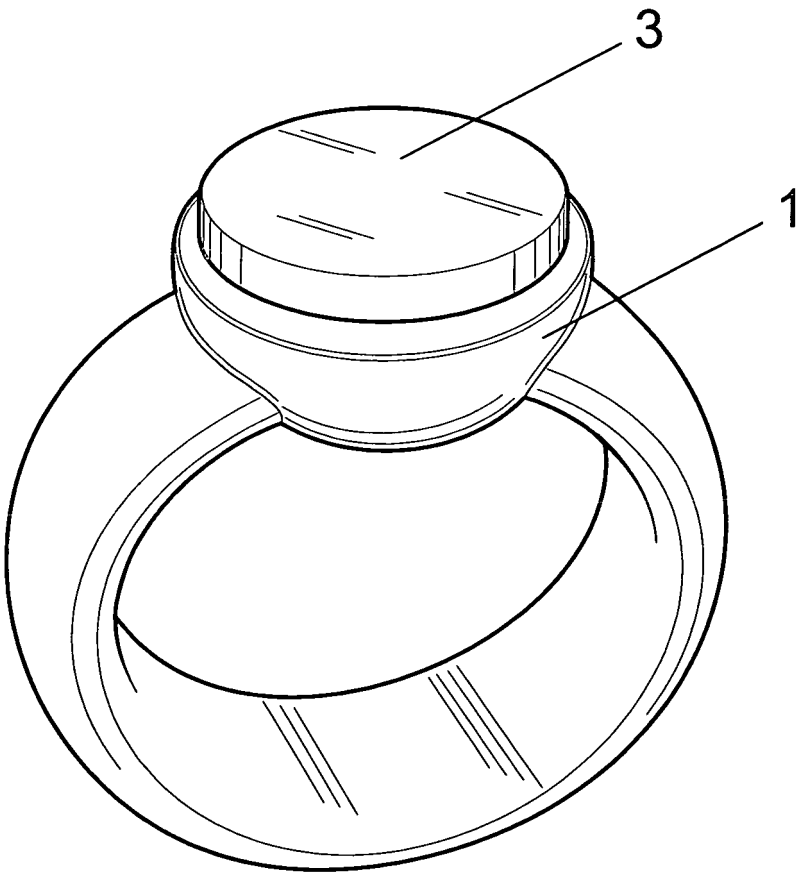

FIG.2

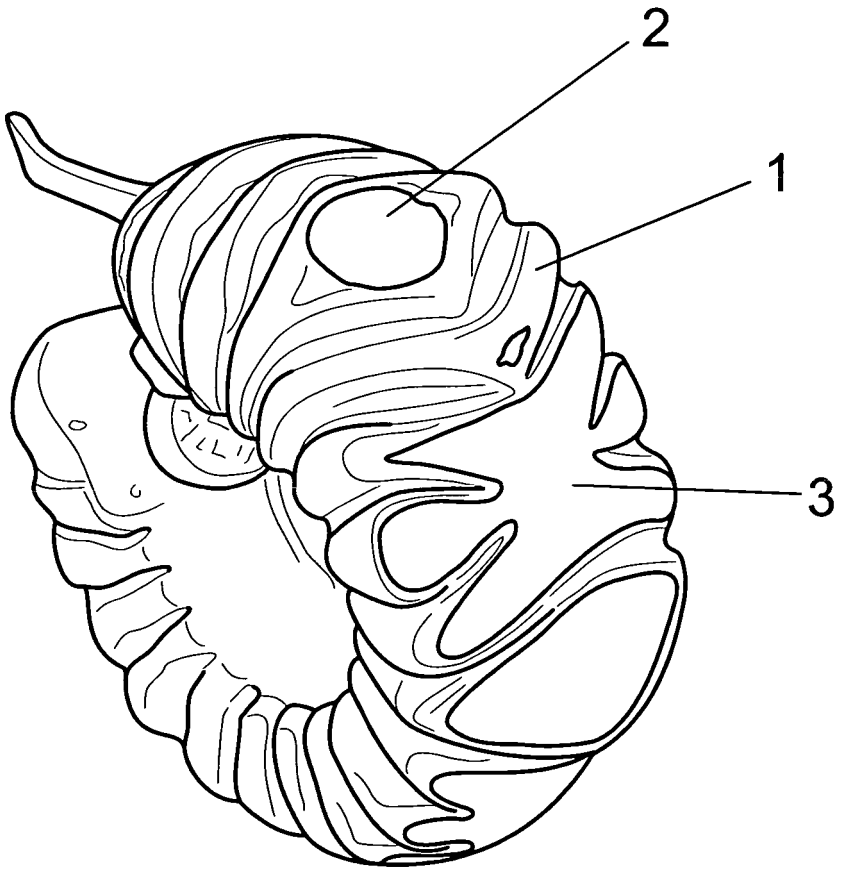

FIG.3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 38 0152

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 928 367 A (SEIDMAN ET AL) 29 May 1990 (1990-05-29)	5	A44C27/00
A	* column 2, line 36 - line 44 * * column 2, line 57 - line 65; figures 1,2 *	1-4	
A	EP 0 702 910 A (JOSEF EBERLE GMBH + CO. KG) 27 March 1996 (1996-03-27) * abstract; figure 2 *	1-5	
A	CH 679 138 A5 (JEAN-MARIE DELHAYE) 31 December 1991 (1991-12-31) * abstract; figure 1 *	1-5	
			TECHNICAL FIELDS SEARCHED (IPC)
			A44C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	22 November 2005	Westermayer, W

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 38 0152

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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22-11-2005

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82