

[54] **PROCESS FOR PRODUCING
ORNAMENTAL FIGURES FOR JEWELRY
AND RESULTING ARTICLE**

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[22] Filed: **May 30, 1972**

[21] Appl. No.: **257,652**

[52] U.S. Cl. **161/21, 29/160.6, 164/45,
204/18 R, 264/220**

[51] Int. Cl. **B22d 25/02**

[58] Field of Search **204/18 R, 1.9; 264/220,
264/225; 164/45, 15; 161/20, 21; 29/160.6**

[56] **References Cited**

UNITED STATES PATENTS

3,453,185 7/1969 Nakagawa 204/18 R X

3,600,489 8/1971 Posner 264/220 X

FOREIGN PATENTS OR APPLICATIONS

298,728 6/1917 Germany 204/1.9

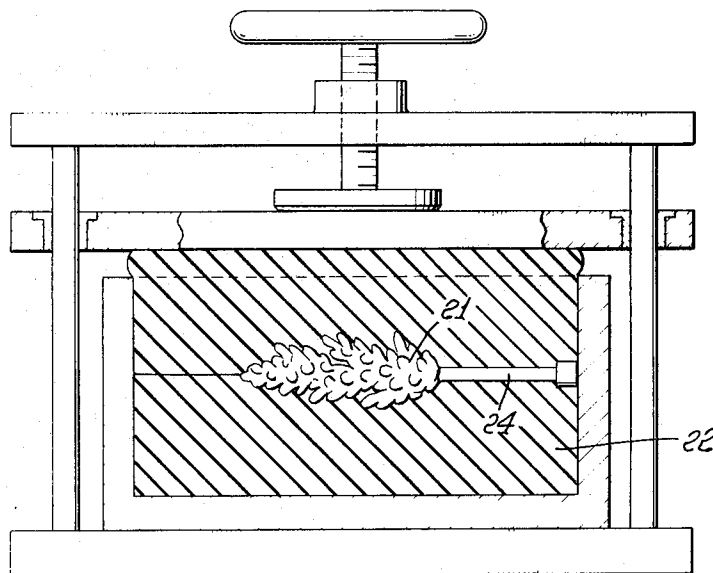
Primary Examiner—Robert D. Baldwin

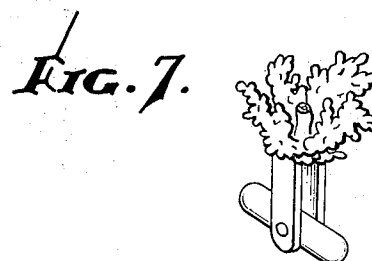
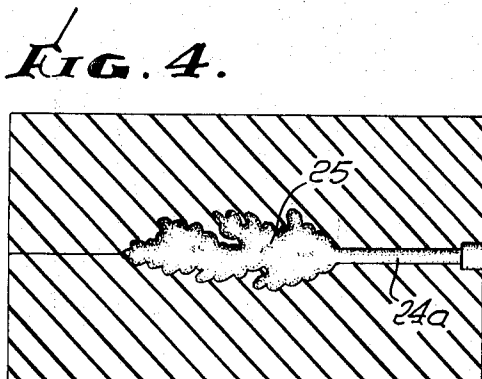
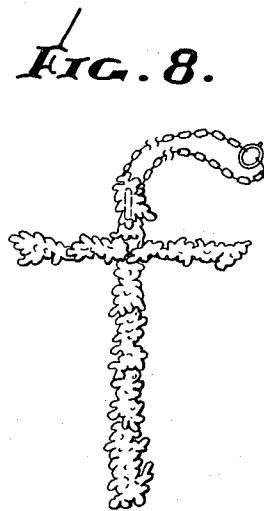
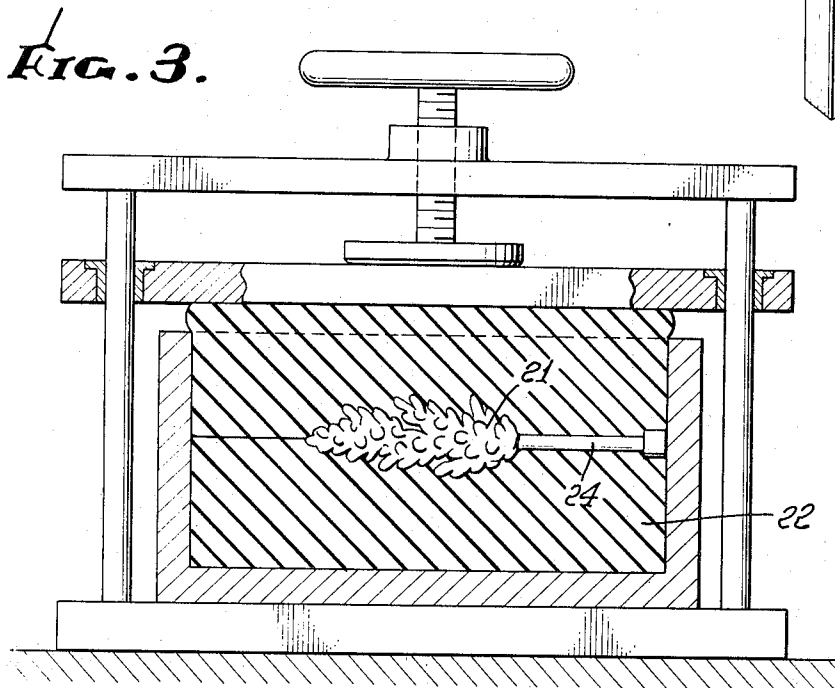
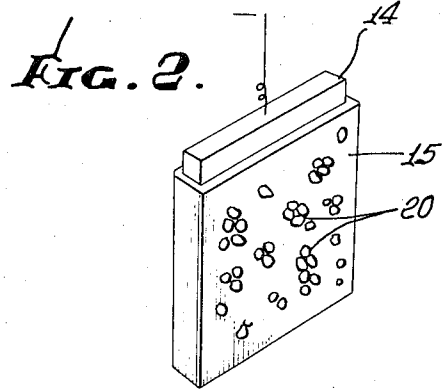
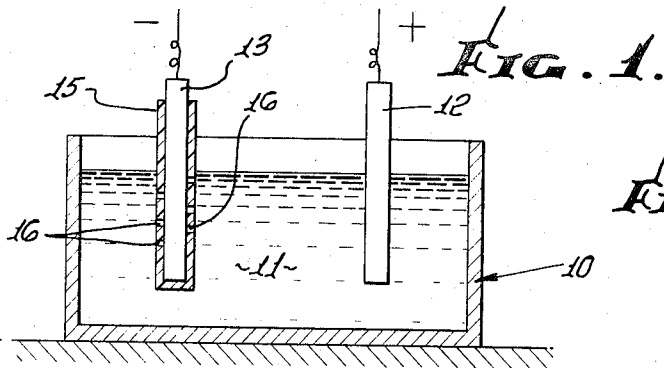
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[57] ABSTRACT

A process and the resulting article of mass producing low cost fanciful ornamental figures for jewelry and jewelled articles and objects of art which involves the use of selected electrolytic "trees" or random metallic deposits made in an electroplating operation as a master in preparing a jeweler's mold, then casting inexpensive metal or plastic material in the mold to produce reproductions of the master.

14 Claims, 8 Drawing Figures





PROCESS FOR PRODUCING ORNAMENTAL FIGURES FOR JEWELRY AND RESULTING ARTICLE

BACKGROUND OF THE INVENTION

Heretofore, intricate and fanciful free design metal jewelry has been made principally by hand carving a wax model and then casting in precious metal by the lost wax method.

The artistry and labor cost is substantial. Moreover, the design is necessarily the mental product of the artist and the range of possibilities may be thus limited. These problems are multiplied if a cluster of figures with variations in details are to be used in the finished article.

In some cases, fancifully designed pieces, rings, brooches and the like have been formed by an electrolytic build-up process in which gold is allowed to build up in an intricate but uncontrolled form. The resulting piece is then worked to fit a setting.

This electrolytic process is time-consuming and expensive, and only one-of-a-kind can thus be produced, limiting the resulting business potential to individual item sales. Furthermore, after the electrolytic "nugget" has been formed, since each piece is different, the jeweler must make individual fittings to suit the variously shaped pieces as they are haphazardly formed. This involves grinding and soldering to the mounting or pin, practically prohibiting the mass production of low-cost pieces.

SUMMARY OF THE INVENTION

The present invention is a method enabling mass production at relatively low cost of fanciful ornamental figures for jewelry and jewelled articles and objects of art, and are created in a type of "free form" in random shapes and sizes. The master from which the reproduction mold is made occurs as a "nugget" or "tree" or growth incident to an electroplating process. These "nuggets" are usually in the form of a buildup of metallic nodules, with random overall shapes and sizes. From a variety of these the manufacturer selects the one or more to be used as the master for making the reproduction mold. He then casts reproductions of pot metal, plastic, or other suitable material, and finishes the pieces if desired by plating or other chosen coating.

The "nuggets" may be obtained as by-products of an industrial electroplating operation, or may be produced by the jeweler. In either case a multiplicity of "nuggets" is obtained or created of various shapes of a very low-cost metal so that certain suitable fanciful designs that result may be selected from the batch and the rest discarded. The suitable pieces, which lend themselves to particular items such as brooches or rings, or strung together to form a necklace, or other article, selected because of their adaptability to the particular end product from the standpoint of appearance, and because of their particular formation which enables them to be quickly and easily worked into the end setting. For instance, a piece selected for a ring, should be flat on one side for secure soldering to a base, or have natural indentations for mounting in a prong type ring; a piece selected for a necklace should have a narrow neck section for easy encirclement by a link of the neck chain or a narrow flattened section at one point to permit easy drilling of the pieces, or a naturally formed hole

in the piece for easy stringing, etc. In other words, the batches of randomly grown "nuggets" can be collected or grown so inexpensively and in such numbers that chance works in favor of the craftsman by presenting to him a few pieces that are ideally adapted to his particular needs.

Thereafter, the pieces selected are used as a master and a mold is made therefrom. In this way, replicas of the selected masters are cast in a low-cost metal which can be reproduced cheaply and in large quantities, the fancifulness of the final reproduced piece can be predetermined, and likewise its naturally formed mechanical adaptability to the particular kind of jewelry to be made.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a generally diagrammatic view of an electroplating system, illustrating a cathode made especially for practicing the invention.

FIG. 2 shows illustrative "nuggets" or "nickel trees" or growths which have formed on the installation of the cathode, one or more of which growths are selected for reproduction.

FIG. 3 is a view, partly in section, illustrating the preparation of a mold.

FIG. 4 is a sectional view of the mold after removal of the master.

FIG. 5 shows a reproduction of the master which has been cast in the mold. The master, mold cavity, and reproduction illustrated in FIGS. 3, 4 and 5 are enlarged over probable actual size.

FIGS. 6, 7 and 8 illustrate a ring, cuff link, and pendant, respectively, as examples of finished articles utilizing figures produced by the method.

PREFERRED EMBODIMENT OF THE INVENTION

A phenomenon of certain industrial processes of electroplating is the formation of "nuggets" or "trees." These occur at cracks or openings in the plastic insulation of hangers holding the articles being plated. They are deposits of the nickel or other plating metal in the form of small nodules forming one upon another, usually irregular in total shape and size. These are objectionable to the industrial plating process, are periodically knocked off, sold as scrap, and new insulation applied to the hangers.

Some of them display unique ornamental designs or configuration, which can be used advantageously as masters to make molds for casting jewelry, jewelled articles, and objects of art.

The nodules are so small and some of the formations so intricate that a sculptor, even if conceiving the design would encounter difficulty in executing it, and find it quite time consuming. Moreover, if originally done in a material easily workable, such as wax, the step of investment and melting out the wax followed by casting of a master, would add materially to the cost.

While the masters may be obtained by collecting, examining, and selecting specimens formed during industrial plating processes, it is preferable for convenience of supply in jewelry manufacturing, to deliberately grow the "nuggets" or "trees."

Referring to FIG. 1 of the drawing, we show somewhat diagrammatically, a tank 10 containing a suitable electrolyte 11, an anode 12 of the metal to be trans-

ferred, and a cathode 13 of special design. The metal should be of a very inexpensive type. Means are provided for introducing a low voltage direct current, in accordance with conventional electroplating processing.

However, the cathode 13 which ordinarily would be an item to be plated, is in the form of a conductor bar 14 covered by a plastic insulation shield 15. A multiplicity of perforations 16 are formed in the shield. They may be of various sizes and cross sectional shapes and must extend through to the conductor bar. The variations in sizes and shapes should result in different "nuggets" or "trees."

During operation, the plating metal first penetrates through the apertures to the conductor bar and forms a metallic thread to the surface of the insulation. Conductivity continues, and growths build up outside the insulation as shown at 20 in FIG. 2. Periodically, as the growths acquire the size desired, the cathode is removed and the growths are separated.

One or more of these growths are selected for its free form uniqueness, or other desired artistic quality, and mechanical adaptability, and is used as the master 21 in preparing a jeweler's mold 22. A rubber mold is preferable due to the irregularities and undercuts in the form of the master. The master is disposed in uncured rubber which is packed firmly around it, and a rod 24 is placed against the master and extending to the exterior to form a sprue 24a for pouring in the material to be cast. The rubber is held in a frame, and vulcanized. Upon removal, it can be slit by a knife or scalpel, and the master removed.

Alternatively, the mold may be prepared from a special jeweler's mold compound of a type which is baked to set, which has rubber-like qualities.

The mold is then used to cast into the cavity 25 molten metal to make any quantity desired of reproductions 26 of the master. Pot metal is a good example of an inexpensive metal which is satisfactory for casting and affords a very low-cost reproduction; it may be plated for a fine finish. Reproductions also may be cast of any suitable plastic composition, the finish remaining natural or it may be enamelled.

The method provides a very wide selection of ornamental forms, some of arborescent design, others resembling coral, and still others of somewhat indefinable free form clusters of nodules; or some having the shapes of natural gold nuggets. It makes possible the manufacture of exotic jewelry items, jewelled articles, and objects of art, at low cost. Unwanted growths can be discarded without appreciable sacrifice, and we eliminate haphazard variation and consequent complications in the end product.

The reproductions cast may be used individually, or in groups or clusters, either exact duplicates or of varying detail. When produced of metal, they may be soldered or welded to the main form of a ring, cuff link, or other jewelry item. To form a cross, or a miniature "Ming" tree, for example, a wire frame may be prepared, and the figures soldered or welded to the frame. The plating for gold or other finish may be applied after the article is fabricated.

Some items, as for example a pendant in the form of a cross such as illustrated in FIG. 8, may be fabricated by building a master in the form of the finished article. Thus, "nuggets" or "trees" are selected for their adaptability by virtue of their shape, arranged in a cruciform,

and soldered together. This makes the master to be used in making the mold, and quantity production of the entire cross by casting follows, except for the chain and possibly the attachment ring. This procedure may be followed on any jewelry item which the overall configuration lends itself to thus preparing a mold. In some cases, it may be desirable to employ a wire frame to which the "nuggets" or "trees" may be soldered.

Although we have herein shown and described our invention in what we have conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention.

What we claim is:

1. In the art of manufacturing jewelry having a free-formed configuration, jewelled articles, and objects of art, the steps comprising: forming in a free-formed configuration metallic growths as a phenomenon of an electroplating process adjacent apertures in the insulation of a cathode conductor, selecting a particular one of such growth specimens, using the particular specimen as a master in preparing a mold thereof, removing the master from the mold, and introducing into the mold a material in liquid condition which will harden to produce an ornamental figure corresponding in form to the master.

2. In the art of manufacturing jewelry, jewelled articles, and objects of art having a free-formed configuration, the steps comprising: providing an electrolytic bath with an aperture in the insulation of a cathode conductor immersed in the bath, providing a random deposit of metal at the position of the aperture in the insulation of the cathode conductor to produce a three-dimensional free-form master, taking the master and forming a mold thereof, removing the master from the mold, and introducing into the mold a material in liquid condition which will harden to produce an ornamental figure corresponding in form to the master.

3. In the art defined in claim 2, creating concurrently a multiplicity of deposits of non-precious metal on a free-formed basis through the electrolytic bath, selecting particular ones of the deposits for artistic quality and mechanical adaptability for the end product to be made, using the selected deposit or deposits as a master or masters, and following for each such master the remaining steps defined.

4. In the art defined in claim 1, forming the mold of rubber or rubber-like material, and casting pot metal therein.

5. In the art defined in claim 2, forming the mold of rubber or rubber-like material, and casting pot metal therein.

6. In the art defined in claim 4, the additional step of plating the ornamental figure.

7. In the art defined in claim 5, the additional step of plating the ornamental figure.

8. In the art defined in claim 1, introducing a plastic into the mold to produce the ornamental figure.

9. In the art defined in claim 2, introducing a plastic into the mold to produce the ornamental figure.

10. As an article of manufacture, an ornamental figure made in accordance with the process of claim 1.

11. As an article of manufacture, an ornamental figure made in accordance with the process of claim 2.

12. As an article of manufacture, an ornamental figure made in accordance with claim 3.

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13. In the art of manufacturing jewelry, jewelled articles, and objects of art, the steps comprising: providing an electroplating bath with a cathode conductor having an outer insulation and a plurality of apertures in the insulation, passing an electrical current through the bath to produce growth specimens of a metal in free-form configurations at the apertures, selecting particular ones of the growth specimens in accordance with the appearance of their free-form configuration, arranging the selected specimens in the form desired for the finished article, soldering them together in such form to make a master, preparing a mold from such

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master, removing the master from the mold, and introducing into the mold a material in liquid condition which will harden to produce an ornamental article corresponding in form to the master.

14. The process defined in claim 13 which includes the preliminary step of obtaining the metallic growths by causing random deposits of metal through the electrolytic bath to be made in the region of the apertures in the insulation of the cathode conductor immersed in the bath.

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