June 6, 1944. W. P. SCHODER ET AL 2,350,421

METHOD OF PRODUCING INLAID JEWELS

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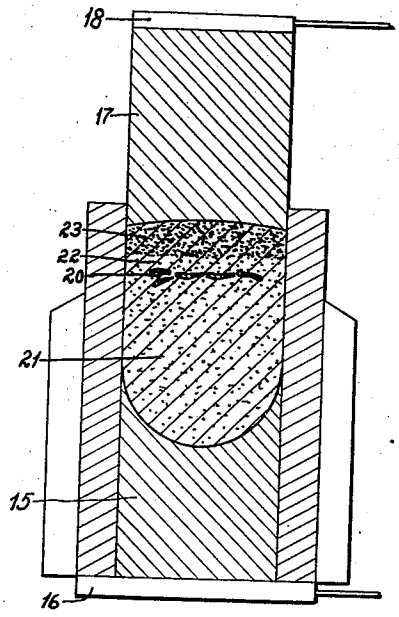

FIG. 1

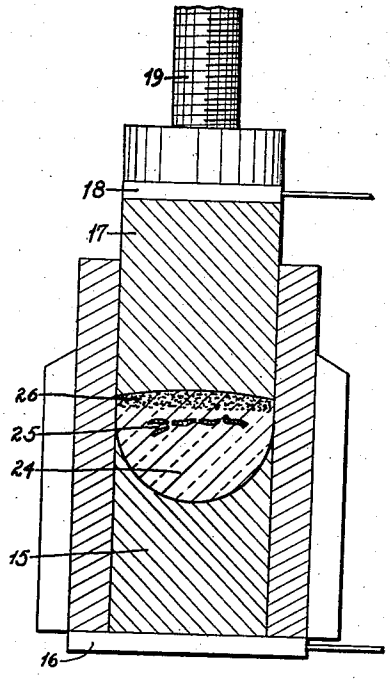

FIG. 2

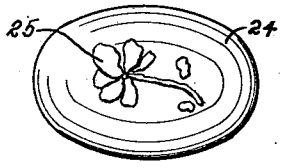

FIG. 3

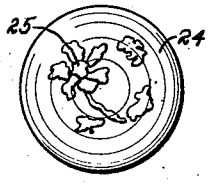

FIG. 4

FIG. 5

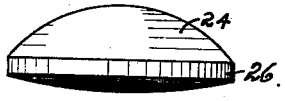

FIG. 8

FIG. 9

FIG. 10

FIG. 6

FIG. 7

FIG. 11

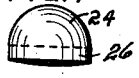

FIG. 12

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METHOD OF PRODUCING INLAID JEWELS

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2 Claims. (Cl. 18—59)

This invention relates to the ornamental arts, and more particularly to the production of jewels or gems designed to attract and please the eye and adapted for use in an almost infinite variety of specific settings or mountings.

A further object of the invention is to provide an improved method of producing synthetic jewels from readily-available materials.

A further object of the invention is to provide an improved method of producing inlaid jewels in the form of unitary, homogeneous, moulded assemblies.

A further object of the invention is to provide an improved method for embedding an inlaid pattern in a synthetic jewel.

A further object of the invention is to provide an improved method of producing inlaid jewels which is simple and inexpensive of practice, which is readily adaptable to the production of jewels of varying sizes, forms, and patterns, which is susceptible of use in the production of jewels from various specific materials, and which may conveniently be given effect through known and readily-available apparatus.

Our invention consists in the sequence of steps whereby such jewel is produced, all as hereinafter set forth, pointed out in our claims, and illustrated by the accompanying drawing, in which—

Figure 1 is a cross section vertically through conventionalized moulding means as initially charged for the production of our improved jewels. Figure 2 is a view similar to Figure 1 showing the relative position assumed by elements of the moulding apparatus upon completion of the moulding operation. Figures 3, 4, 5, 6, and 7 are face views of various forms, sizes, and patterns of inlaid jewels produced in accordance with the principles of our invention. Figures 8, 9, 10, 11, and 12 are side elevations, respectively, of the jewels shown in Figures 3, 4, 5, 6, and 7.

Our improved jewel is a novel and attractive manufactured product particularly adapted for use in and with costume jewelry of high quality, and is susceptible of production as a durable, homogeneous unit in various specific sizes, forms, patterns, and colors, for use as settings in rings, bracelets, brooches, pins, and as ornamental studs and buttons. The jewel consists, essentially, of a homogeneous moulded plastic body comprising a transparent, lenticular face portion and a pigmented opaque back portion, and a mosaic pattern of metallic particles embedded in and for view through the lenticular face portion adjacent the opaque back portion.

The improved jewel is susceptible of production through the use of various specific materials, but is most conveniently and practically formed from a combination of plastic material susceptible of being moulded by means of relatively low temperatures and moderate pressures wherein the pattern is formed of metallic particles having a melting point well above that necessary to mould the associated plastic. Particularly desirable results have been obtained through the use of "Lucite," a methyl-methacrylate, synthetic resin having a melting point of approximately 200 degrees F., as a mouldable plastic and native flake gold as a material for the mosaic patterns, the showing of the drawing illustrating actual jewels formed from the materials named.

In the construction of the improved jewels, it is convenient to utilize conventional moulding apparatus of the type illustrated in the drawing, which apparatus may include a base portion 15, formed of suitable metal or equivalent heat-conducting material, and adapted to be heated by suitable means, such as an electrical element 16. The mould base 15 is provided with an upwardly-opening chamber adapted to receive the material to be moulded, and a follower member 17, of metal or like heat-conducting material, is adapted to fit closely within and slide relative to the chamber of the base portion in such manner as to apply pressure to the contents of said chamber. The follower 17 is arranged to be heated, as by means of an electrical element 18, and is adapted to cooperate with means for the application of pressure acting to force said follower downwardly within the chamber of the base portion, such means being indicated in the Figure 2 at 19.

In utilizing the typical apparatus shown and described for production of the improved jewels, the lower end of the chamber in the mould base 15 is concaved to the curvature desired on the finished face of the completed jewel, and the lower portion of said chamber is then charged with a quantity of transparent plastic in raw form, the quantity of material used being determined by the thickness of the lens desired on the completed jewel and the shrinkage coefficient indicating the ratio between the volumes of the plastic in raw and moulded form. The raw plastic material of the initial mould charge is suitably compacted within the chamber and its upper or exposed surface is smoothed and shaped to provide a suitable area whereon a mosaic pattern may be manually developed by the juxtaposition

and arrangement of flakes and particles sufficiently resistant to heat as to preserve their original character during the moulding of the plastic. The particles or flakes constituting the mosaic pattern are indicated at 20 and the initial charge of plastic material in raw form is indicated in place within the mould base 15 by the numeral 21. After the mosaic pattern has been laid within the mould base 15, it is preferably covered by a relatively thin layer of the same transparent plastic in raw form as was initially used in the mould charge, such a layer of transparent material being designated by the numeral 22, and the mould charge is then completed by a layer 23 of pigmented and opaque plastic in raw form, this plastic preferably being of the same character and mouldable properties as that utilized in the initial mould charge and the layer 23 being of such thickness as may be necessary to produce the desired thickness of backing portion in the finished jewel.

With the mould charge completed as above described, the follower 17 is inserted in the mould chamber of the base portion and heat is applied through the elements 16 and 18 to that degree necessary to melt the plastic of the mould charge without altering or destroying the mosaic pattern formed by the flakes 20, a suitable pressure being maintained on the upper end of the follower 17 during and subsequent to the melting operation so as to compact and fully set the melted plastic in a homogeneous unit wherein the mosaic pattern is embedded. As is customary in typical plastic-moulding operations, heating of the mould elements is discontinued after melting of the plastic is completed, and pressure is maintained on the mould contents during cooling thereof. The completed jewel formed as above described will present a lenticular, clear, transparent face portion 24 wherein is embedded the mosaic pattern 25 and behind which is the opaque, colored backing layer 26 against which the pattern stands out in bold relief. As will be immediately apparent, the colored backing portion of the jewel may be moulded directly against the mosaic pattern, and the face portion of the jewel may be tinted without destroying its essential transparency, all of which is well within the contemplation of the instant invention.

Figures 3 to 12, inclusive, illustrate various forms and specific shapes to which the improved jewels may be moulded, the examples shown being but a few of the variations possible in the finished product through convenient adaptation of mold size and specific shape. The mosaic patterns susceptible of development in the finished jewel are limited in number and variety only by the shape and character of metallic particles available and by the skill of the designer, the native gold flakes hereabove mentioned being particularly desirable because of the great variety of flake size and shape and the consequent ease of their use in the development of desired patterns.

While it has been above noted that "Lucite" in combination with native gold flakes is a particularly suitable material from which to develop the improved jewels in accordance with our improved method, it is to be noted that any plastic or equivalent material mouldable to both transparent and opaque form at temperatures that will not damage or destroy the pattern material, may be utilized, and that any material not affected by the molding heat and pressure may be utilized in place of the gold flakes for development of the mosaic pattern. Likewise, the pattern to be embedded in the finished jewel may be a unitary design formed in advance by stamping or moulding, but an effect much to be preferred is obtained when the native gold flakes are assembled for cooperation in a mosaic pattern or design.

Since many changes, variations, and modifications in the specific form, construction, and arrangement of the elements shown and described, and in the specific relationship of steps hereabove set forth, may be had without departing from the spirit of our invention, we wish to be understood as being limited solely by the scope of the appended claims, rather than by any details of the illustrative showing and foregoing description.

We claim as our invention:

1. The method of producing inlaid jewels wherein the inlay is magnified in apparent floating relation against a contrasting background, which consists of charging a concaved mould with a quantity of raw, transparent plastic material sufficient to form a relatively-deep, convex lens, laying an open mosaic pattern of heat-resistant particles on the smoothed, substantially-plane upper surface of the initial mould charge, covering said pattern with a shallow layer of the same raw transparent plastic material, completing the mould charge with a layer of raw plastic material pigmented to be opaque in final moulded condition, and applying heat and pressure to the charged mold to respectively melt and compact the plastic in homogeneous, enclosing relation through and about said pattern.

2. The method of producing inlaid jewels wherein the inlay is magnified in apparent floating relation against a contrasting background, which consists of charging a concaved mould with a quantity of raw, transparent methylmethacrylate, synthetic resin sufficient to form a relatively-deep, convex lens, laying an open mosaic pattern of native gold flakes on the smoothed, substantially-plane upper surface of the initial mould charge, covering said pattern with a shallow layer of raw, transparent methylmethacrylate, synthetic resin, completing the mould charge with a layer of raw, black methylmethacrylate, synthetic resin, and applying heat and pressure to the charged mould to respectively melt and compact the plastic as a homogeneous mass penetrating and enclosing the pattern for view through the transparent lens portion in slightly-spaced relation forwardly of the opaque backing portion.

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