June 18, 1929. L. WEIDLICH ET AL 1,717,482

METHOD OF MANUFACTURING HOLLOW WARE OF SILVER OR THE LIKE

Filed Oct. 10, 1923

Fig. 1



Fig. 2

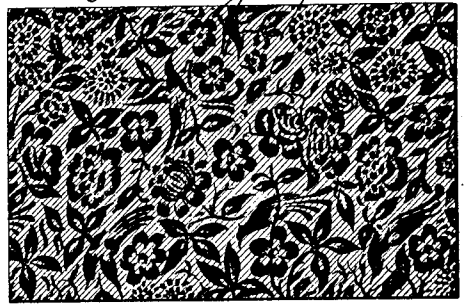


Fig. 3

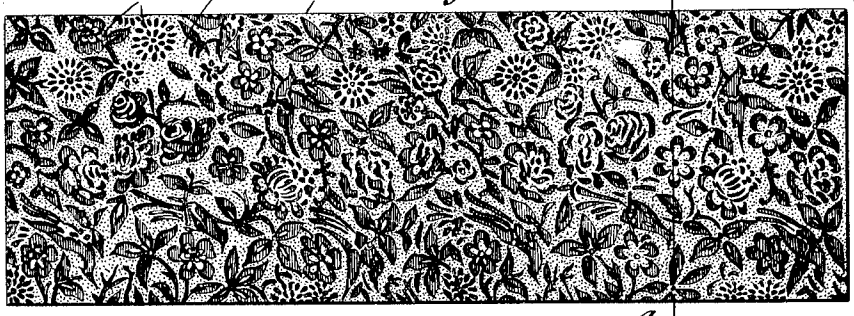


Fig. 4

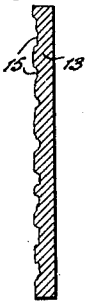


Fig. 5

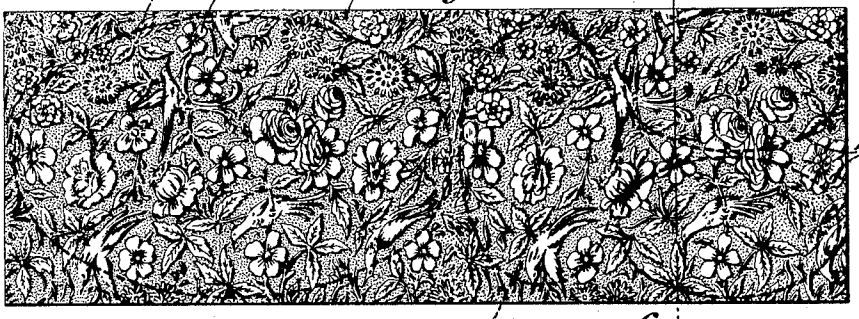


Fig. 6

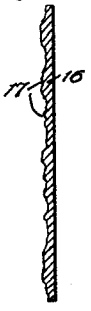


Fig. 7

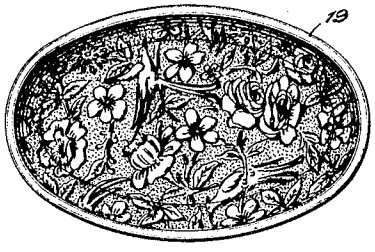


Fig. 8



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UNITED STATES PATENT OFFICE.

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METHOD OF MANUFACTURING HOLLOW WARE OF SILVER OR THE LIKE.

Application filed October 10, 1923. Serial No. 667,713.

This invention relates to an improved method of manufacturing hollow ware, of silver or the like, and has for an object to provide a method by which such articles, having surface ornamentation, may be produced upon a large scale production basis, and very economically, both as regards manufacturing equipment and the cost of the articles.

A further object is to provide an improved method of producing an ornamented die plate to impress and thereby ornament sheets of material from which ornamental articles are blanked, and by which method a die plate having a continuous ornamental design may be provided, that is, a style of decoration such as is commonly followed in designing wall paper and dress goods, and in which a design is repeated in specified areas, so joined that the complete ornamentation has no definite beginning or end.

A still further object is to provide a method of producing articles of various shapes and sizes having the same style of ornamentation, and in which such articles are produced from a single type of ornamented master plate, the ornamentation of such plate being also the ornamentation of the articles.

With the above and other objects in view, an embodiment of our improved method is illustrated in the accompanying drawings, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claim.

In the drawings:

Fig. 1 is a plan view of a metal plate upon which the design unit is originally painted;

Fig. 2 is a similar view, showing the same coated with transfer material;

Fig. 3 is a plan view of the master die plate, showing the design transferred in a continuous or repeated relation thereon, and etched to produce the same in intaglio;

Fig. 4 is a sectional view thereof, taken along the line 4—4 of Fig. 3;

Fig. 5 is a plan view of the plate of silver, or other suitable material impressed with the design from the master plate;

Fig. 6 is a sectional view thereof, taken along the line 6—6 of Fig. 5;

Fig. 7 is a plan view of a completed dish or tray; and

Fig. 8 is a sectional view thereof.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

In carrying out the improved method, the first step consists in painting the design, as at 10, upon a metal plate 11, Fig. 1, the area between the painted portions being left bare, the design being a single unit of the repeated and continuous ornamentation to be ultimately produced upon the master die plate. An etching acid is then spread upon the plate, which eats down into the previously bare portions between the painted portions. The plate is then coated with a layer of suitable transfer material, such as an asphalt composition, as at 12 (Fig. 2), and by lightly wiping the same the painted design is exposed through removal therefrom of the coating, and the unpainted area remains coated.

The transfer material is thereupon removed onto a transfer sheet of paper, or the like, by placing the sheet upon the coated plate and passing a roller or other suitable means over it, so that such material adheres to the paper and is removed from the plate. The transfer sheet is next placed face down upon the steel master plate 13, this plate being of suitable size to receive a number of repeated impressions from transfer sheets in joined or continuous relation, the coating being transferred to the metal plate by rubbing or snugly rolling the same, and then moistening the paper, so that upon gently removing the sheet all of the material remains upon the plate. By repeating this operation, the entire surface of the steel plate is provided with a coating, as at 14, corresponding to the area between the figures of the design, the design itself being represented by the bare metal. In this manner the single painted design unit is utilized for producing a design covering the entire surface of the die plate, of any desired size.

The die plate is now ready for etching, and for this purpose the transfer material, which has been placed thereon, may be acid resisting, or may be of such a nature as to take an acid resisting ground or varnish, the exposed

metal repelling such ground and therefore being left exposed. The etching medium, such as nitric acid, is applied to the die plate, and eating down into the exposed design produces the same in intaglio, as at 15, the plate being ready for use as a rolling die, upon removal of the ground.

The blanking sheet 16 (Figs. 5 and 6), of silver, nickel silver, or other suitable material, and from which the hollow ware is to be blanked, is produced from the master die plate by superimposing the plate, face down, upon the sheet, and in this position they are passed between heavy rollers, not shown, whereby an impression is formed upon the surface of the sheet, the configuration of the design being raised, as at 17, or the reverse of the master plate. This ornamentation, as before suggested, is preferably made in a repeated continuous pattern, including flowers, leaves, birds, or other objects, without respect to the size of the sheet or the use to which it is to be put. It will be noted from Figs. 4 and 6 that the die plate 13 and the metal sheet 16 are both relatively thin, and therefore somewhat flexible, and in passing between the pressure rollers the design is impressed in the sheet gradually from end to end, the entire effect of the pressure being concentrated upon only one line, so that a continuous sheet of relatively great length may be impressed, and the design will be sharp and uniform at all points.

The master plates are made in convenient sizes, as for instance 18″ by 24″, and it will be obvious that by repeated operations, as above described, any quantity of ornamented sheets may be produced from a single master plate. By employing two dies, and placing the sheet to be ornamented between them, both surfaces of the sheet may be ornamented in a similar manner, this being desirable for some uses.

These ornamented sheets thus represent the stock material from which different sizes and shapes of blanks are stamped, as indicated by dotted lines 18, (Fig. 5) for the formation of various styles of hollow ware. If the articles to be made are small trays, it may be possible to get as many as a dozen blanks from a single sheet, whereas if larger trays or platters are desired, a single sheet might be utilized in forming but one or two blanks. The blanks are cut irrespective of the pattern on the face of the sheet, so that the size of the blank is not important.

These sheet metal blanks, having one ornamented face, are next put between suitable shaping dies (not shown), by means of which they are dished, or otherwise shaped to the desired form, to represent, as before suggested, platters, trays, or the like, and as shown in Figs. 7 and 8. The edges of the articles may be finished by turning over, as at 19, or otherwise suitably ornamented or shaped.

With our improved method, master die plates may be made in a fraction of the time that was previously employed, so that new designs may be produced much more rapidly than heretofore, and at greatly reduced cost. The stamping out of blanks, of any size, from the ornamented sheet, enables ornamented ware of a variety of shapes or sizes to be produced with use of simple and inexpensive shaping dies, as distinguished from individually ornamented dies.

In this improved method, we do not wish to be limited to the feature of making a master plate of a continuous design, so called, as a master plate may be formed in the same way for a specific individual design, in which case one or more such designs could be formed upon a single master plate, and the blanks cut from the sheets with special reference to the shapes, sizes and location of the designs formed thereon.

We have illustrated and described a preferred and satisfactory embodiment of our invention, but it will be obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claim.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

The method of making ornamental sheet metal ware, which consists in placing a flat die plate having an ornamental design of larger extent than the ware to be produced, face down upon a flat metal sheet of stock, also of larger extent than the ware to be produced, passing said superimposed sheets beneath a pressure roller, said sheets being relatively thin and flexible and of the same area, whereby the design of the die is impressed in the stock gradually from end to end, with the entire effect of the pressure being concentrated upon only one line to insure a sharp and uniform design over the entire area of the stock, cutting the stock into blanks of any desired size and shape without respect to the design on said stock, and finally shaping each blank to form an ornamented article.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 9th day of October, A. D., 1923.

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