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1,473,903

E. S. DENK

METHOD OF MARKING ENAMELED WARE

Filed Aug. 1, 1921

Fig. 1

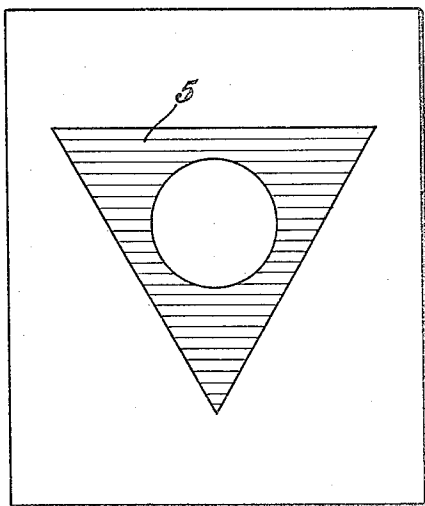


Fig. 2.

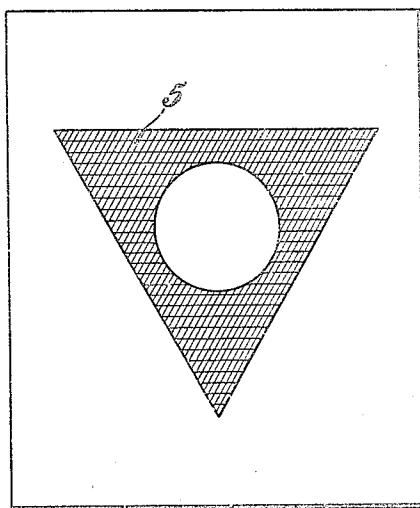


Fig. 3.

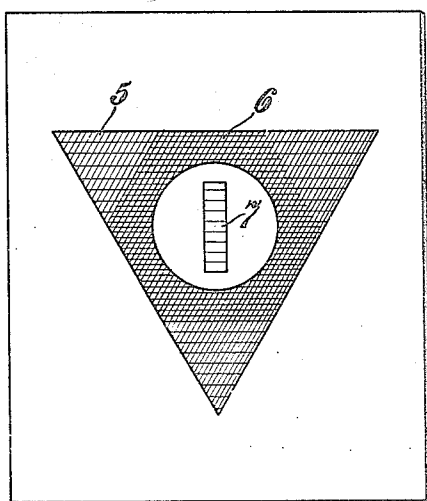


Fig. 4.

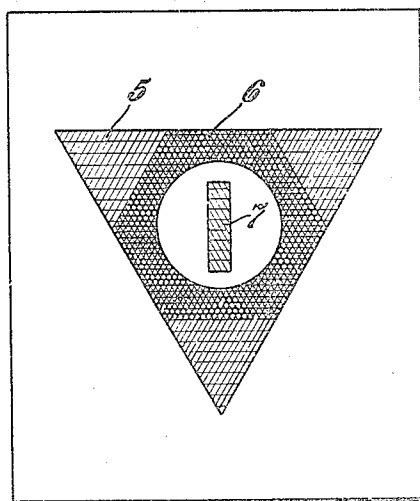


Fig. 5.

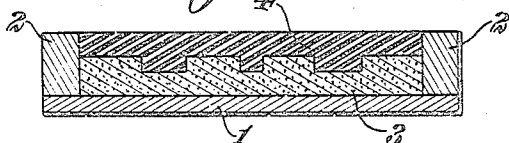


Fig. 6.

1st Imp. Var. 1st Color 2nd Imp. Var. 2nd Color



Inventor:

ENIL S. DENK,

324

John H. Brumings,
3615 Oliverway.

UNITED STATES PATENT OFFICE.

EMIL S. DENK, OF ST. LOUIS, MISSOURI.

METHOD OF MARKING ENAMELED WARE.

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To all whom it may concern:

Be it known that I, EMIL S. DENK, a citizen of Hungary, having filed my intention of becoming a citizen of the United States, and residing at St. Louis, Missouri, have invented the new and useful Improvement in Methods of Marking Enameled Ware, of which the following is a specification.

This invention relates to methods of marking enamel ware and has particular reference to such methods as may be applied to the manufacture of enameled signs and similar articles.

In the methods in general use at present for making enamel signs and the like, the markings of different colors are applied successively and the ware is fired after the application of each color. This requires a firing operation for each color used in the design. Furthermore, the various colors are applied by means of stencils, or in some cases by means of so called transfer papers. In these methods, the different coloring and firing operations represent each a separate and tedious step, rendering the process as a whole lengthy and expensive.

One of the objects of this invention, therefore, is to provide a method of marking enamel ware adapted to reduce the number of operations necessary to produce the finished ware.

Another object of this invention is to simplify the method of applying colors.

Another object is to provide a method whereby different colors may be blended in the marking of enamel ware.

Further objects will appear from the detail description taken in connection with the accompanying drawing, in which:

Figures 1, 2, 3 and 4 represent the successive steps in applying a three color design.

Figure 5 illustrates the process of making the marking die; and

Figure 6 is a key showing the manner of representing the various operations in Figures 1, 2, 3 and 4.

The process in general involves making an impression on the enamel surface to be marked, of all or a part of the mark, by means of such a substance as will give a tacky coating to that part of the surface upon which the impression has fallen, and then dusting over that surface, dry enamel of special composition which will adhere to

the tacky portion of the surface so as to reproduce the mark made by said impression. To this end means are necessary for producing a uniform impression on the more or less uneven surface of the enamel ware. For this purpose, a die may be made as illustrated in Figure 5.

In this figure, 1 and 2 designate respectively, the bottom and sides of a receptacle used for making the die. The bottom of the receptacle is covered to a uniform depth with a layer of glazier's putty 3. An impression of the mark to be produced on the ware is made in the putty 3 by means of type, zinc etchings or other suitable means so as to leave said mark in the putty in the form of a matrix. Into the matrix so produced, a hot composition, such as is commonly used for the ink rollers of printing presses and similar purposes, may be poured. The composition will run into the matrix and will take the exact form of the impression in the matrix. When the composition has cooled and set, the putty may be removed, gasoline being effective in removing all traces thereof.

By these means a die 4 is produced, which being constructed of composition, is elastic and well adapted to make a uniform impression upon the uneven enamel surface of the ware. The die 4 may then be mounted in a printing machine or other suitable contrivance for convenience in handling.

When the impression is to be made upon the enamel surface, the die is first coated with a very thin layer of tacky substance. For this purpose, printer's size or so called litho-varnish may be used with good effect. The die, coated with said tacky substance, is pressed down upon the enamel to be marked so as to leave, when removed, a corresponding coating of tacky substance upon said surface.

Dry enamel of special composition and in the form of a fine powder or dust may now be applied to the surface of the ware by any convenient means. This powder will adhere to the tacky coating throughout the area which has received the impression of a mark, but will not adhere to any other portion of the surface so that the mark will thereafter appear upon the surface in the color of the enamel so applied. The enamel used is such that the tacky material to which it adheres will be completely absorbed there-

by, leaving the mark perfectly dry so that a new impression partly or wholly overlapping the first one may be made. Such impression will leave a new coating of tacky material which may without harm overlap the first impression. Enamel powder of a new color may now be applied to the ware. This enamel will adhere to the tacky material left by the second impression, but will not adhere to other parts of the surface nor to such parts as received the first impression but not the second. On such parts of the surface where the two impressions overlap enamels of both colors will be deposited with the result that upon firing, said two colors will blend usually to form a third color.

Since each application of enamel dries up completely, the tacky material to which it adheres, as many successive impressions as desired may be made, to each of which enamel of a different color may be applied with the result that upon firing, all of the colors will appear each of its own hue on those portions to which it alone was applied and a resultant or blended color will appear on such portions as received two or more different colors of enamel. When all the colors have been applied, one firing process will fix and blend all of the colors and render the mark permanent.

The successive steps of the process may be illustrated by the drawings as follows. Figure 1 represents a portion of the surface of a piece of enamel ware which has received the first impression 5 of tacky material, which for the sake of illustration has been taken as a triangle with a circular opening in the center thereof. Figure 2 represents the same impression after the application of enamel thereto. Figure 3 represents the second impression of tacky material in the shape of a hexagon 6 concentric with the triangle 5 and having an additional Figure 7 within the central opening. Figure 4 represents the ware after the second application of color, said second color having adhered only to the hexagon 6 and the central figure 7 leaving the corners of the triangle 5 of the original color. These steps may be repeated in the same order namely first, an impression of tacky material and then a coating of dry enamel thereover, as often as desired and a different color enamel may be used for each application. It is evident, therefore, that by this method, marks of any design or color combination can readily be applied to enamel ware. When all the colors have been applied, the final step for rendering the mark permanent, which usually consists of firing the ware, may be carried out.

It will be seen that this method greatly simplifies the process of marking enamel ware by reducing the number of steps particularly the number of firing operations.

The steps which are necessary are greatly simplified and easy to carry out. Means are also provided for making a uniform impression upon the uneven enamel surface so that any kind of a mark can be applied by a simple printing process.

It is obvious that various changes may be made in the details of construction without departing from the spirit of this invention; it is therefore, to be understood that this invention is not to be limited to the specific details shown and described.

Having thus described this invention, what is claimed is:

1. The method of marking enamel ware, comprising, coating the enameled surface over the area to receive the mark with tacky material, applying to the coating an enamel, again coating the coated surface partially or wholly with a tacky material, applying to the part so recoated an enamel, and treating the ware to render the composite mark permanent.

2. The method of marking enamel ware, comprising coating the enameled surface over the area to receive the mark with tacky material, dusting the coating with enamel, again coating the coated surface, partially or wholly with tacky material, dusting the surface part so recoated with an enamel, and treating the ware to make the mark permanent.

3. The method of marking enamel ware, comprising, coating the enameled surface over the area to receive the mark with a tacky material, applying to the coating an absorptive enamel so as to render the coating sufficiently dry to be again recoated, again coating the coated surface partially or wholly with tacky material, dusting the surface with an enamel, and treating the ware to make the mark permanent.

4. The method of marking enamel ware, comprising, coating the enameled surface over the area to receive the mark with tacky material, applying to the coating an absorptive enamel, again coating the enameled surface with tacky material forming a mark of sharp outline partially or wholly overlapping said first coating, applying to the part so recoated enamel of a different color from that of the first enamel, and treating the ware to render the mark permanent, whereby a multi-colored mark of sharp outline between colors is made on the ware.

5. The method of marking enamel ware, comprising, coating the enameled surface over the area to receive the mark with tacky material, applying to the coating an absorptive enamel, again coating the enameled surface with tacky material forming a mark of sharp outline partially or wholly overlapping said first coating, applying to the part so recoated enamel of a different color from that of the first enamel, apply-

ing in like manner repeated applications of tacky material and enamel of different colors, and treating the ware to render the mark permanent, whereby a multi-colored mark of sharp outline between colors is made on the ware.

6. The method of marking enamel ware with a multi-colored mark having sharp lines of division between colors, comprising, coating the enameled surface over the area to receive the first color with tacky material, applying to the coating an enamel, applying successively one or more coatings of tacky material over areas partially or wholly overlapping said first coating, applying to each such successive coating an enamel of different color, and treating the ware to permanently fix the mark.

7. The method of marking enamel ware, including, a first step comprising, coating the enameled surface over the area to receive the mark with tacky material, a second step comprising, applying dry enamel to said tacky coating, subsequent steps comprising repetitions in order, of said first and second steps, but with different enamels, and a final step comprising treating the ware to render the mark permanent.

8. The method of marking enamel ware in colors, including, a first step comprising coating the enameled surface over the area to receive part of the mark with tacky material, a second step comprising applying dry enamel to said tacky coating, subsequent steps comprising repetitions of said first and second steps in order, but with the coating of tacky material partially or wholly overlapping the previous coating and with enamels of different colors, and a final step comprising treating the ware to render the mark permanent.

9. The method of marking enamel ware, including, a first step comprising, making an impression of part of the mark on the enameled surface with tacky material, a second step comprising, applying dry enamel to said impression, subsequent steps comprising repetitions of said first and second steps in order, but with the coating of tacky material partially or wholly overlapping

the previous coating and with different enamels and a final step comprising treating the ware to render the mark permanent.

10. The method of marking enamel ware, including, a first step comprising making a uniform impression on the uneven enameled surface with tacky material, a second step comprising applying dry enamel to said impression, subsequent steps comprising repetitions of said first and second steps, but with overlapping impressions and with different enamels, and a final step comprising treating the ware to render the mark permanent.

11. The method of marking enamel ware, including, a first step comprising making a uniform impression on the uneven enameled surface with tacky material, a second step comprising dusting dry enamel over said surface to coat said impression therewith, subsequent steps comprising repetitions of said first and second steps, but with overlapping impressions and with different enamels and a final step comprising treating the ware to render the mark permanent.

12. The method of marking enamel ware, including, a first step comprising making a uniform impression on the uneven enameled surface with tacky material, a second step comprising dusting over said surface dry enamel adapted to adhere to and absorb said tacky material, subsequent steps comprising repetition of said first and second steps, but with overlapping impressions and with different enamels and a final step comprising treating the ware to render the mark permanent.

13. The method of marking enamel ware, comprising, printing part of a design on the enameled surface by means of tacky material, applying to the ware enamel adapted to absorb said tacky material, printing another part of the design by means of tacky material and overlapping said first part, applying enamel to the ware, and treating the ware to render the mark permanent.

In testimony whereof I affix my signature this 21st day of October, 1920.

EMIL S. DENK.