

June 9, 1936.

J. M. SEASHOLTZ

2,043,449

CRYSTALLINE DECORATION FOR PORCELAIN AND PORCELAIN ENAMELED ARTICLES

Filed Oct. 18, 1934

FIG. 1.



FIG. 2.

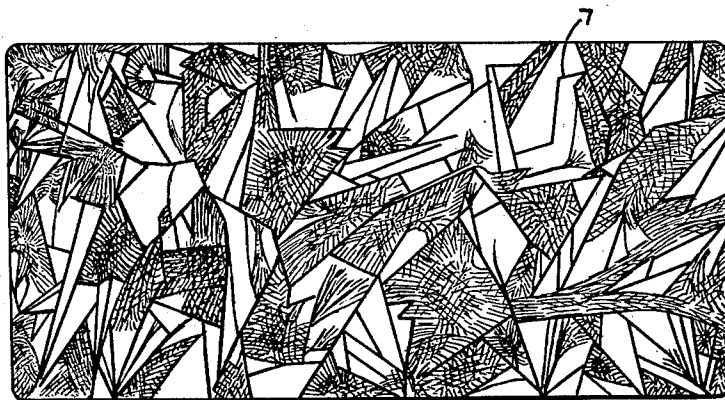
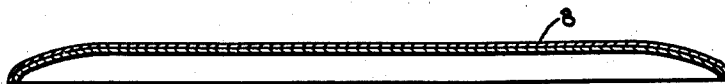


FIG. 3.



INVENTOR.
JOHN M. SEASHOLTZ,
BY *J. D. Humphreys*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,043,449

CRYSTALLINE DECORATION FOR PORCELAIN AND PORCELAIN ENAMELED ARTICLES

John M. Seasholtz, Reading, Pa., assignor to J. M. Seasholtz and Sons, Inc., Reading, Pa., a corporation of Pennsylvania

Application October 18, 1934, Serial No. 748,879

4 Claims. (Cl. 91—72)

This invention relates to crystalline decorations, and more particularly to the decoration of porcelain and porcelain enameled articles with crystalline designs.

5 In the decoration of porcelain and porcelain enameled articles, various methods have been employed, chief among these being handwork, decalcomania, stencil, rubber roller and rubber stamp application of the desired design. In 10 porcelain enameled sheet metal and metal castings where the surfaces are plane, rollers are frequently used for decorative purposes, but difficulty is encountered where curved, and irregular surfaces are to be decorated.

15 The object of the present invention is to produce porcelain or porcelain enameled articles with crystalline decorative effects, no two of which will be identical.

Another object is to produce a method by which 20 continuous designs may be incorporated in rounded, curved and irregular surfaces.

Another object is to produce these effects in any desired color.

Still another object is to provide a practical 25 process for carrying out the foregoing objects.

A further object is to provide a vehicle to deposit crystals for producing the decorative design.

According to the invention, finished porcelain 30 or porcelain enameled surfaced articles are first coated with a solution comprising a crystalloid, a solvent for same, and a viscosity regulator; then the solvent is allowed to evaporate, whereupon the crystalline design is formed by the concentration of the crystals; then coloring material is rubbed onto the surface, and the surface 35 cleaned, allowing coloring matter to adhere to the crystals only; and then heat is applied to consume the crystals and fuse the coloring matter into the porcelain.

The drawing illustrates an embodiment of the invention, and the views therein are as follows:

Fig. 1 is a longitudinal sectional view of a 40 small enameled casting, showing the solution applied thereto.

Fig. 2 is a plan view of the same, showing the crystalline formation after evaporation of the solution.

Fig. 3 is a longitudinal sectional view of the 50 same casting after fusing.

In carrying out the invention, the porcelain surface which has been fused and which is to be decorated is cleansed and freed from all dust particles, grease and oily matter.

55 This surface is then completely covered with

a solution comprising crystalloids, a solvent, and a viscosity regulator.

The resultant design is dependent upon a number of factors, among which may be included, the kind of crystalloids employed, the viscosity of 5 the solution used, and the temperature of the surrounding atmosphere.

Many different crystals have been used in experimental work, and with varying results; and among these are naphthalene, phthalic-anhydride, and acetamide. The particular crystal- 10 loid employed must be determined by the nature of the crystal desired, as different crystalloids produce crystals of greater or lesser definition. However, the crystals employed should be either 15 volatile or inflammable, as later explained.

The solvent found most effective is amyl acetate, and when mixed with the crystalloids, the result is a thin, watery solution having little if 20 any body.

Since the thickness of the coating applied to the porcelain determines the number of crystals per cubic centimeter and consequently the nature of the decoration, it is in most instances necessary to employ an ingredient to thicken the solution so that it will, upon being spread, give an 25 appreciable thickness of coat. While different materials have been employed for this purpose, it has been found that nitrocellulose will in most instances give the desired result.

The solution may therefore be said to consist of crystalloids, a solvent such as amyl acetate, and a viscosity regulator such as nitro-cellulose.

After the porcelain surface to be decorated has been completely and evenly coated with the solution 6 shown in Fig. 1, the solution is permitted to evaporate, whereupon the crystals will congregate or concentrate, forming a random decoration or pattern, of which Fig. 2 is an example. It will, of course, be understood that the amyl 40 acetate evaporates, leaving the crystal formations and a nitro-cellulose film between the same.

The room temperature during evaporation may be regulated as desired, because the evaporating temperature has an effect upon the resulting 45 crystalline formation.

After complete evaporation, colored graining paste is spread or rubbed onto the entire surface and the surface then cleaned to remove all paste from between the crystals. The crystalline formations 7, being jagged or rough, hold the paste 50 and thus the cleaned surface presents the decoration is colored pattern. Of course, any desired color may be employed, or a variety of colors used in a single decoration.

55

The surface at this time is of course rough, the crystals standing out from the porcelain in relief.

5 The article is then fused. The nitro-cellulose volatilizer. As the crystals are either volatile or inflammable, they either pass or burn off almost immediately, depositing their erstwhile sustained graining paste directly onto the porcelain surface, so that when the heat is sufficient to fuse 10 the porcelain the colored decoration passes directly into the same and when cool, the porcelain presents the same smooth even surface 8, which existed before the process was carried out. Of course, the time for fusing will vary, depending 15 upon the nature of the article being decorated.

With this process every decoration will be distinct, and the most beautiful crystalline designs have been produced. Decoration panels of this nature, for refrigerators, stoves, cabinets, porcelain ware and the like, produce very attractive 20 results, and the invention has found favor with manufacturers of these and similar products.

Of course, the process, solution and article illustrated and described may be varied in many 25 ways without departing from the invention herein set forth and hereafter claimed.

The invention is hereby claimed as follows:

1. The process of decorating porcelain and

porcelain enameled articles comprising the steps of first coating the porcelain surface with crystalloids in solution, then evaporating the solution, then coating the formed crystals with coloring matter, and then fusing the porcelain. 5

2. The process of decorating porcelain and porcelain enameled articles comprising the steps of first coating the porcelain surface with a solution of crystalloids, a solvent and a viscosity regulator, then evaporating the solution, then 10 coating the formed crystals with coloring matter, and then fusing the porcelain.

3. The process of decorating porcelain and porcelain enameled articles comprising the steps of first coating the finished porcelain surface 15 with a solution of crystalloids, a solvent and a viscosity regulator, then evaporating the solution to eliminate the solvent, then coating the formed crystals with coloring matter, and then fusing the porcelain to drive off the viscosity regulator, 20 burn off the crystals and embed the coloring matter in the porcelain.

4. A glazed article having a random crystalline decoration formed by a congregation of crystal forming material colored and applied by 25 heating the surface to infuse the design.

JOHN M. SEASHOLTZ.