UNITED STATES PATENT OFFICE.

HARRY NORTHWOOD, OF WHEELING, WEST VIRGINIA.

PROCESS OF PRODUCING DECORATIVE COLOR EFFECTS ON GLASSWARE.

1,217,490. Specification of Letters Patent. Patented Feb. 27, 1917.

No Drawing. Application filed September 28, 1916. Serial No. 122,774.

To all whom it may concern:

Be it known that I, HARRY NORTHWOOD, a citizen of the United States of America, and resident of Wheeling, county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Processes of Producing Decorative Color Effects on Glassware, of which the following is a specification.

This invention relates broadly to a method of decorating glassware, and more particularly to a method of treating glassware to produce decorative color effects.

The primary object of the invention is to provide a method or process of producing glassware having variegated surfaces in which the colors are disposed in veins, in clouds, in mottlings, or in distinct groupings, presenting handsome marking effects resembling agate or some of the variegated varieties of marble.

In carrying out the invention the initial step is to apply to the surfaces of a formed article of ware, made of translucent, opaque, or semi-opaque glass, a mixture composed of a saturated solution of copper salts, preferably copper sulfate (blue vitriol) and a suitable binder, vehicle or body, preferably a ferruginous clay, as brown, red or yellow ocher, the proportions of said ingredients being such that the mixture posseses the requisite body for effecting adhesion. The article may either be immersed in said mixture or its surfaces may be painted either in whole or in part, as desired, with said mixture. The article is then introduced in a kiln or leer and gradually heated to a temperature approximating 900° F., after which it is allowed to cool gradually. The article is then subjected to a cleaning or washing step, whereupon it will be found that the copper sulfate has produced a light or delicate yellow stain. I then apply to the cleaned article a silver salt solution, as silver chlorid or silver nitrate, or a mixture of both, mixed with a binder, vehicle or body, as yellow ocher, in proportions varying from one to twelve parts of the binder to one part of silver salt, it being understood that the decorative coloring of the finished article varies with the relative proportions of the silver salts in the mixture, the greater the proportion of said salts the darker or more pronounced will be the ultimate stain produced. This mixture may be applied by immersing the ware therein or by painting therewith the surface of the article in whole or in part, as desired.

Following the application of the coating, as just explained, the ware is again introduced in a kiln or leer where it is subjected to a gradual heating to a temperature of approximately 900° F., after which it is gradually cooled. The article is then washed to remove the binder, whereupon it will be found to present a great variety of pleasing colorings disposed in streaks or veins resembling the vari-colored veins of variegated marble.

For imparting to the ware dark clouded or mottled coloring effects which modify, enrich and render more artistic the appearance of the same, without destroying the streaks or veins, I brush portions of the surface of the ware with a relatively stronger solution of the silver salt mixture. This step may be taken immediately following the above-mentioned application of the silver salt mixture and prior to the second firing of the ware, or following the second firing. In the latter case, however, a third firing and washing is necessary.

As is obvious, additional silver salt coatings followed by firings and washings may be resorted to indefinitely, in which case ever varying artistic effects will result. However, the article will ordinarily be regarded as finished following the second firing herein referred to.

If desired the high gloss or polish carried by the finished ware may be removed in any well-known manner, as by subjecting the articles to an acid bath or to the action of a sand blast.

It may here be noted that fair decorative effects may be obtained when the initial steps of straining with copper sulfate and the immediately subsequent firing are omitted—that is, when the ware is treated alone with the silver salt mixture. However, decidedly better results are obtained when said staining step and the subsequent firing are followed.

What is claimed is—

1. The method of producing decorative coloring effects on glassware, which consists in staining the ware with a copper sulfate solution, firing the ware to fix the stain, then applying to said ware a coating or partial coating of a silver salt solution, and finally refiring the ware.

2. The method of producing decorative coloring effects on glassware, which consists

in applying to an article of translucent ware a coating or partial coating of a copper sulfate solution, firing the ware to fix the sulfate stain thereon, then applying over the surface or parts thereof a coating of a silver salt solution, and finally firing the ware.

3. The method of producing decorative coloring effects on glassware, which consists in applying to an article of translucent ware a coating or partial coating of a staining solution of copper sulfate mixed with a suitable binder, firing the coated ware to fix the sulfate stain thereon, then cleaning the ware to remove the binder, then coating or partially coating the ware with a solution of a silver salt mixed with a suitable binder, and finally firing the coated ware a second time.

4. The method of producing decorative coloring effects on glassware, which consists in applying to an article of translucent ware a coating or partial coating of a staining solution of copper sulfate mixed with a suitable binder, heating the coated ware gradually to a temperature approximating 900° F., then gradually cooling said ware, then removing the binder, then coating or partially coating said ware with a solution of a silver salt mixed with a suitable binder, then heating the ware gradually to a temperature approximating 900° F., and finally gradually cooling said ware.

5. The method of producing decorative coloring effects on glassware, which consists in applying to an article of translucent ware a coating or partial coating of a staining solution of copper sulfate mixed with a ferruginous clay binder, heating the coated ware gradually to a temperature approximating 900° F., then gradually cooling said ware, then removing the binder, then immersing said ware in a solution of a silver salt mixed with a binder, then brushing parts of said ware with a relatively stronger silver salt solution, then heating the ware gradually to a temperature of 900° F., and finally gradually cooling said ware.

In testimony whereof, I affix my signature in presence of a subscribing witness.

HARRY NORTHWOOD.

Witness:
W. F. KEEFER.