A. FRIEDRICH.

DECORATED TRANSPARENT ARTICLE AND PROCESS OF MAKING SAME.

APPLICATION FILED JAN. 5, 1916.

1,205,728. Patented Nov. 21, 1916.

Fig. 1.

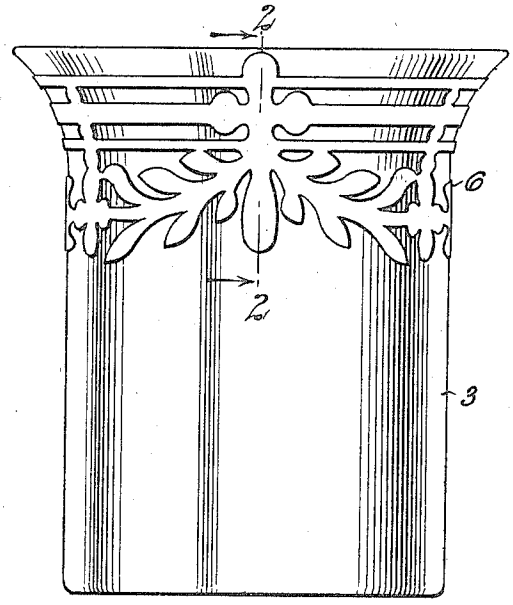
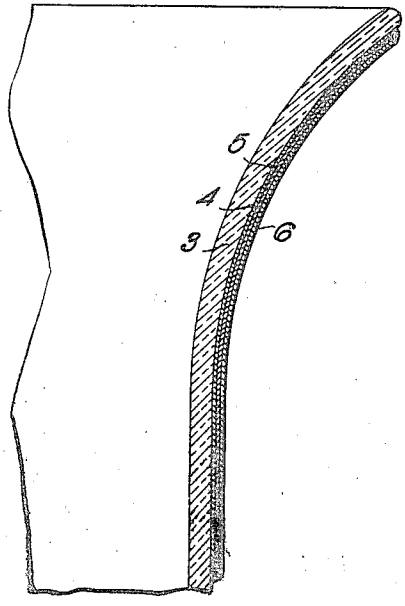


Fig. 2.



WITNESSES

Edw. Thorpe

INVENTOR

A. Friedrich

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALFRED FRIEDRICH, OF NEW YORK, N. Y., ASSIGNOR TO NATIONAL SILVER DEPOSIT WARE CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

DECORATED TRANSPARENT ARTICLE AND PROCESS OF MAKING SAME.

1,205,728. Specification of Letters Patent. Patented Nov. 21, 1916.

Application filed January 5, 1916. Serial No. 70,443.

To all whom it may concern:

Be it known that I, ALFRED FRIEDRICH, a subject of the Emperor of Austria-Hungary, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented new and Improved Decorated Transparent Articles and Processes of Making Same, of which the following is a full, clear, and exact description.

My invention relates to a transparent article decorated with gold rendered inaccessible to air but visible through the body of the article.

An object of the invention is to provide a transparent article which may be decorated with any desired gold design and in which the gold of the design is protected from air or liquids that may be carried by the article and thereby produce a more sanitary article.

A further object of the invention is to provide an expeditious process for decorating transparent articles, such as glassware, with gold, the gold being rendered inaccessible to the action of air.

A further object of the invention is to provide a process of decorating transparent articles with gold which is rendered visible through the body of the article only.

The invention further relates to a process of decorating transparent articles with gold insulated from air by silver, the gold remaining visible through the body of the article.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as herein fully described, illustrated and claimed.

In the accompanying drawings, forming part of the application, similar characters of reference indicate corresponding parts in both views.

Figure 1 is an elevation of a glass tumbler embodying my invention; and Fig. 2 is an enlarged fragmentary section thereof showing a section through the coatings over the design.

The transparent article which is to be decorated is coated with liquid gold on that part of the surface where the design is to be formed so as to be visible through the other side of the article. As shown in the drawing, the transparent article is a glass tumbler 3, the outer surface of which is to be decorated at the mouth of the tumbler, and which is coated with liquid gold on that part of its surface which is to be decorated. The so-coated article is then subjected to the action of heat in a suitable oven. The coating of gold 4 on the article is then covered with a protecting coating 5 which forms the background on which the desired design with which the article is to be decorated is drawn. This protecting coating leaves the gold visible through the body of the article only. It also maintains the gold bright during the process of decoration and after it has been decorated.

The protector is formed of a mixture of water, gum-arabic, relief white, glass flux, oxid of zinc, and oxid of bismuth, all ground very fine and mixed in water, so that the same can be easily applied with a brush. This mixture forms a white background on the gold. The design is then drawn on this white coating with a composition immune to the action of aqua regia. This composition is preferably formed of asphaltum and turpentine mixed in proper proportions. The so-decorated article is then etched by dipping it into the aqua regia, which will remove all traces of the gold protector and gold not covered by the composition immune to the acid. After etching, the article is washed with clean water to remove all traces of acid. The article is then placed into a solvent for the coating immune to the acid, which solvent is preferably mineral oil; care being taken that all traces of asphaltum should be removed from the article. The decoration on the glass, which is formed of the gold coating and the gold protector is metallized to form a support for silver, with which the article is to be electroplated. This silver support with which the decoration is metallized preferably consists of brown gold, gold alloy, glass flux, and borax mixed in proper proportions and ground fine. This powder is dusted upon the decoration and

the article is subjected to heat to fuse the powder with the gold protector to form a metallic base. The article is then placed into a silver electrolyte and electroplated, the silver coating 6 formed upon the support covering the gold protector and thereby sealing the gold on the surface of the article and rendering the same inaccessible to the air. The only surface of the decoration exposed to air is that of the silver coating, which can be easily cleaned without injuring the gold coating.

Hitherto the gold decoration on glass tableware has been formed on the inner surface by following out the design formed on the outer surface. Since such tableware is usually used for liquors, the gold on the inside surface is subjected to the action of the liquor and becomes tarnished by the same. Also, the liquor works its way between the gold and the glass surface of the article and, in consequence, an unsanitary condition results which cannot be remedied by an ordinary cleaning of the gold. Further, it causes the gold decoration on the surface of the article to become detached therefrom. The formation of the gold design on the inner surface requires a specialist, for it must correspond with the decoration on the outer surface, and in consequence the articles are very expensive. With my process the decoration is on one surface only. The gold decoration is positively inaccessible to liquors carried within the tableware, for it is protected by the glass of the article. It is protected from tarnish by atmospheric conditions by the silver decoration deposited on the gold, to which it is cemented through the medium of the gold protector. The gold does not need to be polished for it is forever bright, being rendered visible only by the transparency of the article, and, consequently, it is everlasting.

In place of decorating the surface of the transparent article with gold it may be decorated with other metals, such as silver or compounds of metals, particularly oxids, for the decoration formed on the glass surface is protected from contact with the atmosphere, and all other substances, by the metal electroplated thereupon. The electroplated metal may be gold in place of silver, if so desired, for a deposit of gold may be as easily formed on the metallized coating as of silver.

I claim:

1. A transparent article having a decoration formed on one of its surfaces, the said decoration being formed of a layer of gold contacting with the surface on which the decoration is formed, a layer of gold-protecting substance over the layer of gold, and a layer of silver over said gold-protecting layer, said silver layer sealing the gold and gold-protecting layers on the surface where the decoration is formed and whereby said gold layer is visible through the body of the article only.

2. A process of decorating transparent articles which consists in forming a gold coating on one of the surfaces of the article, covering the gold coating with a gold-protecting coating adapted to form also a background for a design with which the article is to be decorated, drawing the design with a composition immune to acid, etching the design by dipping the article into acid, whereby the uncovered portions of the gold-protecting coating and gold are removed, dissolving the coating immune to acid, metallizing the decoration on the article, and electroplating the decoration with silver.

3. A process of decorating transparent articles which consists in forming a gold coating on one of the surfaces of the article, covering the gold coating with a coating for protecting the gold coating and forming a base for receiving a coating of silver, etching the said coatings to the surface of the article whereby a decoration is formed thereupon, then plating the non-etched part of the coating with silver.

4. A process of decorating transparent articles which consists in forming a gold coating on one of the surfaces of the article, covering the gold coating with a coating for protecting the gold coating, which forms a base for a silver coating, etching in said coatings a design to the surface of the article, then electroplating the non-etched parts of the coatings with silver.

5. A transparent article having a decoration formed on one of its surfaces, the said decoration being formed of a layer of metal in contact with the surface on which the decoration is formed, a layer of metal-protecting substance covering the layer of metal, and another layer of metal over said metal-protecting layer, said latter metal sealing the first-mentioned metal and the metal-protecting layer on the surface where the decoration is formed.

6. A transparent article having a decoration formed on one of its surfaces, said decoration being formed of a metal layer in contact with the surface on which the decoration is formed, a metal protecting substance covering the metal layer and forming a white background for the metal layer, and a layer of metal over said metal protecting layer for sealing the first metal and the metal protecting layer on the surface of the article.

7. A process of decorating transparent articles which consists in forming a metal coating on one of the surfaces of the article, covering the metal coating with a metal-protecting coating adapted to form a back-

ground for the metal coating, drawing the design with a composition immune to acid, subjecting to acid the non-protected part of the metal-protecting coating and the metal coating, removing the coating immune to acid, metallizing the metal protecting coating, and covering the so-metallized metal protecting coating with a metal so that the same will seal the metal-protecting coating and the first metal thereunder on the surface of the article.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED FRIEDRICH.

Witnesses:
ISAAC FERST,
M. LEVY.