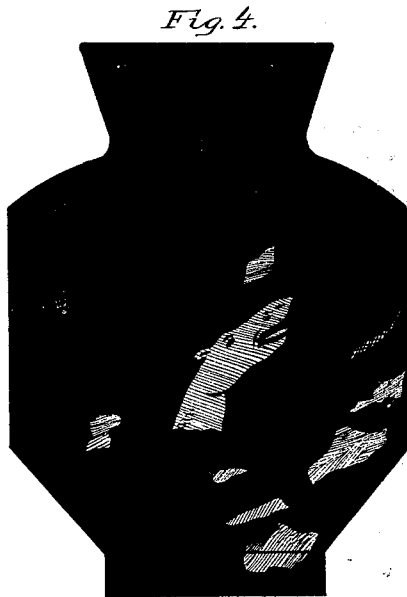
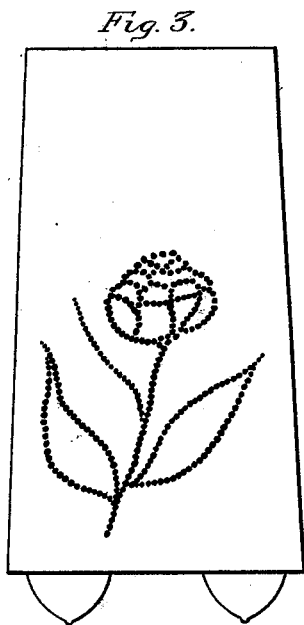


F. S. SHIRLEY.  
Ornamentation of Glassware.

No. 220,038.

Patented Sept. 30, 1879.



Witnesses:  
J. W. Garner?  
C. S. Owen

Inventor:  
F. S. Shirley  
per  
F. A. Lehmann,  
att'y

# UNITED STATES PATENT OFFICE.

FREDERICK S. SHIRLEY, OF NEW BEDFORD, MASSACHUSETTS.

## IMPROVEMENT IN ORNAMENTATION OF GLASSWARE.

Specification forming part of Letters Patent No. **220,038**, dated September 30, 1879; application filed December 23, 1878.

*To all whom it may concern:*

Be it known that I, FREDERICK S. SHIRLEY, of New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in the Ornamentation of Glassware; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improved method of decorating and ornamenting glassware and other vitreous materials capable of being fluxed; and it consists in forming or inserting designs in or on the surface of the articles made, by first coating the pieces to be inserted with a suitable flux, and then rolling the article, while hot and plastic, over the pieces; or by placing the pieces on the article, clamping them tightly together, and then heating them to such a degree as to flux them together, as will be more fully described hereinafter.

In the accompanying drawings the figures illustrate different methods of ornamentation.

In making the different articles for ornamentation, I prefer to use glass having lava mixed with it, so as to have a dark, perfectly black, or a colored background, so as to make a stronger contrast with the inserted pieces; but white or other light-colored glass or vitreous material may be used as well.

In working my process the method is varied to suit the material or metal used to make the article, and the process is varied according to the result to be obtained.

The pieces to be inserted for the sake of decoration are of an analogous material to the material out of which the article to be decorated is made, and should the pieces for decoration and the article to be decorated be of dissimilar material, the pieces are backed with a coating of suitable fluxing, so that they will be readily absorbed into the surface of the otherwise antagonistic material. By thus fluxing the pieces to be inserted, I am enabled to work and assimilate glasses and materials of entirely different degrees of hardness and nature, and which would otherwise scale and fly apart. By

this means I am also enabled to firmly embed, insert, or attach metals that are only fusible at high temperatures to glass, lava-ware, or any material capable of fluxing.

In decorating the various articles made, the workman gathers the glass from the pot and proceeds to form the article in the method well known to the trade. He then reheats the article, and either applies the decorative pieces or figures to the sides of the heated article, or rolls the article over the pieces or figures as they lie upon an iron plate, and then, by reheating the partly-formed article and finishing it in the usual manner, the decorative pieces or figures will form a part of the surface of the article, as shown in the drawings.

In carrying out this process there may be a plate having recesses in its surface, which recesses form a regular figure or ornament. In these recesses are placed different-colored beads or glasses or pieces of metal, and this plate, with the pattern placed thereon, may be placed in a muffle and heated to any desired degree, and then the heated article that is being formed may be laid upon this pattern, so that the pieces which form the pattern will adhere to the article, and thus be transferred to the article. In finishing the article, the pieces, beads, or metal will be embedded in the surface of the article, so as to form a solid part thereof, and yet be very conspicuous by reason of their different colors or forms.

Where hard metallic figures are to be inserted I prefer to make them from metallic solutions, and form them by electro-deposit process, as by this means I can more nearly assimilate them to the required melting-point without their losing their identity, though I can use regular metals of commerce by preparing them. These metallic figures or ornaments are fluxed on their inner sides, and, after they have been attached to the glass article, can be given a very high polish, gilded, electroplated, or otherwise finished, and thus give the article a very elegant finish. Should it be desired to insert these metallic or other figures, or attach them to the sides of already-finished articles, the figures are more heavily fluxed, and then clamped to the side of the article, and then exposed to heat in a muffle. If a very high temperature

is needed for this purpose, the outer face of the ornament or figure is protected by a non-fusible case, so as to keep the integrity of the ornamentation intact.

Where irregular designs, such as mosaic or marble patterns, are desired, I form pieces or plates of glass or lava of various colors, either opaque, or rendered opaque by backing with suitable colors or material, and then break or cut them into the required shapes, and then insert them in the manner described. By making the flux of a dense white or a bright color, and having it flow around the edges of the pieces inserted, a fine finish or effect is given.

Where grotesque figures or ornamentation is desired, the pieces to be inserted, of different colors, forms, and sizes, are floated on the glass, and after the article is finished an artist takes his brush, and, by adding parts of figures in gilt or color to these pieces, transforms them into figures of animals and human beings of the most grotesque forms. Where a metallic figure has been added, gold traceries or designs may be painted all around it. Should it be desired to form figures of these pieces without outlining them in gold and adding parts of figures to them, the pieces may be cut through to the backing by means of the etching process, copper engraving wheels, or other similar means, and thus convert them into figures of animals and other objects.

Where special designs are required, I form the pieces that are to be attached or inserted in special molds or formers. These pieces, of whatever form or color that may be preferred, are fluxed over and then applied to metal plates having indented lines or figures therein. A hot mass of glass is then worked over the same, so as to attach them to the plate, thereby producing figures in relief or cameo effect.

Perforated shells or pieces of metal can be attached to the glass article that is being formed while the glass is yet soft, and the glass then be blown and finished. All the glass points projecting through the metal plate can be cut away and polished down to the metal surface, thereby producing the same effects as shown in Japanese metal-enamel ware.

Having thus described my invention, I claim—

1. The method herein described of preparing pieces or figures of glass or lava ware and metal for ornamentation, by fluxing them, and then attaching them to the article to be ornamented by means of heat, substantially as shown.

2. A new article of manufacture, consisting of an article of glass or lava ware having inserted mosaics, forming part of the surface of the same, substantially as described.

3. An article of glass or other material capable of being fluxed, having vitreous or metallic figures, suitably fluxed, inserted or attached thereto, so as to form a part of the surface, substantially as set forth.

4. The process herein described of ornamenting articles of glassware or other similar material, by inserting pieces in their surface, and then converting these pieces, by the help of the brush, into grotesque figures, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of May, 1878.

FRED. S. SHIRLEY.

Witnesses:

R. M. BARR,

F. A. LEHMANN.