

UNITED STATES PATENT OFFICE.

FREDERICK W. RHINELANDER, OF NEW YORK, N. Y.

IMPROVEMENT IN THE PROCESSES OF ORNAMENTING ENAMELED SURFACES.

Specification forming part of Letters Patent No. **148,986**, dated March 24, 1874; application filed January 24, 1874.

To all whom it may concern:

Be it known that I, FREDERICK W. RHINELANDER, of the city, county, and State of New York, have invented certain new and useful Improvements in the Production of Enameled Surfaces of Varied Colors, of which the following is a specification:

This invention relates to the production of enameled surfaces of varied colors, susceptible of many applications in the arts. By enameling, I have reference to the application of a coating of vitreous substance to a surface of metal or other suitable material, and baking the same in by a fusing heat.

My mode of procedure for the accomplishment of the object I have in view is as follows: I first apply to the metallic or other surface, which serves as a backing, the enamel, any ordinary or suitable vitreous enameling composition, which is to form the groundwork or main portion of the enameled surface. This composition is then subjected to the usual heat, in order to fuse and bake it in. After the formation of this enameled ground, I take the plate and lay upon its enameled surface a plate or sheet or strip of any suitable material, having cut out from it, after the manner of a stencil-plate, the pattern or ornamentation which is to be formed on the enameled face. I then subject the enameled plate to the action of a sand-blast, such, for instance, as that which is described in Letters Patent to B. C. Tilghman, dated October 18, 1870, by which the portions of the enamel exposed by the openings in the superimposed pattern plate or sheet will be cut away, leaving in the enameled surface a depression or depressions exactly corresponding to the size and shape of the pattern-openings. As soon as this operation is completed, the pattern is removed, and the portions of enameled plate recessed by the sand-blast operation are filled with enamel of requisite color or colors. The plate is then

reheated so as to bake and fuse the enamel last applied, and when this has been effected the article is completed.

The process described can be applied to many uses, for instance, in the manufacture of enameled signs, &c. The plate can first be enameled over its whole surface with a vitreous enamel of the requisite color, say, blue. Then, what I have called the stencil plate or sheet, with the requisite pattern cut in it, can be placed on the enameled surface, and the sand-blast applied to cut away the portions of the enamel exposed by the openings in the pattern-plate. The depressions or recesses thus formed, having the shape of letters or figures, or both, may then be filled with a vitreous enamel or enamels of suitable color or colors, white, red, black, &c., and the second heating will have the effect of fusing and baking in these subsequently applied enamels.

Highly ornamental enameled surfaces, in mosaic, arabesque, &c., can thus be produced; and by a process akin, so far as the successive application of the different colors is concerned, to chromolithography, enameled pictorial representations, artistic in character, can be produced.

I claim as my invention—

The process herein described of producing ornamental designs, letters, &c., on enameled plates or other vitreous surfaces, consisting essentially in engraving the design by the sand-blast or other suitable means, and filling the recesses so formed with enameling material, and then subjecting the plate to a second heating sufficient to fuse the applied enamel, substantially as specified.

In testimony whereof I have hereunto signed my name this 19th day of January, A. D. 1873.

F. W. RHINELANDER.

Witnesses:

CHARLES H. HATCH,
SAMUEL HOSKIN.