

UNITED STATES PATENT OFFICE.

CORNELIUS P. DORPOLS, OF BERWYN, ILLINOIS.

PROCESS OF ORNAMENTING GLASS.

SPECIFICATION forming part of Letters Patent No. 615,479, dated December 6, 1898.

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To all whom it may concern:

Be it known that I, CORNELIUS P. DORPOLS, a citizen of the United States, residing in Berwyn, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Processes of Ornamenting Glass, of which the following is a specification.

This invention relates to a process of ornamenting glass in colors, and is designed to produce the class of colored glass largely used in church-windows in a much more economical manner than has been possible heretofore. In the manufacture of this kind of glass it has been usual to first apply the ground color to the glass, producing the design in the color as it is laid on, the operation being a slow and laborious one. The glass and color are then fired, so as to fusibly unite the two. After this the other colors are laid over the ground, and then all are subjected to at least one additional firing and oftentimes to more than one. These additional firings not only take time, but they involve expense, render the glass brittle, and sometimes they affect the tints of the coloring.

In my improved method instead of forming the design in the ground color at the time of applying the latter I first coat the entire surface of the glass evenly with the color desired for the ground and afterward etch the design therein. The glass may be either clear or ground, according to the effect desired, and an admixture of varnish or other adhesive material should be added to the color, so it will adhere to the glass. After the color has become set and hard I proceed to etch the design therein as follows: I first cover the color with a mixture such as is used by sand-blast operators and which is adapted to protect the parts covered by it from the action of the sand. I then transfer to the coated surface the design which it is desired to apply to the glass. This may be done by preparing the design in wax and then placing the latter upon the blast-resisting coating and then washing away such of said coating as is not embraced in the design. I then subject the surface to the sand-blast, and thereby cut out all but the lines and details of the design in the ground coating. I then wash off all the wax and the remaining blast-resisting material, leaving on the glass only such of the

ground color as was not cut away by the blast. The surface is now ready for the application of the other colors, and these are laid on in such number as may be necessary to produce a harmonious effect, allowing each to dry before another is applied, and laying them one on top of another wherever that is necessary. The final step of the process (the firing) is next in order. As all the colors are now on the glass, they are all simultaneously fixed to it in much the same way as the separate colors have heretofore been fixed by the firing. In this manner and with only a single instead of repeated firings I produce an article of ornamental glass in all respects equal and in some respects superior to the ornamental glass produced in the old way, while at the same time I not only avoid the expense entailed by the unnecessary firings heretofore used, but my process does not injure the glass or render it brittle or injure or modify the colors, as do the repeated firings of the old method of manufacture. I am also able to duplicate work with great exactness.

I do not wish, of course, to be limited to the particular method of transferring the design to the glass, as that part of the process may be done in any known way; nor do I wish to be limited in all my claims to first coating the glass with the ground color and afterward etching out the design therein, as some of the benefits of my invention may be obtained by forming the design in the ground color at the time of applying the same.

I claim—

1. The improvement in the art of ornamenting glass, consisting in first coating the glass with the ground color, then cutting the design in such color by the sand-blast, then laying on the other color or colors, and finally firing the glass and fixing all the colors simultaneously, substantially as specified.

2. The improvement in the art of ornamenting glass, consisting in first coating the glass with the ground color, then etching the design in such color and removing the portions thereof not embraced in the design, then applying the other color or colors to the design, and finally firing the glass and fixing all the colors simultaneously, substantially as specified.

3. The improvement in the art of ornamenting glass, consisting in first coating the glass with an adhesive ground color, then applying a design to said color and etching the same therein, then washing away all the color except the portions included in the design, then laying on the other color or colors, and finally firing the glass to fix the colors, substantially as specified.
- 10 4. The improvement in the art of ornamenting glass, consisting in applying a design to the surface of a sheet or body of glass in a plurality of colors including a ground and finishing color or colors, and then fixing both the ground and the finishing colors simultaneously to the glass by a single firing, substantially as specified.

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Witnesses:

EDWARD S. EVARTS,
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