

UNITED STATES PATENT OFFICE.

EDWARD O'NEIL, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HIMSELF
AND JOSEPH T. HOLLOWAY.

IMPROVEMENT IN PROCESSES OF ENGRAVING ON GLASS.

Specification forming part of Letters Patent No. **172,159**, dated January 11, 1876; application filed
September 29, 1875.

To all whom it may concern:

Be it known that I, EDWARD O'NEIL, of San Francisco, in the State of California, have invented an Improved Process of Engraving on Glass, of which the following is a specification:

My invention relates to a process of engraving on glass for useful and ornamental purposes. It consists in a composition composed of the ingredients hereinafter mentioned, and the employment of the same, in combination with engraving-tools of different shapes, to produce a cutting action of the tools upon the surface of the glass, as will more fully appear in the following description.

The tools I use in my process or art of engraving and ornamenting upon glass are of hardened steel, somewhat like those used to engrave upon metal, and of different shapes and sizes at the cutting-point, some being broad and flat like a "cold-chisel," and others tapering and pointed, according to the width or fineness of the lines to be produced. These tools I use by holding them in a perpendicular manner, at right angles, or nearly so, to the surface of the glass, and tapping or striking them lightly with a small mallet or bar of wood. They are caused to bite or act upon the surface of the glass by dipping their points or cutting-edges into, or otherwise keeping them constantly moistened with, the fluid composition composed of the following ingredients, taken in about these proportions: Vegetable oil, (olive,) one-half pint; coal-oil, (kerosene,) one-half pint; fluoric acid, ten drops. This composition alone will not affect the surface of the glass when poured upon it; but when used in connection with the engraving-tools it produces an abrasion of the surface wherever the cutting-points of the tools are directed. Its action is to produce a roughness of the lines or surface acted upon by the tools, and form a multitude of facets or points upon the glass, from which the light is reflected in a brilliant manner.

In applying my process to the ornamenting of glass I first mark or trace the design upon the surface, or put in upon paper and place the same at the back of the glass, and then

cut the lines by using a tool of the proper shape of cutting-point, which I hold and use in the manner above described, striking or tapping it with a small mallet, and keeping its point constantly wet with the composition before mentioned.

In working between lines where the surface is to be cut and sunk below the surface, I employ a broader tool, with a flat end like a chisel, to act upon a larger portion of surface; but in all cases they must be kept moistened with the liquid composition, in order to produce a change in the surface of the glass.

I am aware that the surface of glass has been engraved upon or etched by the employment of the fumes or vapor of fluoric acid; but the process is disagreeable and imperfect, no sharp and definite lines can be produced, and the surface acted upon is dull and uneven, and incapable of reflecting and acting upon the light.

My process is cleaner and more certain in its effects, lines of any required degree of fineness and sharpness of outline can be cut upon the glass, and the work is much superior in artistic excellence to any of the kind heretofore produced.

The back of the glass ornamented can be coated with amalgam, if desired, resulting in the reflection of the engraving on the surface, adding greatly to its beauty; but I do not claim such as part of my invention.

Having thus described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The composition for engraving upon glass, composed of olive-oil, coal-oil, and fluoric acid, in about the proportions stated, substantially as described.

2. The process of ornamenting or engraving on glass herein described, consisting of the employment, with tools and points, of the fluid composition compounded as hereinbefore set forth and claimed, in the manner and for the purpose described.

EDWARD O'NEIL. [L. S.]

Witnesses:

PHILIP MAHLER,
C. W. M. SMITH.