

UNITED STATES PATENT OFFICE.

GEORGE F. LAPHAM, OF SANDWICH, MASSACHUSETTS.

ART OF POLISHING GLASS.

SPECIFICATION forming part of Letters Patent No. 230,137, dated July 20, 1880.

Application filed March 22, 1880. (Specimens.)

To all whom it may concern:

Be it known that I, GEORGE F. LAPHAM, of Sandwich, of the county of Barnstable and State of Massachusetts, have invented a new and useful Improvement in the Art of Polishing Cut Glass; and I do hereby declare the same to be described as follows:

Heretofore, in order to polish glass after it may have been cut or ground by a wheel or other device generally employed for such purpose by glass-cutters, it has been customary to effect the finishing or polishing by means of buffing or polishing wheels or implements and suitable polishing materials, such as pumice-stone, rotten-stone, or oxide of lead, or "putty," as termed by glass-cutters.

This process of finishing is attended with the formation, in the surface of the glass, of extremely minute scratches or grooves, which cannot be avoided, owing to the substances and means employed in the reduction of the glass. These scratches or grooves (generally invisible to the eye of an ordinary observer) materially affect the reflective powers of the surfaces, often causing them to appear more or less greasy or imperfect, and besides they more or less impair the refractive properties of the grooves or prismatic surfaces or parts of the ornamentation of the glass.

The purpose of my invention is to obliterate the minute scratches or grooves of the polishing process, or so modify the surface so polished as to prevent the evil results thereof and cause it to present a highly brilliant appearance; and this I do by combining the ordinary process of wheel or hand grinding and polishing, as mentioned, with the application to the surface or surfaces so treated of a mixture or bath of fluorine and sulphuric acids, using, by preference, seven parts, by measure, of the fluorine acid and two parts, by measure, of the sulphuric acid, to which, in some cases, one part, by measure, of water may be added.

Into a bath of such composition, after an article of glass may have been wheel or hand cut and polished, I dip such article and allow it to

remain therein for a very short space of time—viz., about two minutes—after which, and having removed the article from the composition, I wash from the surface of it acted on any adhering acid and superfluous matter or matters, in which case the minute scratches or grooves resulting from the wheel grinding and polishing will be found to have been obliterated or so changed as no longer to produce the bad effects as stated, the whole surface of the glass having a far more brilliant appearance than can be produced by the hand or wheel polishing process alone.

The fluorine acid alone will not produce the desired result. I have found in practice that in order to attain it an amount of sulphuric acid, or some equivalent therefor, must be combined with the fluorine acid.

I do not confine my improvement to the using of the above-described acids in the precise portions hereinbefore mentioned, as they may be varied therefrom somewhat, and still be productive of a good result.

I am aware that for some years prior to my invention it has been customary to use a mixture of acids, as described, in the process of etching glass in order to produce ornamental figures thereon; but my process is not for such purpose, but is to overcome a difficulty or difficulties incident to or resulting from the ordinary modes of hand or wheel cutting and polishing of glass.

What I claim as my invention is as follows, viz:

1. In combination with the ordinary hand or wheel cutting and polishing of an article of glass, the subsequent treating of it by acids, as described, all being substantially as and for the purpose set forth.

2. As an improved manufacture, glass, wheel or hand cut and polished and subsequently finished by acids, as set forth.

GEORGE F. LAPHAM.

Witnesses:

R. H. EDDY,
W. W. LUNT.