

(Specimens.)

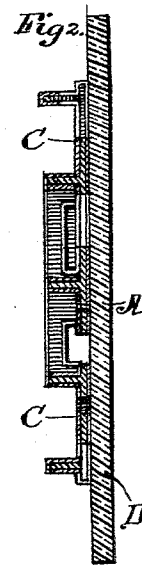
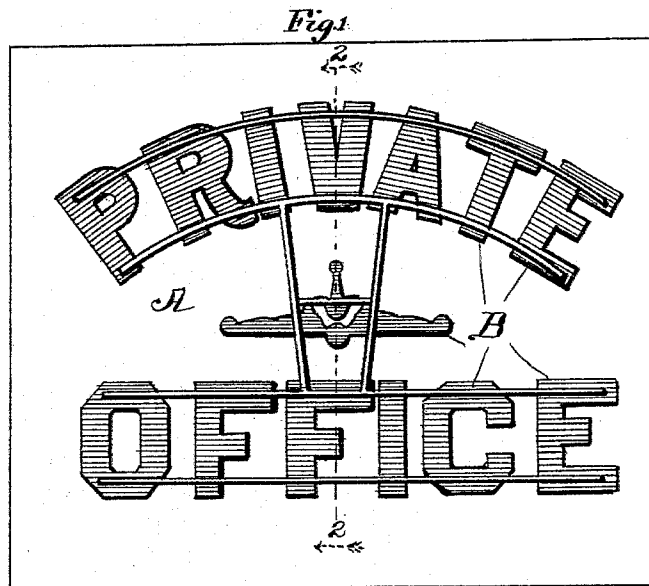
2 Sheets—Sheet 1.

S. EVANS.

PROCESS OF PREPARING GLASS, &c., FOR THE SAND BLAST PROCESS.

No. 494,998.

Patented Apr. 4, 1893.



Figs.



Witnesses;

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(Specimens.)

2 Sheets—Sheet 2.

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Fig. 6.

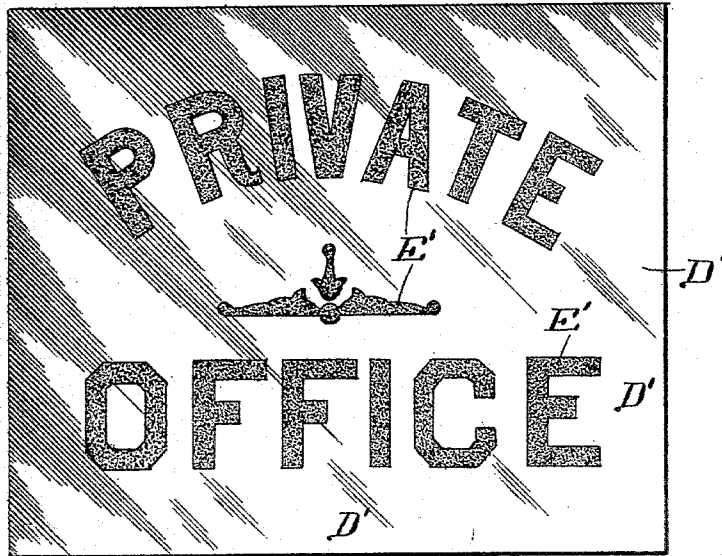
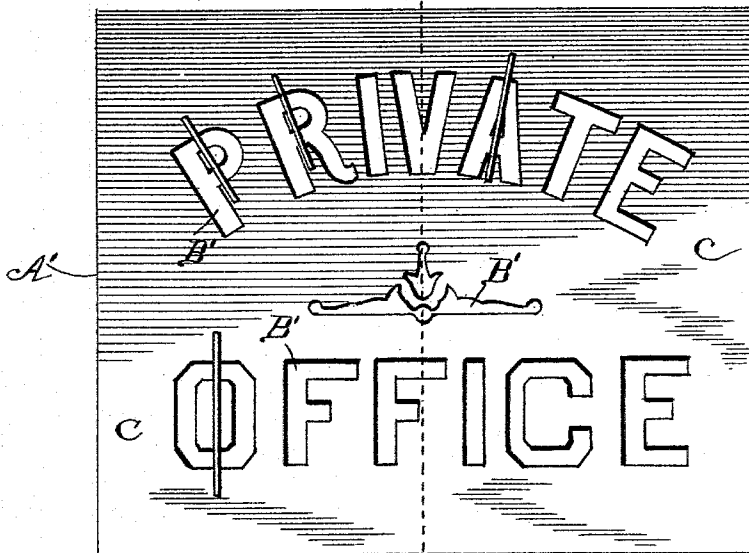


Fig. 4

← 5 →

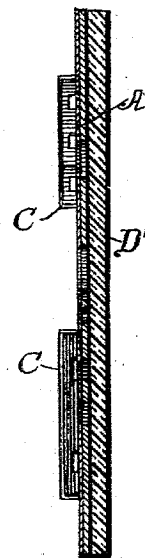


Witnesses:

Lute S. Alter
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← 5 →

Fig. 5



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UNITED STATES PATENT OFFICE.

SAMUEL EVANS, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES L. RAWSON, OF SAME PLACE.

PROCESS OF PREPARING GLASS, &c., FOR THE SAND-BLAST PROCESS.

SPECIFICATION forming part of Letters Patent No. 494,998, dated April 4, 1893.

Application filed April 16, 1891. Serial No. 389,256. (Specimens.)

To all whom it may concern:

Be it known that I, SAMUEL EVANS, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Process for Preparing Glass, Stone, and other Materials for the Sand-Blast Process, of which this specification is a full and complete description, reference being had to the drawings accompanying and forming a part hereof.

This invention relates to a process of preparing glass, stone or other material for the sand blast process, and is designed to be employed when a large number of pieces of glass, stone or other material are to be marked with the same design, or duplicates thereof, and the object sought by this process is to render it practicable to use a single pattern in the marking, by the sand blast process, of the design contained upon each and all of such sheets of glass, stone or other material after the same are subjected to the sand blast process; and the invention consists in the manner in which such glass, stone or other material, which is to have marked thereon a design by the sand blast process, is prepared prior to the placing thereon of the pattern used, combined with the manner in which the pattern is so placed on such glass, stone or other material and the manner in which the pattern, but not the glass, stone or other material on which it is placed, is protected from the grinding, marking or other effects of the sand in the sand blast.

Heretofore in preparing the surface of a piece of glass, stone or other material for the sand blast, the process has usually been to first attach thereto patterns made of tin-foil or other equivalent material, and corresponding to the designs to be produced, then spreading over the whole a film of beeswax or equivalent material and finally stripping off the pattern so as to expose the surface formerly occupied by it to the action of the sand blast. In preparing the surface of glass or other material for the sand blast by my process, a suitable sheet metal pattern is attached thereto and allowed to remain thereon until the desired design has been produced by the sand blast, and hence in my process of preparing

glass or other material for the sand blast process, the pattern employed is the negative of the design to be produced upon the surface of such glass, or other material, and not the positive thereof, as in the above described process.

In the drawings, Figure 1 is a top plan view of a sheet metal pattern mounted on and secured to a sheet of glass; Fig. 2 a cross section thereof on line 2—2 of Fig. 1; Fig. 3 a plan view of a sheet of glass which has been subjected to the sand blast process after having been prepared therefor by my process, using the pattern illustrated in Figs. 1 and 2; Fig. 4 a plan view of a sheet metal pattern mounted on a sheet of glass; Fig. 5 a cross section thereof on line 5—5 of Fig. 4 and Fig. 6 a plan view of a sheet of glass after it has been prepared by my process for and has been subjected to a sand blast process, using the pattern in such process of preparation illustrated in Figs. 4 and 5.

The same letters of reference indicate corresponding parts throughout the several views.

A, A' are patterns.

B, B' are designs cut through or formed by patterns A, A'.

C is a coating of protecting material applied to the upper surface of the patterns respectively, before the same are subjected to the sand blast process.

D, D' are sheets of glass having thereon the positives E, E', respectively, of the design contained in negative patterns A, A', such positives having been produced by subjecting the sheets of glass to the sand blast process after they have been, respectively, prepared therefor, by my process.

In order that the sand in the sand blast be delivered to or allowed to come in contact with such part and such part only of the surface of glass or other material which is to be marked or ground thereby, and sharp and clearly defined contour lines be obtained to such marking or grinding, the pattern used to protect that part of such surface not to be marked or ground must be constructed of material adapted to lay closely to the surface of such glass or other material upon all parts

thereof and have clearly or sharply cut edges thereto. I have heretofore constructed the patterns of ductile sheet metal, as zinc, copper or other like material; and in practice I have found sheet zinc to be the best adapted of any metal known to me for all the purposes required in the material of which such pattern is constructed. When however, a pattern formed of ductile sheet metal is exposed to the action of the sand blast, with the upper surface thereof exposed directly thereto, it is warped or bulged up by the action thereof very quickly, that is to say, in passing through the sand blast once or twice, and thereafter sand contained in the sand blast will blow under such pattern, thereby producing poorly defined edges or contour lines in the marking obtained, and thus the pattern is rendered useless; hence, I have found it necessary, to obtain the results desired on the glass, stone or other material and to prevent destruction of the patterns, by the sand blast employed, to cover such pattern with a protecting material, which protecting material has heretofore been by me painted thereon with a common paint brush, and I therefore term it a paint. This paint may be composed of any oleaginous, gelatinous or other elastic substance which can be properly melted, cut or digested, by water, alcohol, oil, spirits of turpentine, or other vehicle, and thereby made into a paint compound, the materials composing the compound being mixed together in the ordinary way and in such proportions as to obtain a thick paint compound which may be applied with a brush, and such compound may be one which must be warmed in order to obtain the proper consistency to be easily applied with a brush. The material heretofore used by me for this protecting paint has been paint oil, as linseed oil, and lamp-black.

When a piece of glass, stone or other material has had placed thereon a pattern, such as has been hereinbefore described, and is then submitted to the sand blast process, the sand contained in the sand blast will be driven directly against such material wherever it is not covered by the pattern and will grind or otherwise mark it. And where, as described, the pattern consists of designs cut through or out of a sheet of ductile metal, particularly zinc, protected by the elastic covering of oleaginous, gelatinous, or other suitable material as described, designs having definite contour lines will be obtained on such piece of glass, stone or other material, when submitted to the sand blast; but in order to insure the greatest possible definiteness in the designs by the sharpness of the contour lines thereof I have found it necessary to first paint the glass, stone or other material with the liquid shellac of commerce or other liquid material adapted to be applied to the face of glass, stone or other material and to dry thereon in a continuous sheet and form a perfect covering of a semi-crystalline character ad-

hering to the surface of such material on which it is placed and constituting a covering which can and will be readily and quickly ground or cut away therefrom, together with the surface of the material thereunder, by sand driven directly against it by the sand blast, although not destroyed by moving particles of sand not directly driven against it by such sand blast. When this liquid shellac of commerce or other like and suitable material is used in my process of preparing a sheet or piece of glass, stone or other material for the sand blast process, such shellac or other liquid compound is painted thereon and allowed to dry and then the pattern hereinbefore described covered with a protecting compound as stated, is placed thereover, and, unless such pattern is sufficiently large to lay firmly in place by its own weight, it is tacked thereto by mucilage, glue, paste or other material interposed at intervals between such pattern and the glass or stone thereunder, after which such glass, or stone with the pattern so mounted thereon is subjected to the sand blast process which will readily cut through both the coating of asphaltum hereinafter described and the coating of shellac named, and produce the determined pattern upon the surface of the glass or other material.

Where a sheet of glass is to be subjected to what is known in the art as the glass chipping process, such sheet of glass is by me first subjected to the sand blast process and afterward a chipping compound is applied thereto.

When a sheet of glass is designed to be first subjected to the sand blast process and afterward to be subjected to the chipping process last referred to, and patterns or designs in chipped or ground glass produced on such sheet of glass further steps are necessary in preparing the glass for the sand blast process. After the coating of liquid shellac of commerce has been applied, as above described, and allowed to dry thereon, and before the pattern protected from the action of the sand blast (as described) is laid on the glass, a coating of material adapted to protect the surface of the glass, when interposed between it and the chipping compound, from the action of such chipping compound must be applied to the glass above and on the coating of liquid shellac referred to, but such coating must not be adapted when laid on a sheet of glass, or when so laid on a coating of shellac or other semi-crystalline coating extending over a sheet of glass, to resist the direct action of the sand in the sand blast process. The coating which I have found to be best adapted for so protecting the surface of a sheet of glass from the action of a chipping compound, and also sufficiently well adapted to be cut by the direct action of the sand in the sand blast process is a liquid compound of asphaltum, japan, or any quick-drying varnish, properly digested in the ordinary way

with spirits of turpentine, benzine or other suitable material, so as to make a paint compound which can be freely applied in a liquid form with a brush and form, when allowed to dry, a continuous coating on the glass when applied directly thereto or to the coating of shellac thereon. After the last named coating has been applied, as described, the pattern protected from the action of the sand blast on the upper surface thereof, as described, is laid upon the sheet of glass and, when required, tacked thereto by mucilage, glue, paste or other material, as hereinbefore stated, after which such glass with the pattern so mounted thereon can be subjected to the sand blast process.

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

1. The process of preparing glass and other material for the sand blast process which consists in covering the surface of such material whereon the design is to be marked completely over with a liquid compound adapted to form when dry a continuous semi-crystalline coating thereon, of allowing such liquid coating to dry, in covering the surface of such material and the coating thereon with a liquid coating forming when dry a continuous coating adhering to the semi-crystalline coating on which

it is applied, but not with sufficient tenacity to tear such semi-crystalline coating from the glass, in allowing the last named coating to dry, in protecting the upper surface of a pattern, constructed of sheet metal and forming a negative of the design to be marked on such material, from the action of the sand blast by a covering of elastic material, and in placing such pattern so protected on the surface of such material to be marked; substantially as described.

2. The process of preparing glass and other material for the sand blast process which consists in covering the surface of such material whereon the design is to be marked completely over with a liquid compound adapted to form when dry a continuous semi-crystalline coat thereon, of allowing such liquid coating to dry, in protecting the upper surface of a pattern constructed of sheet metal and forming a negative of the design to be marked on such material, from the action of the sand blast by a covering of elastic material, and in placing such pattern so protected on the surface of such material to be marked; substantially as described.

SAMUEL EVANS.

Witnesses:

FLORA L. BROWN,
CHARLES T. BROWN.