(No Model.)

B. F. B. FAGG.

METHOD OF PRODUCING ENGRAVINGS.

No. 597,277. Patented Jan. 11, 1898.

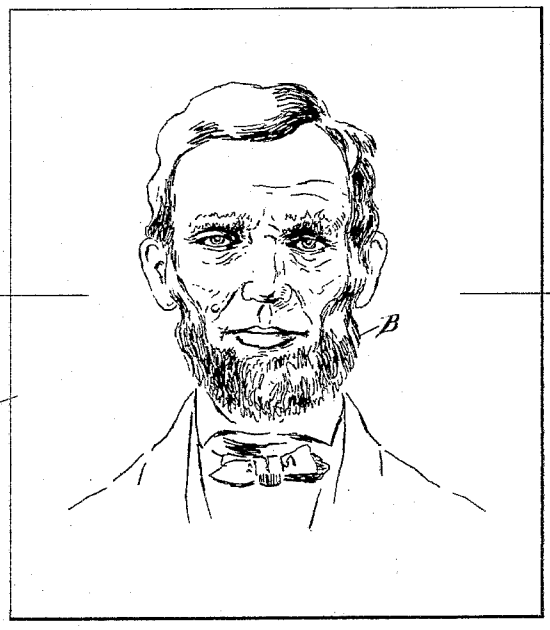


FIG 1

FIG 2

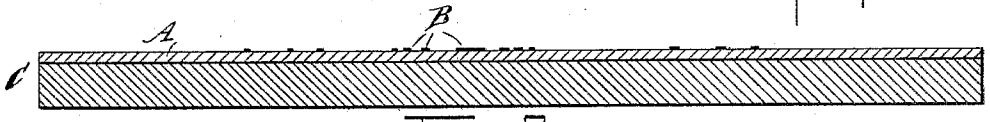


FIG 3

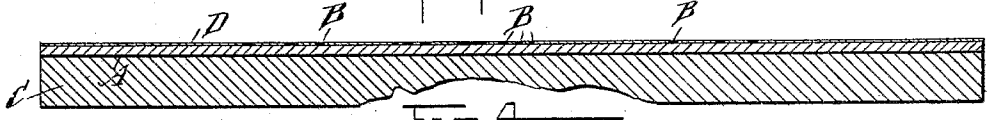
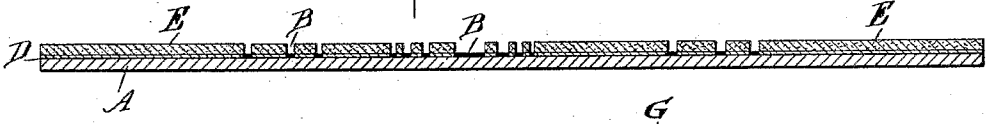


FIG 4



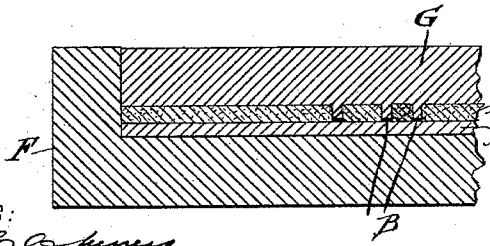


FIG 5

WITNESSES:

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INVENTOR

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BY

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN F. B. FAGG, OF FORESTVILLE, WISCONSIN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF AND JENNIE LISTER BARTRAN, OF SAME PLACE, AND MAYNARD T. PARKER AND MICHAEL C. HANEY, OF ALGONA, WISCONSIN.

METHOD OF PRODUCING ENGRAVINGS.

SPECIFICATION forming part of Letters Patent No. 597,277, dated January 11, 1898.

Application filed May 15, 1896. Serial No. 591,614. (Specimens.)

To all whom it may concern:

Be it known that I, BENJAMIN F. B. FAGG, of Forestville, in the county of Door and State of Wisconsin, have invented a new and Improved Method of Producing Matrices, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved method of producing matrices directly from a photograph, drawing, or other picture in a very simple and comparatively inexpensive manner.

The method consists principally in subjecting the picture to a low temperature to produce frost, then dusting the picture with an adhesive substance, and subjecting it to a higher temperature to cause the frost to melt and absorb the adhesive substance and to make the same adhere to the picture along the sides and ends of the lines of the picture, so that the latter forms a matrix.

Reference is had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a face view of the picture to be formed into a matrix. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a like view of the same with the frost on the picture. Fig. 4 is a similar view with the adhesive substance in place for forming the matrix, and Fig. 5 is a like view showing the matrix in the casting-box for making a stereotype.

In order to carry the method into effect, I proceed as follows: The sheet of paper or other suitable material A, bearing the picture B in waterproof ink, is placed on a block C of suitable material, and is then subjected to a low or freezing temperature, preferably in a moist atmosphere, so as to cause the formation of a layer of frost D on the surface of the picture along the sides and ends of the waterproof lines of the picture. The lines of the picture, being in waterproof ink, do not absorb moisture, and the frost or ice forms around the waterproof parts without coating them. A temperature of about 20° below zero causes a fine white frost to form on the picture. An adhesive substance E, such as powdered gum-arabic, is then sprinkled or dusted over the frost, and the picture is now subjected to a higher temperature to melt the frost and cause the adhesive substance to be absorbed by the water of condensation. The adhesive substance in drying and hardening adheres to the paper and forms a film thereon. The adhesive substance dusted on the lines of the picture can be readily blown off or otherwise removed to leave the lines free and exposed, with the adhesive substance forming walls on the sides and ends of the lines. The sheet thus prepared constitutes a matrix which can be used for forming printing-plates.

The manner of taking a cast from the matrix may be varied according to the kind of material desired to carry the design or printing-surface. Any substance which is plastic enough to be pressed or run into and against the matrix prepared as above described will receive the design in relief upon its surface, whether for printing or for other purposes. The matrix can be used in a mold or casting-box F (see Fig. 5) to form a stereotype G, or the matrix can be used for forming an electroplate in the usual manner.

The proof is obtained from the printing-plate by placing the latter in a printing-press and printing from it the same as from newspaper or job type forms.

It is necessary that the matrices should be built up high enough in the open spaces between the design-carrying parts to prevent the parts in the printing-plate free from the design from receiving ink and printing. When wide spaces exist between the design-carrying parts of the matrix such spaces may easily and quickly be raised or built up by adding more of the adhesive substance.

In order to produce a very thick frost on the sheet, I may moisten the sheet previous to subjecting it to a low or freezing temperature, and this may be done in all cases, if deemed necessary, the degree of moisture needed depending upon the thickness and the kind of material upon which the picture proper or design rests.

It is evident that while the adhesive substance is in a plastic state it can be readily acted on by suitable tools for retouching the

picture to any desired extent while the matrix is in the process of forming. Any powdered adhesive substance remaining on the lines of the picture can be readily removed by a tracing-pencil or other suitable tool, especially as the covered lines or other part of the picture readily become visible through the substance, as the latter is in a liquid and transparent state and the paper is moist. If desired, additional lines, dots, and the like for enhancing the appearance of the final print may be cut by a suitable tool into the adhesive substance while the latter is in a plastic state and during the process of drying.

In case a picture in black lines is to be reproduced from ordinary print, such as common newspaper-pictures, a modification of the process becomes necessary. In such pictures the design-carrying parts are rarely sufficiently waterproof. Printers' ink, such as is used in printing newspapers and most bookwork, is waterproof, but is applied so thinly that in most newspaper-pictures minute open spaces exist in the design-carrying parts, and the frost or ice may form more or less over these parts of the picture. In producing matrices from such prints a lens or "burning-glass" may be used after a good coating of frost is obtained on the picture. The rays of light are focused so that they will heat and be absorbed by the black lines, which removes the frost and dries the same without affecting the frost or paper around the lines. I then proceed as already stated.

To make an outline or shaded picture direct from a photograph, I dampen and freeze the photograph and cover the same with the adhesive powder, allow the latter to melt sufficiently to adhere without becoming liquid, then freeze it again, and while frozen the picture may be easily traced with a sharp point. The pictures dry quickly.

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

1. The herein-described method of producing matrices, consisting in subjecting a picture to a low temperature to produce frost on the surface of the picture, then covering the latter with an adhesive substance and subjecting it to a higher temperature, to cause the frost to melt and absorb the adhesive substance, which in drying adheres to the picture along the sides and ends of the lines or the design-carrying parts of the picture, substantially as described.

2. The herein-described method of producing matrices, consisting in subjecting a picture to a low temperature to produce frost on the surface of the picture, then covering the latter with an adhesive substance and subjecting it to a higher temperature, to cause the frost to melt and absorb the adhesive substance, which in drying adheres to the picture along the sides and ends of the lines or the design-carrying parts of the picture, the adhesive substance while in a plastic state being subjected to a retouching manipulation, substantially as described.

3. The herein-described method of producing matrices, consisting in subjecting a picture to a low temperature to produce frost on the surface of the picture, then covering the latter with an adhesive substance and subjecting it to a higher temperature, to cause the frost to melt and absorb the adhesive substance, which in drying adheres to the picture along the sides and ends of the lines or the design-carrying parts of the picture, the adhesive substance on the lines of the picture being removed previous to the drying and hardening of the substance, substantially as described.

4. The herein-described method of producing matrices consisting in subjecting a picture to a low temperature in the presence of moisture to produce ice or frost on the surface of the picture, covering the latter with an adhesive substance and subjecting it to a higher temperature to cause the ice or frost to melt and absorb the adhesive substance, and removing the adhesive substance from portions of the picture previous to the drying and hardening of the said adhesive substance to produce the outline and shade lines, substantially as described.

BENJAMIN F. B. FAGG.

Witnesses:
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BERNARD AUR.