UNITED STATES PATENT OFFICE.

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PROCESS OF TRANSFERRING PRINTS OR DESIGNS.

SPECIFICATION forming part of Letters Patent No. 439,536, dated October 28, 1890.

Application filed March 31, 1890. Serial No. 346,107. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM H. MAXWELL, a resident of Chartiers, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Process of Transferring Prints or Designs; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the transferring of printed matter to china, glass, leather, or other surfaces, its object being to provide a simple means of making this transfer from wood-cuts, stereotype-plates, type, or other like printing means and to form the same upon the glass or other surface, whether it be of flat, oval, or other contour.

To these ends my invention consists, generally stated, in coating paper with a soluble varnish, then covering the same with collodion, forming the design or print on the collodion surface in vitrifiable colors, then dissolving out the soluble varnish, so separating the paper from the collodion film, transferring such film from the glass or other surface, and then burning out the collodion film and burning in the design, so providing a surface which may be covered with molten glass or otherwise protected on the formation of paper-weights, dishes, plaques, and other like articles.

It also consists in certain other improvements, as hereinafter set forth.

To enable others skilled in the art to practice my invention, I will describe the same more fully.

In carrying out the process embodying my invention I generally take large sheets of paper, and coat them over with a soluble varnish, this soluble varnish being formed of any material suitable for the purpose, and as an example of the varnish found well adapted for the purpose I use a varnish formed of gum-arabic and sugar, the sugar being employed to render the varnish more soluble. After coating the sheet with this varnish I cover the same with a thin film of collodion, a simple means of accomplishing this being to turn up the edges of the paper so as to form a sort of pan upon the same, pouring the collodion over the surface of the paper, and then pour off any surplus collodion, so forming on the sheet of paper first a soluble surface and then a thin film of collodion, which is insoluble in water. After drying the sheet it may be cut into any desired shapes and sizes, and upon these sheets I print the designs, figures, or lettering desired, this being done with the ordinary printer's ink. When the design is to be transferred to leather, wood, or other like surfaces which are not subjected to heat, this is all the preparation necessary in preparing the sheets, the sheets being printed on in any desired colors or variety of colors in order to produce the design required. I then take the sheet of paper carrying the design and place the same within a tub or pan of water and permit it to soak for a short period, so dissolving out the soluble varnish, when the film of collodion carrying the design thereon will rise to the surface of the water, and it may either be transferred to the plate-block or other surface on which it is to remain by passing the same under the film of collodion floating on the surface of the water and by means of such plate raising it from the pan, or it may be lifted from the pan by other means and transferred to the surface on which it is to remain. For the transferring of such designs to surfaces of wood, leather, or any such material where it is not subjected to heat this practically completes the process, all that is necessary being to protect the collodion film carrying the design by a suitable varnish forming a covering.

In transferring the design to glass, porcelain, or china-ware, or like surfaces into which it is to be burned the process is practically the same, except that the print must be formed in vitrifiable colors. For this purpose I prepare the sheets in the manner above described, and I either print upon the collodion surface of the paper with a vitrifiable ink or I print upon such surface with an ordinary printer's ink and before the ink is dry dust or sprinkle over the surface with vitrifiable colors, the ink taking up these colors and forming the vitrifiable print on the collodion surface of the paper. The paper thus carrying the design is then placed within the pan or tub and the soluble varnish dissolved out, so separating the paper from the film, and the glass, porcelain, or china-plate or other article to be decorated is passed

under the water and raised up so as to lift the film carrying the design from the pan, care being taken to bring the same to the desired position upon the glass or other surface. When the same is thoroughly dried, the article is burned within a suitable oven or kiln, and in so burning the article it is found that the collodion film carrying the design is burned out, while the design upon the film is burned into the surface of the glass, porcelain, or china and permanently united therewith. The surface so formed may be either used without further treatment, or it may be finished by hand, such as to bring out the shading of the design, which such additional coloring can be burned into the surface. It may also be covered with any suitable material—such as with a glaze, such as for plates, plaques, shades or like articles, or with a thin body of molten glass, such as for paper-weights and like articles.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The herein-described process of forming designs or prints on glass or like vitrifiable surfaces, consisting in coating the paper first with a soluble varnish and then with a film of collodion, forming the design or print on the collodion surface in vitrifiable colors, then dissolving out the soluble varnish so separating the paper from the collodion film carrying the design, transferring such film to the glass or other surface, and then burning out the collodion film and burning in the design, substantially as and for the purposes set forth.

2. The herein-described process of transferring designs or prints, consisting in coating a paper first with a soluble varnish and then with a film of collodion, printing on the collodion surface so formed, then floating within water the paper carrying the collodion film until the varnish is dissolved and the paper separates from the film, then taking up the film upon the surface to which it is to be transferred by passing the same into the water, and raising it up to lift out the film, substantially as and for the purposes set forth.

3. The herein-described process of forming designs on china, glass, or like vitrifiable substances, consisting in floating within a pan a collodion film having the design formed thereon in vitrifiable colors, taking the same upon the glass or other surface, burning out the film, and burning the design or print into the glass, substantially as and for the purposes set forth.

In testimony whereof I, the said WILLIAM H. MAXWELL, have hereunto set my hand.

WILLIAM H. MAXWELL.

Witnesses:
J. N. COOKE,
ROBT. D. TOTTEN.