(No Model.)

W. J. SHAW.

STEREOTYPE MATRIX AND METHOD OF MAKING THE SAME.

No. 308,043. Patented Nov. 11, 1884.

Fig. 1.

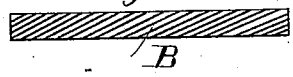


Fig. 2.

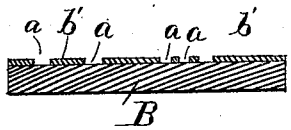
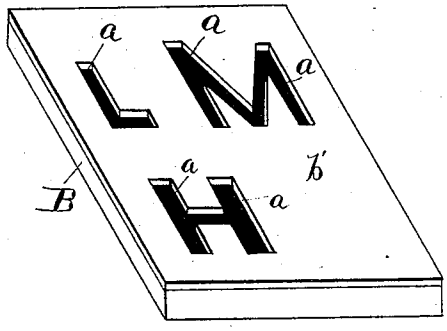


Fig. 3.



Witnesses.
[illegible] Brown.
W. A. Bartlett.

Inventor.
Wm. J. Shaw.
by Lothrop.

UNITED STATES PATENT OFFICE.

WILLIAM J. SHAW, OF COVINGTON, KENTUCKY.

STEREOTYPE-MATRIX AND METHOD OF MAKING THE SAME

SPECIFICATION forming part of Letters Patent No. 308,043, dated November 11, 1884.

Application filed December 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. SHAW, a citizen of the United States, residing at Covington, Kentucky, have invented new and useful Improvements in Stereotype Matrices and Methods of Making the Same, of which the following is a specification.

My invention relates to the art of preparing relief-plates for printing, its object being to provide a cheap and efficient substitute for lithography and various other modes and processes in use for preparing such plates, including wood-engraving and kindred arts.

In carrying out my invention I take a smooth metal plate, B, of the required size and of a thickness sufficient to withstand ordinary handling without injury from "buckling," and preferably polished. In practice brass of ordinary quality susceptible of being formed into sheets is found to be suitable, the only additional requisites being that the metal shall be susceptible of receiving an electro deposit of a metal, such as copper, and be able to withstand a temperature above the melting-point of ordinary type-metal without softening. I prefer to coat the polished side of the plate with a thin electro deposit of copper, which gives a fine granular surface, thereby facilitating the drawing of the design, which is placed thereon by the artist in the exact form in which it is intended to appear in the final imprint, said drawing being made with an ink having wax as a basis, or some other substance insoluble in weak acid, and a non-conductor of the electric current. In practice, ordinary lithographers' drawing-ink is found to possess the necessary requisites. After the plate is prepared with the intended design, it is subjected to the ordinary process of electroplating and a deposit, *b'*, of copper or other metal made between the lines *a* or parts of the drawing, of sufficient thickness to form a matrix for a casting or stereotype-plate in which the lines and "shadows" of the design are sufficiently elevated to make a suitable imprint.

Figure 1 is a section of plate on which the cast is made. Fig. 2 is a section showing electro deposit between the lines. Fig. 3 is a perspective of Fig. 2.

The design, drawing, or writing is made in lines, as *a*, on the metallic plate, with an ink of the character stated. The plate is then connected with a battery, and a deposit, *b'*, is made on such parts of the plate as have no resisting-ink thereon. After the electro deposit is made the ink may or may not be washed out; but preferably it should be washed away, and the matrix is then complete and ready for the casting of a stereotype-plate in usual manner. The process of casting is the same as for the ordinary stereotype-plates, and the stereotype-plates when made are mounted and used in the ordinary manner.

Among the advantages of this improvement, apart from its manifest economy and the facility with which the stereotype-plates may be duplicated, the described method of preparing the matrix by the electro depositing of metal between the lines and parts of the drawing produces, as a final result, a stereotype-plate in which the lines of the drawing are faithfully and accurately preserved exactly as they leave the hand of the artist, with all the sharpness and clearness attainable in wood-engraving, and without any of that loss of definition experienced in "cutting out the lights" and taking a cast matrix for the production of the stereotype-plate. Moreover, the action of the electric current in building up a deposit around and between the lines drawn by the artist is absolutely accurate and true to a far greater degree than can be attained by human skill in cutting away such intervening portions, or by the action of acids in dissolving the same.

I have hereinbefore mentioned the desirability of preparing the surface of the polished plate for the reception of the line-drawing. This may be done by any process of "roughening"—such as slightly etching the surface with an acid, by sand-blowing, &c.; but the method I have already suggested, namely, forming thereon a thin electro deposit of metal, is to be preferred, as I find in practice that it gives a surface upon which the ink flows freely as upon paper, and, upon removal of the ink, leaves a smooth burnished surface for the matrix.

In the preparation of plates designed to give character of tint to the drawing, the surface for the drawing is first prepared with a grain or "technique," by the ordinary method of "spatter work" with fluid non-conducting ink, or by placing upon the plate an impression

from a sheet of suitable textile fabric moistened with non-conducting ink, after which a light deposition of metal is made and the ink washed off. This produces a surface having a grain, and a pencil or crayon composed wholly or in part of a suitable non-conducting material may then be used for the preparation of the drawing, which will be characterized by the texture, whether of points or lines of the fabric or other means employed.

I claim—

1. The improvement in the art of preparing matrices for stereotype-plates, which improvement consists in preparing a drawing or design upon a metal plate with a non-conducting ink or pigment, and electro depositing metal between the lines and parts of the drawing to the required thickness to form a matrix, substantially as described.

2. The improvement in the art of preparing matrices for stereotype-plates, which improvement consists in roughing or dulling the surface of a metal plate, then placing a drawing or design thereon with a non-conducting ink or pigment and electro depositing metal between the lines or parts of said design or drawing to the required thickness, substantially as described.

3. A matrix for stereotype-plates consisting of a plate of metal containing the drawing or design upon its surface and built up between the lines and parts of the drawing by the electro deposition of metals, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM J. SHAW.

Witnesses:
L. M. HOSEA,
C. SHAPPELL.