No. 793,315. PATENTED JUNE 27, 1905.

J. W. McINDOE.

PROCESS OF PRODUCING EMBOSSING OR PRINTING DIES.

APPLICATION FILED MAR. 5, 1904. RENEWED NOV. 30, 1904.

Fig. 1.

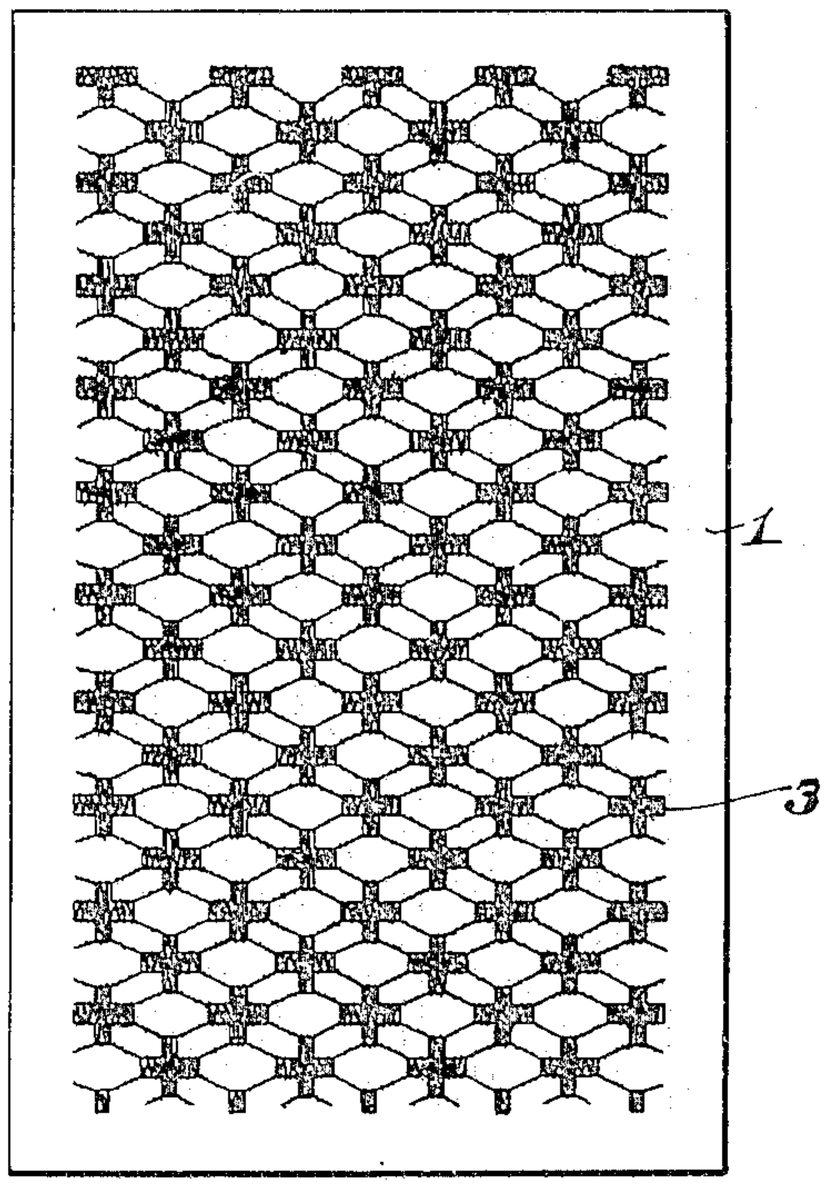


Fig. 2.

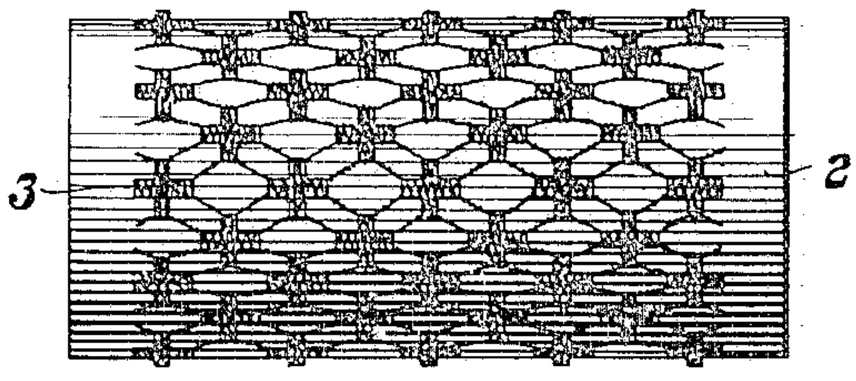
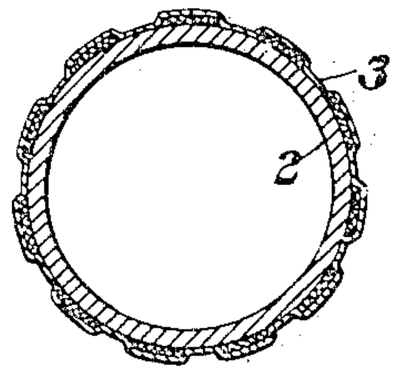


Fig. 3.



Witnesses:
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No. 793,315. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

JAMES W. McINDOE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO ARTHUR E. WHITNEY, OF WINCHESTER, MASSACHUSETTS.

PROCESS OF PRODUCING EMBOSSING OR PRINTING DIES.

SPECIFICATION forming part of Letters Patent No. 793,315, dated June 27, 1905.

Application filed March 5, 1904. Renewed November 30, 1904. Serial No. 234,945.

To all whom it may concern:

Be it known that I, JAMES W. McINDOE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improved Process of Producing Embossing or Printing Dies, of which the following is a specification.

My invention relates to an improved process of producing dies having formed thereon in relief an accurate representation of a selected pattern of textile fabric—as lace, netting, or other loosely woven or knitted fabric—from which an exact imitation of said fabric may be embossed or printed upon paper or other similar material; and it consists in certain novel features of construction and manipulation, which will be readily understood by reference to the following description of the method of operation, in connection with the accompanying drawings, and to the claim hereto annexed, in which my invention is clearly pointed out.

Figure 1 of the drawings is a plan of a flat die constructed in accordance with my improved process. Fig. 2 is an elevation of a cylindrical die embodying my invention, and Fig. 3 is a transverse section of the die shown in Fig. 2.

In carrying out my invention I first select a suitable piece of metal, preferably steel, of the desired size and shape, which may be a flat plate 1 (shown in Fig. 1) or a cylinder 2, (shown in Fig. 2,) and said cylinder may be a tube, as shown, or a solid cylinder, said plate or cylinder forming the basis or main body of the die. The basis of the desired size and shape when selected has its outer or face surface made true and smooth, whether flat or cylindrical, and then I coat said smooth surface with a tacky substance, as shellac, and allow it to stand till dry. I then take a piece of the desired textile fabric 3—as lace, netting, or other loosely woven or knitted fabric—harden it by applying thereto a coating of a suitable hardening material, as shellac, by brushing it thereon or immersing it in a solution of said hardening material, allow it to dry, and when dry and stiff cut it to the desired size and shape to fit the basis upon which it is to be used, so as to form a continuous series of repetitions of the pattern or design. I then apply a thin coating of the tacky substance, as sheliac, to both the metal basis and the piece of textile fabric, and when they are nearly dry or in the proper tacky condition I place the fabric in contact with the coated surface of the metal basis and apply pressure until the fabric adheres to the basis and then apply a thin coating of said tacky substance to the entire surface of the combined fabric and basis. When this coating is thoroughly dry and hard, I immerse the united basis and fabric in a strong solution of nitrate of silver and allow it to remain for a few minutes, when I remove it and place it in a strong light to dry, when the light will act upon the nitrate of silver and turn it quite black, and then I immerse it in a saturated solution of sulfate of iron, which immediately acts on the nitrate of silver, and a layer of metallic silver is formed over the whole surface of the combined article, which is then set in a strong light to dry. When thoroughly dry, it is placed in an electrotyping-bath and allowed to remain until a sufficient thickness of copper has been deposited over the entire uncovered surface of the metal basis and the fabric secured thereon, thereby completely inclosing said fabric in a thin copper covering, which enters the recesses or cavities in the fabric itself, and in the openings of said fabric is deposited directly upon the surface of the metal basis, thereby firmly securing all parts of said textile fabric to said basis without distorting or otherwise injuring the design of the fabric, care being taken not to deposit the copper of too great a thickness, so as to fill or bridge over the cavities, and thus destroy or injure the design.

By this process a die either flat or cylindrical from which an accurate imitation of a piece of lace or other loosely woven or knitted fabric may be embossed or printed on paper can be produced at a very small cost compared with engraving it by hand, and the reproduction will be a more accurate imitation

of the fabric than can be produced by a hand-engraved die, and it will have no sharp corners to cut or break the thinnest paper.

I claim—

The process of producing embossing and printing dies in imitation of a selected piece of textile fabric, which consists in preparing a metallic basis of the desired shape and size with a smoothly-finished face surface, applying a tacky substance as shellac to said finished surface, allowing it to dry, applying to the selected fabric a hardening material as shellac, drying it, and when dry cutting it to the desired size and shape, applying a thin coating of tacky substance, as shellac, to the basis and fabric, and when nearly dry, placing said fabric in contact with the basis under pressure, till the two adhere, applying to the united basis and fabric a thin coating of said tacky substance, drying the same immersing the whole in a strong solution of nitrate of silver, for a few minutes, drying it in a strong light, when dry immersing it in a saturated solution of sulfate of iron, then placing it in a strong light to dry, and when thoroughly dry placing it in an electrotyping-bath to remain until a sufficient thickness of copper has been deposited over the entire uncovered surface of the metal basis, and the fabric secured thereon.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES W. McINDOE.

Witnesses:

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F. W. SMITH.