

UNITED STATES PATENT OFFICE.

JAMES W. McINDOE, OF BOSTON, MASSACHUSETTS.

PROCESS OF MAKING INTAGLIO PRINTING AND EMBOSSING SURFACES.

SPECIFICATION forming part of Letters Patent No. 777,642, dated December 13, 1904.

Application filed May 12, 1904. Serial No. 207,585. (No specimens.)

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 certain new and useful Improvements in Processes of Making Intaglio Printing and Embossing Surfaces, of which the following is a specification.

My invention relates to an improved process of making intaglio printing and embossing surfaces, either flat or cylindrical, in imitation of any selected pattern of an open-work textile fabric, as lace, netting, or other similar material from which an exact imitation of said fabric may be printed or embossed upon paper or other thin sheet or web material; and it consists in certain novel features of operation and manipulation, which will be readily understood by reference to the following description of the method of treatment and manipulation and to the claim hereto appended and in which my invention is clearly pointed out.

In carrying out my invention I first select the pattern of lace, netting, or other open-work fabric the design of which it is desired to have reproduced by printing or embossing, or both printing and embossing, upon paper, cloth, or other thin flexible material, immerse it in water to shrink it, dry it, and when dry coat it with shellac to harden it and also to maintain the threads in their proper relative positions and allow said shellac to dry and when dry cut said fabric to the desired size for the basis upon which it is to be used, and if it is to be used on a cylindrical basis two of its sides must be cut through a figure or a series of figures on the same line thereof, so that the two edges when placed in contact will form a complete figure or a series of figures of the design. A metallic basis is then prepared by selecting a piece of any suitable metal of the desired size and shape, either flat or cylindrical, according to the form of printing and embossing surface required, and finish its face to a true and even and polished surface, and if the basis is to be of the cylindrical form its diameter must be such that the two ends of the piece of fabric if drawn taut around said basis will just meet and complete a series of figures or a single complete figure of the design, according to the particular design of

the fabric that is to be reproduced. I then coat one side of a plate of glass of suitable size with an even covering of a suitable cement that will adhere firmly to metal, as rubber cement, and allow it to partially set, and when so partially set the fabric is placed in an extended or flat position upon said cement-coated glass plate, with its back side uppermost, and pressed lightly thereto to cause said cement to adhere to the front or face side of said fabric, care being taken to prevent the cement coming in contact with any portion of the opposite side or back of said fabric. When the fabric has been pressed to the cement a sufficient length of time to insure said cement adhering firmly to said fabric, the fabric, with the cement adhering thereto, is removed from the glass plate and placed in an extended flat position, with the cement side upward, to set or become tacky. This operation of applying cement to the front or face side of the fabric may be repeated one or more times until a sufficient coating of the cement is laid upon the fabric to insure its adhering firmly to the metallic basis when applied thereto. One or more repetitions of applying cement to the back of the fabric becomes necessary, because the first coating is largely, if not entirely, absorbed by the fabric. When sufficient cement has been applied to the fabric and the cement has the proper tacky state, the fabric is placed upon the metallic basis, with its cemented side in contact therewith, care being first taken to remove all grease, oil, or other foreign substance from the surface of said basis, so that it shall be perfectly clean, apply a sufficient pressure to said fabric for a sufficient length of time to cause it to adhere firmly to said basis without injury to the fabric when the pressure is removed, and the basis with the fabric adhering thereto is placed in an electrodeposition bath, and copper or other suitable metal is deposited on every uncovered portion of the metallic basis to the desired thickness, the fabric remaining unaffected by the deposition because of its being a non-conductor. When the deposited metal has reached the desired thickness, the basis is removed from the bath and thoroughly rinsed in water to remove all traces of the

electrodeposition bath and dried. Then the fabric is removed from the metallic deposition surrounding it, preferably by burning it out, and leaving therein a facsimile impression 5 of said fabric in intaglio, and then the outer or face surface of the plate or cylinder is finished so that all projecting portions of the plate or cylinder shall be of uniform height and present smooth polished surfaces.

10 What I claim as new, and desire to secure by Letters Patent of the United States, is—

The within-described process of making intaglio printing and embossing surfaces, either flat or cylindrical, in exact imitation of any 15 open-work textile fabric, by selecting a piece of the desired fabric; immersing it in water, drying it, coating it with shellac, allowing it to dry, cutting it to the desired size, preparing a basis of any suitable metal with a true and polished surface, and of the desired size 20 and shape, then coating one side of a glass plate with a suitable cement, allowing it to partially set, placing said prepared fabric upon said cement coating under a light pressure till 25 said fabric adheres to said cement, removing

said fabric and cement from said glass plate, and when the cement on the fabric has reached a sufficiently tacky state placing said fabric upon the metallic basis with its cemented side in contact therewith, applying pressure there- 30 to to force it into firm contact with said metallic basis, removing said pressure, placing said basis with the fabric adhering thereto in an electrodeposition bath to deposit copper or other suitable metal on every uncovered por- 35 tion of said basis without covering the fabric, removing said basis from said bath when metal of the desired thickness has been deposited, removing all traces of the liquid of said bath, removing the entire fabric, and then finish- 40 ing the outer surface of said basis to an even grade or so that the projecting portions of deposited metal shall be of uniform height.

In testimony whereof I have affixed my signature, in presence of two witnesses, on this 45 11th day of May, A. D. 1904.

JAMES W. McINDOE.

Witnesses:

N. C. LOMBARD,
C. B. CHOATE.