

(No Model.)

G. F. & J. W. McINDOE.

RELIEF DIE AND PROCESS OF MAKING THE SAME.

No. 385,519.

Patented July 3, 1888.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

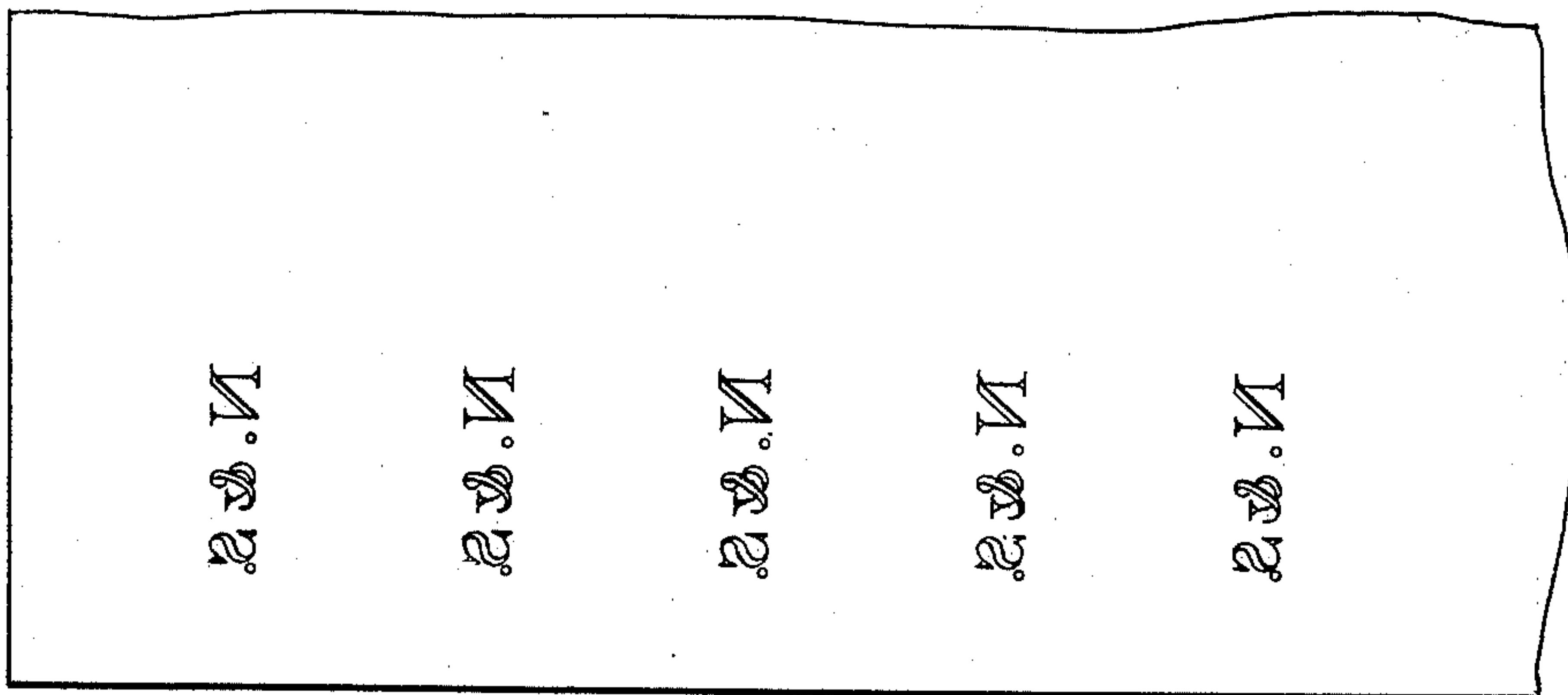


Fig. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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RELIEF-DIE AND PROCESS OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 385,519, dated July 3, 1888.

Application filed January 31, 1887. Serial No. 226,002. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. McINDOE and JAMES W. McINDOE, both of Boston, in the county of Suffolk and State of Massachusetts, both citizens of the United States, have invented a new and useful Improvement in Relief-Dies and Process of Making the Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a relief die or mold especially adapted for use upon the cigar-impressing machine described and claimed in our application, No. 226,000, for Letters Patent of the United States filed of even date herewith, although it may be used for any other purpose. It comprises an electro-deposit plate, preferably of copper, having formed integral therewith in relief one or more dies or molds, which may be in the form of letters, figures, designs, trade or other marks, or figures of any shape. To obtain this result a previously-prepared wax mold having the letters, figures, designs, or marks desired formed *in intaglio* therein is placed in the solution and the deposit made upon it. The result of this step of the process is the production of a metal plate having the raised hollow die or mold formed upon it, the hollow portion of the die or mold opening from the back of the plate. We then fill these hollow portions of the raised dies or molds with lead, type-metal, or other metal of a similar character, so as to form a practically solid die or mold, and we then place the plate thus prepared upon the wax mold and again subject the plate to the depositing solution, whereby a layer or coating of metal is deposited upon the back of the plate, and the lead or other metal filling of the dies or molds is covered by the deposited coating, so that it is held firmly in place, and so that it is inclosed upon all sides by the deposited metal, and the dies or molds are made solid. This process of making dies or molds is of very material value, because of the cheapness with which it can be made, and also where used heated or hot, because the inclosed metal for giving them stability may be of a heat-conducting nature and act to conduct the heat

from a heated metal backing on the die-plate to the surface of the die.

In the drawings, Figure 1 is a view in cross-section of a wax mold. Fig. 2 shows the wax mold and a metal die-plate deposited thereon. Fig. 3 shows part of the hollows of the dies filled with metal. Fig. 4 shows the die-plate replaced on the wax mold and another coating or layer of metal deposited on its back. Fig. 5 is a view in plan of a completed die-plate.

A is the deposited plate with the hollow relief dies or molds *a* formed thereon.

b, Fig. 3, represents the dies as made solid by having their cavities upon the back side of the plate filled with another metal, like lead or type-metal; and in Fig. 4 *c* represents the additional coating of metal applied by electro-deposition to the back surface of the plate, and which acts to cover the metal placed in the cavities of the dies and to hold it in place.

It will be observed that the process is especially desirable for cheaply producing a series of relief-dies upon a common support or plate.

Having thus fully described our invention, we claim and desire to secure by Letters Patent of the United States—

1. The process of making molds or dies, consisting in the electro-deposition upon a plastic mold or die having the design required formed thereon of a metal plate having the design or designs in relief and integral therewith; second, in filling or backing the hollow dies with metal by filling the cavities only thereof from the back of the plate; third, in depositing upon the back of the plate thus prepared another coating of metal, whereby the metal backing or filling is held or confined in the die spaces or recesses and the die or dies made solid, as and for the purposes described.

2. A multiple die-plate having a series of relief-dies integral with the plate, which are backed or filled with metal which is entirely inclosed by the said die-plate, substantially as described.

GEORGE F. McINDOE.
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In presence of—

F. F. RAYMOND, 2d,
FRED. B. DOLAN.