

(No Model.)

T. J. BICKSLER.
MANUFACTURING PRINTING PLATES.

No. 369,580.

Patented Sept. 6, 1887.

Fig-1.

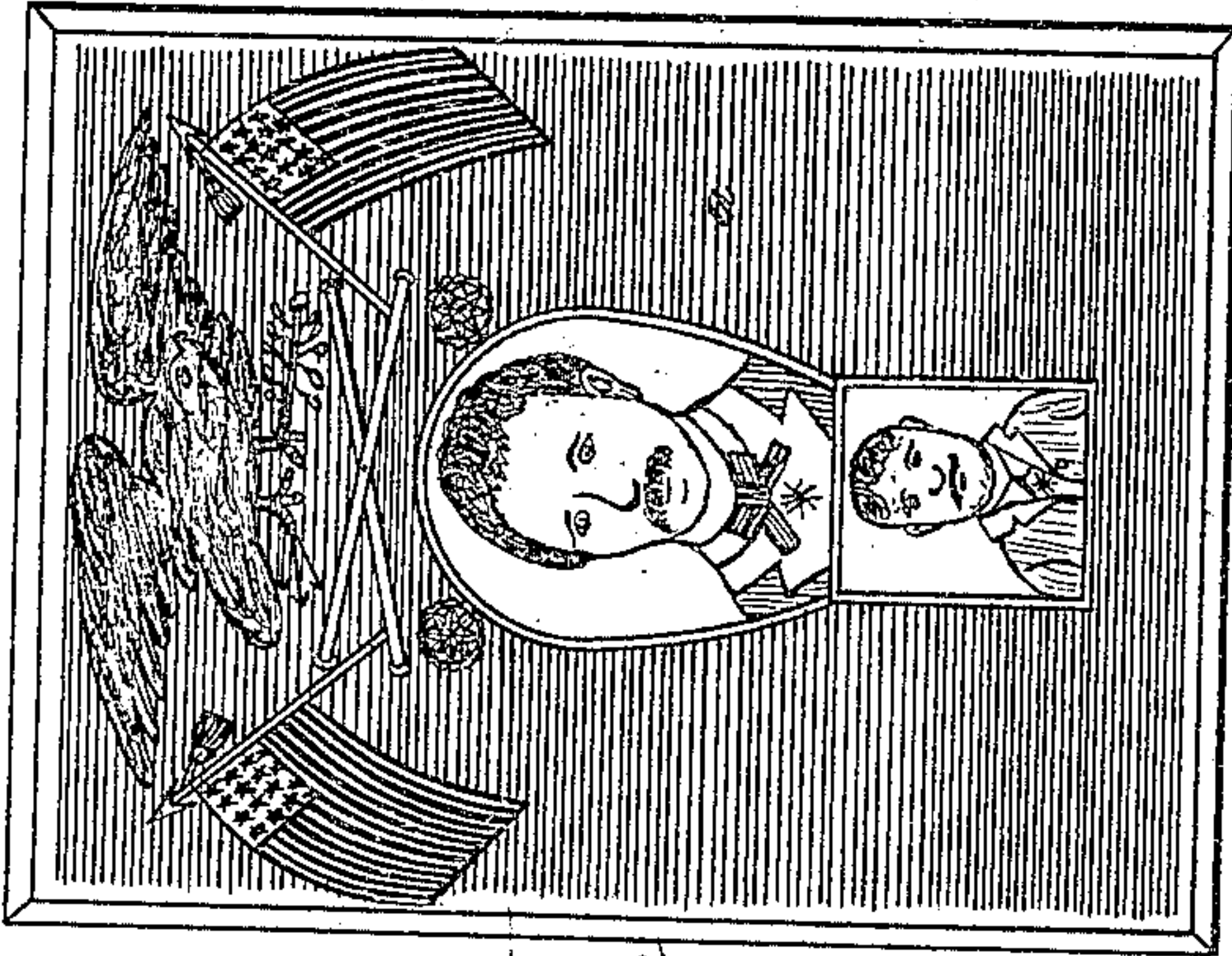


Fig-2.

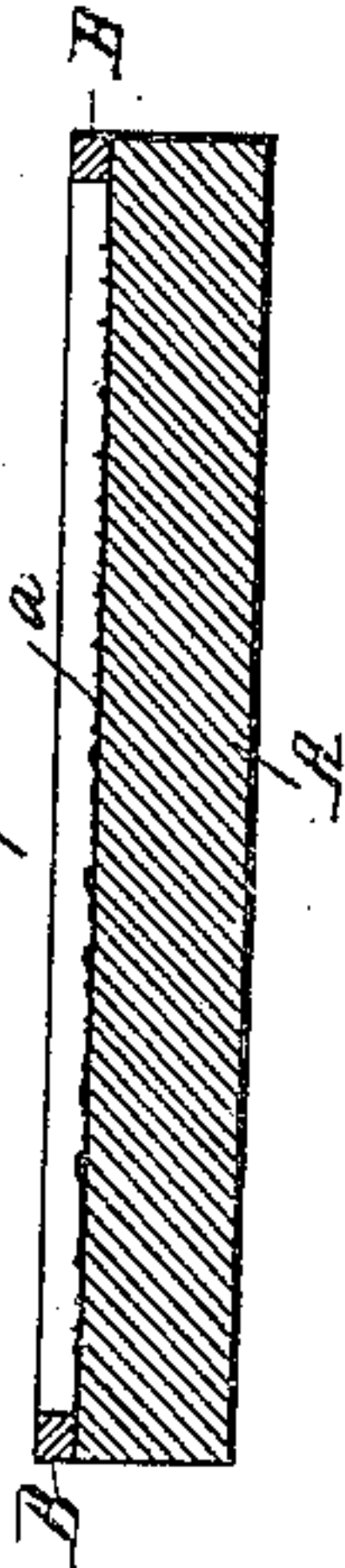


Fig-3.

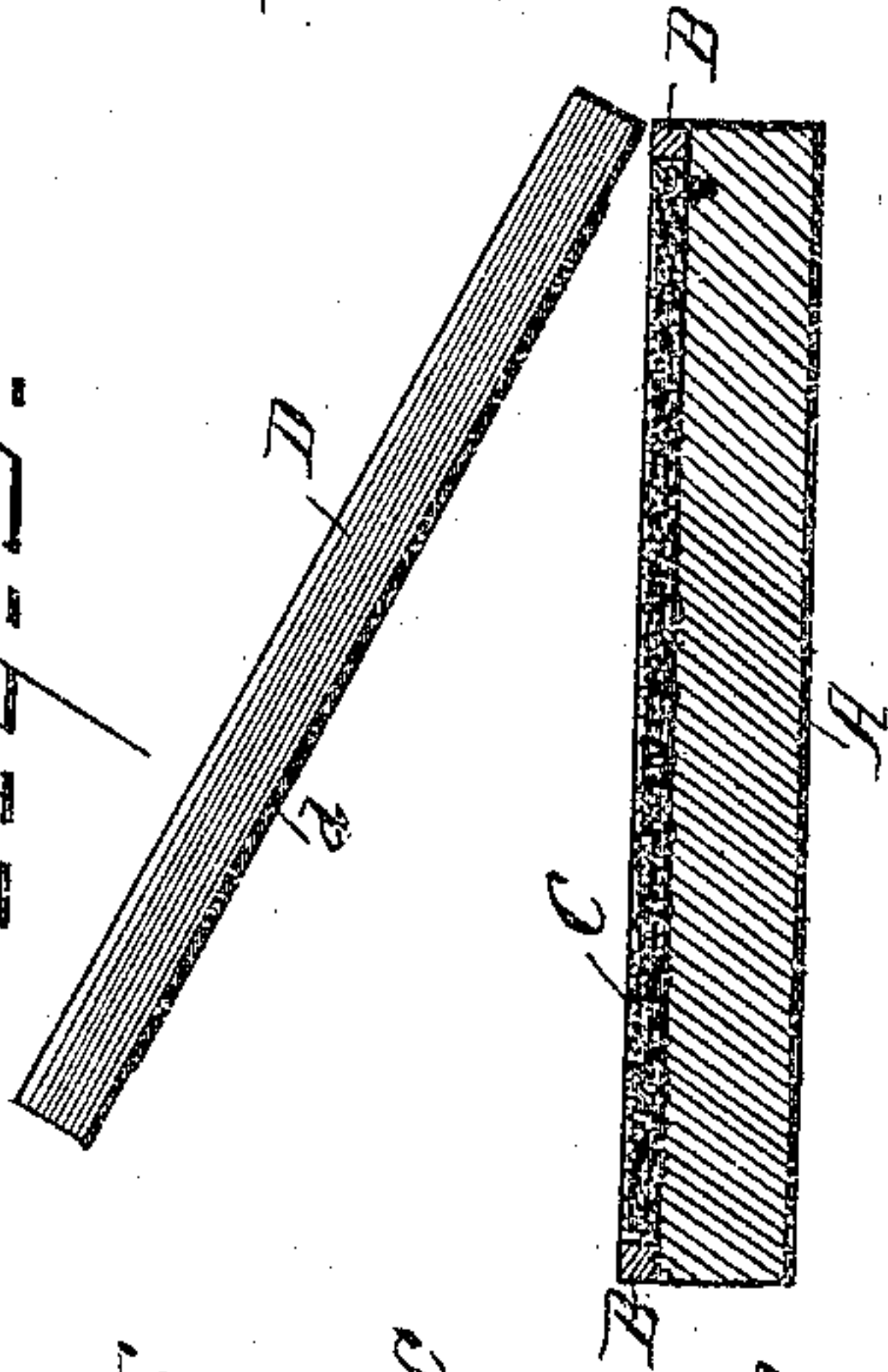


Fig-5.

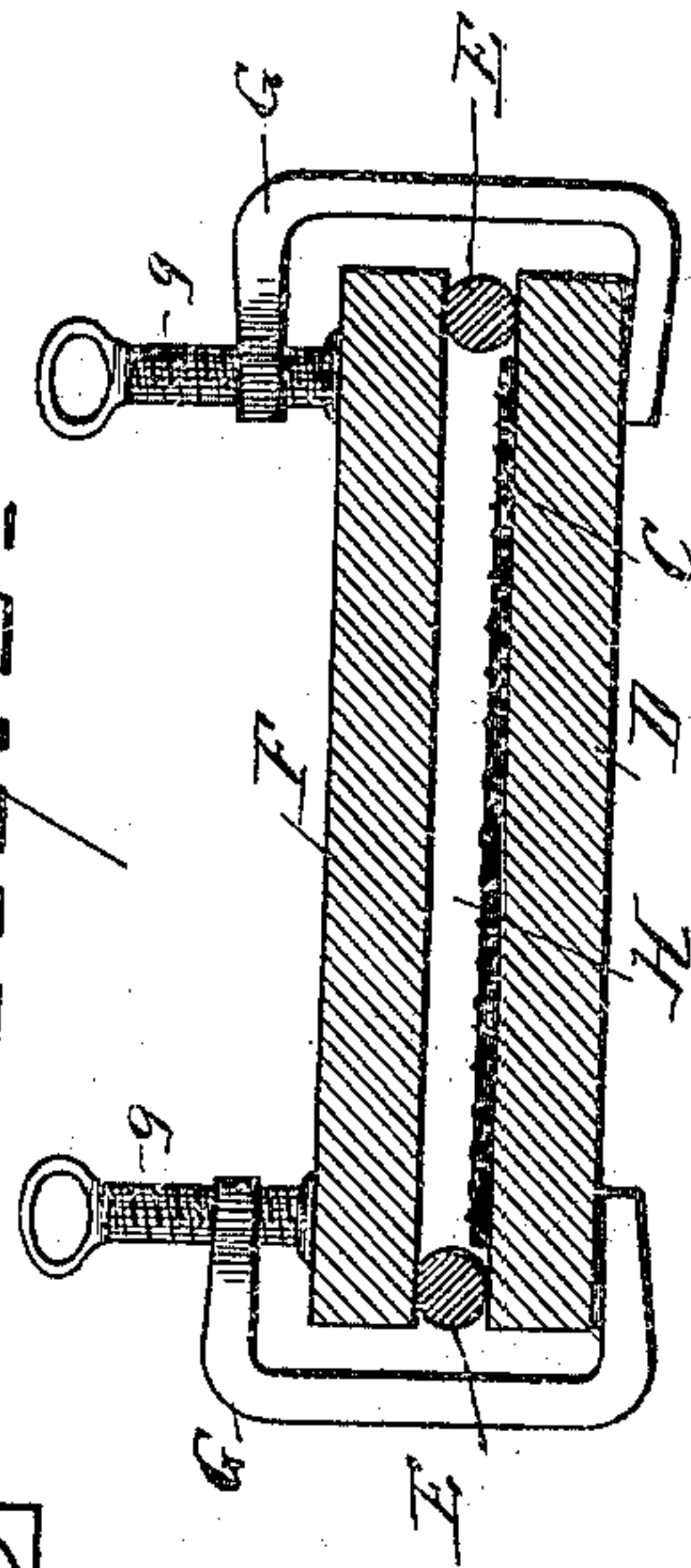
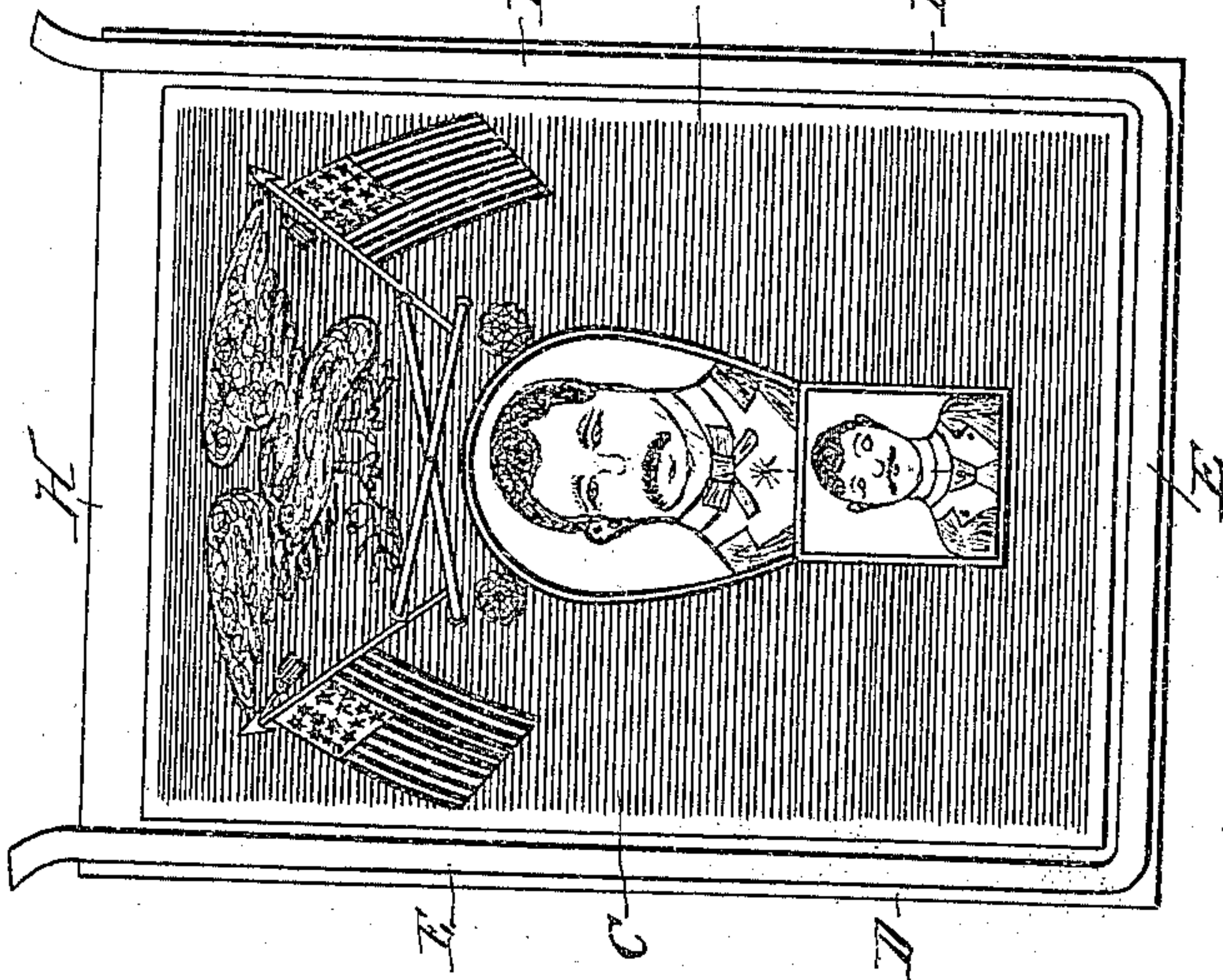


Fig-4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

THOMAS J. BICKSLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

MANUFACTURING PRINTING-PLATES.

SPECIFICATION forming part of Letters Patent No. 369,580, dated September 6, 1887.

Application filed November 27, 1886. Serial No. 220,015. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JEFFERSON BICKSLER, a citizen of the United States, residing in the city of Washington, District of Columbia, have invented certain new and useful Improvements in the Process of Manufacturing Printing-Plates for Photo-Engraving, and in the means for carrying the process into effect, of which the following is a specification.

My invention relates to an improvement in the process of manufacturing printing-plates for photo-engraving and in the means for carrying the process into effect.

Hitherto it has been customary, in forming printing-plates from photographs, to lay the negative over a thin film of gelatine and expose the same to the rays of the sun. The portions of the gelatine film immediately beneath the translucent portions of the negative are hardened by exposure, while the remaining portions of the gelatine film, which are not reached by the sun, remain in a soft condition. The negative is then removed. From this matrix or relief-plate the molds are formed by pouring the liquid plaster-of-paris onto the face of the matrix and permitting it to set before removing. These molds, being wholly of plaster-of-paris, are necessarily thick and cumbersome to enable them to withstand the severe usage to which they are afterward exposed. These molds thus formed are placed in a clamp or other device and immersed in molten metal, the metal flowing in and filling the interstices, thus forming the plates.

The objection has been that the immersion of the molds in the hot metal has caused them to warp or crack to a greater or less degree, because of their thickness and difficulty in getting them perfectly dry before they are immersed. So liable are they to warp or crack that it has been found expedient to form two or more molds at a time to allow for the imperfections of one or more of them. The great amount of plaster-of-paris employed and the time it has taken it to dry have also proved objectionable features.

The object of my present invention is to secure a perfect plate from a single mold in a very much shorter time than hitherto and to economize material.

With these ends in view my invention consists in certain steps of procedure, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the matrix with the low border in position thereon. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a vertical cross-section representing the prepared mold-back about to be closed down over the mixture which forms the mold. Fig. 4 is a view of the mold with the border and spacing-rod in position; and Fig. 5 represents the cover-plate clamped to the auxiliary mold with the spacing-rod between, the whole ready to receive the molten metal.

A represents a plaster-of-paris matrix or relief-plate made from a gelatine film, as in ordinary use.

Instead of waiting to thoroughly dry the matrix A, I place on its face, as soon as the plaster is sufficiently set, a low border-frame, B, one-sixteenth of an inch (more or less) in height, and then cover the face of the matrix within the border-frame B with a mixture, C, of plaster-of-paris, rye-flour, and water, which is poured over the face of the matrix or relief-plate while in a plastic state. I then employ a straight-edge of any ordinary construction to sweep off the superfluous mixture above referred to even with the top of the frame B, which at the same time removes to a great extent the bubbles of air which may have accumulated on the surface.

A plate, D, of metal or of glass, sufficiently large to cover the mixture within the frame B and to project more or less beyond the inner edges of the said frame, is then prepared by coating one of its faces with an adhesive material, *d*, which will adhere firmly to it and to the material forming the mold, and thereby securely support the mold during the process of casting. The prepared plate D is then closed down over the top of the mixture C by placing one edge in contact first and gradually swinging it into position in a manner similar to the closing of a door swinging on hinges. This will effectually expel the air-bubbles between the plate and the mixture, and the coating on the plate will adhere strongly to the mixture,

so that when the plate is removed the mixture C will be removed with it, and the mold will be formed having a thickness of only about one-sixteenth of an inch. This thin mold thus
5 formed may be thoroughly dried within a very short space of time and be ready for casting, the stiff back of metal or glass serving to protect it from warping and cracking. To prepare the mold for casting, a rod, E, bent to con-
10 form to three sides of the mold and having a diameter greater than the height or thickness of the part C above the plate D, is placed in position on the plate D around the edges of the part C, and the covering-plate F is laid on the
15 rod E over the face of the mold. The mold and cover F are then clamped tightly together by means of clamps G and thumb screws g, or by any other well-known or approved device, and the parts are then in position to receive
20 the molten metal, which is poured into the open mouth H.

It is evident that slight changes in the various steps of procedure and in the devices for carrying them into effect might be resorted to
25 without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the various steps and constructions as herein set forth; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In the manufacture of printing-plates for photo-engraving, the method consisting of the following steps, viz: the casting of a matrix or relief-plate of plastic material, the spread-
35 ing of a plastic material over the face of the matrix, and the subsequent application of a prepared back plate to the plastic material to form a mold, substantially as described.

2. In the manufacture of printing-plates for
40 photo-engraving, the method consisting of the following steps, viz: the application of a low border-rim to the face of the matrix or relief-plate, the spreading of a plastic material over the face of the matrix within the border rim or
45 frame, and the subsequent application of a prepared plate to the surface of the plastic material to remove it from the matrix to form a mold, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS J. BICKSLER.

Witnesses:

JAS. L. SKIDMORE,
E. J. NOTTINGHAM.