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PATENTED FEB. 23, 1904.

F. & A. LESLIE.
PROCESS OF PRODUCING DUPLICATE PRINTING PLATES.

APPLICATION FILED OCT. 19, 1903.

NO MODEL.

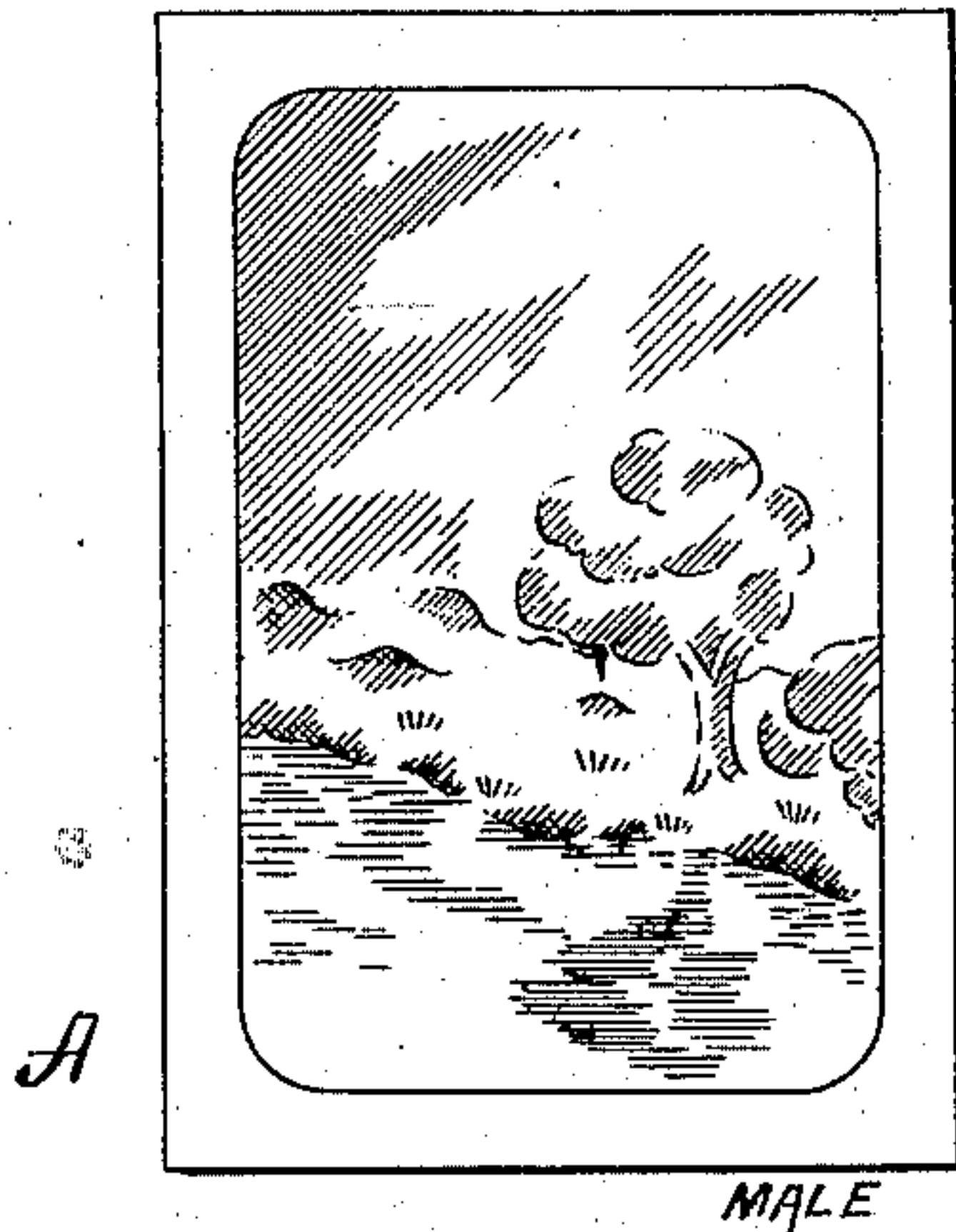


Fig. 1.

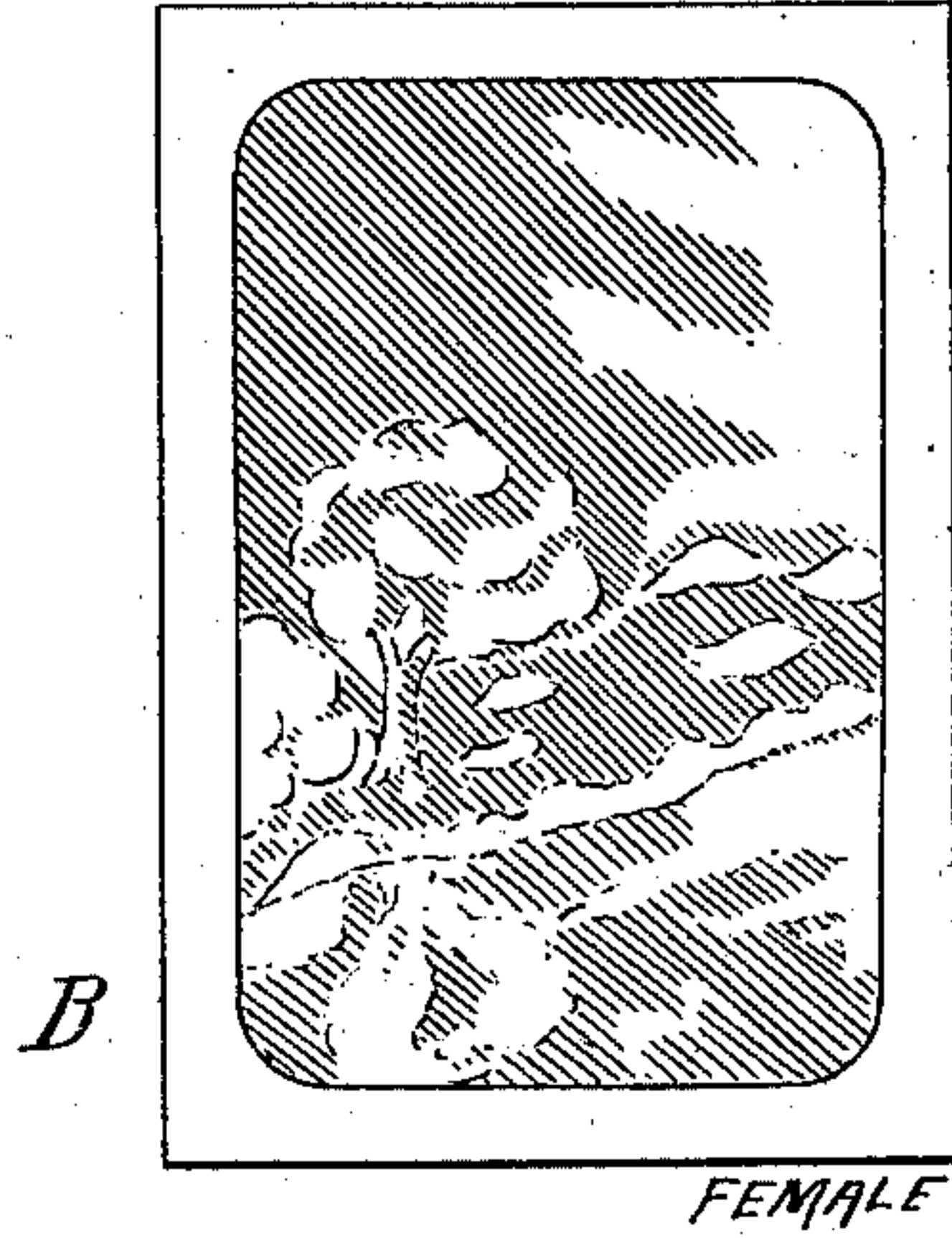


Fig. 2.

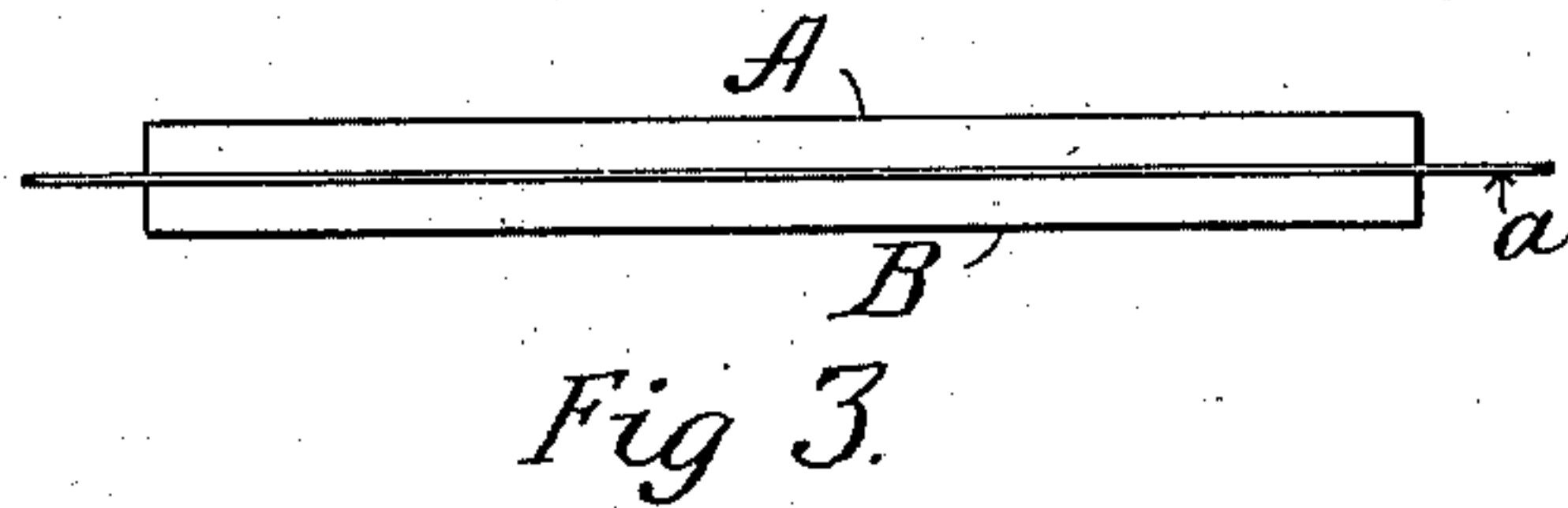


Fig. 3.



Fig. 4.



Fig. 5.

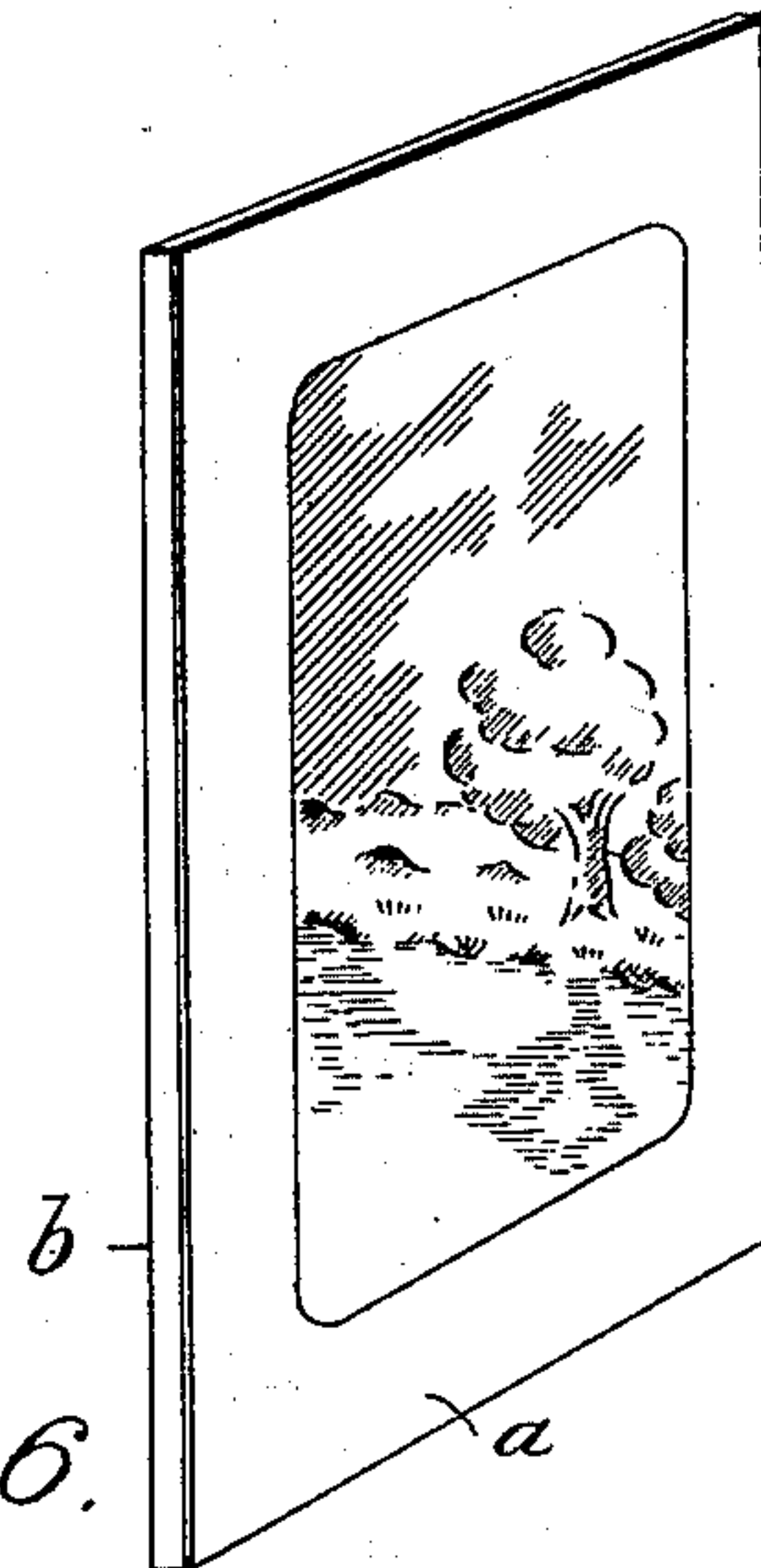


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

FRANK LESLIE AND ARTHUR LESLIE, OF NEW YORK, N. Y.

PROCESS OF PRODUCING DUPLICATE PRINTING-PLATES.

SPECIFICATION forming part of Letters Patent No. 752,846, dated February 23, 1904.

Application filed October 19, 1903. Serial No. 177,535. (No specimens.)

To all whom it may concern:

Be it known that we, FRANK LESLIE and ARTHUR LESLIE, citizens of the United States, residing in the city of New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Processes of Producing Duplicate Printing-Plates, of which the following is a full, clear, and exact description.

Our invention relates to processes of reproducing engraved plates to obtain any desired number of duplicate printing surfaces or cuts therefrom.

The object of our invention is to devise a way of obtaining duplicates from an original plate which has been engraved by an etching process in the simplest and cheapest possible manner and in such form that they can be sent through the mails or by express at small cost and to avoid the expense and time required in the usual electrotyping or stereotyping processes.

The utility of our invention is most apparent in the duplication of half-tone plates, our improved process consisting, essentially, in etching the original half-tone plate in steel instead of in copper or zinc, as heretofore, this original steel plate becoming a male die. Then a female steel die of the same subject is also made by etching. These two original dies are then used to emboss a thin aluminium or other metal plate, which during the embossing process may or may not be backed up by paper or other similar material. The embossed plate is the final article of the process, and obviously as many of them can be struck off from the dies as desired. We claim this plate as a new article of manufacture. Such plates are to be mounted upon a block and used either directly as the printing-surface to receive the ink and make the impression or as a surface to be stereotyped or electrotyped, which is the equivalent.

The invention will be described with reference to the accompanying drawings, all the figures of which are conventional.

Figure 1 is a view of the original male engraved plate. Fig. 2 is a view of the original female engraved plate. Fig. 3 shows the male and female plates arranged as corre-

sponding dies acting upon a sheet of metal. Fig. 4 shows the same arrangement of dies acting upon a sheet of metal having a backing. Fig. 5 shows the finished embossed plate or printing-surface, and Fig. 6 shows the same plate with a backing.

The first step in our process is the production of one of the original plates. This is indicated at A and may be understood to be a half-tone plate representing a picture, reading-matter, chart, or other subject to be printed. This plate we preferably make of hardened steel, although our invention is not confined to the material, and the picture or other design is produced by etching with acid. B indicates another plate, containing the same engraved subject and being a counterpart of plate A, except that it is formed as a female with respect to the surface of the plate A. This female plate is also of steel, preferably, and is produced by etching. We now take these two etched plates A and B and place them in a press in a relation where they will act as corresponding opposing dies, the raised parts of one plate fitting into the depressed parts of the other. From these dies we make any desired number of reproductions of the male by placing thin sheets of aluminium, copper, or other suitable material (indicated by *a*) between them successively and pressing the dies together. This pressing operation embosses the intervening plate and reproduces on one of its sides a surface corresponding in all respects with that of the male die and on the other side a surface corresponding in all respects with that of the female die. The plate *a* is then a finished product of our process and is to be used by mounting it upon a suitable block in any suitable manner with the male embossed side up to receive the ink or color and directly make the impression or to be used to form a matrix for stereotyping purposes.

For newspaper-printing we may prepare the printing-plate in the manner illustrated in Fig. 4. The plate *a* is provided with a backing of paper or other similar material and then embossed between the two dies. This backing serves as a reinforce, the finished plate being seen in Fig. 6.

The merit of our process will be appreciated

at once when it is understood that the duplicates of the original plates can be made as rapidly as the sheets *a* or *a* and *b* can be placed between the dies and pressure brought to bear.

5 This is far more rapid than any other known process, the electrotyping process which is most in vogue requiring several hours.

Having described our invention, we claim—

10 1. An article of manufacture, consisting of a metal sheet or plate having embossed therein a reproduction of an etched half-tone plate, substantially as described.

2. The process of making duplicate printing-surfaces of an original half-tone plate
15 which consists in making a second half-tone plate similar in all respects to the original, except that its surface is a female with respect to that of the original plate, then placing a sheet of material between said plates and using
20 the latter as a pair of dies to emboss the intervening plate and reproduce thereon the surface of the original plate.

3. The process of making duplicate printing-plates from an original plate, which con-

sists in etching a half-tone in a steel plate, 25 then etching the same half-tone, but as a female with respect thereto, in a second steel plate, then making the printing-plate by embossing it between the male and female plates to produce on one side of the printing-plate a 30 male embossed printing-surface.

4. The process of making duplicate printing plates or cuts from an original half-tone plate, which consists in making a second half-tone plate similar in all respects to the original, 35 then using said plates as a pair of opposing dies and placing between them a metal plate backed up with a suitable material and embossing the same between said plates, substantially as described. 40

In witness whereof we subscribe our signatures in presence of two witnesses.

FRANK LESLIE.
ARTHUR LESLIE.

Witnesses:

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