J. SIMON.

PRODUCTION OF INTAGLIO PLATES OR CYLINDERS FOR PRINTING LETTER PRESS.

APPLICATION FILED SEPT. 22, 1917.

1,322,206. Patented Nov. 18, 1919.

Fig. 1.

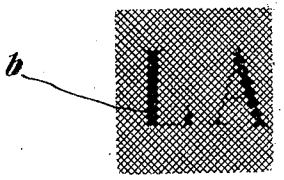


Fig. 2

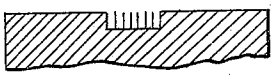


Fig. 3.



Fig. 4.

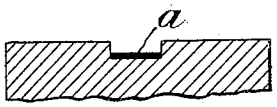


Fig. 5.

LA

Inventor:
Jacques Simon
By Attorneys,
Fraser, Dirk & Myers

UNITED STATES PATENT OFFICE.

JACQUES SIMON, OF PARIS, FRANCE, ASSIGNOR TO SOCIÉTÉ ANONYME LA PHOTOGRAVURE ROTATIVE, OF PARIS, FRANCE.

PRODUCTION OF INTAGLIO PLATES OR CYLINDERS FOR PRINTING LETTER-PRESS.

1,322,206. Specification of Letters Patent. Patented Nov. 18, 1919.

Application filed September 22, 1917. Serial No. 192,686.

To all whom it may concern:

Be it known that I, JACQUES SIMON, a citizen of the Republic of France, residing in Paris, France, have invented certain new and useful Improvements in Production of Intaglio Plates or Cylinders for Printing Letter-Press, of which the following is a specification.

This invention has for its object to produce intaglio plates, or cylinders; for printing letterpress, such that the edges of the characters are not jagged, but straight and clear, or even.

The nature of the invention will be readily understood from the following description with reference to the accompanying drawing in which:—

Figure 1 shows, to an enlarged scale, two characters engraved by the usual processes, the enlargement showing clearly the jagged edges of the characters.

Fig. 2 is an enlarged section of a plate, or cylinder, engraved with the use of a ruled screen, or the like.

Fig. 3 shows, to an enlarged scale, the appearance of the thick, or dark, parts when a ruled screen, or the like, is used.

Fig. 4 is a section of a plate, or cylinder, engraved without the use of a ruled screen, or the like, showing ink adhering to the bottom of the engraved part, the figures being also to an enlarged scale.

Fig. 5 shows two characters enlarged to show how they are printed without jagging, in accordance with this invention.

Hitherto letterpress characters printed in intaglio in accordance with photogravure processes, have not been obtained in a clear, or neat, manner, approximating that of ordinary typographic impressions and if such characters be examined under a magnifying glass, it will be found that the edges are jagged, or of saw-tooth shape as shown at *b* in Fig. 1, the result being that the reader of matter thus printed, experiences, after a while, great strain, or fatigue, of the eyes and it is the object of this invention to overcome this objection which is of serious importance in this kind of engraving as ordinarily done and is a consequence of the process itself, employing a ruled screen, or the like, to obtain a toned engraving made in various depths such as is necessary not only for illustrations consisting of deep and light tones without apparent outlines but also for affording a support for the doctor used to remove superfluous ink.

This ruled screen, or the like, although necessary for illustrations is not necessary for letter-press reproduction which is engraved to a uniform depth and requires no toning, and, as in this case the engraved part is, as a rule, very small, no support for the doctor is necessary. Therefore the ruled screen, or the like, which is necessary to tone the picture and support the doctor in the deep black parts in illustration work is injurious for letter-press work, but, as hitherto practised the pictures and letter-press have been screened through on the same sheet of gelatin and the letter-press has had the aforesaid jagged appearance.

Numerous experiments have shown that this jagged appearance is due to the screen and that if the screen be simply omitted for the letter-press engraving the ink runs and the print is blurred which probably is a defect as bad as the jagging.

If however in addition to not using a screen the engraved parts of the letter-press reproduction be roughened, the ink does not run and a very clear impression is obtained from the engraving.

Under the foregoing conditions the problem to be solved was how to screen the pictures and not the letter-press part and how to roughen the engraved parts mechanically so as to hold the ink and obtain a clear impression.

As regards the first point, there is the means in use consisting in simply applying to the plate, or cylinder to be engraved only the screened illustrations and then the unscreened letterpress parts are applied. As regards the second point, it is sufficient to engrave the whole by using a corrosive agent which while engraving will produce a roughened surface inside the engraving as at *c* in Fig. 4. Such an agent may for example be obtained by the addition of chromic acid to ferric chlorid or the roughening of the engraved surfaces may be effected by projecting thereonto any suitable granular substance, by means of compressed air, atomizers, or any other suitable means of depositing a roughening layer at the bottom of the engraved parts, or any suitable mechanical device may be employed to produce a

watered, waved, ruled, grained, or otherwise roughened surface to which a quick drying ink will adhere.

By the process according to this invention instead of having thick, or deep, block parts constituted in the characters by a kind of grating, or a number of squares, as in Fig. 3, resulting necessarily from the spaces of the ruled screen, or the like, there are obtained, owing to the absence of a screen, characters with deep black parts without jagging as in Fig. 5. *a* in Fig. 4 denotes the ink adhering to the bottom of the roughened engraving.

What I claim is:—

1. The process of intaglio engraving where a screen is not used, consisting in forming roughened surfaces at the bottoms of the grooves or recesses forming the engraved parts of the plate to hold the ink and prevent its removal by the doctor in printing.

2. A plate for intaglio printing having engraved parts formed by grooves or recesses, and roughened surfaces at the bottom of said engraved parts and adapted to retain ink.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

JACQUES SIMON. [L. S.]

Witnesses:
HENRI CARTIER,
THOMAS HALE.