

# UNITED STATES PATENT OFFICE.

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## ART OF MAKING ENGRAVINGS.

SPECIFICATION forming part of Letters Patent No. 436,047, dated September 9, 1890.

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*To all whom it may concern:*

Be it known that I, DE WITT C. ROBERTS, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in the Art of Making Engravings, of which the following is a specification.

This invention relates to a means for rapidly producing engravings in relief suitable for printing with ordinary letter-press, and especially adapted for use in illustrating newspapers.

My improved process of rapidly making relief-engravings is as follows: I take ordinary matrix-paper—such as is used in the formation of matrices, and which consists of a firm even-textured smooth-surface sheet of pulp—and place this upon a bed-plate or table. Above this bed-plate or table is a needle or punch attached to suitable mechanism, which gives it a very rapid up-and-down reciprocating movement or stroke, the motion being like the needle of a sewing-machine. The motion of this needle is adjusted so that in its lowermost position it shall not quite reach the bed-plate upon which the paper rests, but shall come so near the bed-plate as to penetrate the paper partly through its thickness; and in order that the needle may penetrate the paper without going so far through as to cut the same, I employ a matrix-paper of sufficient body and thickness to permit of a considerable indentation being formed in it without severing the paper. With this needle or punch in rapid motion and upon the matrix-paper by its aid I form such design or picture *in intaglio* as may be desired. This I do by guiding the paper around by hand under the needle, in the same manner as patterns are stitched in cloth upon a sewing-machine, or by guiding the needle over the paper. The motion of the needle should be very rapid and adjusted to the feeding, so that the lines formed may be nearly or quite continuous where it is desired to produce a solid line; but where it is desired to produce a dotted line the motion of the needle should be diminished or the speed of the feed

increased. When the intaglio impression has been thus produced upon the matrix-paper, I place the same in an ordinary stereotype-casting box and pour type-metal upon it in the usual way and produce a metallic casting or stereotype, which may be at once placed in the form and printed from as ordinary type are used and in connection with such type.

The design or picture to be engraved may be drawn by the artist directly upon the matrix-paper, or it may be photographed upon such paper or otherwise marked or indicated thereon. This will enable the employment of a comparatively unskilled person to do the work of indenting the matrix.

The point of the punch or needle should preferably have its lower end cut off on a surface parallel with the surface of the bed-plate; but it may be of any shape in cross-section desired. I have found a punch that is cylindrical in cross-section admirably adapted for the tracing of lines, as it presents the same form, however turned, in following the lines; but in some effects of shading, &c., needles having a pattern will be found useful.

I prefer to use for matrix material the ordinary matrix-paper; but of course other material having the same or similar qualities may be substituted for the matrix-paper.

By the aid of this extremely-rapid method of producing engravings the newspaper-artist may bring in his sketch or drawing done up upon the matrix-paper, and in a few minutes the drawing, even though done in pencil, may be reproduced in metal ready for the press; and it is for this use that my improved method is particularly and especially adapted.

I claim—

1. The process of rapidly making relief-impression plates by indenting to a fixed depth matrix material with the required design, forming the lines step by step by the aid of a reciprocating needle operating upon the matrix material while the same rests upon a bed-plate, and then casting from this matrix the printing-plate in relief, substantially as specified.

2. The process of producing stereotype-matrices by indenting the matrix material step by step with a rapidly-vibrating needle or punch to a certain depth, substantially as  
5 specified.

3. The process of making matrices for the production of printing-plates by indenting

the matrix material to a fixed depth step by step in lines of the desired design, substantially as specified.

DE WITT C. ROBERTS.

Witnesses:

H. M. MUNDAY,  
EMMA HACK.