J. GREENE.

Making Matrices for Casting Type.

No. 160,423. Patented March 2, 1875.

Fig 1.

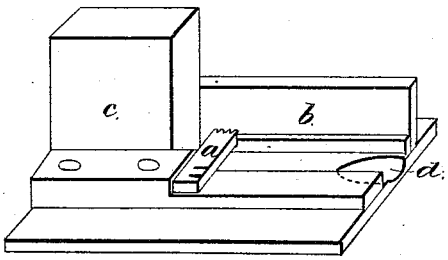


Fig 3

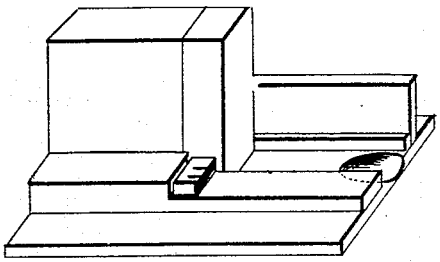
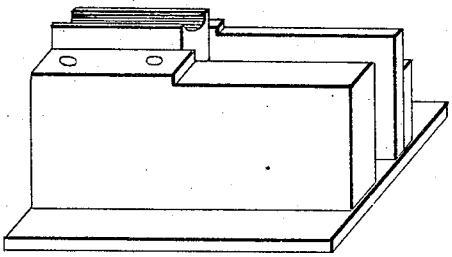
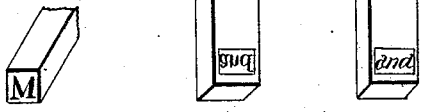


Fig 2.



Figs 4 and 5



Witnesses

Harry C. Clark.

H. E. Matthews.

Inventor.

John Greene.

By H. W. Beadle & Co.

Attys.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOHN GREENE, OF LONDON, ENGLAND.

IMPROVEMENT IN MAKING MATRICES FOR CASTING TYPE.

Specification forming part of Letters Patent No. **160,423**, dated March 2, 1875; application filed April 4, 1873.

To all whom it may concern:

Be it known that I, JOHN GREENE, of London, England, gentleman, have invented certain Improvements in Making Matrices for Casting of Types, Logotypes, and Phrasotypes, and in apparatus therefor, of which the following is a specification:

My invention consists in an improved mold for forming blocks for the purpose of making, by electrotypy, matrices and markers for casting both ordinary and legible types, logotypes, and phrasotypes.

In the most perfect mold or molds now known, the process of forming blocks for matrices and markers for casting such types is wanting in the rapidity and simplicity, and in the accuracy and permanence, which are so desirable, especially in the manufacture of logotypes and phrasotypes, which are themselves designed to economise both time and labor.

Thus, according to the most approved plan now known, it is necessary, first, to unite the types by means of injected metal, asphaltum, shellac, or some other substance; secondly, to electrotype the face or letters of the type or types before placing the same in a first mold, in order to protect the letters from injury from the metal to be injected for surrounding the types; thirdly, having obtained the matrice-block from this first mold and a matrice therefrom by electrotypy, it is necessary to place the matrice so produced in a second mold, for the purpose of what is called backing it, in order to make all matrices so produced of the same height; and, fourthly, to place the matrice so backed in a third mold for the purpose of what is called tailing it, or making it of the required length and thickness. A matrice-block is for casting types with reversed letters on the face of them, and a marker-block is for casting upon the foot of them the same letters in the ordinary legible form.

By the use of my improved mold I obtain blocks for both matrices and markers by a simple and speedy process, which supersedes the necessity of uniting the types intended for logotypes or phrasotypes, and of electrotyping their face or letters, and my process supersedes the necessity of backing and tailing the matrice or marker produced from it, according to the plan hitherto adopted. As regards the matrice-block, I effect this result by increasing the height of the block and interior walls or plates of the mold to the proposed height or length of the matrice-block and enlarging the area and depth of my mold accordingly, and I so arrange it that the face or letters of the types shall lie against the raised side or interior wall or plate of the lower half of the mold, and so be protected by its position from injury by the injected metal. The matrice-block thus produced is then put into improved chases with brass bottoms screwed on, the matrice-block being separated or surrounded by improved insulators, hereinafter particularly described. The face or letter of the type lies toward and in immediate contact with the raised side or interior wall or plate of the lower half of the mold, leaving the foot or end of the type free, and where logotypes and phrasotypes are required, the requisite number of types is placed or locked up in the mold, as already described. The mold is then closed with the upper half, and then, either by hand or by means of a pump, melted metal is thrown in or injected through the channel or opening which is grooved out in the mold. The metal fills the empty space which surrounds the type and unites with it, but no metal can flow toward the face or letter, because it is protected by being placed toward the raised side or interior wall or plate of the lower half of the mold, as before described.

Figures 1 and 2 represent the lower and upper halves of my improved mold for matrice-blocks and markers. Fig. 3 represents the completed matrice-block before it is removed from the molds. Figs. 4 and 5 represent in perspective a perfect matrice-block with raised letters and in intaglio, both ready for use.

a shows the type or types with the faces or letters lying against the interior side *b* of the lower half of the mold. *c* represents the block for regulating the height of the matrice-block and marker; and *d d*, the mouth, channel, or opening grooved in both halves of the mold, through which the metal is injected or thrown in; and *e*, Fig. 3, represents the matrice-block as cast about the type.

It will be seen that my improved mold for casting matrice-blocks and markers differs

from the most approved mold heretofore known in the following particulars: First, the height and length of my mold are made to correspond with the height and length of the proposed matrice-blocks, and thus I dispense with the two other molds now used for backing and tailing the matrice or marker; secondly, the face or letters of the type or types are made to lie against the raised side or interior wall or plate of the lower half of the mold, as seen at *a*, and I therefore dispense with the process of electrotyping the face of the type to protect it from injury from the injected metal; thirdly, the area and depth of my mold are made to correspond with the size or body of the proposed matrice or marker for types, logotypes, or phrasotypes, as may be required.

My improved mold may be adapted for making matrice-blocks with overhanging shoulders, to prevent any undue or unsightly distance between the ending of any letter, word, or phrase and the beginning of that which follows. This I do by substituting in the body of my mold other plates of the same form and dimensions, but having their short raised ledges in the upper and lower halves beveled off like the tooth of a saw to let the teeth of the block overhang.

By means of my said mold and an improved backing-mold I can obtain justified markers for casting legible types, logotypes, and phrasotypes. By legible is meant what is now understood by that word in typography—that is to say, types which, in addition to the reversed letter on the face, have on the foot the same letter not reversed, in intaglio, and in the ordinary readable form of the alphabet, whereby the composition, correction, and distribution of types in printing are facilitated.

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

The mold described, having the side piece *b*, block *c*, pouring-opening *d*, constructed and arranged as and for the purpose described.

JOHN GREENE.

Witnesses:

WM. ROBT. LAKE,

CHARLES MARSHALL, Jr.