

(No Model.)

G. A. GOODSON.
DIE FOR MATRIX MAKING MACHINES.

No. 414,636.

Patented Nov. 5, 1889.

Fig. 1

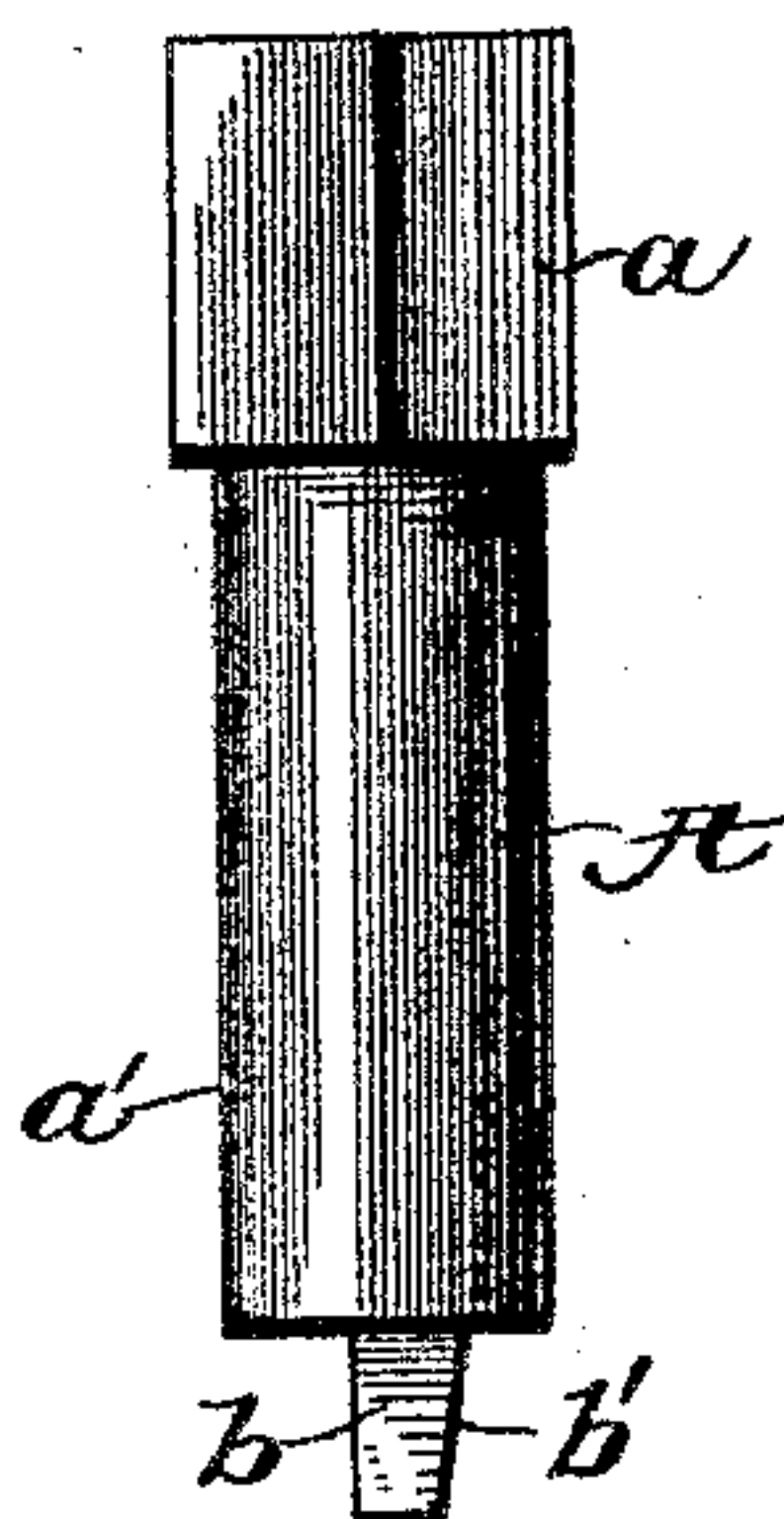


Fig. 2

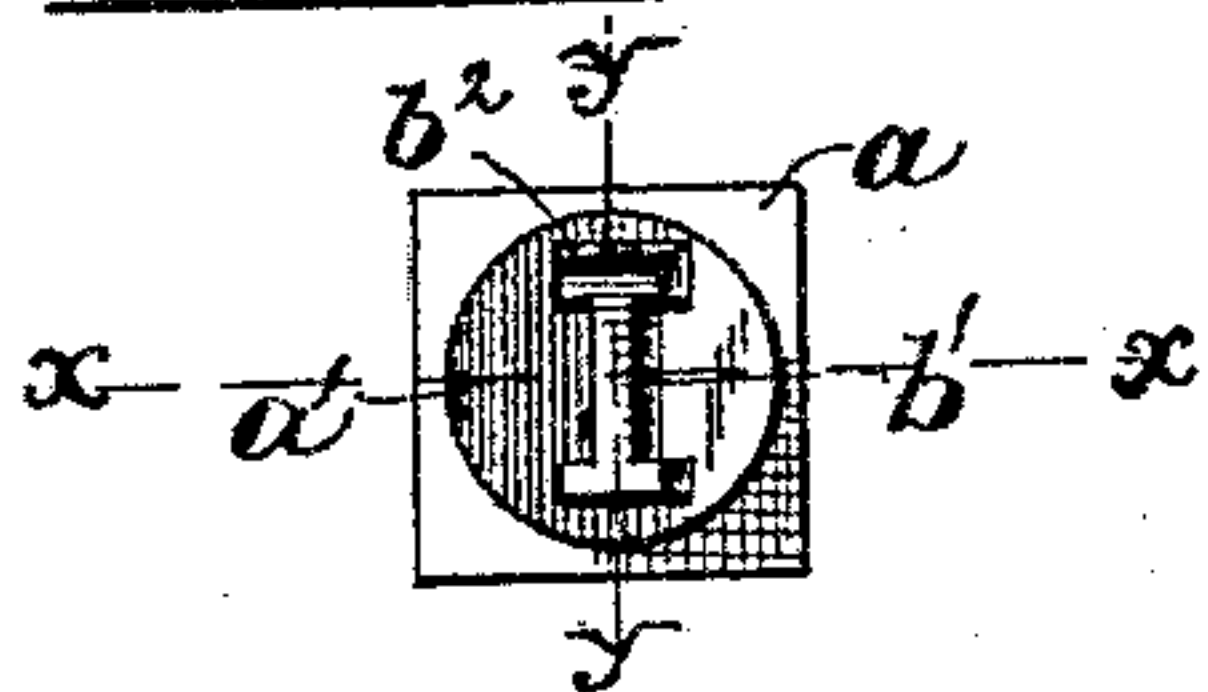


Fig. 3

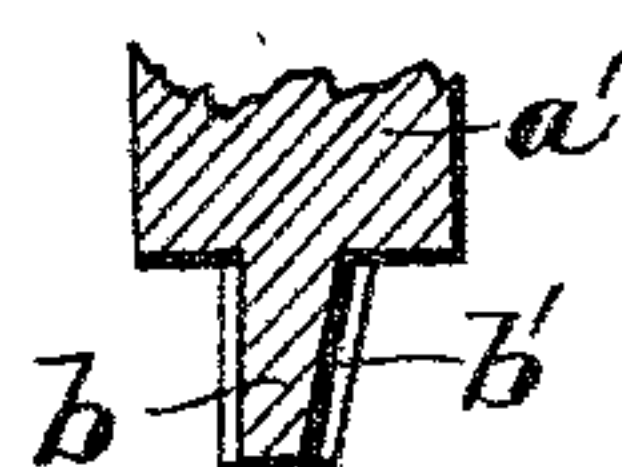


Fig. 6



Fig. 5



Fig. 4

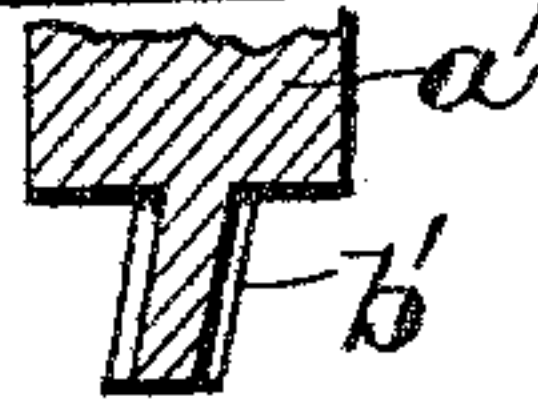
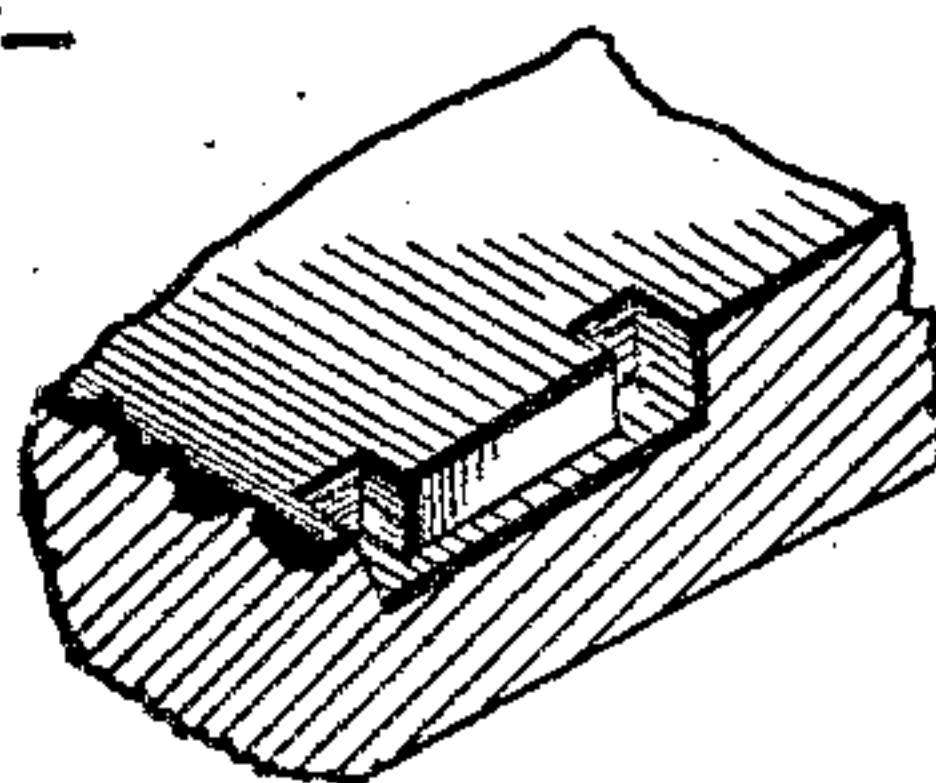
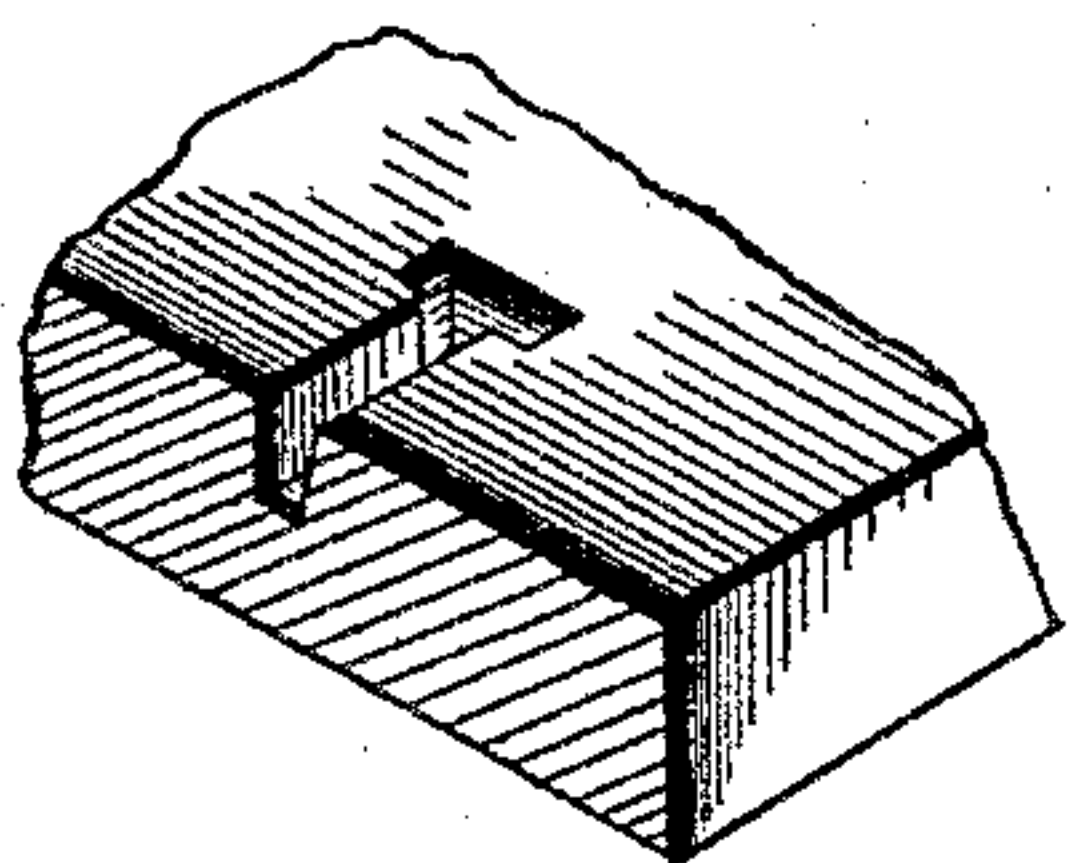


Fig. 7 Fig. 8



Witnesses

G. A. Taubenschmitt.
Geo. Whitaker.

Inventor

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By his attys.
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UNITED STATES PATENT OFFICE.

GEORGE A. GOODSON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE
MINNEAPOLIS ELECTRO MATRIX COMPANY, OF SAME PLACE.

DIE FOR MATRIX-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 414,636, dated November 5, 1889.

Original application filed May 25, 1888, Serial No. 275,034. Divided and this application filed January 31, 1889. Serial No. 298,222. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. GOODSON, a citizen of the Dominion of Canada, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Dies for Matrix-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to type-dies for matrix-making machines, and is a division of my former application for Letters Patent filed May 25, 1888, and given Serial No. 275,034. I have illustrated said invention in the accompanying drawings, and have fully disclosed the same in the following specification and claims.

In the drawings, Figure 1 is a side elevation of one form of die embodying my invention. Fig. 2 is a bottom or under side view of the same. Fig. 3 is a partial transverse vertical section on line *x x*, Fig. 2. Fig. 4 is a like view of a modified construction. Fig. 5 is a partial longitudinal section of a die on line *y y*, Fig. 2. Fig. 6 is a similar view of a modified construction. Figs. 7 and 8 are sections of a body of matrix material shown in isometric perspective through impressions made therein.

In the practical working of matrix-making machines it is found that after an impression of a letter has been made, the die, in passing down into the material to form the impression for the next adjacent letter, crowds the material between the two impressions toward the preceding impression, thereby partially filling and closing the same. It will be readily seen that this is a great difficulty, as the matrix is rendered imperfect, and it is almost impossible to obtain perfect plates from the same. The same disadvantage occurs also between the succeeding lines of impressions, as the dies in passing into the material to form the impressions in the line will crowd the material between it and the previously-formed line of impressions, and thereby partially close them or press them out of shape. To obviate the first of these difficulties, I form the impression-forming portion of the die with one

or both sides inclined from the face of the die to the right, or away from the previously-formed impression, and this construction is fully set forth in my former application before referred to. In order to avoid the crowding of the walls of the impressions, both from the side and from the bottom of the same, I form the type-die with one or both of its side walls inclined, as just described; and I also form the bottom or foot of said die with a similar incline extending from the face of the die toward the main body in a direction away from the impressions in the preceding line, and I may form the remaining side of said die inclined in the same manner, if desired. By these constructions the lower walls of all the impressions in a line will incline upwardly and away from the line of impressions previously formed. When, therefore, the impressions of the next succeeding line are formed, the crowding of the material between the two lines will only tend to bring said inclined wall into a more nearly vertical position, and the same is true of the side wall of each successive impression in the same line. It will thus be seen that perfect matrices can be readily obtained and the difficulties before referred to completely avoided. In actual practice it is found that the crowding of the material between an impression and an adjacent impression in the same or succeeding line is never sufficient to bring the inclined wall of the impression on that side quite into a vertical position, so that in casting the metal plate is easily separated from the matrix-bed and the plates are found to be free from imperfections.

In the drawings, A designates a full-length die, the upper part of which consists of a polygonal guiding-head or portion *a*. Below this is a cylindrical shank consisting of a portion *a'*, from the lower end of which projects the stem or character or impression-forming portion *b*.

In Fig. 1 the die is shown as in a position giving a view of the bottom or foot of the letter. From this figure and from Fig. 2, in which it is shown inverted, it will be seen that the stem or the impression-forming portion of the die has its right side *b'* inclined outwardly from the face of the die toward the shank or

part a' , or away from the previously-formed impression, and the bottom side b^2 of the stem which forms the foot of the impression is also inclined in a direction away from the impressions in the line previously formed, as best seen in Fig. 5. The effect of this construction is, that when a die is impressed into the matrix material the right-hand wall and bottom wall of the impression will incline outwardly, as shown in Figs. 7 and 8.

In forming a series of impressions, as in a word, the straight side of the die will be adjacent to the impression preceding in making the second and succeeding letters, so that the crowding of the material between two impressions will only tend to bring the inclined wall more nearly into a vertical position, and in forming the second and succeeding lines the straight or upper side of the stem b will be adjacent to the impressions of the preceding line, with the same result.

In order to secure the least possible crowding of the matrix material back upon an adjacent previously-formed impression, I may form the sides of the stem b opposite the inclined sides b' b^2 with a similar incline, re-

spectively, if desired, as shown in Figs. 4 and 6. These inclined faces may be parallel with the faces b' and b^2 , respectively, or they may be of differing angles, as found most desirable.

It will be understood that the form of the main body of the die is immaterial, and may be of any desired style of construction.

What I claim, and desire to secure by Letters Patent, is—

1. The herein-described character-die for matrix-making, the stem of which inclines outwardly on its lower and right or forward sides only from its face toward the main body of the die.

2. The herein-described letter or type die, having the bottom and right side inclining outwardly from the face toward the body of the die and the top and opposing side inclining inwardly.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. GOODSON.

Witnesses:

ROBT. F. GAYLORD,
PARKER W. PAGE.