C. S. WESTCOTT.

MATRICES FOR TYPE-CASTING.

No. 193,628. Patented July 31, 1877.

Fig. 1.

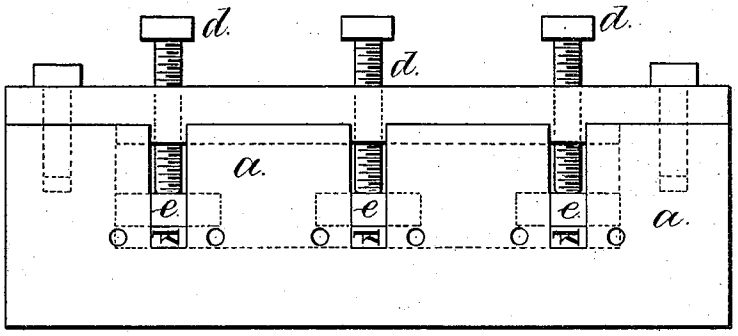


Fig. 7.

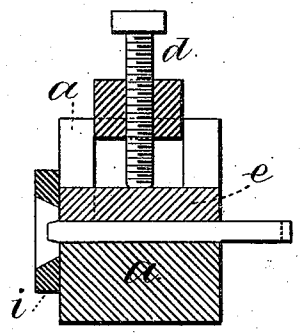


Fig. 2.

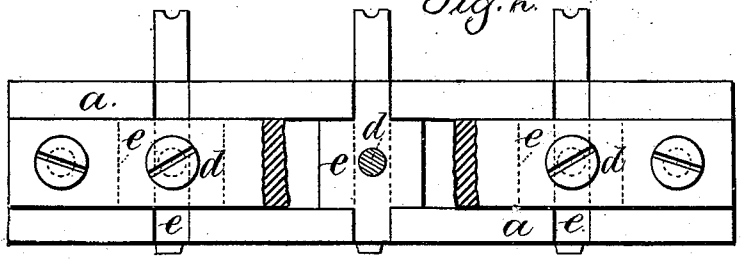


Fig. 6

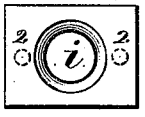


Fig. 5.

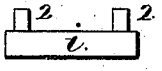


Fig. 3.

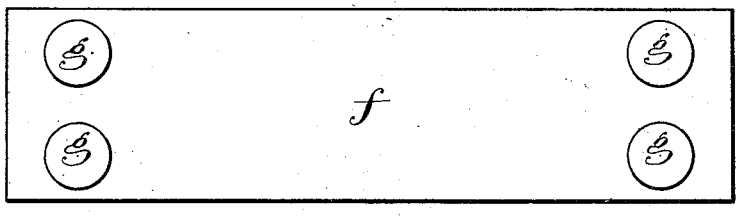
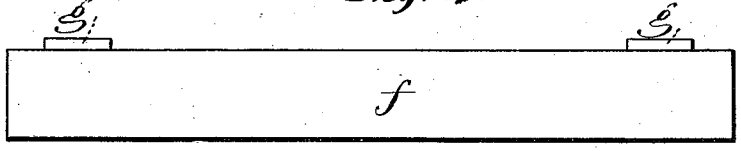


Fig. 4.



Witnesses,

Chas. H. Smith

Harold Serrell

Inventor.

Chas. S. Westcott.

per Lemuel W. Serrell

Atty

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UNITED STATES PATENT OFFICE.

CHARLES S. WESTCOTT, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE AMERICAN TYPE MACHINE COMPANY, (LIMITED,) OF THE CITY AND STATE OF NEW YORK.

IMPROVEMENT IN MATRICES FOR TYPE-CASTING.

Specification forming part of Letters Patent No. **193,628**, dated July 31, 1877; application filed December 14, 1876.

To all whom it may concern:

Be it known that I, CHARLES S. WESTCOTT, of Elizabeth, in the county of Union and State of New Jersey, have invented an Improvement in Matrices for Type-Founding, of which the following is a specification:

Difficulty has heretofore existed in making the matrices used for the letters or characters in type-founding, because the mold, after it has been formed by electrotyping the letter of the type or punch to be reproduced, has to be fitted and adjusted to its position in the casting device, and the face of the letter may be too near or too far from the mold itself in which the body of the type is cast; hence the type is liable to imperfections, and great skill and expense are involved in properly applying the matrix in the casting device. By my invention the matrix is made with great accuracy, and but little labor is expended.

In the drawing, Figure 1 is an elevation of the type-holder. Fig. 2 is a plan of said type-holder, partially in section. Fig. 3 is a face view, and Fig. 4 an edge view, of the gage-plate that serves to determine the depth of the matrix. Fig. 5 is an edge view, and Fig. 6 a face view, of the matrix-frame. Fig. 7 is a section of the type-holder and matrix-frame.

In the type-holder *a* there are one or more transverse slots or mortises of a width corresponding to the width of the type or types to be molded. The type is secured into these slots or mortises by any suitable means. I have shown screws *d*, acting upon followers *e*, each of which is preferably of the form shown in Figs. 2 and 7, so that it is free to be moved toward or from the type, but it is retained in the holder *a*. The mortise in the holder extends entirely across the block *a*, so that the foot of the type projects at the back.

In order to obtain perfect uniformity in the projection of the letter from the surface of the type-holder I make use of the plate *f*, that is, by preference, fitted with projections *g*, that are equal to the depth required for the matrix; hence, when the plate *f* is applied in front of the type-holder, and the type pressed forward in the holder until its face touches the surface of said plate *f*, its face will be at the proper distance from the surface of the holder *a*. By this means the depth of the matrices that are produced will be perfectly uniform, and the entire length of the types cast in the type-casting devices will be absolutely correct and uniform.

The type or types are to be firmly clamped after they have been adjusted, as aforesaid, and then the matrix-frame *i* is applied around the letter to be molded. This matrix-frame is preferably a square piece of metal with a central opening, having guide-pins that hold the same in the proper position in relation to the type. The pins 2 on the frame *i*, entering holes in the face of the type-holder, are the means which I have found convenient for this object.

The matrix is now to be formed within the matrix-frame *i*. This may be done by the deposit of copper or other material, as usual in electrotyping; or the matrix may be cast or formed in any other convenient manner, and the matrix and its frame are ready for transfer to and use in the type-casting device. Any surplus material that may project at the back of the matrix and matrix-frame of course is to be removed.

It will now be understood that if the matrix-frames are made with perfect uniformity, and the devices for attaching the matrix and frame in the casting device correspond, there will be no fitting or adjusting required of the matrix for use in the casting device.

If desired, the matrix-frame may serve to hold the matrix while being made, and to determine its external configuration, and the matrix may be removed from the frame and inserted into a suitable holder in the casting device.

In making electrotype deposits upon the face of the letter the parts outside the opening of the matrix-frame should either be coated with a non-conducting substance, or else the solution should be excluded from all parts of the type-holder except those that come within the matrix-frame.

The projections *d* of the plate *f* may be attached to the same, or a plate with an opening or two rods or strips may be laid against

the type-holder *a*, and then the plate *f* be pressed against the same, to form a gage for the depth of the matrix formed by the projecting type.

It will be evident that when the types are cast of perfectly uniform length the type-holder may be constructed so that the foot of the type rests within the holder and determines the distance that the letter projects from the face of the type-holder.

I am aware that matrices have been formed by electrotyping several types and cutting up the mold and filing and fitting the respective matrices. My improvement avoids this hand-labor.

I claim as my invention—

1. The type-holder *a* and clamping mechanism, in combination with the plate *f* and intervening device *g*, for determining the distance that the type projects from the holder, substantially as set forth.

2. The matrix-frame *i*, in combination with the type-holder and type, substantially as set forth.

3. The method herein specified of making separate complete type-matrices, by adjusting and securing the type in a holder with its letter projecting therefrom, and then forming the complete matrix within a matrix-frame held in position around the letter, substantially as set forth.

Signed by me this 11th day of December, A. D. 1876.

C. S. WESTCOTT.

Witnesses:
JAMES BAIRD,
SAMUEL HOLMES.