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F. H. BROWN, J. E. HANRAHAN & G. A. BOYDEN.

MATRIX FOR CASTING TYPE CHARACTERS.

APPLICATION FILED MAY 17, 1905.

Fig. 1.

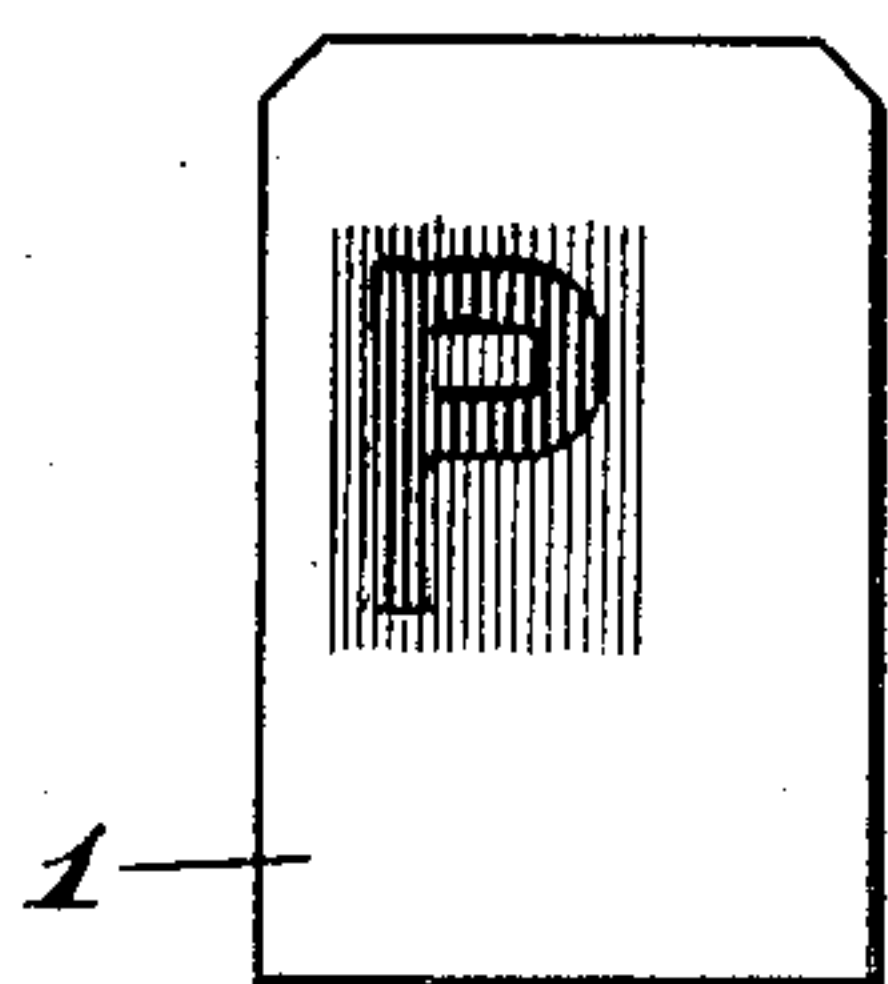


Fig. 2.

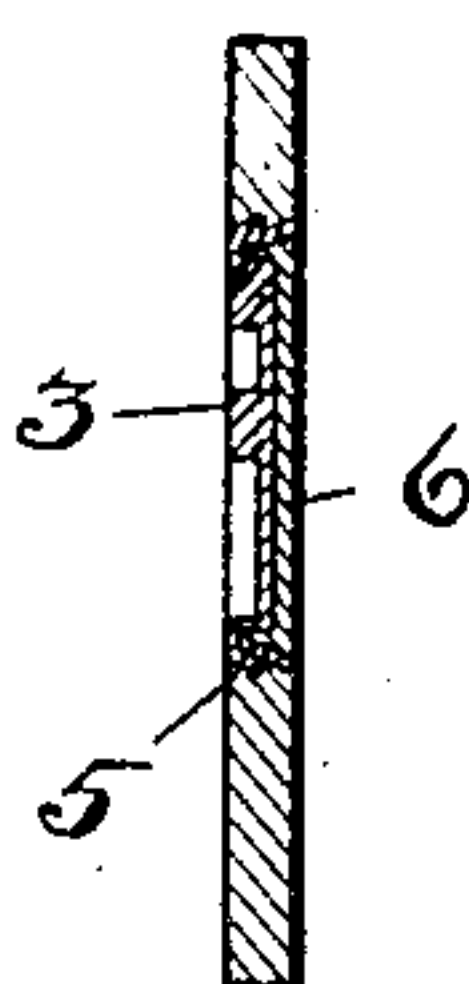
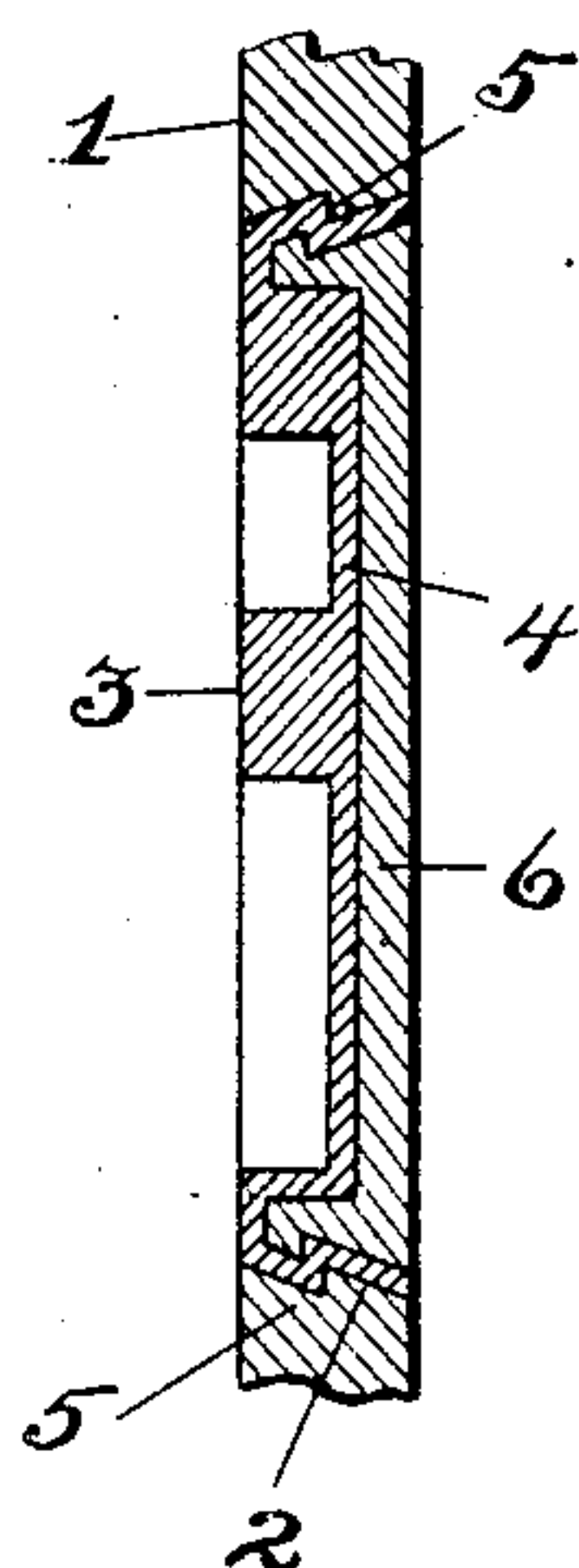


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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MATRIX FOR CASTING TYPE CHARACTERS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRANK H. BROWN and JOHN E. HANRAHAN, of the city of Baltimore and State of Maryland, and GEORGE A. BOYDEN, of Mount Washington, in the county of Baltimore, State of Maryland, citizens of the United States, have invented certain new and useful Improvements in Matrices for Casting Type Characters, of which the following is a specification.

This invention pertains to a matrix for casting type characters, and consists of a metal plate having a single thickness and provided with a hole closed by an electrodeposited filling which contains the character, said filling being secured to the plate in such manner that portions of it are exposed both at the back and front.

Matrices of the class to which this improvement relates have their intaglio-type characters formed by the electrodeposition of metal over a positive or cameo type character. Heretofore the electrodeposited filling containing the type characters have been backed up with an additional plate, which is riveted to the plate containing the filling in order to secure the filling from becoming loose and to sufficiently protect it from being damaged in casting.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 illustrates a front view of the matrix. Fig. 2 is a vertical section of the same, and Fig. 3 illustrates an enlarged sectional view showing the manner in which the filling is secured in the matrix-plate.

The matrix-plate 1 has a hole 2 entirely through it sufficiently large to admit of the desired intaglio-type character 3 being formed by an electrodeposited filling 4, which closes said hole. The surrounding edge of the hole in the plate has an undercut groove 5.

In the process of making the matrix after the formation of the hole entirely through the plate the latter must be attached to a positive or cameo type character, which must be located accurately in the hole by entering from the front side and temporarily closing said hole at that side, but leaving the hole open at the back, and then the plate and cameo-type character must be submitted to the electrodeposition process. In the operation of this process the particles of copper or

other metal enter the hole 2, which has been left open at the back for this purpose. The particles of metal accumulate and produce the metal filling 4 over and around the said cameo type character, and also said particles enter the undercut groove 5 around the edge of the hole. When the electrodeposition of metal has been completed, the positive or cameo-type character must be withdrawn from the front side, which side becomes the casting side of the matrix-plate. This front side is left in a finished condition by the electrodeposition process. The back or opposite side of the plate also exposes that portion of the metal of the filling which comprises the border that fills the undercut 5. At this stage of manufacture the back of the metal filling 4 and its border constitutes a cavity, which is then filled with a suitable metal 6, preferably in a molten condition; but whatever the condition of the metal comprising the back filling at the time it is placed in position the whole of the back of the plate and both fillings are finally finished to a uniform smooth surface, as seen in Figs. 2 and 3. This back-filling 6 gives stability to the filling 4 of the intaglio-type character and keeps the border of the metal which forms the character securely attached to the undercut groove 5.

By this construction the plate which has heretofore been used to cover the entire back surface of the matrix-plate may be dispensed with; the matrix can be produced at a less cost of labor and material, and is of less weight and bulk.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A matrix for casting type-faces comprising a single plate having a hole entirely through it with an undercut groove formed in the edge of the hole, and an electrodeposited metal filling closing the said hole and containing the type character and secured to the single plate by engaging the said undercut groove.

2. A matrix for casting type-faces comprising two elements, namely, a plate having a hole entirely through it, and a metal filling having an intaglio-type character and closing said hole and exposed both at the back and front of the plate, and the two elements so

cured together by an undercut groove on one element being engaged by the contacting portion of the other element.

3. A matrix for casting type-faces comprising a plate having a hole entirely through it with undercuts in the edge of the hole, a filling closing said hole and containing the type character and secured by the border of the filling engaging said undercuts and said border also forming a cavity at the back of the filling, and a second filling in said back

cavity which keeps the border of the first filling pressed into engagement with said undercuts.

In testimony whereof we affix our signatures in presence of two witnesses.

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