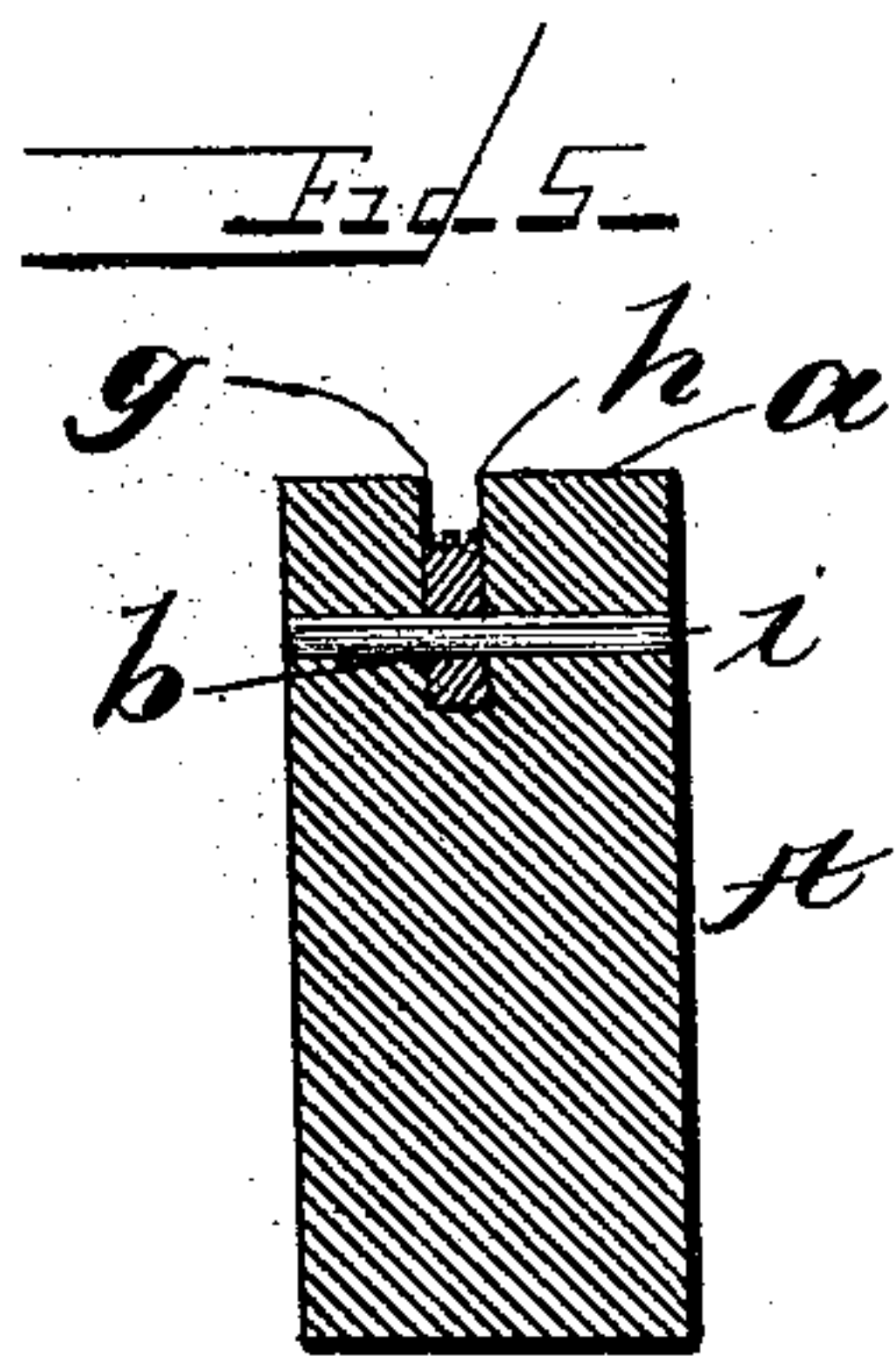
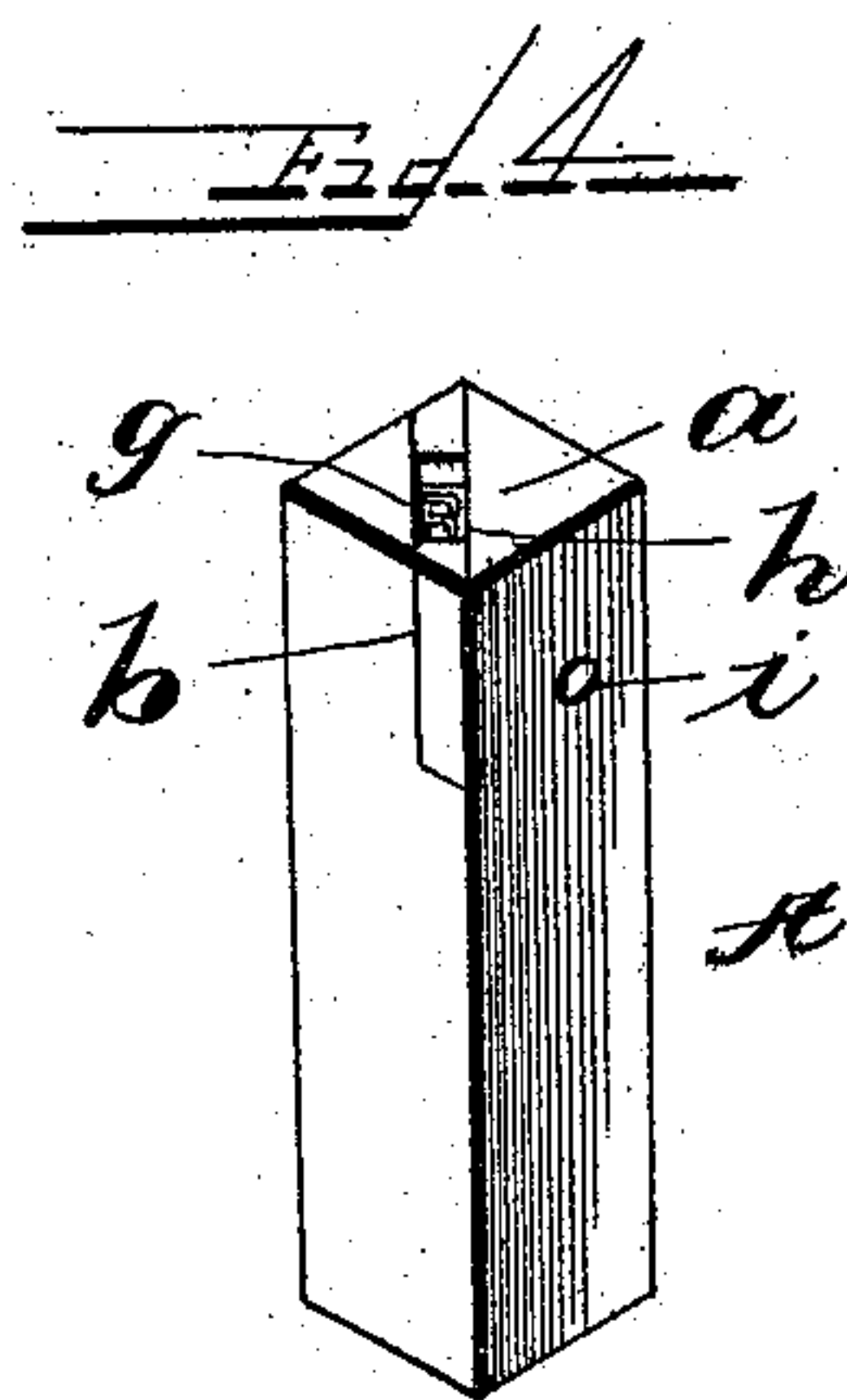
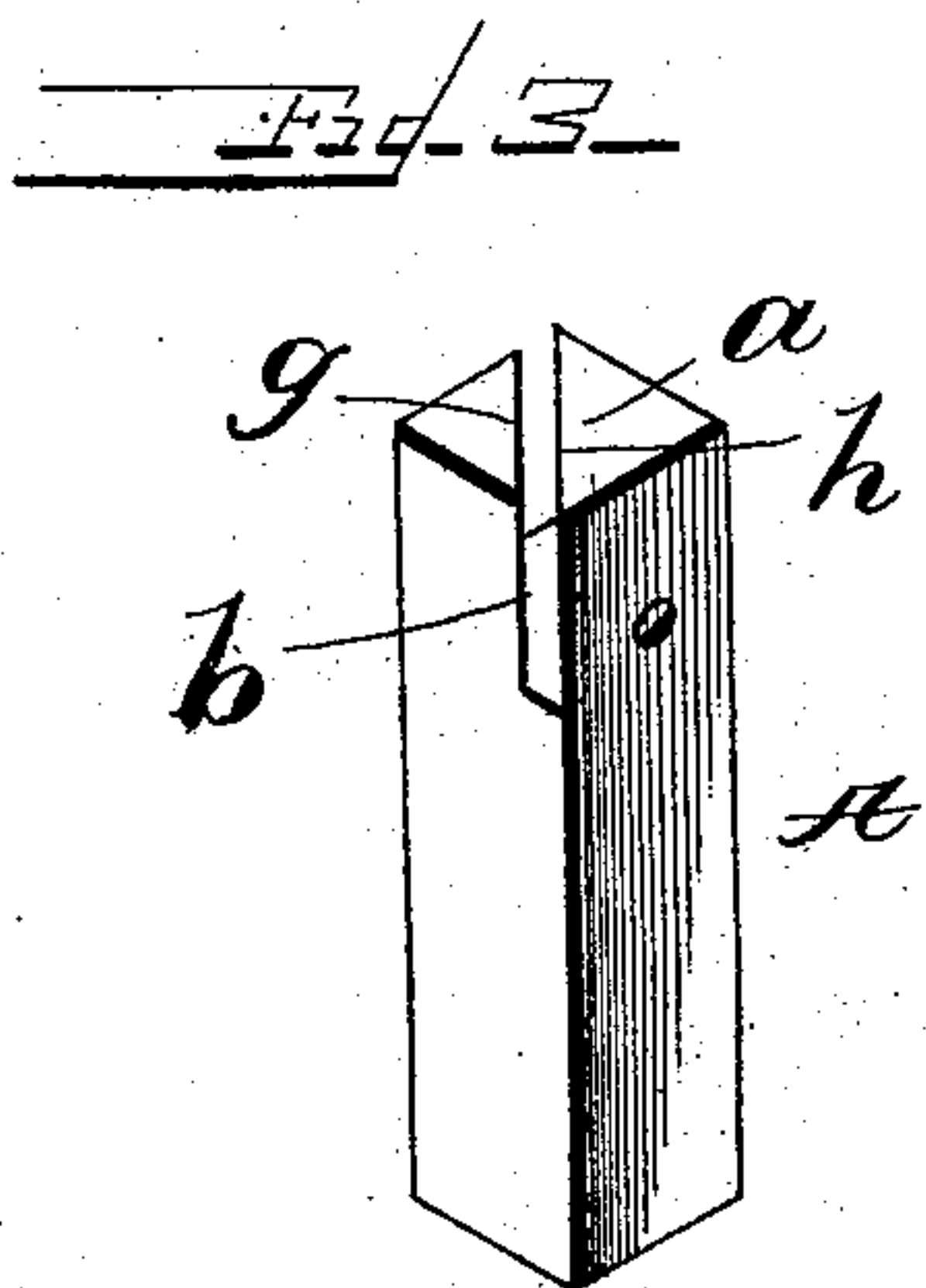
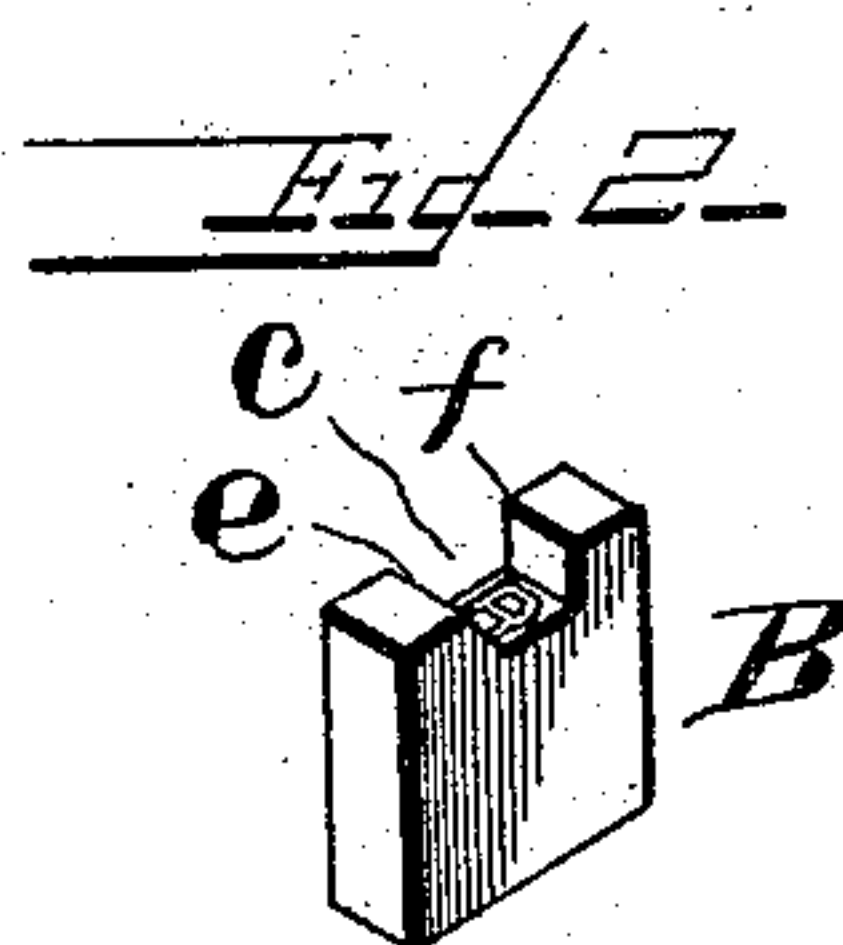
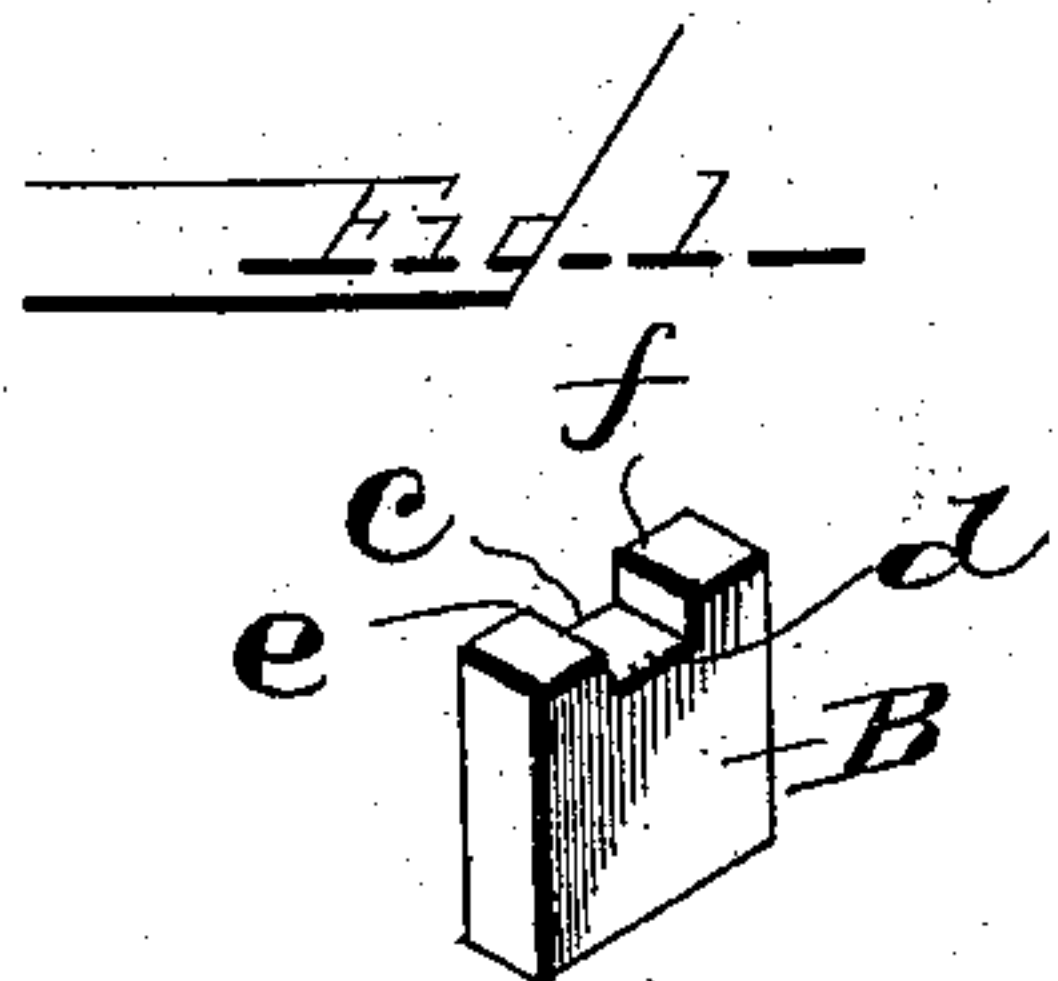


(No Model.)

W. KEMP, Jr.
TYPE MATRIX.

No. 507,275.

Patented Oct. 24, 1893.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM KEMP, JR., OF WASHINGTON, DISTRICT OF COLUMBIA.

TYPE-MATRIX.

SPECIFICATION forming part of Letters Patent No. 507,275, dated October 24, 1893.

Application filed January 7, 1893. Serial No. 457,672. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KEMP, Jr., a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Type-Matrices; 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 present invention relates to type-matrices and has for its object certain improvements in construction which will be fully disclosed in the following specification and claims.

Heretofore it has been the practice to make matrices of copper, brass or other soft metal to facilitate the sinking of the die which forms the letter or character in the matrix, and in some instances the matrix has been made wholly of hard metal such as steel or iron, but at the expense of rapid destruction of the dies. Another practice has been to use a steel block or base, form a recess or cavity in the face thereof and fill said recess with copper or analogous soft metal and then sink the die in the copper to form the matrix in which the type is cast.

In the practical use of matrices formed of soft metal, the four sides or walls of the cavity being soft they close in and soon render the matrix worthless; the usual wear of this class of matrices being about two months when in constant use for casting type.

It is my purpose, and the object of my invention to overcome the objections attending the use of the class of matrices to which reference has been made, and provide a matrix of greatly increased durability and at much less cost.

For the purpose of illustration, the accompanying drawings which form part of this specification show one form of matrix, and in said drawings—

Figure 1 is a perspective (on an enlarged scale) of an insertible section of my composite matrix showing the cavity before the letter or character has been sunk; Fig. 2 a like view of said section after the letter or character has been sunk in it; Fig. 3 a like view of the base or block with a vertical recess or slot in its face; Fig. 4 a like view of said base with

the character section inserted, and Fig. 5 a vertical section of the completed matrix.

Reference being had to the drawings and the letters thereon, A indicates a base or block forming the body or major portion of the matrix and is made of hard metal, preferably steel, and may be made of any form suited to the use to which it may be applied. In the face *a* of the base is a vertical cavity or slot *b*, formed by any suitable tool, and of a width equal to or slightly in excess of the width of the letter or character to be formed on the type, and of sufficient depth to receive the section B so that the upper edge thereof will be flush with the face *a* of the base A.

The section B, is preferably made of soft metal, such as copper, brass, soft iron or decarbonized steel, or any suitable compound metal that will readily take the impression of the die by which the letter or character is formed by sinking the die in the metal. In the upper face of the section B is a recess or cavity *c*, which is formed by any suitable milling tool and is cut down the required depth for casting the face end of type, leaving a plain flat surface *d* in which the letter or character is formed by sinking a die in said surface in any approved manner. The cavity thus formed has two opposing walls *e f* which constitute two walls of the matrix when the parts have been assembled. By cutting the cavity *c* in the section B, the die by which the letter or character is formed need not be driven into the metal any farther that is necessary to make an impression of the letter or character on the surface *d*, and is therefore subject to much less wear and less liable to breaking than when the die is driven into a body of metal to a depth to form the cavity or matrix. After the letter or character has been sunk in the section B, it is inserted in the cavity or slot *b* of the base A, and the sides *g, h* form two opposing walls of the cavity or matrix into which type metal is forced in casting type. These walls *g, h* being of hard metal resist the wear incident to projecting the metal into the matrix to a much greater extent than soft metal is capable of, and as a consequence the durability of the matrix is greatly increased, as the slight wear upon the walls *e f* will not seriously affect the type; and when they become worn

too much for further use, the section B is removed and another bearing the same letter or character inserted, without detriment to or loss of the base or block A. The section
5 B may be secured in the slot *b* by a pin *i* or by any approved means.

I am aware that a composite matrix has heretofore been devised in which a section bearing a letter or character was detachably
10 inserted, but in such section the matrix, mold or cavity in which the letter was to be formed was wholly constructed in said detachable section. In contradistinction to such a construction, I form two walls of the matrix or
15 cavity in the soft metal of the insertible section and the other two walls of the matrix or cavity by using the walls of the base which supports the section, and which are of hard metal.

20 Having thus fully described my invention, what I claim is—

1. A type-matrix consisting of a section having a cavity provided with two walls and two open sides and a letter or character in the
25 bottom of said cavity; and a base supporting

said section and forming two sides or walls of the cavity or matrix.

2. A type-matrix consisting of a section of soft metal having a cavity with a letter or character formed therein and two sides of
30 said cavity open, and a base provided with a slot in which said section is supported and forming two walls of the cavity or matrix.

3. A type-matrix consisting of a base having a vertical slot in one end of a width equal
35 to the width of the letter or character to be formed, and a separate and removable section having a cavity and a letter or character formed in the bottom thereof and two sides of the cavity open, and inserted in the slot
40 of the block; whereby two of the walls of the completed cavity or matrix are formed by the base.

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

WILLIAM KEMP, JR.

Witnesses:

D. C. REINOHL,
H. B. REINOHL.