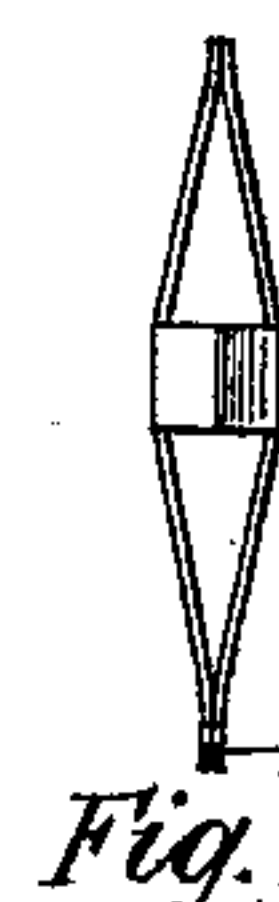
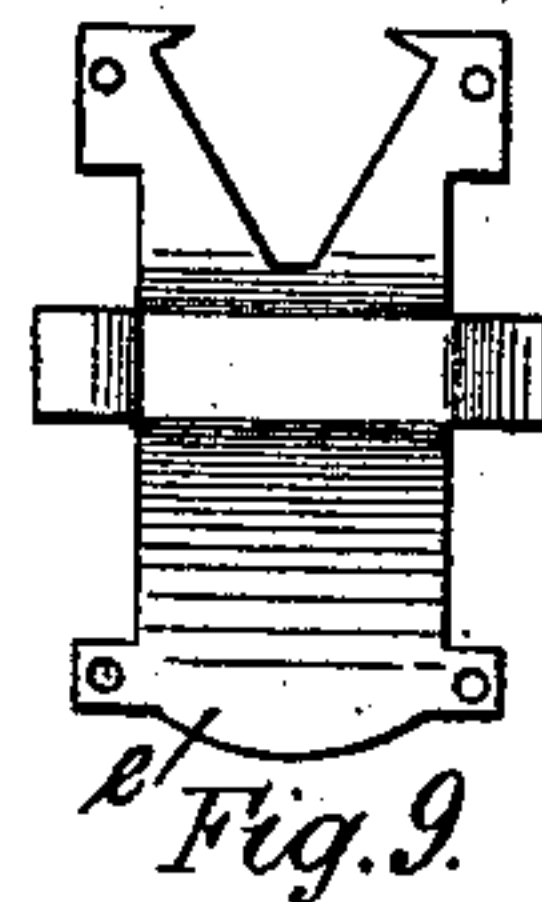
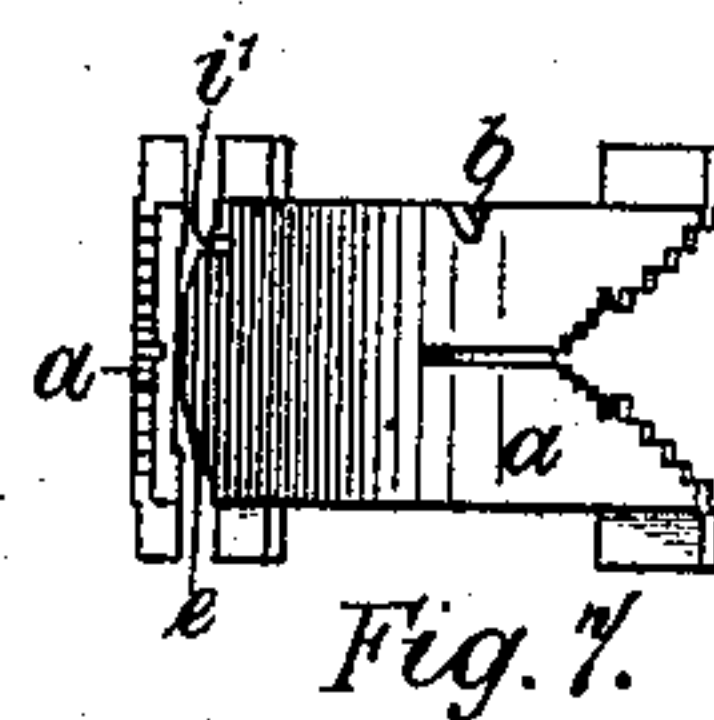
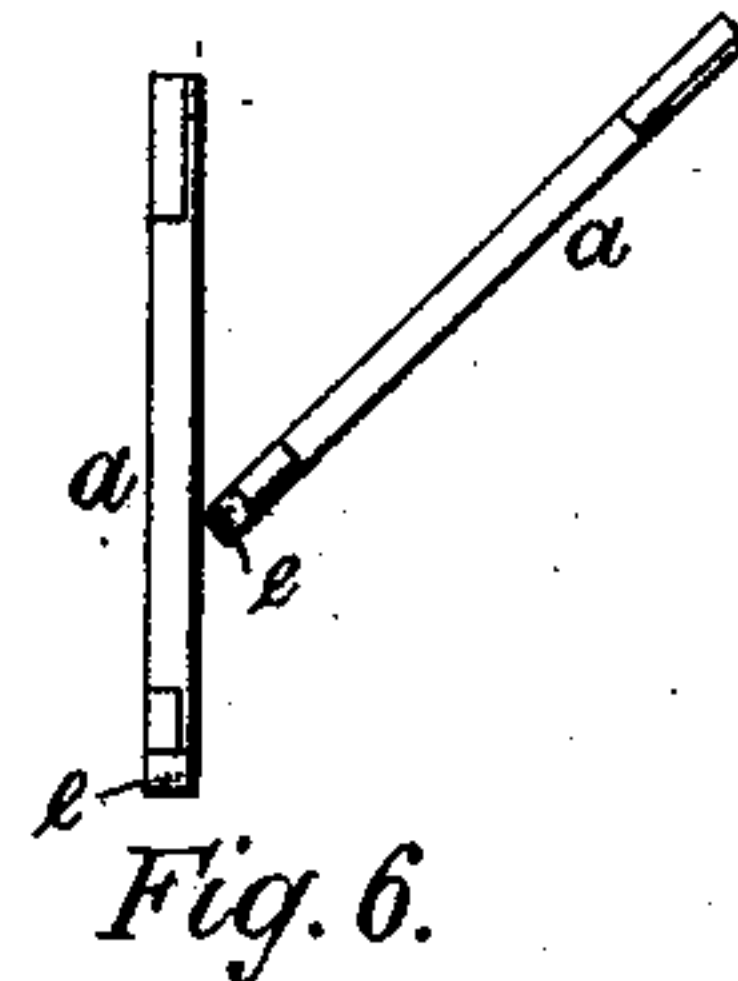
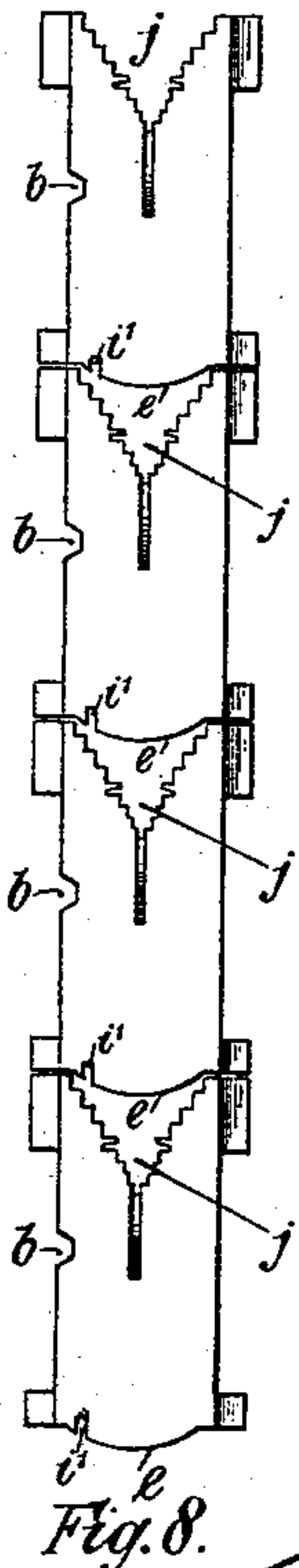
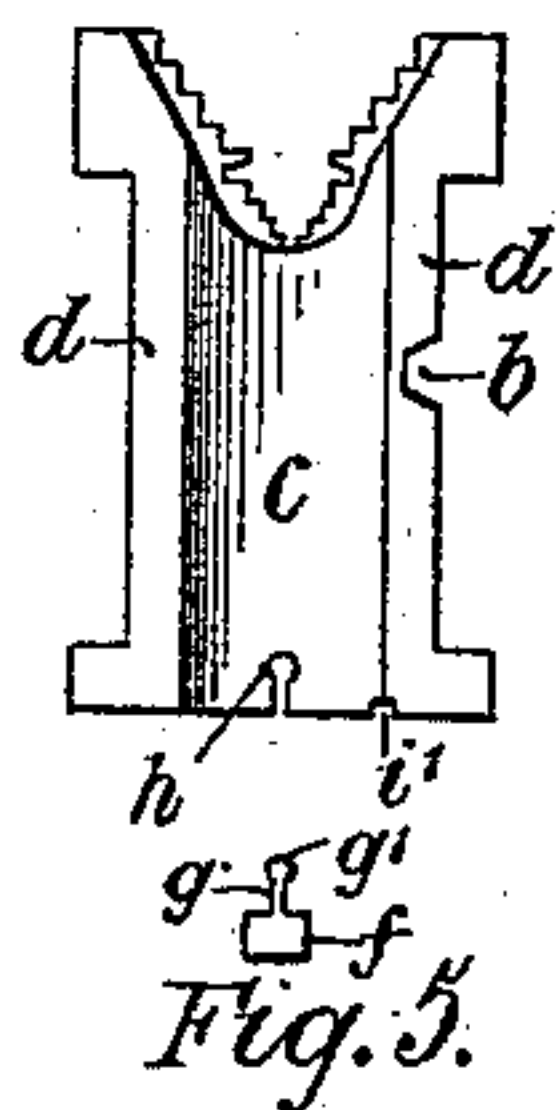
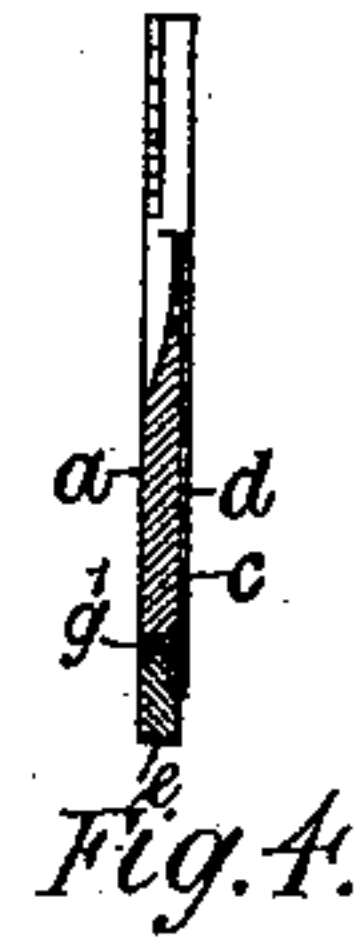
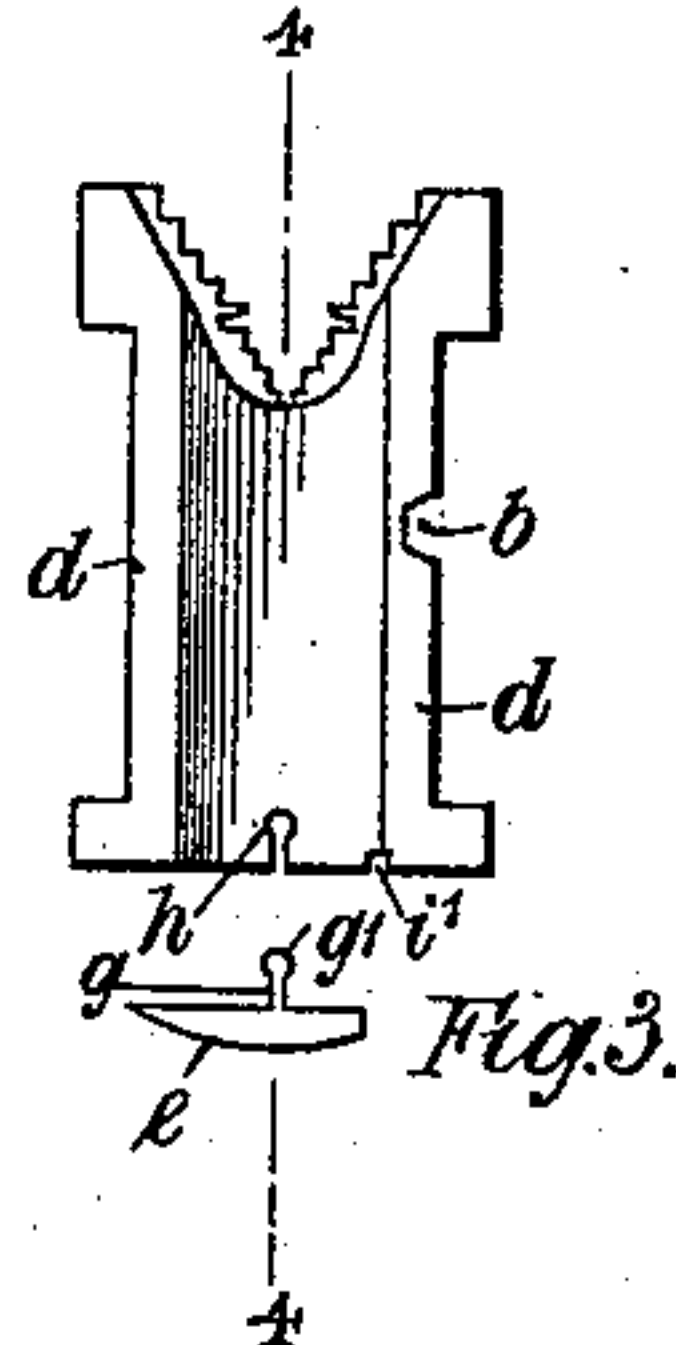
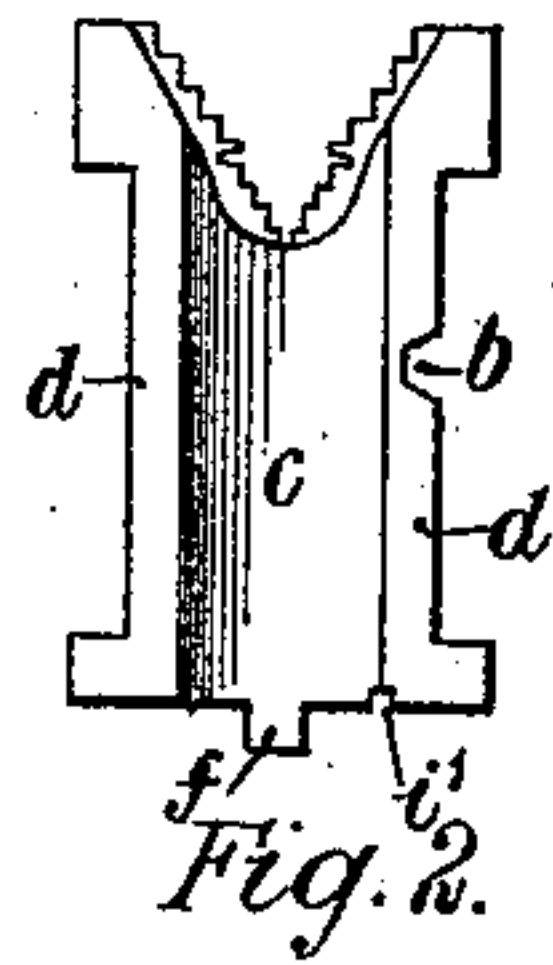
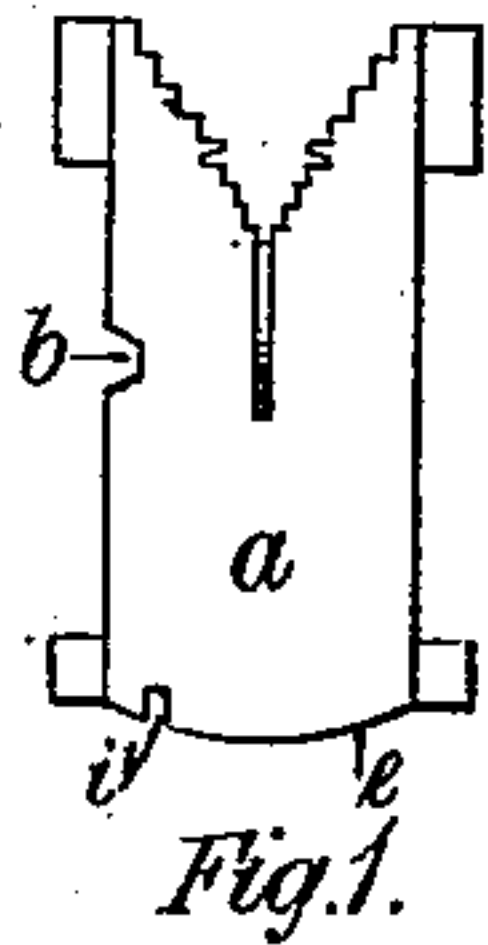


(No Model.)

J. PLACE.  
SEPARABLE MATRIX.

No. 540,000.

Patented May 28, 1895.



WITNESSES.  
N. R. Kennedy  
H. C. Cooper

INVENTOR.

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By Phil. Y. Dodge  
Atty.



# UNITED STATES PATENT OFFICE.

JOHN PLACE, OF LONDON, ENGLAND, ASSIGNOR TO THE MERGENTHALER  
LINOTYPE COMPANY, OF NEW JERSEY.

## SEPARABLE MATRIX.

SPECIFICATION forming part of Letters Patent No. 540,000, dated May 28, 1895.

Application filed August 18, 1894. Serial No. 520,696. (No model.) Patented in England June 14, 1893, No. 11,165.

*To all whom it may concern:*

Be it known that I, JOHN PLACE, a subject of the Queen of the United Kingdom of Great Britain and Ireland, residing at No. 6 Serjeant's Inn, Fleet Street, in the city of London, England, have invented certain new and useful Improvements in the Separable Matrices of Logotype, Linotype, and Similar Machines, (for which I have obtained a patent in Great Britain and Ireland, No. 11,165, dated June 14, 1893;) and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being made to the accompanying drawings, which are to be taken as part of this specification and read therewith, and one which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in the matrices and spacers of linotype, logotype and similar machines; and the object of it is to prevent the damage to which matrices as at present made are subjected during the time in which they are being assembled in line, and by such prevention, to increase their durability.

Letters Patent of the United States, No. 378,798, dated February 28, 1888; No. 425,140, dated April 8, 1890; and No. 436,532, dated September 16, 1890, granted to Ottmar Mergenthaler, describe matrices, and No. 470,649, dated March 8, 1892, to Joseph C. Fowler, describes spacers, to which the present invention is applicable. During the process of assembling them in line as described in the said patents, the matrices are sent to the place of assemblage in an oblique direction with their feet foremost, and as they reach the said place, they are turned up into a vertical position. The foot of each following matrix or spacer therefore strikes the side of the matrix last turned up into the vertical, with the result that a shallow groove is in time formed across that side, in a line with the intaglio character in the front edge of the matrix. Now it is indispensable to the production of a perfect Mergenthaler linotype that the assembled matrices shall present a solid front to the mold, and for this reason they are made with their sides parallel with each other so that when they are assembled and clamped together the

face which the assembled line presents to the mold is a plane surface free from any indentation; but experience with Mergenthaler matrices assembled in the way described above, shows that the succession of blows delivered on their sides by the feet of the following matrices, indents each matrix to such an extent that, when they are clamped together, the front next to the mold has a line of indentations which are represented in the face of the linotype by a series of projections. According then to the number of blows that a matrix receives from its fellows or the Fowler spacers assembled with it will be the height of the projection cast on the face of the linotype, so that in a linotype cast from matrices which have been in use for some time, the projections will be prominent enough to take ink and yield imprints between the letters in the printed line.

In the second of the two patents quoted above, it is proposed to recess each matrix on one or both sides, leaving a vertical margin along each side edge of the matrix. The object of this recess is to prevent the presence of foreign substances between the assembled matrices standing in the way of their being clamped closely together. So far, the formation of the recess is adapted to effect the object it was devised to effect; but the recessed matrix has only the two vertical margins to oppose to the blow of the following matrix or spacer as the case may be, so that a recessed matrix is indented to the extent of being spoiled for practicable linotype casting more quickly than one without a recess.

In carrying my invention into effect, I form a central extension upon the foot of the matrix or the spacer, such extension being a continuation of the body of the matrix, or of the foot of the spacer, in the plane of it. It is to be observed that the extension or tenon on the foot of my matrix is of materially less width than the body of the matrix, so that it lies in rear of the matrix character. During the process of assembling in line, the last matrix set up receives the blow of the following one or spacer in the middle only of its side, the margins thereof being untouched. For that reason, they cannot be indented.

Referring to the accompanying drawings,



which are to be taken as part of this specification, Figure 1 is a side elevation of a matrix with a convex extension, looking at it from the unrecessed side. Fig. 2 is a side elevation of a matrix with a rectangular extension, looking at it from the recessed side. Fig. 3 is a side elevation of a matrix and a convex extension, showing how the present invention can be applied to an old matrix or to an old spacer. Fig. 4 is a section taken on the line 4 4 of the former figure after the extension has been applied to the matrix. Fig. 5 is a side elevation of a matrix and a rectangular extension, also showing how the present invention can be applied to an old matrix or to an old spacer. Fig. 6 is a front elevation of the matrix last turned up into the vertical at the place of assembling and the following matrix striking its side, both matrices being made according to the present invention. Fig. 7 is a plan corresponding therewith. Fig. 8 is a side elevation of three matrices made according to my invention. It shows how the latter in no way interferes with their standing as closely to each other as heretofore in the magazine. Fig. 9 is a side elevation of a Fowler spacer with a convex extension. Fig. 10 is an edge view corresponding with Fig. 9.

*a* is the matrix, and *b*, the recess in the front edge in which is formed the intaglio character. *c*, is the vertical recess, and *d*, *d'* the vertical margins, one on each side thereof. *d'* is the spacer. These form no part of the present invention.

*e* is a convex extension of the matrix or the spacer foot, and in the plane of the latter.

*f* is a rectangular extension of the foot of the matrix likewise in the plane of the latter. For the purpose of my invention, the extension may be either convex as illustrated in Figs. 1, 3, 6, 7, 8, 9 and 10, or rectangular as illustrated in Figs. 2 and 5, but it is always, as to position on the foot of either matrix or spacer, central or as nearly so as will prevent it striking the side margins of the preceding matrix. For the same reason, it is also narrower than the body of matrix or spacer by the width of the two vertical margins on a matrix.

The matrices illustrated in Figs. 1, 2, 7 and 8 and the spacer illustrated in Figs. 9 and 10 are made, in the first place, according to my invention, that is to say, the extensions are, respectively, in one piece with the matrices, and with the plates of the spacer.

The invention is applied to existing matrices and spacers as follows: Referring to Figs. 3, 4, and 5, the extension is made with a tongue *g*. The tip *g'* of the tongue is wider than the latter. The tongue and tip together constitute a tenon. *h* is a mortise in the foot of the matrix or of the spacer, as the case may be. It is of the same shape and size as

the tongue and its tip. When the latter are pressed laterally into the mortise, the extension is incorporated with the matrix or the spacer. To prevent the extension shaking loose and to keep it in the plane of the matrix or spacer foot, the tip *g'* may be expanded against the sides of the hole in the foot by the application of a center punch.

It is to be understood that the old Fowler spacers can have my invention applied to them in exactly the same way as described with reference to Figs. 3, 4 and 5.

The function of the tongue and tip device being only to hold the extension to the matrix or spacer body in the plane of the latter, it must be borne in mind that my invention does not limit me to the exact contour of tenon and mortise illustrated, inasmuch as any mortise and tenon device, the former in the old matrix or spacer to which it is desired to apply my invention and the latter on the extension, may be adopted.

In applying the present invention to existing matrices or spacers, the mortise is necessarily in the latter, and in making matrices or spacers according to the said invention, the extension is preferably made in one piece with the body of the matrix or spacer, but the invention covers the combination effected by any means of separate extension and body.

In some existing matrices there is a notch *i'* in the foot formed there for some error-preventing purpose such as preventing a matrix of a wrong font being introduced into the machine. The presence of such a notch may render it necessary to abbreviate the extension so as to prevent the latter covering the former. This presence and its influence are illustrated in Fig. 3, where the extension is shown as shortened on the left hand so that when it is incorporated with the matrix, the end of the extension will be aligned with the right side of the notch.

Referring to Figs. 6 and 7, it is clear that whether convex or rectangular extensions are used, the vertical margins cannot be struck by the following matrices or spacers, and will therefore be free from indentations.

Referring to Fig. 8, it will be seen that the extensions of the largest area which my invention can require will, when the matrices and spacers are in the magazine, stand within the recesses *j* heretofore present in all Mergenthaler matrices and Fowler spacers.

I wish to point out that I make no claim to a separate matrix, nor to matrices adapted to be assembled in line and then clamped, such clamping to be followed by casting in a mold, one face of which is the adjacent face of the assembled matrices, nor to elastic spacers the external shape of which is similar to that of such matrices.

I claim—

1. A matrix or its described equivalent hav-



ing at its foot an extension limited in width substantially as described to prevent its contact with the character of a preceding matrix when descending to the end of line.

5 2. A linotype matrix or its described equivalent, having its foot formed with a central portion limited in width as described and extending beyond the body portion, substantially as described.

10 3. In combination with a matrix, a central

projection separately formed and secured to the foot of the matrix, substantially as described and shown.

In witness whereof I have hereunto affixed my signature, in the presence of two witnesses, 15 this 9th day of July, 1894.

JOHN PLACE.

Witnesses:

T. F. BARNES,

CHAS. S. WOODROFFE.