

(No Model.)

J. C. FOWLER.
SPACER FOR TYPE MATRICES.

No. 498,426.

Patented May 30, 1893.

Fig. 1.

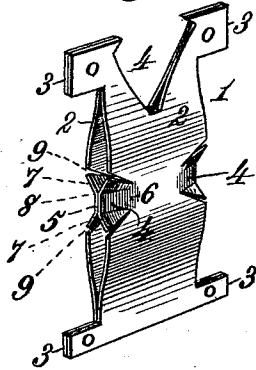


Fig. 2.

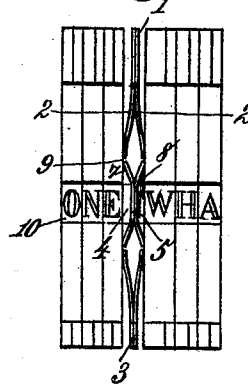


Fig. 3.

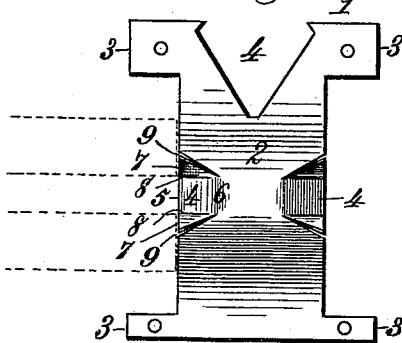


Fig. 4.

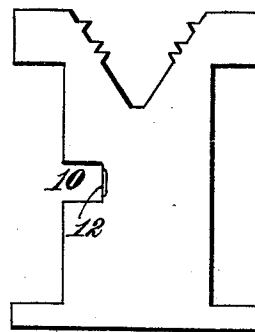


Fig. 5.

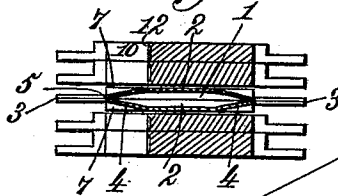
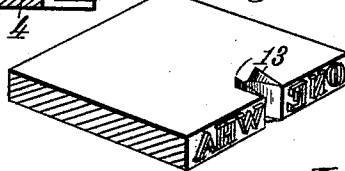


Fig. 6.



Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH C. FOWLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

SPACER FOR TYPE-MATRICES.

SPECIFICATION forming part of Letters Patent No. 498,426, dated May 30, 1893.

Application filed January 16, 1893. Serial No. 458,555. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. FOWLER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Spacers for Type-Matrices, of which the following is a specification.

My invention relates to improvements in the compressible spacer for which Letters Patent No. 470,649 were issued March 8, 1892.

It is the purpose of my invention to provide a novel spacer which shall partake so far of those characteristics common to all the matrices that it may be handled, or manipulated, by the mechanism employed for handling the matrices, without requiring any distinctions due to variations in the form of said spacer.

It is my purpose, in other words, to provide a new and improved spacer capable of elastic compression, when inserted in the line series of matrices, or matrix-plates, the proportion and outline, or shape, of said spacer being similar to the like characteristics of the several matrix-plates, or so closely assimilated thereto as to require no change in arrangement, or in the construction of the mechanism in order to enable the latter to handle the matrices and spacers without distinction of one from the other, and without requiring any special feature of construction of the assembling-devices, or assembling-chamber, whereby and wherein the matrices and spacers are placed in proper orderly arrangement, to prepare for closing the mold and casting the type-bar.

It is a further purpose of my invention to make, for the uses named, provision of a spacer consisting of members which are normally expanded, or separated, by their own elasticity and provided with a nib composed of parts which are integral with the members of said spacer and converged therefrom to an apex which lies in, or within, the marginal lines of the expansible members, the parts of said nib being provided with lateral wings having their maximum width in line with the apex, said wings being separated from the expansible members of the spacer upon lines which diverge from the base of the nib, and bent upon the line of integral union with the

nib to bring the separated edges of the wings substantially into the plane of the outer, opposite, and parallel faces of the spacer.

Finally, my invention has for its purpose the provision of a spacer consisting of members which are expanded, or separated, by their own elasticity, said members having an outline or form substantially similar to that of the several matrix-plates, and being provided with a nib formed of opposite, converging portions of said members, having an apex lying in, or within, the marginal line and provided with lateral wings bent in lines extending from the base along the lines of integral union of said wings with the parts of the nib, and along lines diverging from the base of each part toward the edge or margin of the spacer, lines of cut, or separation, being formed upon the latter lines, whereby the divided edges of the wings are caused to lie in, or substantially in, the plane of the outer, parallel, and opposite faces of the expansible members of the spacer, whereby the nib of the latter is brought wholly within the outline or margin thereof, the lateral wings of the parts composing the nib having their edges in position to make contact with the faces of the matrices between which the spacer is inserted and to yield by their elasticity to the compression of the line, thereby preventing the flow of melted metal beyond the dividing edges of said wings.

My invention depends, in a measure, upon a construction of the matrices by which the intaglios thereof are formed in the edges of re-entrant recesses, or spaces, formed by removing a portion of the matrix-plate from its edge inward, said spaces, or recesses, having the width of the mold and being, therefore, equal to the width of the nibs of the spacers. This construction of the matrix-plate forms no part of my present invention, as it has long been known and used, and differs, in the present instance, only in the depth to which the opening in the matrix is carried, this dimension being preferably somewhat greater than in the matrices now used.

To the ends proposed the invention consists in the several novel features of construction and new combinations of parts hereinafter

fully set forth and then more particularly pointed out and defined in the claims which are appended to this specification.

To enable others skilled in the art to which my invention pertains to fully understand and to make, construct and use the same, I will proceed to describe said invention in detail, reference being had for such purpose to the accompanying drawings, in which—

Figure 1 is a perspective view of a spacer, incorporating my invention. Fig. 2 is a plan view of a series of matrix-plates, forming part of a type-line, with a spacer interposed in said series to form the word-space. Fig. 3 is a side elevation, or face view, of a spacer, the mold being shown in dotted lines in its closed position. Fig. 4 is a similar view of a matrix-plate showing the opening or recess therein formed to correspond in depth and width with the length and width of the nib of the spacer. Fig. 5 is a section of a series of matrices having an interposed spacer, the section-plane being substantially in the central longitudinal line of the matrices. Fig. 6 is a plan view of a portion of a type-bar, formed from the partial series of matrices shown in Fig. 2, to illustrate the lateral angular projections or lugs, formed upon the type-bar within the spaces inclosed by the wings of the spacing-nib. Fig. 7 is a perspective portion of the type-bar shown in Fig. 6.

In the said drawings the reference numeral 1 indicates the spacer, as a whole. This device is composed of two members denoted by the numeral 2, each consisting, preferably, of a thin plate of steel, or other suitable metal, or material, rigidly united at their ends in any suitable manner and so formed that there shall be a divergence of said members from each end toward the middle portion, whereby a part of the spacer intermediate of its ends shall have a normal expansion, or separation, at least equal to, and preferably a little greater than the maximum space employed in type-composition. The aggregate thickness of the members 2 of the spacer is, on the other hand, equal, or nearly so, to the minimum space used, whereby, under the compression of the line, the spacer may be compressed to any required degree. At its ends the spacer is provided with lugs 3, and at one end with a notch 4, these features being similar in form and proportions to the corresponding parts of the several matrices, one of which is shown in Fig. 4. The spacer differs from the latter, so far as its general form, or outline, is concerned, by having no combination in its notched end, or, as may in some cases be desirable, having a simple combination which will be identical throughout the series, as the differentiation necessarily employed in the matrices, is not required in the spacers, which are all returned to the same cell in the magazine.

The spacer is provided with a nib upon its longer edge, said nib being formed of two parts 4 integral with the members 2 of the

spacer. The parts 4 are located at, or about, the point of maximum expansion, or separation of the said members 2, each of said parts being composed of a portion of metal having the width of the interior of the mold and being of such suitable length that they may converge at a comparatively small angle and meet at an apex 5, which lies preferably in the marginal line of the expanding members 2. At their bases 6, these parts are integral with the members 2 of the spacer. Each part is provided with lateral wings 7 each of which is bent upon two lines, one of the latter being the line 8, of integral union between the part 4 and the wing, and the other being the line 9 which is drawn from the base of the nib to the margin of the spacer, at an angle diverging from the line 8. The wings are divided from the members 2 along the lines 9, thereby leaving the free edges of the wings substantially in the planes of the exterior, parallel faces of the members 2 of the spacer, as seen in Figs. 1 and 2, and at the same time permitting the parts 4 of the nib to remain normally in close contact at the apex 5. By this construction each wing 7 is of the form of a right triangle, or substantially so, the line of division 9 being the hypotenuse, and the line 8 of integral union with the nib being the base of said triangle, the remaining leg, or third side, lying in the marginal line of the spacer, or very nearly so.

When the line of matrices is set up in the necessary orderly arrangement, with one or more of the spacers interposed therein, the base 6 of the nib will be in the plane of the faces of the intaglios formed in the edges of the matrices assembled in line. To effect this each matrix is provided with a re-entrant recess, or opening 10 in its edge, cut to a depth equal to the length of the nib from its apex 5 to its base 6, and upon, or in the edge 12, forming the bottom of this opening, the intaglio is formed. These recesses 10 do not differ, in material respects, from those heretofore used in matrices, being merely made of the dimensions corresponding to the nibs of the spacers. When set up in line, the apices of the nibs will not project beyond the outer margins, or edges of the matrix-plates and the outlines of the spacers will coincide substantially with those of said matrices. The spacers, therefore, may be handled by the same mechanism which manipulates the matrices and may be assembled in the same space, no special construction being required for their reception therein, or in the magazine-cell.

The mold, which is shown in dotted lines in Fig. 3, closes upon the edges of the line-series of matrices and spacers, its opposite interior walls coinciding, practically, with the two parallel edges of the recesses 10, which constitute a portion of the mold-space. When the line is locked up, its compression forces the flat faces of the matrix-plates against the outer faces of the expanded por-

tions of the spacers, and against the separated, or severed edges of the lateral wings 7, which have elasticity enabling them to yield to the compression. As the mold seats 5 upon the edges in such position that its interior faces coincide with the lines 8, which define the width of the nibs, a perfect closure is obtained throughout, save only in the small pockets formed by the lateral wings. The 10 type-bar when cast will have upon both sides small lugs 13, which are formed in these pockets, but which are readily removed by milling, or dressing, the faces of the type-bar in the ordinary manner.

15 I usually form a nib upon each of the two opposite sides of the spacer, as shown in Figs. 1 and 3, as this equalizes the elastic resistance under compression of the line, and doubles the term of use of the spacer, as it can be re- 20 versed and each side used until worn out.

What I claim is—

1. A spacer for type-matrices consisting of two similar members, having a normal expansion by their own elasticity, and provided 25 with a nib adapted to form a fluid-tight closure for the mold between adjacent matrices and having its apex in, or within, the margin of the spacer, substantially as described.

2. A spacer for type-matrices consisting of 30 two similar members having a normal elastic expansion and provided with a nib adapted to form a fluid-tight closure for the mold between adjacent matrices, said nib formed integral at its base with the members of the 35 spacer and converging to an apex in or within

the margin of the spacer, each part having two lateral wings separated from the members upon lines diverging from the base of the nib, the severed edges being turned, or bent, substantially into the plane of the outer faces of 40 the members of the spacer, substantially as described.

3. A spacer for type-matrices, consisting of two similar members, having a normal elastic expansion between the united ends, each 45 member being provided with one of the parts of a nib adapted to form a fluid-tight closure for the mold between adjacent matrices, and each part of the nib being formed integral with one of said members and converging to 50 meet the opposite and similar part at an apex lying in the line of the margin of the spacer, each part having two lateral-wings each wing having the form of a right-triangle, integrally united at its base with the lateral edge of the 55 nib, the hypotenuse diverging from the said edge toward the edge of the member of the spacer and being divided on the line of the hypotenuse and bent along the line of union with the nib, the divided edge being bent into 60 the plane of the outer face of the spacer, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

JOSEPH C. FOWLER. [L. S.]

Witnesses:

ALBERT H. NORRIS,
G. W. REA.