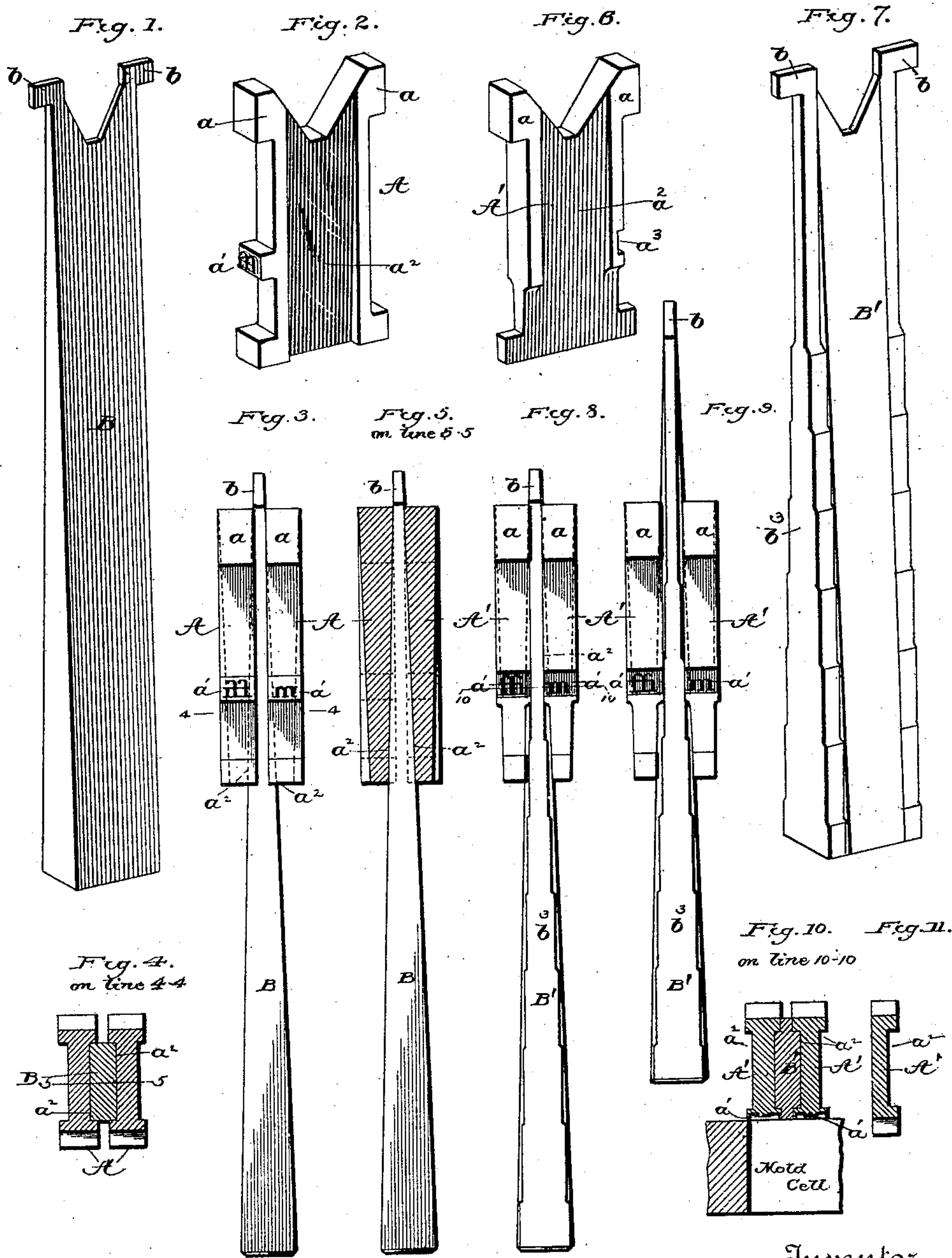


(No Model.)

W. S. SCUDDER.
TYPE AND MEANS FOR JUSTIFYING SAME.

No. 565,514.

Patented Aug. 11, 1896.



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TYPE AND MEANS FOR JUSTIFYING SAME.

SPECIFICATION forming part of Letters Patent No. 565,514, dated August 11, 1896.

Application filed September 22, 1890. Serial No. 365,815. (No model.)

To all whom it may concern:

Be it known that I, WILBUR S. SCUDDER, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Type and Means for Justifying Same, of which the following is a specification.

My invention relates to improved means for justifying lines of type, that is to say, for spacing them out to predetermined lengths, and this whether they are of a male order, used for the production of stereotype matrices, or of the female order, as used in the so-called "linotype-machines" to produce type-characters in relief on metal bars.

In carrying my invention into effect I form the type in their side faces with shallow longitudinal grooves of increasing depth from one end to the other, so that in longitudinal section the type presents at the middle a wedge form. In connection with the type thus formed I employ long spacing-wedges, which are introduced into the line between the type, so as to bear within the grooves and against their inclined side walls. By moving these wedges endwise they are caused to separate the adjacent type to a greater or less extent, or, in other words, to vary the width of the space in the line, while at the same time they maintain the type in their perpendicular positions.

When the type are of the female order, technically known as "matrices," they are presented in use against the open face of the mold which they are required to close. When thus used, and in order to prevent the leakage of the metal between them, I form the space-bars with edges which project outward between and flush with the edges of the matrices, so that acting jointly with the matrices they insure a closure of the mold.

As my invention is intended primarily for use in connection with the so-called "Mergenthaler linotype-machines," I have represented them in the forms specially adapted for such use.

In the accompanying drawings, Figure 1 represents a perspective view of my spacing-wedge in its most simple form. Fig. 2 is a perspective view of one of the male type or dies to be used therewith. Fig. 3 is an edge view showing the space as employed between

the two type. Fig. 4 is a cross-section on the line 4 4 of Fig. 3. Fig. 5 is a vertical cross-section on the line 5 5 of Fig. 4. Fig. 6 is a perspective view of one of the female type or matrices. Fig. 7 is a perspective view of the space-bar adapted for use therewith. Fig. 8 is a face view showing the space-bar of the preceding figure in connection with the matrices of Fig. 5. Fig. 9 is a similar view with the space-bar in a more advanced position. Fig. 10 is a cross-section on the line 10 10 of Fig. 8. Fig. 11 is a cross-section showing the matrices with a channel in one side only.

Referring to Figs. 2, 3, and 4, A A represent the type or type-dies, each consisting of a flat plate of brass or other suitable material provided with the suspending-shoulders *a* and with the elevated type *a'* on one edge. In the form shown this type is adapted for use in connection with assembling and distributing mechanism such as shown in the patent of Ottmar Mergenthaler, dated September 16, 1890, No. 436,532.

The type is made of uniform thickness from end to end, that is to say, with parallel side faces, except that I form in each of its side faces a flat longitudinal groove or channel *a²*, extending from one end to the other and of diminishing thickness from the upper to the lower end, so that in vertical section the type presents a wedge form, as shown in Fig. 5.

B represents the spacing device in its most simple form, adapted for use with type such as I have just described. It consists simply of a long wedge made in one piece and provided with suspending-shoulders *b* at its upper end. This wedge is made considerably longer than the type. It is adapted to fit between the type into the grooves or channels *a²* therein, and is so tapered that when in position it maintains the adjacent type in parallel lines, that is to say, with the face of the type proper in perpendicular position.

The grooving of the type is for the double purpose of permitting them to be brought closely together in order to give narrow spacing in the print when required and to admit of the wedge being introduced without tipping them out of position, or, in other words, causing them to assume inclined relations to each other.

In justifying with my devices I assemble the lines of matrices with the space-bars therein at the points at which spaces are to occur, and after the composition of the line is complete I force the spaces upward through the line of type either successively or simultaneously. An excellent mechanism for the purpose is that represented in the Mergenthaler machine last referred to. The mechanism shown in said patent may be used without any change whatever in connection with the type and space-bars herein shown to effect their composition and justification.

It will be observed that the space-bar shown in Fig. 2, and just described, does not completely fill or close the space between the forward edges of the type-bodies; but this is unnecessary when type in relief are employed.

I will now describe the application of the invention in connection with matrices such as are employed in the Mergenthaler machine and explained at length in the Mergenthaler patent above referred to, referring to Figs. 6 to 10.

A' represents the matrix, a flat plate of brass or like material, provided with shoulders a , and having in one edge the sunken character or matrix proper, a^3 . This matrix may be in all particulars identical with those described in the Mergenthaler patent except that these are each provided on opposite sides with the longitudinal grooves or channels a^2 of the same character as those described in connection with the male type. These matrices will, in vertical section through the middle, present the same wedge-like form as the type.

B' represents one of the space-bars for use in connection with the matrices. These bars consist each of a long tapered bar or wedge provided at the upper end with suspending-shoulders b' and having the middle portion of its side faces adapted to slide snugly within the grooves a^2 of the adjacent matrices, as shown in Figs. 9 and 10. The faces of the space-bars which slide within the grooves or channels, and which are relied upon to effect the justification and maintain the matrices in position, present smooth unbroken surfaces from end to end, but the edges of the bar are projected horizontally beyond these tapered surfaces in order to extend forward and rearward beyond the channels and between the side faces of the matrices in order to fill up the unoccupied spaces which would otherwise exist between the matrices near their edges. These projecting edges are reduced in width step by step from one end of the bar to the other, as plainly shown in Figs. 7 and 8, and they are so formed that as the space-bar is moved endwise step by step to increase the separation of the matrices between which it rests the projecting edge b^3 will fill out the intervening space flush with the faces of the matrix. I find that by giving the space-bars a suitable number of steps, and giving these steps a lift and a length

bearing due relation to the taper of the bar, it is possible to so closely fill the space between the matrices at their forward edges that the matrices will, under all conditions, in connection with the spaces, close the face of the mold in such manner as to prevent the leakage of molten metal therefrom.

The matrices and their space-bars, constructed as above, may be employed in the Mergenthaler machine above described and operated by the devices therein shown, or they may be operated by any other suitable means.

The advantage of grooving the sides of the type or type-matrices to receive spacing-wedges lies in the fact that the edges of the type may be made of equal thickness at the two ends, so that when introduced into the magazine tubes or channels of the machine there will be no danger of their overriding or slipping past each other, as would be the case with type thick at one end and thin at the other. In short, my construction enables me to combine in one the advantages of a matrix of uniform thickness with the advantages attending a wedge form.

Fair results may be obtained by the employment of grooves in one side of the type only, but the employment of grooves in both sides is advantageous in that it admits of the inclined faces standing at a less angle to the vertical, so that they may be successfully applied to very thin matrices.

The word "type" is used herein in its generic sense as including both cameo type or dies and intaglio type or matrices, and the claims are to be read accordingly.

My invention is limited to matrices which have parallel sides or which are of equal thickness at the two ends, so that they may be clamped together in parallel positions without being canted or inclined, and is not intended to cover matrices thinner at one end than at the other, as in the application of Abner Greenleaf, Serial No. 326,314.

The type herein shown are distinguishable from all others heretofore known in that they have on opposite sides parallel bearing-surfaces, so that they will stand parallel when assembled in line, and also inclined surfaces in the sides to receive tapered spaces or justifying-wedges, and this to the end that the type may remain parallel when the wedges are thrust between them, as well as when they stand against each other.

Having thus described my invention, what I claim is—

1. A type having parallel bearing-surfaces on opposite sides, and in the side a groove or channel of increasing depth from one end toward the other, to receive a tapered spacing device.

2. A type having parallel bearing-surfaces on opposite sides, and having its two sides provided with grooves or channels of increasing depth from one end toward the other, whereby it is adapted to be locked against

and parallel with a similar type, or to be used in contact with a spacing-wedge, without being tipped out of position.

3. A type presenting two parallel bearing-
5 faces on opposite sides and also presenting on either or both sides below the level of the bearing-faces, a surface inclined therefrom, to cooperate with a spacing-wedge.

4. A type having in its side face a groove
10 or channel inclined in relation to said face, in combination with a spacing-wedge adapted to move endwise within the groove, substantially as described.

5. A series of type, each having parallel
15 bearing-surfaces on opposite sides, that they may be locked together in series in parallel lines, and also having inclined surfaces below the level of the side faces, in combination with spacing-wedges adapted to be seated
20 between the type, against their inclined sur-

faces, whereby the parallelism of the type is maintained under all circumstances.

6. In combination with matrices having inclined bearing-surfaces within their sides, the tapered spacing-wedges adapted to fit within
25 the matrices against the inclined surfaces, and having also the edges extended forward flush with the edges of the matrices, to fill the spaces between them.

7. The spacing device having the wedge-
30 shaped body and a stepped forward edge, substantially as described.

In testimony whereof I hereunto set my hand, this 18th day of September, 1890, in the presence of two attesting witnesses.

WILBUR S. SCUDDER.

Witnesses:

WILLIAM H. SMITH,
JOHN DUNBAR.