

No. 887,035.

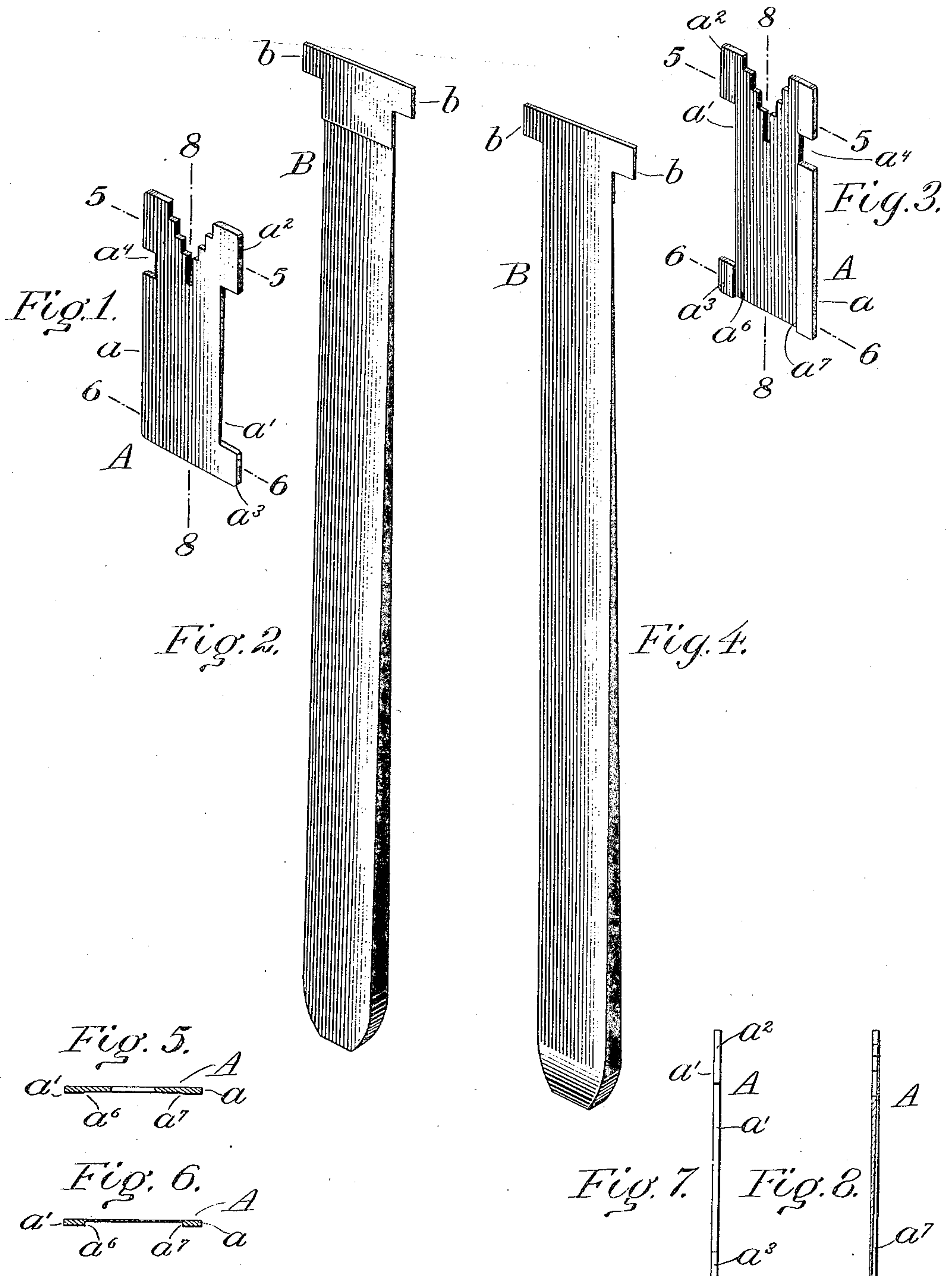
PATENTED MAY 5, 1908.

A. DOW.

SPACER OR JUSTIFIER FOR LINOTYPE MACHINES.

APPLICATION FILED JAN. 10, 1908.

2 SHEETS—SHEET 1.



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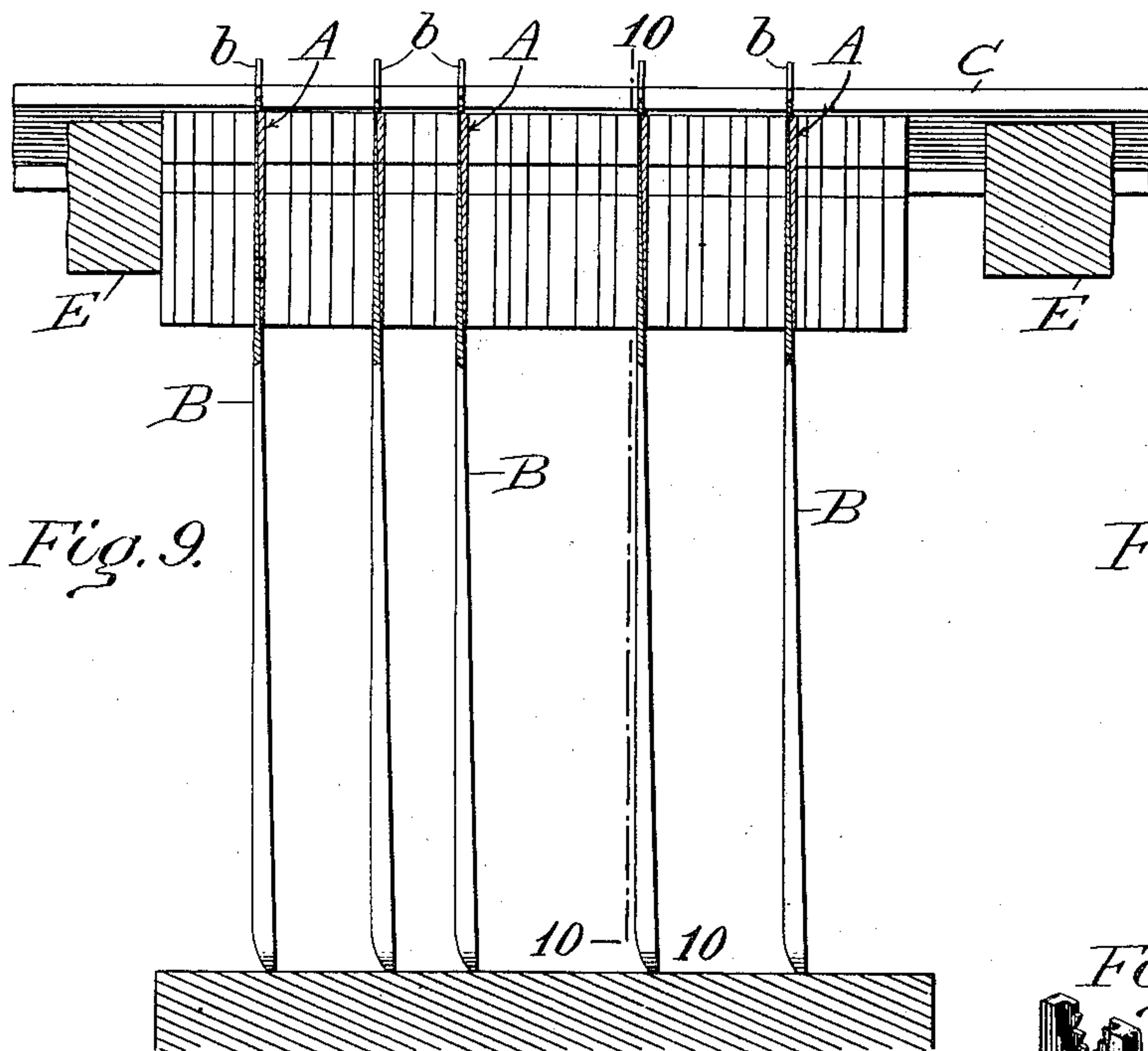


Fig. 9.

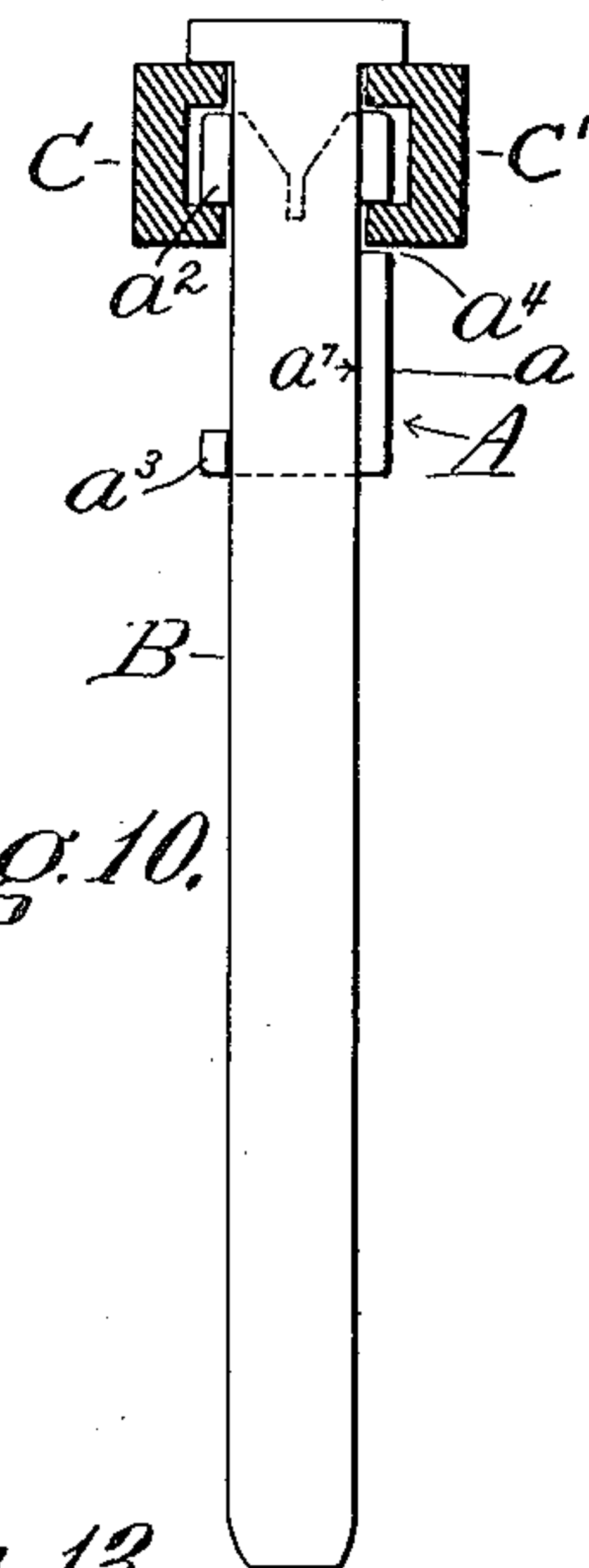


Fig. 10.

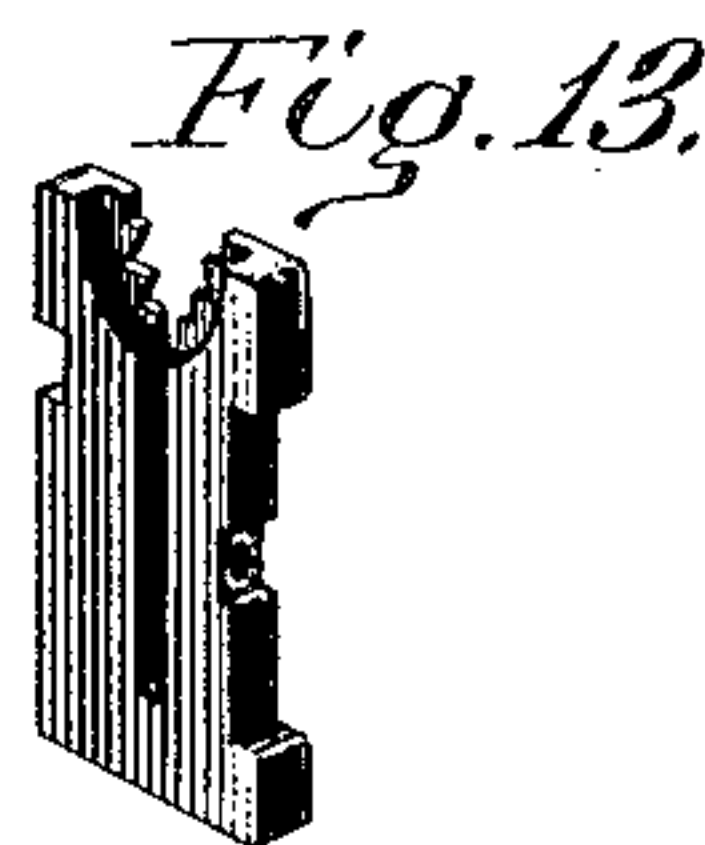


Fig. 13.

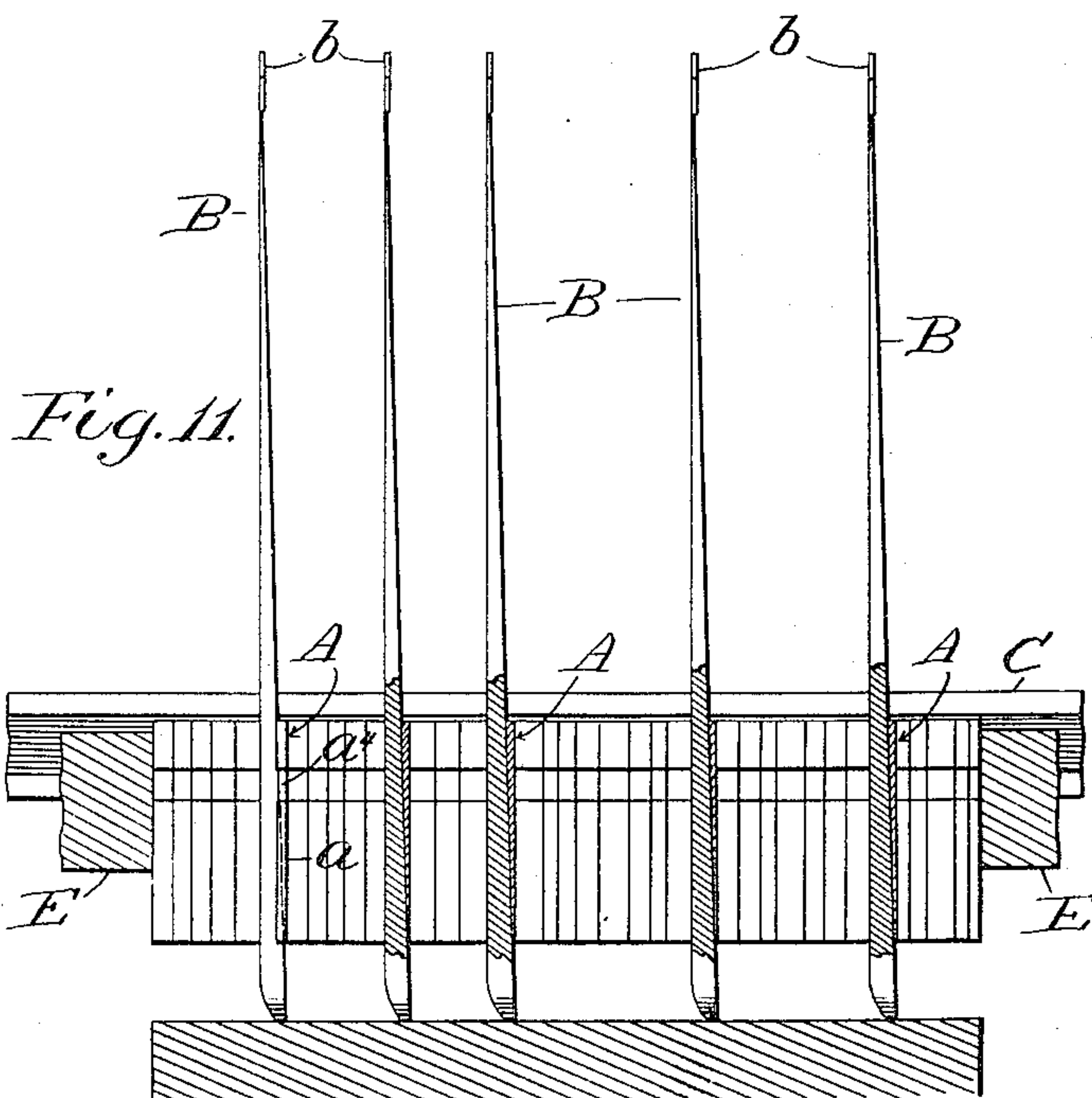


Fig. 11.

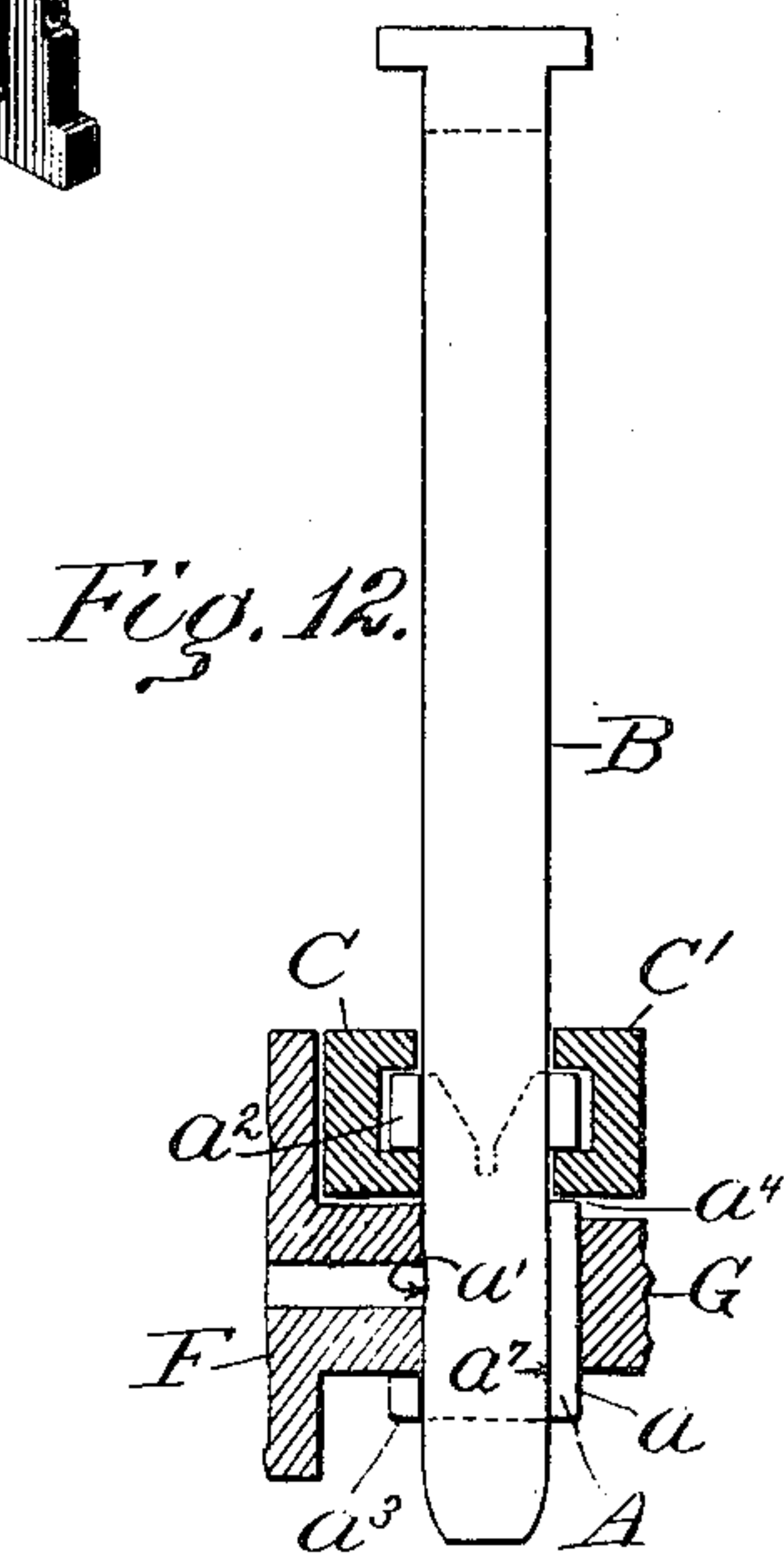


Fig. 12.

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All Bending.
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UNITED STATES PATENT OFFICE.

ALEXANDER DOW, OF NEW YORK, N. Y., ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

SPACER OR JUSTIFIER FOR LINOTYPE-MACHINES.

No. 887,035.

Specification of Letters Patent.

Patented May 5, 1908.

Original application filed June 28, 1907, Serial No. 381,275. Divided and this application filed January 10, 1908. Serial No. 410,149.

To all whom it may concern:

Be it known that I, ALEXANDER DOW, of the city of New York, county of New York, and State of New York, have invented a new and useful Improvement in Spacers or Justifiers for Linotype-Machines, of which the following is a specification.

My invention relates to expansible wedge spacers or justifiers to be used in linotype machines and analogous machines, for elongating or justifying a composed line of matrices to a predetermined length.

In commercial Mergenthaler machines, and kindred machines of the present day, it is customary to employ for this purpose circulating spacers consisting of oppositely tapered wedges connected by a longitudinal sliding joint so that they may be introduced into the line as a unit, and thereafter expanded in the line by moving the longer wedge through the line past its companion, while the latter is held against longitudinal movement, as shown for example, in Letters Patent to Mergenthaler No. 345,526. Owing to the presence of the connecting joint, it is difficult to construct these spacers with the necessary precision at a satisfactory cost, or of the desired minimum thickness.

The object of my invention is to overcome these difficulties while retaining all the advantages incident to the use of two cooperating wedges, and to this end consists in a spacer comprising two unconnected wedges such as hereinafter described, adapted to be separately circulated and introduced into the line for joint action.

In the accompanying drawings,—Figures 1 and 2 are perspective views of the two parts of my justifier separated from each other. Figs. 3 and 4 are similar views of said parts looking against the opposite side. Figs. 5 and 6 are cross-sections of the shorter wedge on the correspondingly numbered lines of Figs. 1 and 3. Fig. 7 is an edge view of the same. Fig. 8 is a vertical central section on the line 8—8 of Figs. 1 and 3. Fig. 9 is a view illustrating a composed line of matrices with my spacers or justifiers therein together with supports therefor, the spacers being in their original or lowermost positions, and the line unjustified. Fig. 10 is a cross-section on

the line 10—10 of the preceding figure. Figs. 11 and 12 are views similar to Figs. 9 and 10, with the longer wedges elevated and the line justified. Fig. 13 is a perspective view of a matrix such as I prefer to use in connection with my spacers. It forms no part of my present invention and is shown in order that the mode of using the justifier and the object of its various peculiarities may be the more readily understood.

Referring to the drawings, A and B represent the two parts of my justifier consisting of oppositely tapered wedges adapted to be placed side by side in the matrix line for joint operation in expanding the same.

The shorter member A is of a rectangular form in its general outline, with vertical edges a and a' of uniform thickness from the upper to the lower ends. One of the vertical edges is cut away for a portion of its length in such manner as to leave the protruding ears or shoulders a^2 and a^3 , which are utilized to lock the matrix against vertical movement in the line. The opposite vertical edge is provided near the upper end with a notch a^4 , designed to cooperate with supporting and alining devices provided in the machine.

In one face the member A is longitudinally recessed or channeled in such manner as to reduce its thickness from the upper toward the lower end, as plainly shown in Figs. 3, 5, 6, 8, &c., so that in central cross-section, the body presents a wedge-form, as shown most clearly in Figs. 1 and 8. It is to be noted that this reduced or wedge-shaped portion is of a width less than the extreme width of the part A, and that it extends on one side to the edge a' , and on the opposite side only to the base of the notch a^4 . Owing to this fact, vertical shoulders or ledges a^5 and a^7 exist on one side of the part A to admit and assist in guiding the member B, as hereinafter explained.

It is to be observed that although the central portion of the member is of diminishing thickness from the upper to the lower end, the edges are parallel and adapted for guidance in the ordinary grooves or channels of the magazines used in the Mergenthaler and similar linotype machines, it being the intention to circulate these parts A from a mag-

azine to the composed line, and thence back through the distributing mechanism to the magazine in essentially the same manner that the matrices are circulated, as understood by those skilled in the art.

The member B is of increasing thickness from the upper to the lower end, and of a taper corresponding to the taper of the middle portion of the part A, so that when the two are laid together face to face, their outer faces will be parallel.

The lower or body portion of the part B is made with vertical parallel edges, and of such width that it will fit snugly within and against the recessed side of the member A between the vertical shoulders a^6 and a^7 with one edge of the part B flush with the edge a' of the other member.

The upper end of the member B is widened edgewise in such manner as to form the supporting ears or shoulders b , and the upper end is also made of a thickness greater than the upper part of the tapered portion, and this in order to give it increased strength and to afford surfaces of such thickness that the spacers may be operated with certainty by the distributing mechanism and by the devices which release them from their magazines that they may pass to composed lines.

The increased thickness of the upper end, or head, of the member B gives an increased thickness to the ears, b , which are required to cooperate with the devices for separating the spacers and delivering them one at a time from their magazine holder. If made as thin as the upper end of the tapered portion they could not be properly controlled.

When the parts A and B are united for use, the upper thickened portion of the member B will extend considerably above the part A, and it is this fact which admits of the upper end being thickened.

The principal advantage of this construction lies in the fact that it admits of the spacer as a whole being reduced to the extreme thinness required in practice, without unduly weakening the upper ends, and without leaving these ends so thin as to interfere with the proper action of the cooperating parts by which they are handled in the machine.

In practice it is frequently necessary to use justifiers which present a minimum thickness not exceeding .0025 of an inch. Under the construction shown it is possible to so form the parts that when the upper end of the member B is seated within the member A, their joint thickness will not exceed the figure named.

In the use of my spacers, the machine is adapted to introduce the members A and B successively to the line in course of composition. I prefer to introduce the member A first, which is immediately followed by the member B.

The supporting devices for the line are so constructed as to sustain the members A and the adjacent matrices, and prevent them from moving vertically while the members B are free to be thrust upward through the line past the members A so as to present a gradually increasing thickness in the line, or in other words, so as to expand or increase the thickness presented by the two parts in the line.

The devices for sustaining the matrices and spacers and for operating the latter and confining the line endwise, may be of any suitable construction, but an appropriate construction is shown in Figs. 9 to 12, in which C and C' represent horizontal opposing supports each with a flange along its upper and lower edges. These supports are arranged at such distance apart that the line of matrices D and spacer members A introduced endwise between them, will be sustained by the lower flanges, engaging under the shoulders a^2 and in the notches a^4 . The wedge members B will, however, rest upon the upper flanges of the guides and be sustained independently thereby, so that they may be thrust upward through the line at will, the matrices and the members A being held down by the guides.

The upper flanges of the guides overlapping the matrices and the members A, may be utilized to assist in holding them down, and to insure greater accuracy in alinement.

In the course of operation, the assembled unjustified line is presented between jaws or abutments E, which determine the length of line, after which the members B are driven upward through the line, thereby elongating or justifying the same against the jaws E, as shown in Figs. 11 and 12.

I propose to use in connection with the matrices, a mold F similar to those in common use. It is adapted to fit against the operative edges of the matrices D, against one edge of the members B, and against the edge a' of the members A, whereby the face of the mold is tightly closed to prevent the escape of molten metal.

It is to be observed that pressure is brought directly against the rear edges of the matrices and the spacer members A by a pressure-bar G, or equivalent pressure device, and that vertical shoulders a^7 of the members A serve in turn to force the members B against the mold. It is this fact which renders these shoulders a feature of special importance.

It is to be noticed that although the wedges A, B, are designed for cooperation, they are wholly unconnected, so that they may be independently or separately transported to and from the line.

The parts are of such form that they may be cheaply and accurately made.

In practice, the members of the justifier must be hardened and ground with great precision. The absence of longitudinal slots

and grooves admits of the parts being cheaply made and avoids the danger of their being fractured when in use or during the hardening operation.

5 Having described my invention, I claim and desire to secure by Letters Patent:—

10 1. The justifying wedge A, having its outer vertical edges of uniform thickness, and having also an inclined longitudinal recess in one side from end to end, in combination with the unconnected wedge B adapted to fit closely within said recess and provided with supporting ears at the upper end.

15 2. A wedge-member B for a justifier, consisting of the body portion with parallel vertical edges reduced in thickness toward the upper end, and having its upper extremity increased in thickness and provided with sustaining ears *b*.

20 3. In a justifier, the combination of two unconnected wedge-members A and B, the former having a longitudinal tapering recess in one side to admit the latter, and the latter having its extreme upper end thickened to

overhang the member A and provided with 25 supporting ears.

4. In an expansible spacer, the member A having a longitudinal tapering recess in one side from end to end, the longitudinal shoulder *a'*, and the indented vertical edge *a'*, in 30 combination with a tapered member B adapted to fit within said recess and to present one edge flush with the edge *a'*.

5. In combination with wedge-members B and corresponding members A recessed to 35 receive the same, and provided with vertical shoulders *a'*, a cooperating mold and pressure device arranged to act against the rear edges of the members A, whereby they are caused in turn to hold the members B against the 40 mold.

In testimony whereof I hereunto set my hand this nineteenth day of December, 1907, in the presence of two attesting witnesses.

ALEXANDER DOW.

Witnesses:

A. V. R. BARMWALL,
WILLIAM F. SMAIL.