

No. 720,270.

PATENTED FEB. 10, 1903.

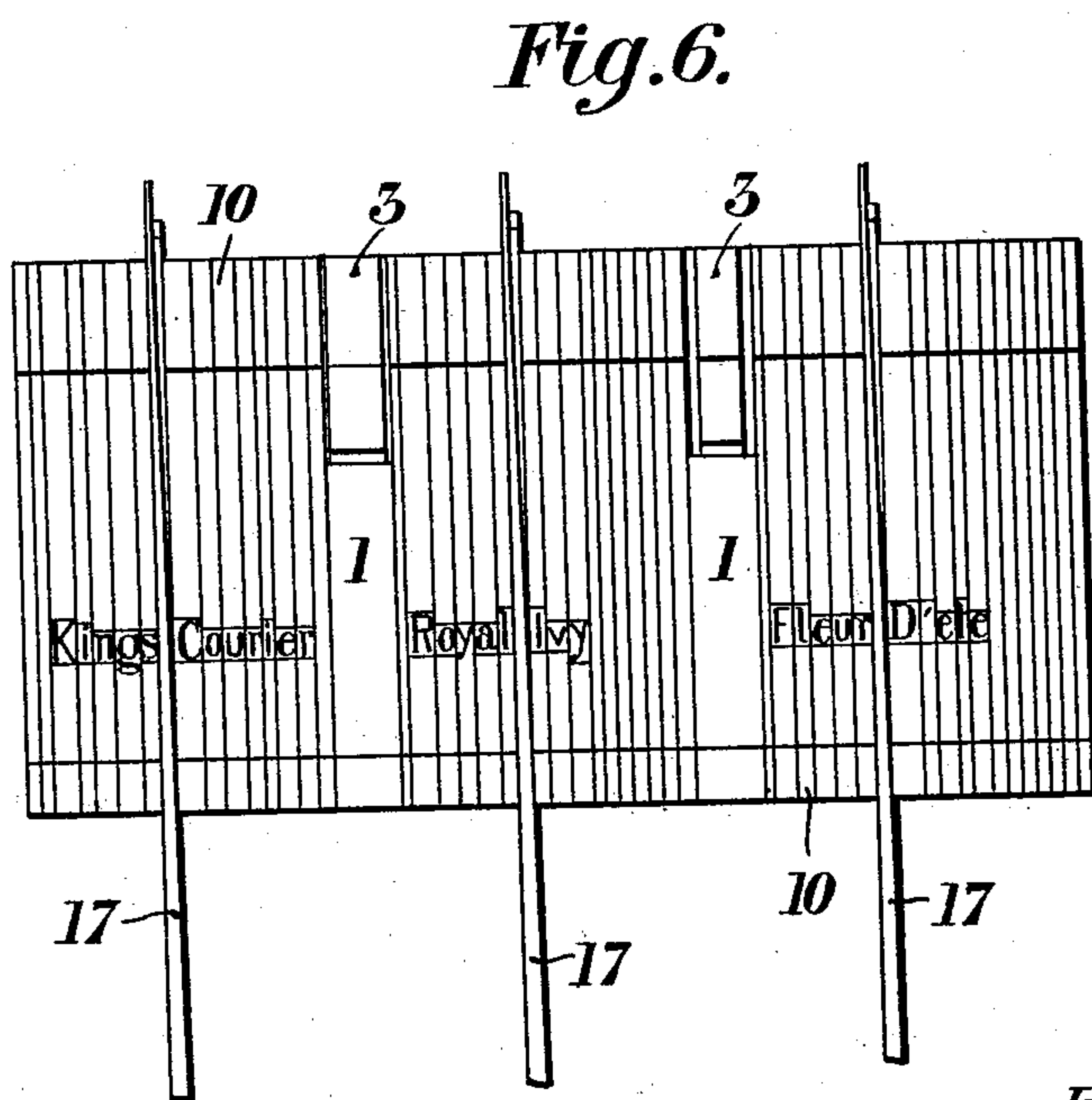
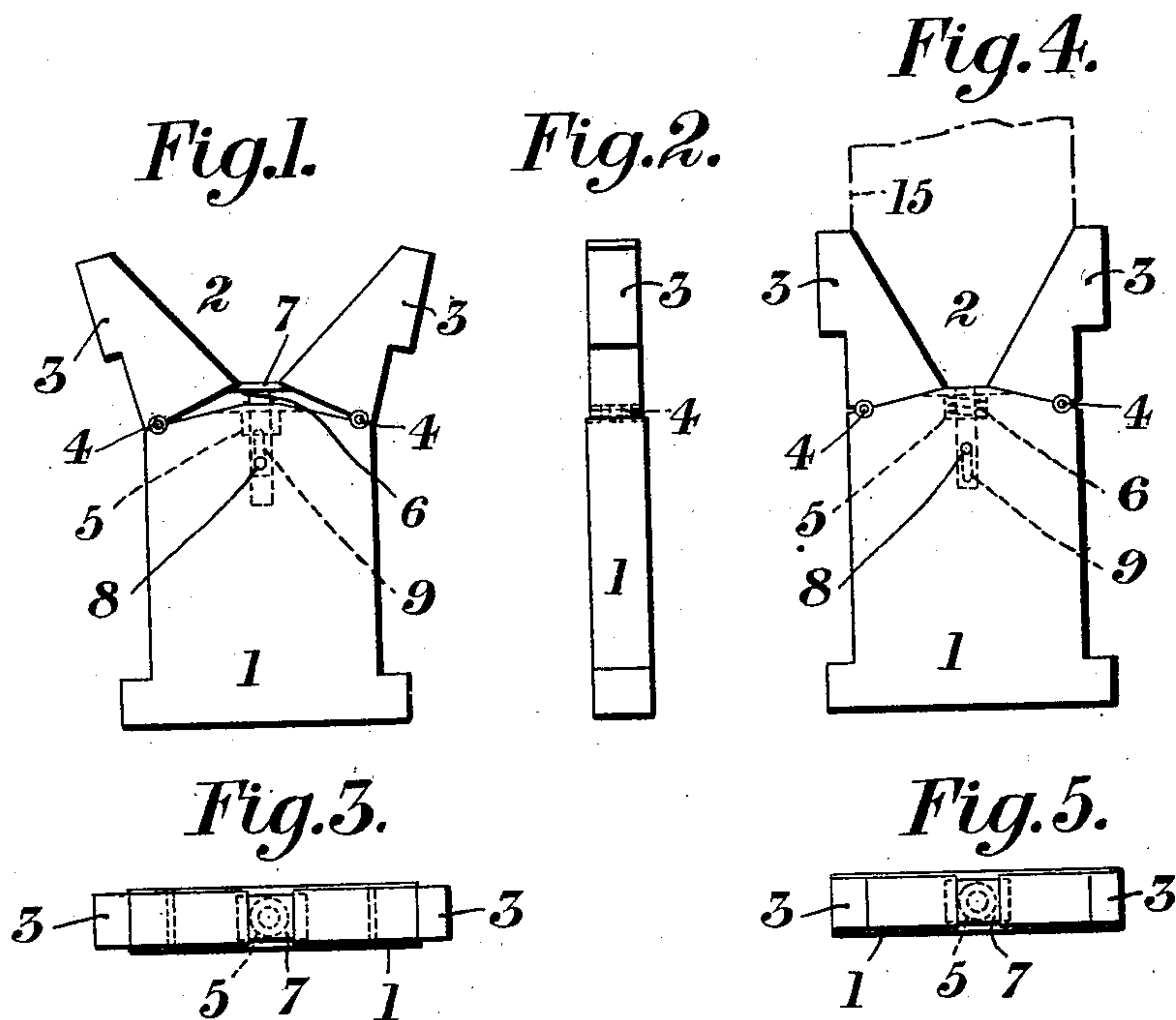
T. MARTIN.

MEANS FOR SETTING TABULAR MATTER IN LINOTYPE MACHINES.

APPLICATION FILED OCT. 6, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses.

W. R. Kenney  
J. S. Elmore

Inventor  
Thomas Martin  
per Phil T Dodge  
Attorney

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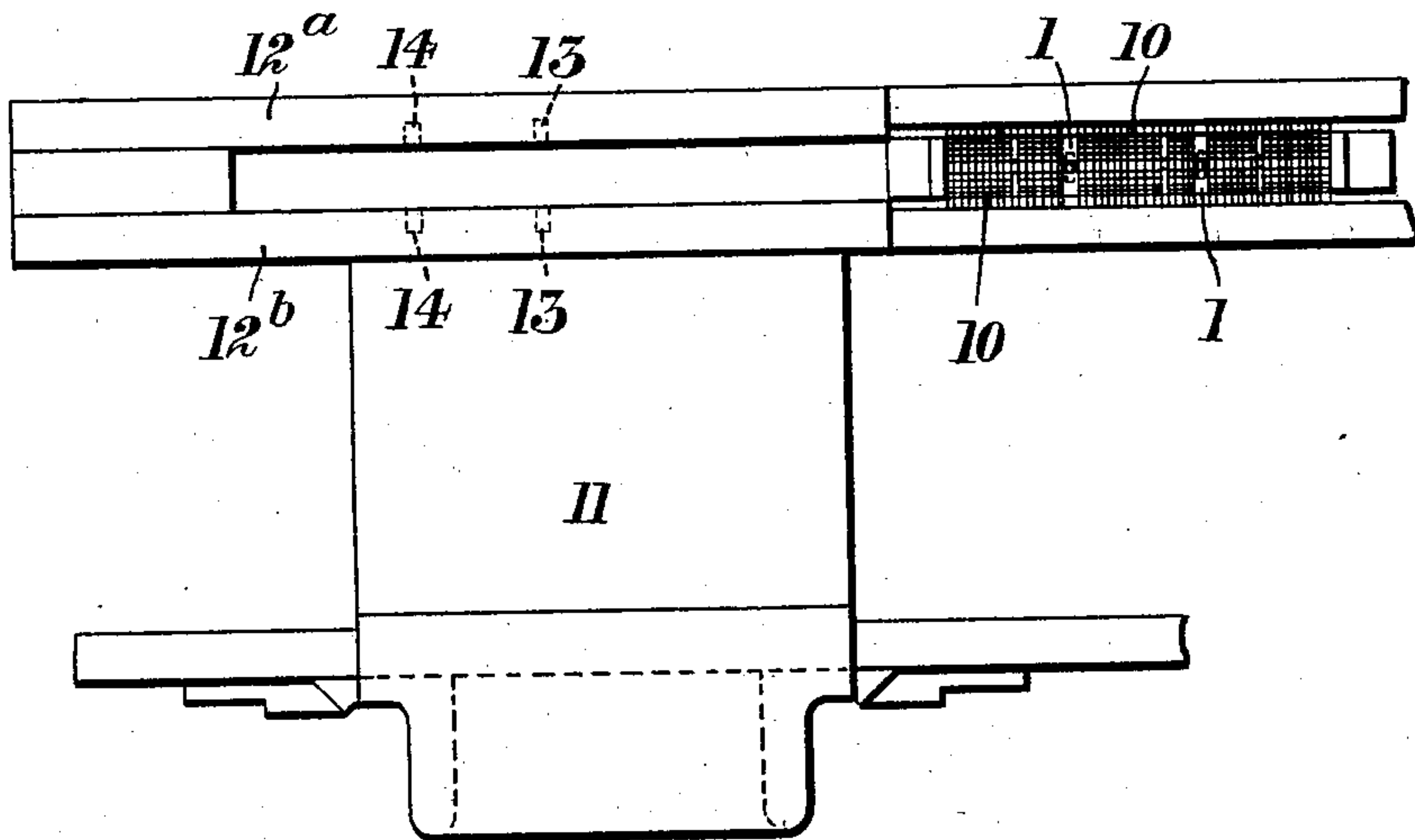
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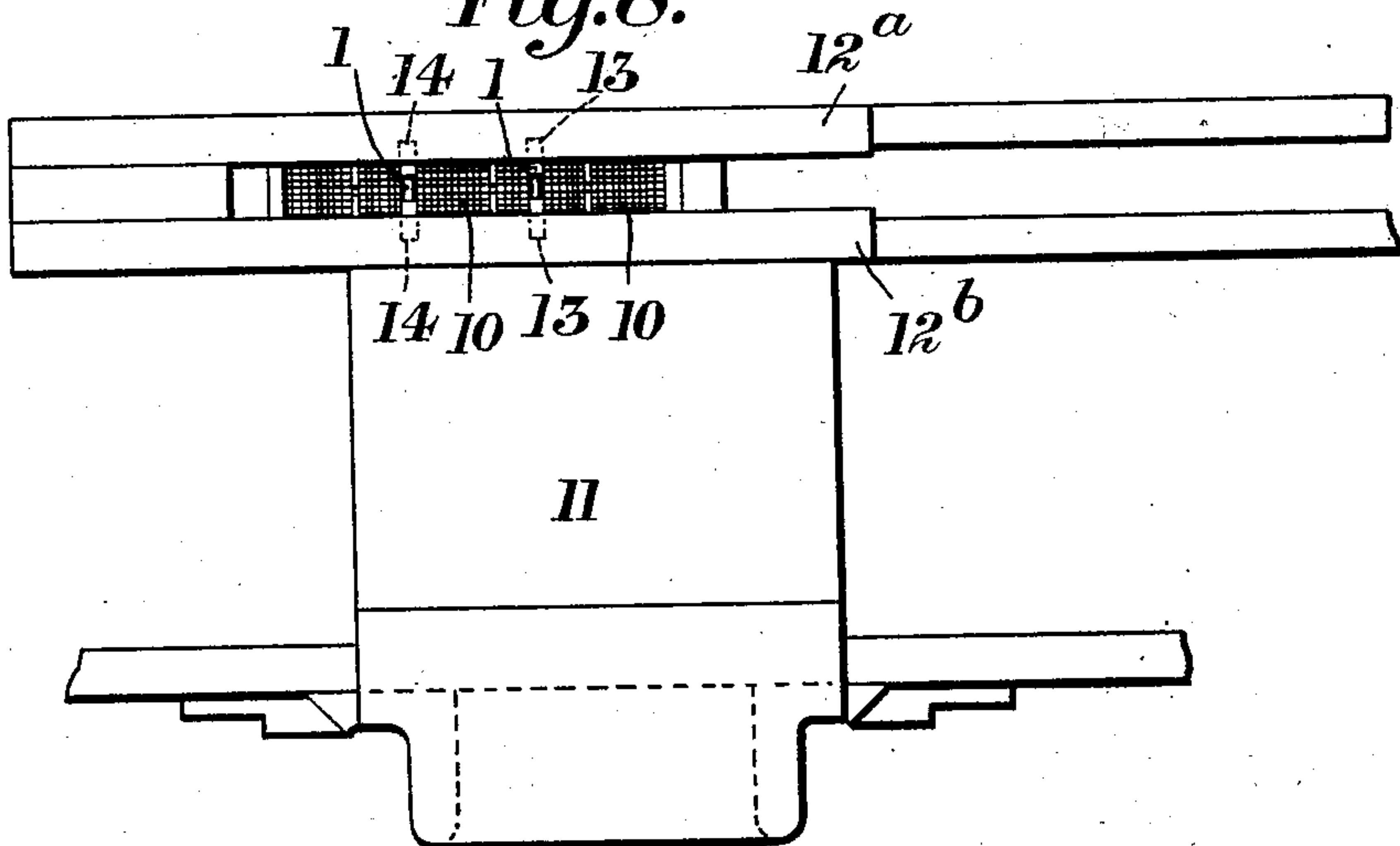
NO MODEL.

3 SHEETS—SHEET 2.

*Fig. 7.*



*Fig. 8.*



Witnesses.

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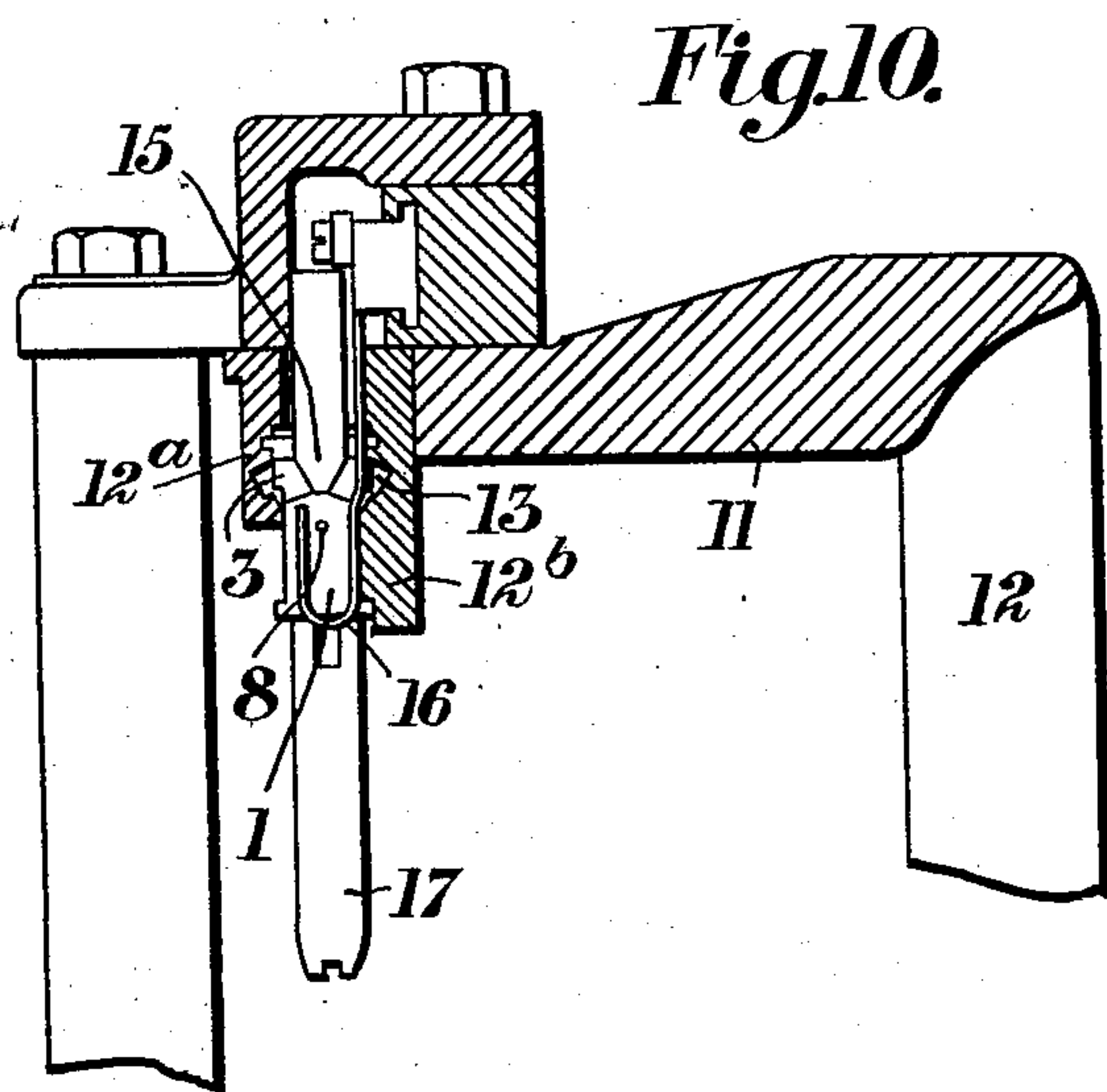
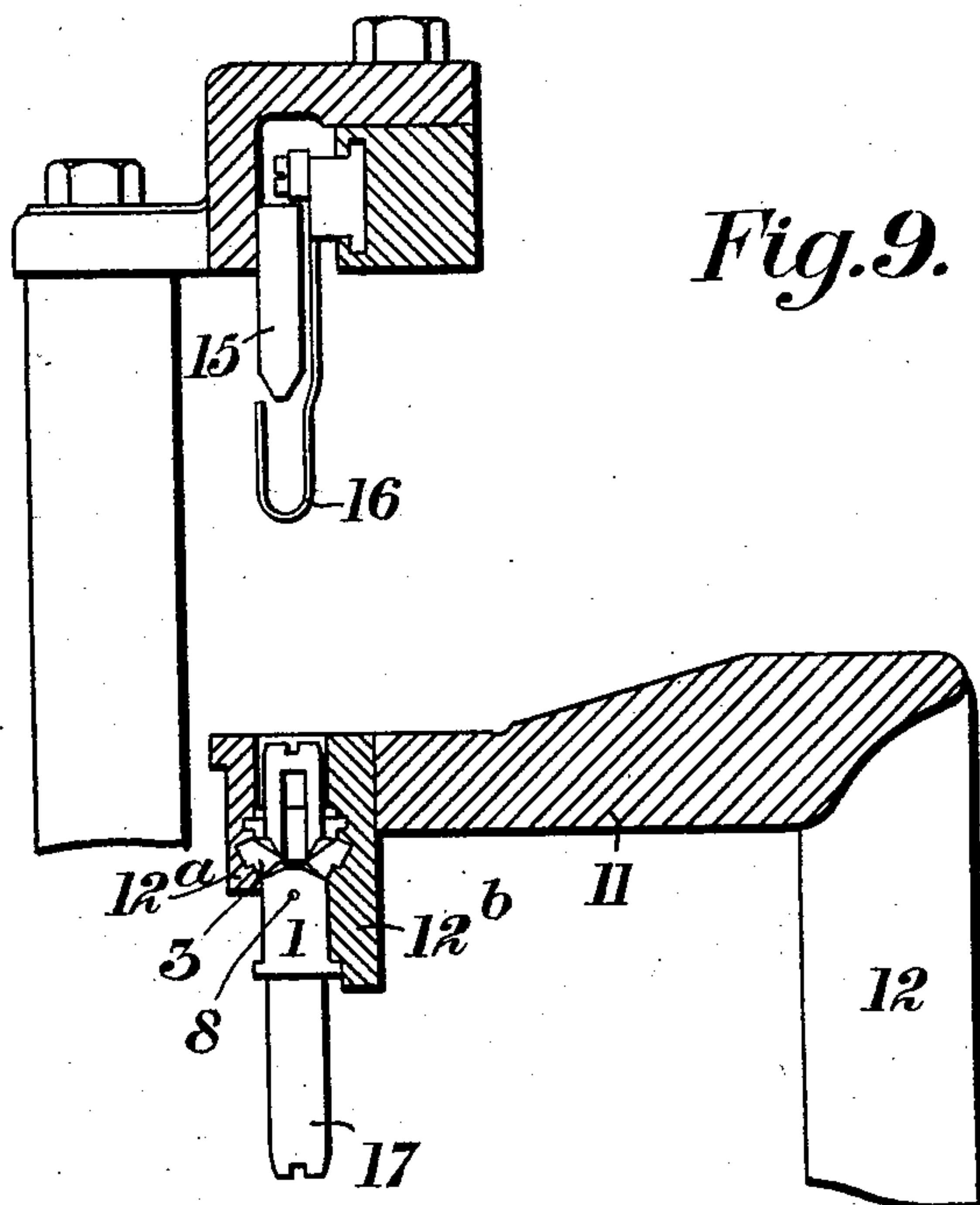
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MEANS FOR SETTING TABULAR MATTER IN LINOTYPE MACHINES.

APPLICATION FILED OCT. 6, 1902.

NO MODEL.

3 SHEETS—SHEET 3.



*Witnesses..*

W R Kennedy  
J. D. Elmore

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# UNITED STATES PATENT OFFICE.

THOMAS MARTIN, OF BIRMINGHAM, ENGLAND, ASSIGNOR TO THE MERGENTHALER LINOTYPE COMPANY, OF NEW YORK, N. Y.

## MEANS FOR SETTING TABULAR MATTER IN LINOTYPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 720,270, dated February 10, 1903,

Application filed October 6, 1902. Serial No. 126,156. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS MARTIN, of 51 Church Hill road, Handsworth, Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Means for Setting Tabular Matter in Linotype-Machines; 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.

The present invention relates to improvements in means for setting the short measures of tabular matter on the Mergenthaler linotype-machine described in the specification of Letters Patent No. 436,532.

In setting tabular matter and in order to divide the matter into columns each composed line of matrices is divided into shorter groups or measures by blank matrices or quads, the locations of which are determined by the number and the width of the columns to appear in the table. It is necessary that these quads or blank matrices shall appear in like positions in succeeding lines, so that when the successive linotypes are assembled in the form their blank spaces will aline or register vertically.

To this end the present invention relates to means for locking the blank matrices or quads in predetermined positions in the first elevator or support by which the matrix-line is held in operative position in front of the mold.

The invention consists, broadly, in the combination of blank matrices or quads and the elevator or line-support so constructed that they will interlock and hold said matrices against side motion during the casting operation.

The invention also consists in providing special matrices provided with expanding portions capable of engaging with notches in the head of the first elevator, so as when so engaged to lock these matrices in position, and thereby enable them to act as abutments for the adjacent measures between which they are interposed.

Referring to the accompanying drawings, which are to be taken as part of this specification and read therewith, Figure 1 is a side elevation, Fig. 2 an edge view, and Fig. 3 a

plan, of one of the special matrices or quads in its expanded condition; Fig. 4 a side elevation, and Fig. 5 a plan, of the said matrix in its closed or unexpanded condition; Fig. 6, an elevation of an assembled line of matrices arranged for producing three short-measure linotypes; Fig. 7, a plan showing the assembled line of matrices as when about to be delivered into the first elevator which supports the line of matrices in front of the mold during the casting operation, as usual; Fig. 8, a plan showing the assembled line of matrices in casting position within the first elevator; Fig. 9, a vertical section of the first elevator, showing the assembled line of matrices in the casting position; and Fig. 10, a view similar to Fig. 9, showing the first elevator at the top of its stroke and the assembled line engaged by the line-grabber ready for removal from the first elevator to the second elevator.

Throughout the several figures of the drawings the same reference-numerals are used to indicate like parts.

According to the present invention the special matrices or quads 1 1 are in form similar to the general outline of those described in the above-mentioned specification, but they are not provided with either formative cavities for type-faces to be cast in or distributing-teeth in the V-shaped notch 2. In other words, the special matrices are, in fact, blank matrices, quads, or spaces. The angular piece 3 on each side of the notch 2 is separate from the rest of the matrix-body and is pivoted to it at 4 at or near the respective edge. In the drawings (see particularly Figs. 1 and 4) the pivots 4 4 are represented as situated at a slight distance inward from the edges of the matrix-body. This enables the pivot-joints to be of the "knuckle" type, and thereby provides a convenient means of limiting the outward movement of the angular pieces 3 3, as shown in Fig. 1.

At its upper part the matrix-body is provided with a recess 5, adapted to receive a spring 6, which preferably through a headed pin 7, as shown, acts on the inner portions of the angular pieces 3 3, so as to exert a constant tendency to move the said pieces into or hold them in their outward positions. The pin 7 passes through the spring 6 and is allowed a



certain limited longitudinal motion determined by a pin 8, fast in the matrix-body traversing a slot 9 in the said pin. The angular pieces 3 3, as shown most clearly in Figs. 2, 3, 5 and 5, are thinner than the matrix-body, so as to enable them to rock freely on their pivots 4 4 without contact with the adjacent matrices of the assembled line.

In assembling a line of matrices for producing short measures in accordance with the present invention one of the above-described quad-matrices is inserted into the line between each measure and the next, preferably while the line is in the assembler, thus separating or dividing the line of character-producing matrices into two or more short lines of predetermined lengths. When the special matrices are thus inserted in the line, the angular pieces 3 3 will be closed inward, so that the special matrices 1 1 will align with the other or ordinary matrices 10 10 of the line. They will be confined in this shape by the ordinary devices which support and guide the matrix-line until the composed line is transferred horizontally into the head 11 of the first elevator 12, which serves, as usual, to lower the line into operative position in front of the mold, with the ends of the line between the usual confining-jaws. The inner faces of the front and back walls 12<sup>a</sup> and 12<sup>b</sup>, respectively, of the first elevator-head 11 are provided with notches 13 13 14 14 at intervals apart along the said head, corresponding to the lengths of the measures to be provided for in the line of print. The width of the notches 13 and 14 varies in accordance with their position along the elevator-head 11, the notches farther from the receiving end of the head being wider than those nearer to it, and correspondingly the angular pieces 3 3 of the different special matrices are of varying thicknesses, those nearer the leading end of the assembled line being thicker than those coming after it in the said line. By this arrangement the angular pieces 3 3 of the foremost special matrix of the line are too thick to enter the notches 13 13, and consequently as the assembled line is being introduced into the elevator-head 11 these angular pieces, while passing the notches 13 13, retain their unexpanded positions and only assume their expanded positions when they reach the notches 14 14, which are wide enough to receive them. The angular pieces 3 3 of the rearmost special matrix of the line expand when brought into coincidence with the notches 13 13, which are of the width suited to receive them. By these means the special matrices 1 1 are secured against side-wise motion in the elevator-head 11, and thereby act as abutments between the measures, so preventing the justifying mechanism expanding the said measures beyond the desired limits. When the first elevator ascends to the top of its travel, it brings the headed pins 7 7 and the inner portions of the angular pieces 3 3 against the under side of the

guide-rail 15 and causes the said pins to descend into the bodies of the special matrices and the angular pieces 3 3 to move inward, and thereby out of engagement with the notches 13 13 14 14, so that the entire composed line may be moved horizontally out of the first elevator-head 11 by the transfer-finger 16, which is operated in the usual way. When the composed line is thus moved out of the head 11, the ordinary matrices 10 10 in the usual way engage with the second elevator, (not shown in the drawings,) which raises them to the distributing mechanism, the space-bars 17 17 are delivered in the space-bar magazine, and the special matrices 1 1 (having no distributing-teeth) drop out of the line into the sorts-box.

When the composed line is divided into only two separate measures, only one pair of the notches 13 13 or 14 14 is required in the head 11, these being of the width suited to the thickness of the angular pieces 3 3 of the single special matrix employed. When, however, the composed line is divided into three measures, as shown in the drawings, or more than three separate measures, the notches 13 13 14 14 and the angular pieces 3 3 must be in relative correspondence with each other, so that these angular pieces can engage only with the appropriate notches. This automatic differentiation or selection may either be effected by means of the angular pieces 3 3, and respective notches 13 13 14 14 being of different dimensions, as hereinbefore described, or by being of different shape or in different positions or by means of permutations which will admit of the angular pieces engaging with only the particular notches appropriated to them.

I believe myself to be the first to arrange quad-matrices to interlock directly and in definite positions with the part in which the matrix-line is sustained in front of the mold. While I prefer the construction herein shown, it is manifest that the parts may be widely varied in form without passing beyond the limits of my invention.

It is manifest that my improvements may be used in connection with the usual long mold to cast a single linotype with the several short measures on its face and also in connection with those molds which are divided into two or more lengths to produce a plurality of short linotypes, one for each measure.

It is to be observed that in my structure the locking of the quad-matrices in definite positions against lateral movement is not effected by or dependent upon the mold. On the contrary, they are held by the support in which the line of matrices is sustained for presentation to the mold.

I claim—

1. In a linotype-machine the combination of the first elevator-head, notches in the front and back walls of the said head, a special matrix adapted for insertion in the composed line, movable portions on the said matrix



adapted to engage and disengage the notches, substantially as set forth.

2. In a linotype-machine the combination of the first elevator-head, notches in the front and back walls of the said head, a special matrix adapted for insertion in the composed line, movable portions on the said matrix adapted to engage and disengage the notches and a spring acting on the movable portions to effect such engagement, substantially as set forth.

3. In a linotype-machine the combination with a matrix adapted for insertion in the composed line and having at its top an angular recess, of angular pieces forming the sides of such recess, and hinge-joints connecting the said pieces to the matrix-body so as to allow the angular pieces to move inward and outward on the matrix-body, substantially as set forth.

4. In a linotype-machine the combination with a matrix adapted for insertion in the composed line and having at its top an angular recess, of angular pieces forming the sides of such recess, hinge-joints connecting the said pieces to the matrix-body so as to allow the angular pieces to move inward and outward on the matrix-body, a pin bearing against the under side of the angular pieces, and a spring bearing on the matrix-body and pin to move the angular pieces outward, substantially as set forth.

5. In a linotype-machine, a support to present the composed line of matrices in front of the mold, provided with means other than the matrices for securing a matrix or quad, contained in the line, at a fixed point.

6. A special matrix for a linotype-machine, having at its upper end supporting-ears adapted to extend edgewise beyond the ordinary and adjacent letter-matrices, whereby said ears are adapted to sustain the matrix in

the line-support and also interlock therewith to resist movement sidewise therein.

7. In a linotype-machine, a composed line of matrices, one or more quad-matrices dividing the line, and a support for the line interlocking with said quad-matrices to prevent their sidewise motion.

8. In a linotype-machine, a composed line of matrices, quad-matrices dividing said line into shorter measures, a support for the matrix-line engaging said quad-matrices to hold them in position, and expansible spacers seated in the matrix-line on opposite sides of the quad-matrices, whereby the short measures may be independently justified.

9. In a linotype-machine, the matrix-line support provided with a plurality of quad-retaining notches varying in form substantially as described, whereby the several quads in the matrix-line may be arrested and retained at different points.

10. In a linotype-machine, the elevator or support for the composed line of matrices, provided with differentiated notches and 14, in combination with differentiated quads, adapted for use in the matrix-line, whereby the quads dividing the matrix-line into short measures are positively locked in predetermined positions.

11. In a linotype-machine, a support for maintaining a composed line of matrices in operative relation to the mold, provided with means for engaging one of the matrices at its front and rear edges to hold the same in a predetermined position against side motion.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

THOMAS MARTIN.

Witnesses:

E. M. WEBB,

W. EDGAR JONES.