

No. 799,030.

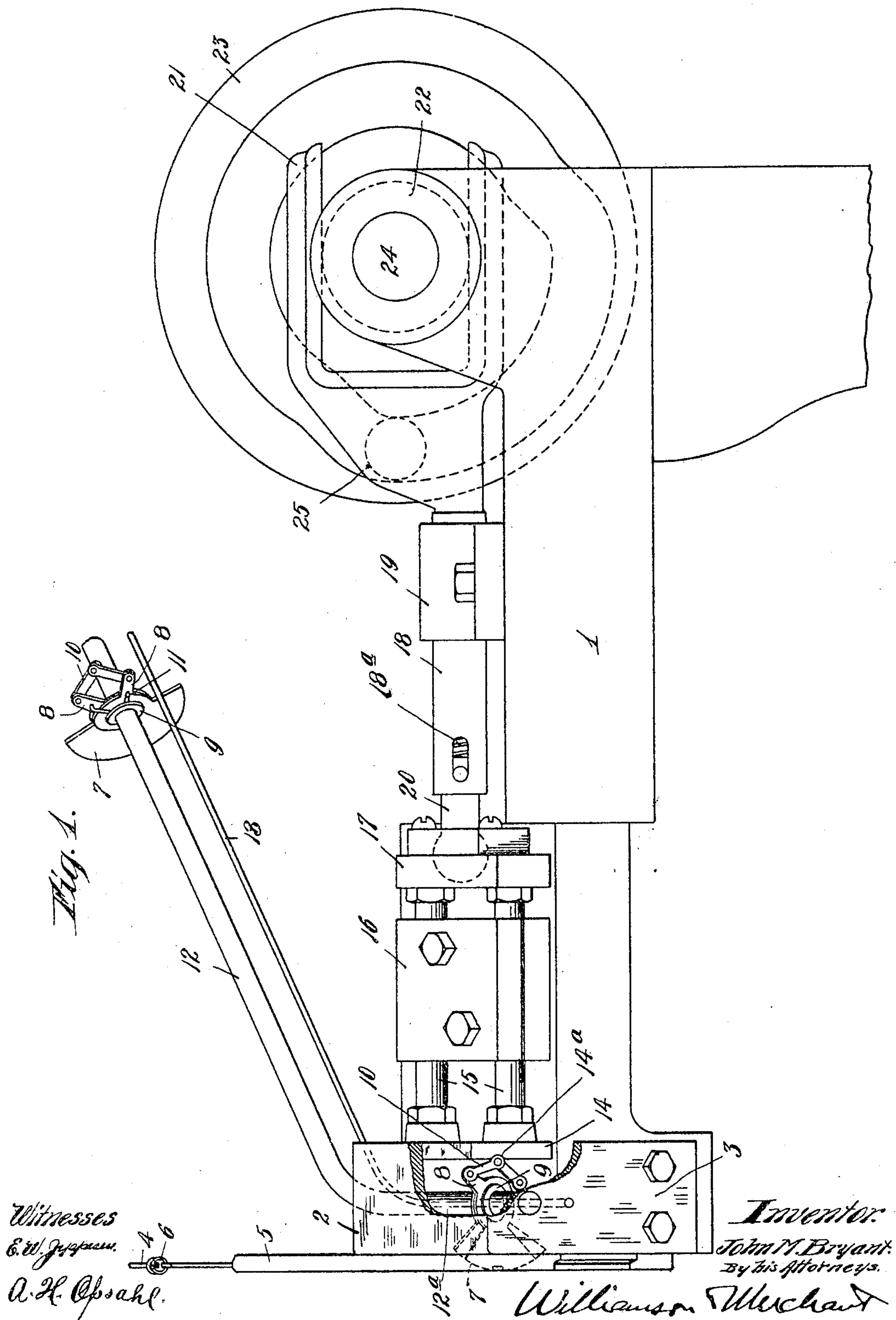
PATENTED SEPT. 12, 1905.

J. M. BRYANT.

COMPOUND SPACER FOR LINOTYPE MACHINES.

APPLICATION FILED APR. 10, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS - SHEET 2.

Fig. 2.

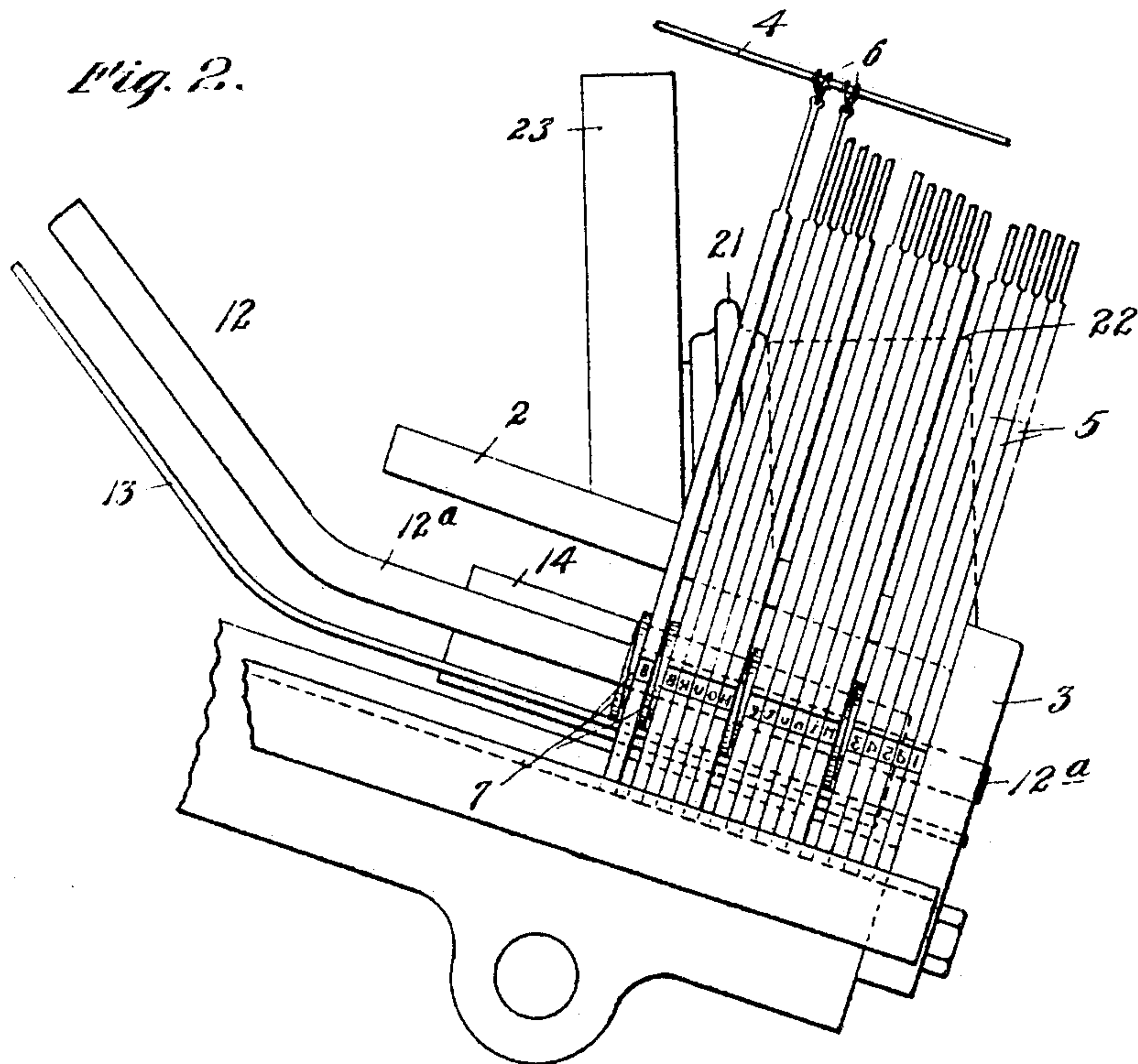


Fig. 3.

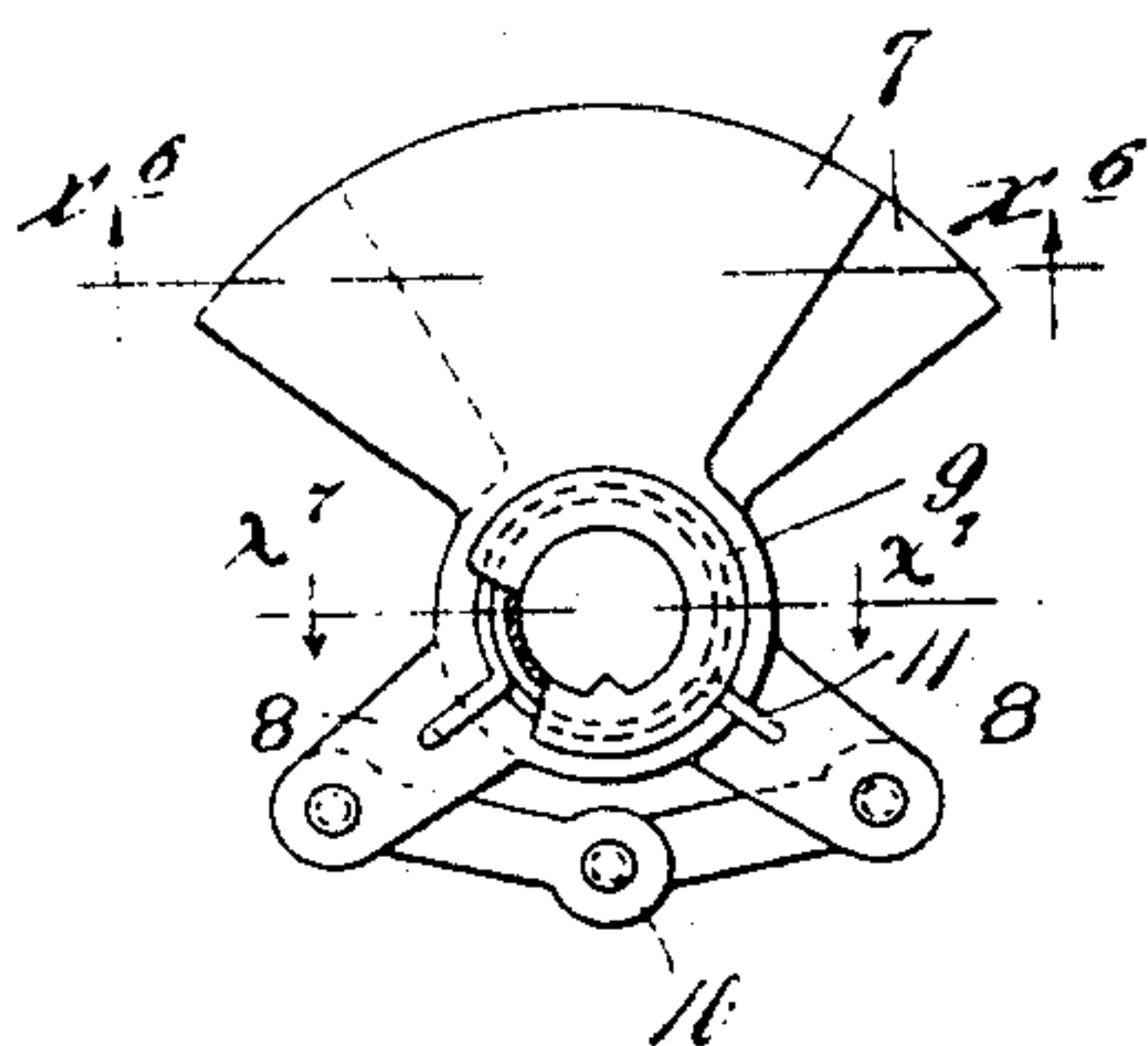


Fig. 4.

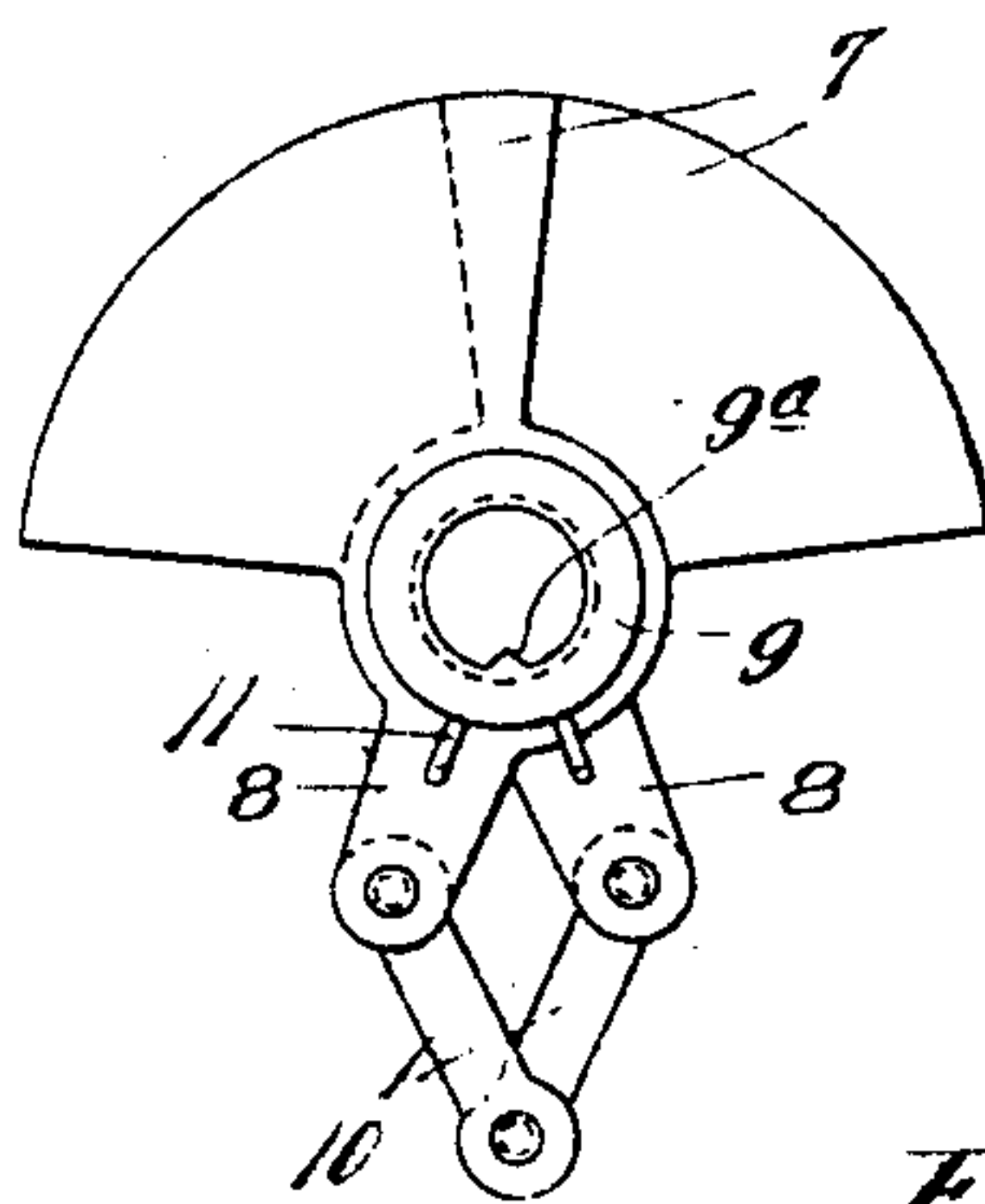


Fig. 5.

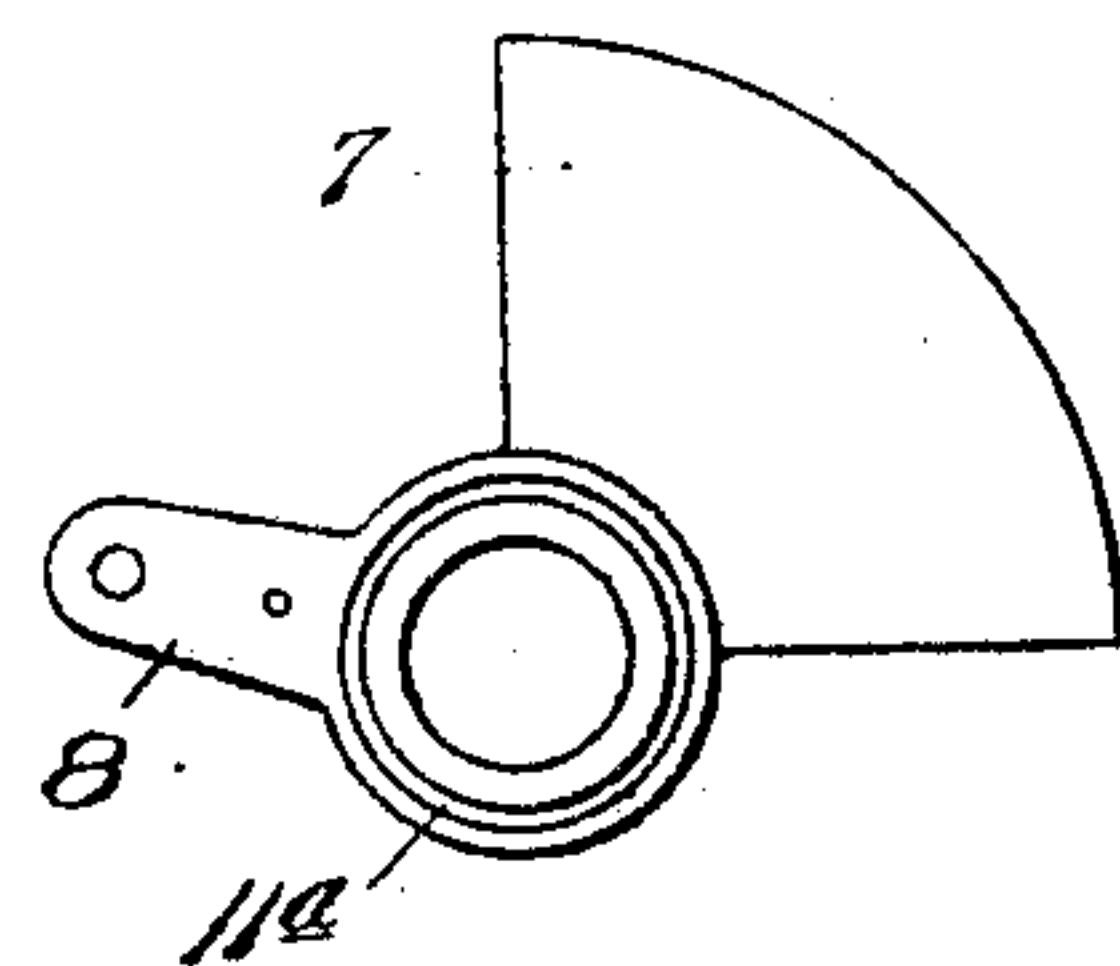


Fig. 6.



Fig. 8.

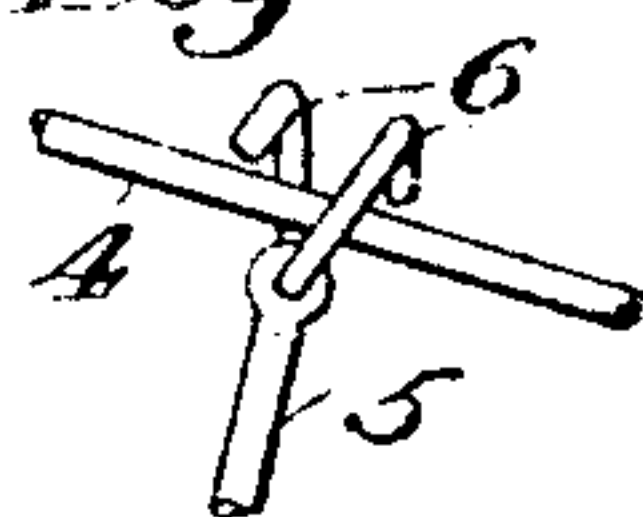


Fig. 9.

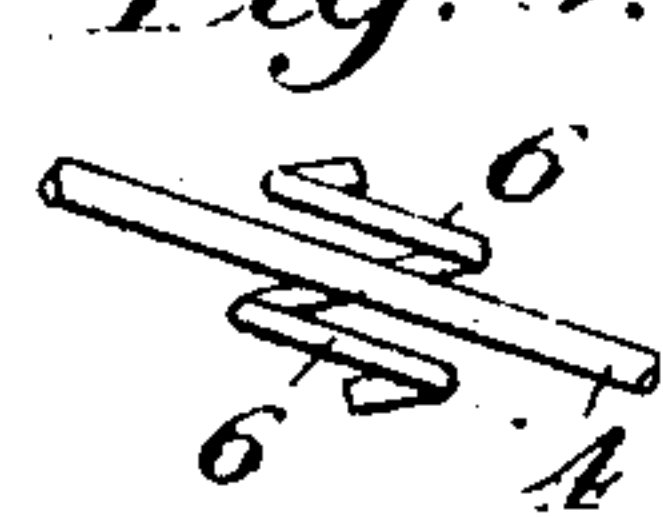
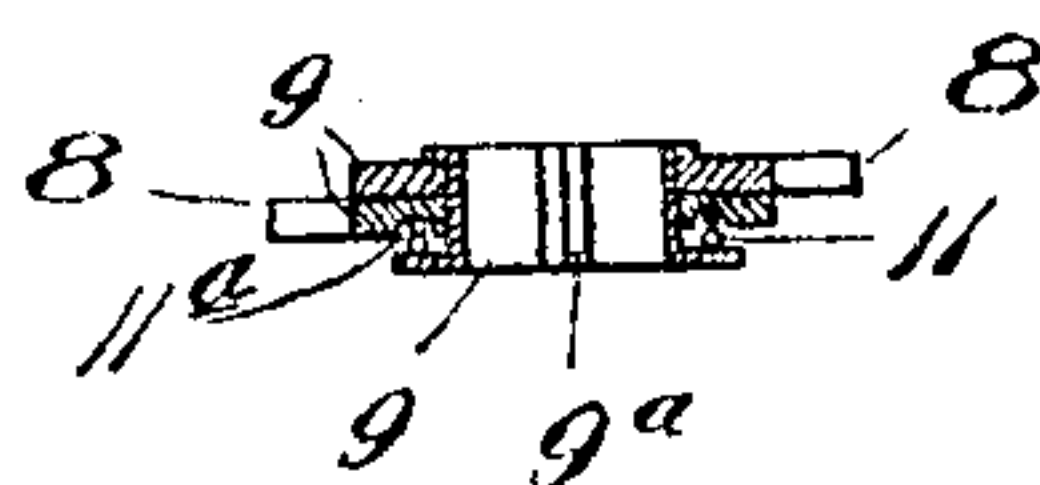


Fig. 7.



Witnesses.

E. W. Jeppesen.

A. H. Osrahf.

Inventor:
John M. Bryant.
BY HIS ATTORNEYS.

Williamson Muehant.

UNITED STATES PATENT OFFICE.

JOHN M. BRYANT, OF DETROIT, MICHIGAN.

COMPOUND SPACER FOR LINOTYPE-MACHINES.

No. 799,030.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed April 10, 1905. Serial No. 254,653.

To all whom it may concern:

Be it known that I, JOHN M. BRYANT, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Compound Spacers for 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.

My invention relates to machines for assembling character and space members into a line of composition and for casting a type-bar from the assembled line.

The type of machine to which this invention especially relates is generally known as the "Rogers Typograph," and the invention is especially directed to the improvement of the compound spacers disclosed in the patent to Fred E. Bright, No. 437,141, issued of date September 23, 1890, and entitled "Typograph."

The invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

In the said patent to Bright the matrix-bars are mounted to move to and from the assembling position, in line with the mold, on so-called "ways" in the form of guide-rods, under the action of gravity, their release being accomplished by key mechanism and their return to normal position being effected by a tilting movement of a so-called "matrix-carrier," said carrier being in the form of a pivoted frame, to which said ways or guide-rods are secured. The compound spacers employed in the machine disclosed by the said Bright patent are made up of reversely-beveled pivotally-connected wedged plates, one of which, in the space-adjusting action, is arranged to be held against rotation, while the other member is rotated. These compound spacers are normally held in a group on the upper portion of an inclined guide-rod, over which, when released by a key-actuated escapement, they will, under the action of gravity, slide downward and assume their proper positions between certain of the members of the assembled line of matrix-bars.

The leading feature of my invention is directed to the simplification of the construction and improvement of operation of these compound spacers and immediately-associated and cooperating parts.

The invention is illustrated in the accom-

panying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation, showing a portion of the machine with some parts broken away and some in diagram and illustrating my invention applied thereto. Fig. 2 is a view in front elevation with parts broken away looking at the mechanism shown in Fig. 1. Fig. 3 is a detailed view in elevation, showing one of the improved compound spacers removed from working position. Fig. 4 is a view corresponding to Fig. 3, but showing the parts in different positions. Fig. 5 is an elevation showing one of the wedged plates or members of the compound spacer. Fig. 6 is a section on the line $x^6 x^6$ of Fig. 3. Fig. 7 is a section on the line $x^7 x^7$ of Fig. 3 with some parts broken away. Fig. 8 is a view of some parts shown in Fig. 2, but showing the parts in different position; and Fig. 9 is a plan view of Fig. 8, but showing the parts in a different position.

The numeral 1 indicates the bed portion of the machine-frame, to the forward portion of which is rigidly secured matrix-bar alining and clamping frame of the usual form, made up of a fixed alining-bar 2, an abutment 3, and a movable compression-arm, not shown, but which latter coöperates with the abutment 3 to limit the lateral separation or expansion of the assembled matrix-bars and compound spacers, as clearly described in the said Bright patent above identified. This alining and clamping frame, it will be noted, is set on an incline, and the matrix-bar guide ways or rods 4 when turned downward overlie the said frame. The matrix-bars 5 at their upper ends are detachable and slidably connected to their respective guide-rods 4 by small coils 6. These spirally-coiled couplings 6 securely hold the matrix-bars against accidental displacement from their guide-rods, but permit them to be detached therefrom when they are raised slightly and rotated on their axis.

The compound spacers, which constitute the chief novel feature of my invention, are made up each of a pair of reversely-beveled wedged plates 7, that are preferably segmental and have radially depending arms 8. These wedge-plates 7 are pivotally mounted on a sleeve or hub 9, having flanged ends so spaced apart that the said wedged plates are free for limited lateral movements the one with respect to the other, an action which is of course

necessary when the wedge-plates are moved so as to expand the space. The arms 8 are connected by a toggle 10. A coiled spring 11 surrounds the sleeve 9, and one end thereof is attached to the arm 8 of the one wedge-plate, while the other end thereof is attached to the arm of the other wedge-plate. The tension of this spring 11 is such that it tends to move the wedge-plates 7 from the relative positions indicated in Fig. 3 into the positions indicated in Fig. 4, and the coiled portion of said spring by its tendency to expand laterally between one flange of the sleeve 9 and the adjacent wedge-plate 7 keeps the two wedge-plates always closely pressed together. The hub of the wedge-plate 7 which is adjacent to the spring 11 is preferably formed with an annular channel 11^a, that is adapted to receive a portion of the coil of said spring.

An inclined spacer guide-rod 12 extends from a distant point and terminates in an inclined section 12^a, that extends parallel to the assembling line, but back of the matrix-bars that are assembled in front of the mold.

A plurality of these compound spacers will be normally held in a group on the upper portion of the inclined guide-rod 12, and in the complete machine, as in the so-called "Rogers Typograph" and in the machine illustrated in the Bright patent above identified, these spacers are adapted to be released one at a time by a suitable key-actuated escape-ment device. (Not herein illustrated nor necessary for the purpose of this case to consider.)

It is sufficient for the purpose of this case to state that whenever a "spacer" is released it will under the action of gravity run down the guide-rod 12 onto the section 12^a and will be properly positioned between the assembled matrix-bars at a point where a space occurs.

A light supplemental guide-rod 13 follows and immediately underlies the guide-rod 12 12^a. This supplemental guide-rod 13 by engagement with the lower edge of the lowermost wedge-plate 7 causes the spacer when it reaches its position in the assembled line to stand with the central joint of its toggle in horizontal line with the axis of said spacer. As shown, the spacer-hub 9 is provided with a key 9^a, that engages with a longitudinal groove in the spacer guide-rod 12 12^a.

The outwardly-extended central portions of the toggles of the spaces which are assembled with the line of matrix-bars stand immediately in front of a push-plate 14 and are adapted to be engaged by a groove 14^a, formed in the face thereof. This push-plate 14, as shown, is carried by a pair of plungers 15, mounted in a bearing-box 16, rigidly secured on the bed-plate 1 and connected at their rear ends by a bar 17. An operating-plunger 18 works through a bearing 19 on the bed-plate 1 and at its forward end is provided with a spring-press telescopically-movable section 20, the end of which is connected to the bar 17, a

spring 18^a being interposed between the plunger 18 and 20. At its rear end the plunger 18, as shown, is provided with a pronged head 21, that works slidably on the hub of a bearing 22, rigidly secured on the bed-plate 1. A power-driven cam 23, carried by a shaft 24, journaled in the bearing 22, operates on a roller 25 on the head 21 of the plunger 18. The said shaft 24 may be one of the shafts of the machine, which receives one rotation for each type-bar that is cast.

The justification of the line and the even distribution of space between words is accomplished by a forward movement of the push-plate 14, acting against the toggles of the several spacers, which movement forces said toggles and the wedge-plates 7 from the relative positions indicated in Fig. 4 into the relative position indicated in Fig. 3. Such movement of the wedge-plate 7 the one upon the other causes a lateral expansion of the spacer, and simultaneous movements are imparted to the several spacers under the action of the push-plate.

It is evident that the several spacers will simultaneously reach the limit of expansion permitted by the total space to be taken up, whereupon the push-plate 14 is held against further movement, and any further movement of the operating-plunger 18 must take place against the yielding tension of the spring 18^a.

The cam 23 must of course be arranged to hold the push-plate 14 against the toggles of the spacers while the type-bar is being cast, after which time the said push-plate is caused to quickly recede, and the tension on the matrix-bars 5 and the interposed spacers being relieved the springs 11 restore the parts of the spacers to their relative position indicated in Fig. 4.

From what has been said it will be understood that the mechanism described is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. A compound spacer of the character described, made up of a pair of reversely-beveled pivotally-connected wedge-plates and a toggle connected thereto at points eccentric to the axis thereof, substantially as described.

2. A compound spacer comprising a hub, a pair of reversely-beveled wedge-plates pivotally mounted on said hub and having projecting arms, and a toggle connecting said arms, substantially as described.

3. A compound spacer comprising a pair of pivotally-connected reversely-beveled wedged plates, having projecting arms, a toggle connecting said arms, and a spring applied to said wedge-plates, and tending to move the same and to buckle said toggle, substantially as described.

4. A compound spacer comprising a hub, a pair of reversely-beveled wedge-plates piv-

oted on said hub with a freedom for lateral movements and a toggle connected to said wedge at points eccentric to the axis, substantially as described.

5 5. A compound spacer comprising a hub, a pair of reversibly-beveled wedge-plates, pivotally mounted on said hub, with freedom for lateral movement, said wedge-plates having projecting arms, a toggle connecting said
10 arms, and a spring applied to said wedge-plates and tending to move the same and buckle said toggle substantially as described.

6. In a machine of the character described, the combination with an inclined guide-rod of
15 a plurality of compound spacers mounted to slide thereon to and from assembling positions, each spacer comprising a pair of reversely-beveled pivotally-connected wedge-plates and toggles connecting said wedge-
20 plates substantially as described.

7. In a machine of the character described the combination with an inclined guide-rod of a plurality of compound spacers movable on
25 said guide-rod to and from assembled positions each spacer comprising a pair of reversely-beveled pivotally-connected wedge-plates, and toggles connecting said wedge-plates, and a reciprocating push-plate engage-
30 to effect the justification of the line of composition substantially as described.

8. In a machine of the character described the combination with an inclined guide-rod and a reciprocating push-plate of a plurality
35 of compound spacers movable on said guide-rod to and from assembled positions, each spacer comprising a hub, a pair of reversely-beveled wedge-plates, pivoted on said sleeve

with freedom for limited lateral movements thereon, a toggle connecting said wedge-
40 plates, and a spring surrounding said hub and acting on said wedge-plates to move the same pivotally, and which toggles are arranged to be engaged by said push-plate substantially
45 as described.

9. A matrix-bar having secured to the end of its stem, a spirally-coiled coupling 6, that is applicable to a guide-wire and removable therefrom, only when moved endwise and ro-
50 tated on its own axis, substantially as described.

10. In a machine of the character described, the combination with a guide, and a plurality of compound spacers mounted to slide there-
55 on, to and from the assembled position, a push-plate operative on said spacers, to expand those that are in assembled positions, and a cam-actuated-operated connection to said push-plate, including a yielding element,
60 substantially as described.

11. In a machine of the character described, the combination with a guide, and a plurality of spacers movable thereon, to and from assem-
65 bled positions, a push-plate operative on the assembled spacers, a two-part telescoping plunger connected to said push-plate, and having a spring interposed between its members, and a cam having a fixed throw, and oper-
70 ative on one member of said plunger, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. BRYANT.

Witnesses:

FRANK C. COOK,
ANNA CONNORS.