

No. 608,155.

Patented July 26, 1898.

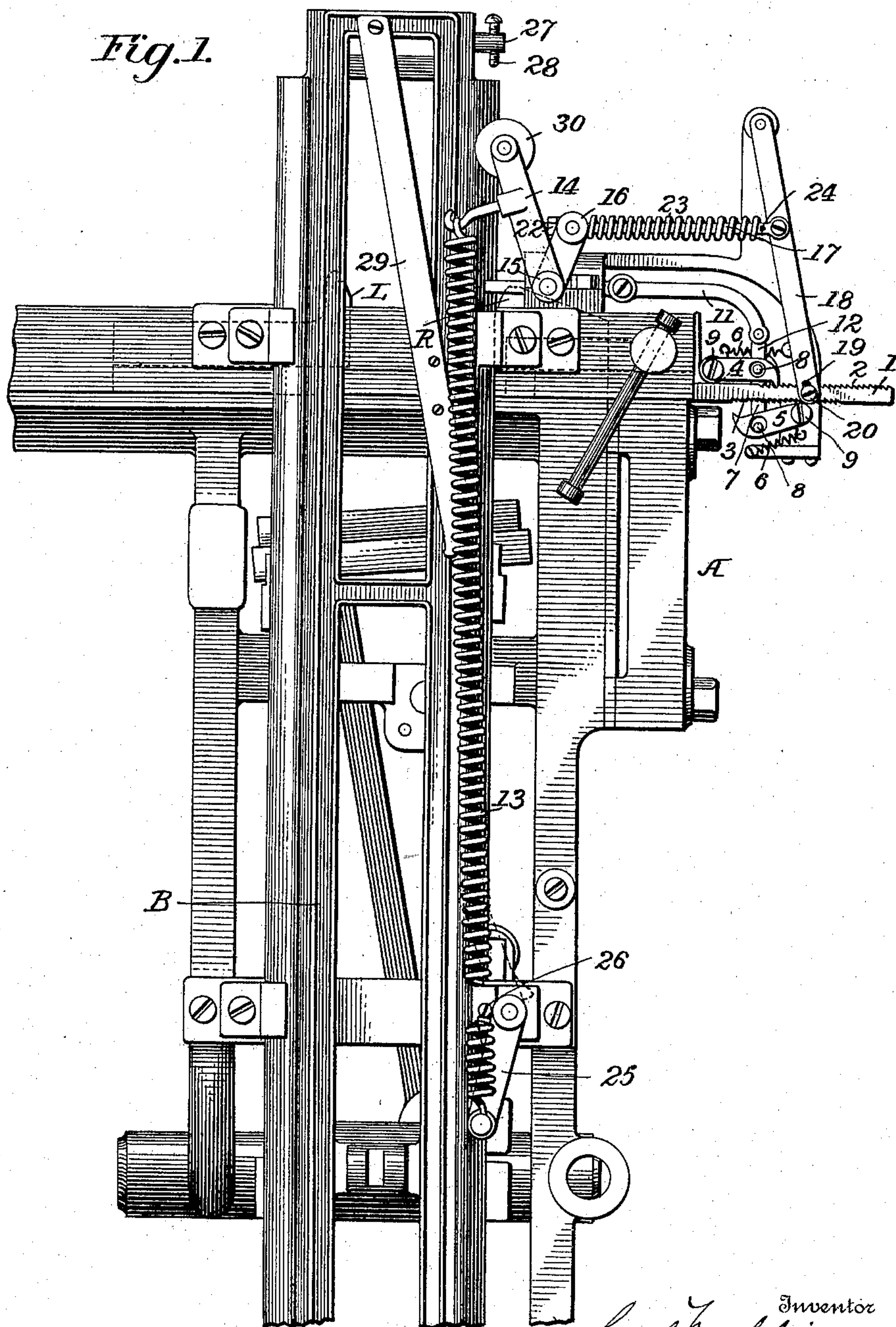
C. MUEHLEISEN.

LINE CLOSING ATTACHMENT FOR LINOTYPE MACHINES.

(Application filed Oct. 9, 1897.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses

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Fig. 2.

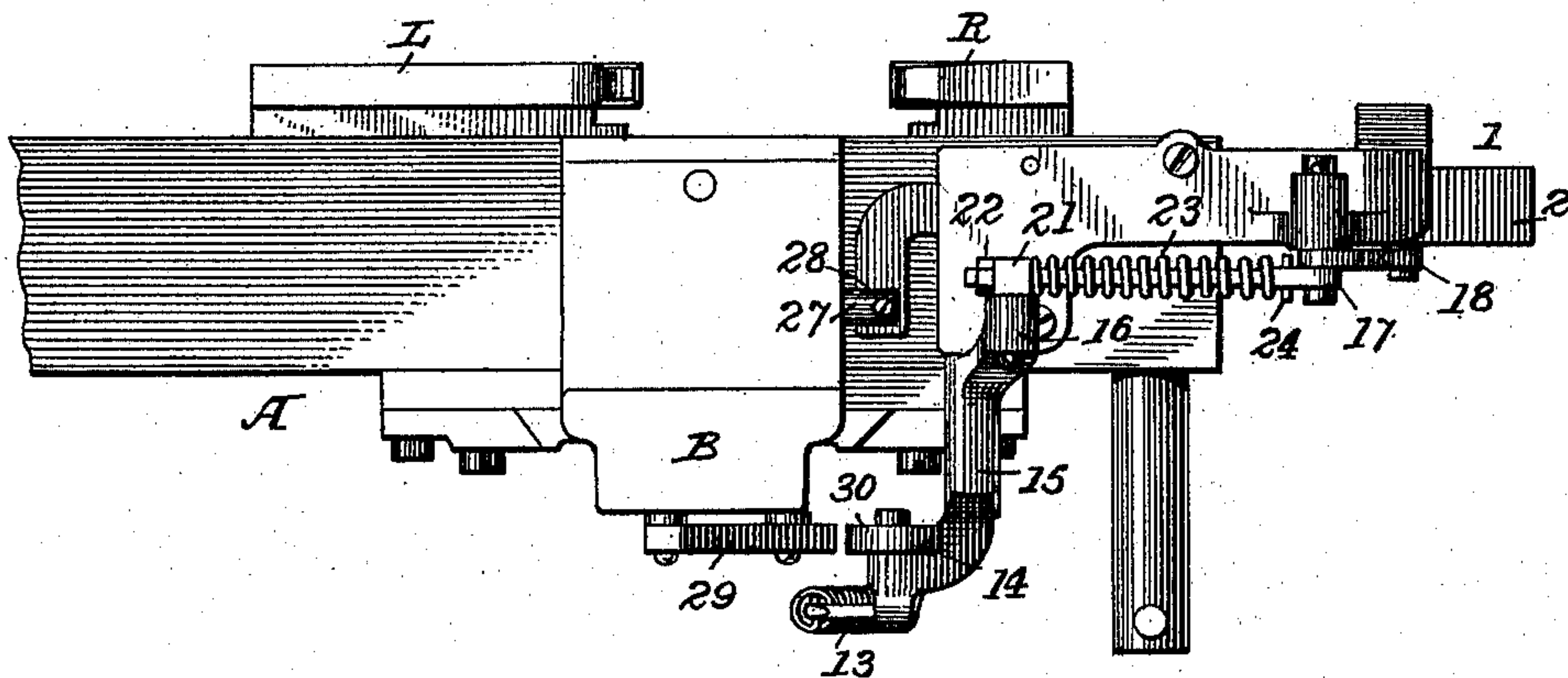


Fig. 9

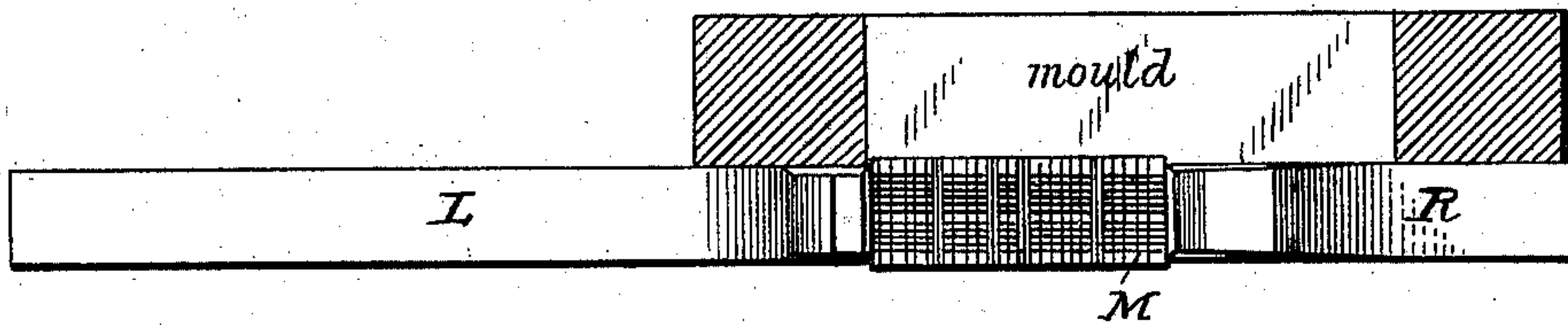
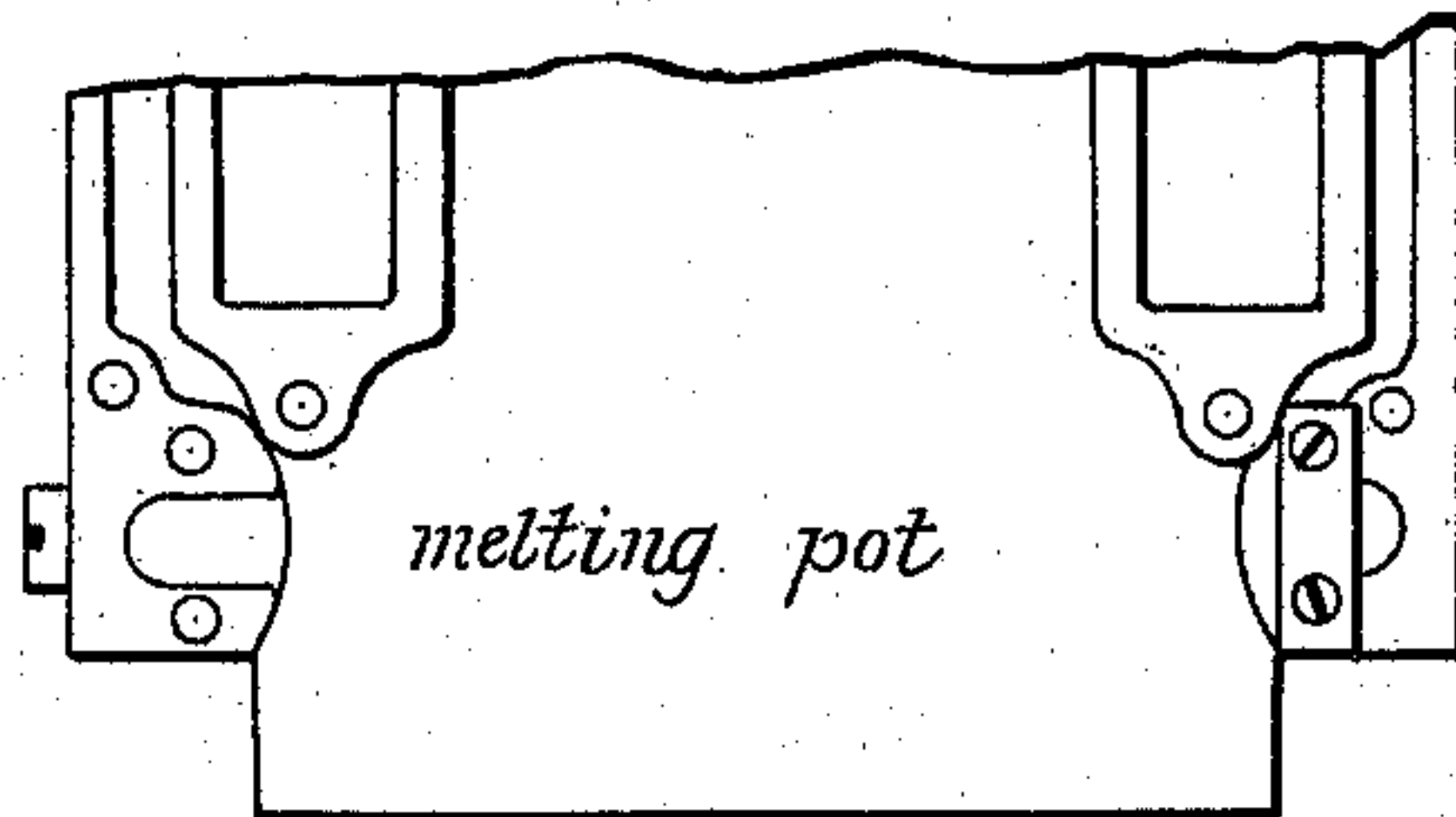


Fig. 10.



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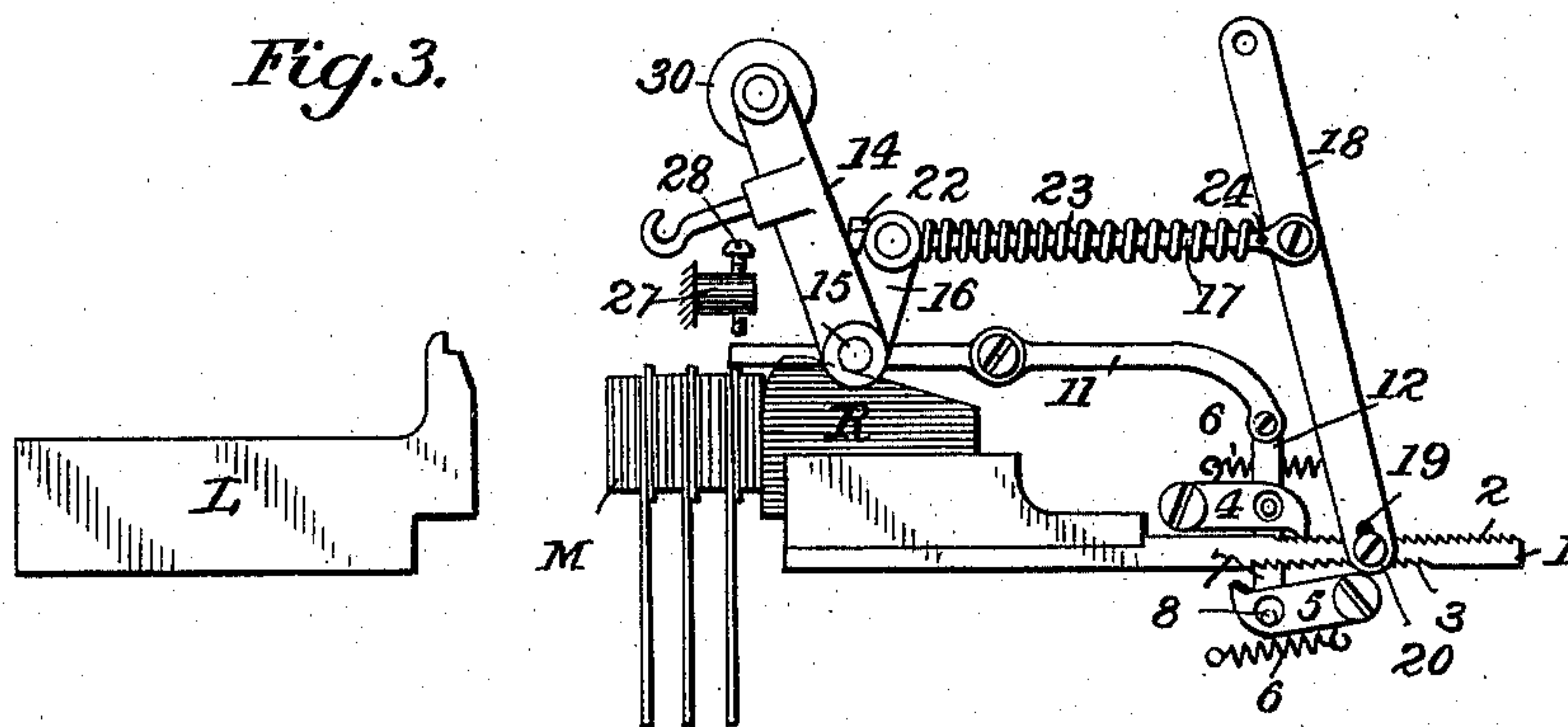
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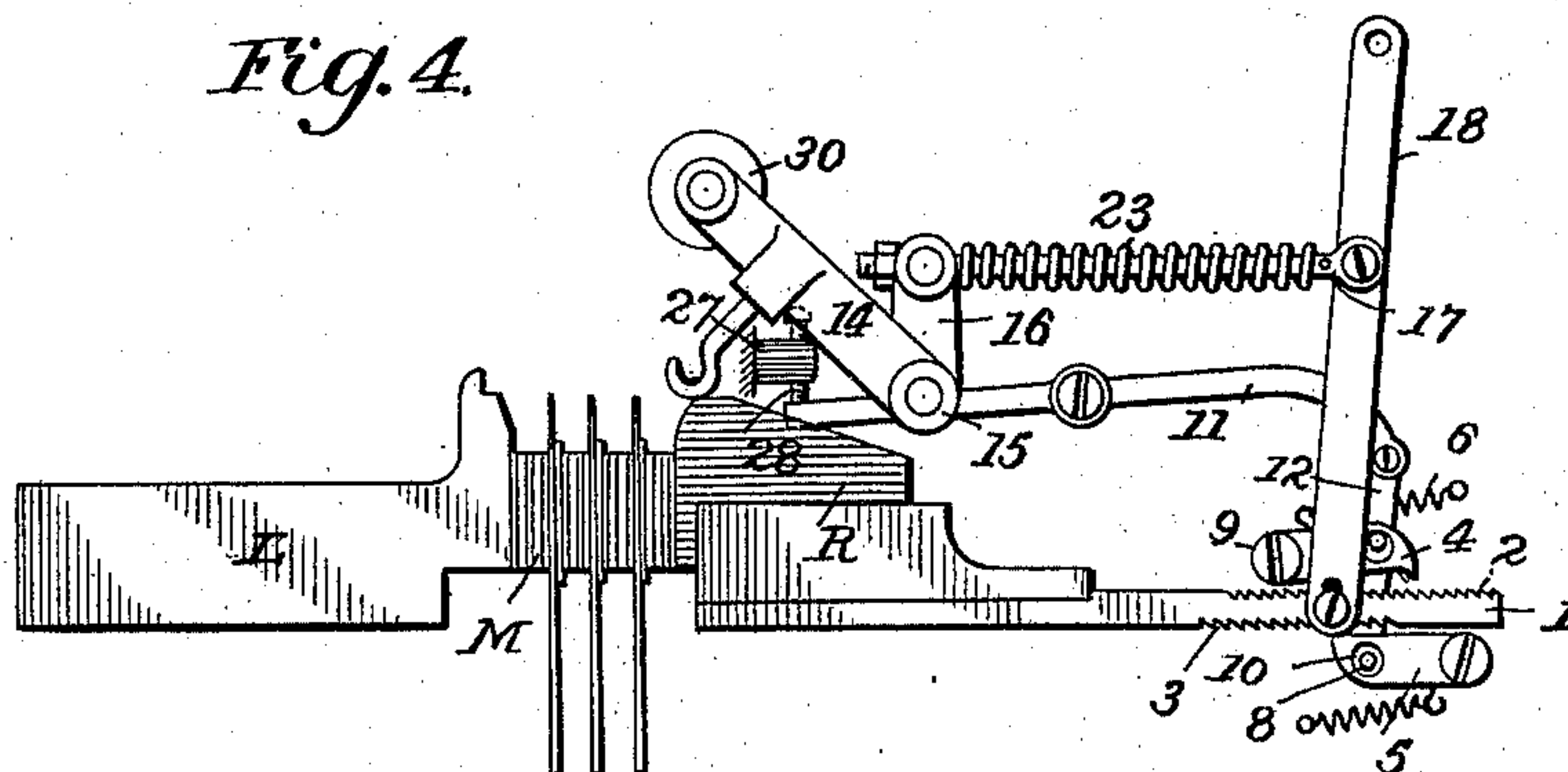
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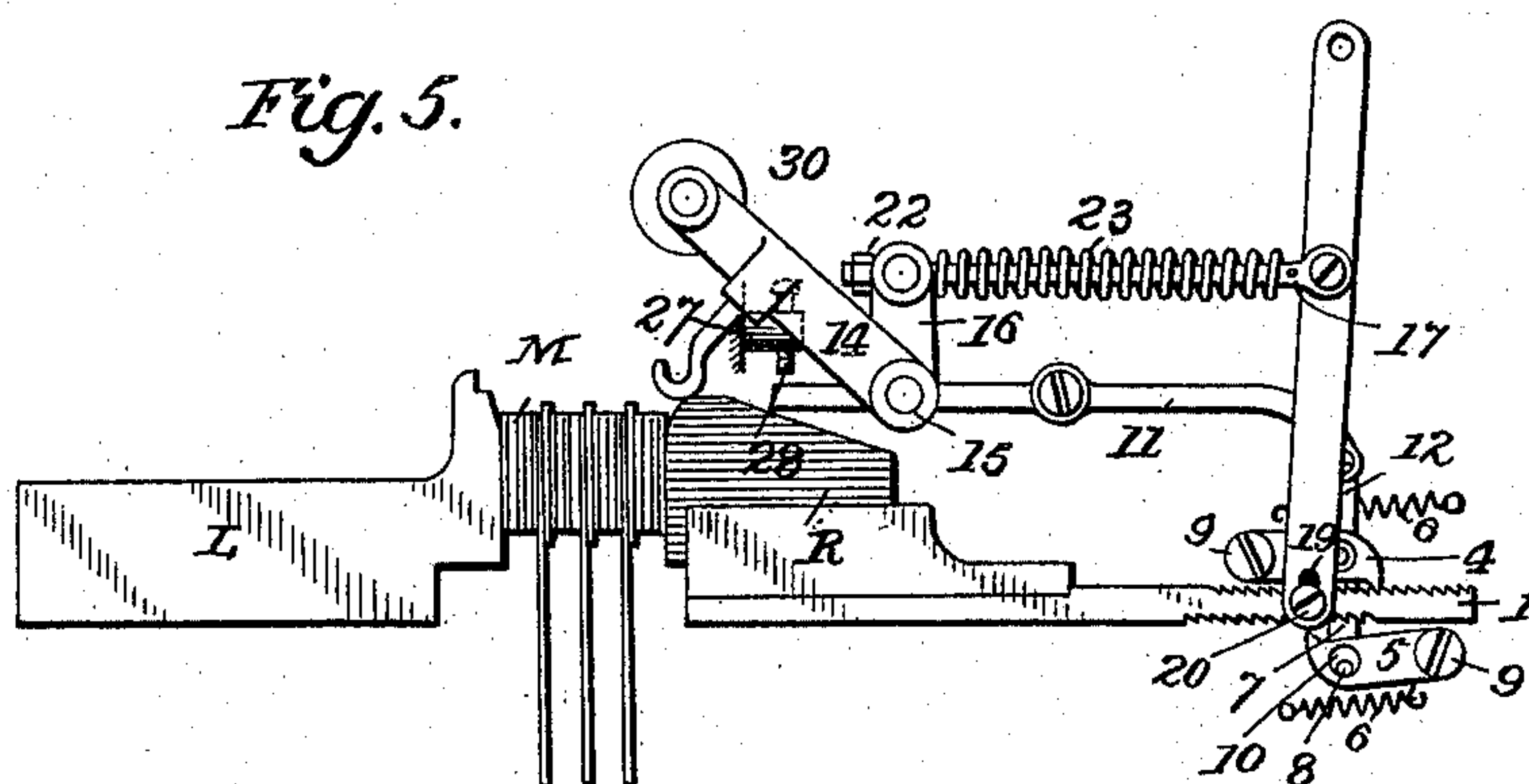
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



## Witnesses

Witnesses  
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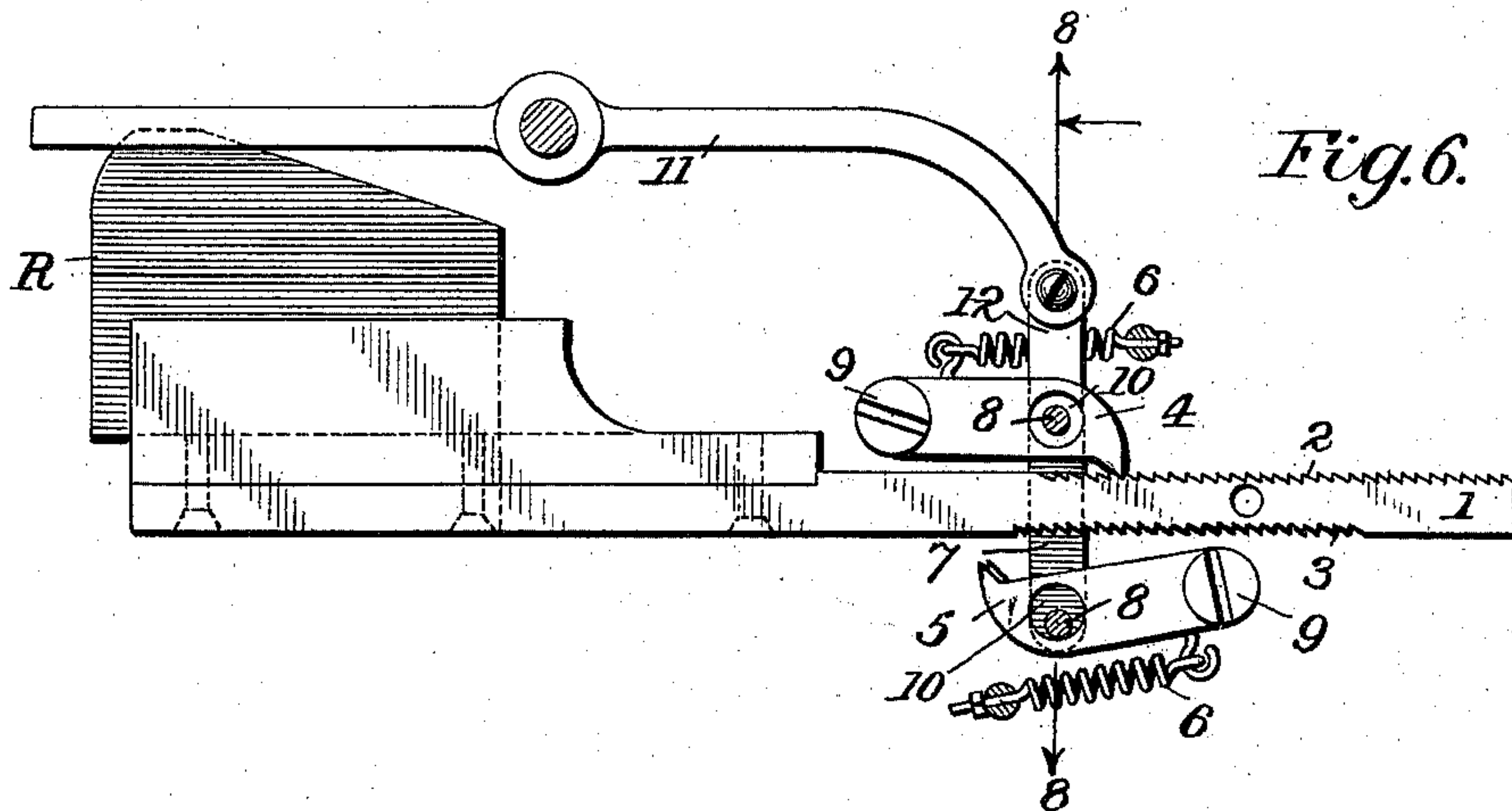


Fig. 6.

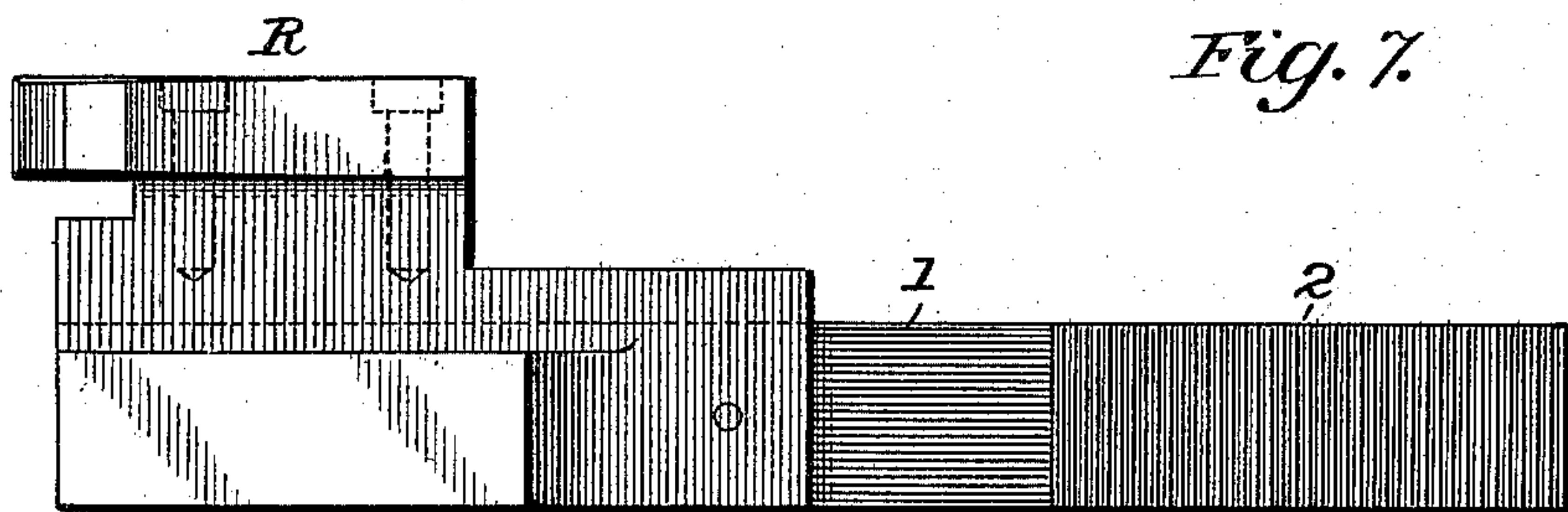
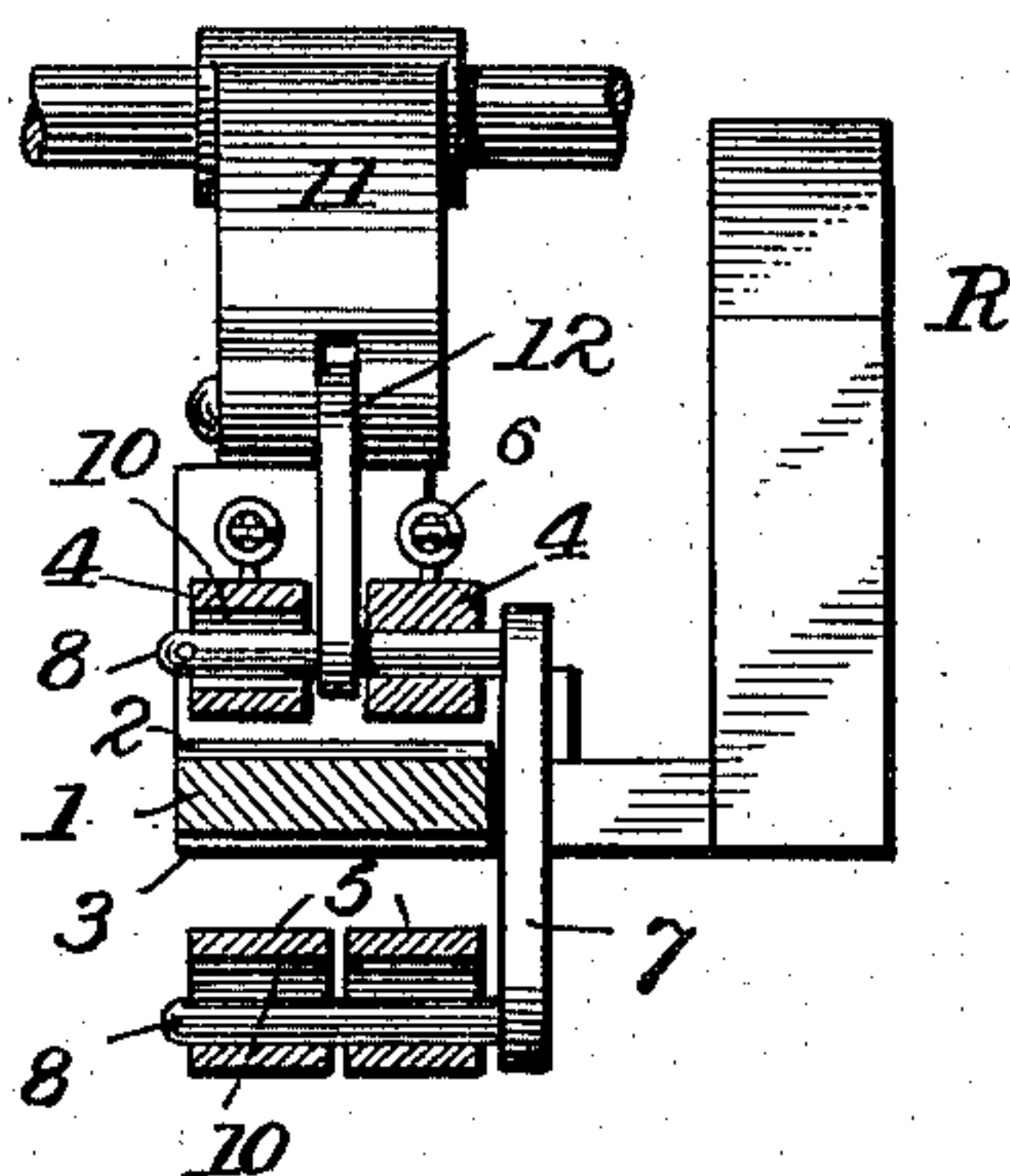


Fig. 7.

Fig. 8.



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# UNITED STATES PATENT OFFICE.

CARL MUEHLEISEN, OF BALTIMORE, MARYLAND.

## LINE-CLOSING ATTACHMENT FOR LINOTYPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 608,155, dated July 26, 1898.

Application filed October 9, 1897. Serial No. 654,677. (No model.)

*To all whom it may concern:*

Be it known that I, CARL MUEHLEISEN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Line-Closing Attachments for Linotype-Machines, of which the following is a specification.

In using linotype-machines as at present constructed considerable time is occupied in spacing out lines which fall short of the column-measure, such as the last lines in paragraphs and more especially the lines used in setting up lists of names and the like. In setting up this class of work a large portion of the operator's time is occupied in filling out the blank portions of the lines with quads and justifying-spaces.

The present invention consists in devices which will automatically take care of short lines as soon as the matrices are assembled without the necessity of quadding them to the full length.

In using a machine provided with the present invention the operator, after setting up the matrices for a short line, starts the casting mechanism as usual without paying any attention to the unfilled portion of the line. The line is then carried over to the casting mechanism, and just as it reaches the mold the right-hand vise-jaw is moved to the left, clamping the matrices against the left-hand jaw, which thus remains in its normal position. The right-hand jaw is held in this position by suitable locking mechanism while the justifying-wedges are raised and the line is cast. The jaw being locked only permits the spaces to be driven a short distance and the spaces are therefore narrow, which improves the appearance of the work. The right-hand jaw takes the place of the quads heretofore used and closes the right-hand portion of the mold. After the line is cast the matrices are raised out of the vise in the usual manner and the right-hand jaw is removed to its normal position. I provide a simple means for throwing this line-closing device into and out of action. When out of action, the right-hand jaw always remains fixed in its normal position ready to receive full lines of matrices.

The invention further consists in various

improvements in details, all of which will be described in the following specification.

In the accompanying drawings, Figure 1 is a front elevation of the line-closing attachment and the parts of the machine to which it is connected. Fig. 2 is a plan view of the same. Figs. 3, 4, and 5 illustrate the line-closing devices in three different positions. Fig. 6 is a front view of the right-hand jaw and its holding-pawls. Fig. 7 is a plan view of the jaw. Fig. 8 is a section on the line 8-8, Fig. 6. Fig. 9 is a diagram showing the jaws in plan holding a line of matrices in front of the mold. Fig. 10 is a view of a slug cast from the matrices shown in Fig. 9.

Referring to the drawings, A indicates a part of the main frame, and B the vertically-sliding frame of the elevator which carries the matrices to and from the mold. The left-hand vise-jaw L is of the usual form and in the usual position. The right-hand jaw R slides in suitable guides to and from the left jaw, as hereinafter explained. To the jaw R is connected a ratchet-bar 1, having a series of teeth 2 on its upper side and a second series of teeth 3 on its lower side. A pair of pawls 4 cooperate with the upper ratchet-teeth to prevent the jaw from moving inward or to the left and a pair of pawls 5 cooperate with the lower teeth to prevent it from moving outward. The pawls 4 and 5 are urged toward the racks by springs 6. In the rear of the rack-bar is a link 7, which carries pins 8, extending through the pawls, the pins being separated so that only one pair of pawls can engage the rack-bar at a time. By raising and lowering the link the pawls 4 and 5 can be alternately engaged with the rack-bar. The pawls are mounted on stationary pivots 9, and one pawl in each pair has its engaging end slightly in advance of the other pawl, so that one or other of them will engage at each movement of half a tooth of the rack-bar. To permit the pawls in each pair to move independently, the holes 10 in the pawls are made much larger than the pins 8. The pawls 4 and 5 are thrown into and out of engagement with the racks 2 and 3, respectively, by means of a lever 11, which is connected with the upper pin 8 by a link 12.

The right-hand jaw R is constantly urged to the left by a motor, which, as shown, con-



sists of a mainspring 13, connected to one arm 14 of a rocker 15. The second arm 16 of the rocker is connected by a link 17 with a lever 18, the lower end of which has a slot 19, engaging a pin 20 on the rack-bar 1. I provide a connection between the arm 16 and the lever 18, which will yield in case the jaw should stick while being drawn backward or to the right. This connection consists in passing one end of link 17 loosely through an eye 21 on the arm 16. On one side of the eye is a nut 22 and on the opposite side is a spring 23, which is confined between the eye 21 and a pin or shoulder 24. The lower end of the mainspring is connected to a lever 25. When this lever is thrown down to the position shown in full lines in Fig. 1, the mainspring is under tension, and it constantly tends to draw the rack 1 and the jaw R to the left through the connections 14 to 20, inclusive. When the lever 25 is thrown up into the dotted position, Fig. 1, the mainspring is free from tension and the jaw R remains in its right-hand or normal position. The lever 25 is held in the lower position by a suitable stop 26. The elevator-frame B carries a projection or arm 27, having an adjustable screw 28, which comes in contact with the lever 11 just before the line reaches the casting or lowest position and operates to release the jaw R, as will be explained hereinafter. After the slug is cast the elevator-frame rises and an incline or cam 29, connected with the frame, engages a roller 30 on arm 14 and rocks the arm to the right, thus carrying the vise-jaw R back to its normal position.

The operation is as follows: When lines short of the column or slug measure are being assembled, the line-closing devices are thrown into action by distending the mainspring 13. When the line is assembled, it is carried over to the elevator B and lowered to a position between the jaws L R in the usual manner. Fig. 3 shows the short line of matrices (indicated by M) just before it reaches the casting position. During the last portion of the downward movement of the line the stud or screw 28 engages the lever 11 and throws the pawls 4 out of action and the pawls 5 into action. As soon as the pawls 4 release the rack-bar, the jaw R is drawn to the right by the mainspring and the connections 14 to 20, inclusive. This movement carries the parts into position shown in Fig. 4. The justifying-wedges J are then driven until the line is clamped tightly between the jaws. This is accomplished by a slight upward movement of the wedges, for the reason that the pawls 5 prevent the backward movement of the jaw R. The mold is now moved up against the matrices and jaw R, as shown in Fig. 9, and the slug is cast in the usual manner, the blank portion of the slug being cast against the jaw. As the elevator starts to move upward, the lever 11 is released from stud 28 and the pawls 4 are immediately thrown into action upon the rack-bar and

the pawls 5 thrown out of action, as shown in Fig. 5. As illustrated, this is accomplished by making the springs of the pawls 4 strong enough to overpower the springs of the pawls 5. The object in engaging the pawls 4 with the rack-bar before the line is drawn out of the vise is to prevent the right-hand jaw R from moving over against the wedges J and doing injury to them and to the line of matrices. The jaw is held in this position as the line is raised until the cam or incline 29 engages the roller 30. As the elevator rises the incline rocks the arm 14 and moves the right-hand jaw back to its normal position, at the same time distending the mainspring. The parts are held in this position by the pawls 4 until the following line is transferred to the casting mechanism, when the above operations are repeated. Fig. 10 shows a slug cast from the short line shown in Fig. 9. The amount of matter in the line is immaterial, as the right-hand jaw can be made to close the line to any desired extent.

I believe myself to be the first to automatically close short lines of matrices at the right end thereof in linotype-machines, such as those shown in United States Letters Patent Nos. 436,532 and 557,000, without the use of quads and also the first to provide an automatic movable right-hand jaw in such machines and means for holding the same in the closed position. As the particular devices for accomplishing these objects are of minor importance, I do not limit myself to the precise construction and arrangement of parts illustrated and described. The devices may be connected to and operated by other parts of the linotype-machine. The arrangement shown, however, is simple, convenient, and effective, and can be readily applied to the standard machines now in common use.

Having described the invention, what I claim, and desire to secure by Letters Patent, is—

1. In a linotype-machine, automatic mechanism, including a movable right-hand vise-jaw, for closing a short line of matrices during the casting operation, and means for throwing said mechanism into and out of use, substantially as described.

2. In a linotype-machine, a right-hand vise-jaw, and means for rendering said jaw either stationary in normal position when assembling full lines of matrices or automatically movable to close short lines, substantially as described.

3. In a linotype-machine, means for closing a short line of matrices during the casting operation comprising an automatically-movable right-hand vise-jaw, and automatic devices for locking the same when closed upon a short line of matrices, substantially as described.

4. In a linotype-machine, means for closing a short line of matrices during the casting operation comprising an automatically-movable right-hand vise-jaw and automatic devices for locking said jaw during the justifying opera-



tion, whereby the justifying-wedges are prevented from spreading the line unduly, substantially as described.

5. In a linotype-machine, means for closing a short line of matrices during the casting operation comprising a movable right-hand vise-jaw, and automatic devices for moving the jaw inward against a short line of matrices, for locking it in position against said matrices while the justifier is being operated, and for moving it outward into normal position after the line is cast, substantially as described.

6. In a linotype-machine, a movable right-hand vise-jaw, in combination with means for holding said jaw normally in a right-hand position, means for moving said jaw to the left to engage a short line of matrices, means for locking the jaw against movement to the right while the justifier is operated, and means for holding said jaw against further movement to the left as the line leaves the vise, substantially as described.

7. In a linotype-machine, a movable right-hand vise-jaw, a detent for normally holding said jaw in the right-hand position, a motor for moving said jaw automatically to the left when released from the detent, means for releasing said detent, and means for throwing the said motor into and out of operative relation to the jaw, substantially as described.

8. In a linotype-machine, the combination with a movable right-hand vise-jaw, of the ratchets connected with said vise-jaw, the holding-pawls cooperating with said ratchets, and means for bringing said pawls alternately into action, substantially as described.

9. In a linotype-machine, the combination with a movable right-hand vise-jaw, ratchets connected with said jaw, pawls cooperating with the ratchets, and means for engaging pawls with one ratchet and disengaging them from the other as the elevator carries a line into the vise, substantially as described.

10. In a linotype-machine, the combination with a movable right-hand vise-jaw, ratchets connected with said jaw, pawls cooperating with the ratchets, the lever controlling the pawls, and means for tripping the lever as the elevator carries a line into the vise, substantially as described.

11. In a linotype-machine, the combination with a movable right-hand vise-jaw, of a mainspring tending to move said jaw to the left, means for locking said jaw in normal position, and means for throwing the mainspring into and out of action, substantially as described.

12. In a linotype-machine, the combination with a movable right-hand vise-jaw, and means for moving said jaw to the left, of an incline or cam upon the elevator arranged to move the jaw to the right as the elevator rises, substantially as described.

13. In a linotype-machine, the combination with a movable right-hand vise-jaw, of a spring tending to draw said jaw to the left, a cam operating to return the jaw and a yielding connection between said cam and jaw, substantially as described.

14. In a linotype-machine, the combination with a movable right-hand vise-jaw, of the two-faced ratchet-bar connected to said jaw, a pair of independent pawls adapted to engage with each face of said ratchet-bar, pins loosely fitted in openings in said pawls, a link connecting said pins, and means for moving the link to throw the pawls alternately into engagement with the ratchet-bar, substantially as described.

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

CARL MUEHLEISEN.

Witnesses:

THOS. KELL BRADFORD,  
LEE PURCELL.