

No. 692,343.

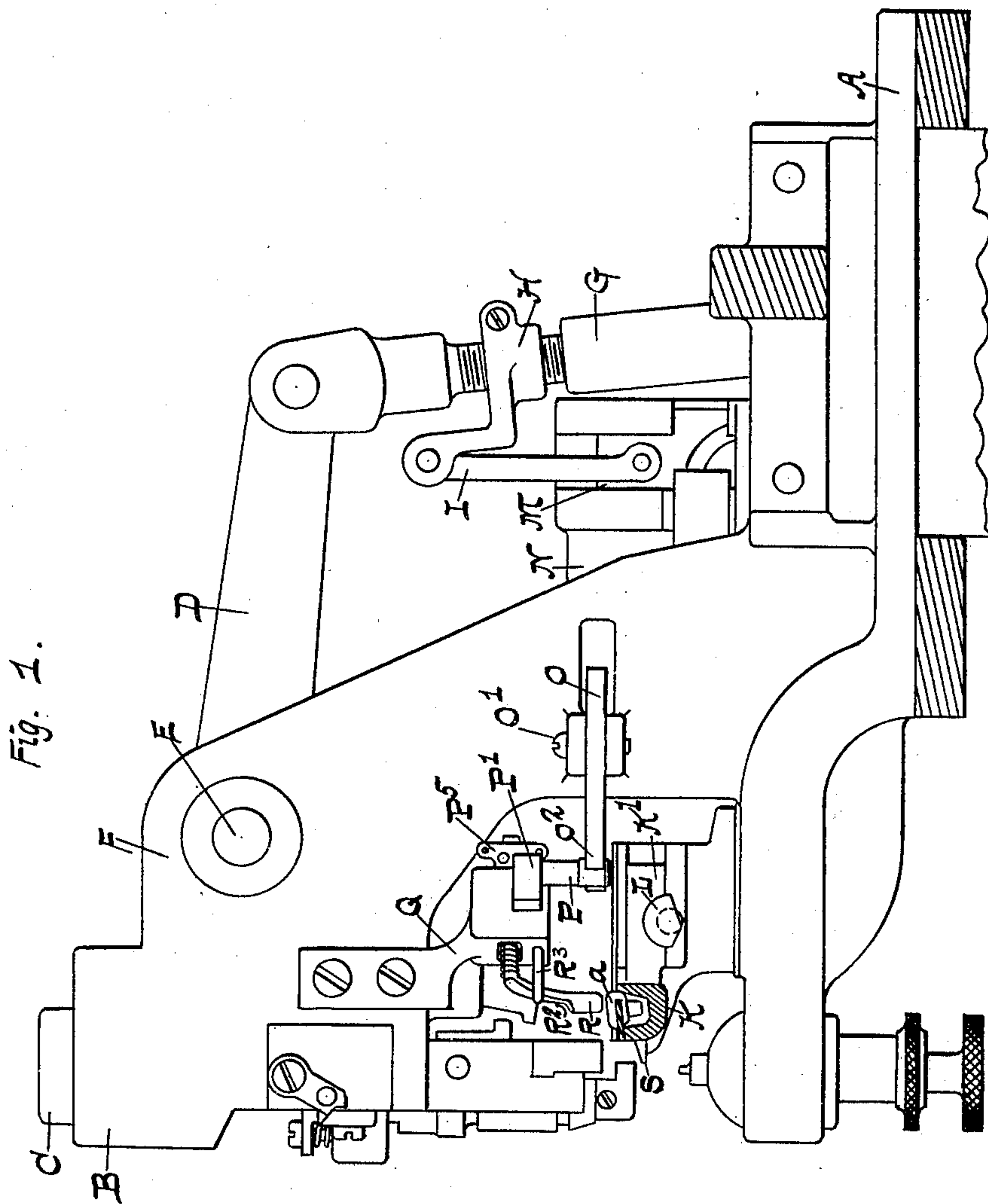
Patented Feb. 4, 1902.

E. L. PUPKE.  
SHOE HOOK SETTING MACHINE.

(Application filed Mar. 30, 1901.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses:

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James Cosgrove

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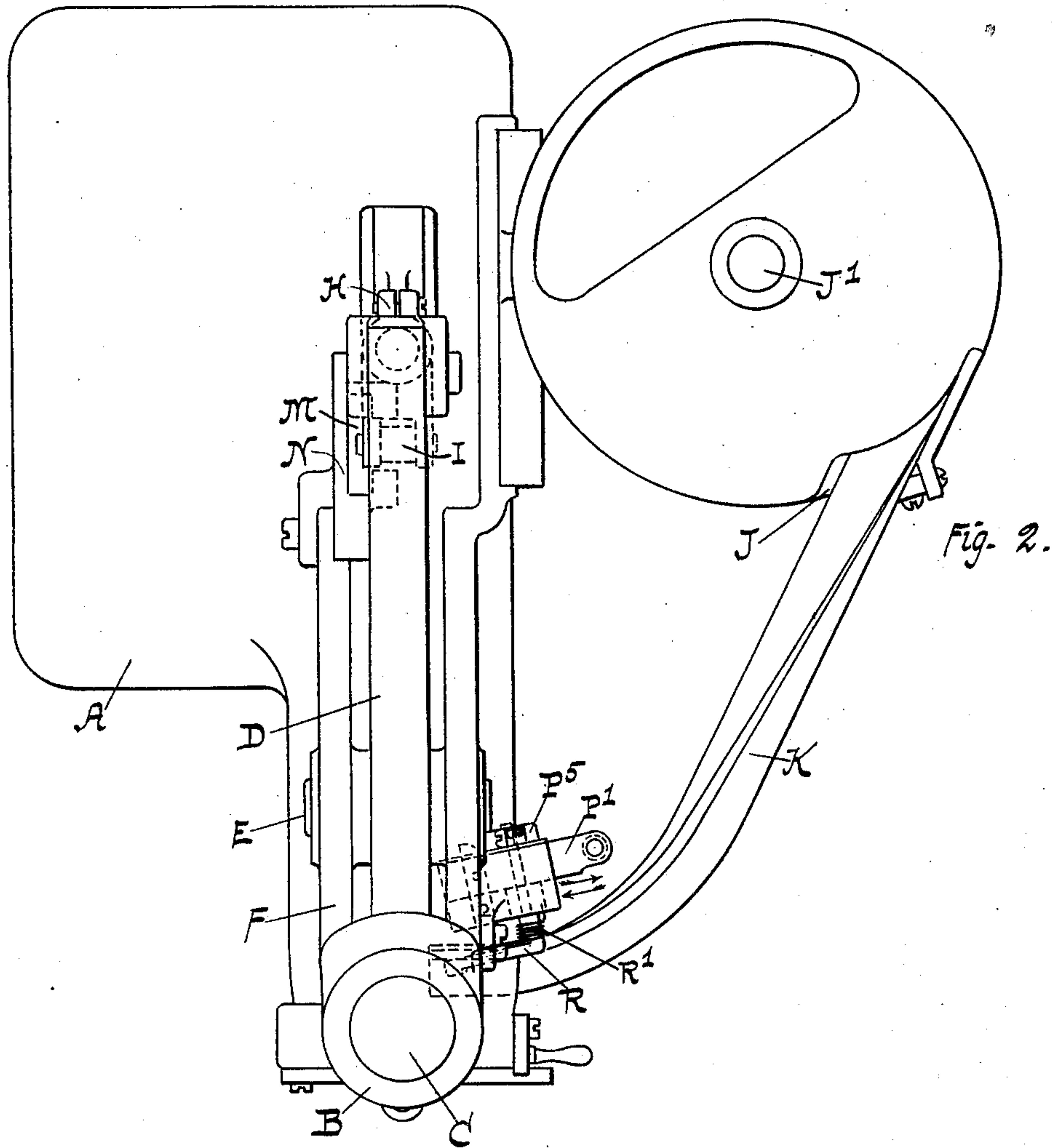
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5 Sheets—Sheet 2.



Witnesses:

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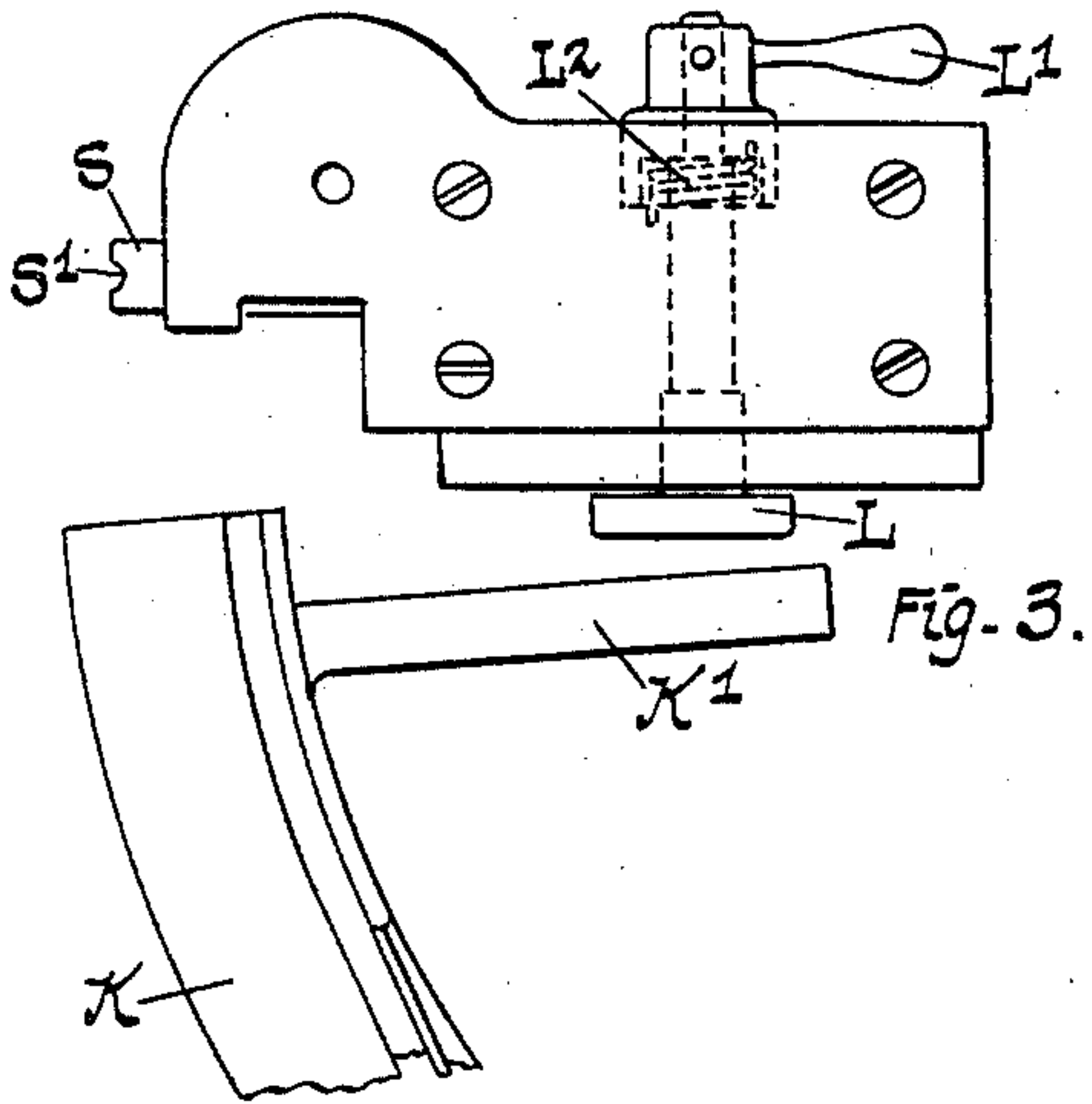


Fig. 3.

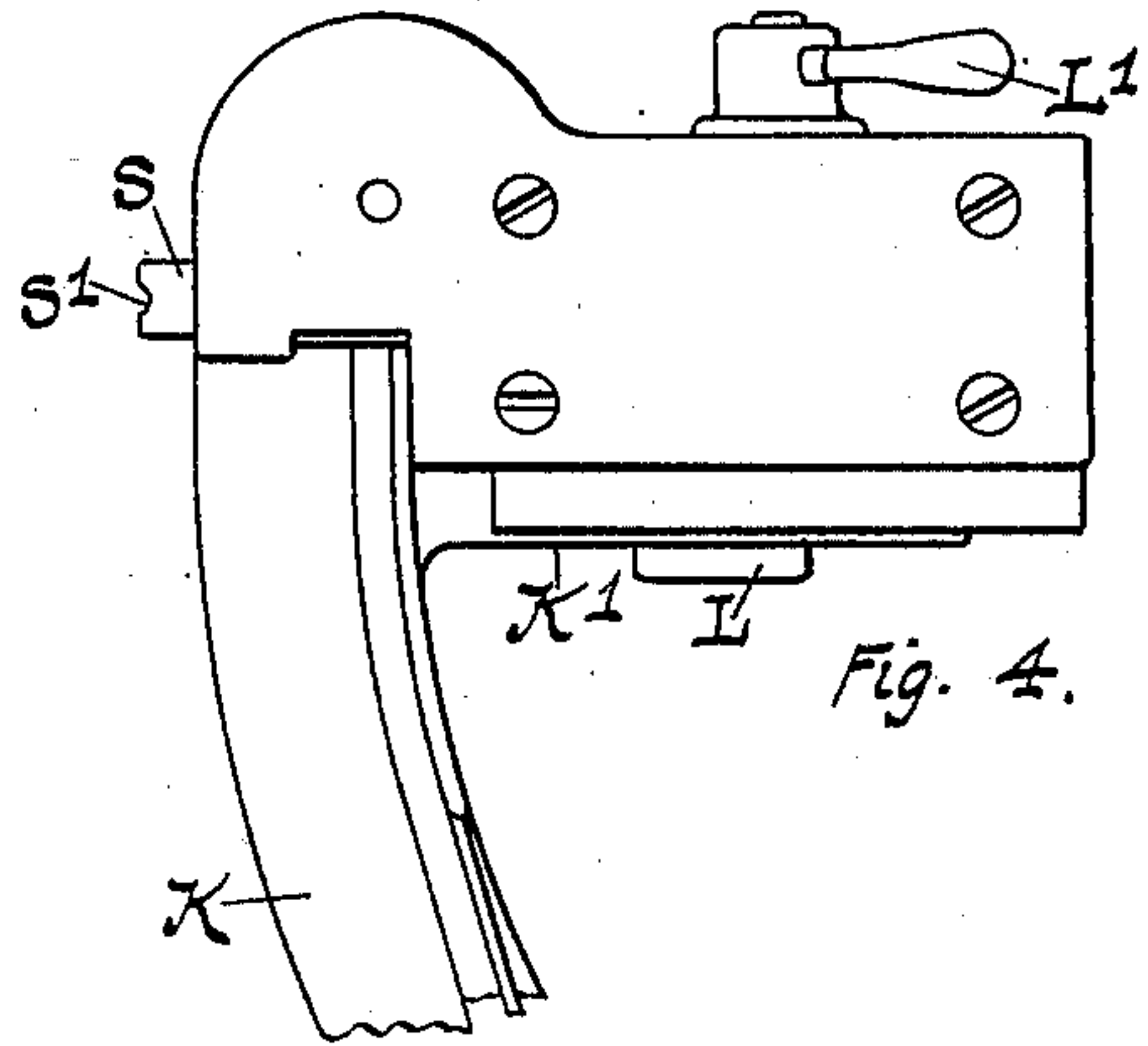


Fig. 4.

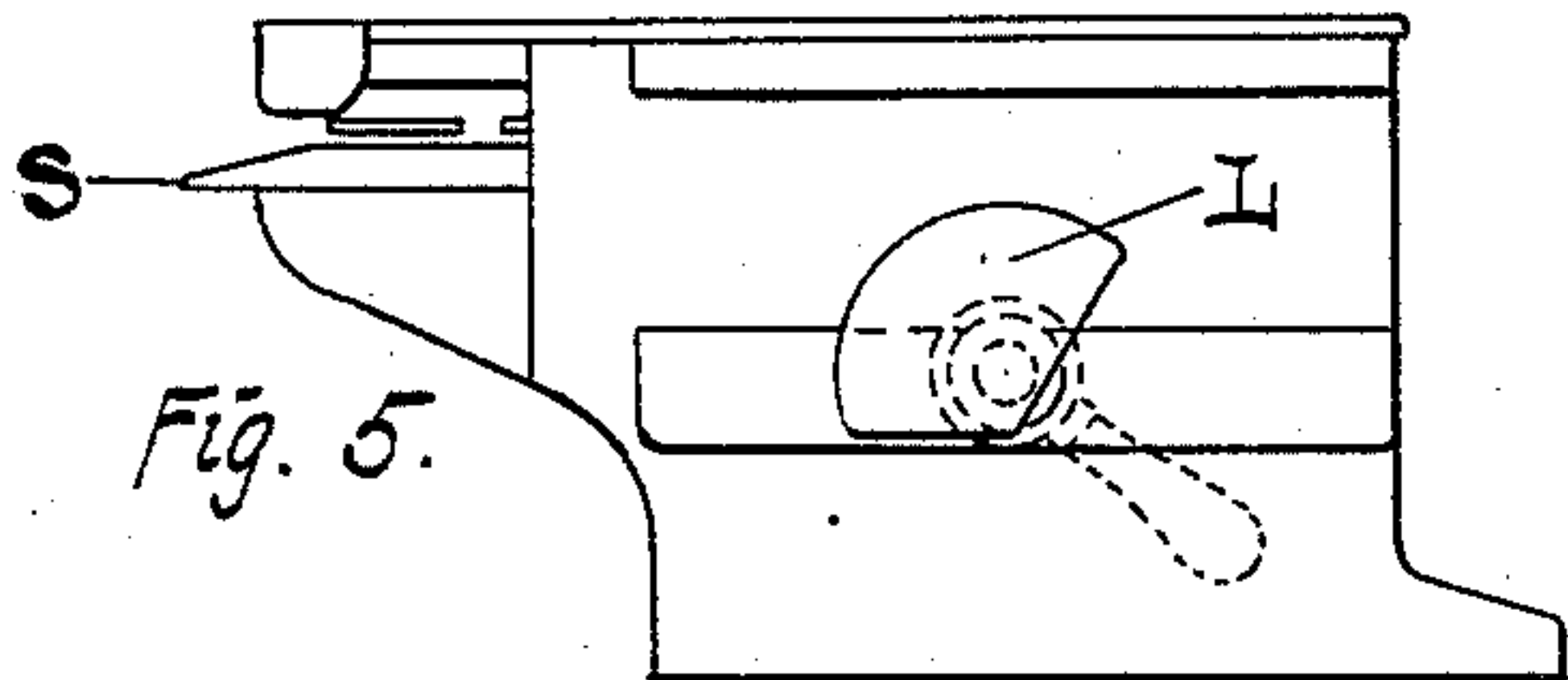


Fig. 5.

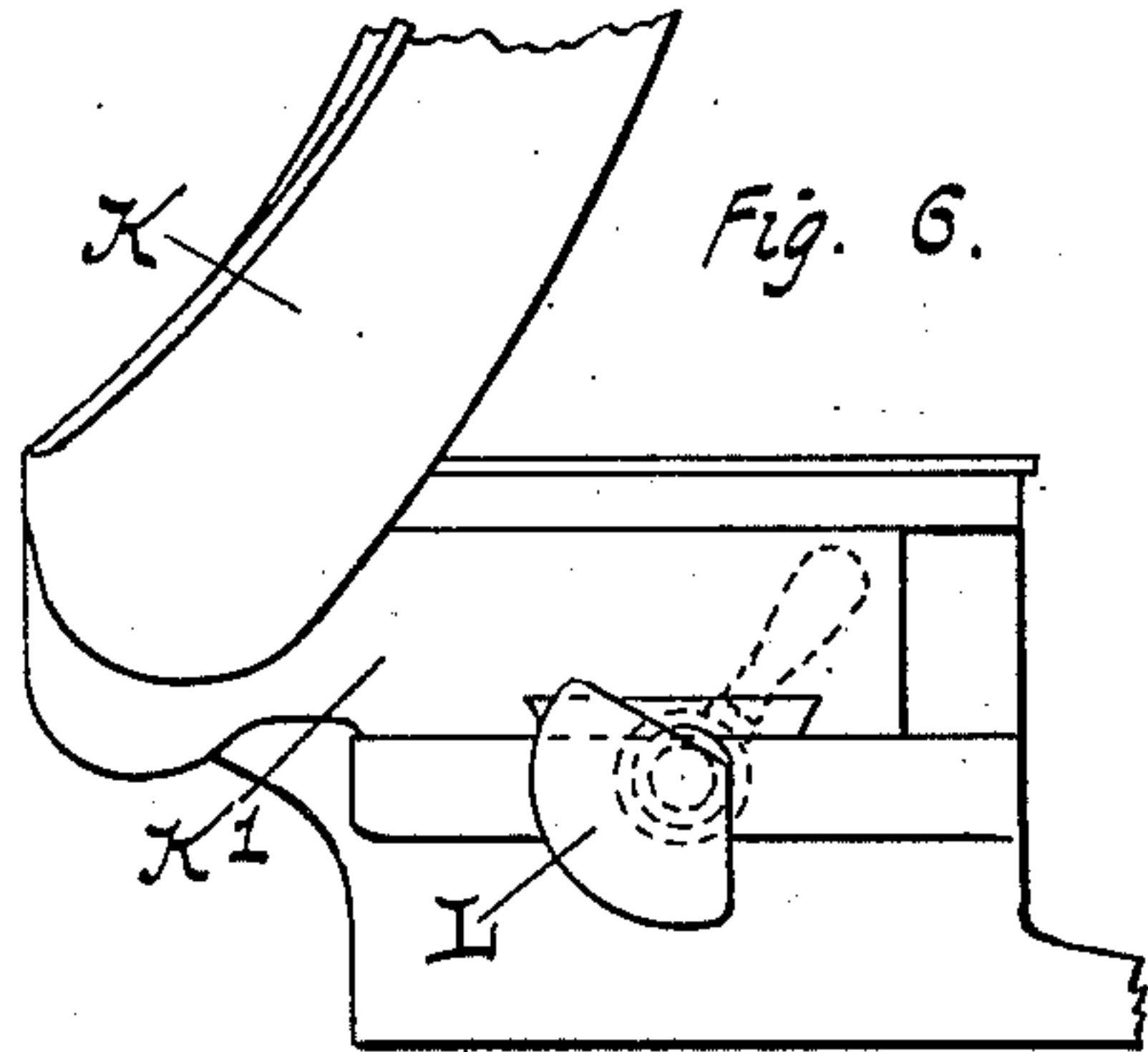


Fig. 6.

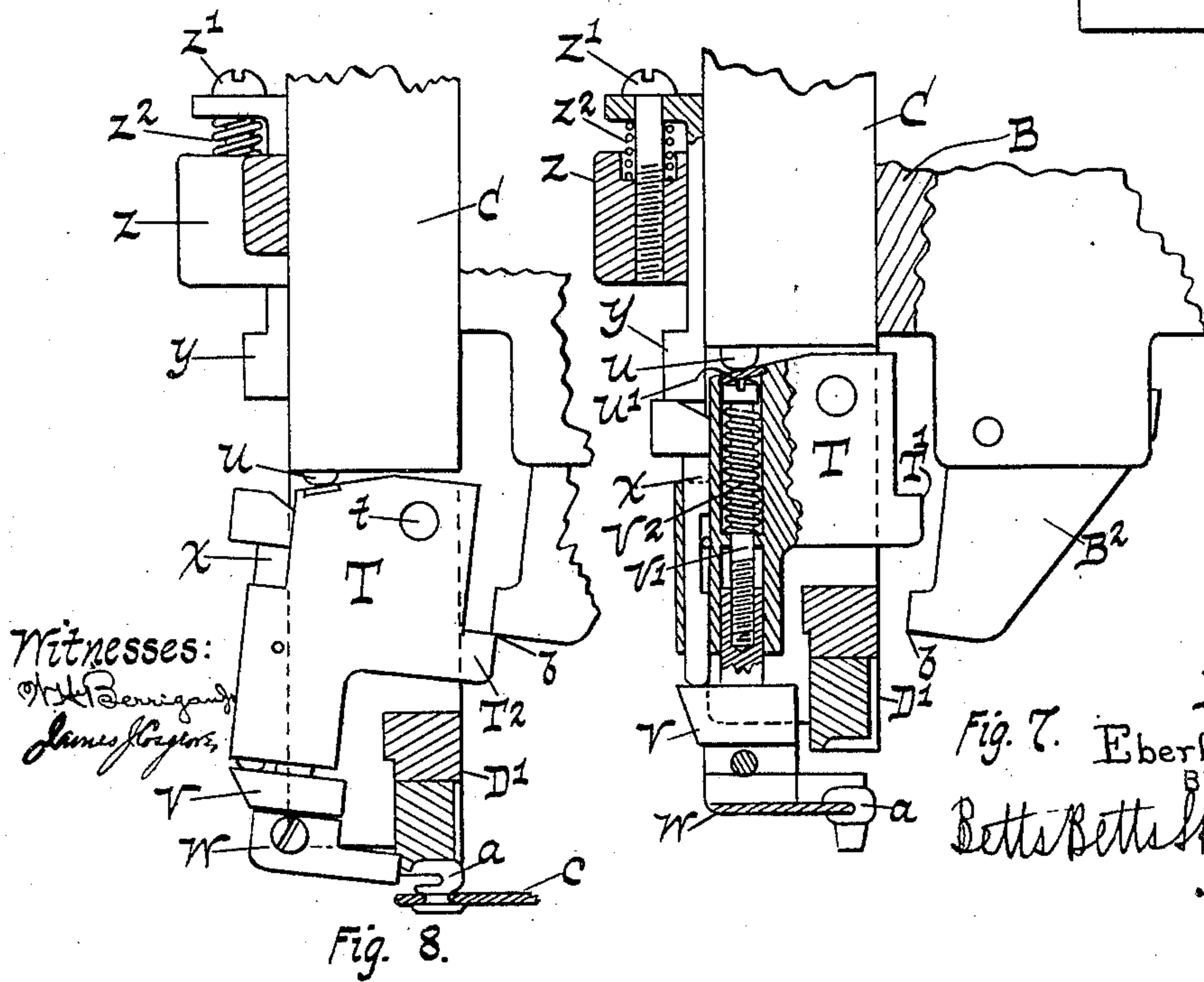


Fig. 8.

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Fig. 7. Eberhard L. Pupke,  
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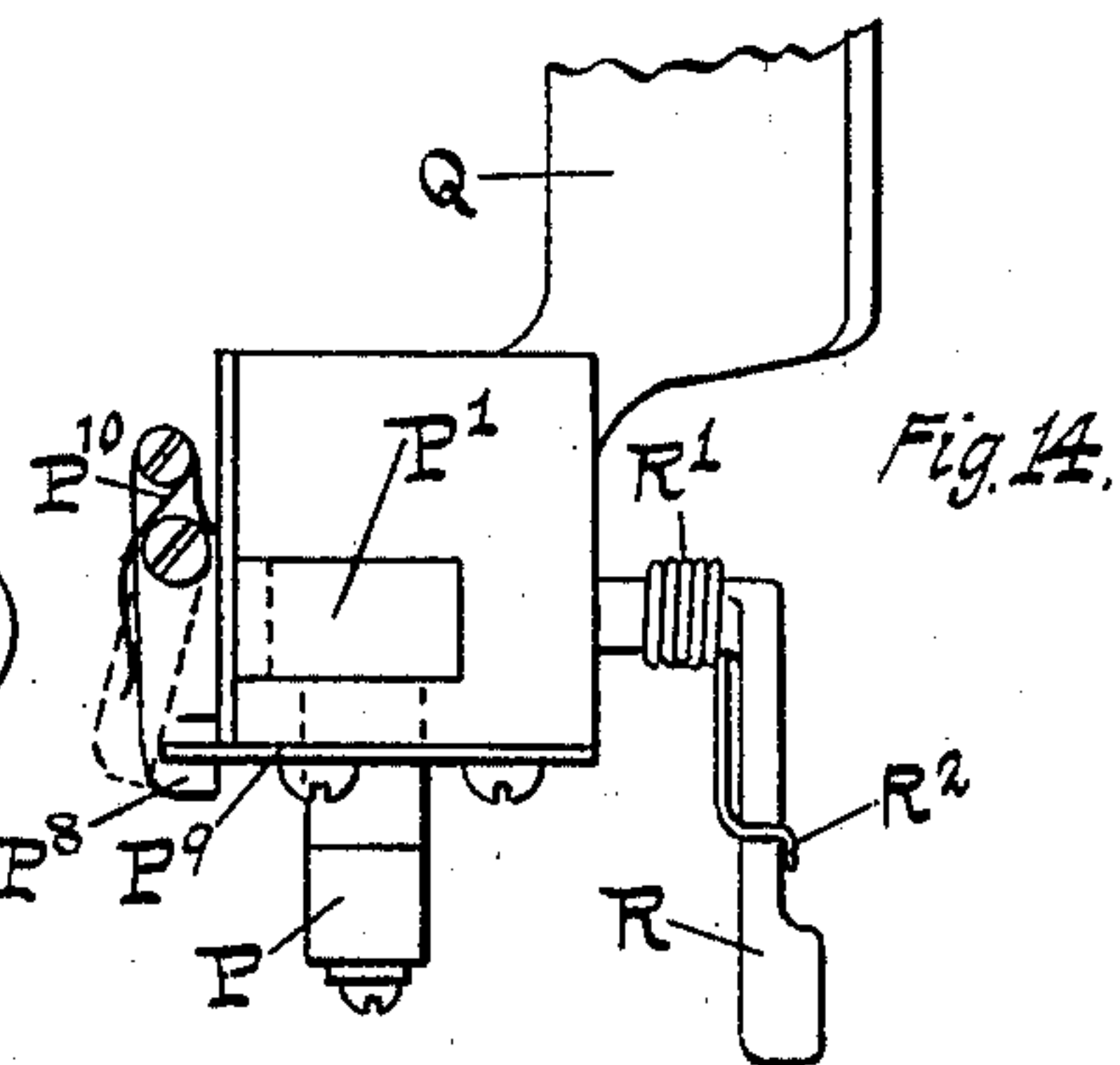
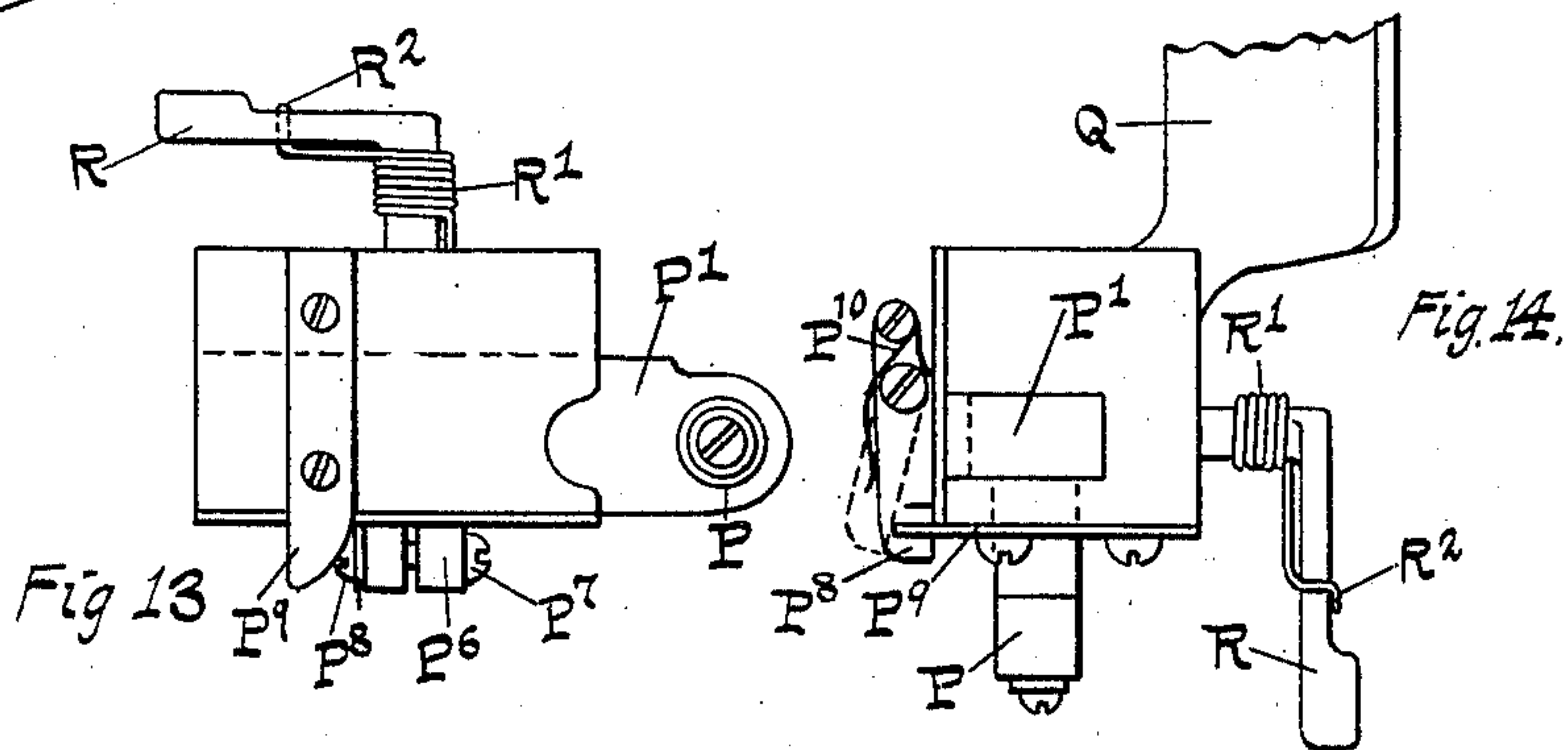
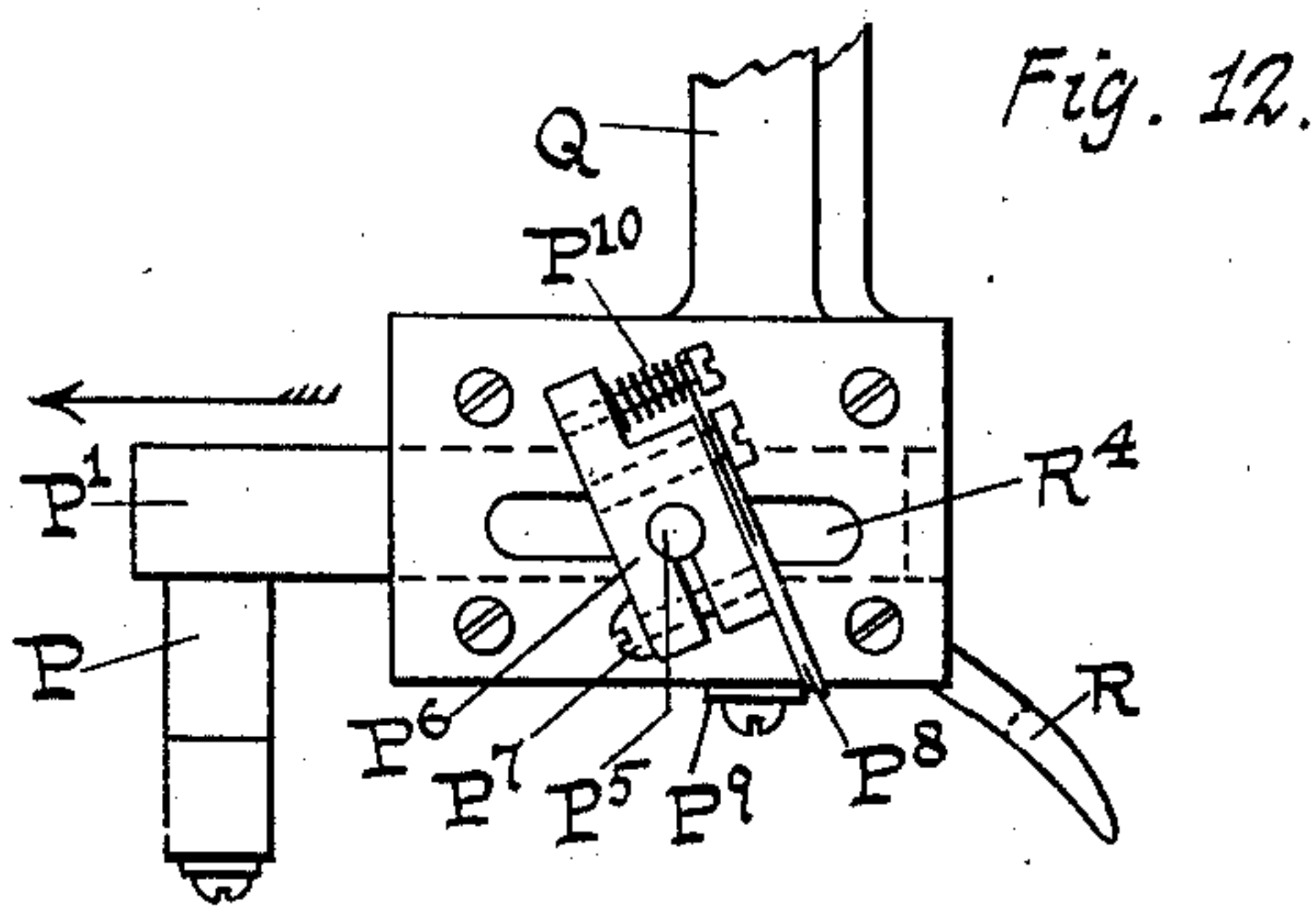
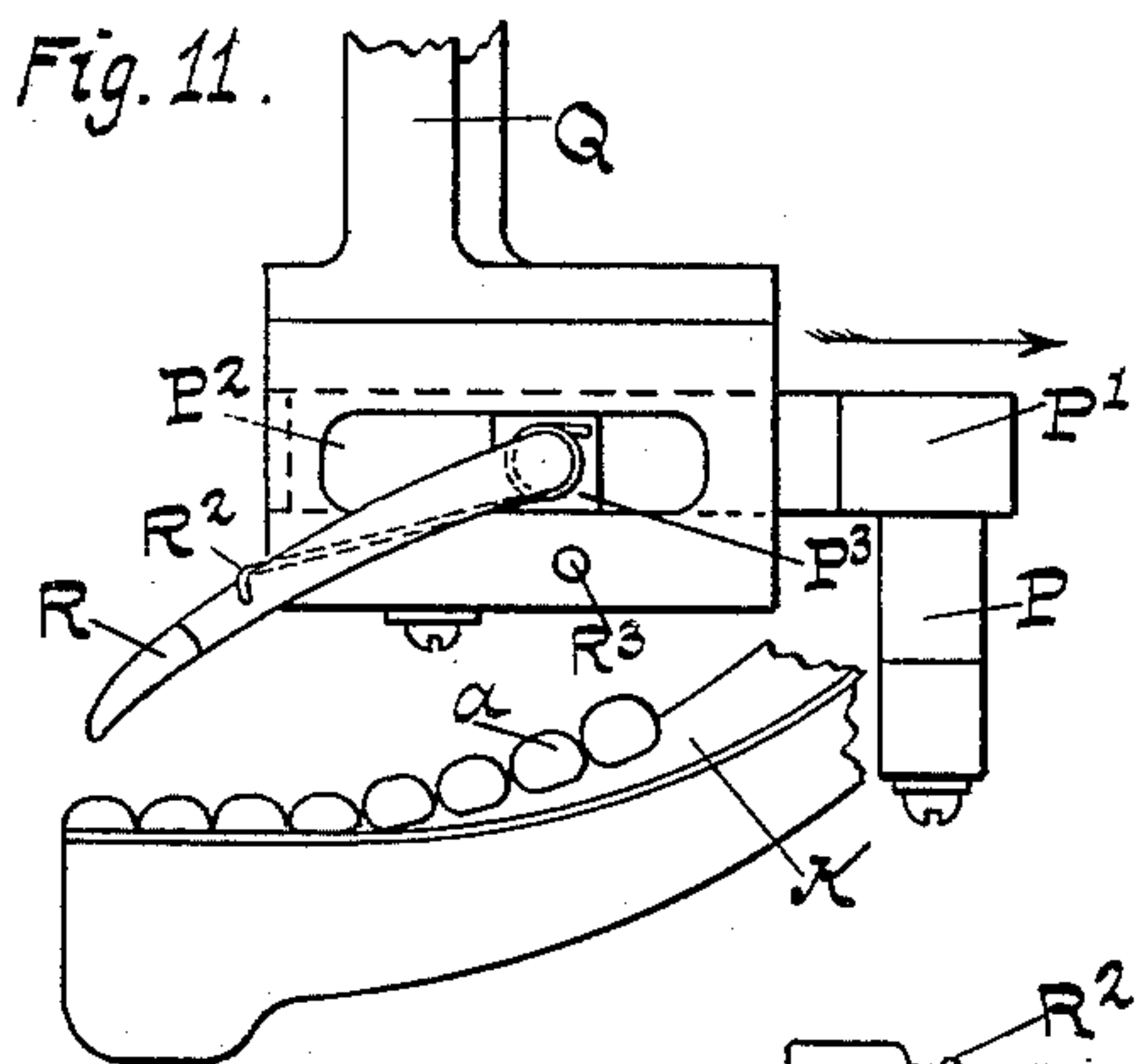
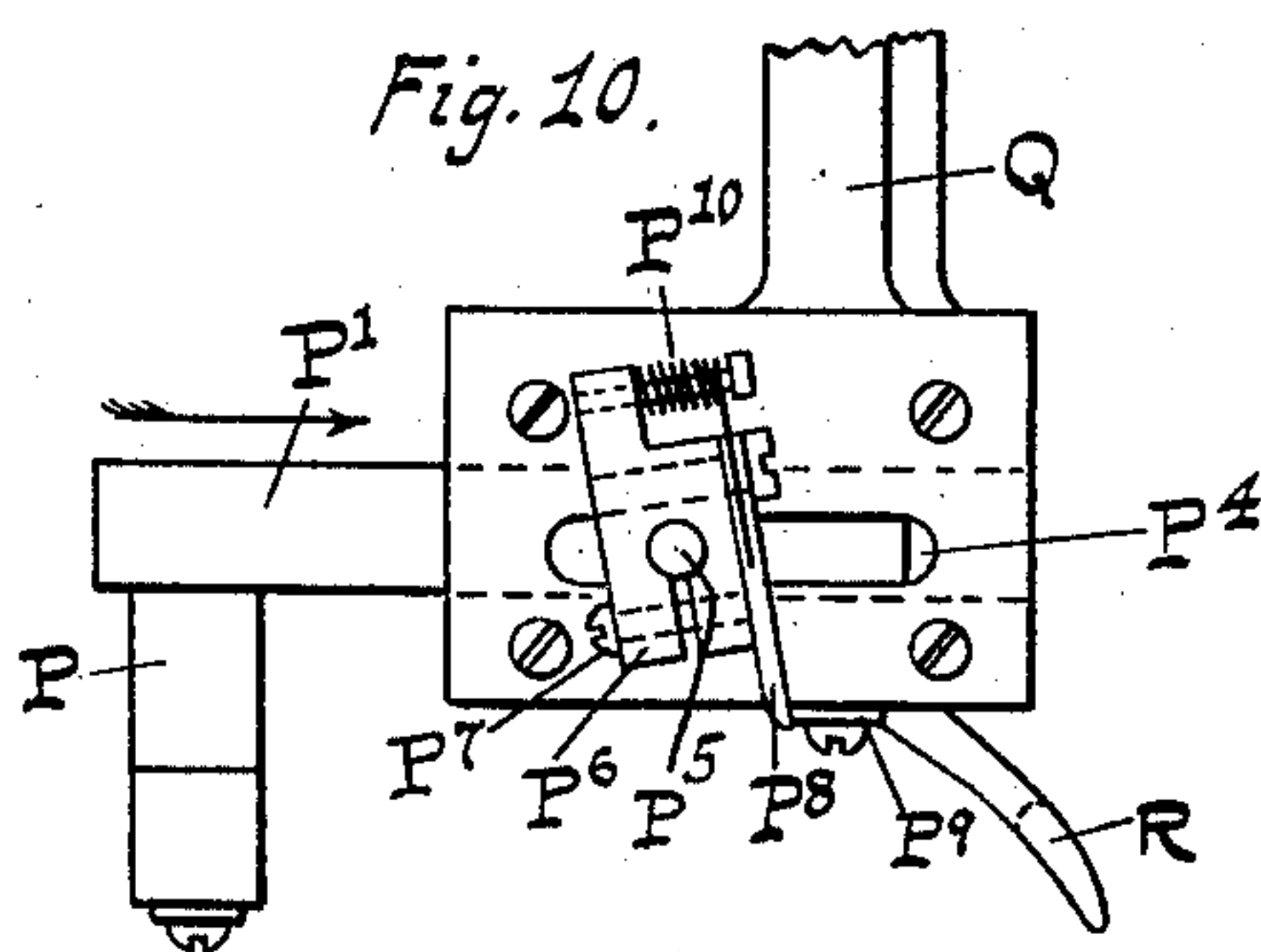
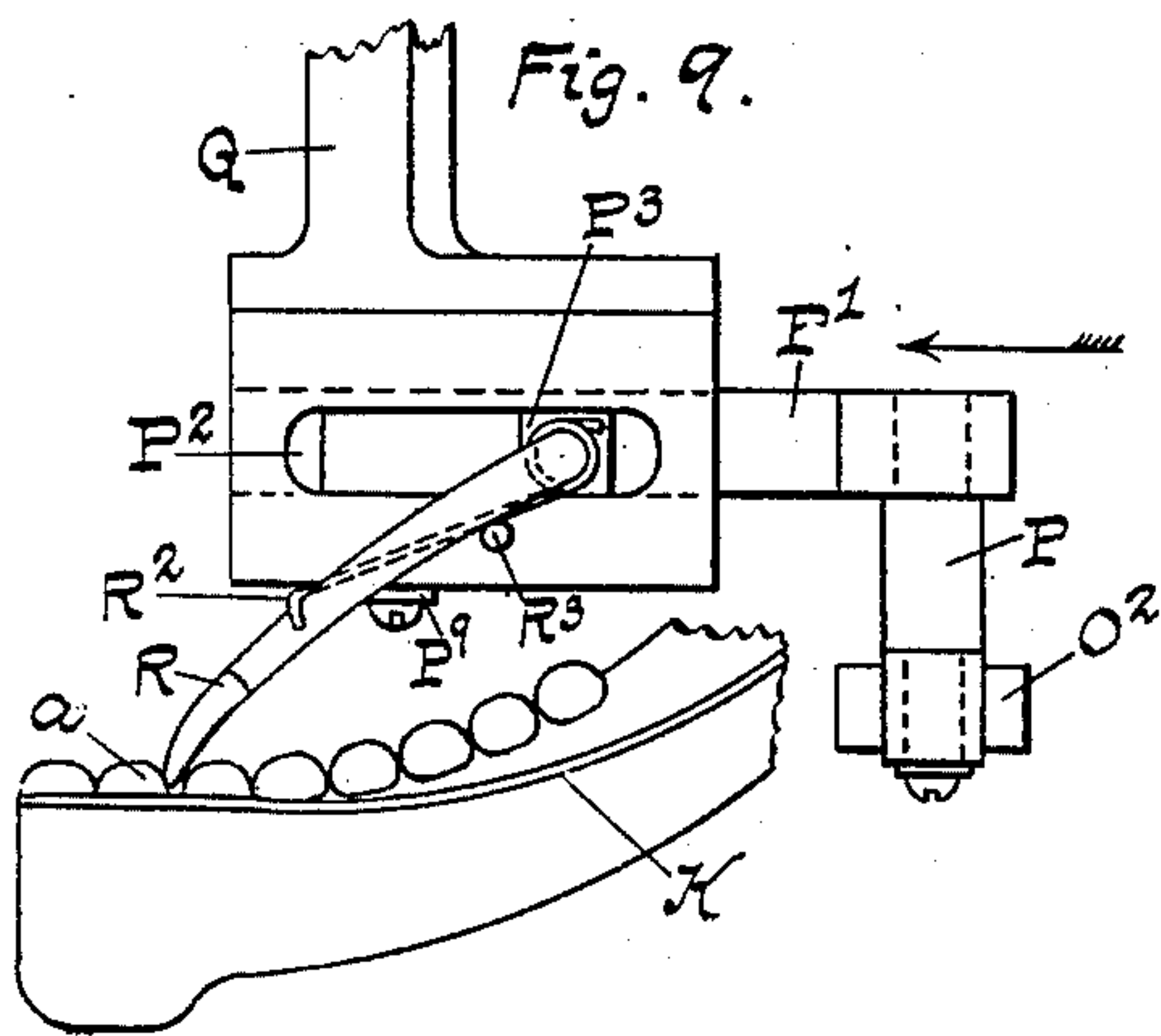
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(No Model.)

5 Sheets—Sheet 4.



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Fig. 15.

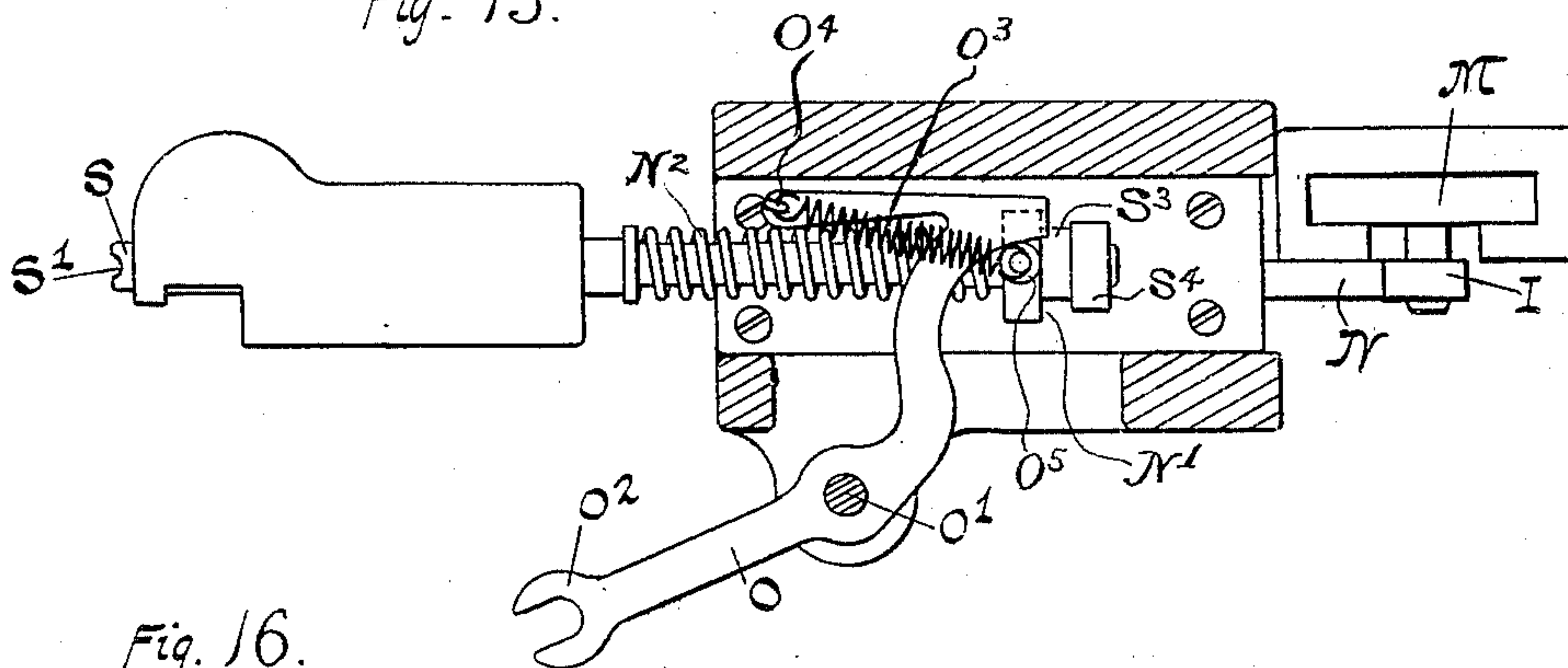
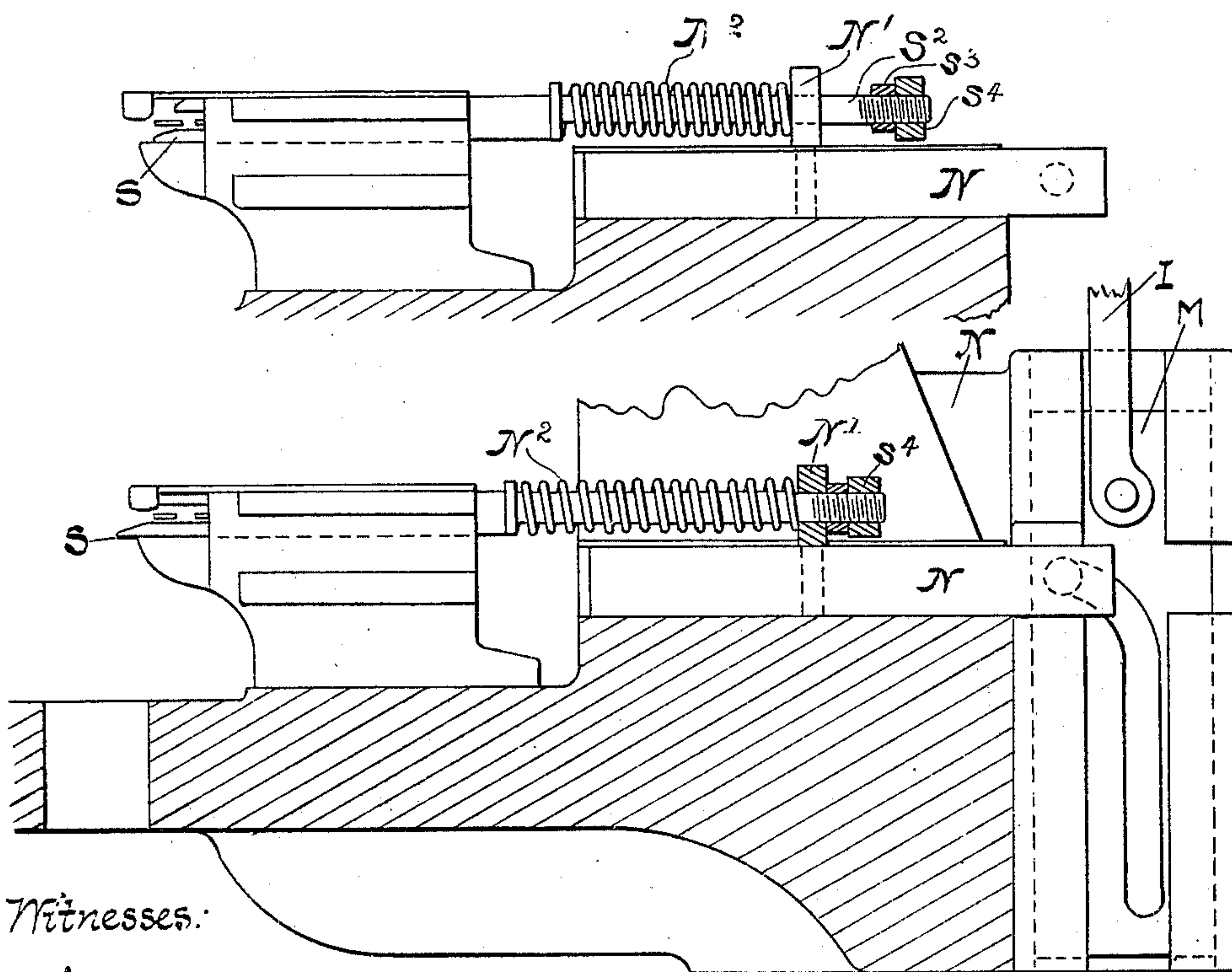


Fig. 16.



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Fig. 17.

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# UNITED STATES PATENT OFFICE.

EBERHARD L. PUPKE, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO  
THE AGATINE SHOE-HOOK AND EYELET COMPANY, OF NEWARK,  
NEW JERSEY, A CORPORATION OF NEW YORK.

## SHOE-HOOK-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,343, dated February 4, 1902.

Application filed March 30, 1901. Serial No. 53,578. (No model.)

*To all whom it may concern:*

Be it known that I, EBERHARD L. PUPKE, a citizen of the United States, residing and having a post-office address at East Orange, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Shoe-Hook-Setting Machines, of which the following is a full and true description, reference being had to the accompanying drawings, showing preferred embodiments of my improvements.

The objects of my invention are, first, to provide a shoe-hook-setting machine with a setting mechanism, a raceway for supplying hooks to be set, and a device for connecting and disconnecting the raceway; second, to provide a shoe-hook-setting machine with a simplified form of setting mechanism; third, to provide a shoe-hook-setting machine with an improved device for feeding hooks from the raceway to the setting mechanism; fourth, to provide a feeding mechanism having a device for transferring hooks from a raceway and with an improved form of pusher for pushing transferred hooks onto the setting mechanism; fifth, to provide a shoe-hook-setting machine having new and improved combinations of parts, and, sixth, to provide elastic connections for the hook-feeding and hook-transferring mechanisms, whereby misplacement of hooks will not lead to jamming of the devices or breakage thereof.

In the accompanying drawings like letters refer to like parts in the several views.

Figure 1 is a side view of a setting-machine made under my invention, the hopper and raceway being omitted. Fig. 2 is a top view of said machine, the hopper-cover and raceway being shown. Fig. 3 is a top view showing the lower end of the raceway disengaging from the feeding mechanism. Fig. 4 is a similar view showing said parts locked together. Figs. 5 and 6 are side views of the parts, positioned as in Figs. 3 and 4. Fig. 7 shows the setting mechanism with a hook in position to be set in a shoe-upper. Fig. 8 shows the hook set in the material and the setting mechanism disengaged therefrom. Figs. 9, 10, 11, 12, 13, and 14 show in various operating positions the mechanism for transferring

hooks from the raceway and the means for giving reciprocating and rotary movements to the transferring mechanism, and Figs. 15, 16, and 17 show the elastic connections between the operating-slide and the hook-transferring mechanism and between said slide and the pusher for placing transferred hooks on the setting mechanism.

I have not shown the operating connections below the work-table, illustration thereof being unnecessary. They may be of any suitable kind; but I prefer to employ power-operated connections thrown into engagement with the machine by means of a manually-controlled clutch. This enables the operator to readily control the speed and operation of the machine.

A indicates the table of the machine, and B the head, within which is situated the vertically-reciprocating press-gate or setting-plunger C. The press-gate carrying the setting mechanism at its lower ends is operated by the rocking press bar or lever D, pivoted at E and situated between the arms F of the machine-frame. The heel end of the press-bar is connected to an operating-rod G, connected to the driving connections underneath the table A. This operating-rod is provided with adjustable means, such as a turnbuckle H, to which is connected a link I for operating the mechanisms for feeding the hooks, as hereinafter described.

The hopper J, Fig. 2, is preferably rotated by means of a sleeve surrounding the upright J', and the hopper is provided with or operates means for agitating a mass of hooks and for pushing properly-arranged hooks *a* onto a raceway K, the upper end of which is pivoted to swing around the upright J' and the lower end of which is adapted to be connected with and disconnected from the hook-feeding mechanism. For this purpose the raceway is provided with an offset locking-bar K', which is locked to the feed-frame by a rotatable latch L, secured to a pin (shown dotted) provided at the opposite side of the feed-frame with a handle L' to unlock the bar K' and by a coil-spring L<sup>2</sup> (shown dotted) to retain the latch in locking position.

The object of constructing the raceway so



as to have its lower end adapted to be engaged with or disconnected from the feeding devices is to enable the hooks to be removed from the raceway when it is necessary to substitute hooks having heads of a different size, shape, or color. In this instance the lower end of the raceway is disconnected from the machine and the hooks thereon may be pushed by the hand from the raceway into a suitable receptacle, hooks of the desired color or shape being then placed within the hopper. The lower end of the raceway is then locked to the feed-frame.

My new machine is provided with improved means for feeding hooks delivered by the raceway to the setting mechanism, said feeding means comprising a bifurcated pusher operating to push hooks onto the setting mechanism and a transferring device for sliding hooks from the raceway and placing them in the bifurcated end of the pusher.

A preferred form of transferring mechanism is shown in Figs. 9, 10, 11, 12, 13, and 14, and the connections for operating the same are shown in Figs. 1 and 2.

Referring to Fig. 1, it will be seen that the lower end of link I is connected to a vertically-reciprocating sliding cam-plate M, which through intermediate means—as a cam, for instance—gives a horizontal reciprocation to a slide N, traveling in suitable ways in the frame members F and by suitable means rocking a lever O, hereinafter called the “transfer-lever,” which is pivoted upon the vertical pivot O' and which has its outer end O<sup>2</sup> forked to engage with and operate the mechanism (shown in detail in Figs. 9, 10, 11, 12, 13, and 14) for transferring hooks from the raceway K. Preferably the machine has a yielding or elastic connection of any suitable kind between the slide N and the lever O in order that the operation of the pusher, as hereinafter described, may be continued and the transferring device rendered ineffective when desired.

The preferred transferring mechanism is connected with and operated by the fork end O<sup>2</sup> of the transfer-lever, which engages a pin P, extending downwardly from a slide P', adapted to move in a crosswise direction in a suspended frame Q, offset from one side of the setting-head of the machine.

Referring to Figs. 9 to 14, it will be seen that the frame Q is provided with front and rear slots P<sup>2</sup> and P<sup>4</sup>, the former being wider and longer than slot P<sup>4</sup> in order to accommodate a closely-fitting block P<sup>3</sup> integral with the side of the slide P' or attached thereto. A pin P<sup>5</sup>, Figs. 10 and 12, passes through the block and the slide and is adapted to rock therein. At the back of the frame a block P<sup>6</sup> is clamped about the pin P<sup>5</sup>, the block being split outwardly from the center for this purpose, and a screw P<sup>7</sup>, passing through the separated parts of the block, being employed to clamp the block to the pin P<sup>5</sup> at one side, the block is provided with a blade P<sup>8</sup> or other

form of dog pivoted at its upper end, whereby the blade may swing away from the offset-frame Q. A spring p<sup>10</sup>, coiled about a pin carried by the block P<sup>6</sup>, elastically holds the blade against the frame, one end of said spring fitting in a groove in the back of the blade. A fixed blade P<sup>9</sup> or other stop is secured to the under side of the frame Q and projects outwardly therefrom. As shown in Fig. 13, it is provided with a round blunt point at one edge only. At the side of the frame Q opposite the block P<sup>6</sup> there is a finger R, secured to the pin P<sup>5</sup>. A coil-spring R' is wound upon the pin P<sup>5</sup>, and one end R<sup>2</sup> embraces and presses downwardly upon the finger R, while the other end of the spring is fitted in a recess in the block P<sup>3</sup>. Normally the finger when pressed downwardly rests upon a projecting pin R<sup>3</sup>. (See Fig. 11.)

In operation the bar P' is moved first in the direction of the arrows of Figs. 9 and 10, which show, respectively, the parts at the front and back of the frame Q. As the bar is moved the side of the blade P<sup>8</sup> presses against the rounded edge of the fixed blade P<sup>9</sup>, as shown in Fig. 13, which is a bottom view of Fig. 9, and the blade P<sup>8</sup> swings upon its pivot and passes over the edge of the fixed blade, thus permitting the bar P' to move forward without rotating the block P<sup>6</sup>. During the forward movement of the bar P' the finger R is pressed downwardly by the spring, with its tip behind the sides of the heads of the hooks a, fed down the raceway, and the spring causes the tip of the finger to follow the outside of the raceway, pushing the hook from said raceway and into position to be placed by a device hereinafter described onto the setting mechanism. Upon the return stroke of the bar P' the rear side of the blade P<sup>8</sup> (see Fig. 12) strikes against the flat side of the fixed blade P<sup>9</sup>, and as a result of the obstruction offered the block P<sup>6</sup> is rocked, giving a corresponding motion to the pin P<sup>5</sup> and to the finger R, the tip of which is swung away from the raceway. (See Fig. 11.)

By the mechanism illustrated the transferring device (finger R) closely follows the exterior of the raceway during its forward or feeding stroke and is swung entirely out of contact with the hooks on its return stroke.

Preferably the stroke of the bar P' and of the transferring device will be such as to bring the tip of the finger R when at rest in such position that it will not interfere with the hooks sliding down the raceway and also that upon the commencement of its feeding stroke the tip of the finger will take behind the second hook from the end of the raceway. In actual practice this has been found to be more satisfactory than to have the stroke of the finger shortened to take behind only one of the hooks at the end of the raceway, in view of the fact the feeding of hooks down the raceway is sometimes irregular.

The hooks transferred from the raceway, as aforesaid, are placed (in the preferred em-



bodiment of my invention) in front of a horizontally-reciprocating pusher S, Figs. 3, 4, and 5, provided at its end with a half-round recess S', into which when the pusher is in retracted position the eyelet of a transferred hook loosely fits after the hook drops from the end of the raceway. The pusher S is guided in vertical ways in the setting-frame, and the sides of the ways prevent rotation of the hook during the forward movement of the pusher. The pusher is connected, preferably by yielding connections, with the main operating-slide N. By reason of the employment of yielding connections—such as a spring, for instance—between the slide N and pusher S injury to the slide or to the setting mechanism in the event of misplacement or jamming of a hook will be prevented.

The yielding connections between the main operating-slide N and the pusher S are shown in detail in Figs. 15, 16, and 17.

As hereinbefore explained, the link I operates the cam-plate M, and with it the main operating-slide N. An eye N' projects upwardly from said slide and the rounded extension S<sup>2</sup> of the pusher S fits loosely in said eye. A spring N<sup>2</sup>, surrounding said extension, bears at its opposite ends against the eye and against the end of the pusher S. Adjusting-nuts S<sup>3</sup> and S<sup>4</sup> are screwed upon the end of the extension.

While the pusher S is feeding hooks properly and without any tendency to jam between the end of the pusher and the setting-toe, the forward movements of the slide N will be communicated to the pusher and without any compression of the spring, but if by improper feeding or other cause a hook should jam or bind the parts the spring N<sup>2</sup> would be compressed, as shown in Fig. 16. The arrangement of parts shown in the drawings thus enables the machine to operate without injury to its parts or to the hooks, if a hook should jam between the pusher and the setting-toe.

In order that the transferring mechanism R may be rendered ineffective if the hook being fed from the raceway become jammed at the end of the pusher S, or if said pusher becomes jammed I provide the devices for operating the transferring mechanism with flexible or yielding connections.

The preferred arrangement is shown in Fig. 15 of the accompanying drawings. Between the inner arm of the lever O and the ring N', hereinbefore described, I interpose a coiled spring O<sup>3</sup>, connected at one end to a ring O<sup>4</sup> on the lever-arm and at its other end to a pin O<sup>5</sup>, carried by the upper part of the ring N'.

When the main operating-slide N is drawn backward to bring the pusher S in position to receive a transferred hook, the lever O is rocked upon its pivot O' by means of the spring connection O<sup>3</sup>, and said lever is returned to position by the pin O<sup>5</sup> upon its return or forward movement.

The setting mechanism is carried by the lower end of the vertically-reciprocating press-gate or setting-plunger C, and consists of the setting-head T, Figs. 7 and 8, pivoted at t in order that the setting-head may be released from a hook after setting.

The parts are shown in setting position in Fig. 7 and are shown in releasing position in Fig. 8.

U is a spring-bolt to hold the setting-head T in normal position. As shown, it bears against a plate U', which closes the top of a vertical opening through the setting-head.

V is a head extension fitted to move to and from the setting-head by means of an upwardly-extending projection movable in the vertical opening aforesaid, wherein it is held by a screw V', Fig. 7, and a surrounding spring V<sup>2</sup>. The tension of the spring may be adjusted by means of the screw V, the plate U' being removed for this purpose.

A setting-toe W, having its end conform to the shape of the jaws of the hook-head, is secured to the head extension V. When the parts of the setting mechanism are in normal position, as shown in Fig. 7, the pusher S, hereinbefore described, pushes a hook *a* onto the setting-toe, ready to be set in the shoe-upper or other article. In said normal position the head extension V is pressed away from the setting-head T by means of a bolt X, passing downwardly through a longitudinal opening in the head T near its front. The lower end of said bolt bears against the extension V and the upper end thereof bears against a yielding-mounted plate Y, secured to the front of the frame Z by means of an adjusting-screw Z' and coil-spring Z<sup>2</sup> surrounding the same.

D' illustrates a reinforcing and stripping block secured to the bottom of the press-gate C at the rear thereof. A recess is formed in the bottom of said block conforming in shape to the exterior of the head of a shoe-hook. In the normal position of the parts the hook *a* is fitted upon setting-toe W a slight distance from the block D'.

B<sup>2</sup> indicates a latch or dog pivoted to swing away from the setting-head T during its downward stroke. It is provided with a forward projection *b* to cooperate, as hereinafter described, with a projection T', extending rearwardly from the setting-head.

The operation of the setting mechanism is as follows: A hook *a* having been placed upon the setting-toe, as shown in Fig. 7, the machine is put in motion. The press-gate C moves downwardly, moving with it the setting-head. During the downward movement the spring V<sup>2</sup> draws the head extension V toward the setting-head until the the top of bolt X and bottom of plate Y are out of contact, which will occur as soon as the head of hook *a* is clamped between the setting-toe and the reinforcing-block D'. The downward movement of the press-gate continues until the eyelet of the hook *a* has pierced the shoe-upper



c and clenched therein. The projection T' of the setting-head during the downward stroke moves the latch or dog B<sup>2</sup> about its pivot. Said latch or dog after the projection T' passes it returns to its normal position in readiness to intercept the setting-head upon its return. The hook having been set and clenched in the upper c, the press-gate is moved upwardly. This movement acts to release the hook. As the press-gate is returned the projection b of the latch intercepts the projection T' of the setting-head, causing the setting-head to rock about its pivot t, as shown in Fig. 8, drawing the setting-toe W from between the jaws of the hook a, the head of which is held by the reinforcing-block D'. The rocking of the setting-head forces the spring-bolt U into the press-gate, and when the setting-head has passed the latch the spring-bolt will throw the setting-head to normal position. The completion of the stroke causes the bolt X to be pushed down and the setting-toe and reinforcing-block D' to be separated, as in Fig. 7.

While I have herein shown and described a simple and practical shoe-hook-setting machine which embodies in preferred forms the several improvements made by me, yet I do not desire to be understood as limiting my claims to such machine or forms, as obviously modifications thereof will readily suggest themselves to persons skilled in the manufacture of setting-machines and still be within my invention.

What I claim is—

1. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a raceway, for bringing hooks to the feeding mechanism, pivoted at its upper end to permit its lower end to be moved out of engagement with the feeding mechanism, whereby the hooks contained on the raceway may be removed, and a fastening device, for securing the lower end of the raceway to the base of the machine, substantially as described.
2. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a raceway, for bringing hooks to the feeding mechanism, pivoted at its upper end to permit its lower end to be moved out of engagement with the feeding mechanism, whereby the hooks contained on the raceway may be removed, a projection, carried by one of said parts and fitting a recess of the other when the raceway is brought into engagement with the base of the machine, and a fastening device for holding the parts together, substantially as described.

3. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a hopper, a raceway, for bringing hooks to the feeding mechanism, pivoted to swing about the axis of the hopper, to bring its lower end out of engagement with the feeding mechanism, whereby the hooks contained on the raceway may be removed; and a fastening device, carried by one of said parts, for securing the lower end of the raceway to the base of the machine, substantially as and for the purpose described.

4. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a raceway, for bringing hooks to the feeding mechanism, having its lower end movable, to disengage it from the feeding mechanism, whereby the hooks contained on the raceway may be removed; and a fastening device, for securing the lower end of the raceway to the base of the machine, substantially as and for the purpose described.

5. In a shoe-hook-setting machine, a raceway, for supplying hooks, a setting mechanism, and a mechanism for feeding hooks from the raceway to the setting mechanism, said feeding mechanism having a reciprocatory bar arranged at an angle to the setting mechanism, carrying a finger pivoted at the side of the reciprocatory bar, and a spring for pressing the finger against the raceway during the feeding stroke, in combination with means for reciprocating the bar, and with a fixed stop for swinging the finger away from the raceway during the return stroke, substantially as described.

6. In a shoe-hook-setting machine, a raceway, for supplying hooks, a setting mechanism, and a mechanism for feeding hooks from the raceway to the setting mechanism, said feeding mechanism having a reciprocatory bar arranged at an angle to the setting mechanism, carrying a finger secured upon a pivotal pin which passes through the reciprocatory bar; a spring-pressed stop secured to the pivotal pin at the side of the bar opposite the finger; a fixed stop in the path of the above-named stop; a spring for pressing the finger against the raceway during the feeding stroke of the bar; and means for reciprocating the bar.

In witness whereof I have hereunto signed my name this 28th day of March, 1901.

EBERHARD L. PUPKE.

In presence of—

JAMES J. COSGROVE,

WM. H. BERRIGAN, Jr.