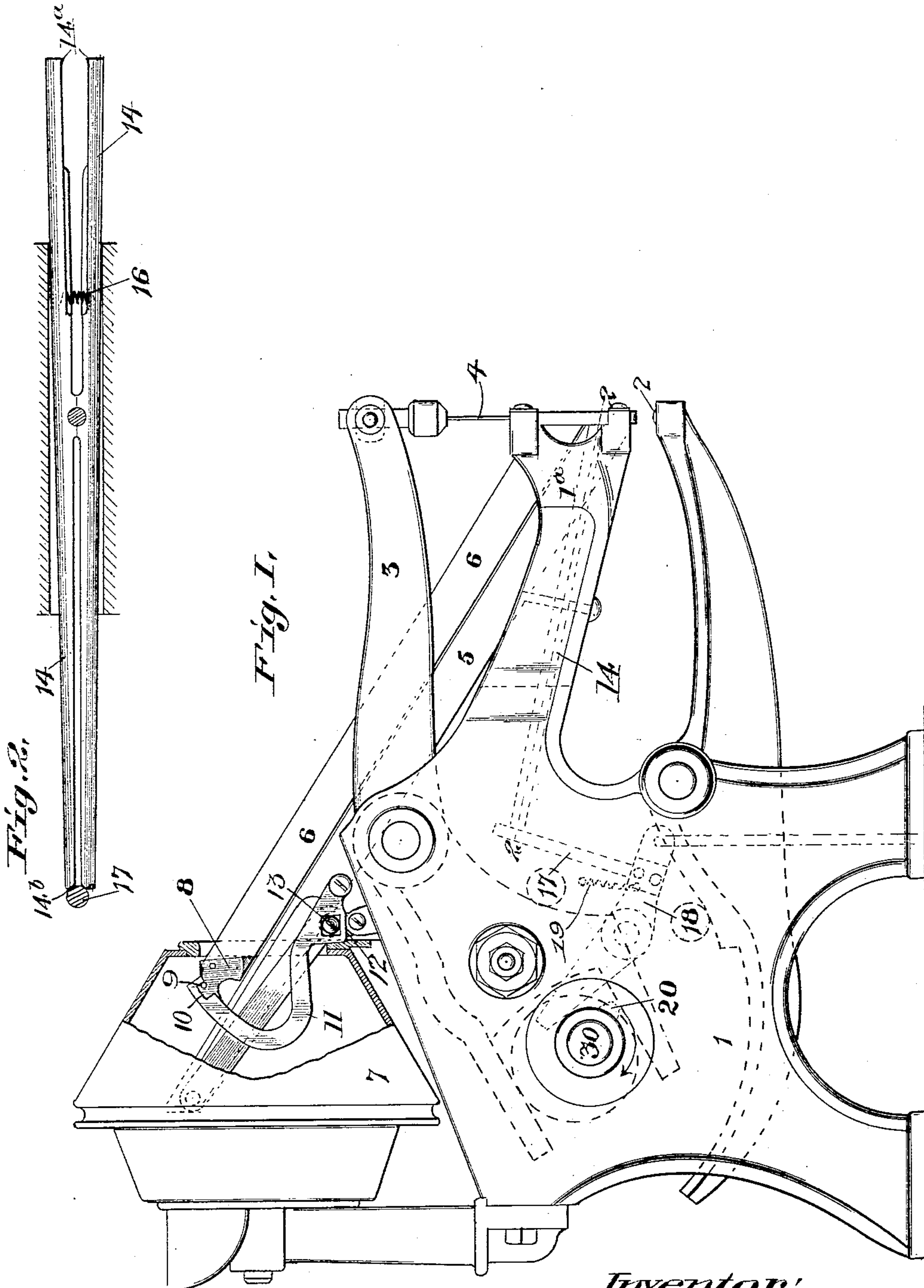


PATENTED FEB. 9, 1904.

3 SHEETS—SHEET 1.

NO MODEL,



Inventor;
A. D. Thomas, by
Carr & Carr Attys.

No. 751,700.

PATENTED FEB. 9, 1904.

A. D. THOMAS.
STAPLE SETTING MACHINE.

APPLICATION FILED FEB. 8, 1900.

NO MODEL.

3 SHEETS—SHEET 2.

Fig. 3.

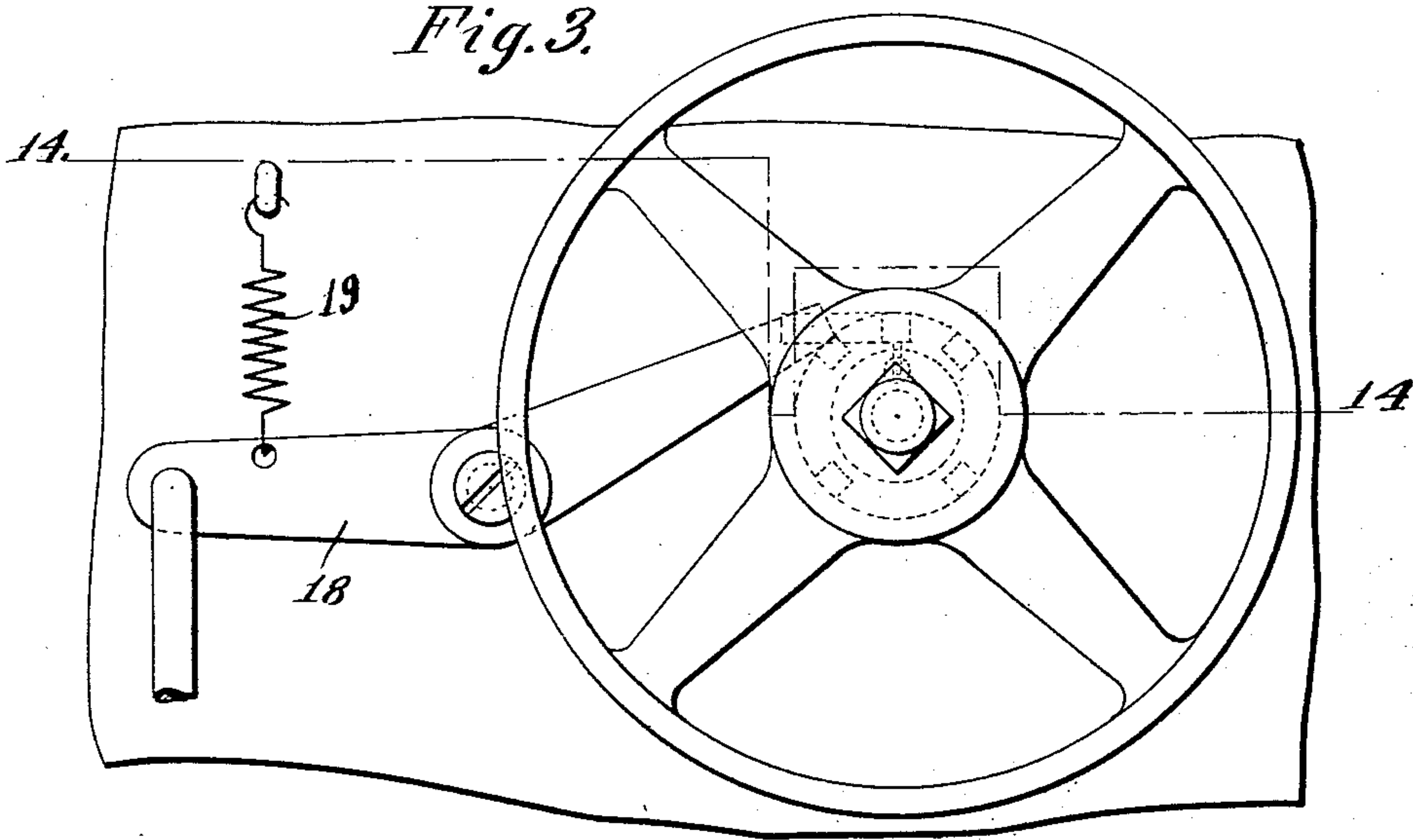


Fig. 14.

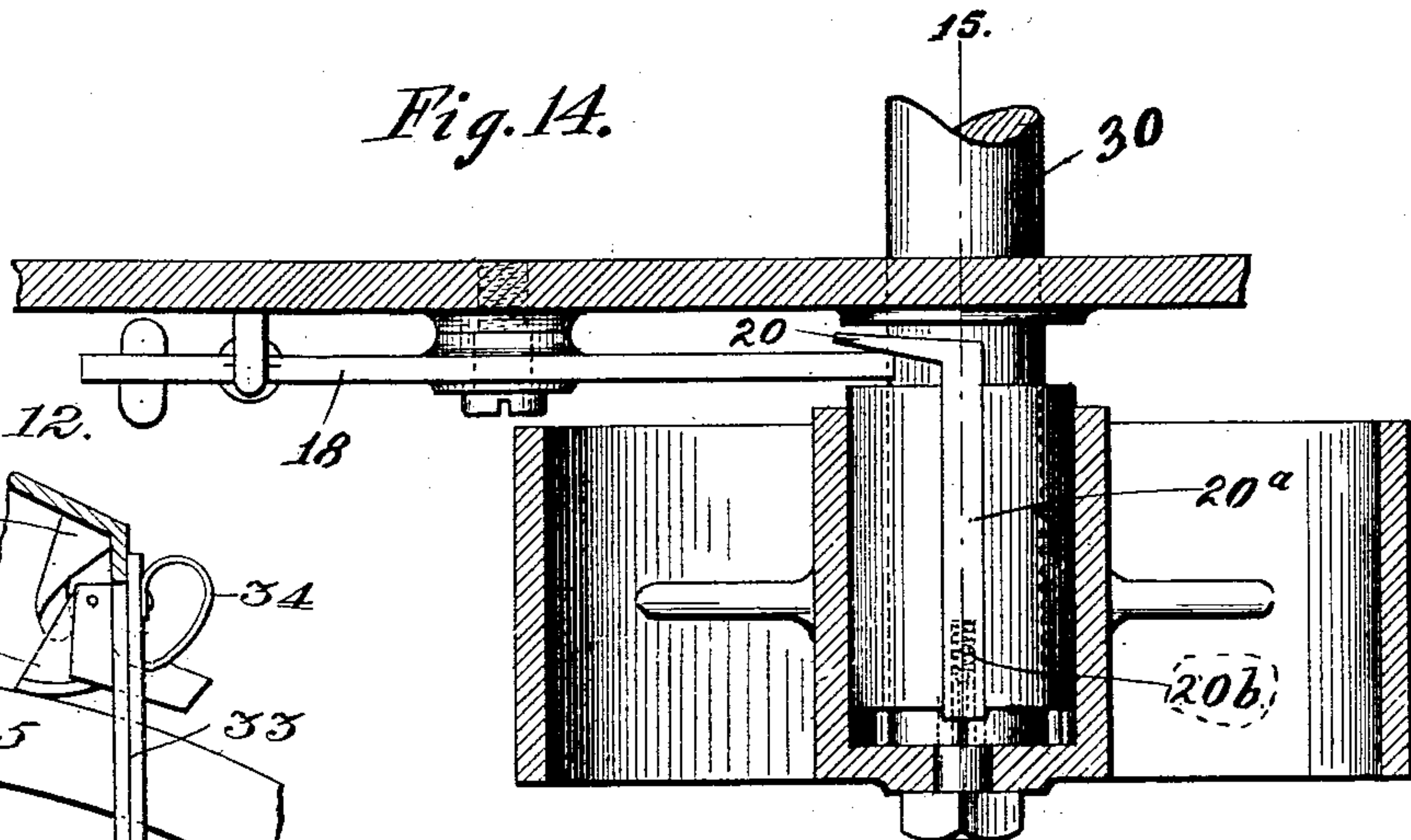


Fig. 12.

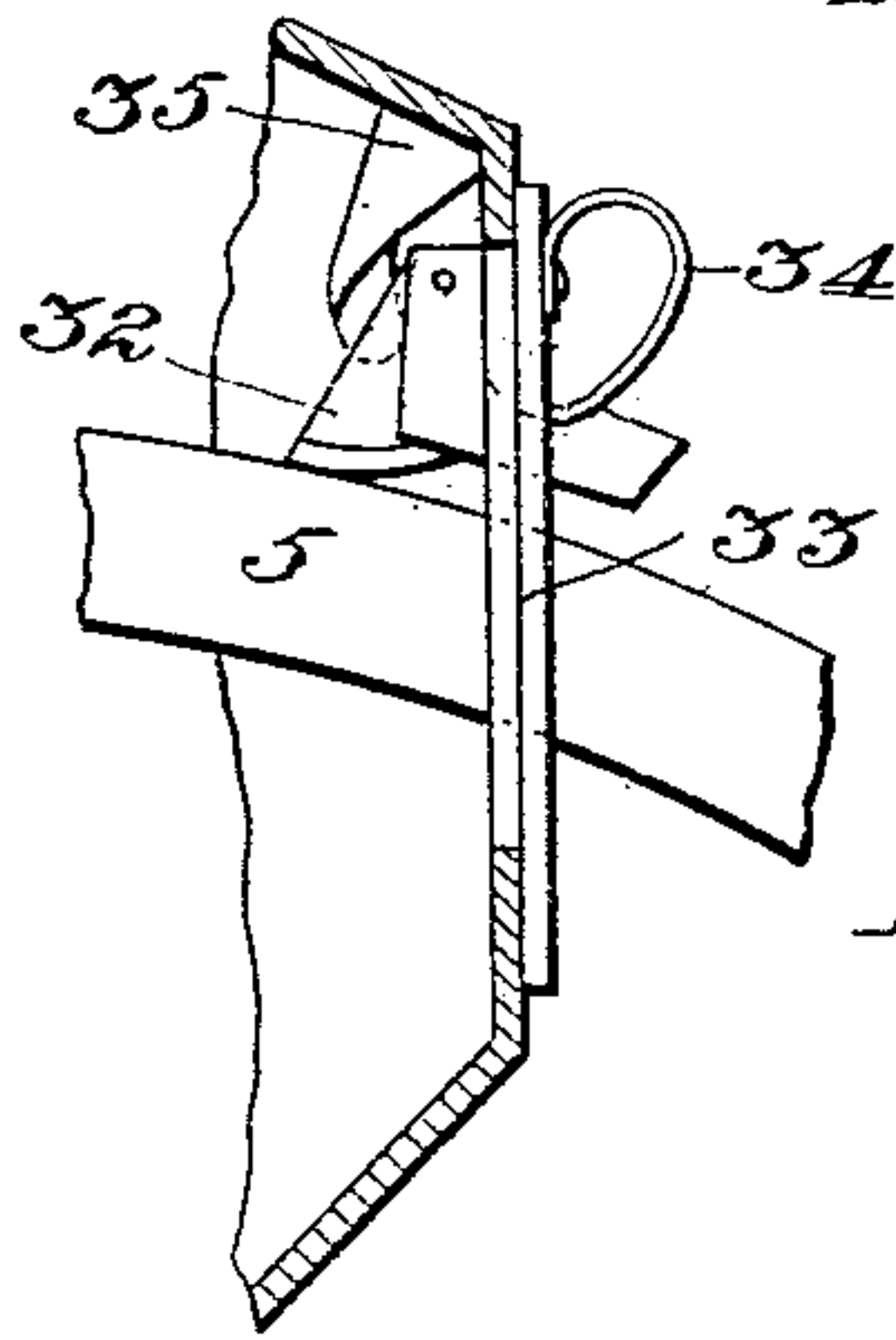
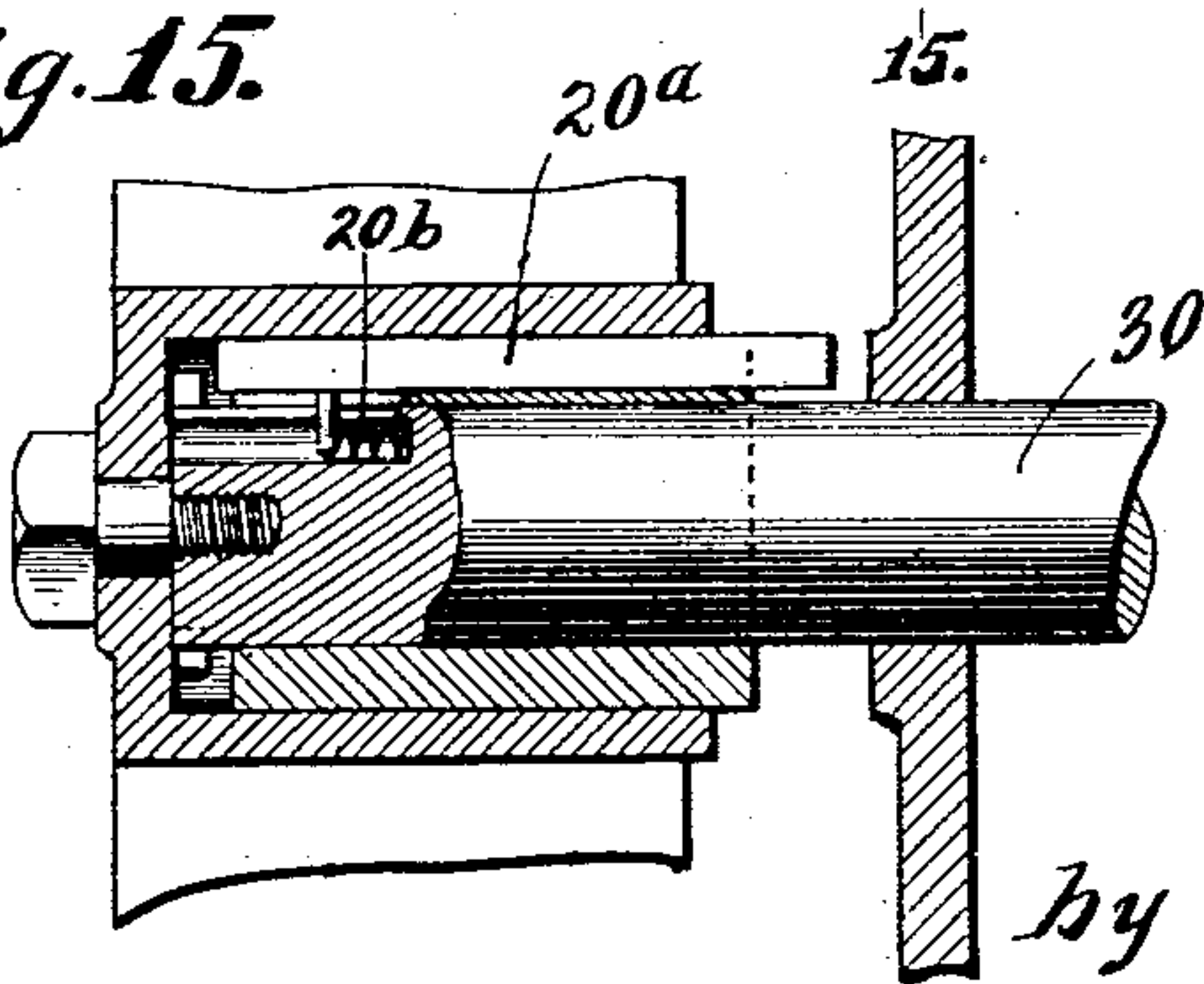


Fig. 15.



Attest:
Edw. L. Dillon
For F. Reimer.

Inventor:
A. D. Thomas,
by Carr & Carr,
Att'ys.

No. 751,700.

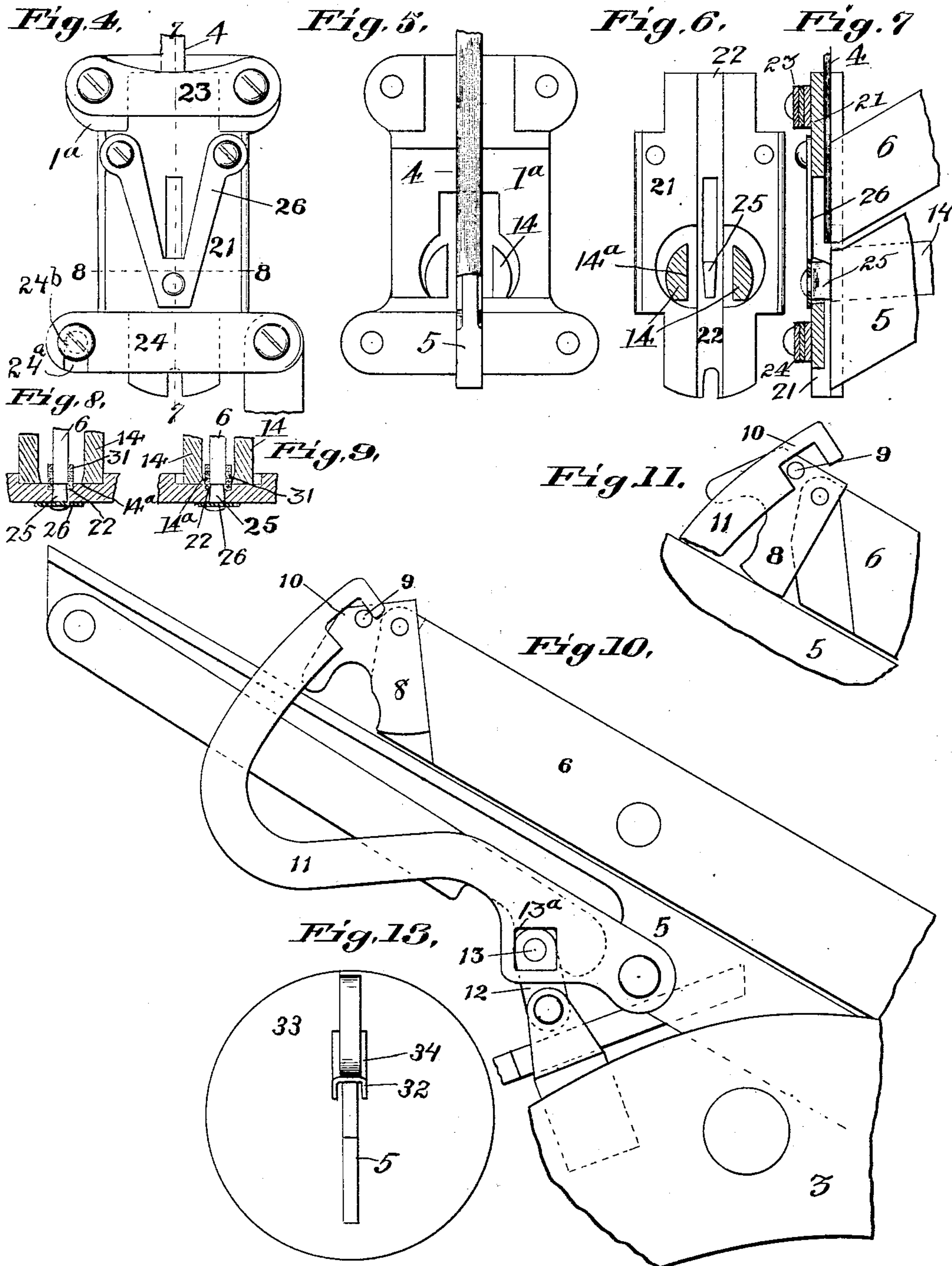
PATENTED FEB. 9, 1904.

A. D. THOMAS.
STAPLE SETTING MACHINE.

APPLICATION FILED FEB. 8, 1900.

NO MODEL.

3 SHEETS—SHEET 3.



Attest:
Clinton Kimball
William L. Gabel.

Inventor:
A. D. Thomas, by
Carr & Carr, Attys.

UNITED STATES PATENT OFFICE.

ALBERT D. THOMAS, OF KEOKUK, IOWA, ASSIGNOR TO THE UNION STAPLE SEAM RE-ENFORCING COMPANY, A CORPORATION OF MISSOURI.

STAPLE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 751,700, dated February 9, 1904.

Application filed February 8, 1900. Serial No. 4,573. (No model.)

To all whom it may concern:

Be it known that I, ALBERT D. THOMAS, a citizen of the United States, and a resident of Keokuk, State of Iowa, have invented a new and useful Staple-Setting Machine, of which the following is a specification.

My invention relates to staple-setting machines; and it consists in certain improvements hereinafter described and claimed upon the machine described in Letters Patent No. 634,676, dated October 10, 1899.

These improvements consist principally in a quick-moving device for striking and repelling all staples on the slide that are not in proper position, in a feed-gate operated independently of the driving mechanism, in a device for insuring the feed of only one staple at a time, and in details hereinafter claimed.

In the accompanying drawings, which form part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a side view of a machine with the hopper broken away to show the "kicker" mechanism and with the feed-gate mechanism shown in dotted lines. Fig. 2 is a detail of the feed-gate levers on the line 2 2 of Fig. 1. Fig. 3 is a detail view of the driving-pulley and the clutch-dog. Fig. 4 is an end view of the overhanging arm with the face-plate in position, and Fig. 5 is a like view with said face-plate removed. Fig. 6 is a view of the inner face of the face-plate with the feed-gate arms shown in section. Fig. 7 is a transverse section on the line 7 7 of Fig. 4; and Figs. 8 and 9 are horizontal detail sections on the line 8 8 of Fig. 4, showing the feed-gate levers open and closed, respectively. Figs. 10 and 11 are detail views of the kicker mechanism. Figs. 12 and 13 are detail views of a modified form of kicker. Figs. 14 and 15 are detail views of the clutch between the main shaft and the driving-pulley.

The present machine comprises a frame 1, having an arm 1^a overhanging an anvil 2, a plunger-actuating lever 3, a staple-driving plunger 4, guided to move vertically in the overhanging arm, an inclined feed-slide 5 for the staples mounted on the frame and termi-

nating a suitable distance above the anvil, a guard rail or bar 6 close above the slide, a rotary hopper 7, surrounding the upper end of the slide 5, and other elements more fully described in Letters Patent No. 634,676, dated October 10, 1899.

Upon the guard-rail 6, near its end, is mounted a kicker, consisting of a piece 8, straddling the end of the guard-rail 6 and pivoted near the top edge thereof. The lower edge of this piece on each side of the guard-rail is a curve, designed to swing out just clear of all staples on the slide just below the end of the guard-rail and of all staples in proper position on the feed-slide just above the end of the guard-rail. The lower curve should be of sufficient length to prevent the staples from rising after the front edge has passed. The piece 8 may be counterweighted on the side beyond the upper end of the guard-rail, so as to rest against shoulders formed therefor on said guard-rail.

In order to give a quick action to the kicker, a lug 9 is formed thereon on the same side with the counterweight, and this lug rests in an elongated slot 10 in the end of a lever 11, fulcrumed in the frame. A short link 12, connected to the plunger-driving lever, has a lost-motion connection 13 to the lever near its fulcrum. This connection is made by a pin 13^a on the link 12 extending through a hole 13^b in the lever 11, the diameter of the hole being greater than that of the pin. By this arrangement the end of the slot 10 in the lever 11 strikes a lug 9 on the kicker with a rapid blow and imparts a snap or trigger action to the kicker. The effect of this sudden action of the kicker is to forcibly knock back any staples which may not be in proper position on the slide, whereby such staples are untangled and separated, so as to slide down again in proper position, or they are knocked off of the slide entirely.

In my former machine the weight of the staples on the feed-slide tended to push the undermost staple into the feed-chute (as soon as the driving-plunger was elevated above said endmost staple) and the spring-pressed face-plate was arranged to prevent more than one staple getting into the chute at each operation

of the driving-plunger. The operation of the present machine is similar to the former machine, with the additional safeguard of a gate under the control of the operator for cutting
5 off the supply of staples independently of the driving mechanism.

As shown in the drawings, the cut-off gate consists of a pair of levers 14, pivotally mounted in the overhanging arm and arranged to lie,
10 respectively, one on each side of the end of the feed-slide 5 and to terminate about flush with the end of the feed-slide. The forward ends of said levers 14 are swaged slightly, producing inwardly-projecting edges 14^a the better to grip and hold the endmost staple remaining after a staple has been pushed into the groove 22. A compression-spring 16 is
15 countersunk in adjacent faces of said levers 14 between the fulcrum and the gate end thereof, so as to keep said levers normally spread apart. The other ends 14^b of said levers are beveled on their inner meeting faces to admit of the wedging of an arm 17 between them. This
20 arm is mounted on or actuated by a lever 18, which is connected to and operated by a treadle (not shown) or other suitable device at the will of the operator. This lever is retracted to its normal position by means of a strong spring 19. The tailpiece of said lever 18 rests
25 upon the shaft 30 during the rotation of the shaft and in the path of a cam-hook 20, mounted on the sliding member 20^a of an automatic clutch which connects the shaft to the driving-pulley. When the cam-hook comes in contact
30 with the lever 18, it rides upon it and is moved longitudinally, carrying with it the member of the clutch to which it is attached, and thus disconnects the shaft from the driving-pulley. When this dog is raised by means of a
35 treadle, the spring 20^b of the automatic clutch forces the sliding member on the main shaft into engagement with the member fixed on the pulley, and the main shaft is thus set in motion to actuate the machine. As soon as
40 the treadle is allowed to return to its normal position the dog is retracted to a position in the path of the beveled cam-hook, whereby said hook bears against said dog and, together with the clutch member to which it belongs,
45 is borne endwise of the shaft to disengage the clutch and stop the machine. This construction thus constitutes a stopping device for stopping the mechanism which actuates the machine. During the operation of the machine the arms 14, constituting the feed-gate,
50 clamp the endmost staples on the slide firmly in place, so that none of them can pass into the feed-groove until the operator releases the treadle.

60 Opposite the lower end of the feed-slide is a face-plate 21, which has a socket formed in its inner face to allow it to fit over the ends of the feed-slide 5, guard-rail 6, and gate-levers 14. A vertical groove 22 is formed in
65 this face-plate deeper than said socket and

opposite the feed-slide, so as to constitute a chute for the staples 31 and a guide-channel for the plunger 4. The face-plate 21 is held normally against the ends of the levers 14, so that the groove 22 in its face constitutes an
70 open channel for the endmost staple 31 to drop into. A thin resilient plate or series of thin plates 23, constituting together a strong spring of great resiliency, is arranged to bear against the upper part of the face-plate 21, and another thin resilient plate or plurality of thin
75 plates 24 is arranged to bear against its lower part. The thin flat springs are preferably slotted in the lower edge, as shown at 24^a, Fig. 4, to hook over the fastening bolt or
80 screws 24^b, so that any one or more of said springs 24 may be removed from operative position merely by turning it up, whereby the pressure on the face-plate 21 may be regulated at will. At a point slightly below the top
85 edge of the slide 5 there is a slight projection 25, extending into the feed-chute, intended to arrest the descent of the staple therein until it is forced down by the plunger. This projection is preferably movable independently
90 of the face-plate 21, and for this purpose it is mounted upon a spring 26, fastened on the outer face of the face-plate and projects through a hole therein.

My invention admits of considerable modification, and I do not wish to be limited to the details hereinbefore described. For instance, the device for striking tangled staples a sharp blow toward the upper end of the slide admits of very considerable variation, as illustrated in Figs. 12 and 13. The device shown in these figures consists of a bevel-cam 32, pivotally mounted on a piece 33, fastened to the framework, said cam 32 being pressed forwardly by a spring 34 into the path of a projection 35, arranged on the rotating hopper 7 to cooperate therewith. The lower edge of the cam is curved to just clear staples properly straddling the feed-slide. The action of this device is for the projection on the hopper to bear the cam-piece aside against the action of the spring and then to release it suddenly, whereby the spring imparts a quick sudden motion thereto to strike the wrong-positioned staples. Obviously various other
115 devices can be used for imparting such quick snap action to the kicker.

It is obvious that my new cut-off gate may be arranged to be actuated by hand or by the driving-plunger. So, too, it is not essential
120 that there should be an automatic clutch in the driving-shaft; but such clutch is generally important in order to stop the machine and prevent the unnecessary wearing off of the japan incident to the agitation of the staples.

125 It is obvious that the devices for opening and closing the cut-off gate may be varied considerably. It is also obvious that such feed-gate may be automatically operated by the actuating mechanism and that the automatic
130

clutch may be used or not without materially changing such gate; but I consider it an important feature of my invention that the cut-off gate (of whatever construction it may be) should be under the positive control of the operator without regard to the actuating mechanism.

What I claim is—

1. A staple-setting machine comprising a feed-slide, a piece pivoted above the same and having its lower edge curved to clear said slide, intermittently-acting mechanism for actuating a staple-driving plunger, and lost-motion connecting devices for operatively connecting said pivoted piece to said mechanism, whereby said piece is intermittently swung with a quick movement, substantially as described.

2. A staple-setting machine comprising a staple-driving plunger, intermittently-acting mechanism for actuating said staple-driving plunger, a feed-slide, a guard-rail, a piece pivotally mounted on said guard-rail to barely clear staples properly astraddle the feed-slide near the end of said guard-rail, a lever connected to said pivoted piece and a link connecting said lever to the actuating mechanism, one of said connections being a lost-motion device, substantially as described.

3. A staple-setting machine comprising a feed-slide, a feed-gate, intermittently-acting mechanism for actuating the machine and a stopping device for stopping said mechanism, said stopping device having an adjunctive device for closing said gate when said stopping device is disengaged from said mechanism, substantially as described.

4. A staple-setting machine comprising a feed-slide, a feed-gate, intermittently-acting mechanism for driving said machine and a stopping device for said mechanism but movable independently thereof, said stopping device having an adjunctive device for closing said gate when said stopping device is disengaged from said mechanism, substantially as described.

5. A staple-setting machine comprising a feed-slide, spring-pressed clamping-levers on each side thereof at the end, a lever having a piece wedging between the inner end of said levers, and means for operating said lever independently of the plunger-actuating mechanism, substantially as described.

ALBERT D. THOMAS.

Witnesses:

JOHN M. KENNEY,
JNO. C. WILLEHAN.