

R. E. FORD.
 STAPLE FORMING AND SETTING IMPLEMENT.
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1,155,141.

Patented Sept. 28, 1915.

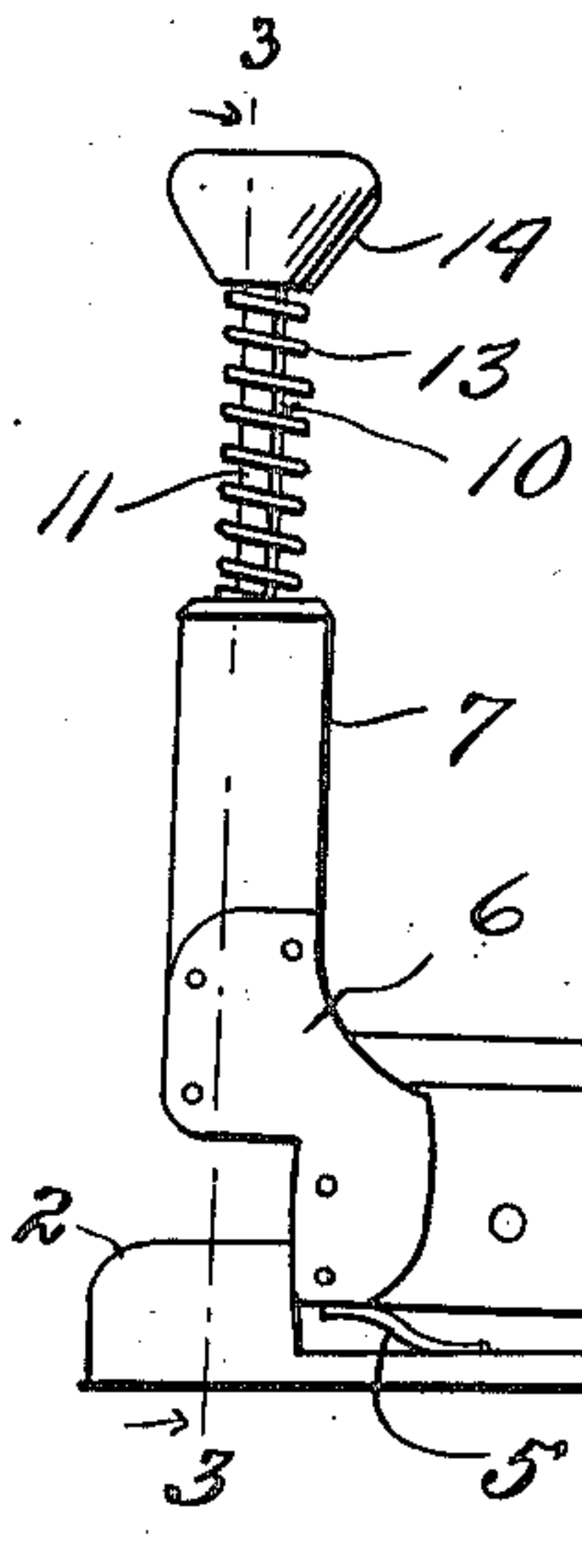


Fig. 1.

Fig. 3.

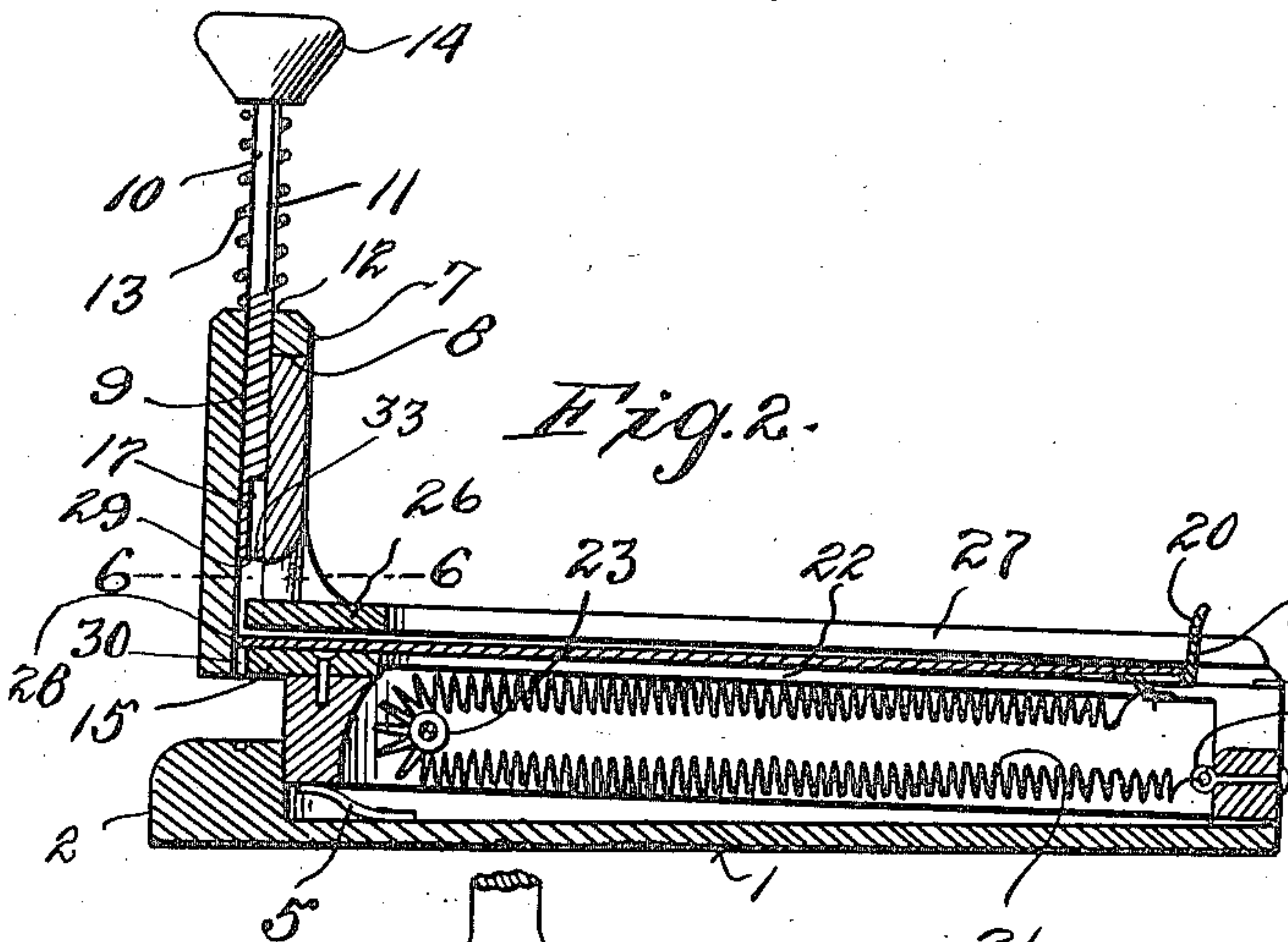
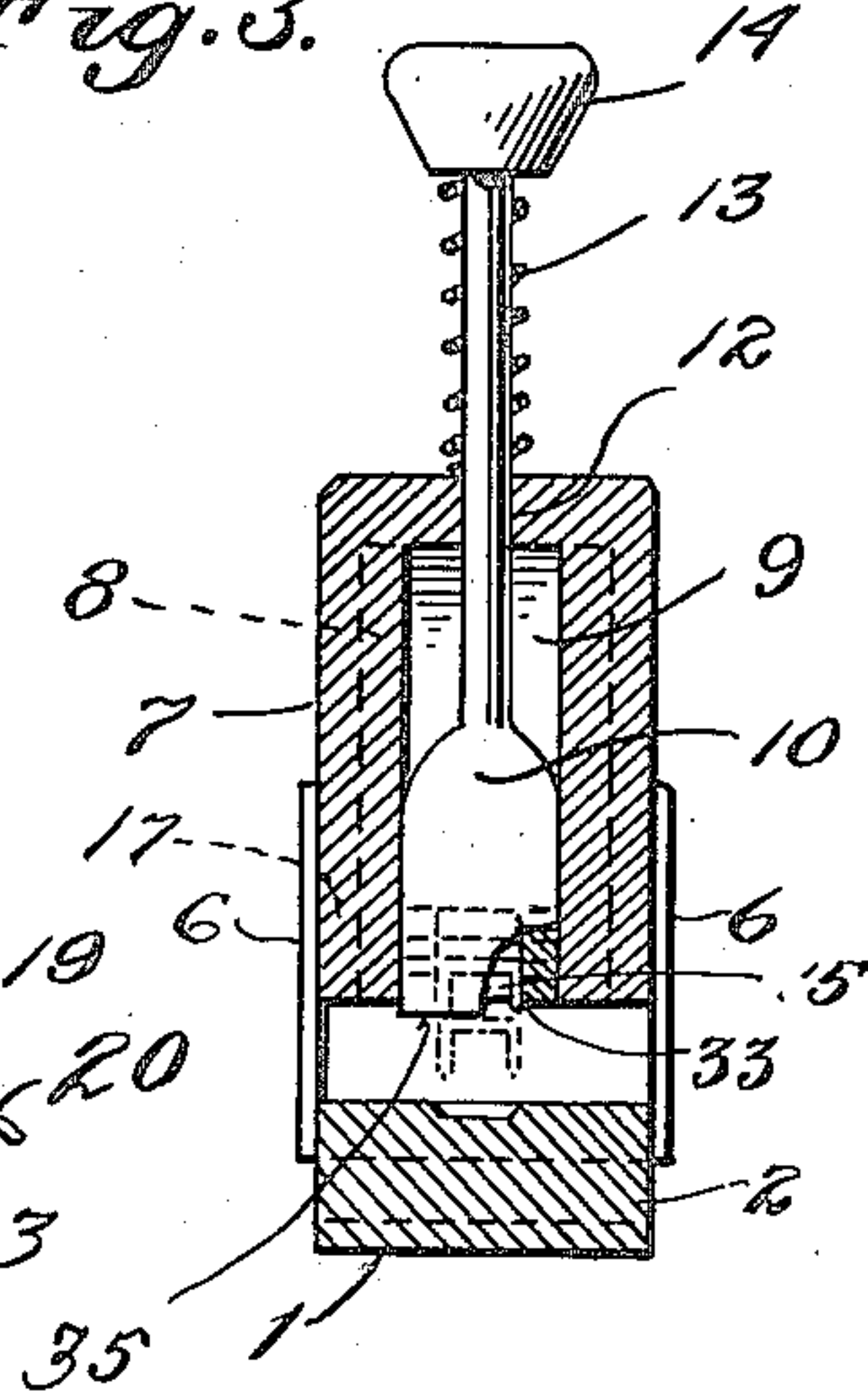


Fig. 2.

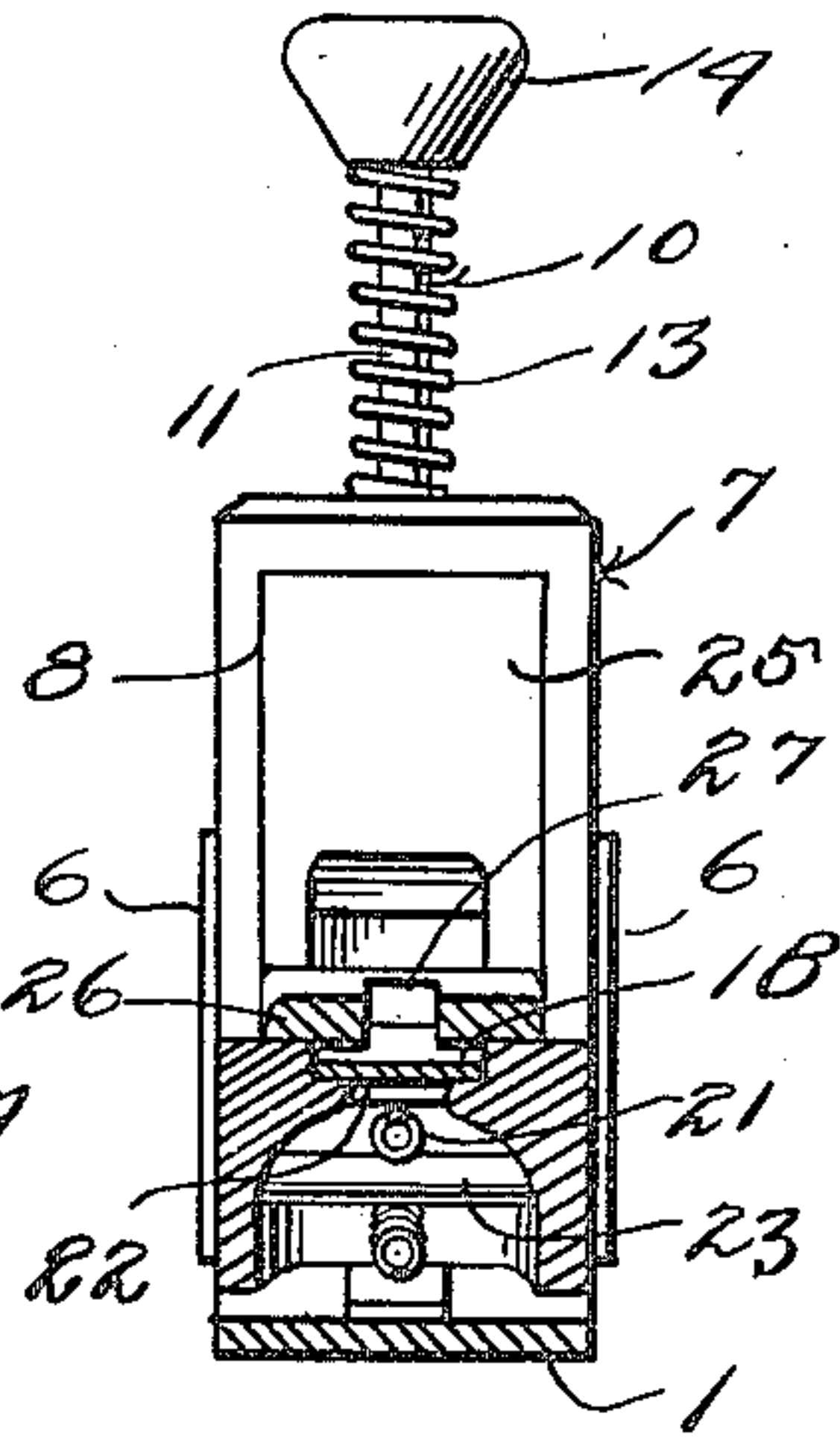


Fig. 4.

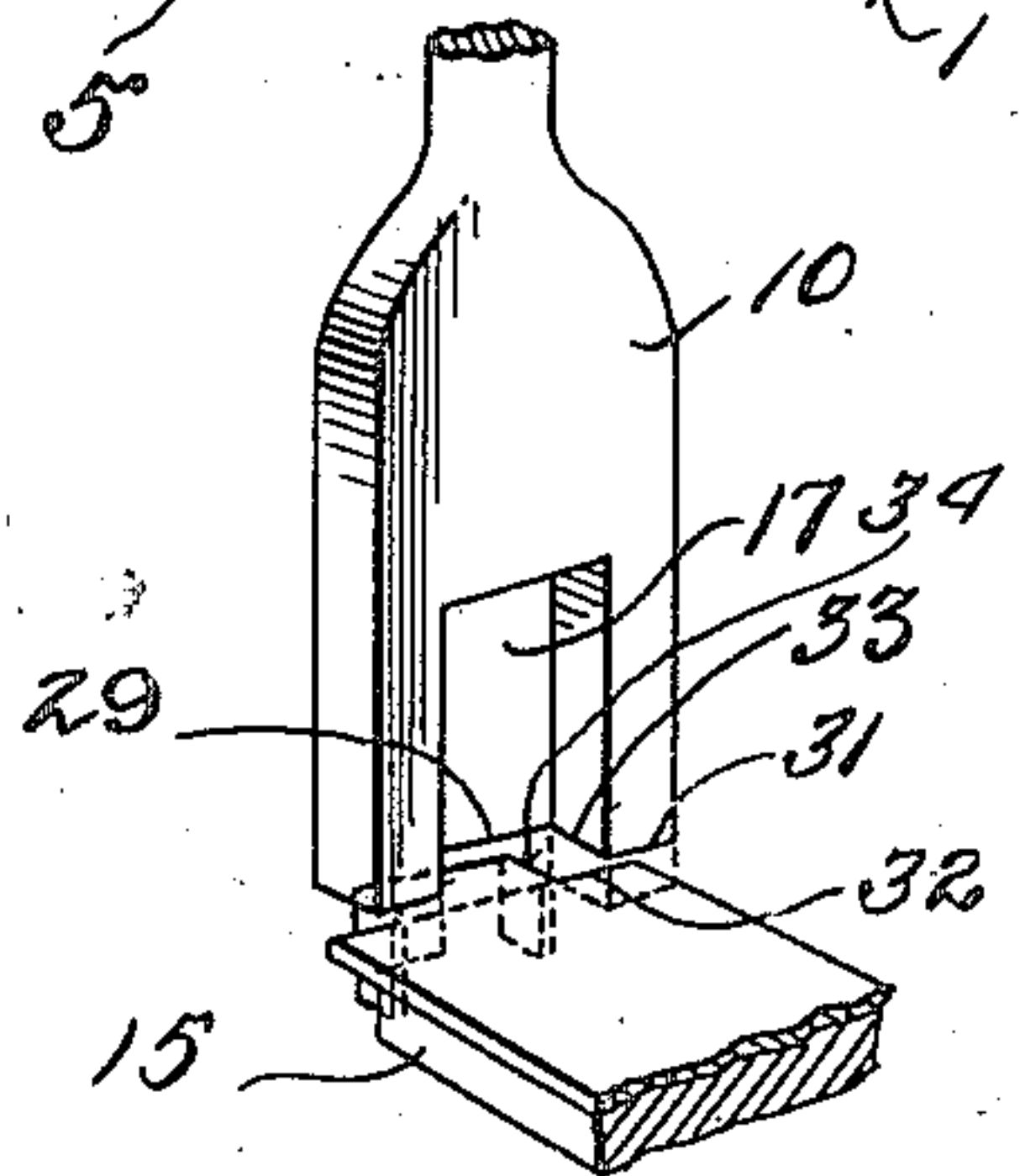


Fig. 5.

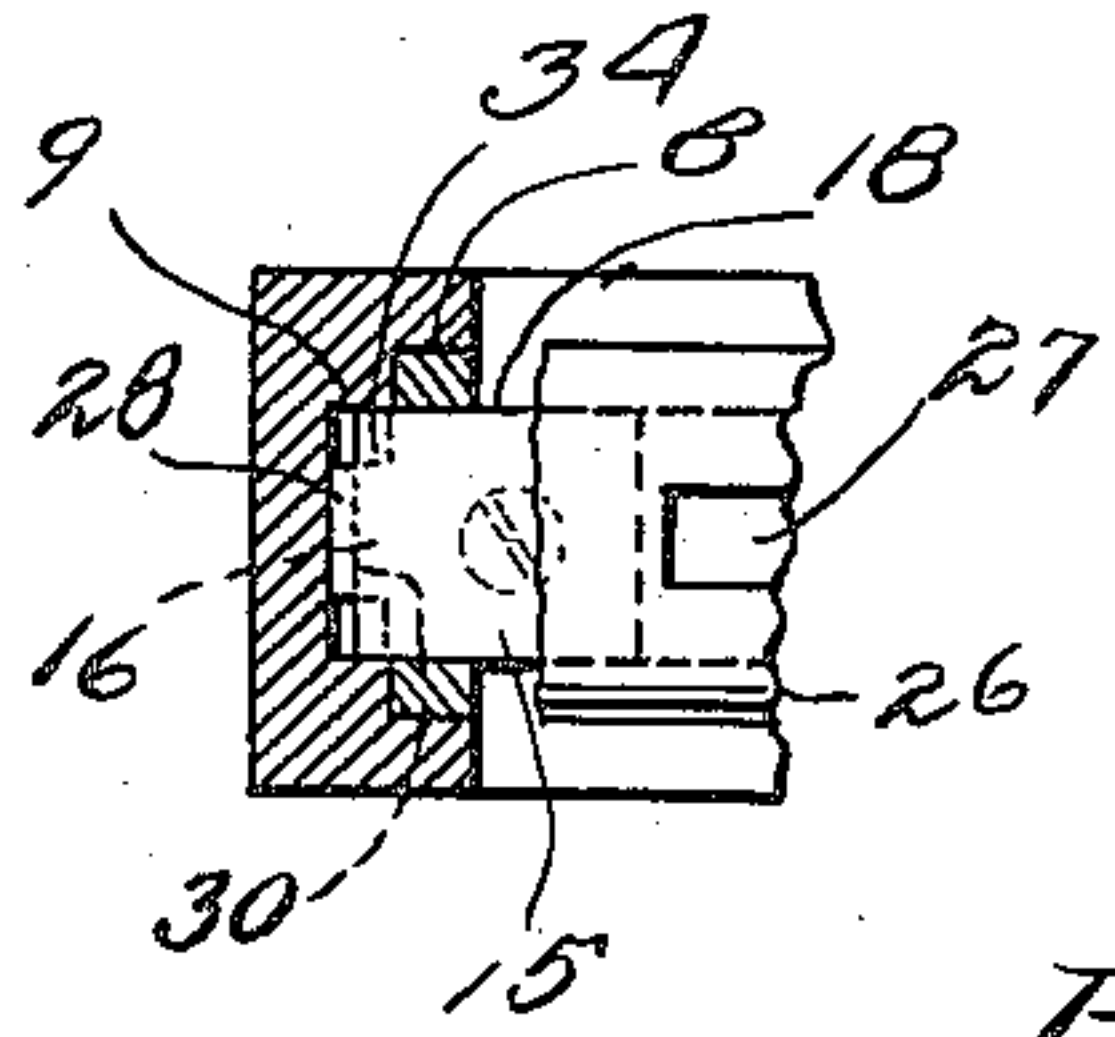


Fig. 6.

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STAPLE FORMING AND SETTING IMPLEMENT.

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To all whom it may concern:

Be it known that I, ROBERT E. FORD, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Staple Forming and Setting Implements; 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.

This invention relates to an implement for making and setting staples.

An object of the invention is to provide an implement of this character by means of which a staple will be formed from a strip of flat metal, while by the same operation a staple which has been previously formed is set.

A further object of the invention is to provide for the automatic feeding of the said strip to the forming and setting mechanism.

A still further object is to so construct this feeding means that the entire strip will be intermittently fed.

A still further object of the invention is to provide for the automatic return of the staple forming and setting mechanism to its initial position.

With these and other objects in view, such as will appear as the description progresses, my invention comprises the combination and arrangement of parts as set forth in and falling within the scope of the appended claims.

Referring to the drawing:—Figure 1 is a side elevation of my device. Fig. 2 is a longitudinal sectional view. Fig. 3 is a vertical sectional view on line 3—3 of Fig. 1, showing the operation of the staple forming and setting mechanism. Fig. 4 is a section on line 4—4 of Fig. 1. Fig. 5 is a detail of the staple forming and setting slide. Fig. 6 is a section on line 6—6 of Fig. 2.

Referring to the drawing wherein like parts are indicated by like characters throughout the several views my device comprises a base 1 on one end of which is secured an anvil 2 and on the other end of which is pivotally mounted between ears 3 a body portion 4, the free end of which is normally pressed upwardly by a leaf spring 5 which bears upon the base 1. Secured to the end of the body portion 4 by brackets 6 and extending upwardly therefrom is a

supporting member 7 for the staple forming slide. The forward face of this member 7 is flat while the rear face thereof is channeled, as at 8, and has a deeper channel 9 located centrally of the first mentioned channel. Slidably mounted in this channel 9 is a staple forming slide 10 which has a shank 11 extending upwardly through a slot 12 in the upper end of the support 7. Surrounding the shank 11 is a coil spring 13 which bears against a head 14 on the upper end of the shank and maintains the slide in its uppermost position. Secured to the end of the body portion 4 adjacent the lower end of the support 7 is a forming plate 15 which has an outwardly extending tongue 16 on the end thereof, the said tongue being arranged to project into a recess 17 in the adjacent face of the slide 10 when the said slide is pushed downwardly in operation. In order that a strip of metal may be fed to this slide 10, I have provided the upper face of the body portion 4 with a groove 18 which is equal to the width of the plate 15 and in alinement therewith and extends the entire length of the said body portion. A strip of metal which is shown in the drawings is in operation placed in this groove 18, being slightly less than the width thereof so that the end rests on the plate 15 in a manner to be later described. In order that this strip may be fed to the forming and setting mechanism, I have provided a slide 19 in the groove 18 on which the rear end of the strip rests and which has an upwardly extending lug 20 which engages the rear end of the said strip. Connected to this slide 19 is a coil spring 21 which extends downwardly through a slot 22 in the body portion and around a roller 23 beneath the plate 15 and is extended toward the rear of the body portion and attached thereto, as at 24, the length of this spring is, when in its normal state, equal to the distance between the roller and the point of attachment 24 so that previous to the feeding operation the said spring is extended to twice its length. This is done so that during the feeding operation the compression of the spring will take place between the said roller 23 and the point of attachment 24. Thus substantially all of the strip will be fed to the former.

The staple forming and setting slide 10 is covered by a plate 25 which is seated in the channel 8, while the strip feeding channel is covered by a plate 26 which has a longitudi-

nally extending slot 27 therein, through which slot the lug 20 extends during its operation. The end of this plate 26 is of similar configuration to the end of the plate 15 and projects into the channel 9 so as to assist in guiding the forming and setting slide.

In operation the slide 19 is drawn outwardly against the tension of the spring 21 until the said slide engages the end of the body portion 4 below the end of the groove 18 at which time the tension of the spring 21 maintains the plate in this position. A strip of sheet metal from which the staples are to be formed on one end of which strip is formed a projection 28 is inserted into the groove 18 at which time the slide is inserted beneath the adjacent end of the said strip and the lug 20 engages the said end. The projection 28 is maintained in contact with the face of the channel 10 by the pressure of the spring 21 so that the said projection 28 extends beyond the end of the projection 16 of the plate 15, the device is then ready to be operated. The handle 14 is struck and thus the slide 10 pushed downwardly against the tension of the spring 13. This causes the lower end of the slide to pass beyond the plate 15 but in doing so the edge 29 of the slide coöperates with the edge 30 of the projection 16 and severs the projection 28 of the strip at the same time the edges 31 of the slide coöperate with the edges 32 of the plate 15 to cut the strip along these edges to form the legs of the staple. Simultaneously the edges 33 of the slide which pass downwardly past the edges 34 of the plate 15 bend the said legs downwardly from the edges 34. It is to be understood that the cutting off of the projection 28 and the forming of the staple in the manner described is accomplished simultaneously. After the said projection 28 is cut from the strip the spring 21 moves the strip until the end thereof engages the face of the channel 9 and thus moves the previously formed staple which is still attached to the strip beneath the portion 35 of the slide 10. The handle 14 is again struck and the edge 29 of the slide will sever the bight portion of the staple from the strip and the continued downward movement will push the staple downwardly through the paper which has been previously placed upon the anvil 2, it being understood that at the same time the pressure on the handle 14 causes the body portion 4 to move downwardly against the tension of the spring 5 until the lower end of the support 7 rests in the anvil. It will be obvious that during this setting operation the forming slide coöperating with the plate 15 forms another staple, which when the slide moves upwardly by virtue of the spring 13 is pushed into setting position by the spring 21 and the operation may be continued.

From the foregoing description it will be readily seen that I have provided a staple forming and setting device by means of which staples may be formed from a strip of metal and set and I have provided spring feed which will cause the strip to move beneath the forming and setting slide to maintain the same in operative position during the operation of the said slide, and I have so constructed the device that a staple will be formed at the same time that a staple which has been previously formed is set.

I have further provided novel feeding mechanism for the strip so that substantially the entire strip may be fed to the forming and setting mechanism.

While I have described and illustrated a particular embodiment of my invention, I have merely done so for the sake of convenience and I do not wish to be limited to that particular embodiment as it is obvious that numerous changes may be made within the details of construction thereof without in any way departing from the scope of the appended claims.

What is claimed is:—

1. In a staple forming and setting implement, the combination with a forming plate of means constructed and arranged to coöperate with said plate to cut a strip of material to form the legs of a staple and to simultaneously cut the strip to form the bight portion of a staple of which the legs have been previously formed.

2. In a staple forming and setting implement, a forming plate and single means coöperating therewith for partially forming a staple from a strip of material and simultaneously completing the formation of a staple which has been previously partially formed and setting the same.

3. In a staple forming and setting implement, a forming plate, and means coöperating with the forming plate to shear and bend a portion of a strip of material to form the legs of a staple and to simultaneously complete the formation of a staple of which the legs have been previously formed, the said means being operable to set the completed staple.

4. In a staple forming and setting implement, the combination with a forming plate, of a staple former and setter constructed and arranged to coöperate with the forming plate to shear a portion from a strip of material and bend the same to form the legs of a staple and to simultaneously sever from the strip the bight portion of a staple which has had its legs previously formed.

5. In a staple forming and setting implement, the combination with a forming plate having an extension of lesser width than itself, of a staple former and setter consisting of spaced legs and a web connecting the same, the said legs coöperating with the

forming plate to sever the prongs of a staple from a strip of material and to simultaneously bend the prongs over the extension of the forming plate and the said web being simultaneously operable to sever the bight portion of a staple and to drive the same.

6. In a staple forming and setting implement, the combination with a former and setter of a magazine including a plate, a follower slidable on said plate, and a spring attached to the follower and to the magazine below the plate, the follower being constructed and arranged to engage the end of the magazine and the spring being constructed and arranged to hold it in such position.

7. In a staple forming and setting implement, the combination with a former and

setter of a magazine including a plate, a follower consisting of a flat base and a finger piece, the follower being slidable in the magazine with its base in contact with the plate, and a spring for actuating said follower, the follower and magazine being so constructed that the follower may be swung at right angles to its feeding position and engaged with the end of the magazine and the spring being arranged to maintain the follower in such position.

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

ROBERT E. FORD.

Witnesses:

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JAY C. JOHNSON.