March 20, 1928.

1,663,242

J. B. CROFOOT

STAPLING MACHINE

Filed July 1, 1926

3 Sheets-Sheet 1

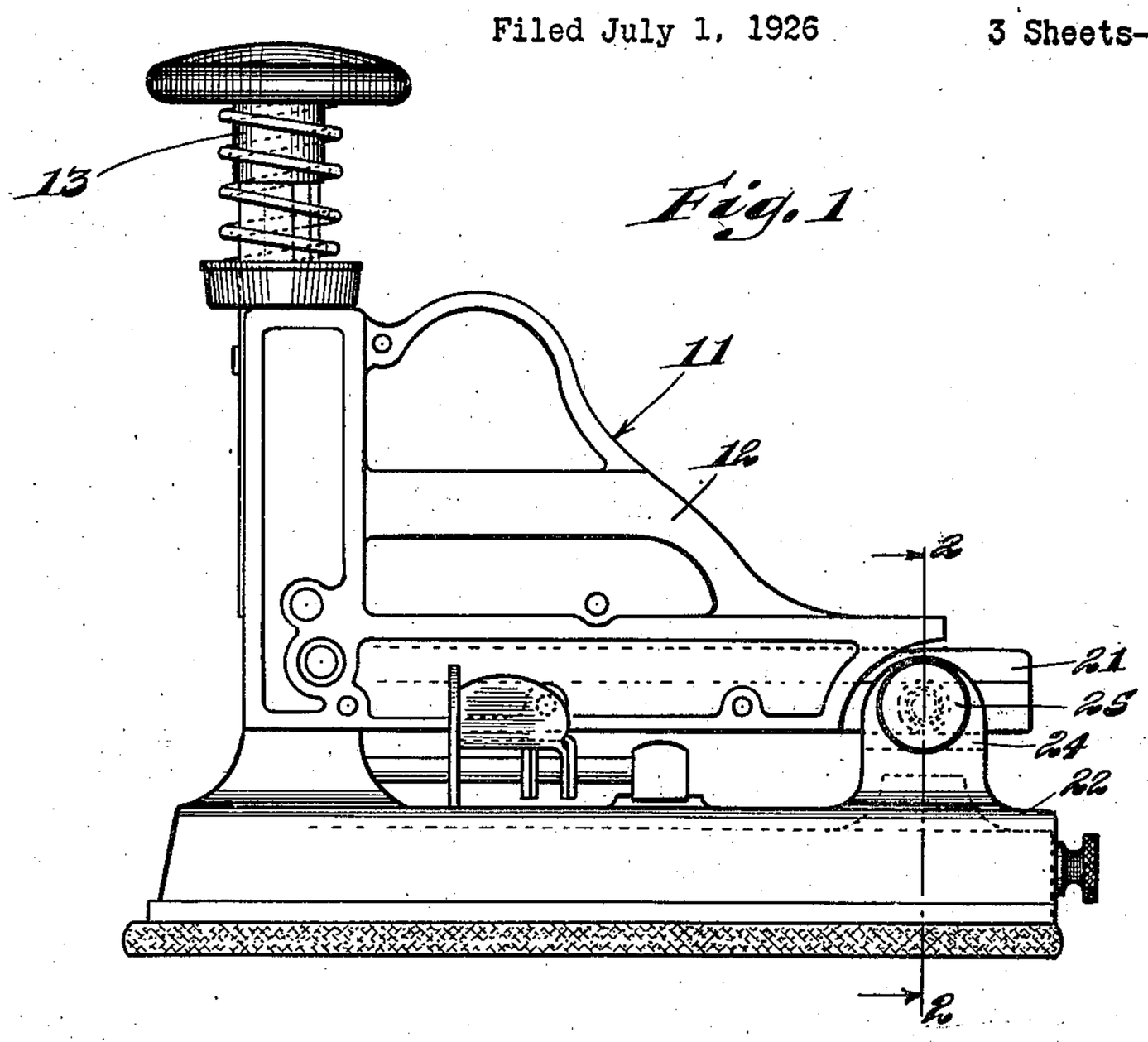


Fig. 1

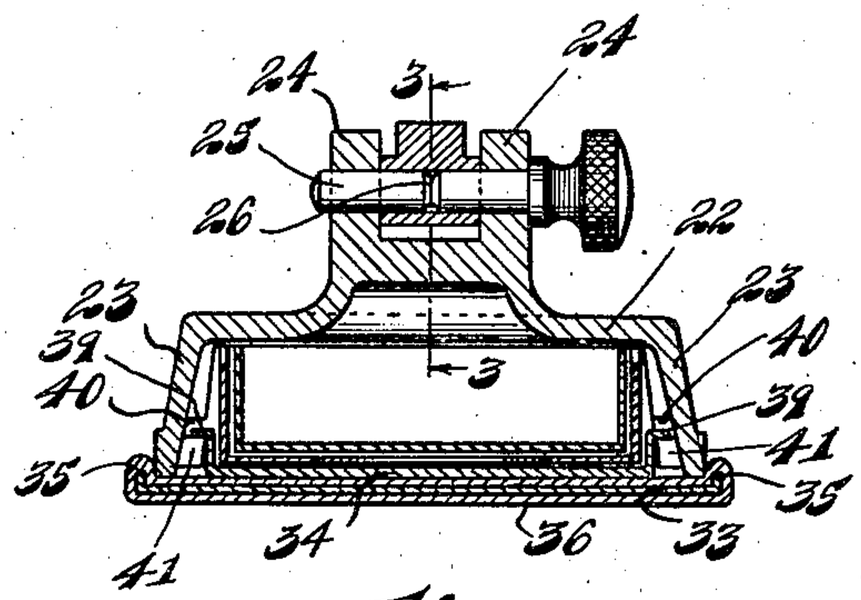


Fig. 2

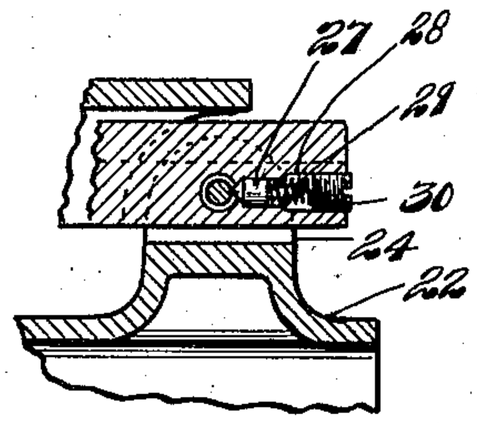


Fig. 3

Witnesses:
E. E. Nugent
E. Hoff

Inventor:
John B. Crofoot,
By Joshua R. H. Potts
his Attorney.

March 20, 1928.

1,663,242

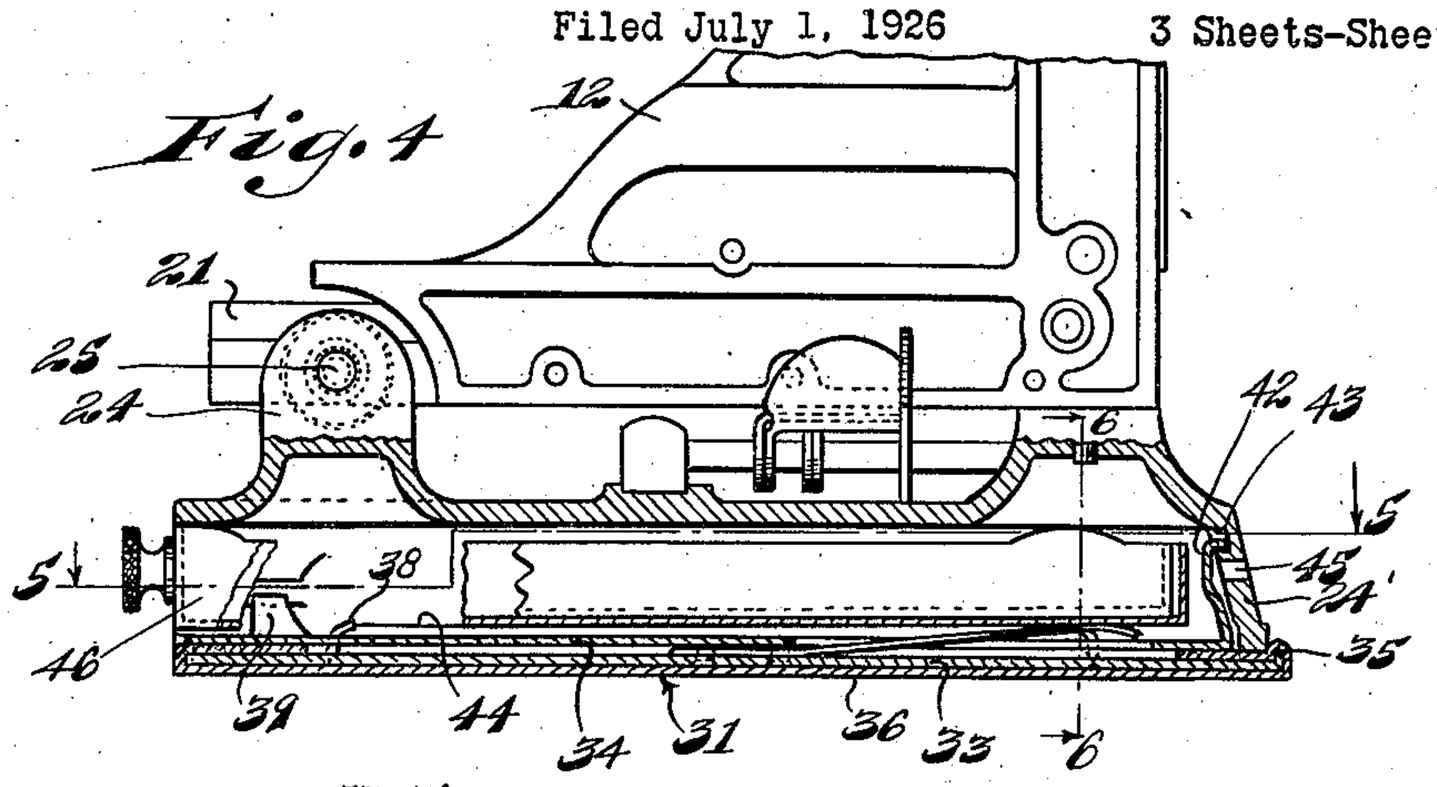
J. B. CROFOOT

STAPLING MACHINE

Filed July 1, 1926

3 Sheets-Sheet 2

Fig. 4



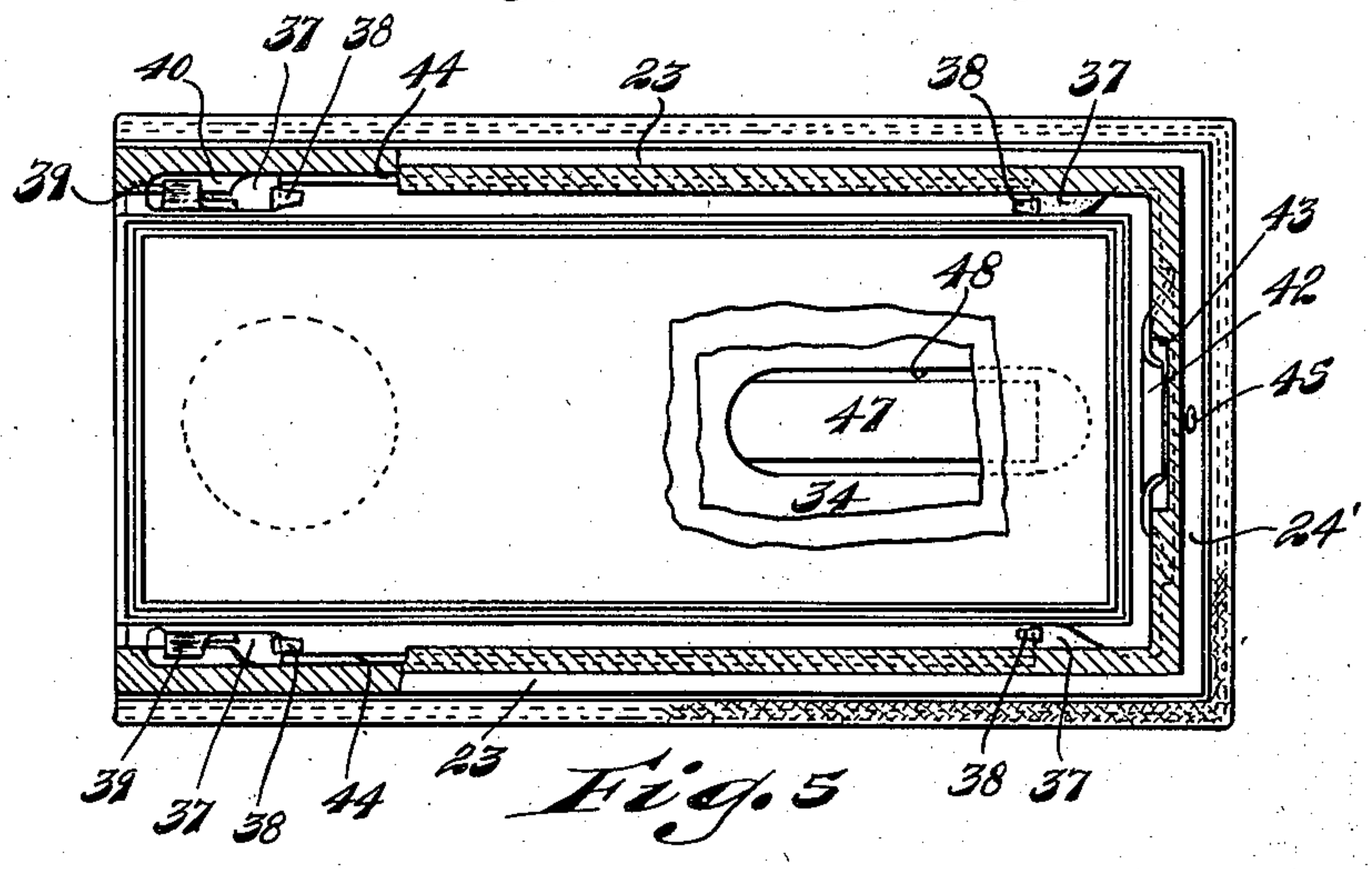


Fig. 5

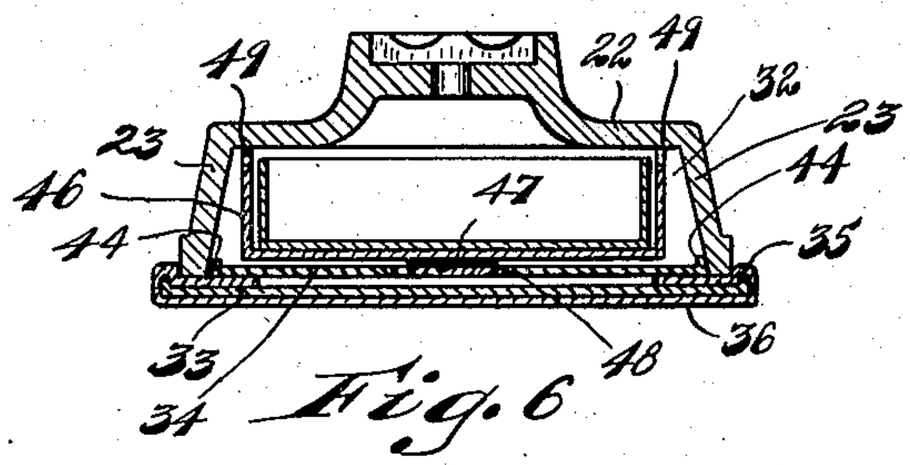


Fig. 6

Witnesses:
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Inventor:
John B. Crofoot,
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March 20, 1928. 1,663,242

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STAPLING MACHINE

Filed July 1, 1926 3 Sheets-Sheet 3

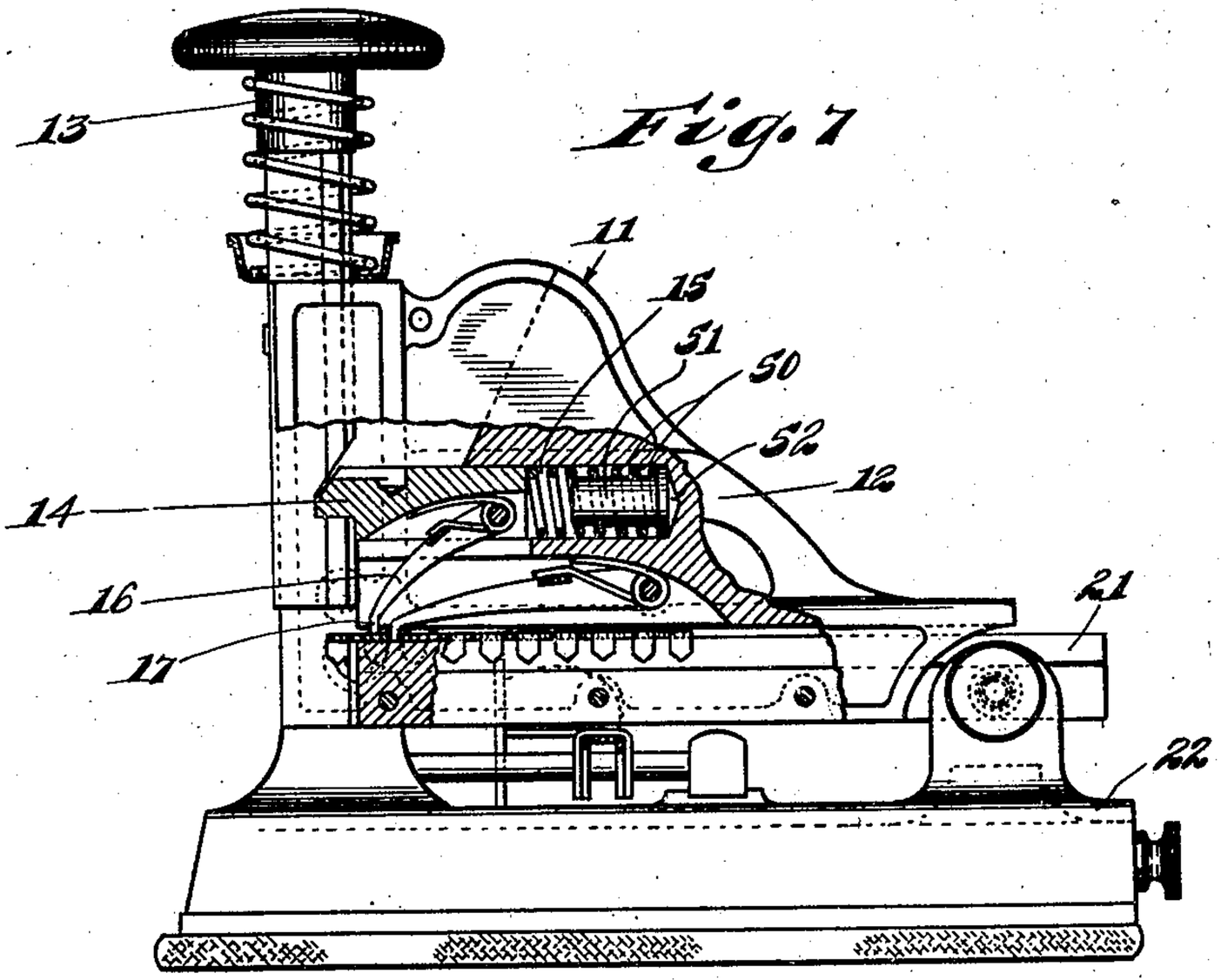


Fig. 7

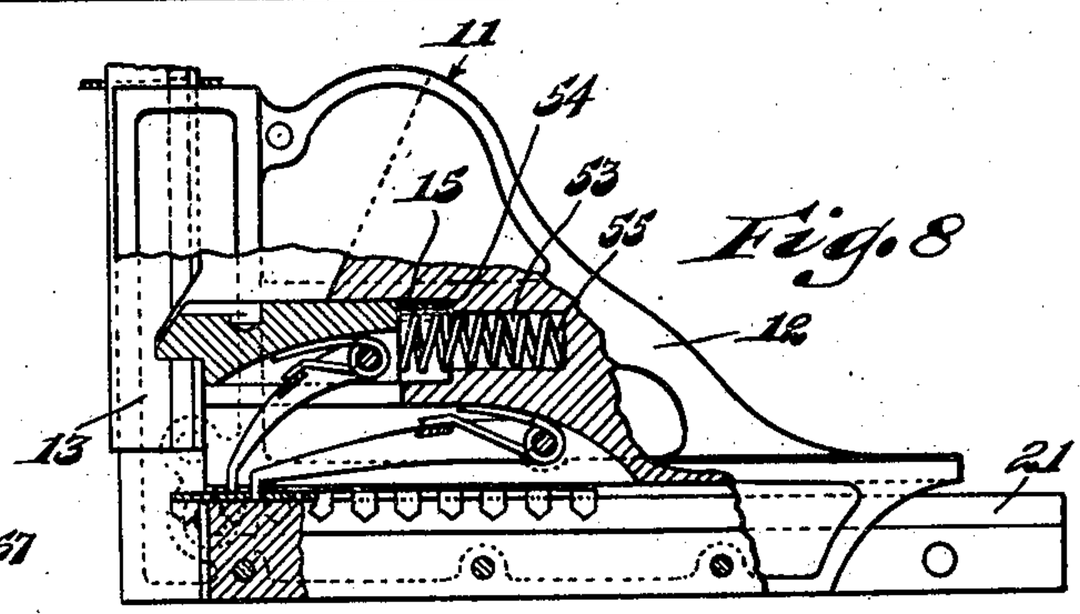
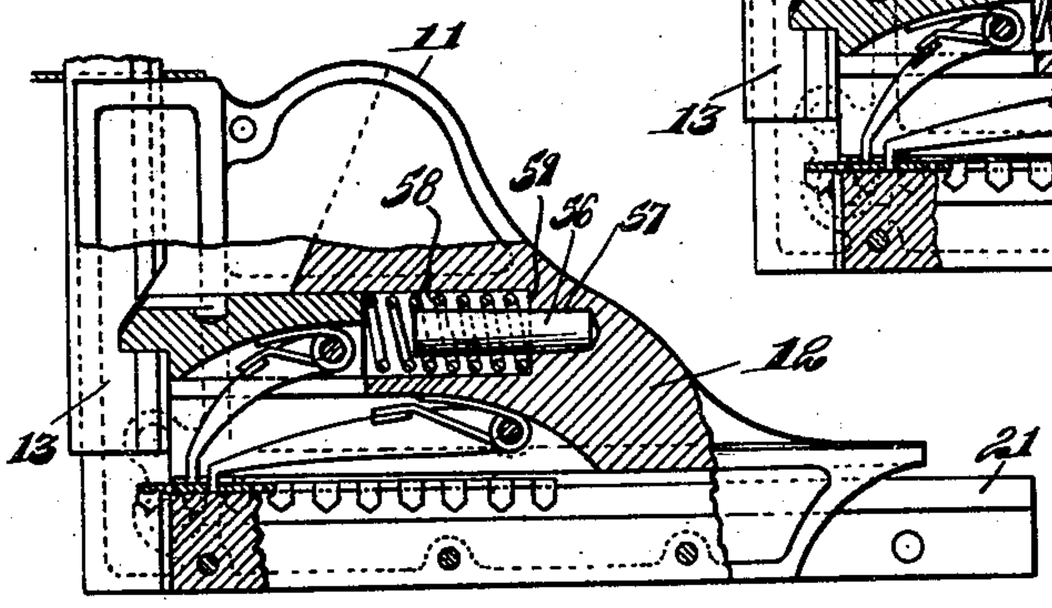


Fig. 8

Fig. 9



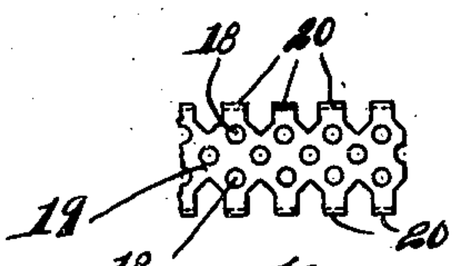


Fig. 10

Witnesses:
C. E. Wessels

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his Attorney.

Patented Mar. 20, 1928. 1,663,242

UNITED STATES PATENT OFFICE.

JOHN B. CROFOOT, OF ARLINGTON HEIGHTS, ILLINOIS.

STAPLING MACHINE.

Application filed July 1, 1926. Serial No. 119,843.

My invention relates to new and useful improvements in stapling machines of the type employed for stapling together two or more sheets of paper, and for stapling addressed tags or labels upon boxes, cartons and the like.

One of the objects of the invention is to provide an improved auxiliary base and to provide improved means for detachably connecting the same to the stapling machine for the support of the machine thereon.

Another object is to provide improved means for detachably connecting the stapling unit with the main base of the machine, so that the stapling unit may, at will, be used either with the base of the machine for stapling together sheets of paper, or without the base of the machine for stapling tags or labels upon boxes, cartons and the like.

Another object is to provide improved means by which positively to prevent a stapling strip from being fed forward a distance greater than one stapling unit at each reciprocation of the plunger.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Fig. 1 represents a side elevational view of a stapling machine embodying my present improvements;

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmental vertical section taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmental side elevational view of the machine showing the main base and the auxiliary base in section and with the drawer broken away;

Fig. 5 represents a horizontal section taken approximately on the line 5—5 of Fig. 4;

Fig. 6 is a vertical section taken on the line 6—6 of Fig. 4;

Fig. 7 represents a side elevational view of the machine with parts broken away to show the arrangement of the stop element associated with the staple strip feeding means;

Fig. 8 represents another fragmental side elevational view with parts broken away to show a modified form of the stop arrangement for the staple strip feeding means;

Fig. 9 is a view similar to that of Fig. 8, but showing a further modification of the stop arrangement for the staple strip feeding means; and,

Fig. 10 represents in plan a fragment of the staple strip.

In setting forth the preferred form of construction, I prefer to associate my improvements with a type of stapling machine heretofore invented by me, and in which 11 designates in general the stapling machine unit comprising a body 12, a plunger 13 arranged for vertical reciprocation at the front end of the body, a bolt 14 arranged for reciprocation in a horizontal bore 15 which extends inwardly into the body of the plunger, said bolt coacting with the plunger to be operated thereby and carrying a feed pawl 16 provided with prongs 17 adapted to be received in the side openings 18 of a staple strip as 19, whereby upon each actuation of the plunger, the staple strip will be advanced forwardly the distance of one staple unit 20.

The staple unit 11 is mounted upon a bar 21 on which the staple strip has sliding movement, and said bar 21 is connected for up and down swinging movement with a main base 22 formed with depending side flanges 23 and a depending rear end flange 24′ which connects the side flanges.

According to a feature of my improvements, the stapling machine unit 11 is detachably connected with the main base 22 so that it may, at will, be used either with the main base for stapling together sheets of paper, or quickly removed from the main base for use in stapling tags or labels upon boxes, cartons and the like. In carrying out this provision, it will be seen that the bar 21, at its rear end, is swingably engaged between two ears 24 upstanding from the main base; and that the pivotal connection comprises a hinge pin 25 which passes through the ears 24 and the intervening bar 21, said hinge pin at a point within the bar being provided with an annular V-shaped groove 26 into which projects the pointed end of a retaining stud 27 located in a bore 28, the said stud 27 being operatively held in position by means of a coiled spring 29 arranged within the bore 28 and imprisoned between

the stud 27 and the screw plug 30 threaded into the outer end of the bore. By this arrangement, the stapling machine unit 11 is capable of being swung up and down upon the hinge pin 25 where it is used in connection with the base 22; and when it is desired to use this stapling machine unit separately from the base, it is only necessary to pull out the pin 25 in order to separate the unit from the base.

According to another feature of my improvements, I provide an auxiliary base, designated in general by the numeral 31, which is adapted to be detachably associated with the flanges of the main base and which is adapted to form a bottom for the drawer chamber 32 produced by the depending flanges of the main base. The auxiliary base comprises two metallic plates 33 and 34, of which the upper plate 34 is of less cross dimension than the lower plate 33, as clearly shown in Figs. 2 and 6. Underlying the lower plate 33 and drawn over upstanding edge flanges 35 produced thereon all around except at the rear end of the machine, is a covering 36 of felt or other suitable material adapted to serve as a medium for preventing the scarring of desks or other surfaces on which the machine may be placed, the free edges of the covering being clamped between the upper and lower plates 34 and 33. For securing the upper and lower plates together as a unit, I preferably provide notches as 37 in the upper plate and lugs 38 on the lower plate, which lugs after piercing the covering, pass through said notches and are bent over upon the upper plate as clearly shown in Fig. 5. For detachably securing the auxiliary base to the flanges, angular clips 39 project upwardly from the edges defining the notches 37 at the near rear end of the upper plate 34, said angular clips being adapted to be entered into grooves 40 provided in enlarged lugs 41 on the inner faces of the side flanges 23, and a clip 42 projects upwardly from the front end of the upper plate 34 for engagement in a groove 43 in the rear flange 24′. The auxiliary base is applied to the flanges by first inserting the clips 39 in the grooves 40, an operation which is accomplished by moving the auxiliary base in a direction from the front end of the main base, and then by pressing the auxiliary base against the flanges so that the hooklike clip 42 will snap into the groove 43. Preferably and as shown, the upper plate 34 between the points where the lugs 38 are bent over thereon, is provided with shallow upstanding side flanges 44 which engage on the inner faces of the side flanges 33 of the main base as best illustrated in Fig. 6, the flanges 35 of the plate 33 with the covering thereon engaging over the outer faces of said side flanges 23 of the main base. To remove the auxiliary base, it is only necessary to insert a wire, nail or other similar instrument through an opening 45 in the flange 24′ and press the hooklike clip 42 from its groove 43, whereupon the clips 39 may be withdrawn from their grooves by drawing the auxiliary base in the forward direction.

A drawer 46 for holding a stock of staple strips occupies the drawer chamber 32 and is slidable upon the auxiliary base and between the side clips 39 and side lugs 38 thereon, as best shown in Fig. 5. As a means for holding the drawer 46 against accidental removal, a strip spring 47 is secured between the upper and lower plates 34 and 33 and extends upwardly through an aperture 48 in the upper plate 34, so as to make pressure upon the bottom of the drawer, the side flanges of the drawer being preferably provided with cam-like top edges 49 for engagement with the underface of the main base as best shown in Fig. 6.

Where the plunger of the machine is depressed by means of a mallet stroke or even where it is depressed with great force by the hand, it sometimes happens that the bolt 14 is thrust with such force against its repositioning spring 50 that the feeding pawl 16 is carried far enough to effect the feeding of two staple units as 20 thereby clogging the operation of the machine. In order to prevent this excessive movement of the bolt 14, I preferably employ the means shown in Fig. 7 where it will be seen that the bolt bore 15 is extended for a distance into the body 12 and that a pin 51 having a head 52 is loosely inserted in the extended bore 15, while the repositioning spring 50 is coiled about the pin 51 and imprisoned between the pin head and the bolt 14. In this arrangement, the pin 51 serves as a stop for the bolt 14 and said pin is of the precise length necessary to arrest the movement of the bolt 14 at the point where the feeding pawl will engage the first staple unit 20.

A modified form of the stop arrangement is illustrated in Fig. 8 where it will be seen that a bore 53 of reduced size extends from the bolt bore 15 so as to provide a shoulder 54 at the precise position where the bolt is to be arrested, the repositioning spring 55 in this instance extending as shown into the reduced bore 53. A still further modification is illustrated in Fig. 9 in which I have shown a pin 56 secured with a drive fit in the reduced bore 57 which extends into the body 12, the forward extremity of this pin being situated at the precise point where it is necessary to arrest the movement of the bolt 14, and the repositioning spring 58, in this instance being coiled about the pin 56 and imprisoned between the end wall 59 of the bore and the bolt.

While I have illustrated and described the preferred form of construction for carry-

ing my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a stapling machine, an auxiliary base structure composed of upper and lower plates; a covering for the lower plate clamped between the plates; lugs on the lower plate piercing said covering and bent over upon the upper plate; and attaching means on the upper plate, substantially as described.

2. In a stapling machine, the combination with a main base having flanges forming a pocket, there being receiving grooves in said flanges, of an auxiliary base forming a bottom for said pocket; clip means on the auxiliary base received in said grooves to fasten the auxiliary base to said flanges; a drawer in said pocket slidable upon said auxiliary base; and means on the auxiliary base engaging said drawer, substantially as described.

In testimony whereof I have signed my name to this specification.

JOHN B. CROFOOT.