

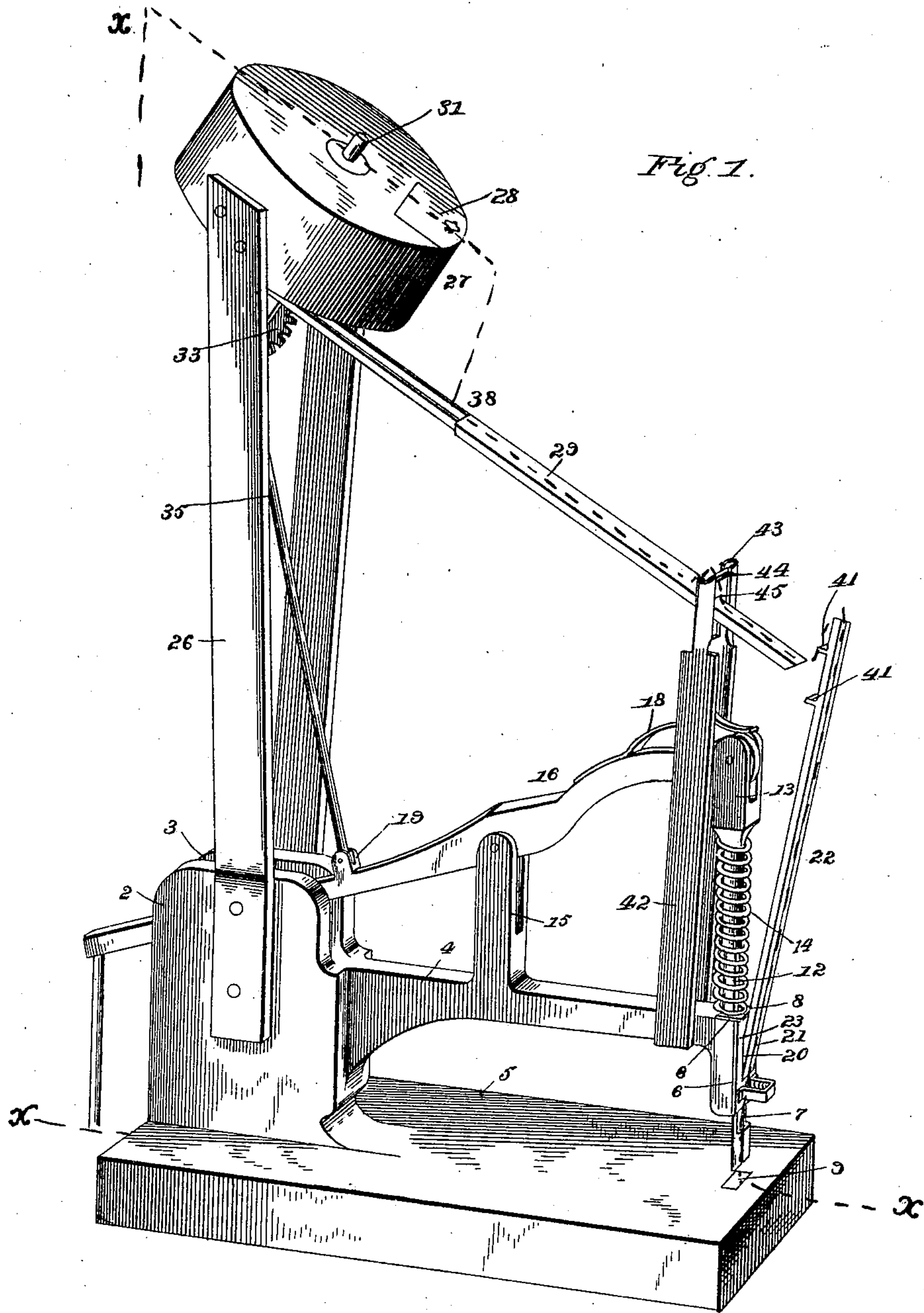
(No Model.)

2 Sheets—Sheet 1.

G. HAY.  
STAPLING MACHINE.

No. 500,576.

Patented July 4, 1893.



Witnesses

*A. Johnson*  
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Inventor

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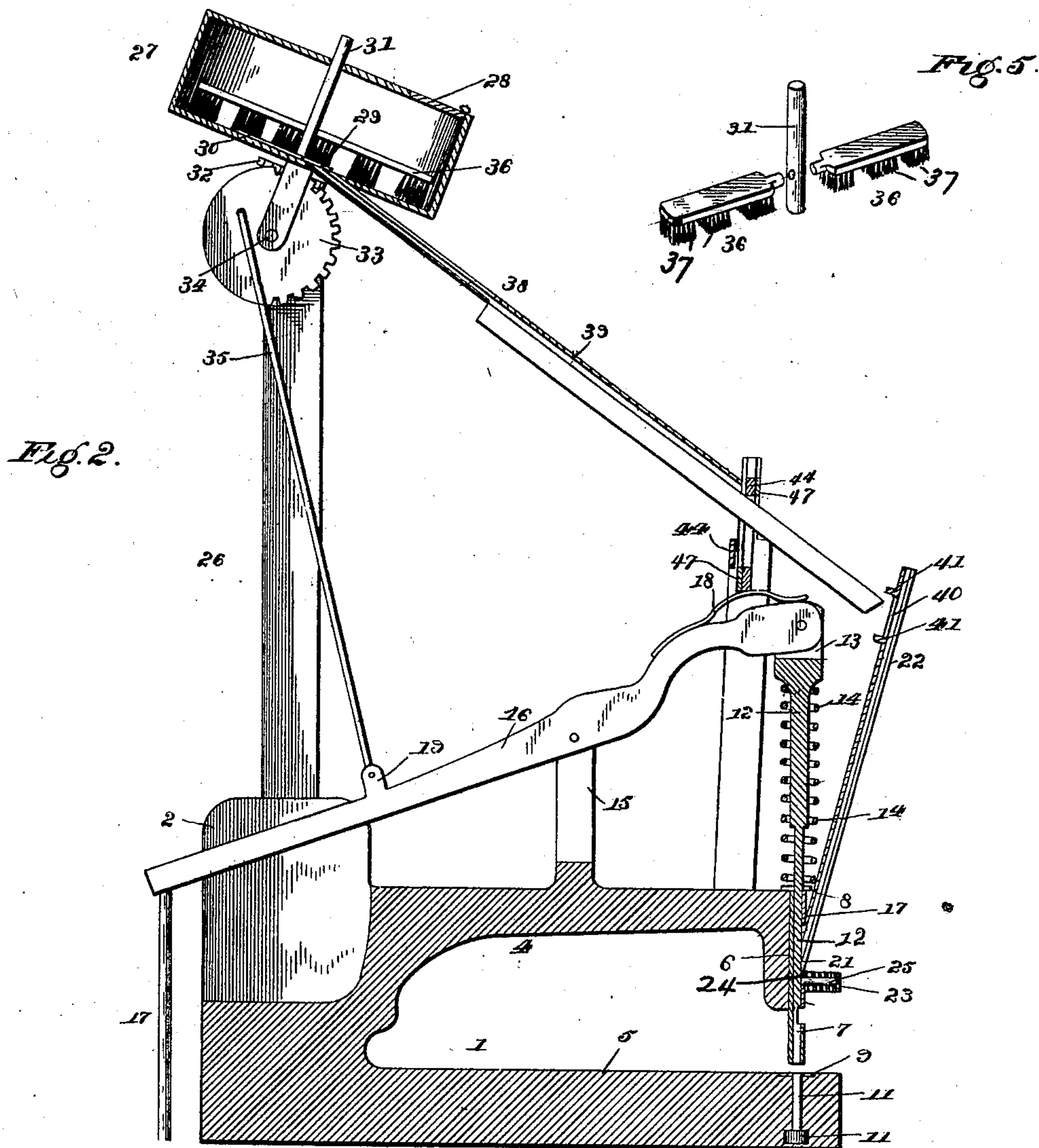


Fig. 3.

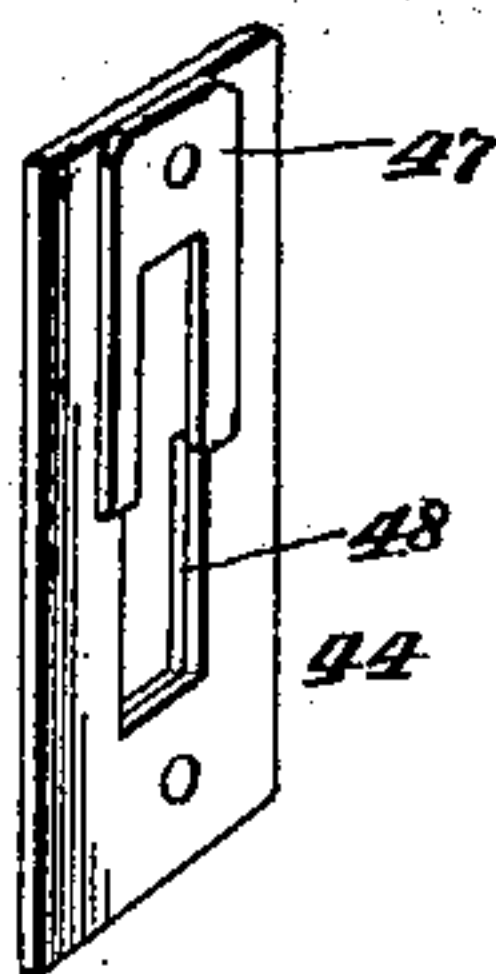
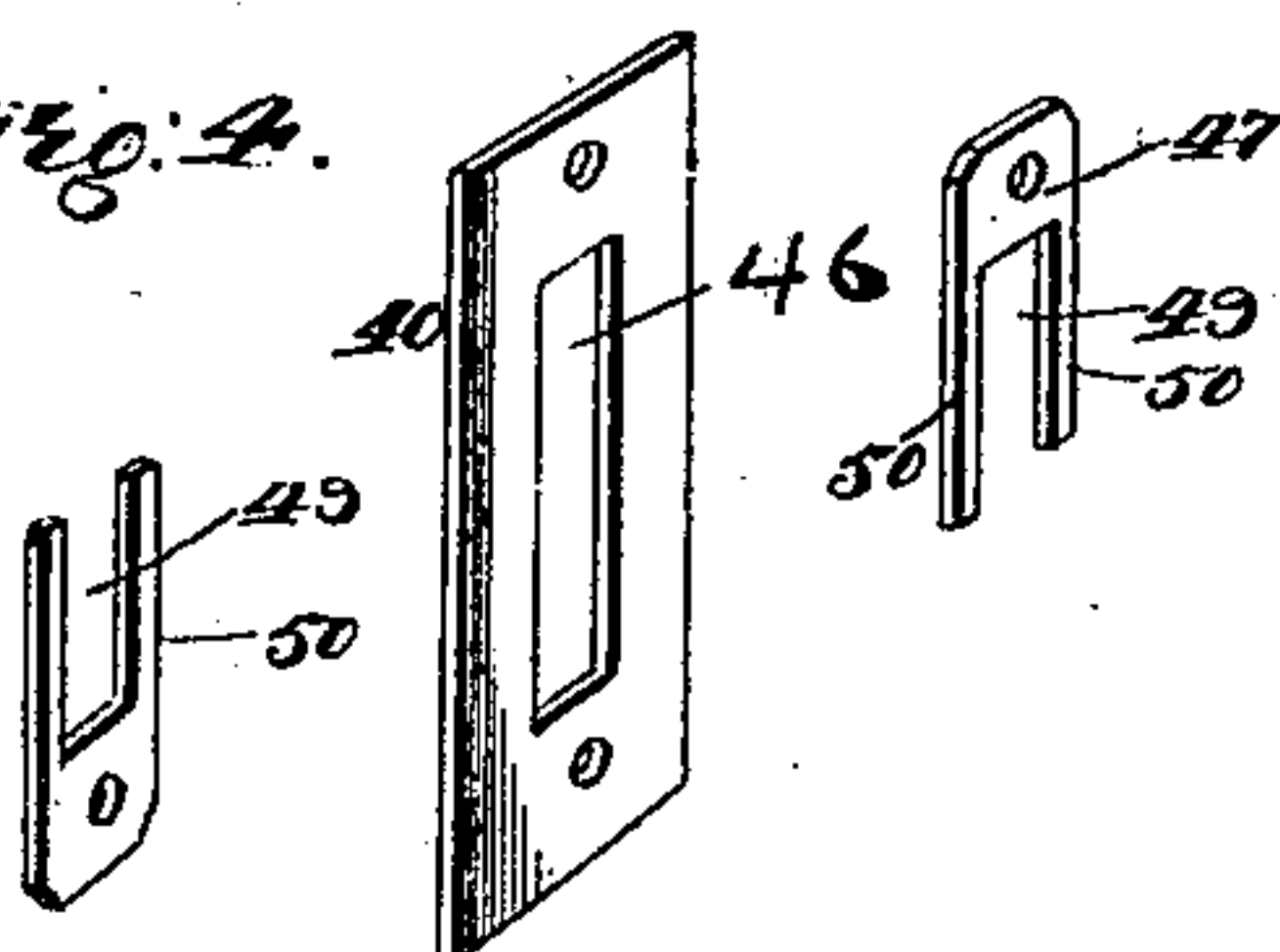


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

GILBERT HAY, OF FAYETTE, MISSOURI.

## STAPLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 500,576, dated July 4, 1893.

Application filed August 25, 1892. Serial No. 444,141. (No model.)

*To all whom it may concern:*

Be it known that I, GILBERT HAY, a citizen of the United States, residing at Fayette, in the county of Howard and State of Missouri, have invented a new and useful Stapling-Machine, of which the following is a specification.

This invention relates to certain new and useful improvements in stapling machines, and it has for its object to simplify the construction and arrangement of the parts thereof for more direct and positive action and to render the same strong and durable.

The invention consists of the construction, arrangement, and combination of the several parts as will be more fully hereinafter described and claimed, and which constitute an improvement on patents numbered 461,337, dated October 13, 1891, and 477,117, dated June 14, 1892, which have been granted to me.

In the drawings:—Figure 1 is a perspective view of the improved machine. Fig. 2 is a longitudinal vertical section thereof on the line *x. x.* Fig. 1. Fig. 3 is a detail perspective view of a part of the staple feeding mechanism. Fig. 4 is a similar view of the same mechanism with the parts disconnected. Fig. 5 is a perspective view of the brush arms.

Similar numerals of reference are employed to indicate corresponding parts in the several figures.

Referring to the drawings, the numeral 1 designates a suitable base upon which is mounted an upright 2, having the upper end thereof slotted as at 3, and provided with horizontal arms 4 and 5 extending forwardly one above the other. The upper arm 4 has a vertical slot 6 formed in its outer end to receive a vertically movable or reciprocating slide 7, which consists of a tube rectangular in cross section and of suitable dimensions to admit of the passage of a staple of the desired size therethrough. The upper end of the tubular slide 7, is provided with a flange 8, and the said tube is made of such a length that when the flange 8, rests upon the upper side of the arm 4, the lower end of said tube will almost reach the arm 5. The said arm 5 is provided with an anvil 9, with a depending stud or rod 10, adapted to bear upon a yielding cushion 11, at the lower end thereof. A punch or staple driver 12, is mounted to

slide vertically in the tube 7 and is formed with a slotted head 13, between the lower portion of which and the flange 8 of the tube 7 is mounted a coiled spring 14, which normally holds the said punch or staple driver in raised position together with the parts carried thereby, it being understood that the lower end of said punch or staple driver is recessed to engage the head or arch of the staple. A fulcrum post 15, rises vertically from the arm 4, and therein is pivotally mounted a lever 16, whose front end is also pivotally connected in the slotted head 13, of the punch or staple driver and to the rear end of the same is attached a pitman 17, from a suitable treadle or other motive power commonly employed in this class of devices. On the front portion of the said lever 16 is secured one end of a flat spring 18, which is bent in curved form and loosely extends over the head 13, of the punch or staple driver for a purpose which will be presently explained. In rear of the fulcrum post 15, the lever 16 is provided with an eye or ear 19, for a purpose which will also be hereinafter stated. The front side of the vertically movable or reciprocating tube 7, is provided with an opening 20, which, when the said tube is in arranged position, registers with an opening or the lower end 21, of a feeding chute 22, which is secured obliquely to a plate 23 attached to the front portion of the arm 4, which has a slot 24 therein through which the said feeding chute passes. The said feeding chute extends upward obliquely away from the arms 4, some distance above the head 13, of the punch or staple driver and in connection with the plate 23 immediately below the said feeding chute is located a horizontally disposed spring actuated stop pin 25, which enters the slot in the front end of the arm 4 through the plate 23 and into the tube 7, to limit the downward movement of the staples through the tube from the feeding chute and allow only one at a time to pass into said tube 7. It will be seen that the said pin is located at the lower termination of the feeding chute and thereby the operation set forth practicably ensues.

From the upper portion of the upright or standard 2, rise vertical arms 26, having the upper ends thereof secured to a circular staple feeding box or chamber 27, which is disposed



at an angle of inclination and is supplied with a hinged cover or lid 28 in the upper side thereof and an opening 29 in the bottom thereof adjacent to one edge of the same.

5 The said opening 29, is formed as a guiding groove terminating in an opening in the bottom of the said box or chamber which is covered by the upper end of a guide trough 30, extending away therefrom in a downward oblique direction and of such size as to allow  
10 staples to pass freely therethrough by gravitation.

The box or chamber 27, has a shaft 31, extending centrally therethrough with a gear  
15 32, attached to the lower end thereof which measures with a mutilated or partially cut gear 33, mounted on a suitable revolving shaft 34, and to the said gear 33 is eccentrically connected the upper end of a pitman 35, said  
20 pitman having its lower end secured in the ear or eye 19 on the lever 16. On the said shaft 31, are mounted radially disposed brush arms 36 in line with each other diametrically across the box or chamber 27 and formed with  
25 separated or spaced brush sections 37, which travel close to the bottom of the said box or chamber 27 in an oscillating manner. The oscillation of the brush, the said arms, and brush sections carried thereby, arises from  
30 the construction of the mutilated or partially cut gear 33 and the connection thereof with the lever 16, the latter, being understood, having a vertical reciprocating movement. By constructing the brush sections with intervening  
35 spaces between the same, clogging of the staples within the box or chamber 27, at the feed opening where the trough 30 is connected, is obviated, as it will be seen that by said construction a portion of the staples at times  
40 will not be engaged by virtue of the spaces between the brushes passing over the same.

To the lower end of the trough 30, is secured a feed slide 38, consisting of a rectangular metallic bar which is partially covered  
45 by a guard 39, to hold the staple moving over the said slide in proper position, it being seen that the guard has depending flanges extending over opposite faces of the said slide. The slide 38, extends over and beyond the  
50 head 13, of the punch or staple driver close to the adjacent upper end of the feeding chute 22, which has a rear opening 40 at this point through which the staples pass from the said slide 38, and above and below the said opening 40 are guards 41, which prevent dropping  
55 of the staple away from the said feeding chute 22.

Vertically rising from opposite sides of the arm 4 is a pair of arms 42, arranged at an  
60 angle of inclination toward the front of the machine and having their upper ends reduced and formed into channel guides 43, and said arms at the rear upper portions are braced by being connected by a cross strip 44. Between  
65 said arms 42 and mounted in the channel guides 43, thereof is movably mounted a plate 44, having a slot 45 extending therethrough

and of suitable length and width to permit the passage of a staple. The opening 45 through the said plate 44, is reduced at the upper and lower portions thereof by plates 47 and 48 secured respectively at the upper and lower portions of the front and rear sides thereof. These plates 47 and 48 are bifurcated or slotted as at  
70 49, and the legs 50 on each side of said bifurcations or slots thereof partially extend over the slot 46 of the plate 45 and reduce the width of the same to less than the width the legs of the staple are apart from each other and coact to permit the feeding of one staple at a time  
80 through the slot 46 of the said plate 45. The slide 38 extends through the plate 45 and is alternately embraced, in operation, by the legs of the plates 47 and 48. The lower plate 48, holds the staple on the slide 38 until the  
85 punch or staple driver descends and forces the staple already fed into the tube 7, out of the latter, and when the said punch or staple driver rises the plate 45 is also pushed upward through the medium of the spring 18  
90 on which it bears and the plate 47, catches the next staple advanced on the slide 38, it being observed that the distance between the plates 47 and 48 being about the same as the space occupied by one staple on the said slide  
95 38 and also that the legs of the plates 47 and 48 are so positioned that when said legs of the plate 48 clear the slide 38, the legs of the plate 47 will have already passed partially over the said slide 38 and thereby the movement of the staple being fed is limited. This  
100 operation becomes successive and is controlled by the downward movement of the punch or staple driver to feed the staple and by the upward movement of said punch or  
105 staple driver to hold the staple on the slide 38 ready for feeding, if ahead.

It will be seen that the operation of this machine is positive and direct acting and that the parts all work simultaneously and automatically. The construction is comparatively  
110 simple and is reduced in cost to a minimum.

Having described the invention, what is claimed as new is—

1. In a stapling machine, the combination  
115 of a punch or staple driver, a vertically movable slide in which said punch has movement, a feeding chute communicating with said slide, a lever for operating said punch or staple driver, a plate with an opening therein  
120 supported by said lever and having other plates secured thereto on opposite sides thereof and having slots therein which are reversely arranged, a feed slide extending through the said plate with an opening therein,  
125 a trough connected to the upper end of the said slide, and a box or chamber having an opening in the bottom thereof with which the said trough communicates, substantially as described.

2. In a stapling machine, the combination  
130 of a punch or staple driver, a lever for operating said punch or staple driver, chutes for directing the staple to the said punch or staple



driver, a box or chamber for receiving the staples having a trough extending from the bottom thereof, a feed slide connected to said trough, a vertically movable plate supported  
5 by said lever and having an opening therein through which the said feed slide passes, and other plates secured to opposite sides of the aforesaid plates and having slots therein arranged in opposite positions, substantially as  
15 described and for the purposes specified.

3. In a stapling machine, the combination with a punch or staple driver and means for directing the staples thereto including a feed slide, of a plate vertically movable and hav-  
15 ing an opening therein through which said feed slide passes, and other plates arranged on opposite sides thereof at the upper and lower portions of the same respectively and formed with slots which are reversely posi-  
20 tioned, substantially as described.

4. A box or receptacle for receiving staples, having a shaft extending therethrough, brush-arms diametrically arranged on said shaft and oscillatable therewith and provided with  
25 brush-sections separated by intervening spaces extending transversely of the said arms, combined with a fully-cut gear-wheel on the lower end of the said shaft, a gear-wheel meshing with the aforesaid gear-wheel and having  
30 teeth in the periphery thereof that extend only partially over the circumference of the

same, a pitman eccentrically connected to the said latter gear at the upper end thereof, an operating-lever to which the lower end of said pitman is attached, a chute and a punch or  
35 staple-driver pivotally connected to and operated by the front end of said operating lever, substantially as described.

5. In a stapling machine, the combination of a spring actuated punch or staple driver,  
40 a lever secured to the upper portion thereof and having a spring projecting over the upper front portion of the same and movable therewith, a vertically movable slide in which said punch or staple driver has movement, a  
45 feeding chute communicating with said slide, a box or receptacle for receiving staples having a trough extending from the bottom thereof, a feed slide connected with said trough and partially covered by a guard, and a ver-  
50 tically movable plate having an opening therein through which the said feed slide passes and provided with slotted plates secured to opposite sides thereof and in reversed position, substantially as described. 55

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GILBERT HAY.

Witnesses:

H. ROSE,

J. D. BLACKWELL.