Jan. 9, 1923. 1,441,474

A. M. ANDERSON.
STAPLING MACHINE.
FILED APR. 8, 1922.

2 SHEETS-SHEET 1

Fig. 2.

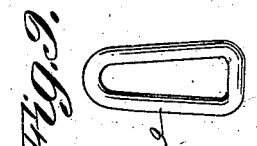


Fig. 4.

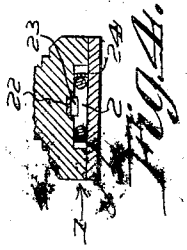
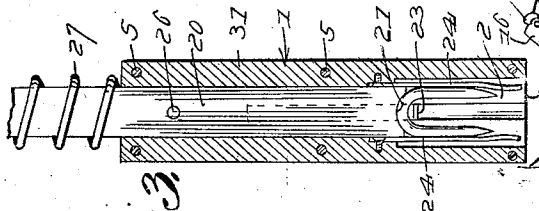


Fig. 1.

Fig. 3.



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2 SHEETS-SHEET 2

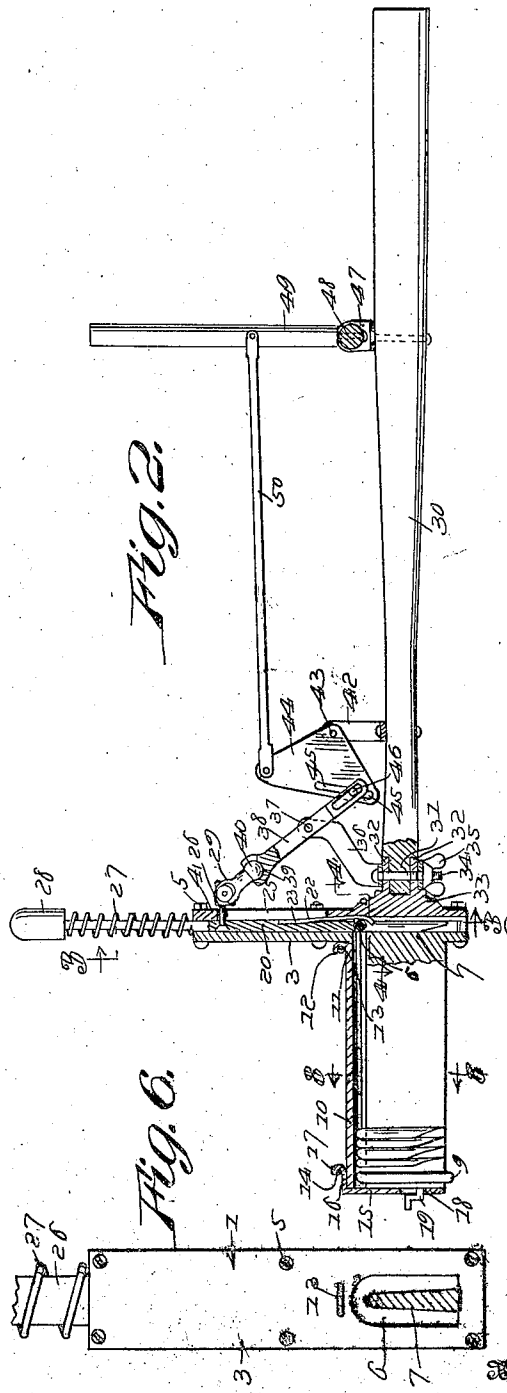


Fig. 2.

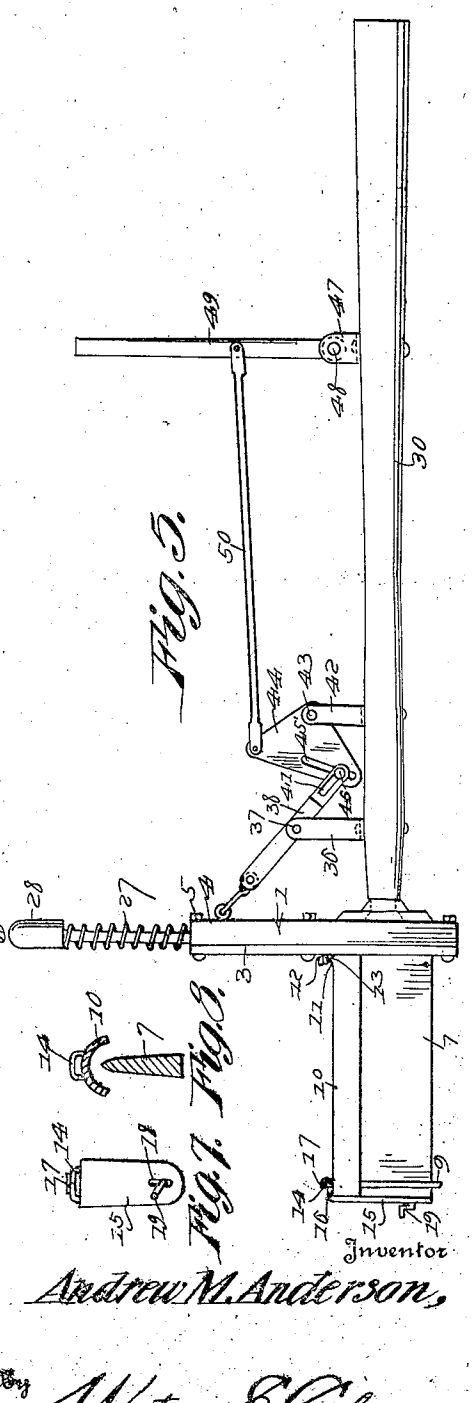


Fig. 5.

Fig. 6.

Fig. 7. Fig. 8.

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UNITED STATES PATENT OFFICE.

ANDREW M. ANDERSON, OF HEPBURN, IOWA.

STAPLING MACHINE.

Application filed April 8, 1922. Serial No. 550,787.

To all whom it may concern:

Be it known that I, ANDREW M. ANDERSON, a citizen of the United States, residing at Hepburn, in the county of Page and State of Iowa, have invented certain new and useful Improvements in Stapling Machines, of which the following is a specification, reference being had to the accompanying drawings.

It is the purpose of the present invention to provide a stapling machine provided with a magazine for the staples and means for feeding staples from the magazine to a position under the ejector or driver.

Another purpose is to provide a stapling machine of this kind, wherein a staple receiving chamber is employed, there being a suitable guide extending into the chamber for guiding the staples thereinto, in combination with an ejector or driver, means for first ejecting the staple from the chamber comprising a manually actuated mechanism on the handle of the machine, and means constructed and arranged to permit a staple to be driven into the material by hammer blows imparted to the ejector or driver.

Still another purpose is the provision of a guide provided with a cover to hold the staples on the guide, there being means for removably attaching the cover to the machine.

A further purpose is to provide a machine, wherein the ejector includes means for receding a staple before it is driven, in case the staple is incorrectly placed.

A still further purpose is to provide a machine wherein the chamber for the staple is provided with means at its lower end to slightly retard the ejecting action of the staple, when the staple is in the act of being ejected. This retarding means also acts to guide the staple from the chamber.

The invention also aims to provide a stapling machine including a casing with staple ejecting means and a handle connected to the casing pivotally, and carrying the manually actuated ejector operating means, the connection between said ejector operating means being substantially concentric with the pivotal connection of the handle, whereby the handle may be turned in different lateral directions, so that the machine may be used for setting staples in a cavity, or around an object. In other words should it be necessary to set and drive a staple around the corner of an object, it may be accomplished with the present form of machine, due to the pivotal action of the handle.

It is to be understood that the particulars herein given are in no way limitative and that while still keeping within the scope of the invention, any desired modifications of detail and desired proportions may be made in the apparatus according to circumstances.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a view in perspective of the improved stapling machine constructed in accordance with the invention, showing the handle as having been moved in a lateral direction, in order to indicate how the stapling machine may be used in a cavity or around an object;

Figure 2 is a longitudinal sectional view through the machine, showing the guide extending into the staple receiving chamber, and also the means carried by the ejector or plunger for receding the staple, in case the same is incorrectly placed in position;

Figure 3 is a vertical sectional view on line 3—3 of Figure 2, showing the spring jaws at the bottom of the staple receiving chamber, for guiding and holding the staple as it is being ejected;

Figure 4 is a horizontal sectional view on line 4—4 of Figure 2;

Figure 5 is a view in side elevation of a modified form of stapling machine, wherein the pivotal connection of the handle is eliminated.

Figure 6 is a face view of the casing showing the opening 6;

Figure 7 is an end view of the guide showing the cover plate 15;

Figure 8 is a sectional view on line 8—8 of Figure 2;

Figure 9 is a detail view of the follower.

Referring to the drawings, 1 designates a casing having a staple receiving chamber 2. This casing is composed of two sections 3 and 4 secured together by bolts 5. The wall or section 3 of the casing has an opening 6, which conforms to the contour of a

staple. A staple guiding shank 7 is formed integrally with the section or wall 3 and extends into the opening 6. The staples to be fed into the chamber straddle the guiding shank, there being a loop follower 9 engaging the shank, and suitable means such as a retractible spring (not shown) being provided for forcing the loop follower forward for feeding staples into the chamber. A cover 10 is mounted to conform to the upper edge of the guide shank 7, and is spaced therefrom. The cover 10 acts to hold the staples in straddling positions on the guide shank. A loop is carried by the section or wall 3 of the casing, and fixed or fastened to the cover 10 is a plate 11, provided with a tongue 12 to engage the loop 13, which is carried upon the wall 3 of the casing. The outer face of the cover 10 adjacent one end is provided with a loop 14. The latch plate 15 is disposed adjacent the outer end of the guide shank 7, and the upper end of the latch plate terminates in a flange 16 provided with a hook 17, which engages the loop 14. The lower end of the latch plate 15 has a slot 18, through which a button 19 engages. This button is mounted so as to be rotated, so that it may be disposed at right angles to the slot, to hold the latch plate closed, thereby preventing the staples from disengaging the guide shank.

Mounted for vertical movement in the chamber 2 of the casing is an ejector or plunger 20, the lower end of which is arcuately formed as shown at 21, to conform to the curvature of the staple. The ejector is adapted to move downwardly, to eject a staple from the chamber, so that the extremities of the arms of the staple may be ejected sufficiently beyond the lower end of the casing, so as to pierce the wood, post or the like into which the staple is to be driven. The inner face of the wall 4 of the casing has an elongated groove 22, which receives a spring 23 of the ejector, when the same is moved downward for the purpose of ejecting a staple. However, if the plunger is moved downward, and the staple is partly ejected from the chamber, and it is discovered that the terminals of the arms of the staple are not properly placed, and the plunger or ejector actuating means are manually released allowing the ejector to recede, the staple will recede with it, due to the spring engaging under the arcuate portion of the staple.

Countersunk in and secured to the walls of the lower part of the chamber of the casing, that is at right angles to the walls or sections 3 and 4 are leaf springs 24, which bear upon the arms of the staple as it is ejected or discharged from the chamber. These leaf springs act to guide the staple as it is being discharged, and also insure preventing the staple from leaving the chamber. In fact the springs 24 assist the spring 23.

The upper part of the wall or section 4 of the casing has an elongated slot 25, which receives a pin 26, which is carried by the ejector or plunger. This slot 25, particularly its ends cooperating with the pin 26 limit the ejector or plunger in its movement.

Surrounding the upper portion of the ejector or plunger is an expansion coil spring 27, which is interposed between the head 28 of the ejector and the upper end of the casing. This spring normally holds the plunger or ejector in a raised position, so as to permit a staple to feed under and in engagement with the arcuate end of the ejector. The pin 26 has pivoted to it a link 29.

A handle 30 is provided, and one end thereof has a reduced portion 31, which is pivoted between the opposed plates 32 and the stud 33, which is carried by the section or wall 4 of the casing. A screw 34 passes through the plates 32 and the reduced end 31 and has a wing nut 35 applied to its end. A U-shaped bracket 36 is also mounted upon the pivot of the handle. The screw 34 passes through the base of the bracket 36. The sides or arms of the bracket 36 extend upwardly and rearwardly and terminate in perpendicular portions, the ends of which receive a pivot bolt 37, which pivotally supports the link or lever 38. The end 39 of the link or rod 38 has a universal connection 40 with the link 29. It is to be noted that the universal joint connection 40 is substantially immediately in alignment with the pivot 34, in order to permit the handle 30 to move laterally in either direction, without causing any undue binding between the connecting parts of the actuating mechanism, which is carried by the handle. The lower end of the link or lever 38 is bifurcated as shown, and the arms caused to be formed by said bifurcation have slots 41.

A U-shaped bracket 42 is mounted upon the handle, and arranged between the arms and pivotally mounted upon the pivot bolt 43 is a plate 44. An arcuate slot 45 is formed in the plate 44, and passing through this slot, and also through the slots 41 of the arms of said bifurcated end of the lever 38 is a connecting or pivot bolt 46. Obviously when the plate 44 is tilted on its pivot, the lever 38 is tilted upon its pivot, thereby causing the end 39 (which is universally connected to the link 29) to move downward, forcing the ejector or plunger downwardly in its chamber. Due to the lower end of the ejector or plunger being arcuately formed, it bears upon the arcuate portion of the staple, and ejects the same from the chamber. The arms of the staple in this action

extend beyond the lower end of the casing, sufficiently in order to enable an operator to place the ends of the arms in proper position on the board or post into which the staple is to be driven. After so placing the staple, sufficient hammer blows are imparted upon the head of the ejector or plunger, until the arms of the staple are driven into the post or board a distance substantially equal to the length of the extending ends of the arms of the staple. In fact the staple may be driven a substantial depth into the post or board, but not entirely home, while the stapling machine is in position. After the staple has been driven a distance sufficiently to properly set the staple, or almost completely home, the stapling machine may be detached, and the staple may then be driven home, by use of a hammer.

Also mounted upon the handle 30 is a U-shaped bracket 47, between the arms of which the trunnion 48 is mounted. The reduced ends of the trunnion are engaged in openings of the arms of the U-shaped bracket. A lever 49 is fixed to the trunnion, and connecting the lever and the plate 44 is a link 50.

Obviously by tilting the lever rearwardly, a pulling action is imparted upon the link 50, which in turn tilts the plate 44, and due to its slot and bolt connection with the lever 38, its end 39 will tilt downwardly, thereby actuating the ejector or plunger, sufficiently to eject the staple from the chamber of the casing.

In Figure 5 the stapling machine is substantially the same as the construction in Figures 1 to 4, with the exception that the handle 30 is immovable relatively to the casing. In other words the pivot of the handle with the casing is eliminated.

The invention having been set forth, what is claimed is:

1. In a stapling machine, a casing having a staple receiving chamber, a staple guide therefor, an ejector in said chamber, a handle operatively connected on the casing for swinging laterally, and ejector operating means on the handle and having a connection with said ejector, said connection being formed concentric with the fulcrum of said handle, means connected to the ejector for receding the staple before it is driven in case of incorrectly setting the staple.

2. In a stapling machine, a casing having a staple receiving chamber, an ejector mounted for reciprocating movements in said chamber, means for actuating said ejector, means on the ejector for receding the staple before it is driven in case of incorrectly setting the staple, means at the lower portion of the chamber to assist said staple receding means, and to retain the staple in the chamber in case the means carried by the ejector fails to function.

3. In a stapling machine, a casing having a staple receiving chamber, a spring tensioned ejector operable therein, a handle mounted on the casing for pivotal movement laterally, an ejector operating means mounted on the handle, a universal joint connecting the ejector and a part of said operating mechanism, said joint being aixally concentric with the pivot of the handle, thereby permitting said operating mechanism to function when the handle is disposed at an angle to the casing.

4. In a stapling machine, a casing having a staple receiving chamber, an ejector mounted for reciprocating movements in said chamber, means on the ejector for receding the staple before it is driven in case the same is incorrectly placed, a handle operatively connected to the casing for lateral swinging movement, and means on the handle and operatively connecting with the ejector for imparting movement thereto.

5. In a stapling machine, a casing having a staple receiving chamber, an ejector mounted for reciprocating movements in said chamber, a handle connected to the casing, a pair of oscillatory members mounted upon the handle and having slot and pin connections, one of said members being connected to said ejector, and a swinging element mounted on the handle for oscillating the other member.

6. In a stapling machine, a casing having a staple receiving chamber, a guide for guiding the staples into said chamber, a latched cover for said guide, an ejector in the staple receiving chamber for partly ejecting a staple, whereby it may be placed, means on the ejector for receding the staple before it is driven in case the same is incorrectly placed, a handle connected to the casing, and means carried by the handle and operatively connected to the ejector for reciprocating the same.

In testimony whereof I hereunto affix my signature.

ANDREW M. ANDERSON.