April 28, 1942. W. G. PANKONIN 2,281,322

STAPLING MACHINE ANVIL

Original Filed Sept. 26, 1940

Fig. 1.

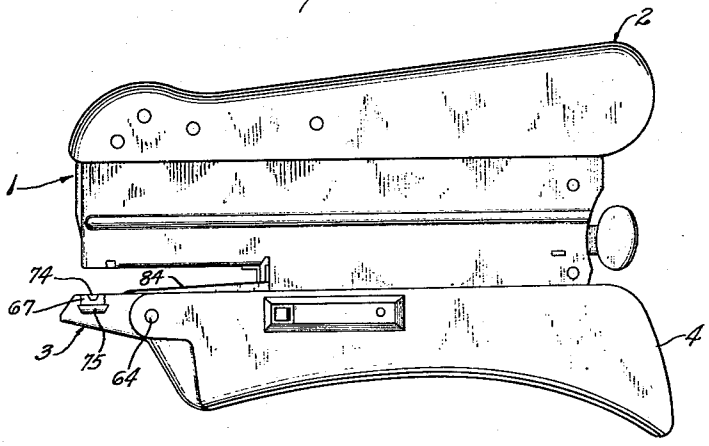
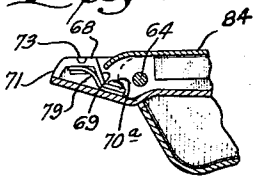


Fig. 2.



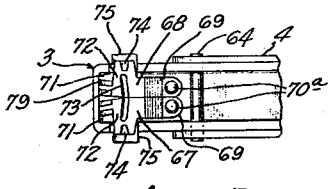


Fig. 3.

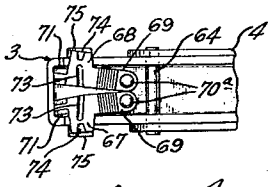


Fig. 4.

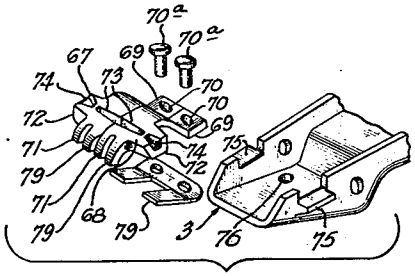


Fig. 5.



Fig. 6.

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STAPLING MACHINE ANVIL

William G. Pankonin, Chicago, Ill.

Original application September 26, 1940, Serial No. 358,439. Divided and this application April 11, 1941, Serial No. 388,011

5 Claims. (Cl. 1—49)

This invention relates generally to improvements in stapling machines of the "plier" type.

This application is a division of the copending application of William G. Pankonin, Serial No. 358,439, filed September 26, 1940, for "Stapling machines."

An object of the invention is to provide a stapling machine having a simplified staple clinching anvil adapted to clinch the legs of the staple under the body thereof, or to clinch one under the body and one extending outwardly, or to bend both legs outwardly, thereby providing a permanent or temporary fastening.

Other objects and advantages reside in certain novel features of the construction, arrangement, and combination of parts, which will be hereinafter more fully described and particularly pointed out in the appended claims, reference being had to the accompanying drawing forming a part of this specification, and in which:

Figure 1 is a view in side elevation showing a stapling machine embodying the present invention;

Figure 2 is a fragmentary sectional view in side elevation showing the staple clinching anvil embodying the present invention;

Figures 3 and 4 are fragmentary plan views showing the staple clinching anvil in two of its selective positions;

Figure 5 is an exploded view in perspective showing the various parts comprising the staple clinching anvil embodying the present invention; and

Figure 6 illustrates a group of staples as they are deformed in the device herein illustrated and described.

Referring now to the drawing, the stapling machine generally comprises a body member 1 which defines a magazine and ejection chute, a top casing handle 2 operable in the driving of staples from the magazine and ejection chute, an anvil supporting lever 3, and a lower casing handle 4. The stapling machine is designed to be constructed of sheet metal parts stamped out or struck up in dies to render the machine light in weight and economical to manufacture although the various parts may be otherwise constructed. Throughout the description the forward end is defined as the left end as viewed in the figures, and vice versa.

The anvil supporting lever 3 is channel-shaped in cross section. At its forward portion the width of the lever 3 is enlarged to be substantially the same width as the main body member 1. The forward widened portion of anvil supporting lever 3 carries the staple clinching anvil members 67 and 68. The anvil members 67 and 68 are identical in construction with the exception that they are right and left-hand opposites. Each has a downwardly curved rear portion 69 having therein aperture 70. The portion 69 is adapted to fit against the bottom of the forward end of anvil supporting lever 3 and to be secured thereto by rivet 70a. Each of the anvil members 67 and 68 has a forwardly and downwardly curving portion 71, the lower part of which bears against the top forward edge of the bottom of anvil supporting lever 3. The main or middle bridge portion 72 of each anvil member 67 and 68 has an extension which extends to one side in the case of member 67 and to the opposite side in the case of member 68. The tops of the bridge portions 72 are provided with two sets of clinching cavities, one an elongated cavity 73, the other a shorter cavity 74. The elongated cavity 73 slopes downwardly and outwardly from the central portion of the bridge to the non-extension side of each member. The short cavity 74 slopes downwardly and outwardly from a point closely adjacent the inner end of cavity 73 to the extension side of bridge portion 72. Laterally flared flanges 75 are formed on the sides of the anvil supporting lever 3 at its widened forward end. The rivets 70a are secured in apertures 76 provided in the forward portion of the bottom of anvil supporting lever 3 and are positioned with such relation to the flanges 75 that the bottom of the extensions of the bridge portions 72 ride on the flanges 75. A spring 79 having wing members if fitted between the anvil members 67 and 68 and the bottom of anvil supporting lever 3. The purpose of spring 79 is to maintain each of the anvil members 67 and 68 under sufficient tension to maintain them in selected positions. As shown in Figures 3 and 4, the anvil members 67 and 68 may be pivoted about the rivets 71 until they are in inward side engaging contact (see Figure 3). In such position the inner ends of the shorter cavities 74 are directly in alinement with the legs of staples as they are forced out of the ejection chute. The outward and downward slope of the cavities 74 cause the legs of the staples to be bent outwardly and clinched against the bottom of the material stapled. This forms what is termed a temporary or pin stitch, as illustrated in the right-hand staple of the group of Figure 6. The anvil members 67 and 68 may be pivoted about the rivets 71 until each engages with the respective side of anvil supporting lever 3, as illustrated

in Figure 4. In this position, the internal ends of the larger cavities 73 are directly beneath the legs of staples being ejected from the ejection chute. The slope of the cavities 73 bend the legs of the staple inwardly beneath its bridge portion forming what is termed a "permanent" stitch, as illustrated in the left-hand staple of the group of Figure 6. In some instances it may be desired to have a combination of a permanent and a temporary stitch. In such event it is only necessary to have one of the anvil members moved outwardly until it abuts the side of lever 3 and the other moved to or left in the inward position. So positioned, one leg of the staple will be bent outwardly and the other leg of the staple will be clinched inwardly under the bridge, as illustrated in the middle staple of the group of Figure 6. In order to move the anvil members 67 and 68 about their pivot points, the face of the forward ends may be provided with grooves 79 which may be readily engaged by the fingernail of the operator, or by other means.

In order to enhance the appearance of the machine there is provided a false bottom 84, which frictionally fits within the forward widened end of the anvil supporting lever 3 rearward of the anvil members 67 and 68.

While constructions in which this invention may be embodied have been shown and described, it is to be understood that these constructions have been selected merely for the purpose of illustration or example and that various changes in size, shape, and arrangement of parts may be made without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. An anvil for a stapling device comprising a plurality of anvil members, each member having a plurality of differently acting clinching cavities, said members being movable to selected positions whereby the desired clinching cavity may be alined with the legs of the staple driven from the stapling device.

2. In a stapling machine having an ejection chute from which staples are driven, a clinching anvil comprising a plurality of anvil members, each member having a plurality of differently formed clinching cavities, said members being pivoted so as to be swung toward and away from each other within predescribed limits, certain of said clinching cavities being sloped to bend the legs of staples as they are ejected through said chute inwardly beneath the bridge of a staple when said members are moved to one limit of their travel, and others of said clinching cavities being sloped to bend the legs of staples as they are ejected from said chute upwardly and away from the bridge portion thereof when said members are moved to another of their limits of travel.

3. In a stapling machine having an ejection chute for staples, a staple clinching anvil comprising a plurality of anvil members, each of said anvil members having a plurality of differently acting camming slots selectively cooperable with one leg of a staple being ejected from said ejection chute, said members being individually pivoted for swinging movement toward and away from each other, and abutment means positively limiting the movement of said members away from each other.

4. In a stapling machine having an ejection chute for staples, a staple clinching anvil comprising a plurality of anvil members, each of said anvil members having a plurality of differently acting camming slots selectively cooperable with one leg of a staple being ejected from said ejection chute, said members being individually pivoted for swinging movement toward and away from each other, abutment means positively limiting the movement of said members away from each other, and spring means frictionally holding said members in selected positions.

5. In a stapling machine having an ejection chute and a channel-shaped anvil supporting lever, an anvil positioned within the sides of said lever, said anvil comprising a plurality of differently formed clinching cavities, the sides of said channel member having formed therefrom outward projections leaving downwardly formed cutouts, said members having extended bridge portions operable in said cutouts and positioned on said projections, said members being individually pivoted to said lever and movable toward and away from each other within the limits of the confines of said lever.

WILLIAM G. PANKONIN.