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CLINCHING MEANS FOR STAPLING MACHINES

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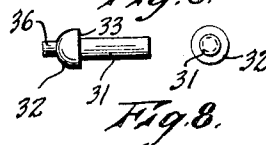
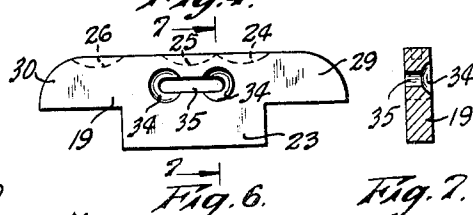
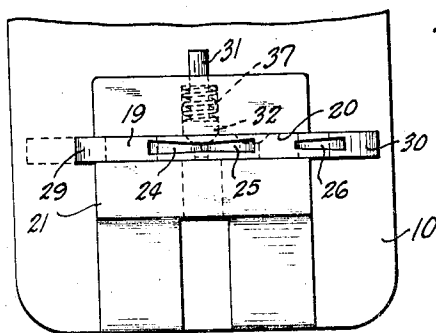
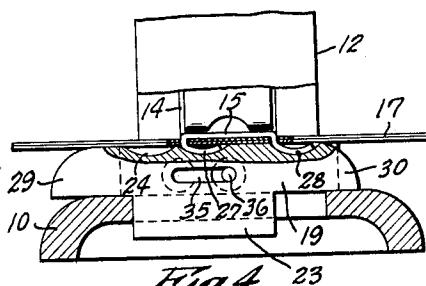
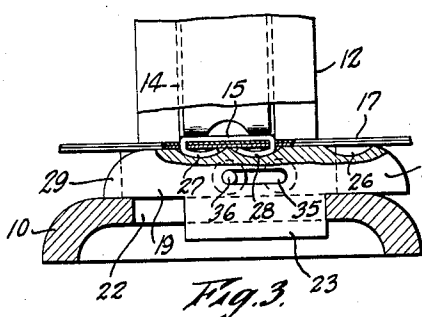
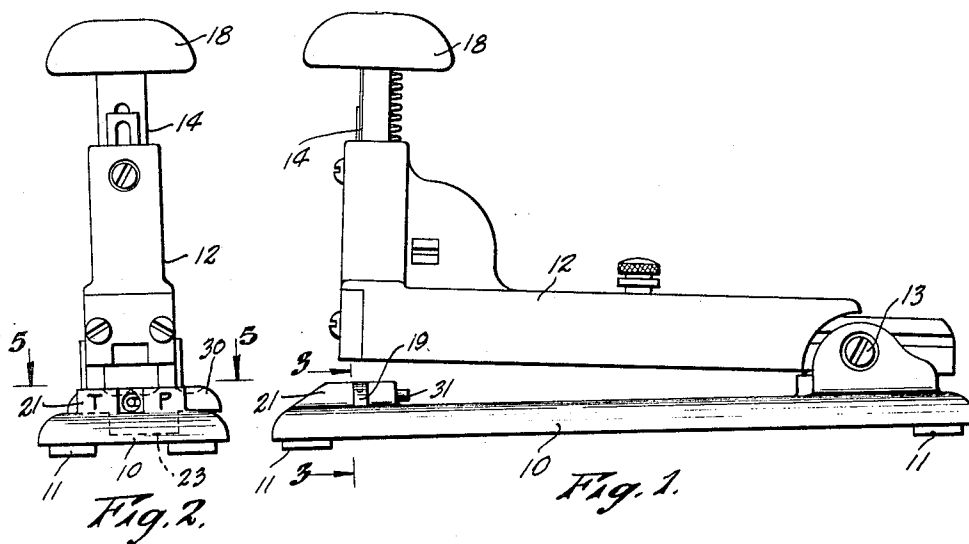


Fig. 5.

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UNITED STATES PATENT OFFICE

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CLINCHING MEANS FOR STAPLING MACHINES

Application filed April 19, 1930. Serial No. 445,750.

This invention relates to stapling machines, and more particularly to stapling machines for setting substantially U-shaped staples, either flat or wire staples, for securing two or more elements together, such for example as sheets of paper. It is often desirable to temporarily staple articles together in such a manner that the staples may be easily removed, as well as to permanently staple articles together. It is, therefore, an object of the present invention to provide a machine in which articles may be permanently stapled together or temporarily stapled as is found desirable, the staples being set differently in each case, and it is another object of the invention to provide the machine with a mechanism whereby it may be quickly and easily changed with a simple operation to set a staple in either manner desired.

It is also an object of the invention to provide a construction of this character which is very simple and not easily gotten out of order, which is easy to manipulate and so does not require a skilled operator, and which when set for clinching the staple in a given manner will remain in this position until a change is desired, but which may be easily and quickly shifted to set the staples in a different manner when such operation is desirable.

With the foregoing and other objects in view, the invention consists in certain novel features of construction, combinations and arrangements of parts as will be more fully disclosed in connection with the accompanying drawing, it of course being understood various modifications may be employed within the scope of the invention as claimed. In this drawing:

Fig. 1 is a side elevation of a stapling machine in which my invention may be employed.

Fig. 2 is a front elevation thereof.

Fig. 3 is an enlarged transverse section taken substantially on line 3—3 of Fig. 1.

Fig. 4 is a similar view showing the anvil shifted to the opposite position.

Fig. 5 is the detailed plan view looking down on top of the anvil as indicated by line 5—5 of Fig. 2.

Fig. 6 is a rear elevation of the anvil removed from the base.

Fig. 7 is a transverse section thereof substantially on line 7—7 of Fig. 6, and

Fig. 8 is a side and end elevation respectively of retaining pin or pawl.

The stapling machine shown is of the desk or office type adapted to be used on a desk and easily portable. It comprises the base 10 having suitable supports 11 which may be rubber pads, and secured to the base is a housing 12 pivoted thereto at 13. This housing has a movable plunger 14 guided in any suitable guideways for setting the individual staples 15, the staples being usually of the substantially U-shaped type of staple in which the prongs are forced through the article 17 to be stapled and then bent over on the under side thereof by a suitable anvil cooperating with the plunger. The plunger is operated by any suitable means such as the hand knob 18, and the housing contains the usual feed mechanism, not shown, for feeding the staples successively to the driving position under the plunger.

Mounted in the base under the plunger is an improved type of anvil 19. The base 10 is provided with a transverse guideway 20 which in the present form is an upright transverse slot or groove in an upwardly extending boss 21 on the base. This guideway also preferably extends as a slot 23 through the base to the under side thereof. The anvil member 19 is a flat bar having a downwardly extending lug portion 23 projecting through the slot 22, and the opposite ends of this extension are adapted to engage the opposite ends of the slot 22 to limit lateral movements of the anvil bar and help retain it in the proper position as well as form stops to automatically position the anvil. The anvil bar is of substantially the width of the bar 20 but is mounted for easy sliding movement therein. In its top edge the anvil bar is provided with staple prong clinching surfaces 24, 25 and 26. Ordinarily for a so-called permanent stapling, the prongs 27 and 28 of the staple are bent in opposite directions, usually toward each other as indicated in Fig. 3, but in temporary stapling

they are both bent in the same direction, one being bent inwardly from the end of the body portion and the other being bent outwardly therefrom as indicated in Fig. 4. When set in this manner, the staple can be comparatively easily removed from the stapled articles. In the present instance, the clinching surfaces 24 and 25 are so arranged that when under the plunger they will bend the staple prongs inwardly toward each other as shown in Fig. 3, and the surfaces 25 and 26 are so arranged that when they are under the plunger in clinching position, one prong as 27 is bent inwardly and the other 28 is bent outwardly as shown in Fig. 4. Thus, the intermediate surface 25 is used in both arrangements. In the first arrangement as shown in Fig. 3 it cooperates with the surface 24 to set the staple and bends the prong 28 inwardly. In the second arrangement as shown in Fig. 4 it cooperates with the surface 26 to set the staple, but bends the other prong 27 inwardly while the surface 26 bends the prong 28 outwardly.

The anvil bar 19 is provided with means for shifting it from one position to the other, this means being conveniently provided by extending the opposite ends of the bar beyond the ends of the guide 20 to form finger pieces 29 and 30. Means is also provided for retaining the anvil in the different positions. That shown has been found very effective and comprises a slidable pin or pawl 31 mounted in a longitudinal opening in the lug 21 of the base. This pin has a rounded head 32 providing a shoulder 33. One side of the anvil bar 19 has a pair of spaced concave recesses 34 to receive the curved head 32, and it also has an elongated slot 35 to receive an extension 36 of the pin. A coiled spring 27 embraces the pin 31, and reacting against the shoulder 33 tends to hold it in the recesses 34. Thus, the anvil is held in one of the two positions by this pin 31, but if it is desired to shift the anvil to the other position to secure a different clinching effect of the staple all that is necessary is to push on the projecting end of the anvil bar either 29 or 30 whichever happens to be the projecting one at that position, and shift it to the other position. The rounded surfaces of the recesses 34 and head 32 act as a cam to retract the pin and permit shifting of the anvil to the other position, at which the pin will automatically seat in the other recesses and retain the anvil in the new position. The projection 36 in the slot 35 prevents the anvil bar from dropping out of the slot.

It will be evident this construction is a very simple one and that when desired, the anvil can be easily and quickly shifted from one position to the other to secure different clinching effects for the staples, and it is, therefore, not necessary to have two different machines to secure the same results, and it

is also not necessary to shift from one machine to another when it is desired to secure different types of clinching.

Having thus set forth the nature of my invention, what I claim is:

1. In a stapling machine a movable plunger for driving substantially U-shaped staples, an anvil provided with clinching surfaces to bend the prongs of the staples, said surfaces being arranged in pairs to set the staples in different manners, one of the surfaces forming a member of two different pairs, and said anvil being shiftable to bring either pair of clinching surfaces in operative position.

2. In a stapling machine a movable plunger for driving substantially U-shaped staples, an anvil having three depressed surfaces to engage the staple prongs to bend them laterally, one of the outer surfaces being adapted to bend a prong toward the intermediate surface, the other outer surface being adapted to bend a prong away from the intermediate surface, and the intermediate surface being adapted to bend a prong in either direction, and means permitting the shifting of the anvil to bring the intermediate and either of the other surfaces in operative relation to the plunger.

3. In a stapling machine a movable plunger for driving substantially U-shaped staples, an anvil having three clinching surfaces for engaging the staple prongs to bend them laterally and adapted when the intermediate and one of the outer surfaces are in operative relation to the plunger to bend the staple prongs in opposite directions and when the intermediate and other outer surface are in operative relation to the plunger to bend the prongs in the same direction, and means permitting the shifting of the anvil from one position to the other.

4. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving substantially U-shaped staples, an anvil mounted for transverse movement on said base having a plurality of clinching surfaces to engage the prongs of the staples, said surfaces being arranged in pairs to set the staples in different manners, one of the surfaces being a member of two different pairs, and means permitting the shifting of the anvil to bring either pair of clinching surfaces in operative relation to the plunger.

5. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving substantially U-shaped staples, an anvil mounted for transverse movement on said base having three depressed surfaces to engage the staple prongs to bend them laterally, one of the outer surfaces being adapted to bend a prong toward the intermediate surface, the other outer surface being adapted to bend a prong

away from the intermediate surface, and the intermediate surface being adapted to bend a prong in either direction, and means permitting the shifting of the anvil to bring the intermediate and either of the other surfaces in operative relation to the plunger.

6. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving substantially U-shaped staples, an anvil mounted for transverse movement on said base having three depressed surfaces for engaging the staple prongs to bend them laterally and adapted when the intermediate and one of the other surfaces are in operative relation to the plunger to bend the staple prongs in opposite directions and when the intermediate and other outer surface are in operative relation to the plunger to bend the prongs in the same direction, and means permitting the shifting of the anvil from one position to the other.

7. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving substantially U-shaped staples, said base having a transverse guideway, an anvil mounted to slide transversely in said guideway and provided with staple clinching surfaces in its upper wall to cooperate with the plunger, means permitting the shifting of the anvil to bring different clinching surfaces in operative relation to the plunger, and means for retaining the anvil in different positions.

8. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving the staples, said base being provided with an upright transverse guide groove, an anvil bar mounted to slide in said groove transversely of the base and provided with a plurality of clinching surfaces to engage the staple prongs, means permitting the shifting of the anvil bar to bring different clinching surfaces in operative relation to the plunger, and means for retaining the bar in different positions.

9. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving the staples, said base being provided with a transverse guideway, an anvil bar mounted for sliding movement in said guideway and projecting therefrom at its opposite ends to provide finger pieces for shifting the anvil, said anvil being provided on its top surface with a plurality of staple clinching surfaces, and means for retaining the anvil in different positions.

10. In a stapling machine, a base, a housing connected therewith, a movable plunger in the housing for driving the staples, said base being provided with a transverse guideway, an anvil bar mounted for sliding move-

ment in said guideway and having a plurality of staple clinching surfaces in its top wall, means permitting the shifting of the bar to bring different surfaces in operative relation with the plunger, said bar being provided with spaced recesses on one side thereof, and a spring pressed pawl to seat in said recesses and hold the bar in different positions.

In testimony whereof I affix my signature.
FRIDOLIN POLZER.

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