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C. F. KUCH, JR., ET AL

WIRE STAPLING MACHINE

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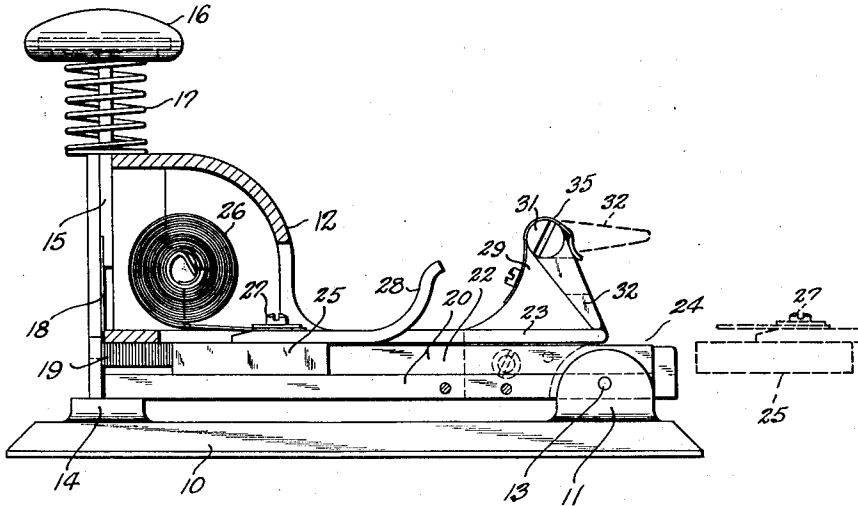


Fig. 1.

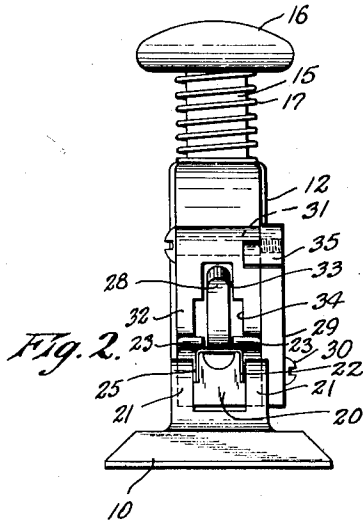


Fig. 2.

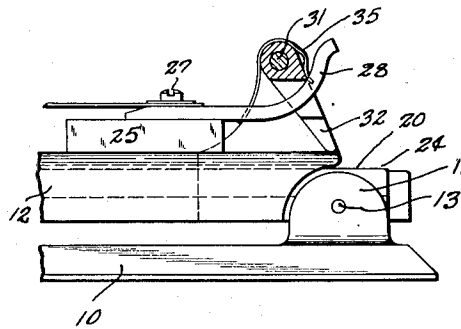


Fig. 3.

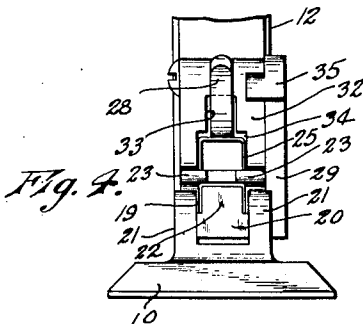


Fig. 4.

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WIRE-STAPLING MACHINE.

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This invention relates to stapling machines, and particularly to the type in which there is a magazine or guide for holding a number of preformed wire staples, a plunger for driving and setting the individual staples and a follower advanced by means of a spring to feed the staples along the guide to the plunger. Usually in this type of devices the follower is removable through the rear end of the machine or off the rear end of the guide to allow for insertion of the staples on the guide, and of course this action requires the retraction of the follower against the action of the feeding spring, and it has been found that great care must be taken to prevent the spring suddenly drawing the follower forwardly when it is removed from the machine and breaking its connection with the follower or injuring the operator. It is, therefore, an object of our present invention to provide a simple and effective means for holding and retaining the follower during the operation of feeding the staples to the guide so as to prevent injury either to the machine or to the operator.

With the foregoing and other objects in view, we have devised the construction illustrated in the accompanying drawing forming a part of this specification, similar reference characters being employed throughout the various figures to indicate corresponding elements. In this drawing,

Fig. 1 is a partial longitudinal vertical section and a partial side elevation of a stapling machine showing our improved holding device applied thereto.

Fig. 2 is a rear end elevation of the machine.

Fig. 3 is a partial side elevation and partial section of the rear end of the machine showing the follower held in position to allow insertion of a supply of staples to the machine, and

Fig. 4 is a rear end elevation with the elements in the position shown in Fig. 3.

The specific staple driving mechanism forms no part of our present invention, but for the purpose of illustration we have shown in the drawing this stapling machine as comprising a base 10 having upright ears 11 between which the housing 12 is pivoted by means of pivot 13 through the guide 20 and

in which housing the staple holding, feeding and driving mechanism are mounted. The base also carries an anvil 14 for cooperation with the staple driving and setting means mounted in the housing. In the present showing this driving and setting means comprises a vertically reciprocating plunger 15 having a head 16 for operation thereof and a spring 17 tending to hold the plunger in its upper position. The plunger carries at its lower end a plate 18 for driving and setting the individual staples 19 fed to it on the guide or rail 20. This guide or rail is mounted in the lower part of the housing between the side walls 21 thereof, and is reduced in width at its upper portion, as shown at 22, to allow space between this guide and the housing for passage of the prongs of the staples. The housing has longitudinally extending ribs 23 extending inwardly over this guide to retain the staples on the guide. A large number of staples may be placed on this guide from the rear end 24 thereof from any suitable charging device, and they are advanced on this guide to the plunger by means of a follower having a body portion 25 of substantially inverted U-shape in cross section so as to straddle the top of the guide 20 and be guided thereby. It is retained on the guide by the ribs 23 the same as the staples, and it is advanced along the guide to push the staples forwardly to the plunger by means of a spring 26. In the present instance this is a flat convolute spring connected at one end to the follower by any suitable means such as the screw 27, and the follower includes a curved handle 28 by which it may be retracted or slid rearwardly on the guide 20 to remove it from the rear end of this guide for the purpose of placing a supply of staples on the guide.

It will be apparent that when a new supply of staples are placed in the machine on the guide 20 the follower must be withdrawn through the rear end of the machine against the action of the spring 26 because the staples must be placed on the guide in front of the follower. During this operation care must be taken not to release the follower or the spring will snap it suddenly forwardly, and the sudden stopping of the follower against the housing is liable to break its con-

nection with the spring. Any such sudden snapping forwardly of the follower is also liable to injure the operator. To prevent this we have provided a simple and effective means for holding the follower while the staples are being fed to the machine. The housing may include an upright ear or supporting lug 29. In the present construction this is a separate member secured to the housing by a screw 30, but it may of course be formed in one piece with the housing. Pivoted to this ear at 31 is a holding member 32. This member has a notch leading from its lower edge so that in effect the member is substantially U-shape, although the upper portion 33 of this notch is narrower than the lower portion 34. The holder is so mounted that it is normally in the inclined position shown in Figs. 1 and 2 with its lower edge rearwardly of the pivot 31 and resting on the tops of the ribs 23 of the housing. When in this position the follower may pass in either direction under the holding member if the follower is on the guide 20 as the upwardly extending handle 28 will pass through the notch in the holder. Usually in retracting the follower the operator places a thumb on the forward side of the handle and pushes it backwardly or to the right as viewed in Fig. 1, and as the holder 32 is pivoted it will yield rearwardly and not interfere in any way with the rearward movement of the follower. As soon as the follower has passed to the rear of this holding member it will drop to its original position and the follower is removed from the rear end of the guide as shown in dotted lines in Fig. 1. The follower is then raised slightly and is placed on the tops of the ribs 23 by which it is supported, and it is drawn forwardly through the notch in the holding member 32 to the position shown in Figs. 3 and 4. The lower portion 34 of the notch is of sufficient height and width to allow the body of the follower to pass through but the top of the upper portion of the notch will engage the handle 28 as shown in Figs. 3 and 4 to retain the follower in this position against the action of the spring 26. It will be apparent that now the follower is securely held in a position where its connection with the spring cannot be broken and where there is no danger of its being jerked forwardly by the spring and injuring the operator. It is also in a position where it cannot interfere in any way with the placing of a new supply of staples on the guide 20. The holding member 32 is normally yieldably held in the full line position of Figs. 1 and 2 by means of a spring 35 mounted on the support 29 and engaging the rear side of the holding member. After the staples have been placed on the guide the follower may be easily drawn rearwardly under the holding member from the position shown in Fig.

3 and replaced on the guide 20 at the rear of the staples. The machine is now in condition for use.

Having thus set forth the nature of our invention what we claim is:

1. In a stapling machine, means for driving and setting the individual staples, a support and guide for the staples, a follower movable along said guide to advance the staples and removable from the rear end of the guide for insertion of the staples, a spring for advancing the follower, and a holding means movably mounted adjacent said guide in such a position that it permits movement of the follower while on the guide in either direction and normally prevents forward movement of the follower when withdrawn from the guide and drawn thereagainst by the spring, said holding means being displaceable to allow forward movement of the follower when withdrawn from the guide.

2. In a stapling machine, means for driving and setting the individual staples, a support and guide for the staples, a follower movable along said guide to advance the staples and removable from the rear end of the guide for insertion of the staples, a spring for advancing the follower, and a holder pivotally mounted above the guide in such a position that it permits movement of the follower while on the guide in either direction and prevents forward movement of the follower when withdrawn from the guide and drawn thereagainst by the spring, said holder being displaceable by the operator's finger as he withdraws the follower from the guide.

3. In a stapling machine, a housing, means for driving and setting the individual staples, a support and guide for the staples, a follower movable along said guide to advance the staples, a spring for advancing the follower, said housing having portions extending over the guide to retain the staples and follower thereon and adapted to support the follower when removed from the guide, a support extending above the housing, a holding member pivoted to the support above the guide, said member being of substantially inverted U-shape, and the follower being adapted to pass through said member while on the top of the housing, and means carried by the follower to engage the member to hold the follower against forward movement.

4. In a stapling machine, a housing, means for driving and setting the individual staples, a support and guide for the staples, a follower movable along said guide to advance the staples, a spring for advancing the follower, said housing having portions extending over the guide to retain the staples and follower thereon and adapted to support the follower when removed from the guide, a support extending above the hous-

ing, a holding member pivoted to the support above the guide and having a free lower edge provided with a notch of the proper shape to allow passage of the body of the follower when removed from the guide, and a handle on the follower arranged to engage the bottom of said notch to hold the follower against forward movement when supported on the housing.

In testimony whereof we affix our signatures. 10

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