

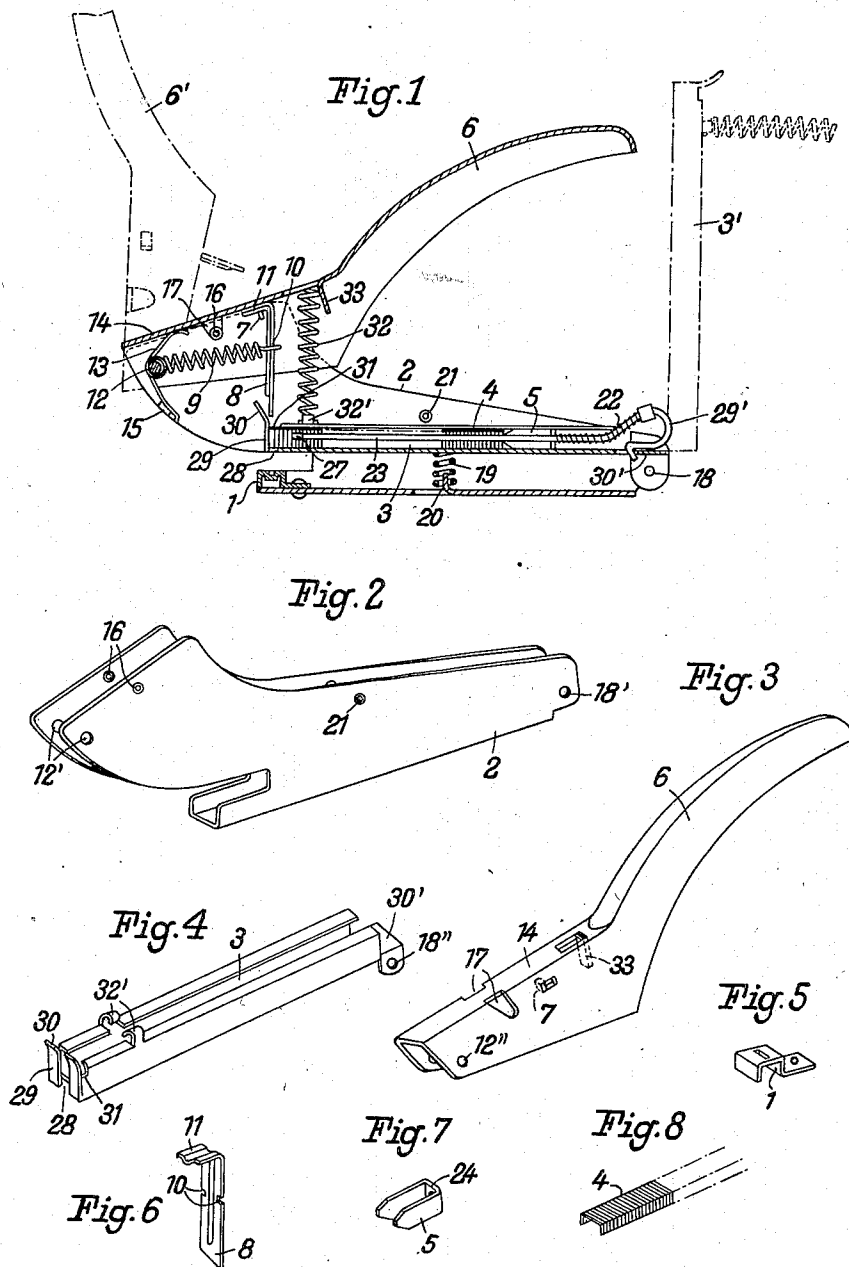
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PLIERLIKE STAPLING MACHINE

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## PLIERLIKE STAPLING MACHINE

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The present invention relates to a plier-like stapling machine, and has for its purpose to simply and rapidly free the clamp or staple channel, so that the staple feed exit point will be easily accessible from all sides. It is an object of the present invention to produce a plier-like device in which the arm operating the stamper and the member in which the staple channel is provided can be adjusted from the normal or stapling position to the open position, or vice versa, by merely overcoming wedging action without removing any part or parts, so that in this way the staple exit end of the staple carrier is easily accessible from the front and sides.

Further objects will be apparent from the following description, taken in connection with the accompanying drawing, in which:

Figure 1 is a longitudinal sectional view of the stapling machine or tool, and

Figs. 2 to 8 are all perspective views, of which, Fig. 2 is the frame-like lower arm of the tool, Fig. 3 the upper arm, Fig. 4 the staple carrier or channel, Fig. 5 the base or anvil, Fig. 6 the stamper or rammer, Fig. 7 the staple feeder or slide, and Fig. 8 the staple rod.

The plier-like stapling tool consists of three main parts, namely, the housing or frame-like lower arm 2 carrying or having secured therein the anvil 1, the channel-like staple carrier 3 in which the staples 4 are fed by a staple feeder or slide member 5, and the upper arm 6 to which the stamper or rammer 8 is hung or mounted preferably by stamped-out lugs 7, so that the stamper may swing a certain extent. The stamper 8 has one end of a tension spring 9 connected thereto at cut-out edge portions 10 (Fig. 6) and the other end of the spring is secured to a pin 12 secured in perforations 12' (Fig. 2) of the lower arm 2 and perforations 12'' (Fig. 3) of the upper arm 6. The stamper 8 is provided with a bent portion 11 (Figs. 1 and 6), which acts as a stop against the back portion 14 of the upper arm 6, so that the stamper will, at all times, be urged in correct position by the spring 9.

The pin or axle 12 interconnects the upper and lower arms 6 and 2 together, so that one pivots on the other. A spring 13 (Fig. 1) may be provided around the pin 12 with its ends bearing on the arms 6 and 2 to urge the arm 6 counterclockwise relative to the arm 2 limited by the two projections 16 (Fig. 2) stamped into the sides of the arm 2, which cooperate with the cut-out portions 17 (Fig. 3) in the side parts of the arm 6 to bring the arm 6 to the full line position shown in Fig. 1. The spring 13 bears by one end on a pro-

jection 15 in the arm 2 and the other end of this spring bears against the back portion 14 of the upper arm 6.

The upper arm 6 can, after overcoming the frictional clamping action of the projections 16, be swung counterclockwise around the pin 12 into the dot and dash line position 6' (Fig. 1). The stamper 8 follows every movement of the arm 6 and thus when the arm 6 is swung into the raised position 6' the stamper 8 is lifted completely out of the housing-like arm 2.

The staple carrier 3 is pivotally connected to the arm 2 by means of the pin or pivot 18 which passes through the perforations 18' (Fig. 2) in the arm 2 and the perforations 18'' (Fig. 4) in the carrier 3. By means of a compression spring 19, which is preferably secured in place at one end to lug 20 (Fig. 1), stamped out from the bottom part of the arm 2, the carrier 3 is urged clockwise around the pin 18 until it contacts the stamped out projections 21 (Fig. 2) in the side walls of the arm 2. If it is desired to move the carrier 3 to the dot and dash line position 3' (Fig. 1), frictional resistance of the carrier over the projections 21 must be overcome. Thus in the position 3' of the carrier 3 it is possible to easily reach the channel in the carrier from all sides and ends.

As seen in Fig. 1, the arm 6 is pivoted to the arm 2 at one end of the latter, and the carrier 3 is pivoted at the other end thereof.

The feed of the staples is accomplished by means of the compression spring 22 mounted on a guide rod 23 (Fig. 1). The guide rod 23 is mounted in the channel of the carrier, and the staple slide 5 (Figs. 1 and 7) slides in the channel on the rod 23 which passes through a perforation in the end wall 24. The rod 23 has an enlarged end 27 (Fig. 1) at one end thereof to prevent the slide 5 from passing off or beyond its guide rod 23. At the other end of the rod 23, a bent portion 29' is provided terminating in a hook which latter engages, through the bottom of the carrier 3, against the cross-piece or bar 30'.

Two upright guide lugs or plates 29 (Figs. 1 and 4) are provided on the staple feed end 28 of the carrier 3 in order to guide the stamper 8 down directly on the end staple and for this purpose the lugs 29 have outwardly bent portions 30. During the stapling operation, when the arms 2 and 6 are moved toward each other around the pivot 12, the stamper 8 is guided along the inner surface of the portions 30, and along the side surfaces of the lugs 29, and pivots around the lugs 7 under the influence of the tension

spring 9 during such movement. Before the stapler 8 enters the channel of the carrier 3, the latter is forced down on the papers or other matter to be stapled by means of the compression spring 32 (Fig. 1), against the operation of the compression spring 19, so that the stapling end of the carrier 3 will be adjacent the anvil 1 to carry out the actual stapling operation upon further movement of the arms 2 and 6. The spring 32 is preferably secured at one end on the carrier 3 by means of bent lugs 32' (Fig. 4), which grip the spring, and the other end contacts against the arm 6 guided by the projecting finger 33. In this manner, it is possible to use the spring 32 as a pull means or member to swing the carrier 3 from the full line to the dot and dash line position 3'.

The housing-like arm 2 is provided with spring-like side parts in order to provide a frictional hold for the projections 16 and 21, which are in said side parts, on the arm 6 and carrier 3, and such frictional resistance must be overcome to permit swinging the arm 6 and carrier 3 upwardly to the dot and dash line positions 6' and 3' (Fig. 1).

It is also possible to provide the plier-like stapling tool with a base plate from which the tool is removably mounted so that the tool may be used as a hand tool, or as a table or desk appliance.

I claim as my invention:

1. A plier-like stapling tool comprising a pair of arms pivotally connected to each other, a staple feed carrier pivotally mounted on one of said arms, and frictional resistance means on said arms whereby the other arm and the carrier are capable of being moved, upon overcoming the frictional resistance of said means, to swing the carrier to a position in which the staple feeding end of the carrier is completely accessible.
2. A plier-like stapling tool according to claim 1, in which a stamper is provided on the said other arm.
3. A plier-like stapling tool according to claim 1, in which a stamper is provided on the said other arm and the carrier is provided with guide lugs at the staple feed end thereof, said stamper being pivotally mounted on its arm so that it may swing to carry out the stapling operation.
4. A plier-like stapling tool according to claim 1, in which a stamper is provided on the said other arm, and in which a spring is provided between the carrier and the said other arm to maintain the stamper out of the staple feed carrier in the normal position of rest of the tool.
5. A plier-like stapling tool according to claim 1, in which a stamper is pivotally provided on the said other arm and having a stop portion to limit its movement in one direction, and in which a spring is provided to constantly urge the stamper to its stop limit position.
6. A plier-like stapling tool according to claim 1, in which the said other arm is provided with lugs, and in which a stamper is provided suspended to the said other arm by means of said lugs.
7. A plier-like stapling tool according to claim 1, in which a spring is provided to cooperate and operate against the said other arm and the carrier, and in which a second spring is provided around the pivotal connection of the arms to urge the two arms away from each other.

8. A plier-like stapling tool according to claim 1, in which a compression spring is secured at one end to the carrier and is adapted to abut against the said other arm to force the carrier into the stapling position and to act as a handle to pull the carrier when the latter is moved to the accessible position of the staple feeding end.

9. A plier-like stapling tool comprising a pair of arms pivotally connected to each other and forming the two members operable in plier-like fashion, a stamper connected to one of said arms, said other arm having an anvil member thereon, a staple feed carrier pivotally mounted on the other end of the said other arm, said stamper being suspended from its arm, and a spring co-operating with the stamper to maintain said stamper in position to cooperate with the feed end of the carrier so that upon moving the two arms toward each other the end staple will be forced down on the anvil by the stamper.

10. A tool according to claim 9, in which an additional spring is provided between the said other arm and the carrier to force the carrier from the anvil after a stapling operation.

11. A tool according to claim 9, in which an additional spring is provided between the said one arm and the carrier to force the carrier down on the anvil at the beginning of a stapling operation.

12. A plier-like stapling tool comprising a pair of arms pivotally connected to each other and forming the two members operable in plier-like fashion, a stamper connected to one of said arms, said other arm having an anvil member thereon, a staple feed carrier pivotally mounted on the other end of the said other arm, and a plurality of springs to maintain the two arms in separated position, to force the carrier down on the anvil at the beginning of a stapling operation and to force the carrier away from the anvil after a stapling operation, the said one arm and the carrier being movable around their respective pivots to render the staple feed end of the carrier accessible.

13. A plier-like stapling tool comprising a pair of arms pivotally connected to each other at one end of each of them and forming the two members operable in plier-like fashion, a stamper connected to one of said arms, and a staple feed carrier pivotally mounted on the other end of said other arm, the said one of said arms and the staple feed carrier being adapted to be rotated around their pivots relative to the other of said arms to render the staple feed end of the carrier accessible.

14. A tool according to claim 13, in which friction means are provided on the arms and carrier to limit the movement of the arms and carrier in their stapling operating movements.

15. A plier-like stapling tool comprising a pair of arms pivotally connected to each other at one end, and a staple feeding carrier pivotally mounted on one of said arms at the end thereof opposite the pivotal connection of the two arms.

16. A plier-like stapling tool according to claim 15, in which a spring is provided between the carrier and the arm to which the carrier is pivoted, and in which the arm to which the carrier is pivoted is provided with means acting as a stop to limit the movement of the carrier against the action of the spring.

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