

Nov. 11, 1969

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3,477,628

CONVERTIBLE STAPLER

Filed July 11, 1967

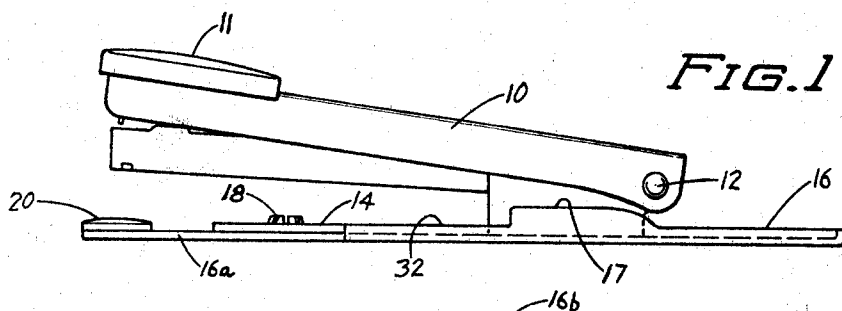


FIG. 1

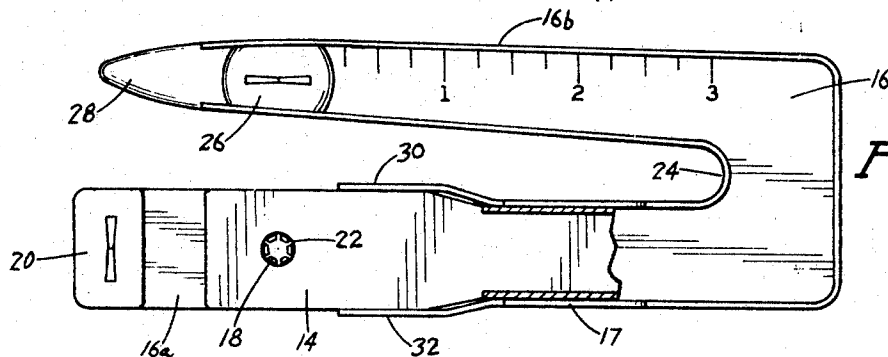


FIG. 2

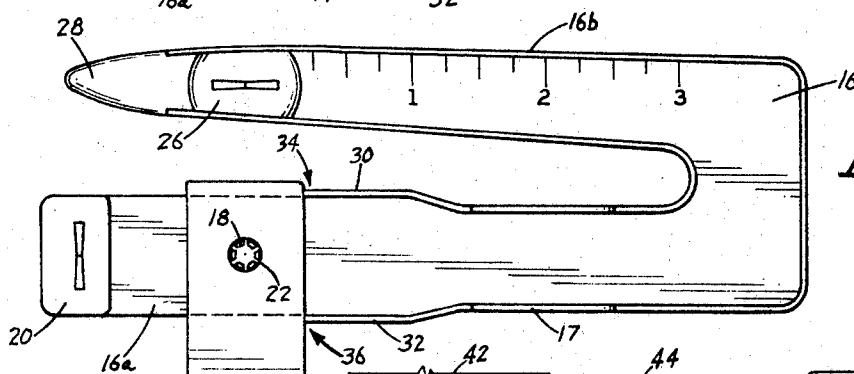


FIG. 3

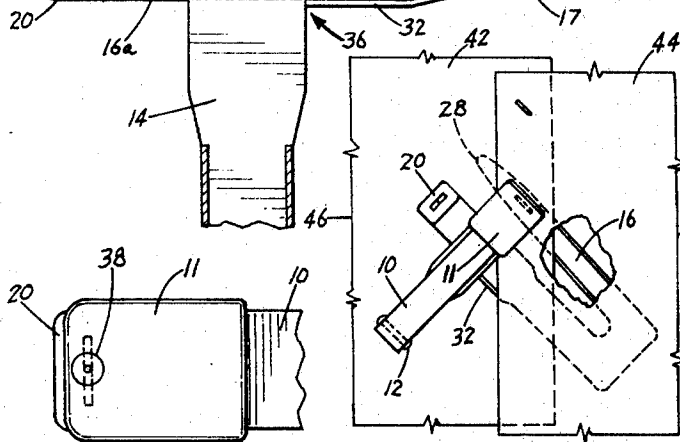


FIG. 4

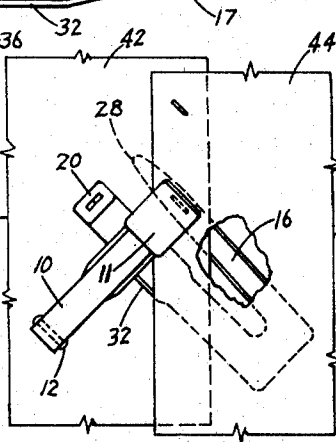


FIG. 5

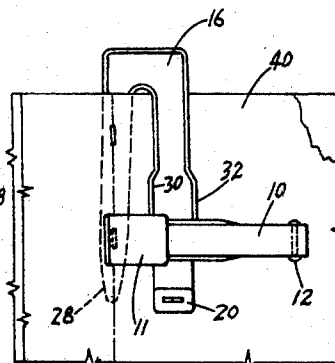


FIG. 6

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CONVERTIBLE STAPLER

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Filed July 11, 1967, Ser. No. 652,464

Int. Cl. B25c 5/02; B27f 7/08

U.S. Cl. 227—110

9 Claims

ABSTRACT OF THE DISCLOSURE

A stapling device including a slotted member with two arms and a staple driving head that can be connected to the slotted member in at least two different positions for conventional stapling and long reach stapling respectively. In the latter case, the stapling head is connected to one of the arms of the slotted member and aligned over an anvil on the other arm.

SUMMARY OF THE INVENTION

This invention is a stapler in which the staple driving head and a slotted member may be fastened together in at least two different positions to create two different forms of stapler having a range of functions and appearance that make it versatile yet aesthetically pleasing in appearance and of compact form for portability. Only the form of the invention which appears to applicant at his present state of information to be the most practical is illustrated and explained in detail though other ways of achieving at least most of the end results have been considered. In general any form of the combination of driving head and slotted member which may be fastened to each other to make a stapler having a driving head aligned over a staple clinching anvil separated from the head by the slot extending in a lateral direction relative to the staple driving head length will suffice for splicing if the slot extends, say, width of the mechanism laterally. In order to make pamphlets and/or magazine repairs, the slot should extend at least two and one-half inches and preferably as much as three inches from the anvil used for this work. On the other hand, for best appearance and most convenient carrying and ease of "plier" stapling, the anvil and driving head should be secured to a rigid member. A slot is inimical to a rigid support for the anvil unless the slotted member is made very strong indeed. It is difficult to achieve this kind of strength and rigidity in the slotted member without either weight or bulk, or both. Furthermore, the laterally extending slot makes a less appealing in looks and less portable unit even if the versatility of the stapler makes it highly useful. Applicant has had slotted base staplers both at his home and office for years. Observers are often interested in the ability of the device to do long reach work, but regard it as funny looking. The present invention by permitting a change in position of the stapler relative to the slotted member can be both appealing in looks and versatile in performance by having the slot extending laterally from the driving head only when needed.

In the drawings:

FIGURE 1 is a side elevation of the invention;

FIGURE 2 is a top plan view of the slotted member with only a portion of the driving head shown to disclose clearly how the stapler and the slotted member are connected in one position;

FIGURE 3 is a view similar to FIGURE 2 except that the stapler driving head portion is shown in a second position;

FIGURE 4 is a detail of the staple driving head striker member aligned over an anvil;

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FIGURE 5 is a reduced view of the stapler set up in the position shown in FIGURE 3 as used in splicing with hidden portions of the stapler and the pages being stapled illustrated with broken lines; a portion of one of the pages is broken away to illustrate use more clearly; and

FIGURE 6 is a view drawn to the same scale as FIGURE 5 showing the stapler driving staples on the fold of a magazine; broken lines are used to illustrate hidden portions of the stapler and the center fold of the magazine.

Referring to FIGURE 1, at 10 is seen a conventional staple driving head of the usual magazine type hinged at 12 to a member numbered 14 which may be thought of as an auxiliary head portion, and which in turn is secured to a slotted base member 16 by any suitable means and here shown as cooperating male and female members. In this case, the male member 18 is secured to base 16 and the female portion is formed in the auxiliary head portion 14 which is essentially part of the staple driving mechanism 10 as treated herein. On base 16 is formed the usual staple clinching anvil 20.

Turning now to FIGURE 2, a portion of the auxiliary head portion 14 is illustrated in the same position it would be in FIGURE 1. The male fastening member 18 may be seen in the female socket portion 22 formed in the auxiliary head portion 14. Staple clinching anvil 20 is seen clearly in the plan view. Base 16 will be seen to be a slotted member having the slot 24 which separates the arm 16b from the arm 16a. Arm 16b carries a staple clinching anvil 26 and may also have a wedge type staple removing device here designated 28. Arm 16b may be conveniently provided with a measuring scale shown clearly in FIGURE 2 to aid in securing staples in a consistent manner as will be disclosed in more detail in connection with the operation of the device. In FIGURE 2 the turned up flanges 30 and 32 may be seen as part of base 16; flange 32 appears also in FIGURE 1. A portion of the flanges 17 may be made taller if greater contact with member 14 is preferred. These flanges, it will be seen, engage the edges of the auxiliary head portion 14 to align the staple driving head 10 over anvil 20.

Turning to FIGURE 3, the arrangement of auxiliary head portion 14 to slotted base member 16 has been altered by removing the stapler from the position shown in FIGURES 1 and 2 and within the flanges 30 and 32 and instead is mounted at right angles to its previous position. At this time, the right hand edge of auxiliary head portion 14 is in engagement with the ends of flanges 30 and 32 as is clearly seen at 34 and 36 in FIGURE 3. Once again, the flanges in combination with the male and female mounting means has served as means for positively aligning the staple driving head over the staple bending or clinching anvil; this time the anvil is the one on the arm 16b and separated by the slot 24 from arm 16a to which the staple driving head is secured. If the stapler is to achieve splicing, it is at least important and perhaps essential that the staple driving head and staple clinching anvil be separated by a slot, as shown in FIGURE 3, in at least one of the positions in which the staple driving head and anvil may be associated. Further, when two separate anvils are used, they are necessarily at a substantial angle relative to each other, probably not less than 45°, and preferably at or near 90°.

In FIGURE 4 is shown a plan view of a detail of the staple driving head striker member 11 which has on it a bull's eye or target 38 for the purpose of providing a visual concept of where the staple will be driven in blind stapling situations. In certain forms of the special stapling to which this stapler is adapted, it is difficult for the person using the stapler to visualize where the staple itself will be driven. By mounting the indicator directly above

the staple driving channel in the head, a quick visual concept of where the staple will be driven is provided.

OPERATION

When the staple driving head 10 is secured to the base member 16 as shown in FIGURES 1 and 2, the stapler is used in a conventional manner. If the papers stapled together are desired to be separated for any reason as to be placed in copying machines, for example, the staple removing member 28 is used, head 10 serving as a handle.

In order to accomplish long reach stapling of various types, the staple driving head is repositioned as shown in FIGURE 3. In this position, the staple driving head will be aligned over the anvil 26. The arm carrying staple clinching anvil 26 can be placed under a magazine at the center fold and a staple driven. In this manner, magazines and the like may be repaired or pamphlets secured. In stapling magazines or programs together, the scale on arm 16b permits consistent positioning from one pamphlet to the next.

In FIGURE 5 is illustrated how the device is used in order to do splicing. In FIGURE 5, it may be seen clearly that the staple clinching anvil 26 is placed under the edge of sheet 42 and the entire device turned at an angle so that the hinge point 12 will be out of the way of a second sheet 44 laid over the edge of the first sheet, but under the staple driving head 10. Staples can then be driven through the edges of both sheets. The stapler may be slid down toward the caption FIGURE 5, as viewed in the drawings, in order to drive successive staples to splice the two sheets together. As may be clearly seen in that figure, the remote broken off edge 46 of sheet 42 and broken off edge 48 of sheet 44 are free of any stapler parts and may, therefore, extend indefinitely away from the stapler.

While the forms of stapling illustrated in FIGURES 5 and 6 are not in themselves novel, to the knowledge of applicant, the device here shown is the only one that can do these types of stapling, but can be changed into that appears to be a more conventional type of stapler for usual use. This invention then is a stapler that is capable of performing functions normally reserved for unusual appearing or very large staplers but which can be made small enough to be carried in a rather small pocket such as a suit breast or vest or shirt pocket.

Slotted base long reach staplers that will do all of the unusual forms of stapling of the present invention are known. They have not been successful commercially, perhaps, because they tend to be bizarre in appearance. The instant invention does not have that disability and achieves at least one form of stapling much better than the slotted base long reach stapler of the prior art. When one desires to do what is referred to as plier type stapling, which is the name given to lifting the stapler off its supporting surface and squeezing the head and base between the thumb and fingers in order to drive a staple in some place that can not conveniently be brought to the stapler resting on a table or the like, a fixed driving head long reach stapler can be operated very successfully only by someone who is rather skillful. This new invention with the head in the position shown in FIGURES 1 and 2 will plier very nicely in the hands of anyone who is strong enough to use it in this manner.

The embodiments of the invention in which an ex-

clusive property or privilege is claimed are defined as follows:

1. Stapling apparatus comprising: a member having a slot therein forming first and second spaced arms; staple clinching anvil means on each of said arms; staple driving means; means for mounting said staple driving means on said first arm in at least two positions; said staple driving means being mountable in a first position on said first arm to cooperate with said staple clinching anvil means on said first arm; and said staple driving means being mountable in a second position on said first arm to cooperate with said staple clinching anvil means on said second arm.

2. The apparatus of claim 1 in which: said staple clinching anvil means on said first and second arms are mounted at not less than a 45° angle relative to one another.

3. The apparatus of claim 1 including staple removing means mounted on one of said arms.

4. The apparatus of claim 1 in which: said first arm includes means to positively align said staple driving means with a selected anvil.

5. The apparatus of claim 4 in which said means to positively align said staple driving means with a selected anvil includes flanges on said member having a slot.

6. The apparatus of claim 1 in which said mounting means is releasable and comprises: at least first and second portions cooperatively mounted, respectively, on said first arm and said staple driving means.

7. The apparatus of claim 6 in which: said first portion comprises a male member mounted on and extending from one of said first arms and said staple driving means, and said second portion comprises a female means formed in the other of said staple driving means and said first arm; said female means adapted to receive and lock with said male member.

8. The apparatus of claim 2 in which: said staple removing means forms an end of said one arm and is integral therewith.

9. A stapler comprising: a slotted member having spaced arms and a staple driving head; at least one anvil on said slotted member; and, means for connecting said staple driving head to said slotted member in at least two different positions with the staple driving head aligned over an anvil; in one of said at least two positions said staple driving head being aligned with an anvil on an arm spaced by a slot of said slotted member from the portion of said slotted member to which the staple driving head is then secured.

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U.S. Cl. X.R.

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