

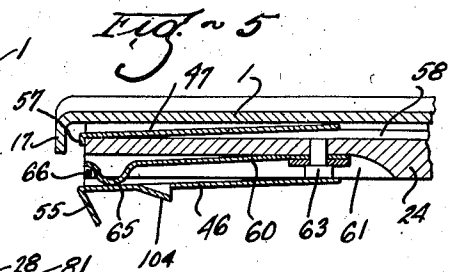
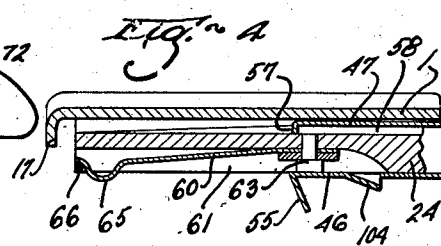
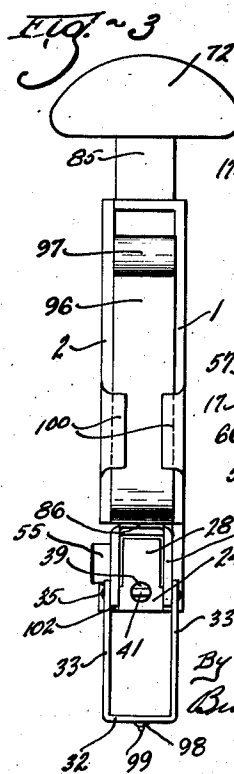
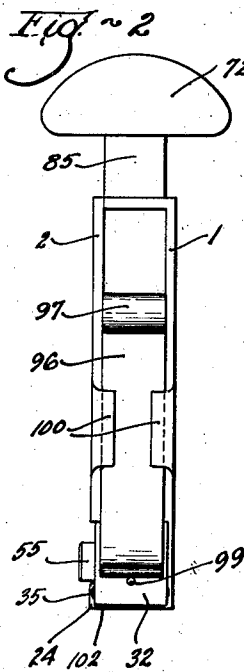
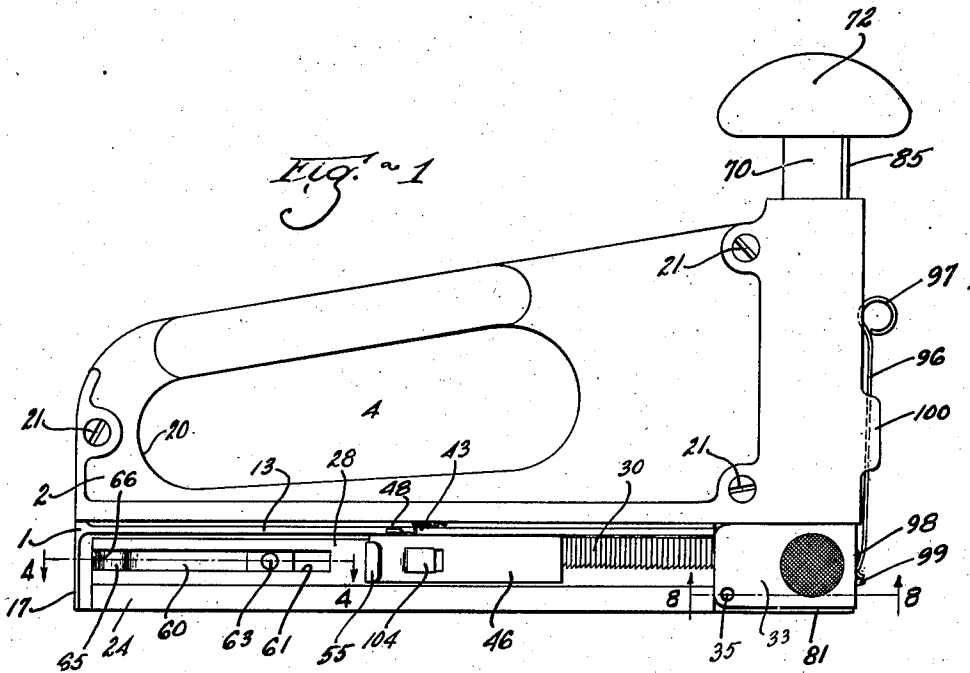
April 2, 1935.

F. M. CASE
STAPLING MACHINE

1,996,640

Filed May 8, 1931

2 Sheets-Sheet 1



INVENTOR
FRANCIS M. CASE

By *Brinkett, Hyde, Higley & Meyer*
ATTORNEYS

April 2, 1935.

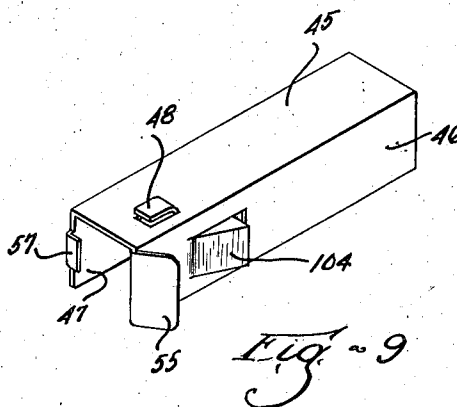
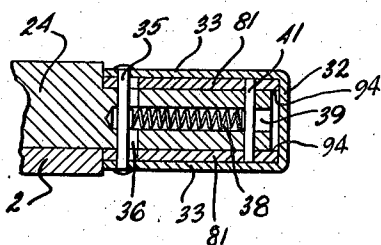
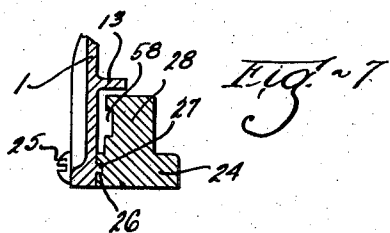
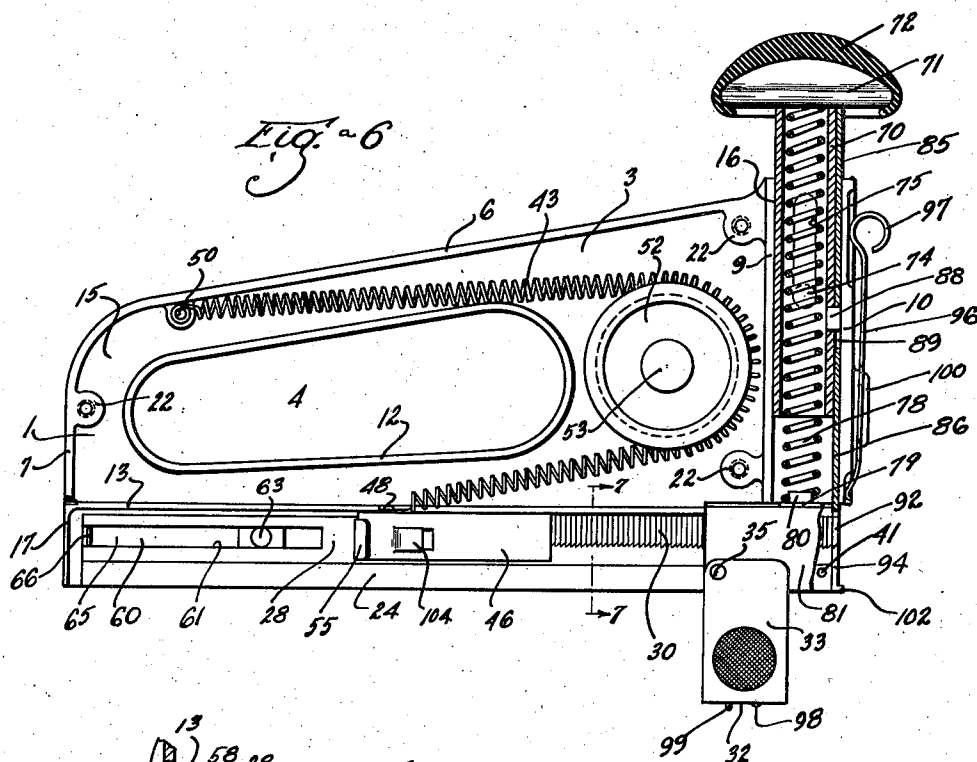
F. M. CASE

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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

1,996,640

STAPLING MACHINE

Francis M. Case, Cleveland, Ohio, assignor to
The J. C. Ulmer Company, Cleveland, Ohio,
a corporation of Ohio

Application May 8, 1931, Serial No. 535,845

12 Claims. (Cl. 1—49)

This invention relates to improvements in portable, hand-operated stapling machines and has for its general object the provision of a stapling machine of improved construction throughout, the present machine being exceptionally strong and sturdy, quite easy to handle and operate, highly efficient in use, and of very simple and inexpensive construction.

More detailed objects of the present invention will appear from the following description thereof, reference being had to the accompanying drawings in which

Fig. 1 is a side elevation of the present improved stapling machine; Fig. 2 is a front elevation thereof; Fig. 3 is a view similar to Fig. 2 but showing the machine in condition for loading, the staple locking member being in inoperative or non-locking position; Fig. 4 is a detail horizontal sectional view on the line 4—4, Fig. 1, but with the staple follower in a slightly different position than in Fig. 1; Fig. 5 is a view similar to Fig. 4 but showing another position of the parts; Fig. 6 is a view similar to Fig. 1 but with the casing cover plate member removed and with another part broken away to show interior construction and with some parts in section; Fig. 7 is a detail vertical sectional view on the line 7—7, Fig. 6; Fig. 8 is a detail horizontal sectional view on the line 8—8, Fig. 1; and Fig. 9 is a perspective view of the staple follower.

The machine shown in the drawings includes a suitable casing made up of or comprising two one-piece cast metal members, a main casing member 1 and a side cover plate member 2. Said main casing member includes a side wall portion 3 provided with a longitudinally extending and generally horizontally disposed hand opening 4. At the top of said side portion is a laterally extending casing top wall flange 6 inclined slightly to the horizontal and terminating or merging at its rear end in a vertically disposed, depending casing rear wall flange 7. The casing top wall flange 6 does not extend clear to the front of the casing side wall portion 3 but terminates slightly rearwardly thereof and at the point where said flange terminates there is a laterally extending, vertically disposed partition flange 9. At the front of the casing side wall portion 3 is a laterally extending, vertically disposed casing front wall flange 10 parallel with and of the same length as the partition flange 9 to the rear thereof. Said front wall flange and said partition flange extend from the top of the casing side wall portion 3 almost to the bottom thereof. Extending continuously around the

hand opening 4 is an inwardly projecting flange 12 and a short distance above the bottom edge of the casing side wall portion 3 and extending from the casing rear wall flange 7 almost to the vertically disposed partition flange 12 near the front of said casing side wall portion is a generally horizontal, relatively narrow partition flange 13.

The main casing member is therefore provided with three recesses or chambers, a generally horizontally disposed main recess surrounding the hand opening flange 12 and lying below the top wall flange 6, above the horizontal partition flange 13, in front of the rear wall flange 7 and behind the vertically disposed partition flange 9; a vertically disposed recess 16 between the casing front wall flange 10 and the vertical partition flange 9 at the rear thereof; and a horizontally extending recess 17 below the horizontally disposed partition flange 13.

The casing side cover plate member 2 is of such size and shape as to just cover the recesses 15 and 16 of the main casing member 1. An opening 4 in the main casing member is provided in the casing cover plate member, and when said cover plate member is secured to the main casing member, as in Fig. 1, said openings 4 and 20 register with each other and thus provide a through hand opening in the casing of the present machine. The casing cover plate member is secured to the main casing member, with said cover plate member engaging the inner edges of the wall flanges 6, 7 and 10 and the vertical partition flange 9 of the main casing member, by screws 21 extending through the casing cover plate member and secured in lugs 22 with which the main casing member is provided within its main recess 15.

Arranged in the horizontally extending bottom recess 17, below the horizontally disposed partition 13 of the main casing member 1, is a metal bar 24 forming the base of the machine and adapted to supportingly receive, for sliding movement therealong, strips of staples to be hereinafter described. Said bar is secured to the inner surface of the side wall portion 3 of the main casing member 1, below the horizontal partition 13 thereof, by screws 25 and in the present embodiment of the invention, said bar is provided throughout its length with suitably spaced, longitudinally extending grooves 26 to receive tongues 27 extending inwardly from the inner surface of the casing side wall portion 3, as clearly shown in Fig. 7. Said bar extends from the casing rear wall flange 7 almost to the casing front wall flange 10, the front end of said

bar terminating to the rear of the rear surface of said casing front wall flange just the width of a staple, as will hereinafter appear. The upper portion 28 of the bar 24 is of reduced size throughout the entire length of said bar, and it is upon this reduced bar portion that the strips of staples are slidably mounted.

The staples used with the present machine are generally of the same form used with like stapling machines. That is, each staple has a generally flat top portion and two depending, generally parallel pointed leg portions. The staples are arranged in strips of say, four or five inches long, being temporarily held in strip formation by a light coating of some suitable adhesive material.

In Figs. 1 and 6, a strip of staples 30 is shown upon the bar 24, said strip of staples straddling the upper reduced portion 28 of said bar. Said strip of staples is slid upon said bar at the front end thereof and are prevented from escaping therefrom by a suitable locking member here shown as having a front portion 32 and two rearwardly extending, generally parallel side portions 33, said locking member being thus of generally U-shape. Said staple locking member is mounted for swinging movement from the horizontal, locking position shown in Figs. 1, 2 and 8, in which position the front portion 32 of said member extends in front of the front end of the staple supporting bar 24, to the depending, vertical, non-locking or inoperative position shown in Figs. 3 and 6.

As best shown in Figs. 6 and 8, the rear ends of the side portions 33 of the staple locking member, at the bottom thereof, are mounted upon the ends of a pivot pin 35 extending transversely through a longitudinally disposed slot 36 in the front end portion of the staple supporting bar 24. The slot 36 permits the staple locking member to be swung around the lower, front corner of the bar 24, and in order to normally keep the pivot pin 35 at the rear end of said slot, and thus keep the staple locking member retracted when in horizontal, locking position, a small coiled compression spring 38 is arranged in a longitudinally extending cavity 39 in the front end portion of the staple supporting bar 24. Said spring at its rear end abuts the middle portion of the pivot pin 35 and at its front end abuts the middle portion of a pin 41 extending transversely through the bar 24 and serving to maintain said spring in the recess 39 in said bar.

For the purpose of normally moving the strip of staples 30 forwardly along the bar 24, a suitable follower is mounted on said bar at the rear of said staples, said follower being normally urged to move forwardly along said bar by a coiled tension spring 43 arranged within the main casing recess 15. The follower of the present machine is a one-piece sheet metal member having a top portion 45 and two depending, generally parallel side portions 46 and 47. Said follower is therefore of generally channel shape like the strip of staples 30 and also like said staples, straddles the upper reduced portion 28 of the staple supporting bar 24. The top portion 45 of said follower is provided near its rear end with a rearwardly extending, struck up tongue 48 to which is secured one end of the follower spring 43. The other, upper end of said spring is secured to a casing stud 50 lying within the casing main recess 15 substantially above the rear end of the casing hand opening. Said fol-

lower spring travels over an idler roller 52 arranged in the casing main recess 15 in front of the casing hand opening, said roller being journaled on a suitable screw 53 secured to the side wall portion 3 of the main casing member 1.

The follower spring 43 normally moves the follower forwardly along the staple supporting bar 24, with corresponding movement of the strip of staples, if any, on said bar in front of said follower. For manually moving said follower rearwardly along the bar 24, the outer or exposed side portion 46 of said follower is provided at its rear end with an outwardly extending tab or finger piece 55.

In order to hold the follower at the rear end of the staple supporting bar 24, to permit a strip of staples to be slid onto said bar at the front end thereof (it being understood, of course, that the staple locking member at the front end of said bar will first have to be swung downwardly to non-locking position), the inner, concealed side portion 47 of the follower is provided at its rear end with an inwardly extending latching ear 57. This ear is adapted, when the follower is moved to the rear end of the staple supporting bar 24, as in Fig. 5, to project inwardly behind the rear end of said bar, thus latching or holding the follower at this end. During movement of the follower along the staple supporting bar, the latching ear of said follower travels in a longitudinally extending groove 58 in the inner, concealed side of the upper reduced portion 28 of the staple supporting bar, said groove extending substantially the full length of said bar but gradually of decreased depth toward the rear end thereof, caused by the tapering of the rear end portion of the bar slide which contains said slot, as clearly shown in Figs. 4 and 5.

In order to cause the follower latching ear 57 to automatically move into latching position behind the rear end of the staple supporting bar 24 when the follower is moved to the rear end of said bar, a suitable leaf spring 60 is provided at the rear end of said bar, said spring being arranged in a laterally extending groove 61 in the outer, exposed side of the upper reduced portion 28 of the staple supporting bar. A pin 63 secures the front end of said spring in said groove and the rear, free end portion of said spring is provided with an outwardly extending hump 65 for engagement with the outer side portion 46 of the follower when said follower is moved to the rear end of the staple supporting bar. The effect of this spring is to move the follower outwardly, as in Fig. 5, and hence automatically bring the follower ear 57 into latching position behind the rear end of the staple supporting bar. To unlatch the follower, it is only necessary to push the follower inwardly against the leaf spring 60 and if the follower is then released, it will automatically be drawn forwardly along the staple supporting bar 24 by the tension spring 43 secured to said follower. For limiting outward movement of the rear, free end portion of the leaf spring 60, a vertically disposed pin 66 is provided at the rear end of the groove 61, as best shown in Fig. 5.

Mounted for vertical reciprocating movement in the casing front recess 16 is the plunger of the present machine. Said plunger includes a hollow body portion 70, of generally square shape in cross section and of a size as to substantially fit the casing recess in which it moves. A head 71 is provided at the upper end of said plunger body portion and a rubber cap 72 is preferably provided for said head, as is usual in hand-oper-

ated stapling machines. For limiting reciprocating movement of the plunger in the casing recess 16, the casing side wall portion 3 is provided with an inwardly extending stud 14, which enters and cooperates with a vertically disposed slot 75 in the adjacent side wall of the plunger body portion, as best shown in Fig. 6.

For normally moving the plunger upwardly and for normally maintaining it in raised position, a suitable coiled compression spring 78 is arranged within the hollow body portion of the plunger, the upper end of said spring abutting the plunger head 71. The lower end of said spring rests upon the top portion 79 of a suitable metal bridging member, said top portion being provided with a short stud 80 extending upwardly into the lower end of said spring for centering the same. Said bridging member is also provided with two depending, generally parallel side portions 81 lying on opposite sides of the staple supporting bar 24 and within the side portions 33 of the staple locking member. Said bridging member is secured to the staple supporting bar, as best shown in Fig. 8, by the pivot pin 35 of the staple locking member and the pin 41 which holds the spring 38 in the recess 39 in the front end portion of the staple supporting bar. Also as best shown in Fig. 8, the lower portion of the staple supporting bar 24, which portion is wider than the upper portion 28 thereof, is cut away slightly at the front end of the bar, so that at this front end, the lower portion of bar 24 is but slightly wider than the upper portion 28 thereof. Suitable space is therefore provided between the side portions 81 of the bridging member and the sides of the upper reduced portion 28 of the staple supporting bar for the passage of the staple leg portions and likewise, suitable space is provided between the top surface of the staple supporting bar and the top portion 79 of the bridging member for the passage therebetween of the top portions of the staples, as best shown in Fig. 3 and as will be readily understood.

Suitably secured to the front wall of the plunger body portion 70 and movable vertically therewith is a staple driving plate member, said driving member being of relatively hard metal and having an upper body portion 85 of the same length and width as that of the front wall of the plunger body portion and also having a lower staple driving portion 86 projecting below the plunger body portion and being of reduced width, specifically, the same width as a staple. In the present embodiment of the invention, the staple driving member is secured to the plunger for movement therewith by means of a forwardly extending stud 88 with which the front wall of the plunger body portion is provided, said stud entering and cooperating with a vertically disposed slot 89 in the body portion 85 of the staple driving member, as best shown in Fig. 6.

To prepare the present stapling machine for use, assuming that it is empty of staples, the follower is pulled back to the rear end of the staple supporting bar 24, where it is automatically held or latched by the follower ear 57 projecting behind the rear end of said bar. The staple locking member at the front end of the staple supporting bar is then swung downwardly to the depending, non-locking position shown in Figs. 3 and 6. A strip of staples can now be slid onto the staple supporting bar from the front end thereof, said staples passing rearwardly along said bar inside of the bridging member on which the plunger spring 78 is supported. The staple

locking member is then swung upwardly to the horizontal locking position shown in Figs. 1 and 2 and the follower is released from its position at the rear end of the staple supporting bar. The follower is either manually moved (or permitted to be automatically moved under the influence of its spring 43) forwardly along the staple supporting bar into engagement with the rear end of the strip of staples now on the bar, as shown in Figs. 1 and 6. The spring 43 normally tends to move said follower, and hence the strip of staples in front of said follower, forwardly along the staple supporting bar but the staple locking member at the front end of said bar prevents the escape of said staples.

The machine is now ready for use. As shown in Fig. 6, the front staple 92 of the strip of staples 30 lies in front of or extends beyond the front end of the staple supporting bar 24 and the front end of the top portion 79 of the bridging member. The two side walls 81 of the bridging member, however, extend forwardly beyond the top portion 79 thereof and form side guides 84 for the staples driven downwardly by the staple driving portion 86 of the staple driving member carried by and movable with the machine plunger. Also as shown in Fig. 6, this staple driving member lies directly above the front staple and by giving the plunger head a descending blow with the hand, the plunger, and hence the staple driving member movable therewith, are driven downwardly and the staple driving member drives the projecting front staple downwardly into the material therebelow, all as will be readily understood. Since the staples of the strip are only held together in strip formation by a light adhesive coating, the front staple is easily separated from the strip and practically none of the force of the downwardly moving staple driving member is expended in separating the front staple from the strip.

Upon the completion of the downward movement of the plunger and the staple driving member, said parts are immediately returned to raised position by the plunger spring 78. The strip of staples is advanced or moved forwardly along the staple supporting bar by the follower at the rear end thereof, said follower acting under the influence of the spring 43. Another staple now projects or extends below the raised staple driving member, so that the machine is again ready for another stapling operation.

While the compression spring 38 in the recess 39 of the front end portion of the staple supporting bar 24 is generally sufficient to normally maintain the staple locking member in locking position, as shown in Figs. 1 and 2, in the present embodiment of the invention, additional means is provided for this purpose. Said additional means comprises a spring strip 96 longitudinally arched outwardly and having its upper end rolled outwardly to form a handle portion 97. This spring strip is slidably mounted at the front of the casing, being adapted to be moved vertically into and out of locking engagement with the front portion 32 of the pivoted staple locking member. Preferably and as shown, the front wall of the staple locking member is provided with a forwardly extending bump-like projection 99 over which the lower end of the spring strip 96 is adapted to pass and below which the lower end of said spring strip is adapted to seat. The front portion 32 of the staple locking member is also provided below the projection 99 with a stop pin 98 for limiting downward movement of the

spring strip, all as will be readily understood. Said spring strip is guided in its vertical movement by a pair of guides 100, one of said guides being formed as a part of the main casing member and being located at the intersection of the side wall portion 3 and the front wall flange 10 of said member, and the other of said guides being formed as a part of the casing cover plate member 2 and being located at the front end of said member. Said guides are provided with vertically disposed grooves to receive the side edges of the spring strip.

In the present embodiment of the invention each of the two side portions 81 of the bridging member is provided at the bottom of its front edge with a forwardly extending lip 102, said lips providing a support for the front end of the staple locking member and making it necessary to pull said staple locking member outwardly, against the compression of spring 38, in order to enable said staple locking member to clear said lips in moving said staple locking member between locking and non-locking positions.

For limiting forward movement of the follower of the present stapling machine along the staple supporting bar 24 thereof, the outer side portion 36 of said follower is provided near its rear end with an outwardly extending projection 104 adapted to engage the rear end of the outer side portion 81 of the bridging member located at the front end of the staple supporting bar.

What I claim is:

1. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing; a follower mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; and means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; said follower being provided at its rear end with a latching projection engaging at all times the bar along which said follower slides and adapted, when said follower is at the rear end of said bar, to project the rear end of said bar and by engaging said bar rear end, hold said follower at the rear end of said bar, thereby enabling a strip of staples to be slidably mounted upon said bar at the front end thereof; said bar being provided with a longitudinally disposed slot in which moves the latching projection of said follower during movement of said follower along said bar.

2. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing; a follower mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; and means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; said follower being provided with a latching projection adapted, when said follower is at the rear end of said bar, to project behind the rear end of said bar and by engaging said bar rear end, hold said follower at the rear end of said bar, thereby enabling a strip of staples to be slidably mounted upon said bar at the front end thereof; said bar being provided with a longitudinally disposed slot in which moves the latching projection of said follower during movement of said follower along said bar, the rear end portion of said slot in the rear end portion of said bar being of

gradually decreasing depth toward said bar rear end.

3. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing; a follower having a top portion and two depending side portions and being mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a generally channel-shaped strip of staples for sliding movement along said bar; and means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; one of the side portions of said follower being provided with an inwardly extending latching projection adapted, when said follower is at the rear end of said bar, to project inwardly behind the rear end of said bar and by engaging said bar rear end, hold said follower at the rear end of said bar, thereby enabling a strip of staples to be slidably mounted upon said bar at the front end thereof, said bar being provided in one of its side walls with a longitudinally extending slot in which moves the latching projection of said follower during movement of said follower along said bar.

4. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing; a sheet metal follower having a top portion and two depending side portions and being mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; and a spring connected to said casing and to a lug struck up from the top portion of said follower, said spring normally urging said follower, and hence staples on said bar in front of said follower, forwardly along said bar; one of the side portions of said follower being provided with an integral, inwardly projecting latching ear adapted, when said follower is at the rear end of said bar, to project inwardly behind the rear end of said bar and by engaging said bar rear end, hold said follower at the rear end of said bar, thereby enabling a strip of staples to be slidably mounted upon said bar at the front end thereof; the other side portion of said follower being provided with an integral, outwardly extending ear adapted to be grasped by the machine operator in manually moving said follower along said bar.

5. In a portable, hand-operated stapling machine, a casing, a longitudinally disposed bar carried by said casing; a follower mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; said follower being provided with a latching projection extending toward said bar; and spring means for normally urging said locking projection toward said bar when said follower is at the rear end of said bar, whereby when said follower is moved rearwardly along said bar a sufficient distance to bring the projection of said follower beyond the rear end of said bar, said projection will automatically move behind the rear end of said bar and by engaging said bar rear end will hold the follower in such position at the rear end of said bar.

6. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing; a follower mounted on

said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; said follower being provided with a latching projection extending toward said bar; and spring means carried by said bar for normally urging said locking projection toward said bar when said follower is at the rear end of said bar, whereby when said follower is moved rearwardly along said bar a sufficient distance to bring the projection of said follower beyond the rear end of said bar, said projection will automatically move behind the rear end of said bar and by engaging the rear end of said bar will hold the follower in such position at the rear end of said bar.

7. In a portable, hand-operating stapling machine, a casing; a longitudinally disposed bar carried by said casing; a follower having a top portion and two depending side portions and being mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; one of the side portions of said follower being provided with a latching projection extending inwardly toward said follower; and spring means arranged between said bar and the other side portion of said follower and adapted, when said follower is at the rear end of said bar, to so move said follower with respect to said bar as to move said follower projection inwardly toward said bar, whereby when said follower is moved rearwardly a sufficient distance along said bar to bring said follower projection beyond the rear end of said bar, said projection under the action of said spring means will move inwardly behind the rear end of said bar and by engaging said bar rear end will hold said follower in such position at the rear end of said bar.

8. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing; a follower having a top portion and two depending side portions and being mounted on said bar for sliding movement therealong; said bar being adapted to supportingly receive in front of said follower a strip of staples for sliding movement along said bar; means normally urging said follower, and hence staples on said bar in front of said follower forwardly along said bar; one of the side portions of said follower being provided with a latching projection extending inwardly toward said follower; and spring means carried by said bar and arranged between said bar and the other side portion of said follower and adapted, when said follower is at the rear end of said bar, to so move said follower with respect to said bar as to move said follower projection inwardly toward said bar, whereby when said follower is moved rearwardly a sufficient distance along said bar to bring said follower projection beyond the rear end of said bar, said projection

under the action of said spring means will move inwardly behind the rear end of said bar and by engaging said bar rear end will hold said follower in such position at the rear end of said bar.

9. In a portable hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing and adapted to have supported thereon, for sliding movement therealong, a strip of staples; means normally urging the staples on said bar to move forwardly along said bar and off of the front end thereof; a staple locking cap member pivotally mounted at the front end of said bar and adapted when in locking position to prevent staples on the front end portion of said bar from moving forwardly off said bar, said cap member being movable longitudinally of said bar; and spring means directly engaging the pivot of said cap member for normally maintaining said cap member in locking position.

10. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing and adapted to have supported thereon, for sliding movement therealong, a strip of staples; means normally urging the staples on said bar to move forwardly along said bar and off of the front end thereof; a staple locking cap member pivotally mounted to said bar at the front end thereof and adapted when in locking position to extend in front of the front end of said bar and prevent staples on the front end portion of said bar from moving forwardly off of said bar, said staple locking cap member having movement longitudinally of said bar, and an extension carried by the front end of said bar and underlying the front wall of said staple locking cap member when said member is in locking position.

11. In a portable, hand-operated stapling machine, a casing; a longitudinally disposed bar carried by said casing and adapted to have supported thereon, for sliding movement therealong, a strip of staples; means normally urging the staples on said bar to move forwardly along said bar and off of the front end thereof; a stapling locking cap member having a front portion and two generally parallel, rearwardly extending side portions; a pivot pin to which the side portions of said cap are connected, said pivot pin extending transversely through a longitudinally disposed slot in the front end portion of said bar; said cap member, when in locking position, having its front portion lying in front of the front end of said bar, whereby staples on the front end portion of said bar are prevented from moving forwardly off of said bar; and spring means for normally maintaining said cap member in such locking position.

12. In a staple driving machine, a housing having a raceway therein, means for feeding staples to said raceway, a plunger operable to drive staples through said raceway, a block hingedly connected at its lower end to said housing normally forming one side of said raceway and movable laterally therefrom, and means yieldingly engaging the upper portion of said block and securing it in normal position.

FRANCIS M. CASE.

CERTIFICATE OF CORRECTION.**Patent No. 1,996,640.****April 2, 1935.****FRANCIS M. CASE.**

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 22, after "An" insert the words opening 20 of the same size and shape as the; and page 2, second column, line 37, for "slide" read side wall; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of June, A. D. 1935.

(Seal)

Leslie Frazer
Acting Commissioner of Patents.