Oct. 12, 1937. J. F. CAVANAGH 2,095,659

FASTENER APPLYING DEVICE

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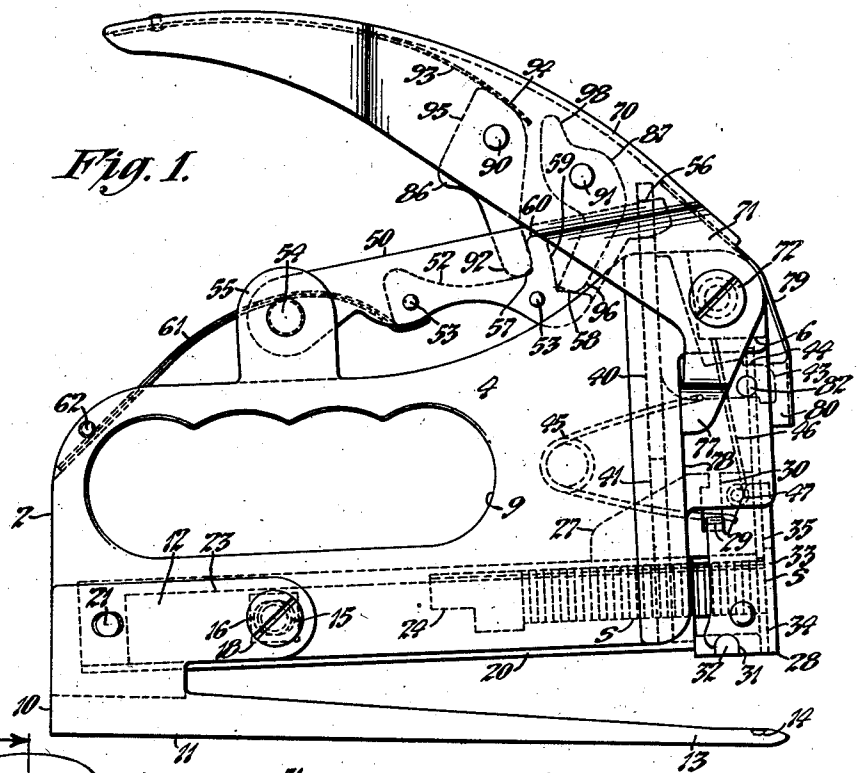


Fig. 1.

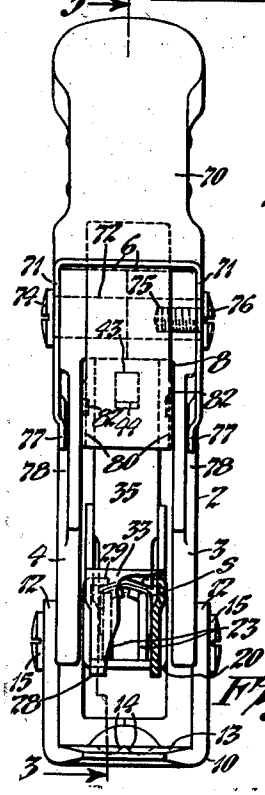


Fig. 2.

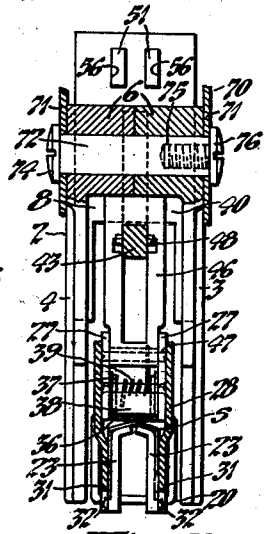


Fig. 10.

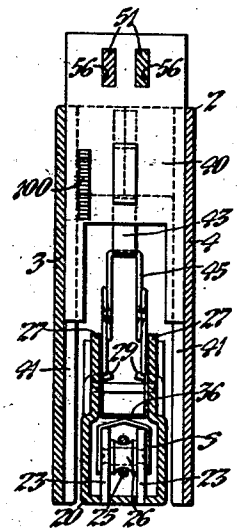


Fig. 11.

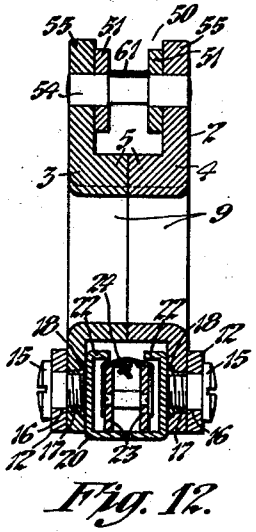


Fig. 12.

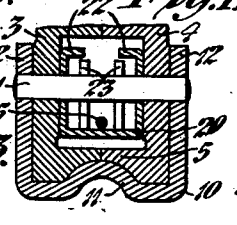


Fig. 13.

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FASTENER APPLYING DEVICE

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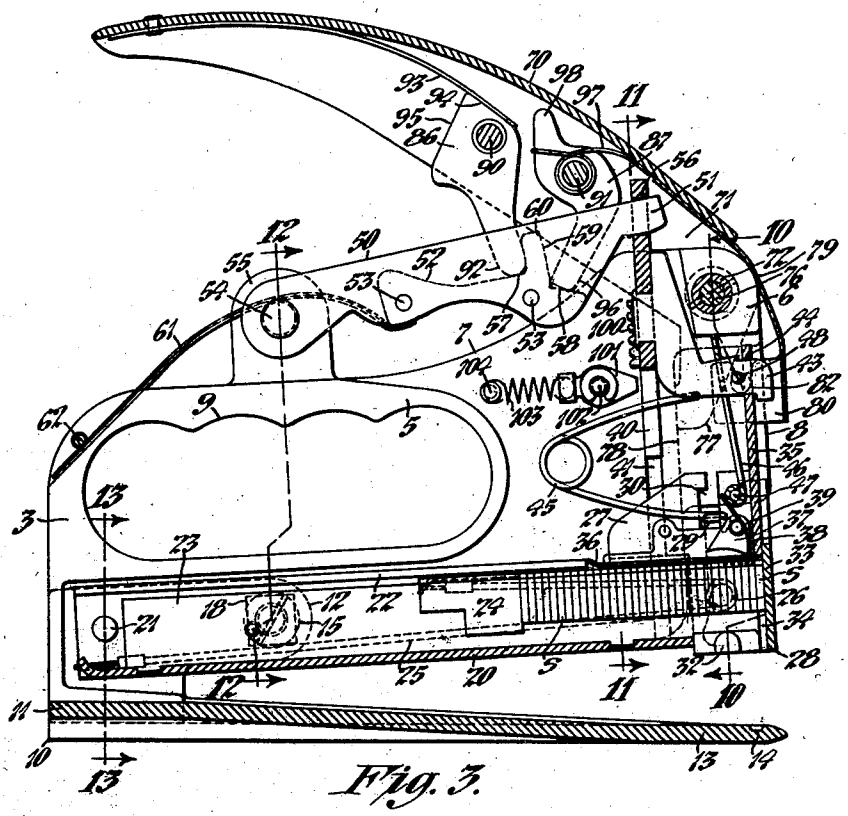


Fig. 3.

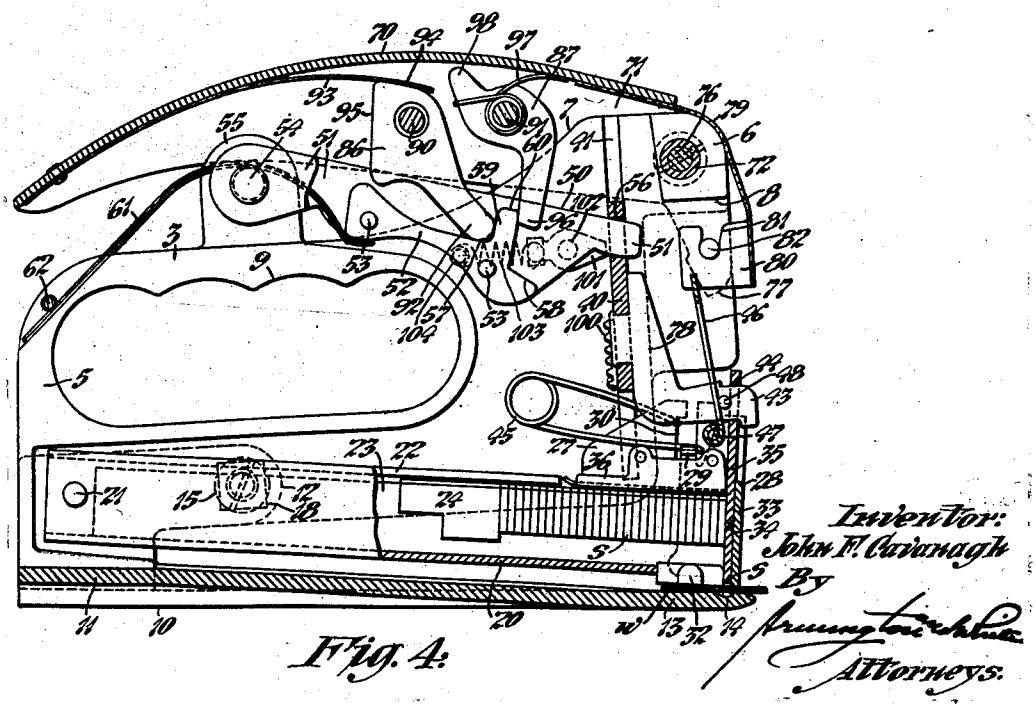


Fig. 4.

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FASTENER APPLYING DEVICE

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Fig. 5.

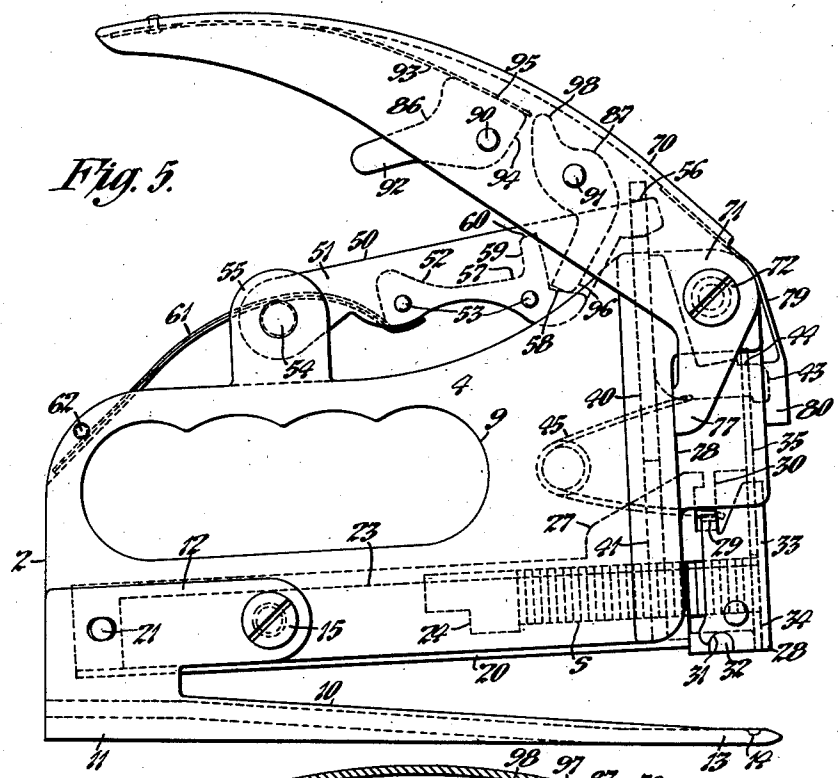
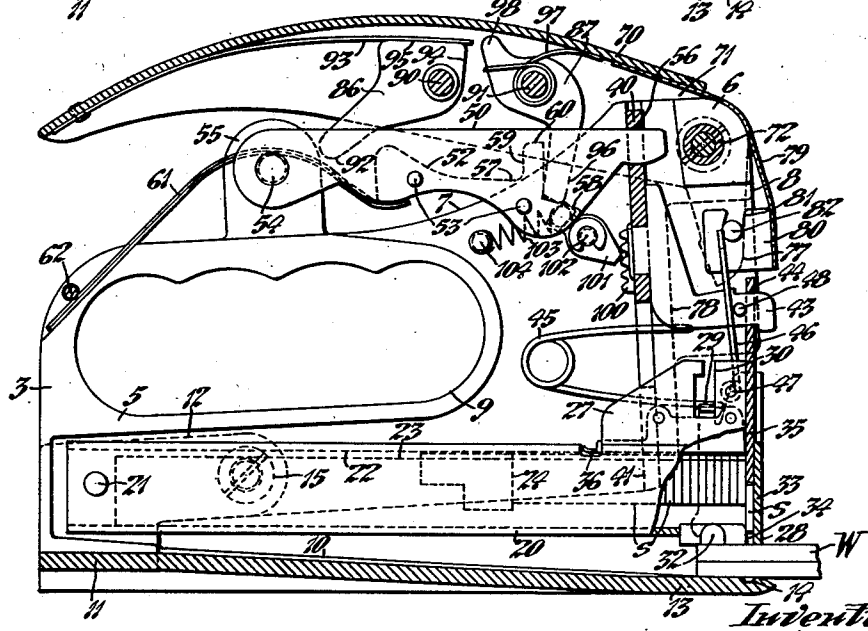


Fig. 6.



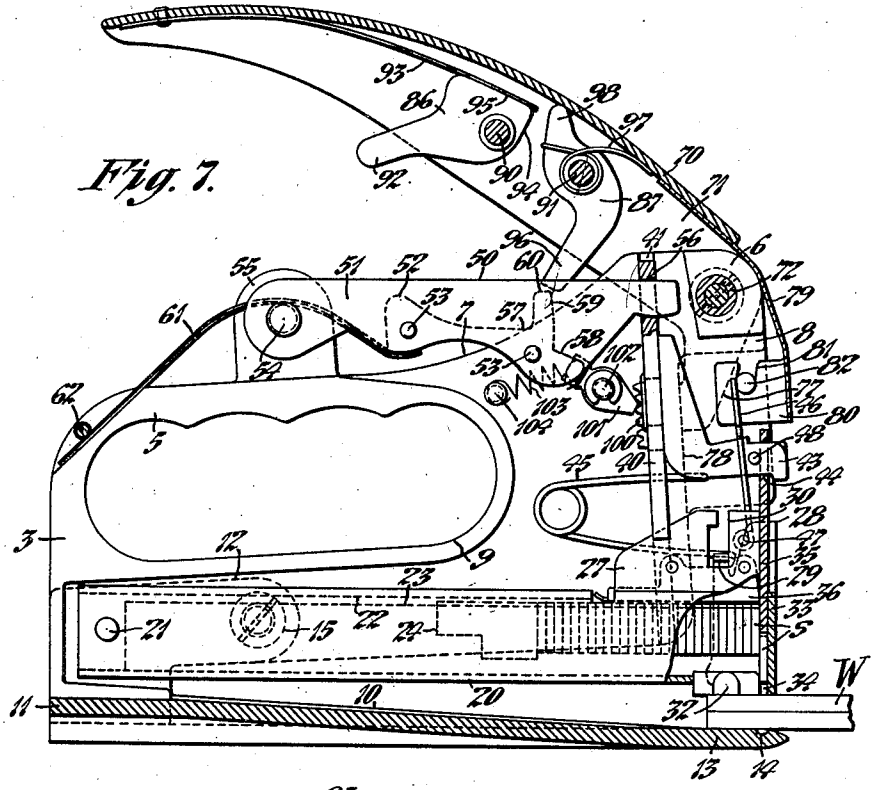
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FASTENER APPLYING DEVICE

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Fig. 7.



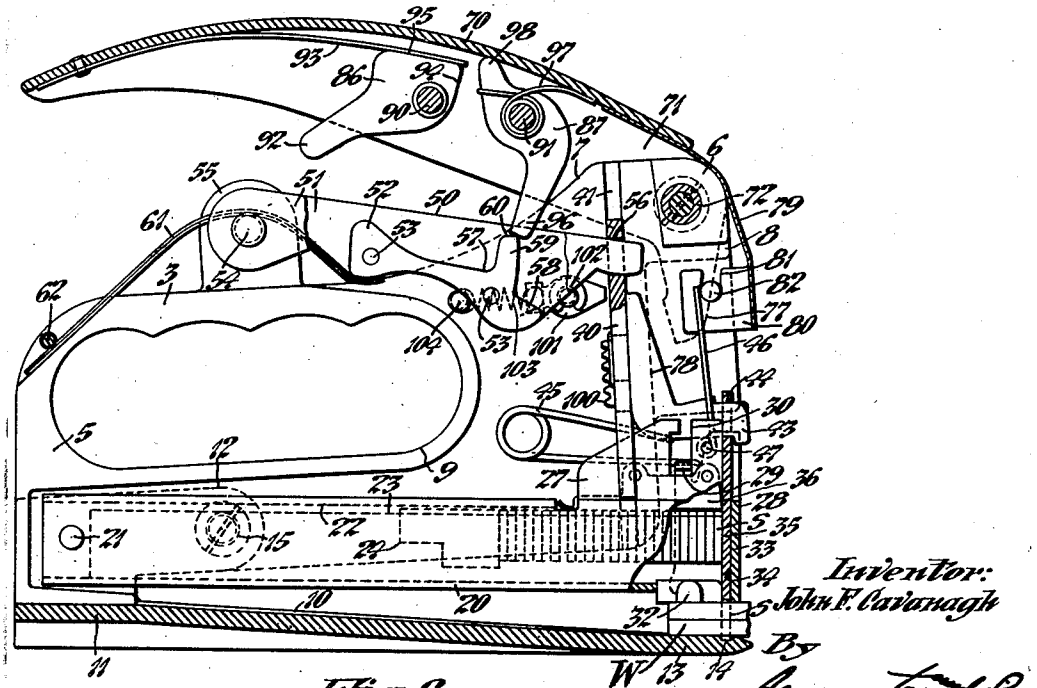


Fig. 8.

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FASTENER APPLYING DEVICE

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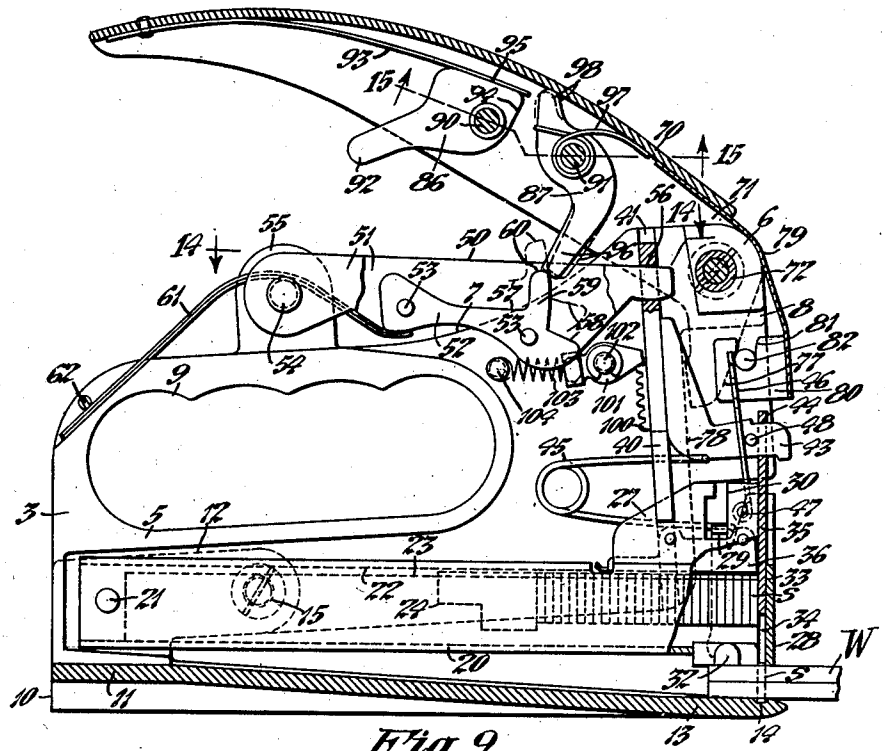


Fig. 9.

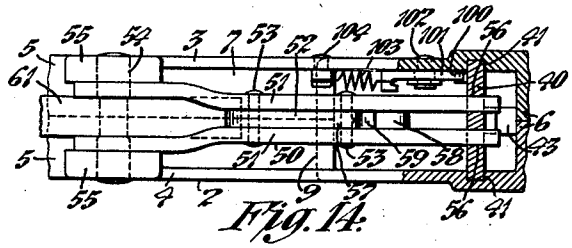


Fig. 14.

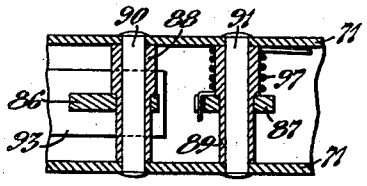


Fig. 15.

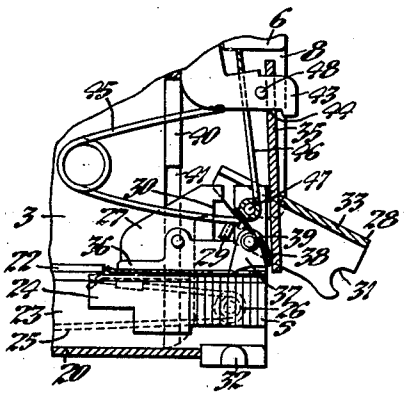


Fig. 16.

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Patented Oct. 12, 1937 2,095,659

UNITED STATES PATENT OFFICE

2,095,659

FASTENER APPLYING DEVICE

John F. Cavanagh, Providence, R. I., assignor to Boston Wire Stitcher Company, Portland, Maine, a corporation of Maine

Application March 20, 1936, Serial No. 69,878

21 Claims. (Cl. 1—49)

This application is a continuation in part of my copending application Serial No. 68,506 filed March 12, 1936.

The present invention relates to improvements in fastener-applying devices such as stapling implements for attaching papers and other sheets, stitching the flaps of cartons, securing tags and labels to articles of commerce, and for use generally in fastening or stitching together various objects and articles.

One object of the present invention is to provide an implement of the type indicated which may be held and manipulated in one hand to apply the fasteners to the work.

Another object of the invention is to provide an implement of the type indicated in which the operating means for the fastener-applying mechanism is adjustable to vary the mechanical advantage of the device or the ratio of power to the resistance offered by the work.

Another object of the invention is to provide an implement of the type indicated in which the fastener-applying mechanism may be operated by either a single stroke or a plurality of strokes of a hand-lever to vary the force for applying the fasteners in accordance with the resistance offered by the work.

Another object of the invention is to provide a device of the type indicated in which interengaging means in the nature of a pawl and ratchet operatively connect the hand-lever and the fastener-applying mechanism to operate the latter by successive movements of the hand-lever.

Another object of the invention is to provide a device of the type indicated in which means are provided for detaining the fastener-applying means while the hand-lever is returned to first position between successive strokes.

Still another object of the invention is to provide a device of the type indicated which is of simple, compact and rugged construction; positive and efficient in performing its intended function; and adapted for use over long periods of time without repair or replacement of parts.

Further objects of the improvement are set forth in the following specification which describes a preferred embodiment of the invention, by way of example, as illustrated by the accompanying drawings. In the drawings:

Fig. 1 is a side elevational view of a fastener-applying implement embodying the novel features of the present invention;

Fig. 2 is a front elevational view of the implement shown with the magazine-gate partly broken away to illustrate the relationship of the magazine and fastener-driving means;

Fig. 3 is a vertical sectional view of the implement taken on line 3—3 of Fig. 2 and showing the operating means for the fastener-applying mechanism adjusted to apply a staple during a single stroke of the hand-lever;

Fig. 4 is a view similar to Fig. 3 showing the relationship of the elements of the operating means at the end of a fastener-applying operation;

Fig. 5 is a side elevational view of the implement showing the operating mechanism adjusted to apply a fastener by effecting a plurality of strokes of the hand-lever;

Fig. 6 is a vertical sectional view of the implement showing the operating means adjusted as in Fig. 5 and illustrating the relationship of the parts at the end of the first stroke of the hand-lever;

Fig. 7 is a view similar to Fig. 6 showing the hand-lever moved to a raised position to commence its second stroke for the fastener-applying operation;

Fig. 8 is a view similar to Fig. 6 showing the relationship of the parts at the end of the fastener-applying operation;

Fig. 9 is a view similar to Fig. 6 indicating the manner in which the actuating pawl is moved to its initial position during the return stroke of the operating means after a fastener-applying operation;

Fig. 10 is a transverse sectional view taken on line 10—10 of Fig. 3 showing the connecting link between the stapling arm or magazine and the operating mechanism to limit the relative movement of the parts;

Fig. 11 is a transverse sectional view taken on line 11—11 of Fig. 3 showing the slide for operating the fastener-applying mechanism and the hairpin-spring for normally holding the magazine-arm and slide in their normal spaced relationship;

Fig. 12 is a transverse sectional view taken on line 12—12 of Fig. 3 showing the hand-grip opening in the frame and the pivotal mounting for the operating lever;

Fig. 13 is a transverse sectional view taken on line 13—13 of Fig. 3 showing the pivotal mounting for the fastener-applying unit on the frame;

Fig. 14 is a sectional plan view taken on line 14—14 of Fig. 9 showing the spaced shoulders or abutments on the operating lever and interengaging pawl-and-ratchet means for holding the staple-applying means from return movement;

Fig. 15 is a detailed sectional view taken on line 15—15 of Fig. 9 showing the mounting for the actuating pawls on the hand-lever; and

Fig. 16 is a detailed vertical sectional view of the end of the stapling arm showing the magazine-gate raised to its open position.

In general the present invention comprises a hollow frame having an opening in its sides to provide a finger-grip to adapt the implement to be held in one hand. Staple-applying mechanism mounted in the hollow frame is operated by a pivoted hand-lever which overlies the finger-grip so that the implement may be operated by the hand in which it is held. The operating means also includes a lever pivoted at one of its ends and connected with the staple-applying means at its opposite end. Selective pawls are mounted in either the hand-lever or operating lever for cooperation with abutments on the other element to operate the fastener-applying mechanism. The pawls and abutments are so constructed and arranged as to apply a staple either by a single stroke or a plurality of strokes of the hand-lever and to vary the force applied to the fastener. When the fastener is applied by a plurality of strokes the pawl cooperates with stepped shoulders on the abutment which act as a ratchet. Suitable means are also provided for detaining the fastener-applying mechanism while the actuating lever is returned between successive strokes.

Referring to the drawings, the implement as herein illustrated comprises a hollow frame 2, preferably made in two separable parts 3 and 4 of identical construction but of opposite hand. The separable parts 3 and 4 have web-like side walls with marginal abutting flanges 5 at the rear and bottom and bearing blocks 6 at the front to position the walls in spaced relation. Marginal openings 7 and 8 are formed in the frame between the flange 5 and blocks 6 and the members 3 and 4 have alined openings 9 which cooperate to form a finger-grip. The frame 2 is mounted in a member 10 having a ribbed base 11 and opposite spaced flanges 12 which embrace the outer sides of the parts 3 and 4. The member 10 is extended in the form of a blade 13 which serves as an anvil, its forward end being provided with clincher-grooves 14 for cooperation with the fastener-applying mechanism. The flanges 5 at the bottom of the parts 3 and 4 are recessed to cooperate with the ribbed portion of the base 11 and the parts are held in assembled relationship by screws 15 which extend through the flanges 12 and are screwed into the parts 3 and 4. As herein illustrated the screws 15 pass through elongated slots 16 in the flanges 12 of the base-member 10, see Fig. 1, and are screwed into bushings 17 having square portions 18 seated in correspondingly-shaped recesses in the members 3 and 4 to provide for a limited adjustment of the frame 2 with respect to the base-member 10, see also Fig. 12.

The fastener-applying mechanism is mounted on the frame 2 for movement between the sides thereof to adapt it to cooperate with the clincher-grooves 14 on the blade 13 to apply a staple and clinch its legs on the under side of the work. As illustrated in Figs. 1 and 13, the fastener-applying mechanism which is adapted to drive U-shaped staples into the work comprises a magazine-arm 20 pivoted at its rearward end on a pin 21 extending through the arm and outwardly through the members 3 and 4 of the frame 2. The arm 20 is preferably constructed of sheet-metal bent, stamped or otherwise formed to trough-shape with inwardly-folded flanges 22 at its upper edges. Spaced rails 23 are rigidly secured to the bottom wall of the arm with their upper edges positioned beneath the flanges 22 to provide a support or core for the staples *s* straddled thereacross. The staples *s* are advanced along the arm 20 toward its forward end by a staple-pusher 24 which rides on the rails 23 at the rear of the staples and is urged forwardly by any suitable resilient means. As herein illustrated an elastic cord 25 is connected to the staple-pusher 24 and extends forwardly over a pulley 26 and then rearwardly with its end attached to the bottom of the arm as shown in Fig. 3.

The staple-supporting rails 23 extend beyond the forward end of the arm 20 and projecting upwardly from the sides of the arm are spaced stanchions 27 which overhang the ends of the rails. The forward end of the arm 20 is closed by a box-like gate 28 pivotally mounted on the stanchions 27. As illustrated in Figs. 1 and 16, the sides of the gate 28 are notched at their upper ends to provide opposite lugs 29 which are folded inwardly to form pintles received in slots 30 in the spaced stanchions 27 to pivotally mount the gate thereon. The gate 28 is formed with notches 31 in the bottom edges of its side walls which cooperate with lugs 32 on the sides of the rails 23 to latch the gate in closed position. The front wall 33 of the gate will then be positioned as shown in Fig. 1 to cooperate with the end of the arm 20 to provide a throat 34 in which a staple-driver 35 is reciprocated to drive the staples *s*. The staples *s* are held from rising on the rails 23 at the forward end of the arm 20 by a horizontal plate 36 extending between the stanchions 27 and are prevented from being ejected from the magazine when the gate 28 is opened by a staple-retaining pawl 37, see Fig. 16, pivotally mounted between the stanchions. An abutment 38 on the pawl 37 is engaged by the rearward face of the staple-driver 35 to hold the pawl in inoperative position as illustrated in Fig. 3, while a spring 39 acts to rock the pawl into engagement with the staples when the gate is opened as shown in Fig. 16.

The operating means for the stapling mechanism includes a slide 40 mounted in grooves or guideways 41 formed in the opposite members 3 and 4 of the frame 2 as shown in Figs. 3 and 14. The slide 40 is cut away centrally at its lower end to adapt it to clear the stapling arm 20 during its descent and it carries a forwardly-extending hook-shaped member 43 which projects through a slot 44 in the staple-driver 35. The slide 40 is normally held in raised position with respect to the stapling arm 20 by a hairpin-shaped spring 45 of bifurcated form having its upper looped arm engaging the under side of the hook-shaped member 43. The ends of the lower legs of the spring 45 engage the pintle lugs 29 of the gate 28 to support the spring and hold the gate latched in closed position. The legs of the spring 45 intermediate their ends are coiled to provide the required resiliency. The upward movement of the slide 40 with respect to the magazine-arm 20 is limited by a yoke member or link 46 embracing the forwardly-extending hook-member 43 and having its lower end curled about a pin 47 extending between the spaced stanchions 27, see Figs. 3 and 10. The yoke 46 is held in from swinging forwardly by the ends of a pin 48 in the hook-shaped member 43 to prevent the yoke from striking the staple-driver 35 and interfering with the opening of the gate 28.

The slide 40 is operated by a lever 50, see Fig. 3, pivotally mounted at its rearward end and connected with the slide at its forward end. As most clearly shown in Fig. 14 the lever 50 overlies the opening 7 in the frame 2 and is of bifurcated form comprising opposite parallel rails 51 spaced apart by an abutment member 52 therebetween. The parts of the lever 50 are fixedly held in assembled relationship by rivets 53 or any other suitable means. The lever 50 is pivotally mounted at its rearward end on a pin 54 extending between upstanding bearing lugs 55 on the frame-members 3 and 4 and the forward ends of the rails 51 project through bearing slots 56 in the upper end of the slide 40. The abutment member 52 is shaped with an upstanding lug or projection 59 which provides a rearward shoulder 57 and a forward inclined shoulder 58. The upper edge 60 of the lug 59 together with the shoulder 58 provide a plurality of steps adapted to coact as a ratchet. The lever 50 is normally held in a raised position by a leaf-spring 61 looped over the pivot-pin 54 between the spaced rails 51 of the lever with one end anchored under a pin 62 at the rear of the frame 2 and its opposite end engaging under the rearward end of the member 52, see Figs. 1 and 12. The forward end of the lever 50 being connected with the slide 40 and the magazine-arm 20 being linked to the forwardly-projecting member 43 on the slide 40 by the yoke member 46, the spring 61 also acts to normally maintain the staple-applying mechanism in inoperative position.

The operating lever 50 is actuated by a hand-lever 70 pivoted to the frame 2 at its forward end and extending rearwardly above the finger-grip 9. The hand-lever 70 is preferably made of light sheet-metal stamped or otherwise folded to a rounded channel-shape with depending flanges 71 at its forward end as illustrated in Figs. 1, 2 and 10. At its forward end the sides of the hand-lever 70 embrace the opposite sides of the frame 2, the lever being pivotally mounted on a stud 72 extending through the bearing blocks 6 on the frame-members 3 and 4 and the overhanging sides of the lever. The stud 72 has a head 74 at one end and a tapped axial hole 75 at its opposite end for receiving a screw 76, see Fig. 2, the head 74 of the stud 72 and the head of the screw 76 being set up against the sides of the hand-lever 70. Upward movement of the hand-lever 70 is limited by the inwardly-offset ends of depending extensions 77 of the flanges 71 which engage against shoulders 78 at the sides of the frame-members 3 and 4, see Fig. 1. The hand-lever 70 is normally held in a raised position by a leaf-spring 79 which bears against the bearing blocks 6 at the forward end of the frame with one end extending under the web portion of the hand-lever between its sides. The opposite end of the leaf-spring 79 is formed with folded side flanges 80 having notches 81 therein which engage inwardly-projecting pins 82 on the frame-members 3 and 4 to anchor the spring thereto, see Figs. 2 and 4.

In accordance with the present invention the leverage or mechanical advantage of the operating mechanism may be altered in accordance with the resistance of the work. To this end a pair of pawls 86 and 87 are mounted in spaced relationship on the hand-lever 70 for cooperation with the shoulders 57 and 58 on the operating lever 50 to operate the fastener-applying mechanism by one stroke of the hand-lever 70 when the resistance is relatively slight, and by a plurality of strokes of the hand-lever and with a considerably greater force when the resistance is greater. As illustrated in detail in Fig. 15, the pawls 86 and 87 have bearing sleeves 88 and 89 for pivotally mounting them on pins 90 and 91 which are riveted or otherwise fastened in the sides of the hand-lever 70. The pawl 86 has an extended toe portion 92 for cooperation with the shoulder or abutment 57 on the operating lever 50 and is normally held in engagement therewith by a leaf-spring 93 riveted to the hand-lever 70 at one end with its free end bearing against the upper flat edge 94 of the pawl as shown in Fig. 3. The pawl 86, however, is adapted to be rocked on its pivot-pin 90 to an inoperative position as shown in Fig. 9 and is held in this position by the engagement of the end of the leaf-spring 93 with its flat edge 95. When the pawl 86 is in its inoperative position the pawl 87 is adapted to cooperate with one or the other of the shoulders 58 and 60 on the stepped end of the abutment 52 to actuate the lever 50 and thereby the staple-applying mechanism. The pawl 87 has an extended toe 96 for cooperation with the shoulders 58 and 60 and is resiliently rocked to successively engage these shoulders by the action of a spring 97 coiled about the sleeve 89 with one leg engaging the web portion of the hand-lever 70 and its opposite end bearing against an extension 98 on the pawl.

Suitable means are also provided for detaining the fastener-applying mechanism between successive strokes of the hand-lever 70 when under actuation by the pawl 87. As herein illustrated the detaining means comprises a rack-bar 100 on the rearward face of the slide 40 and a one-way pawl 101 pivotally mounted on a pin 102 in the frame 2, see Figs. 3 and 9. The pawl 101 is resiliently urged into engagement with the teeth of the rack-bar 100 by a spring 103 hooked to its rearward end and anchored to a pin 104 in the side of the frame 2. The pawl 101 functions to allow the slide 40 to move downwardly but prevents it from returning until a full stroke has been completed. The complete device having now been described in detail its method of operation will next be explained.

To prepare the implement for a staple-applying operation the gate 28 at the forward end of the arm 20 is opened to load the magazine with a supply of staples *s*. By sliding the gate 28 upwardly against the action of the hairpin-spring 45 its notches 31 are unlatched from the lugs 32, whereupon the gate may be rocked on its pintles 29 to the open position illustrated in Fig. 16. A supply of staples *s*, preferably in the form of a stick, is slid into the arm 20 against the action of the staple-pusher 24. The staples *s* ride on the spaced rails 23 and are prevented from being ejected from the magazine while the gate is open by the staple-retaining pawl 37. After the magazine in the arm 20 has been loaded the gate 28 is closed and latched in place, thereby rocking the pawl 37 to inoperative position by causing the rearward face of the staple-driver 35 to engage with the abutment 38 on the pawl. If necessary, the frame 2 may be adjusted with respect to the base-member 10 to aline the throat 34 with the clincher-grooves 14, this being accomplished by loosening the screws 15. The implement is then ready for operation.

When relatively thin work, or work which offers little resistance to the application of the staples, is to be operated upon the operating means is adjusted to apply a staple *s* during one stroke of

the hand-lever 70. For this purpose the pawl 86 is rocked to operative position as shown in Fig. 1. The work *w* to be stapled is placed on the anvil-blade 13 or, when the flaps of cartons or the like are to be stitched, the blade is inserted between the flaps. With the implement held in one hand by means of the finger-grip 9 the hand-lever 70 is depressed by closing the fingers of the hand. The hand-lever 70 is thus rocked about its pivot 72 from the position shown in Fig. 3 to that shown in Fig. 4 to cause the operating lever 50 to be rocked on its pivot 54 due to the engagement of the extended toe 92 of the pawl 86 with the shoulder 57 of the abutment member 52. The slide 40 will thus be moved downwardly by the lever 50 and through the connection of the forwardly-projecting member 43 on the slide with the staple-driver 35 the latter is carried downwardly with it. Due to the action of the hairpin-spring 45 between the member 43 and the magazine-arm 20 the latter is rocked about its pivot 21 to engage the work *w* during the initial movement of the slide 40. Continued movement of the slide 40 causes the staple-driver 35 to descend with respect to the arm 20 to drive the foremost staple *s* through the throat 34 and into the work *w*. Due to the relationship of the shoulder 57 and mounting 90 for the pawl 86 with respect to the pivots 54 and 72 of the lever 50 and hand-lever 70, respectively, the staple-driver 35 is moved through a full stroke to apply a staple during a single stroke of the lever 70.

Upon release of the hand-lever 70 the spring 61 first acts through the lever 50 to raise the slide 40 with respect to the stapling arm 20. As the member 43 on the slide 40 moves upwardly it engages the end of the link 46 and eventually acts to raise the arm 20 away from the work *w*. After the staple-driver 35 is raised to inoperative position the staple-pusher 24 acts to advance another staple *s* into the throat 34 to be driven during the next actuation of the hand-lever 70. The leaf-spring 61 acting between the pin 62 on the frame 2 and the bottom of the abutment member 52 on the operating lever 50 then continues to rock the whole assembly of operating lever 50, slide 40 and stapling arm 20 to its initial position; this movement being limited by the engagement of the upper end of the link 46 with the block 6 as shown in Fig. 3. The implement may be continuously operated in the manner as above explained by successive actuations of the hand-lever 70.

When the work to be stapled is thicker, as indicated at W in Figs. 6 to 9, or when it offers such resistance to the application of a staple as to render the operation of the device difficult, the implement is adjusted to increase the mechanical advantage. To accomplish this the pawl 86 is rocked to its inoperative position, shown in Fig. 5, where it is held by the engagement of the leaf-spring 93 with the flat face 95. The pawl 87 will then engage the shoulder 58 on the abutment member 52 to rock the operating lever 50 during the first actuation of the hand-lever 70. Due to the relationship of the pin 91 and the shoulder 58 with respect to the pivots 72 and 54 of the levers 70 and 50, respectively, the leverage or mechanical advantage of the operating mechanism is varied from that in the previously-described arrangement to augment the force applied to the staple-driver 35. The staple-applying mechanism is then operated to apply a staple by effecting two successive strokes of the hand-lever 70. During the first stroke of the hand-lever 70 the operating mechanism is moved to the position shown in Fig. 6 to engage the end of the magazine-arm 20 with the work W and the staple-driver descends to sever the foremost staple in the magazine-arm and partially drive it through the throat 34. As the slide 40 moves downwardly the teeth on the rack-bar 100 slide across the end of the one-way pawl 101 which is resiliently urged into engagement with the teeth by the spring 103. The pawl 101 is so positioned, however, as to prevent upward movement of the slide 40 so that when the hand-lever 70 is released the end of the magazine-arm 20 is resiliently held in engagement with the work W by the tension of the hairpin-spring 45. Pressure on the hand-lever 70 is released after its initial stroke, whereupon it will be raised to first position by the leaf-spring 79 as shown in Fig. 7. At this juncture the spring 97 will act to rock the pawl 87 to the position shown in Fig. 7 where its toe 96 overlies the shoulder 60 at the top of the lug 59 with its extension 98 bearing against the web of the hand-lever 70. The hand-lever 70 is then pressed down again to the position shown in Fig. 8 to complete the staple-applying operation. The rack-bar 100 will then be moved beyond the one-way pawl 101, as shown in Fig. 8, which permits the pawl to rock upwardly on its pivot to allow it to ride over the teeth of the rack-bar as the slide is moved upwardly after the stapling operation, see Fig. 9.

After its second stroke the hand-lever 70 is released and the operating mechanism and magazine-arm 20 are returned to their initial position by the spring 61 as previously explained. During this return movement the lug 59 on the abutment 52 and the extended end or toe 96 of the pawl 87 move relatively to each other and are finally disengaged due to the levers being fulcrumed at their opposite ends. It will be noted that at the beginning of the second stroke of the hand-operated lever 70, as illustrated in Fig. 7, the end of the toe 96 of the pawl 87 is spaced away from the end 60 of the lug 59 so that a predetermined rocking movement of the lever is necessary to engage the toe with the lug. During this rocking movement the angular relationship of the engaging surfaces on the toe 96 and lug 59 is altered so that they overlie each other and will be engaged to transmit the motion of the hand-operated lever 70. During the return stroke of the manually-operated lever 70, however, the lug 59 continues to follow the pawl upwardly under the action of the spring 61 to a position beyond that illustrated in Fig. 7. The rocking movement of the levers 50 and 70 about their opposite pivots 54 and 72 thus causes the toe 96 and lugs 59 to slide by each other and the angular relationship of their engaging surfaces is altered. Adjacent the end of the upward movement of the hand-operated lever 70 the relationship of the lug 59 and pawl 87 is such that the edge of the lug 59 acts to cam the pawl 87 from the position shown in full lines to the position illustrated by dash lines in Fig. 9, which causes the toe 96 to be released from its engagement with the edge 60 of the lug. The elements of the operating means are thus returned to their initial position as illustrated in Fig. 5 and the implement is ready for a successive staple-applying operation.

It will be observed from the foregoing that the invention provides a simple and compact implement which may be held and operated by one hand to apply the fasteners to the work. It will further be observed that the operating means is adjustable to alter the mechanical advantage of

the operating means in accordance with the resistance of the work to the application of the fasteners. It will still further be observed that the adjusting means is so constructed and arranged as to permit a quick change from a single action to a double action implement by merely rocking one of the pawls on its pivot.

While the invention is herein described and illustrated as embodied in a preferred form of construction, it is to be understood that various modifications may be made in the structure and arrangement of the parts of the device without departing from the spirit or scope of the invention. Therefore, without limiting myself in this respect, I claim:

1. In a stapling machine, staple-inserting means, a lever connected to actuate the staple-inserting means, a manually-operable lever, and means on one of the levers adapted for engagement with the other lever to actuate the staple-inserting means, said last-named means being adjustable to alter the mechanical advantage of the manually-operable lever on the staple-inserting means.

2. In a device of the type indicated, fastener-applying means, and operating means having a predetermined length of stroke for actuating the fastener-applying means, said operating means being adjustable to alter the ratio of movement of the fastener-applying means with respect thereto during one stroke and so constructed and arranged as to apply a staple by one or a plurality of strokes.

3. In a device of the type indicated, fastener-applying means, means connected to operate the fastener-applying means, an actuating member having a predetermined length of stroke, and means for connecting said member and operating means and adjustable to alter the mechanical advantage between the actuating member and fastener-applying means, said operating means being so constructed and arranged as to operate the fastener-applying means by one or a plurality of strokes of the actuating member.

4. In a device of the type indicated, fastener-applying means, means connected to operate the fastener-applying means, an actuating member having a predetermined length of stroke, and means on said member for engaging the operating means to operate the fastener-applying means, said means on the actuating member being manually adjustable to operate the fastener-applying means to apply a fastener by one or a plurality of strokes of said member.

5. A device of the type indicated comprising a frame having a finger-grip to adapt the device to be held in one hand, an anvil on the frame, fastener-applying means mounted on the frame for cooperation with the anvil to apply a fastener, a handle on the frame adapted to be actuated by the hand in which the device is held, and adjustable means between the handle and fastener-applying means to alter the mechanical advantage of the device.

6. A device of the type indicated comprising a frame having a finger-grip to adapt the device to be held in one hand, an anvil on the frame, fastener-applying means mounted on the frame for cooperation with the anvil to apply a fastener, a handle on the frame adapted to be operated by the hand in which the device is held and having a predetermined length of stroke, and adjustable means to selectively operate the fastener-applying means to apply a staple by one or a plurality of strokes of the handle.

7. In a device of the type indicated, fastener-applying means, means for operating the fastener-applying means, an actuating member having a predetermined length of stroke, and adjustable means between the operating means and actuating member to alter the mechanical advantage of the device between successive strokes of the actuating member, said operating means being so constructed and arranged as to apply a fastener by one or a plurality of strokes of the actuating member.

8. In a device of the type indicated, fastener-applying means, means connected to operate the fastener-applying means including compound operating and actuating levers, and means between the levers manually adjustable to alter the leverage whereby to increase the force in applying the fasteners, said manually-adjustable means being so constructed and arranged as to move the operating lever to apply a staple by one or a plurality of strokes of the actuating lever.

9. In a device of the type indicated, fastener-applying means, operating means for the fastener-applying means including compound levers pivoted at opposite points, and connecting members between the levers acting independently of each other to operate the fastener-applying means, one of said members being adjustable to inoperative position whereby to cause the other member to act to vary the leverage and increase the force in applying the fasteners.

10. In a device of the type indicated, fastener-applying means, a lever pivoted at one end and connected to the fastener-applying means at its opposite end, a second lever pivoted at one end and overlying the first-mentioned lever, and pawls on one of said levers engageable with the other lever at points spaced from its pivot to alter the leverage, one of said pawls being adjustable to inoperative position whereby to cause the other pawl to act to vary the force applied to the fastener-applying means.

11. In a device of the type indicated, fastener-applying means, operating means for the fastener-applying means including a pair of levers, an abutment on one of the levers, a second stepped abutment on said lever arranged in spaced relation with respect to the first-mentioned abutment, a pawl on the opposite lever for engaging the first-mentioned abutment to operate the fastener-applying means to apply a fastener by one actuation of the operating means, said pawl being movable to an inoperative position, and a second pawl for engaging the stepped abutment to operate the fastener-applying means to apply a fastener by a plurality of successive actuations of the operating means.

12. In a device of the type indicated, fastener-applying means, a lever connected to operate the fastener-applying means, abutments arranged in spaced relation on said lever, a manually-operative lever, pawls on said last-named lever for engaging the abutments on the operating lever, one of said pawls being adapted to act to operate the fastener-applying means to apply a staple by a single stroke of the manually-operated lever and the other of said pawls being adapted to act to operate the fastener-applying means by successive strokes of the manually-operative lever.

13. In a device of the type indicated, a frame having a finger-grip to adapt the device to be held in one hand, fastener-applying means on the frame, a lever connected to operate the fastener-applying means, a manually operative lever over-

lying the finger-grip to adapt it to be operated by the hand in which the device is held, a pawl on said manually-operative lever for engaging the operating lever to operate the fastener-applying means by a single stroke of the manually-operative lever, said pawl being movable to an inoperative position, and a second pawl on the manually-operative lever for engaging the operating lever to operate the fastener-applying means by successive strokes of the manually-operative lever.

14. In a device of the type indicated, fastener-applying means, a lever pivoted at one end and connected to the fastener-applying means at its opposite end, a stepped abutment on the lever, an actuating lever overlying the first-mentioned lever, a pawl on the actuating lever for successively engaging the stepped portions of the abutment to operate the fastener-applying means to apply a fastener by successive strokes of the actuating lever, and interengaging pawl-and-ratchet means for holding the fastener-applying means inactive between the successive strokes of the actuating lever.

15. In a device of the type indicated, a frame having a finger-grip to adapt the device to be held in one hand, an anvil on the frame, fastener-applying means pivotally mounted on the frame for movement toward and away from the anvil to apply the fasteners, a spring for normally holding the fastener-applying means in raised position with respect to the anvil, an actuating lever overlying the finger-grip, a spring for holding the actuating lever in raised position with respect to the fastener-applying means, interengaging means between the actuating lever and fastener-applying means for operating the latter to apply a fastener by successive strokes of the handle, and means for holding the fastener-applying means inactive between successive strokes of the actuating lever.

16. In a device of the type indicated, an arm pivotally mounted in the frame and providing a magazine for staples, a staple-driver cooperating with the arm to drive the staples, a slide mounted in the frame and connected to operate the staple-driver, a lever pivoted to the frame at one end and connected to the slide at its opposite end, an actuating lever, and interengaging means on the levers manually adjustable to actuate the staple-driver to apply a staple by one or a plurality of strokes of the actuating lever.

17. In a device of the type indicated, a frame, an anvil on the frame, a stapling arm pivotally mounted on the frame for movement toward and away from the anvil, a staple-driver at the end of the arm, an actuating member connected to the staple-driver, a manually-operative member mounted on the frame for movement relatively thereof, interengaging means on said members so constructed and arranged as to move the staple-driver actuating member by successive strokes of the manually-operative member to drive a staple, and means for holding the actuating member inoperative while the manually-operative member is returned to its initial position between strokes.

18. In a device of the type indicated, a frame, an anvil on the frame, a stapling arm pivotally mounted on the frame for movement toward and away from the anvil, a staple-driver at the end of the arm, an actuating lever pivoted at one end and connected to the staple-driver at its opposite end, a manually-operative lever overlying the actuating lever, a pawl on one of the levers, a ratchet on the other lever, and a second pawl-and-ratchet means for holding the actuating lever, said actuating lever being rocked to drive a staple by successive strokes of the manually-operative lever and being held inoperative between strokes by the second-mentioned pawl-and-ratchet means.

19. In a device of the type indicated, a frame, an anvil on the frame, a stapling arm pivotally mounted on the frame for movement toward and away from the anvil, a staple-driver at the end of the arm, actuating means including a lever connected to the staple-driver, a manually-operative lever mounted on the frame, pawl-and-ratchet means on the levers for actuating the staple-driver to apply a staple by successive strokes of the manually-operative lever, and separate pawl-and-ratchet means between the actuating means and the frame for holding the actuating means inoperative between successive strokes of the manually-operative lever.

20. In a device of the type indicated, fastener-applying means, a member connected to actuate the fastener-applying means, a manually-operative member, and means projecting from one of the members for engagement with the opposite member to actuate the fastener-applying means, said last-named means being adjustable to alter the mechanical advantage of the manually-operative member on the fastener-applying means.

21. In a device of the type indicated, fastener-applying means, a lever connected to actuate the fastener-applying means, a manually-operative lever overlying the first-named lever, and means permanently connected to the manually-operative lever and projecting therefrom for engaging the opposite lever to actuate the latter, said means on the manually-operative lever being adjustable to alter the mechanical advantage of the actuating lever on the fastener-applying means.

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