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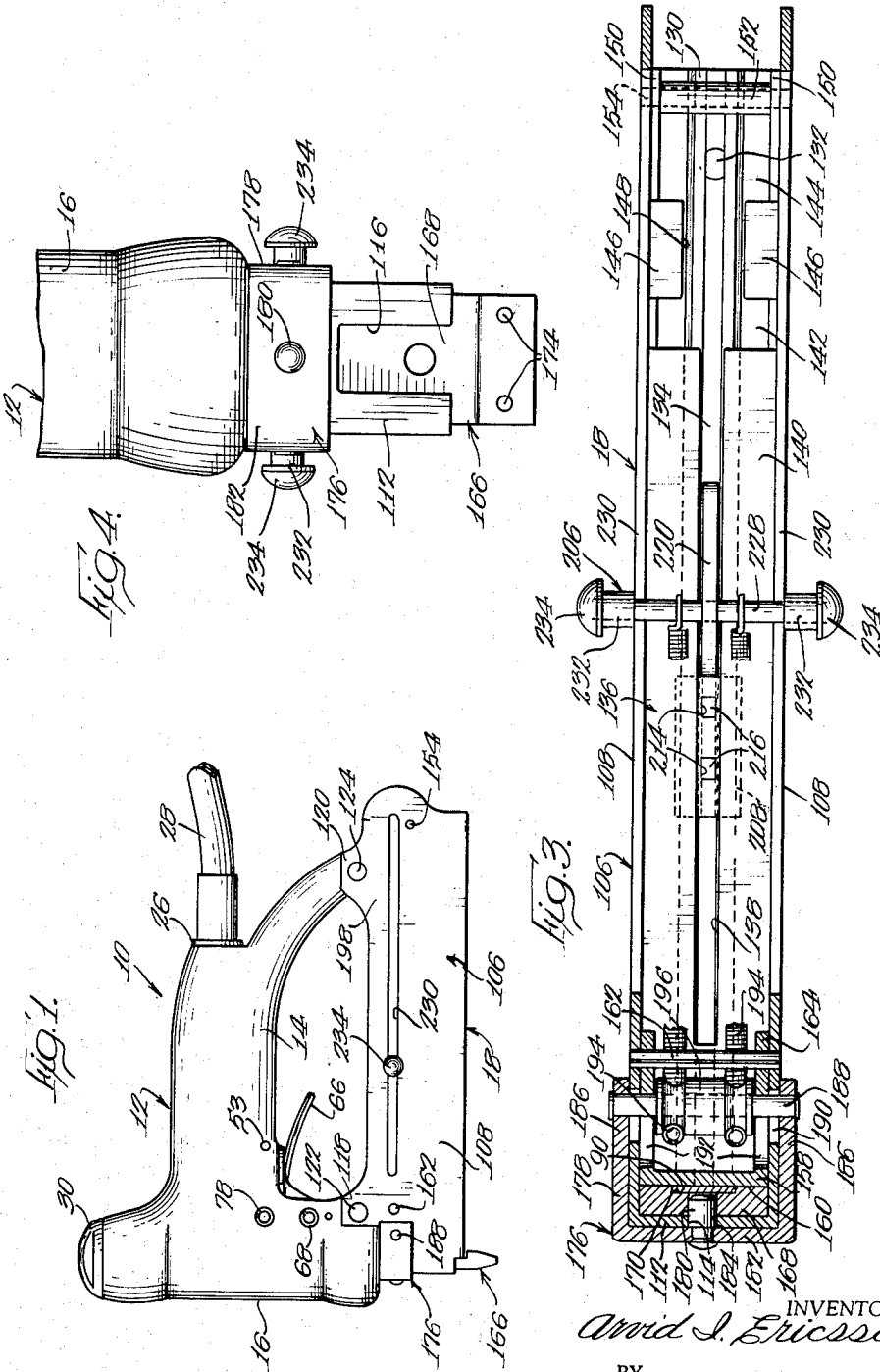
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2,947,003

PNEUMATIC STAPLING TOOL

Filed Nov. 8, 1956

3 Sheets-Sheet 1



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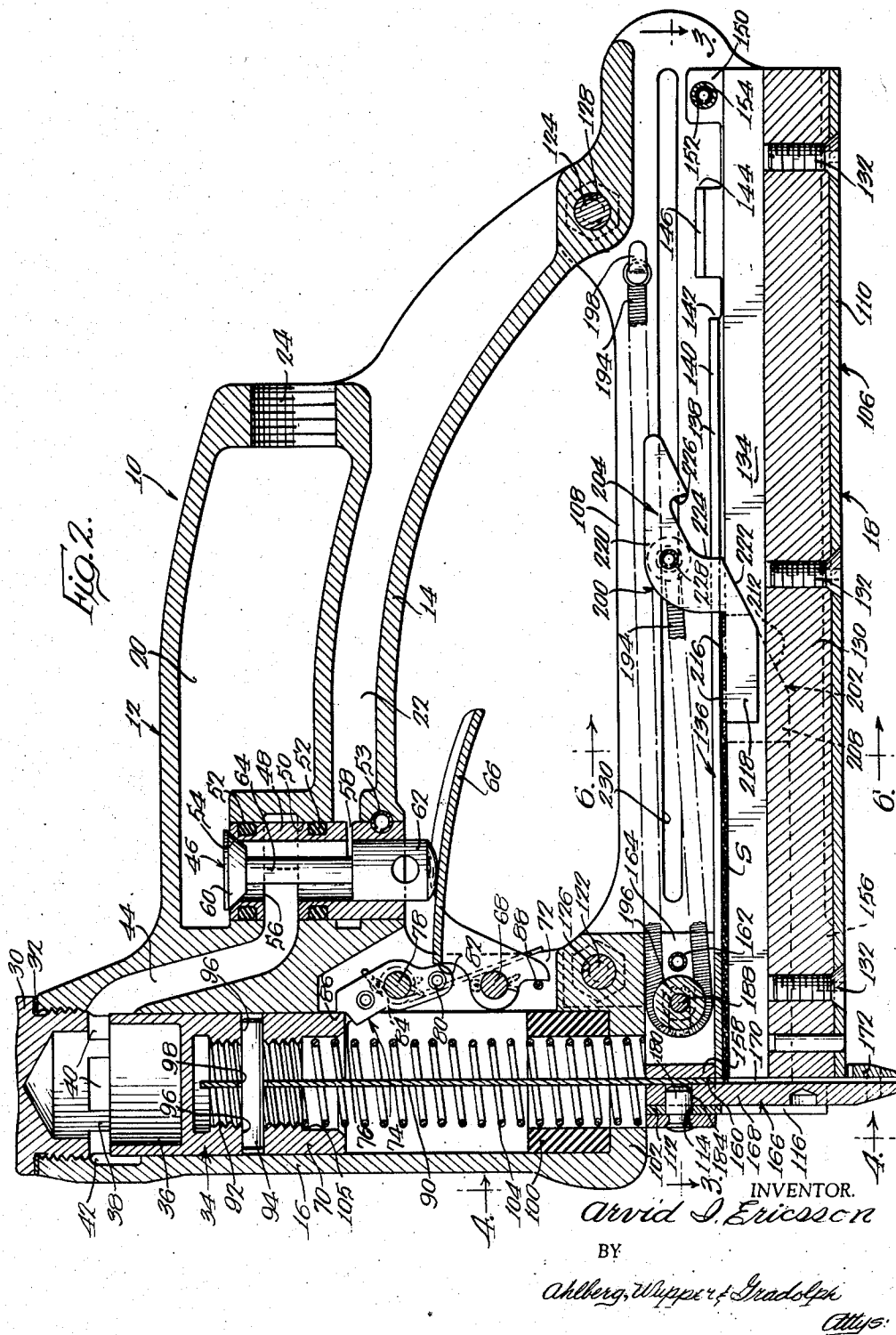
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3 Sheets-Sheet 2



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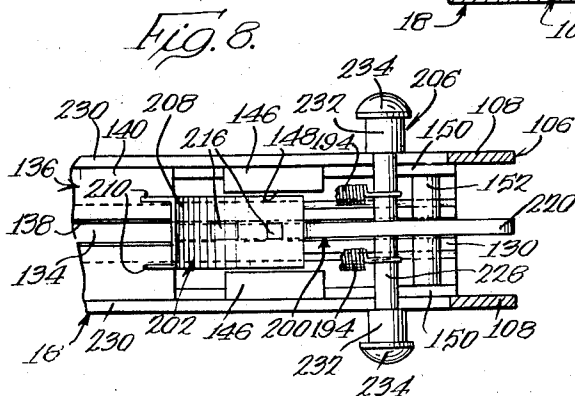
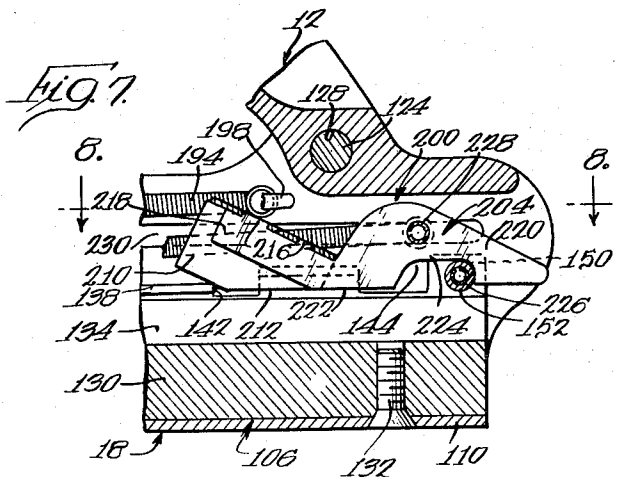
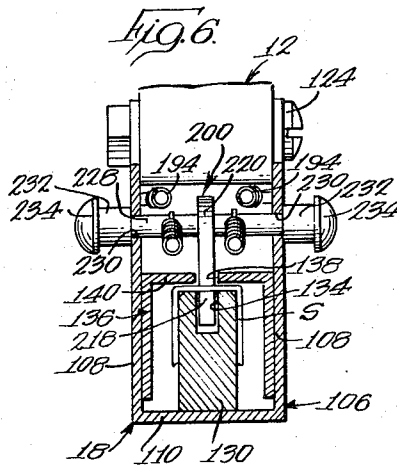
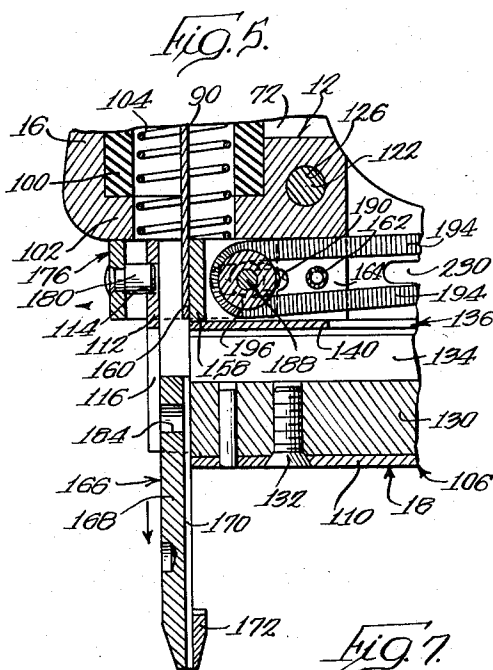
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PNEUMATIC STAPLING TOOL

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3 Sheets-Sheet 3



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2,947,003

PNEUMATIC STAPLING TOOL

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11 Claims. (Cl. 1—44.4)

The present invention relates to improvements in air pressure operated stapling tools.

In general, such tools comprise an air cylinder and piston combination for powering a staple driver through a guideway and past the outlet from a staple containing magazine to drive a staple into the work; an air valve controls the admission of air under pressure to the cylinder and the exhaust therefrom as the piston and staple driver are retracted.

One of the principal objects of the present invention is to provide a new and improved staple guideway which is secured to the outer end of the staple magazine in a position to receive the staples from the magazine and to guide the staple driver.

Another object is to provide a new and improved stapling tool having a removable staple guideway which has a novel arrangement for maintaining it in staple guiding position.

Another object is to provide a new and improved stapling tool having a novel staple guideway which is removably held in position at the outlet end of the magazine by a simple arrangement using no screws or bolts.

Another object is to provide a new and improved stapling tool having a removable staple guideway which needs no tools to remove the guideway from the outer end of the magazine.

Another object is to provide a new and improved stapling tool having a staple follower which is anchored in retracted position by a simple motion.

Another object is to provide a new and improved pneumatic stapling tool having a piston holdup device of simple construction which acts momentarily to restrain the piston from moving through a power stroke while air pressure quickly builds up at the piston head.

Another object is to provide a new and improved air pressure operated stapling tool which is rugged in construction, inexpensive to manufacture, and easy to assemble.

Other objects and advantages will become apparent from the following description taken in conjunction with the accompanying drawings, wherein—

Fig. 1 is a side elevational view of the air pressure operated stapler of the present invention, showing a connection to a pressurized air supply hose;

Fig. 2 is a medial longitudinal sectional view on a greatly enlarged scale;

Fig. 3 is a horizontal sectional view taken through the staple magazine along the line 3—3 of Fig. 2, looking in the direction of the arrow;

Fig. 4 is a fragmentary front elevational view of the staple guide and nose assembly;

Fig. 5 is a fragmentary sectional view, in the plane of Fig. 2, showing the staple guideway partially removed from normal guiding position;

Fig. 6 is a vertical cross sectional view through the staple magazine, taken along the line 6—6 of Fig. 2;

Fig. 7 is a fragmentary sectional view, in the plane of Fig. 2, of the rear of the staple magazine, showing the

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staple follower held out of the staple path to permit re-loading of the magazine and for other purposes; and

Fig. 8 is a horizontal sectional view taken along the line 8—8 of Fig. 7.

In the drawings, the air pressure operated stapling tool of the present invention is indicated generally by the reference character 10, and comprises a main body casting 12 providing a handle portion 14 and an air cylinder 16, and a staple magazine 18 secured to the casting 12.

In the casting 12, and particularly in the handle portion 14, there are formed an air inlet passage 20 and an exhaust passage 22. The outer end of the inlet passage 20 is tapped at 14 to receive a fitting 26 to which the conventional air supply hose 28 may be connected.

The upper or pressure end of the air cylinder 16 is closed by a removable cap 30 and gasket 32. A piston 34 having a cup-shaped head 36 is reciprocable in the cylinder 16 and its movement in the retracted direction is limited by a plurality of stops 38 formed on the lower edge of the cap 30, and which define air ports 40. The ports 40 communicate the interior of the cylinder 16 with an annular passage 42 and an angular passage 44 which leads toward the air inlet passage 20 and the exhaust passage 22.

A manually operated air valve 46 controls communication between the inlet passage 20 and passage 44, and between the passage 44 and the exhaust passage 22. The valve 46 includes a valve sleeve 48 which has a tight fit in a bore 50 in the handle 14 of the casting, is sealed against air leakage by a pair of gaskets 52, and held against removal by a rolled retaining pin 53. The valve sleeve is formed at its upper end with a valve seat 54 defining an air inlet port, and intermediate its upper end and its open lower end, with a first port 56 communicating the interior of the sleeve with the passage 44, and an exhaust port 58 communicating the interior of the sleeve with the exhaust passage 22. A valve poppet 60 normally seats against the valve seat 54 and is connected to a valve piston 62 by a stem 64. The valve is operated by a trigger 66 pivoted on a pivot pin 68 and bearing against the lower end of the valve piston 62 which projects below the valve sleeve 48. When the trigger 66 is moved toward the handle 14, the valve poppet 60 is lifted from its seat; at the same time the valve piston 62 closes the exhaust port 58. Air under pressure rushes past the valve seat 54, through the valve sleeve 48, port 56, passage 44, and ports 40, into the head end of the cylinder 16 to build up pressure therein to drive the piston 34 through a power stroke.

When the trigger 66 is released, it returns to the position shown in the drawings, the piston 62 slides downwardly under the impetus of air under pressure acting on the head of the valve 60, uncovering the port 58 and closing the air inlet port defined by the valve seat 54, thereby permitting the air under pressure in the cylinder to flow outwardly through the exhaust passage 22.

The piston 34 has a depending skirt 70 which when the piston is in its retracted or uppermost position extends sufficiently downwardly in the cylinder 16 partially to cover a slot 72 formed in the wall of the cylinder 16 toward the inside of the handle 14, and which accommodates a portion of the trigger 66 and across which the pivot pin 68 extends. A piston retaining pawl 74, having a lip 76 engageable with the lower edge of the piston skirt 70, is also located in the slot 72 and pivots on a pin 78 so as to project into the cylinder 16. The pawl has a lower end 80 engageable against the forward edge 82 of the trigger 66 between the pivot pins 68 and 78, so that when the trigger 66 is squeezed toward the handle, the pawl 74 is rotated in the clockwise direction, thereby moving the lip 76 from beneath the piston skirt 70. Since

the valve 46 opens before the piston 34 is freed, pressure builds up rapidly at the head of the piston, and when the trigger has been moved to its full extent the pawl 74 releases the piston 34 and the air pressure drives the piston rapidly and with considerable force through a staple driving stroke. The pawl 74 and trigger 66 against which it bears are biased to the piston retracted and valve closed positions shown in Fig. 2, by a grasshopper type spring 84 acting on the pawl. The pawl is limited in its movement in the counterclockwise direction by a second lip 86 which bears against the cylindrical face of the piston skirt 70 and the trigger is limited in its clockwise movement by a stop pin 88. There is a small amount of play or lost motion between the trigger 66 and the pawl 74 when the parts are in the valve closed position, so that the valve poppet 60 may seal against the valve seat 54 with no leaks.

The overall length of the piston 34 is such that when it has traversed its full stroke, the upper end of the piston head 36 does not uncover the slot 72, and therefore there is no loss of air through this slot at any time.

A staple driver 90 is secured to the piston 34 in a novel manner which is the subject matter of the copending application of Harold F. Baker, Serial No. 625,131, filed November 29, 1956, now Patent No. 2,881,738, granted April 14, 1959, and entitled "Piston and Staple Driver Combination," and assigned to the assignee of this invention. The interior of the piston skirt 70 is formed with a screw thread 92; the side edges of the upper end of the staple driver 90 are formed with complementary shaped thread engaging teeth. A pin 94 extends through aligned holes 96 and 98 in the piston skirt 70 and the top of the staple driver 90. The engaging screw thread 92 and driver teeth carry the load transmitted from the piston 34 to the driver 90, and the pin 94 prevents relative movement rotationally between the piston 34 and the driver 90.

At its lower end the cylinder 16 is fitted with a resilient cushion 100 which is adapted to absorb the shock of the piston 34 should the tool be operated with no staples in the magazine, or should the tool be fired into the air to clear the guideway or for testing, or should the staple be driven into an object which has little resistance and the end of the staple driver is carried beyond the end of the guideway. The resilient cushion 100 is retained in an interned flange 102 at the lower end of the cylinder 16.

A spring 104 extends from the bottom of the cylinder and from the top of the magazine 18 to the skirt 70 and fits in a recess therein and biases the piston 34 upwardly as seen in Fig. 2, and against the air pressure. The spring 104 does not exert great force so as to minimize the resistance to the driving of the piston 34, but has sufficient force to return the piston quickly to its retracted position and to exhaust the air from the head end of the cylinder 16 to the passage 22 when the trigger 66 is released and returned to valve closed position.

The staple magazine 18 includes a main magazine casing 106 which has a pair of vertical upstanding walls 108 interconnected across the bottom of the magazine by a wall 110. At the forward end of the magazine and spaced outwardly from the front edge of the wall 110, the walls 108 are interconnected by a front wall 112 which has an aperture 114 therein between its upper edge and a U-shaped opening 116 therebelow (Fig. 4). The walls 108 also have apertured front and rear upstanding ears 118 and 120 through which extend bolts 122 and 124, which also extend through holes 126 and 128 in the casting 12, thereby securing the magazine 18 to the casting 12. It is thus a simple job to remove the bolts 122 and 124 and the magazine 18 from the handle 14 and air cylinder 16.

The staples S, which may be in the conventional stick form, are slidable on a staple rail 130 which is secured

to the bottom 110 of the magazine casing 106 by a plurality of bolts 132. In its upper side the rail 130 is formed with a longitudinally extending slot 134 which extends the full length of the rail and the purpose for which will appear hereinafter. The rail 130 is enclosed by a magazine cover 136 which has a medial slot 138 formed in the top wall 140 thereof through the major portion of its length. Adjacent its rear end the rail cover is provided with a pair of transverse openings 142 and 144 which extend the full width of the rail cover and the magazine. The openings 142 and 144 are separated by a pair of inwardly turned covering flanges 146 which are spaced somewhat more above the top of the rail 130 than is the top 140 of the rail cover. The flanges 146 define a space 148 therebetween wider than the slot 138, the purpose of which will appear hereinafter.

At its rear, the rail cover 136 is formed with a pair of upstanding ears 150 between which extend a latch pin 152 secured in place by a rivet or fastening pin 154 which extends through suitable apertures in the rail cover ears 150 and in the walls 108 of the magazine casing, thereby securing the rail cover 136 longitudinally within the magazine casing. At the forward end of the magazine the rail cover is formed with foot portions 156 which rest against the bottom 110 of the magazine casing 106, thereby accurately locating the rail cover within the casing.

At the front of the magazine 18 and above the rail cover 136 the magazine casing 106 is closed by a rear or inner staple guide 158, the outer face 160 of which is coplanar with the forward face of the magazine rail 130, as seen best in Figs. 2 and 5. The rear or inner guide 158 is U-shaped and fits snugly between the magazine casing walls 108 to which it is firmly secured by a suitable retaining pin 162 which passes through aligned apertures in the walls 108 and the arms 164 of the guide 158 (Fig. 3). The inner staple guide 158 extends from the top of the rail cover to the bottom of the casting 12 at the lower end of the cylinder 16, as best seen in Figs. 2 and 5. The piston return spring 104 bears against the upper edges of the inner guide 158 and the front wall 112 of the magazine casing.

The staple guideway is completed by an outer assembly 166 which is best seen in Figs. 2, 3, 4, and 5, and comprises a plate 168 which has a groove or milled slot 170 on its inner face which is slightly greater in width than the width of the staple. At its lower end the plate 168 has a guide plate 172 secured thereto by suitable pins 174, the plate 172 extending below the magazine and forming with the plate 168 the nose of the staple guideway which is rested against the work into which the staple S is to be driven.

The guide assembly 166 is secured in position by a staple guide release bracket 176 which comprises a U-shaped member 178 which extends around the front of the magazine casing, as best seen in Figs. 3 and 4, and has a staple guide release pin 180 riveted to its closed face 182. The pin 180 projects through the hole 114 in the magazine casing wall 112 and into a hole 184 in the guide plate 168. The bracket member 178 has a pair of rearwardly extending arms 186 through which extends a pin 188 which also projects through slots 190 in the walls 108 of the magazine casing and slots 192 in the arms 164 of the inner or rear guide 158. Therefore, when it is desired to remove the staple guideway assembly 166, the release bracket assembly 176 is pulled outwardly, thereby withdrawing the pin 180 from the hole 184 in the plate 166, permitting the guideway assembly 166 to be slid downwardly, as seen in Fig. 5, between the outer end of the staple guide rail 130 and the forward wall 112 of the magazine casing.

The release bracket assembly 176 is retained in locking position by a pair of follower springs 194 which extend around and over a guide roller 196 which is rotatably mounted on the pin 188, the ends of which are fixed in

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the arms 186 of the release bracket assembly. No great amount of force is required to pull the release bracket assembly 176 outwardly (Fig. 5), as the follower springs 194 exert only the pressure necessary to bring the staples S toward the outlet end of the magazine.

One end of each of the springs 194 is anchored to the side walls 108 by ears 198 which are struck inwardly from the walls, as best seen in Fig. 2, and the other ends of the springs 194 are secured to the staple follower assembly 200. The follower assembly comprises a staple follower or pusher 202, a follower support 204, and finger grip means 206. The follower comprises a U-shaped metallic piece 208 the forward edges of legs 210 of which are coplanar and arranged normally to abut against the rear of the staples S in the magazine. The legs 210 of the follower are diagonally cut away at 212 so that the follower may be moved out of the path of the staples during loading of the magazine, as seen in Fig. 7. The follower 202 has a pair of rectangular holes 214 in its upper face which are adapted to be engaged by complementary peened over or riveted elements 216 on the follower support 204, thereby to secure the follower 202 to the support.

The follower support 204 comprises an angularly shaped member having a support portion 218 underlying and mounting the follower 202, and is secured thereto as above described. Integral with the supporting portion 218 is a latching and finger portion 220 which has a lower edge 222 aligned with the diagonal edge 212 of the follower walls 210. The finger portion 220 of the follower has a cutout or latch opening 224 in its lower edge, having a latch bar engaging end 226 which is adapted to hook on the latch bar 152, as seen in Fig. 7. The finger portion 220 extends rearwardly of the opening 224 so that it projects slightly beyond the end of the tool and is accessible for manipulating by the tool operator after the magazine has been loaded, so that the follower assembly 200 can be released to push the staples S toward the outlet of the magazine.

The finger grip 206 includes a roll pin 228 to which the moving ends of the springs 194 are attached and which extends through the follower support 204. The pin 228 projects sideways from the follower support and through slots 230 in magazine casing walls 108 at opposite sides of the magazine. The outer ends of the pin 228 are covered by sleeves 232 and caps 234 to guide the follower laterally with respect to the side walls 108. The caps 234 provide convenient means for grasping the follower assembly 200 to move it rearwardly from staple pushing position and to hook it on the latch bar 152.

When it is desired to reload the staple magazine, the staple follower assembly 200 is moved rearwardly in the magazine by grasping the grips 234 and withdrawing the assembly until the follower support 204 contacts the latch bar 152 at the outer end of the magazine and in the opening 224 in the underside of the finger portion 220 of the follower support. Continued rearward movement pivots the follower assembly 200 about the pin 228 which is adjacent the outer ends of the slots 230. The pivoting is continued until the follower 202 moving between the flanges 146 has cleared the top 140 of the magazine cover 136. The follower assembly is then allowed to move forward until the face 226 of the opening 224 engages the latch bar 152, at which time the follower will be approximately in the position shown in Figs. 7 and 8. After the magazine has been reloaded the staple follower 200 is pulled rearwardly and then tilted back into its normal position, as seen in Fig. 2, and allowed to come against the end of the staple stick under the force exerted by the springs 194.

The follower assembly 200 should always be latched before removal of the outer guideway assembly 166, to prevent the follower from "shooting" staples in the magazine out the open front of the magazine and through the inspection opening 116. With the outer guideway assem-

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bly removed, the magazine can be cleared of staple jams and inspected through the opening 116; also the action of the follower can be observed and checked.

It should be pointed out that many parts of this stapling tool are common to all staplers, regardless of the staple size which would govern the size of the magazine rail, follower, guideway, and driver. The standard parts include the casting 12, piston 34, air valve assembly, holdup pawl, magazine casing, follower support, and the like.

In Fig. 2 the stapler elements are shown in their rest position with the magazine 18 containing a quantity or stick of staples S. The magazine 18 is readied for loading by withdrawing the follower 200 and engaging its latch 220 on the latch bar 152 at the rear of the magazine (Fig. 7). This lifts the follower from the guide rail 130, and the staple sticks are inserted from the rear. After the magazine is loaded, the follower 200 is released and permitted to move forwardly to contact the rear end of the staple stick and to move the front staple S of the stick into the guideway 170 below the driver blade 90.

The nose assembly 166 is placed against the work with the lower open end of the guideway closed by the work. The trigger 66 is squeezed toward the handle 14. The trigger moves the valve 46 to close the exhaust port 58 and to open the inlet port 54. Air under pressure rushes into the top of the cylinder 16 at the head of the piston 34. The piston 34 is momentarily restrained against moving with the opening of the valve 46 by the pawl 74. The final movement of the trigger 66 disengages the pawl 74 from the piston 34, and the air under pressure at the head of the piston drives the latter through a power stroke. The driver blade 90 strips a staple S from the forward end of the staple stick and drives it through the guideway and into the work.

The trigger 66 is released and air pressure on the head of the valve 60 moves it against the seat 54 to close the inlet port and moves the valve piston 62 to open the exhaust port 58. This vents the cylinder 16 to permit the spring 104 to return the piston 34 and driver 90 to the retracted position shown in Fig. 2 for a subsequent power stroke. The follower 200 advances another staple S into the guideway. The spring 84 biasing the pawl 74 moves it to piston detaining position.

It is clear from the foregoing description that the objectives which were claimed for this invention at the outset of this specification, as well as others which have not been specifically set forth, have been fully attained.

While a preferred embodiment of the pneumatic stapling tool constituting the present invention has been shown and described, it will be apparent that numerous modifications and changes may be made without departing from the underlying principles of the invention. It is, therefore, intended by the following claims to include all such variations and modifications by which substantially the results of this invention may be obtained through the use of the same or equivalent means.

What is claimed as new and desired to be secured by United States Letters Patent is:

1. A stapling tool comprising, in combination, a handle, a staple magazine fixed relative to said handle and having an outlet at one of its ends, means forming a staple guideway at said outlet end of said magazine, means slidably carried by said magazine and holding said guideway in staple guiding position, resilient means connected to said guideway holding means for retaining the latter in holding position, a staple driver slidable in said guideway past said outlet end of said magazine, means for operating said staple driver, a staple follower slidable in said magazine for moving staples to said magazine outlet, and means connecting said resilient means to said follower to urge the latter toward said magazine outlet while said resilient means holds said guideway holding means in said holding position.

2. A stapling tool comprising, in combination, a handle, a staple magazine fixed relative to said handle and hav-

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ing an outlet at one of its ends, means forming a removable staple guideway at said outlet end of said magazine, bracket means slidably carried by said magazine and having means holding said guideway in staple guiding position, resilient means connected to said guideway holding means for retaining the latter in holding position, a staple driver slidable in said guideway past said outlet end of said magazine, means for operating said staple driver, and a staple follower slidable in said magazine for moving staples to said magazine outlet.

3. A stapling tool comprising, in combination, a handle, a staple magazine fixed relative to said handle and having an outlet at one of its ends, means forming a removable staple guideway at said outlet end of said magazine, said magazine having a wall at least partially embracing said removable staple guideway, means slidably carried by said magazine and embracing said magazine wall and said removable guideway for holding said guideway in staple guiding position, resilient means connected to said guideway holding means for retaining the latter in holding position, a staple driver slidable in said guideway past said outlet end of said magazine, means for operating said staple driver, and a staple follower slidable in said magazine for moving staples to said magazine outlet.

4. In a stapling tool, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are slidable positioned between said side walls, means forming an inner staple guideway surface upstanding from a point slightly above said rail adjacent one end thereof, means forming a second guideway surface coplanar with said first surface at said rail end, said magazine casing having an end wall bridging between said side walls and spaced from said surfaces, a removable staple guideway element positioned between said casing end wall and said surfaces and having a staple and driver slot cooperating with said surfaces to form a staple guideway, releasable holding means engaging said guideway element and said magazine end wall to hold said guideway element in position to form said staple guideway, bracket means extending across said end wall and carrying said holding means, and resilient means connected to said bracket means for biasing the latter toward said end wall.

5. In a stapling tool, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are slidable positioned between said side walls, an inner staple guideway member upstanding from a point slightly above the top of said rail at one thereof, said guideway member and said rail end having coplanar guiding faces, said magazine casing having an end wall bridging between said side walls and spaced from said guideway member and said rail end, a removable staple guideway positioned between said casing end wall and said guideway member and said rail end, said removable guideway having a staple and driver slot cooperating with said inner guideway member and said rail end to form a staple guideway, aligned openings in said end wall and said removable guideway, retaining means removably extending through said openings to hold said removable guideway in staple receiving position at said rail end, U-shaped bracket means carrying said retaining means and slidably embracing said casing end and side walls, and resilient means connected to said bracket means for biasing the latter toward said casing end wall.

6. In a stapling tool, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are slidable positioned between said side walls, means forming an inner staple guideway surface upstanding from a point slightly above said rail adjacent one end thereof, means forming a second guideway surface coplanar with said first surface at said rail end, said magazine casing having an end wall bridging between said side walls and spaced from said surfaces, a removable staple guideway element positioned

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between said casing end wall and said surfaces and having a staple and driver slot cooperating with said surfaces to form a staple guideway, movable means embracing said magazine casing around said end wall and having retaining means engaging said guideway element and said magazine end wall to hold said guideway element in position to form said staple guideway, a staple follower slidable on said rail, and resilient means having an anchored end, an end connected to said follower, and an intermediary portion movably engaging said movable embracing means to hold the latter in guideway element retaining position and to urge said follower toward said staple guideway.

7. In a stapling tool, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are slidable positioned between said side walls, a magazine cover extending over said rail and between said side walls and positioned slightly above said rail, a slot in said cover above said rail, an inner staple guideway member upstanding from said magazine cover at one end of said rail, said guideway member and said rail end having coplanar guiding surfaces, said magazine casing having an end wall bridging between said side walls and spaced from said guideway member and said rail end, a removable staple guideway assembly positioned between said casing end wall and said guideway member and said rail end, said guideway assembly having a staple and driver slot cooperating with said coplanar guiding surfaces to form a staple guideway, aligned openings in said end wall and said guideway assembly, a retaining pin removably extending through said openings, a U-shaped member carrying said pin and slidably embracing said magazine casing at said end wall, a staple follower slidable on said rail and having a portion projecting thereabove through said cover slot, a roller carried between the arms of said U-shaped member, and a spring having one end anchored to said magazine casing remote from said guideway and extending around said roller, said spring having its other end secured to said follower.

8. In a stapling tool, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are slidable positioned between said side walls, a magazine cover extending over said rail and between said side walls and positioned slightly above said rail, a slot in said cover above said rail, an inner staple guideway member upstanding from said magazine cover at one end of said rail, said guideway member and said rail end having coplanar guiding surfaces, said magazine casing having an end wall bridging between said side walls and spaced from said guideway member and said rail end, a removable staple guideway assembly positioned between said casing end wall and said guideway member and rail end, said guideway assembly having a staple and driver slot cooperating with said coplanar guiding surfaces to form a staple guideway, aligned openings in said end wall and said guideway assembly, a retaining pin removably extending through said openings, a U-shaped member carrying said pin and slidably embracing said magazine casing at said end wall, a staple follower slidable on said rail and having a portion projecting thereabove through said cover slot, a roller carried between the arms of said U-shaped member, and a spring positioned above said cover and having one end anchored to said magazine casing remote from said guideway and extending around said roller, said spring having its other end secured to said projecting follower portion.

9. In a stapling tool having a staple driver, a staple guideway in which the driver is reciprocable, and means for operating the staple driver, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are adapted to slide toward the staple guideway positioned between said side walls, a staple follower slidable on said rail, means biasing said follower toward the staple guideway, said staple follower having a staple pusher portion and an

upstanding and rearwardly extending finger and latch portion, a latch bar extending across and above said rail at its rear end, a latch bar engaging opening in the underside of said finger and latch portion of said follower, a pin attached to and extending transversely from said follower, and longitudinally extending straight guide slots in said magazine casing walls through which said pin extends to be guided therein, said slots having their rear ends extending over and rearwardly of said latch bar, said follower being latched to said latch bar by pivotal movement of said follower on said pin adjacent the outer ends of said guide slots thereby to hold said follower in latched position with said pusher portion raised from said rail to enable staples to be slid thereunder.

10. In a stapling tool having a staple driver, a staple guideway in which the driver is reciprocable, and means for operating the staple driver, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are adapted to slide toward the staple guideway positioned between said side walls, a magazine cover having a slot therein extending at least the major portion of its length, a staple follower having a pusher portion slidable on the top of said rail and beneath said magazine cover and another portion projecting through said magazine cover slot, means biasing said follower toward the staple guideway, a latch bar extending across and above said rail at its rear end, a latch bar engaging opening in the underside of said second named portion of said follower by means of which said follower may be held in retracted position by said bar, longitudinally extending straight guide slots in said casing walls having their rear ends positioned above and to the rear of said latch bar, and means attached to said follower and movable in said guide slots by means of which said follower may be retracted and engaged with said latch bar by rocking said follower on said last named means to lift said pusher portion from said rail, thereby to enable staples to be slid thereunder to load said magazine.

11. In a stapling tool having a staple driver, a staple

guideway in which the driver is reciprocable, and means for operating the staple driver, the combination comprising, a staple magazine casing having a pair of parallel upstanding side walls, a rail on which staples are adapted to slide toward the staple guideway positioned between said side walls, said rail having a medial slot in its upper surface extending the length thereof, a magazine cover having a slot therein extending at least the major portion of its length, a staple follower assembly slidable on said rail, said staple follower assembly comprising a staple pusher slidable on the top of said rail and beneath said magazine cover, and a follower support having a portion underlying and mounting said pusher and movable in said rail slot and having a finger and latch portion projecting through said magazine cover slot, means biasing said follower assembly toward the staple guideway, a latch bar extending across and above said rail at its rear end, a latch bar engaging opening in said finger and latch portion of said follower support, and means attached to said follower assembly by means of which said follower assembly may be retracted and engaged with said latch bar by rocking said follower assembly on said last named means, thereby to lift said pusher from said rail and said support through said slot to a position above said rail to enable staples to be slid under said follower assembly to load the magazine.

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