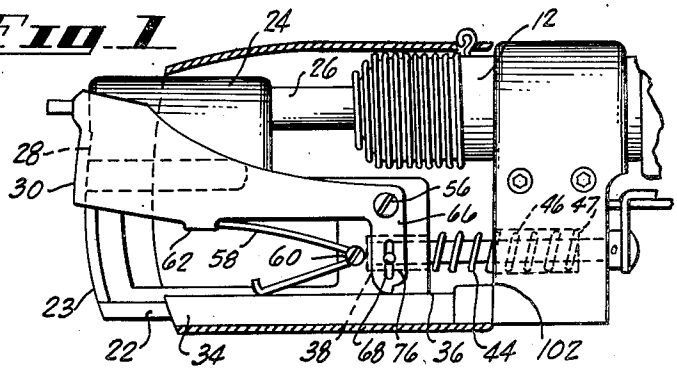
May 9, 1950 O. R. PERRY 2,507,047

RIVET FEEDING ATTACHMENT

Filed May 2, 1944 3 Sheets-Sheet 1

Fig. 1



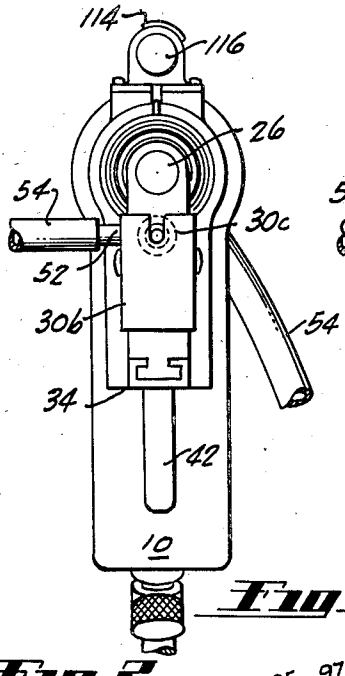


Fig. 4

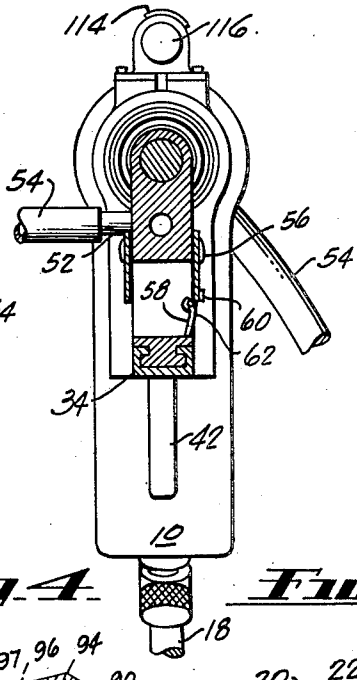


Fig. 5

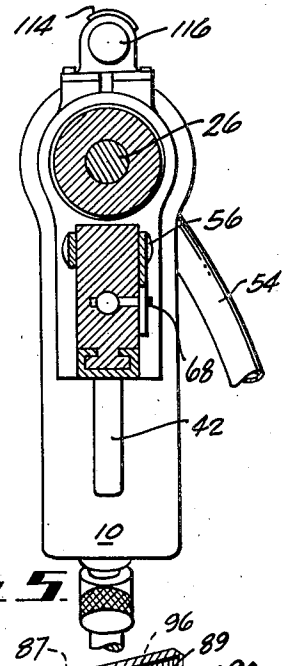


Fig. 2

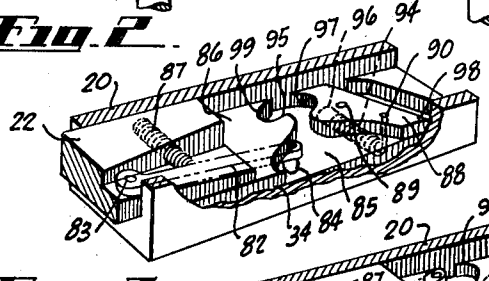


Fig. 9

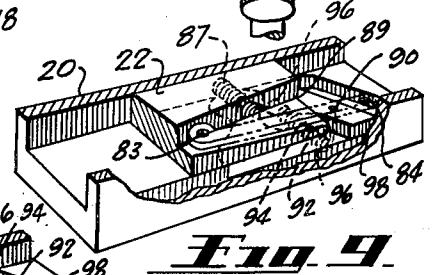


Fig. 7

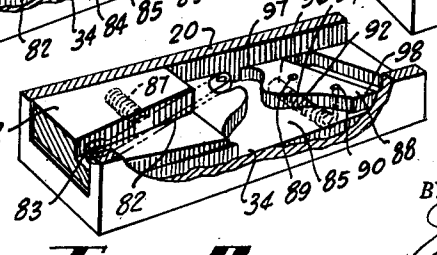


Fig. 8

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RIVET FEEDING ATTACHMENT

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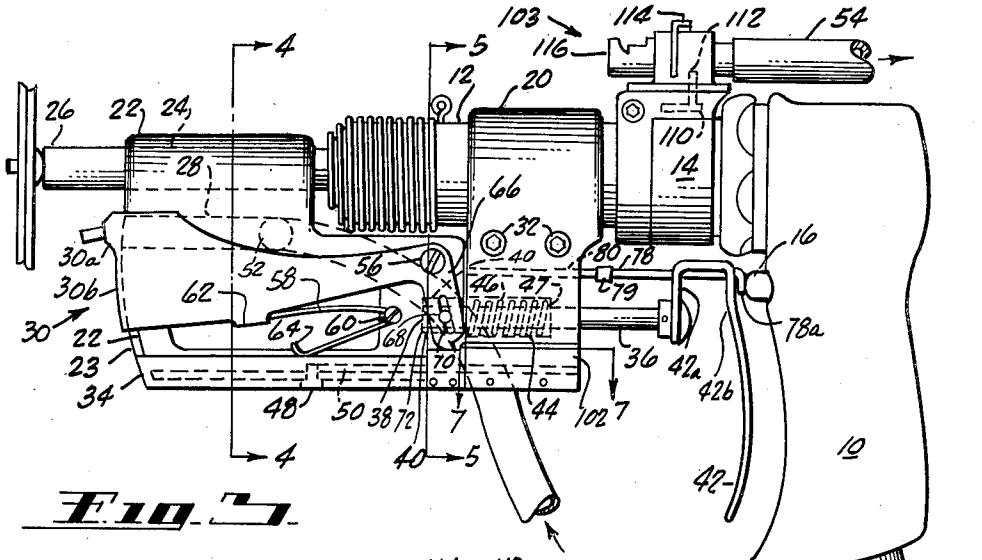


Fig. 7.

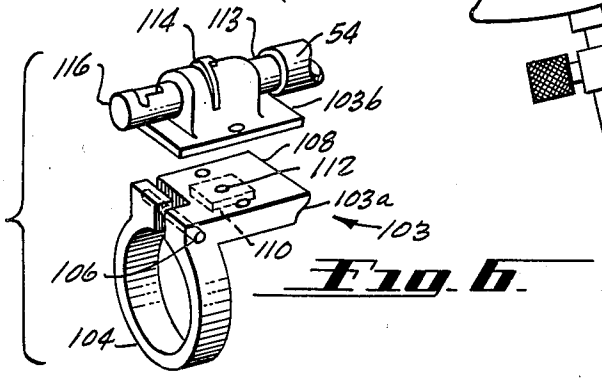


Fig. 6.

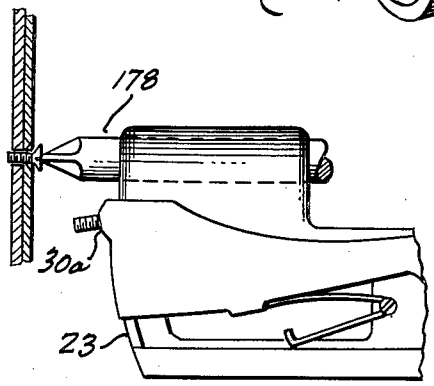


Fig. 15.

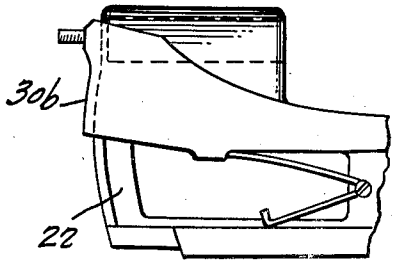


Fig. 16.

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Fig. 10

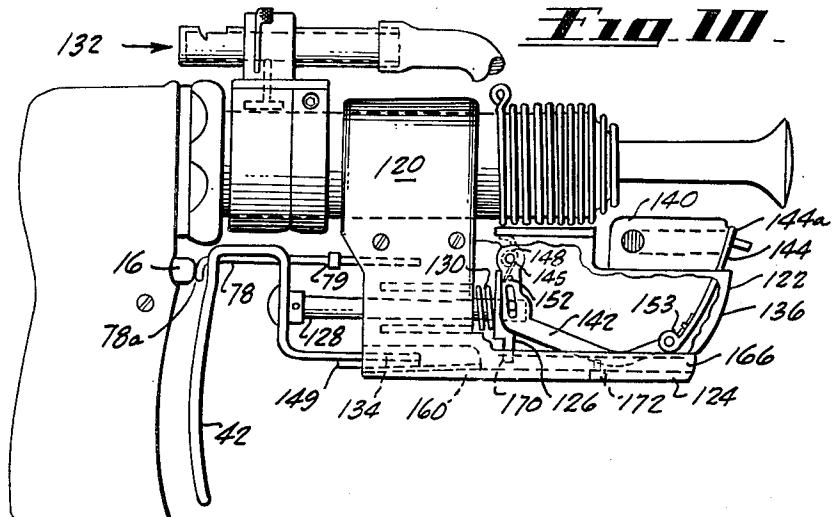


Fig. 11

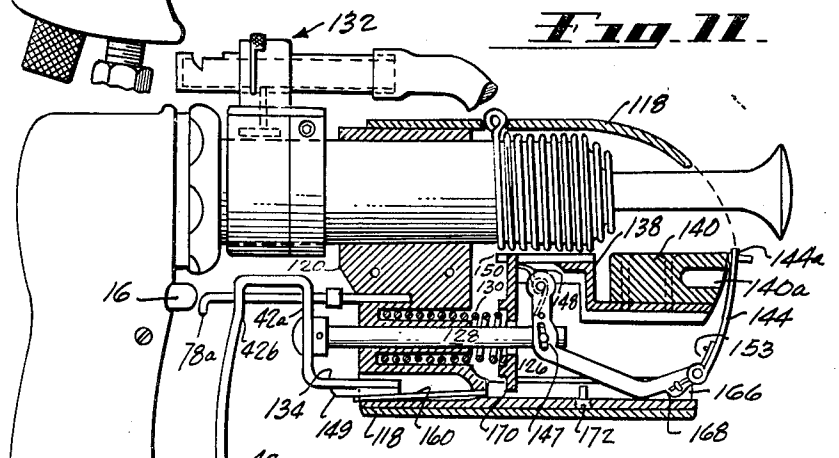
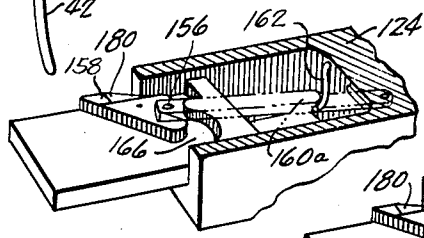


Fig. 14



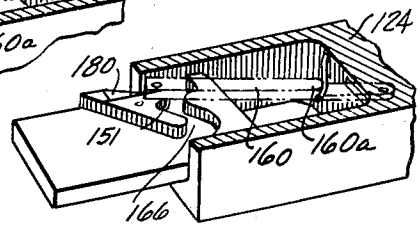


Fig. 13

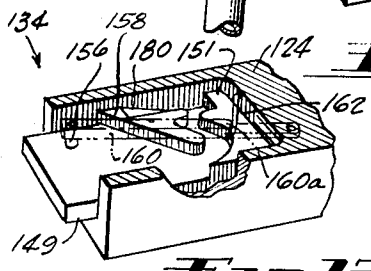


Fig. 12

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Patented May 9, 1950 2,507,047

UNITED STATES PATENT OFFICE

2,507,047

RIVET FEEDING ATTACHMENT

Oscar R. Perry, Inglewood, Calif., assignor to Douglas Aircraft Company, Inc., Santa Monica, Calif.

Application May 2, 1944, Serial No. 533,811

4 Claims. (Cl. 78—48)

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This invention relates to an attachment designed to be applied to pneumatic tools operating to drive small headed parts such as rivets or screws, for the purpose of supplying such small parts automatically to the tool in a simple and efficient manner.

The invention has for its general object to apply improved magazine feeding to tools of the kind described, particularly those designed for hand use, though the invention is not necessarily so restricted.

An object of the invention is to provide a part feeding attachment which may be fitted to the pneumatic tool without requiring any modification or structural changes in the tool.

A further object of the invention is to provide a part feeding attachment for pneumatic tools which can be applied to a variety of tools of the kind described.

Yet another object of the invention is to provide a part feeding attachment comprising a number of separate fittings enabling a variety of different arrangements to be set up.

Still another object of the invention is to provide a part feeding attachment which enables the tool operator to work much faster yet with less effort than when using a tool not fitted with the attachment.

A still further object of the invention is to provide a part feeding attachment for pneumatic tools so arranged that a transfer member moves away from position in front of the operating member of the tool previously to commencement of operation of the driving member of the tool so that the transfer member will not be damaged by the operating member of the tool if pressure air is inadvertently admitted to the tool.

Yet another object of the invention is to provide a part feeding attachment for pneumatic tools which will operate to supply parts to the tool regardless of the position in which the tool is held, thus facilitating the driving of rivets, screws, and the like into work over the head of the operator.

Further objects and features of the invention may hereinafter appear in the following description and/or accompanying drawings in which preferred forms of the invention are given by way of example only. However, it is to be understood that the invention is not in any way limited by this illustrative showing but only as defined by the scope of the appended claims.

In the accompanying drawings:

Figure 1 is a partial view of a rivet gun and one form of attachment showing the attachment in

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position over the end of the set and holding a rivet to be inserted, a shield over the end of the gun being shown in section.

Figure 2 is a front view of the gun shown in Figure 1.

Figure 3 is a view in side elevation of the rivet gun partially shown in Figure 1 with the attachment in retracted position leaving the rivet set free to drive the rivet.

Figure 4 is a cross section on the line 4—4 of Figure 3.

Figure 5 is a cross section on the line 5—5 of Figure 3.

Figure 6 is a perspective view to an enlarged scale of the parts loading attachment.

Figure 7 is a detail view from beneath showing the slide return arresting mechanism mounted on the underside of the attaching bracket, in the operative position of the parts when the slide is moved fully backward, toward the handle.

Figure 8 is a detail view from beneath showing the parts of Figure 7 in their relative positions when the slide has moved partly toward the forward position.

Figure 9 is a detail view from beneath showing the parts of Figure 7 in their relative positions when the slide has moved to its fully forward position.

Figure 10 is a side view of a rivet gun arranged for driving flush head rivets and fitted with another form of the rivet feeding attachment of my invention, the gun being shown in operating position.

Figure 11 is cross section on the median line of the forward part of the rivet gun shown in Figure 10 but with the parts in the position assumed when a rivet has been brought into position to be inserted in a rivet hole.

Figure 12 is a detail view of a detent arrangement between the pull handle of the attachment and the attaching bracket, the parts being shown in the position of Figure 10, the view being taken from below.

Figure 13 shows the position of the parts of the detent arrangement in the position assumed with the rivet gun in the arrested return position.

Figure 14 shows the position of the detent parts when the part to be driven has been brought into position to be inserted into the work preliminary to operating the gun.

Figure 15 is a fragmentary view showing the forward end of a pneumatic screw driver fitted with the attachment, the tool being shown in the operating condition.

Figure 16 is a similar view to Figure 15 showing the tool in inoperative condition with a screw held in position to be inserted in the work previous to being driven home.

The attachment is herein particularly described and illustrated as applied to a pneumatic hand riveting tool with trigger air control but it is to be understood that the attachment is not necessarily limited to this type of tool. For instance, it may be applied to pneumatic screw drivers, and, with suitable modification of the part gripped by the operator and connections to the operative mechanism, to tools having handles of different configuration and control members of various types for the tool.

The riveting tool shown in Figures 1–9 has an offset pistol handle with a press stud in trigger location for controlling the admission of pressure air. The standard tool is furnished with a set retainer spring fitted on the end of the barrel.

Referring now to Figure 3 of the drawings, 10 indicates the pistol grip handle, 12 the barrel, 14 the exhaust cover ring, 16 the push button air control trigger, and 18 the pressure air hose connection of a pneumatic rivet gun, which, as before stated, is left structurally unchanged when using the attachment.

The attachment comprises a bracket member 20 clamped on the barrel 12 of the gun and guiding a slide 22 provided with a bore 24 through which the set 26 works and with a second bore 28 closely adjacent thereto and serving as a tubular guide to which the rivets to be driven are delivered. A transfer member 30 carries the rivets one at a time from the open end of bore 28 into position to be inserted in a rivet hole and thereafter upset by the set. The transfer member in the described embodiment is manually operated. Separate attachments are provided to supply power to move the rivets to the bore 28 and to hold a supply of rivets. These attachments can be used in various combinations as will be more fully explained hereinafter.

The bracket member is formed so that it may be readily clamped upon the gun barrel as for instance by being slotted and clamped on the gun barrel by screws 32 passing through bores in one half and engaging in threaded bores in the other half. A guide arm 34 projects forwardly and is shaped to fit into grooves in the slide 22 and guide the slide in its reciprocatory motion. The bracket member 20 is provided with a bore for the passage of a pull rod 36 which is screwed at its forward end into a connecting part 38 received in a bore 40 of the slide 22, while at its rearward end the member is riveted to a hand grip 42 which lies in position to engage and depress the stud trigger 16 when the pull rod is fully retracted by the hand grip.

The slide 22 is pressed outwardly by a spiral spring 44 surrounding rod 36 between the rear vertical face of the slide and the rear wall 47 of a bore 46 in the bracket which receives the other end of the spring.

The slide is prevented from leaving the guide by engagement of a stud 48 screwed into the arm 34 and projecting into a groove 50 in the lower face of the slide.

A connection 52 for one end of a tubular magazine 54 is arranged to project from the side face of the slide on the side opposite the transfer member shown in Figures 2 and 4.

The transfer member 30 is pivoted at 56 on a headed stud held in an opening in slide 22 and

is provided with an end shaped to lie against the outer end face 23 of the slide over the arcuate end face thereof. Member 30 is normally pressed upwardly by a wire spring 58 wound around stud 60 and taking into a tubular lug 62 pressed from the side face of the transfer member at one end, and against a suitable abutment at the other end.

The transfer member 30 comprises two operative portions, one 30*a*, being formed to provide spring fingers to receive and grip a rivet by the shank, and a portion 30*b*, serving to mask the bore 26 when the part 30*a* is moved upwardly away from the bore 28. I prefer to form spring fingers by slotting the face of part 30*a* and forming the metal to provide a depression to receive the head of the rivet or other part and a slot 30*c* (Figure 2) through which the shank of the rivets project.

The transfer member is operated through a crank arm 66 which is operated by the operating member through a stud 68 engaging in slot 70 in the crank arm, passing through a slot 72 in the side of the slide, and screwed into the connecting piece 38 fitted in bore 40 in the slide. The piece 38 is preferably held against rotation in the bore in any suitable manner and is provided with an internally threaded bore into which the pull rod 36 is screwed.

In order to enable the operator to be able to give further blows after having stopped the operation of the tool to finish upsetting a rivet, should this be necessary as very frequently occurs, without moving the transfer member, I provide a rest position intermediate the operating and full release positions of the hand grip.

For this purpose I provide an auxiliary trigger 78 mounted on the main hand grip 42 and formed as a straight piece passing through a bore in the vertical front portion 42*a* and back portion 42*b* of the bend at the upper portion of the grip. The rear end of the member 78 is bent into an actuating part 78*a* arranged between the hand grip 42 and the trigger of the gun and a finger piece 79 is formed to project laterally from the member 78 between the front of the vertical portion 42*a* and the bracket 20. The length of the member 78 is such that, while the trigger can be operated by it in the partly returned position of the hand grip, the member 78 cannot operate the trigger in the fully released position of the hand grip 42 since the finger piece 79 will then have been moved forward by the front of vertical portion 42 and the auxiliary trigger is therefore held in inoperative position. The forward end of the member 78 is received in a bore 80 in bracket 20.

While I may provide a detent to momentarily arrest return of the slide to its full forward position during such a supplementary operation of the gun or to give the operator time to withdraw the gun from the work sufficiently to ensure that the shank of a rivet being moved into position does not strike the face of the work and so get tilted in the spring fingers, I prefer to provide a positive arresting mechanism so that even if the operator releases his grasp of the hand grip 42, the slide 22 will be held against movement by spring 44 until the operator again pulls the grip slightly rearwardly to free the slide from the arresting mechanism, after which the slide and transfer member 30 can complete its movement. Any suitable form of arresting means may be provided, that shown in connection with the form of the attachment shown in Figures 1

and 2 being shown in detail in Figures 7, 8, and 9. This mechanism comprises a link 82 pivoted at its forward end to the slide 22 by a stud 83 and having a peg-like projection 84 extending from the under surface of its opposite end. A spring 87 arranged in slide 22 bears against the side of link 82 and acts to urge the link and projection 84 toward one side of the cam groove. The peg 84 engages in a cam groove 85 formed in a plate 86 fitted in a recess afforded by undercutting the bottom of the bracket 20. A pawl 88 is arranged to extend across the groove and is pivoted by a pin 89 extending into the plate. The pawl is held resiliently pressed against the opposite edges of the cam groove plate by a pin 90 passing through an opening under the pawl 88 into a bore 92 in which a small spiral spring 94 is arranged to bear against the pin, the other end of the bore being closed by a threaded plug 96. The cam groove is formed to provide a straight path for the peg 84 when the slide is pulled back by the hand grip 42 to engage the trigger 16 to operate the tool. During this movement the nose 98 of the pawl 88 is swung aside by the peg 84, against the effort of spring 94. The pawl swings back under the influence of the spring 94 to close the path behind the peg and prevents it from returning along the same path. When the operator releases the hand grip to cut off air from the tool, the spring 44 moves the slide arm, and therefore the link 82, away from the bracket 20, the peg 84 traveling along the side of the pawl and pushing its way between tail 97 of the pawl and the adjacent wall of the recess in bracket 20 until arrested by a reverse turn 99 in the groove, where it will rest until released by a slight pull on the grip 42 which enables the peg to clear a projection 95 forming this reverse turn of the groove due to action of spring 87 and enables the slide to complete its forward movement when the grip 42 is fully released. During the rest position of the parts, even if the operator completely releases hand grip 42, the transfer member is held against completing its transfer movement under the effort of spring 58 by the engagement of the lower end of the crank arm with a short track formed by the upper face of a plate screwed to the bracket end of supporting arm 34. The end of the crank arm is swung above the track by the pull rod 36 at the commencement of the rearward travel of the hand grip 42 (see Figure 1). The arresting mechanism could, of course, be arranged on an extension of the hand pull, in which case the transfer member could be prevented from completing its transfer movement by the connection between the hand grip and the transfer member.

When the operator exerts a pull on the hand grip the pull rod first acts on the crank arm, rotating it backward against the resistance of spring 58 until the pin 68 engages the rear end of the slot 72. At this point the end of the crank arm is in position to clear the face of the track 102 but is not brought over the track until the slide has commenced its backward movement and just before it reaches a point in the travel of the slide corresponding to the arrest position. Continued rearward movement of the slide takes place until the hand grip 42 depresses the trigger 16 and causes operation of the tool.

The exhaust air is trapped by the magazine loading part 103 which is arranged to clamp on the rearward end of the barrel of the gun and fits closely over the exhaust cover ring 14. The part 103 (Figure 6) may have different configurations adapted to fit over the exhaust rings of different forms of rivet gun, the form here disclosed being adapted to fit over an exhaust ring having a horizontal periphery. The part 103 may be formed in two parts, 103*a*, and 103*b*. Part 103*a* is provided with a divided ring 104 clamped on the barrel by a tightening screw 106. A base portion 108 is carried by one part of the divided ring and is furnished with tapped bores for attachment of part 103*b* and with a passage 110 to lead air from the exhaust orifice to the outlet 112 from the part 103*a* of the part 103 and to the outlet 113 of loading member. This outlet is preferably formed to provide a readily detachable connection with the end of the tube magazine 54.

While a tubular magazine looping from the loading member to the rivet feeding bore in the slide is illustrated, it may be preferred to use a tubular magazine wound into a number of turns and mounted on the side of the tool, in which case the detachable part of the loading part 103 can be reversed so that the coiled tubular magazine is supported snugly on the tool between the connections to the loading member and to the supply bore in the slide. In order to close the end of the tube a gate 114 is pivoted or otherwise mounted to work in a slot extending across the member 103*b*. In order to prevent parts such as rivets being accidentally loaded into the magazine head first, it is advantageous to provide a cut out of the rivet size to be used in a part 116 which may be separate and formed as a tubular member having the outer end closed. The part 116 may be threaded and screwed into the member 103*b* and may be changed if a different length of rivet is to be used.

The operative face of the transfer member lies close to the outer face of the slide, but with sufficient clearance between part of the transfer member holding a rivet and the outer surface of the end face of the slide to permit the head of a rivet to be slid over the outer face of the slide while the rivet is held in the transfer member 30 and the end of the set 26 is within its bore in the slide. The initial backward movement of the slide will bring the head of the rivet against the operative face of the set and further movement of the slide will carry the transfer member away from the rivet if the latter is held in the rivet hole, or if not so held, will carry the rivet away from the set so that the gun, if accidentally fired without the rivet being properly positioned, cannot fire a rivet from the gun or damage the transfer member.

While I have shown a convenient method of feeding the rivets through a tubular magazine carried on the gun which utilizes the pressure of the air exhausted from the gun, it might be preferred, particularly when riveting is to be done at a station to which the work is brought, to arrange the magazine as a tube attached to some other suitable supply source which, as well known, may comprise an airtight rivet hopper to which pressure air is admitted through a pipe connecting to the air pressure lines, in which case, of course, the member 103 could be dispensed with, rivets being fed from the hopper by suitable means shank first to the tube connecting the hopper to the rivet supply bore 28.

A shield not shown is arranged to cover the forward end of the gun but is open at the front to permit movement of the operating parts. This shield may be formed in any convenient manner, for instance as a metal stamping clipping securely onto arm 34 and formed to provide clearance for

moving parts and for the movement of the forward end of the tubular magazine. The shield enables an operator to steady the rivet gun or other pneumatic tool but avoid contact with the moving parts of the attachment, the shield also serving to protect these parts from dirt and dust.

It should be mentioned that in view of the many different arrangements for exhausting air from pneumatic tools, various configurations of the loading and feeding part, when this method of feeding rivets is used, may be necessary as required by the design of the particular type of gun to which the attachment is to be applied, and in some cases, in which the air is exhausted at a point spaced from the gun, separate exhaust trapping and rivet loading attachments may be fitted and operatively connected in any suitable manner.

As shown in Figures 15 and 16, the attachment can be used to feed screws to a pneumatic screw driver without modification, the attachment being mounted on the screw driver barrel and adjusted in the same manner as when used on a riveting gun. The tip of the screw is supported by entering it in the work piece or in a previously drilled hole and pushing against it with the screw driver which pushes the head of the screw against the screw driver bit 178 after which the spring fingers 38a are disengaged by the backward movement of slide 22, leaving the end of the screw driver bit uncovered and engaged in the head of the screw as shown in Figure 15.

The form of the invention shown in Figures 10 to 14 inclusive may be applied to a riveting gun for either flush or round head rivets. Since flush type rivets are driven with a wide mushroom type set, it is necessary to use a transfer member so formed that no operating parts engage against the edges of the wide face of the set and the transfer member is accordingly formed as a strip of metal operated from an end remote from the rivet transferring end.

The attachment comprises a bracket 125 supporting a slide 122 on an arm 124 projecting from the bracket, a pull 42 slidably related to the bracket by a pull rod 128 seated in a bore in the bracket and in the slide, a spring arranged between the bracket and the rear vertical wall 126 of the slide, a loading part 132, and an arresting mechanism 134, as in the form of the invention previously described. The transfer member and operating mechanism carried by the slide are arranged between two side plates 136 forming the sides of the slide and are secured to a bridge piece 138. The bottom edges of the side plates may be slidably secured to the arm 124 in any suitable manner. The rivet supplying bore is arranged in a detachable block 140 carried on the upper surface of the bridge connecting the side plates and may be readily changed to accommodate rivets of different size.

The operating mechanism for the transfer member comprises a bent lever 142 having a hinge connection at its outer end with a transfer member 144. This transfer member is provided at its free end with a rivet receiving slot 144a. The bent lever is mounted for pivotal movement at its inner end on a pivot 145 supported at each end in the side plates. The lever has a pin and slot connection 147 with the pull rod. A coiled spring 148 is positioned on the pivot pin 145 and bears at one end against an abutment 150 mounted on a side plate and against a pin 152 extending across a slot in the lever at its other end, the spring acting to urge the bent lever to rotate upwardly about its pivot. A second spring 153 is arranged between the forward end of the bent lever and transfer element 144 and acts to hold this element against the outer face of the rivet feeding block 140.

The arresting mechanism shown in Figures 12, 13, and 14 comprises a plate 149 mounted at the lower end of a forward extension of the pull which is bent to lie parallel to the longitudinal axis of the attachment, and an arm 160 pivoted to the arm 124 and capable of moving in both horizontal and vertical planes. A projection 156 is formed at the end of the pivoted arm 160 engaging in a cam groove formed in the plate. A spring 162 mounted in the supporting arm is arranged to bear against the pivoted arm to urge it into engagement with the bottom surface of the cam groove and also to urge it against one side of said groove by engaging over the top of the arm and against a shoulder 160a thereon. A path for the projection is provided, as in the case of the cam plate as described with reference to the form of the invention shown in Figures 1 and 2, with a straight portion 158 followed by the projection during the backward travel of the pull, and an arresting portion 166 for holding the slide against completing its return movement until released by a further slight rearward movement of the pull by the operator from a projection 151 bounding the arresting portion.

In order to force the projection 156 to follow a different path during the return movement of the slide toward the outer end of the supporting arm from that followed in the movement of the slide toward the supporting bracket, an inclined face 180 is arranged toward the rearward end of the straight portion 158 of the cam groove, the projection riding up this incline and engaging over the end wall of the incline and reentering the groove on completing its travel over the incline. On the return movement of the slide the projection follows along the inside wall of the groove due to the force exerted by the spring 162. Forward travel of the slide 122 on the arm 124 is limited by engagement of a projection 170 with a stop 172 projecting from the slide.

If the operator releases the pull while the slide is arrested during its return movement, the transfer member 144 will be restrained from swinging a part such as a rivet from the supply passage 140a toward the set because of its connection to the pull 42. Preferably a cam surface 166 is provided on the upper surface of the arm 124 and engages against a cam 168 surface on the lower surface of the bent lever to hold the upper end of the transfer member with a part supported thereon above the opening of the supply bore during the rest position of the parts.

In operation of the form of attachment described with reference to Figures 10 to 14, the operator grasps the handle of the tool and the pull, moving the pull backward until it engages and depresses the trigger 16 admitting compressed air into the tool. The rearward movement of the pull is communicated through the pull rod to the bent lever which is first drawn back from the upward position in which the part is held in position to be inserted in the work piece, until the underside of the bent lever engages against the supporting arm and prevents further downward movement of the lever and transfer member, in which position the part receiving opening is in registry with the open end of the part supplying passage. Rearward movement is thereafter transmitted to the slide caus-

ing it to move backward against the effort of the spring 130 until the fully retracted position is reached. After the driving of the part is completed, the operator releases the pull 42 enabling the slide to again move forward with the bent lever still in its retracted position until the resting position is reached and if it is not necessary to again operate the tool, the operator gives a further slight backward movement to the pull and then releases his grasp enabling the slide to move forward until the projection 170 engages the stop 172. This full release of the pull permits spring 148 to move the lever and transfer member upwardly, the head of the part carried in the opening at the upper end of the transfer member sliding over the end face of the slide and face of the set into the axial line thereof, whereupon the cycle may be repeated.

In operating the usual rivet gun the riveter, if right handed, holds the gun in his right hand and a supply of rivets in his left hand, and when unskilled, concentrates his attention on driving one rivet, then uses his left hand to place a rivet in a rivet hole and then again uses his right hand to drive the rivet. When the riveter becomes skilled he can use both hands simultaneously, placing rivets with his left hand while driving rivets previously placed with the rivet gun held in his right hand, but even when skilled, must divide his attention between placing and driving the rivets.

When using the attachment of my invention the operator concentrates his attention and uses both hands, if required, on driving the rivets and thus can work faster and do better work with less drain on his energy and consequently with much less fatigue.

The attachment also makes working in hard to reach places, or overhead, much simpler and faster since not only can the rivets or other parts be more easily inserted in the work, but the part is held mechanically at all times and therefore cannot drop out of the work before the operator can bring the tool into position against the head of the part.

It is believed that the parts-feeding attachment of my invention provides a valuable advance in the field of pneumatic tools generally, and particularly with relation to pneumatic riveting machines.

I claim:

1. A fastener feeding attachment for stemmed-and-headed-fastener driving pneumatic tools that have a barrel, a handle, a driver axially reciprocatable in said barrel, and a compressed air inlet control member carried by the handle, comprising: an attachment bracket mounting the attachment on the barrel of the tool; a slide member mounted in said bracket for reciprocation substantially parallel to the axis of said barrel; a pneumatic conduit extending longitudinally of said slide member and opening forwardly to feed fasteners stem first to a point sub-adjacent the driver; a transfer unit disposed in lengthwise attitude longitudinally under said barrel and pivotally mounted at its rear end on said slide member; a biasing member, for urging said transfer unit normally upwardly, interposed between a portion of said unit and an adjacent abutment in the attachment device; a crank arm on the rear portion of said transfer unit; a compression spring operatively interposed between said bracket and said slide member for automatically urging the latter forwardly; a manually operable member disposed adjacent the tool handle and operatively so connected with said spring as to enable the spring to urge it forwardly; and a slot in the one end portion of said crank arm and a pin on said manually operable member engaged in said slot to enable said spring to elevate the fastener-carrying end of said transfer unit when the slide member is substantially at its forward limit of movement, thereby to position said fasteners shank first forwardly adjacent the tool's driver, and to enable said manually operable member and crank in cooperation to depress said transfer unit when the slide member is at its rearward limit of movement; said manually operable member in its rearward position of movement contacting and operating the member controlling the admission of pressurized air to the tool.

2. A fastener feeding attachment for stemmed-and-headed fastener driving pneumatic tools that have a barrel, a handle, a driver axially reciprocatable in said barrel, and a compressed air inlet control carried by the handle, comprising: an attachment bracket mounting the attachment on the barrel of the tool; a slide member mounted in said bracket for reciprocation substantially parallel to the axis of said barrel; a pneumatic conduit extending longitudinally of said slide member and opening forwardly to feed fasteners stem first to a point sub-adjacent the driver; a transfer unit disposed in lengthwise attitude longitudinally under said barrel and pivotally mounted at its rear end on said slide member; a biasing member, for urging said transfer unit normally upwardly, interposed between a portion of said unit and an adjacent abutment in the attachment device; a crank arm on the rear portion of said transfer unit; a compression spring operatively interposed between said bracket and said slide member for automatically urging the latter forwardly; a manually operable member disposed adjacent the tool handle and operatively so connected with said spring as to enable the spring to urge it forwardly; and a slot in the one end portion of said crank arm and a pin on said manually operable member engaged in said slot to enable said spring to elevate the fastener-carrying end of said transfer unit when the slide member is substantially at its forward limit of movement, thereby to position said fasteners shank first forwardly adjacent the tool's driver, and to enable said manually operable member and crank in cooperation to depress said transfer unit when the slide member is at its rearward limit of movement; said manually operable member in its rearward position of movement contacting and operating the member controlling the admission of pressurized air to the tool; a detent member pivotally mounted on the bottom face of said slide member; camming and stop members complementary to said detent member mounted on the adjacent upper face of said bracket member and correlated with said detent member to cause it to engage said stop and stop movement of the slide and the transfer member carrying therein a part to be driven, thereby to maintain said part out of the way of said driver to enable said tool to be further drivingly operated on an incompletely driven fastener.

3. A self-feeding pneumatic tool for driving stemmed-and-headed fasteners and including a barrel, a handle, a driver axially reciprocatable in said barrel and a compressed air inlet control member carried by the handle, comprising: a support at one side of said barrel; a slide mem-

ber mounted in said support for reciprocation substantially parallel to the axis of said barrel; a pneumatic conduit extending longitudinally of said slide member and opening forwardly to feed fasteners stem first to a point sub-adjacent the driver; a transfer unit disposed in lengthwise attitude longitudinally beside said barrel and pivotally mounted at its rear end on said slide member; a biasing member, for normally urging said transfer unit upwardly, interposed between a portion of said unit and an adjacent portion of said support; a crank arm on the rear portion of said transfer unit; a compression spring operatively interposed between said support and said slide member for automatically urging the latter forwardly; a manually operable member disposed adjacent the tool handle and operatively so connected with said spring as to enable the spring to urge it forwardly; and a slot in the one end portion of said crank arm and a pin on said manually operable member engaged in said slot to enable said spring to elevate the fastener-carrying end of said transfer unit when the slide member is substantially at its forward limit of movement, thereby to position said fasteners shank first and forwardly adjacent the tool's driver, and to enable said manually operable member and crank, in cooperation, to depress said transfer unit when the slide member is at its rearward limit of movement; said manually operable member, in its rearward position of movement contacting and operating the member controlling the admission of pressurized air to the tool.

4. A self-feeding pneumatic tool for driving stemmed-and-headed fasteners and including a barrel, a handle, a driver axially reciprocatable in said barrel and a compressed air inlet control member carried by the handle, comprising: a support at one side of said barrel; a slide member mounted in said support for reciprocation substantially parallel to the axis of said barrel; a pneumatic conduit extending longitudinally of said slide member and opening forwardly to feed fasteners stem first to a point sub-adjacent the driver; a transfer unit disposed in lengthwise attitude longitudinally beside said barrel and pivotally mounted at its rear end on said slide member; a biasing member, for normally urging said transfer unit upwardly, interposed between a portion of said unit and an adjacent portion of said support; a crank arm on the rear portion of said transfer unit; a compression spring operatively interposed between said support and said slide member for automatically urging the latter forwardly; a manually operable member disposed adjacent the tool handle and operatively so connected with said spring as to enable the spring to urge it forwardly; and a slot in the one end portion of said crank arm and a pin on said manually operable member engaged in said slot to enable said spring to elevate the fastener-carrying end of said transfer unit when the slide member is substantially at its forward limit of movement, thereby to position said fasteners shank first and forwardly adjacent the tool's driver, and to enable said manually operable member and crank, in cooperation, to depress said transfer unit when the slide member is at its rearward limit of movement; said manually operable member, in its rearward position of movement contacting and operating the member controlling the admission of pressurized air to the tool; an elongate lever, having a detent pin projecting rectangularly from the face of one end, pivotally mounted on the bottom face of said slide member; a guideway for said pin formed in the adjacent face of said bracket and terminated at one end by a stop member shaped and mounted for engaging and stopping said pin and stopping forward movement of said slide and the transfer member carrying therein a part to be driven thereby to maintain said part out of the path of said driver to enable said tool to be further drivingly operated on an incompletely driven fastener.

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