Oct. 26, 1954 C. J. WIKSTEN 2,692,706

AIR PRESSURE CAULKING GUN

Filed July 27, 1950 2 Sheets-Sheet 1

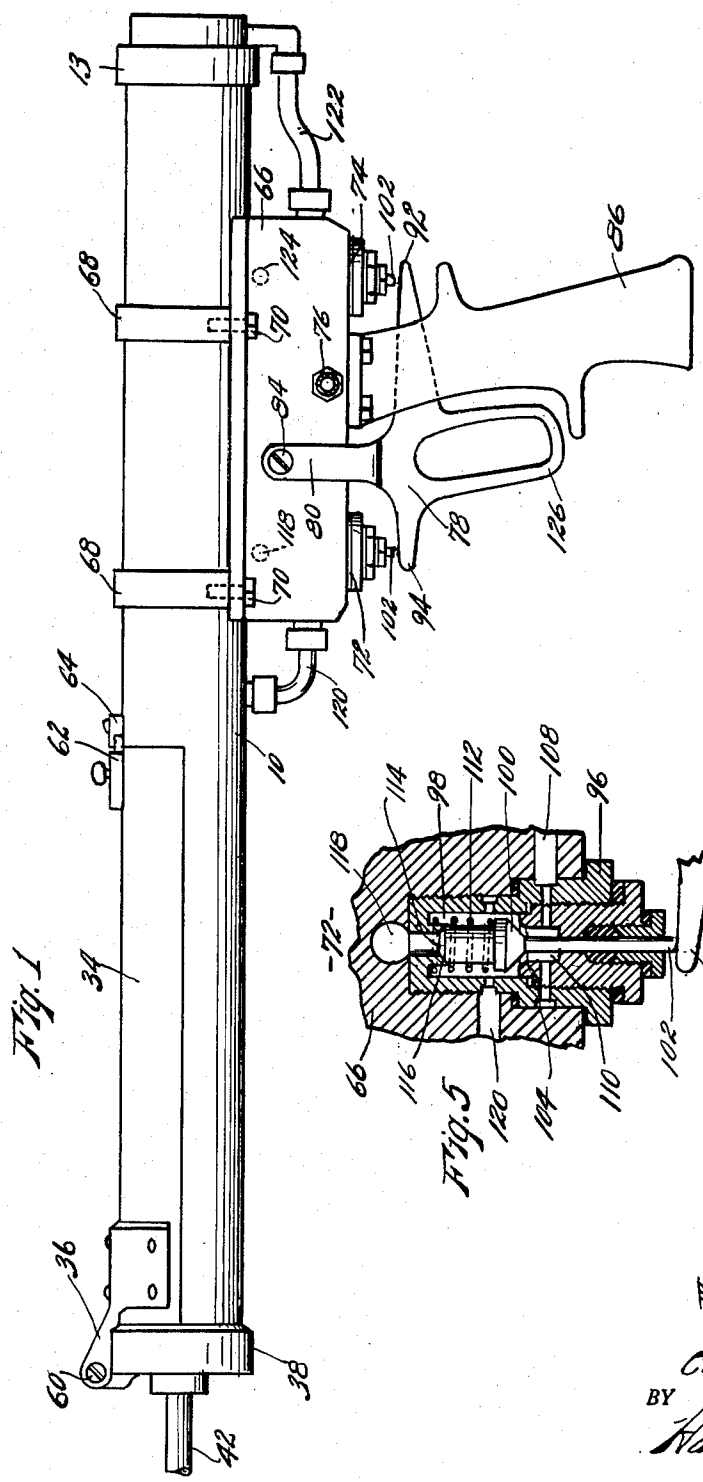


Fig. 1

Fig. 5

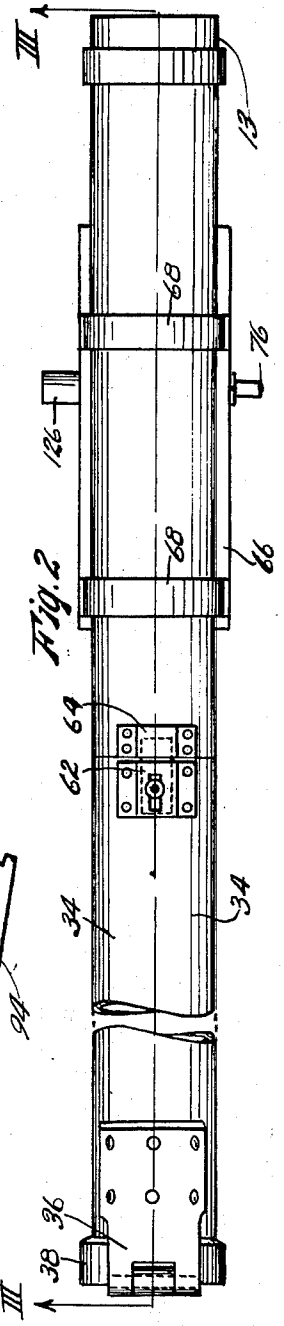


Fig. 2

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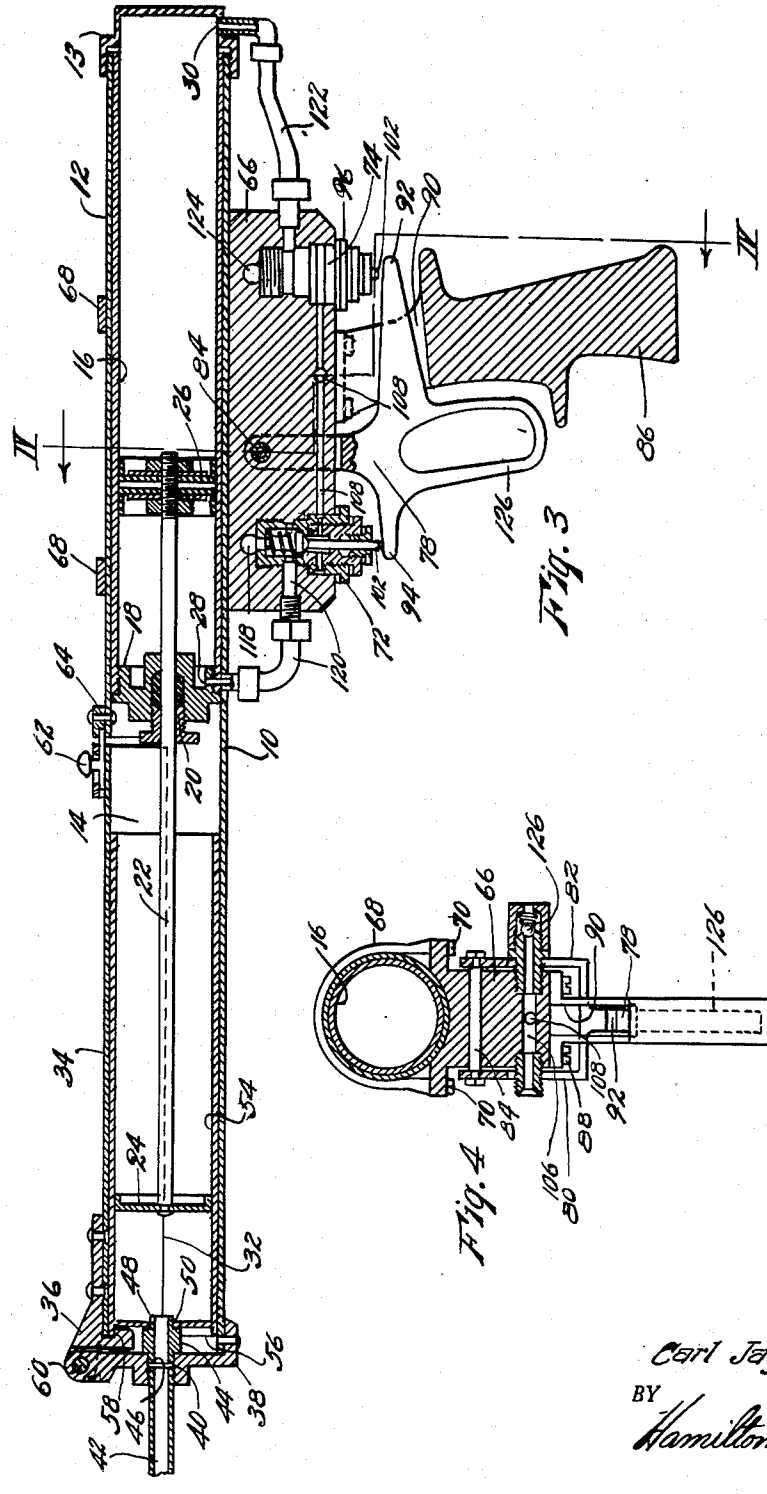


Fig. 3

Fig. 4

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UNITED STATES PATENT OFFICE

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AIR PRESSURE CAULKING GUN

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2 Claims. (Cl. 222—326)

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This invention relates to improvements in air pressure caulking guns wherein the caulking material is ejected from a container by the action of air pressure applied to a piston mounted in a cylinder and controlled by a trigger means whereby the output of caulking compound is under the control of the operator.

The principal object of this caulking gun is the provision of a gun adapted to receive the standard caulking compound cartridge and to discharge the caulking compound therefrom by manually controlled pneumatic means.

Another object of this invention is the provision of a caulking gun adapted to receive and hold a caulking compound cartridge and having means for ejecting the empty cartridge from the gun.

Other objects are simplicity and economy of construction, ease and efficiency of operation and adaptability for use in handling various types of material containing cartridges.

With these objects in view as well as other objects which will appear during the course of the specification reference will be had to the drawings wherein:

Figure 1 is a side elevation of a pneumatic caulking gun embodying this invention.

Fig. 2 is a plan view of the caulking gun shown in Fig. 1.

Fig. 3 is a longitudinal sectional view taken on line III—III of Fig. 2 with some of the parts in elevation.

Fig. 4 is a sectional view taken on line IV—IV of Fig. 3.

Fig. 5 is an enlarged sectional view of one of the trigger controlled air valves.

Throughout the several views of the drawings like reference characters refer to similar parts and the numeral 10 designates a tubular member or barrel provided at its one end portion with an air tight chamber or cylinder 12, and at its other end with a cartridge receiving compartment 14. Chamber 12 includes a cylinder lining 16 having an inner end plug 18 carrying a centrally disposed stuffing box 20 adapted to receive a piston rod 22 therethrough to extend into the compartment 14 where it is provided with a piston head 24 and to extend into the air tight chamber to terminate in a double acting piston head 26 which is acted upon by air under pressure admitted to the chamber at its opposite ends through inlet ports 28 and 30. This outer end of chamber 12 is closed by means of a cap 13.

The catridge receiving compartment is halved longitudinally at 32, to form an upper lid 34

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which is provided at its outer end with hinge member 36 pivoted to an end cap 38 which is securely fixed to the outer end of tubular member 10. This end cap is provided with an axially flanged port 40 provided at its outer extremity with a delivery tube 42 which directs the caulking material to the place of deposit. Mounted in the inner extremity of port 40 is a bushing 44 having reduced end portions 46 and 48 to respectively fit into port 40 and port hole 50 formed into the bottom 52 of caulking material receiving cartridge 54 which snugly fits into the cartridge receiving compartment. The bottom of cartridge 54 is flanged at 56 to enter a notch 58 formed in the hinge member 36. Hinge member 36 is pivoted to end cap 38 by pintle 60.

The cartridge 54 comes packed with a lid for holding the material in position and a plug to fill port hole 50. To charge the gun the operator unlatches latch 62 from keeper 64 and swings the substantially semicylindrical lid to the open position, then removes the cap and plug from the cartridge 54, and places it in the lid with the flange 56 near notch 58. With piston 24 fully retracted the cartridge may be moved into the operative position in the cartridge receiving compartment and the lid latched into position. Compressed air may then be applied to the outer end of piston head 26 through port 30 to force piston 24 into the cartridge to force it into position into notch 58 and the reduced end 48 of bushing 44 into port hole 50. When the cartridge is so positioned and has been emptying the piston head may be retracted by closing port 30 and opening port 28 to permit the application of pressure air to move piston head 24 out of the cartridge 54, after which latch 62 may be released and the lid lifted, whereby the cartridge will be lifted from its position in compartment 14, and ejected from the device.

A valve block 66 is securely attached to tubular member 10 by means of U-shaped straps 68 which are secured to the block by cap screws 70. Mounted in block 66 and extending therebelow is a pair of similar longitudinally spaced apart air control valves 72 and 74 which serve to regulate a flow of compressed air to ports 28 and 30 which is delivered to block 66 through inlet pipe 76 from a source not shown.

A trigger member 78 bifurcated at its upper portion to present arms 80 and 82, by means of which it is pivotally mounted in block 66 by means of pin 84. A hand grip 86 secured to the lower side of block 66 by means of screws 88 is provided with an opening 90 at its upper extremity to receive a valve operating finger 92 there-

through. This finger is integral with trigger 78 and is disposed opposite a similar finger 94 which is integral with the opposite side of said trigger. The fingers 92 and 94 are respectively in the path of travel of the valve stems of valves 72 and 74.

Valves 72 and 74 are similar except that one is mounted in a right hand position and the other in a left hand position in the block, however the general structure of both valves is shown in cross section in Figure 5.

These valves each comprise a body member 96 centrally bored at 98 and provided with a valve 100 having a stem 102 which extends in the path of travel of the trigger finger whereby it can be raised off the valve seat 104 to admit compressed air from inlet pipe 76 through passageway 106, to passageway 108 thence to valve chamber 110. Springs 12 normally hold valves 100 in the closed position. Valve 100 is provided at its upper extremity with a valve member 114 which cooperates with valve seat 116 to control the exhaust port 118. When the valve 100 is closed, valve 114 will be open to permit free exhaust of air from cylinder 12 at one side of the piston 26 through passageway 120 and air port 28, however when the valve 100 is open as shown in Fig. 5 valve 114 is closed to insure the passage of compressed gas to the cylinder 12. When the operator reverses the movement of the trigger member 78, valve 74 will be open and the air will be admitted through passageway 122 through air inlet port 30 to cylinder 12 and exhaust port 124, will be closed.

It will be noted that the trigger member 78 is provided with a finger loop 126 by means of which the operator may move the trigger in either direction to control valves 72 and 74.

A pressure relief valve 126 is provided in passageway 106 to prevent excessive pressure being applied to cylinder 12.

What I claim is:

1. An air pressure caulking gun comprising an elongated tubular member having a pneumatic cylinder formed in one end thereof and a caulking material chamber in the other end thereof for receiving a substantially tubular cartridge of caulking material, said material chamber having an outlet opening formed in the end thereof distal from said pneumatic cylinder, said material chamber having a side opening for receiving said cartridge, a closure hinged to said tubular member for closing said opening, an ejector member carried by said closure and adapted to grip said cartridge, whereby as said closure is opened said cartridge is ejected from said chamber, a double acting piston carried in said pneumatic cylinder, a piston operable in said material chamber, means rigidly connecting said pistons, and means operable to furnish air under pressure selectively to either end of said cylinder.

2. An air pressure caulking gun comprising an elongated tubular member having a pneumatic cylinder formed in one end thereof and a caulking material chamber in the other end thereof for receiving axially therein a substantially tubular cartridge of caulking material, said cartridge having a longitudinally extending lip at the end thereof toward the chamber outlet, said material chamber having an outlet opening formed in the end thereof distal from said pneumatic cylinder, said material chamber having a side opening for receiving said cartridge, a closure hinged to said tubular member at the outlet end of said material chamber for closing said opening, an ejector member carried by said closure at the hinged end thereof and projecting into said chamber, said ejector member having an arcuate groove formed therein concentrically with said chamber and positioned to receive said cartridge lip, whereby as said closure is opened said cartridge is ejected from said chamber, and means operable to furnish air under pressure selectively to either end of said cylinder.

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