

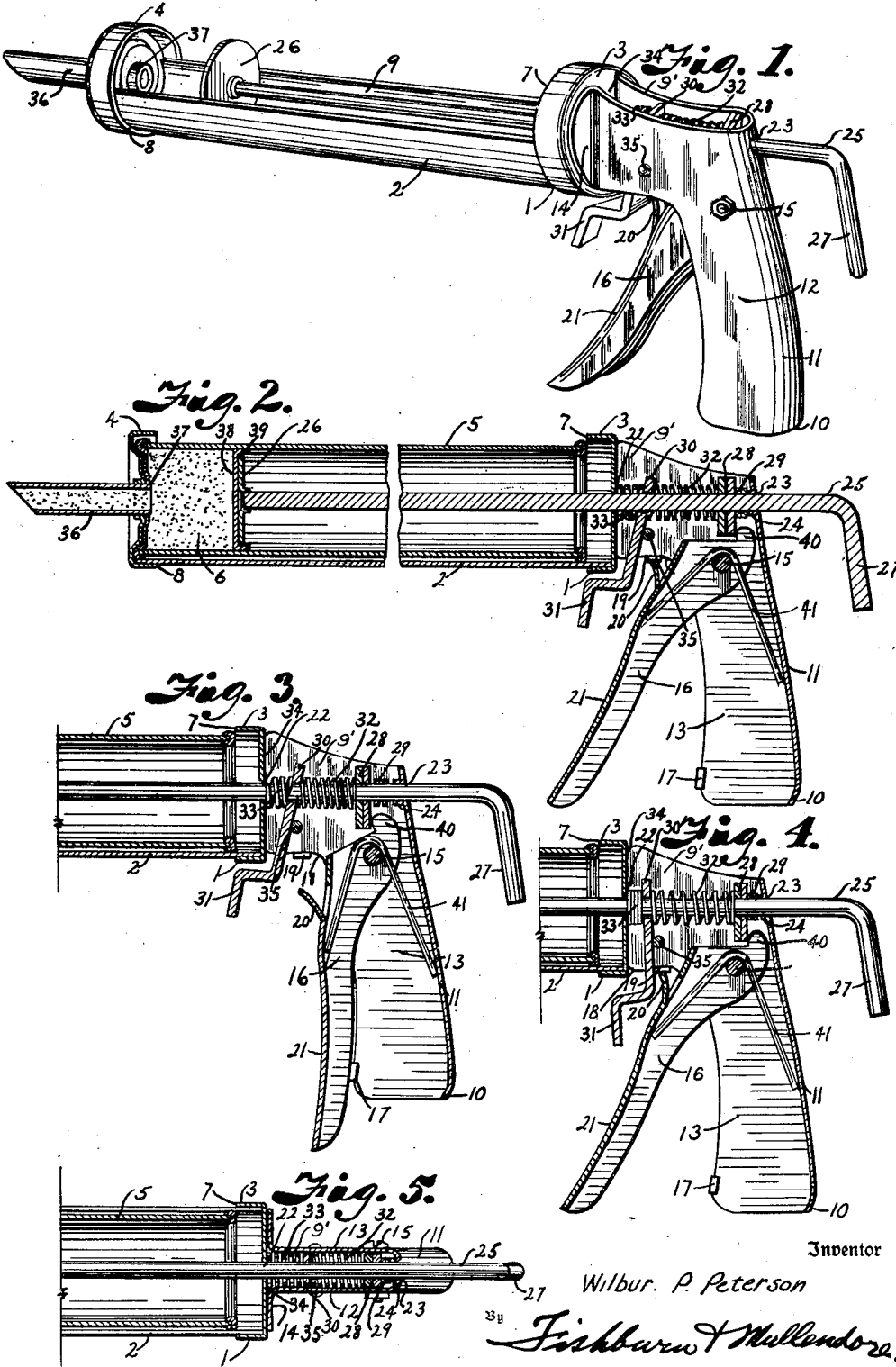
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OPERATING MECHANISM FOR PLUNGERS OF CAULKING GUNS

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OPERATING MECHANISM FOR PLUNGERS
OF CAULKING GUNS

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This invention relates to caulking guns, and particularly to guns for dispensing the caulking material from a cartridge through a nozzle of the gun.

The invention is particularly directed to a gun having a magazine semi-circular in cross section adapted to receive the cartridge in which the plastic or other material is contained to be ejected through the gun nozzle by pressure of a plunger expelling the material therefrom and a frame connected to the barrel having a hand grip and having manually operated mechanism adapted to extend the plunger forwardly in the barrel, holding of the plunger extended in the barrel and for release of the plunger so that it may be withdrawn for placement of another cartridge in the magazine.

The principal objects of my invention are to provide a magazine or trough for the cartridge containing plastic material; to provide a plate surrounding the plunger rod for holding the rod in extended position and having an arm or lever extending below the frame of the gun and parallel to the lever of the handle for easy access of the operator, for releasing the plate from gripping contact with the rod, and to provide spring means on each side of the holding plate surrounding the rod, the forward spring being of stronger tension than the back spring for exerting pressure on the holding plate to hold the plate in engaging relation with the rod when the device is in normal position.

Other objects of the present invention are to provide a magazine for a cartridge containing plastic material which may be easily applied to and removed from the magazine; to provide a device of this character operable by one hand of the operator and to provide a device of this character extremely simple, economical to manufacture, and efficient in operation.

In accomplishing these and other objects of the present invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of my caulking gun.

Fig. 2 is a longitudinal central section through the gun.

Fig. 3 is a longitudinal central section through a part of the gun, particularly illustrating the mechanism on the plunger rod with the plate in holding relation on the rod

Fig. 4 is a view similar to Fig. 3 but showing the holding plate in releasing position on the rod.

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Fig. 5 is a top plan sectional view of the working mechanism of the gun.

Referring more in detail to the drawings:

1 designates a gun embodying the features of my invention comprising a magazine 2 here shown to be elongated and semi-circular in cross section, having caps 3 and 4 rigidly secured to its respective ends by welding or other suitable means. The magazine 2 is adapted to receive a cartridge 5 (Fig. 2) containing a plastic or other material 6 to be used in the gun. The caps 3 and 4 are provided with flanges 7 and 8 for retaining the cartridge in the trough 9 of the magazine during operation of the gun.

Rigidly secured to the rear face of the cap 3 by welding or other suitable means is a frame 9' having a handle or hand grip 10 comprising a single sheet of metal doubled on itself to provide a rounded back portion 11 and two parallel side portions 12 and 13. The forward end of the frame 9' is flared outwardly forming flanges 14 on each of the side pieces 12 and 13 for fastening the frame to the cap 3. The forward portion of the hand grip 10 is open and pivotably mounted therein by a bolt 15 or the like is a lever 16. The lower end of the handle 10 is provided with intumed flanges or lugs 17 to lend rigidity to the handle structure and provide a stop for the lever 16. The underneath portion of the frame 9' is also open and provided with intumed flanges or lugs 19 to strengthen frame and also form an abutment against which a lug 20 on the forward portion of the lever 16 is adapted to engage and thus provide a stop for forward movement of the lever 16. The lever 16 is trough-shaped and has a rounded front portion 21 (Fig. 1) and the lug 20 is formed by severing and bending forwardly a portion of the lever.

The cap 3 is centrally bored as indicated at 22 (Fig. 3) and the rear portion of the frame is also provided with an opening 23, the opening being formed by inward punching of the rear portion of the frame forming a boss 24. Extending through the openings 22 and 23 and adapted to slide therein is a plunger rod 25. Rigidly secured on the forward end of the plunger rod is a disk 26, the disk being slightly smaller in diameter than the flanges 7 and 8 of the caps of the magazine and also slightly smaller than the inside of the cartridge 5. The plunger rod 25 extends outwardly through the opening 23 of the frame, the outer end being turned laterally to provide a handle 27.

Surrounding the plunger rod 25 within the hand grip are a plurality of feeding plates 28,

two of such plates being here shown and between these plates and the boss 24 are washers 29. Also surrounding the plunger rod 25 forwardly of the plates 28 is a plate 30 for holding the rod as it is fed forwardly in the magazine, one end of which extends through the lower open portion of the frame 9' and is turned forwardly and downwardly forming a finger portion 31. Also surrounding the rod 25 between the holding plate 30 and feeding plates 28 is a coil spring 32. The spring 32 normally pressing the plates 28 back to the limit of their movement or against the washers 29 and in turn the boss 24. A coil spring 33 is provided for surrounding the plunger rod 25 between the plate 30 and the rear face 34 of the cap 3. The spring 33 is stronger than the spring 32 to exert a greater pressure on the holding plate to hold the plate in biting or gripping relation on the rod 25 when the gun is in normal position. A pin 35 extends transversally through the hand grip 10 near the holding plate underneath the plunger rod 25 providing a fulcrum or pivotal point for the plate 30.

A spout 36 is centrally located in the cap 4 through which the material 6 is forced from the cartridge 5 upon operation of the plunger rod 25.

Operation of a device constructed and assembled as described is as follows:

The plunger rod 25 is withdrawn from the magazine through the hand grip by backward pressure on the finger portion 31 of the plate 30, the plate being fulcrumed on the pin 35 will move the upper end forwardly against the tension of the spring 33 thus releasing the plate 30 from gripping engagement with the rod. Backward pull on the handle 21 of the rod will move the plunger rod with its disk back to the cap 3. The cartridge 5 may then be inserted in the magazine. The forward end of the cartridge is provided with a central open portion (not shown) for engagement with the spout 36 which extends inwardly a slight distance from the cap 4 as illustrated at 37, Figs. 1 and 2. The rear end of the cartridge 5 is provided with an end 38 adapted to slide along the inner surface of the cartridge. The end 38 is flanged as indicated at 39 (Fig. 2) for receiving the disk 26.

The upper end of the lever 16 is provided with an upstanding lug 40 adapted to engage against the rear face of the plates 28. The plates 28 are substantially rectangular in shape and operation of the lever 16 will cause the lug 40 to engage the plates 28 and cause them to grip the rod and move them forwardly. Tension of the spring 32 will overcome the tension of the spring 33 releasing the plate 30 so that the plunger will move forwardly in the magazine, the plates 28 gripping the rod when the lug 40 exerts pressure on the lower end thereof. When the lever 16 is released the spring 33 again overcomes the tension of the springs 32 and the plate 30 will grip the rod to hold the rod in its forwardly extended position. Operation of the lever is thus continued forwardly and backwardly until the plunger is fully extended in the magazine and the material has been extruded from the cartridge 5. The plate 30 is then released by backward pressure on the finger portion 31 and the rod may again be removed from the cartridge and magazine by backward pull on the handle 21 so that the empty cartridge may be removed and a new one placed in the magazine. A hairpin spring 41 is provided to engage the pin 15 of the lever 21 with its arms 42 and 43 en-

gaging the hand grip 11 and lever 21 respectively to hold the lever 21 normally in forward position.

It will be obvious from the foregoing that I have provided an improved caulking gun which may be operated by one hand of the operator and which has few moving parts.

What I claim and desire to secure by Letters Patent is:

1. In a caulking gun, the combination of a magazine, a hollow handle secured to the magazine, said handle being open toward the front, a plunger operating rod extending out of the magazine and through said handle, a movable feeding plate within the handle loosely surrounding the rod, an apertured holding plate within the handle between the feeding plate and the rear end of the magazine and closely surrounding the rod, a fixed fulcrum for the holding plate within the handle below the rod, a spring surrounding the rod between the holding plate and the rear end of the magazine tending to swing the holding plate about its fulcrum into engagement with the rod for binding said rod against rearward movement, a compression spring surrounding the rod between the feeding plate and holding plate, said compression spring having ends engaging the feeding plate and holding plate and acting to urge the feeding plate away from the holding plate, an operating lever pivoted within the handle for canting the feeding plate and moving it forwardly to feed the rod, and means whereby the holding plate may be swung out of binding engagement with the rod.

2. In a caulking gun, the combination of a magazine, a hollow handle secured to the rear end of the magazine, said handle being open toward the front, a plunger operating rod extending out of the magazine and through said handle, a movable feeding plate within the handle loosely surrounding the rod, an apertured holding plate within the handle between the feeding plate and the rear end of the magazine and closely surrounding the rod, a pin extending transversely through the handle below the rod forming a fulcrum for the holding plate, a spring surrounding the rod between the holding plate and the rear end of the magazine tending to swing the holding plate about its fulcrum into engagement with the rod for binding said rod against rearward movement, a compression spring surrounding the rod between and acting on the feeding plate and holding plate tending to force the feeding plate toward the rear of the handle, a lever pivoted within the handle and movable toward it, said lever having an extension engageable with the feeding plate for canting the feeding plate and moving it forwardly to feed the rod, and means whereby the holding plate may be swung out of binding engagement with the rod.

3. In a caulking gun, the combination of a magazine for receiving a cartridge containing a caulking material, a hollow handle secured to the rear end of the magazine, said handle being open toward the front, a plunger operating rod extending out of the magazine and through said handle, a movable feeding plate within the handle and having an opening loosely surrounding the rod, an apertured holding plate within the handle between the feeding plate and the rear end of the magazine and having an opening closely surrounding the rod, a fixed fulcrum for the holding plate within the handle below the rod, a spring surrounding the rod between the holding plate and the rear end of the magazine

tending to swing the holding plate about its fulcrum into engagement with the rod for binding said rod against rearward movement, a compression spring surrounding the rod between and acting on the feeding and holding plates tending to force the feeding plate toward the rear of the handle, a lever pivoted within the handle and moveable toward it, said lever having an extension engageable with the feeding plate for canting the feeding plate into binding engagement with the rod and moving it forwardly to feed the rod, said holding plate extending below the handle between the lever and magazine for forming a finger portion in front of the lever for swinging the upper portion of the holding plate

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forwardly out of binding engagement with the rod.

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