

Nov. 11, 1952

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2,617,560

GUN FOR DISCHARGING PLASTIC COMPOSITION

Filed June 7, 1947

2 SHEETS—SHEET 1

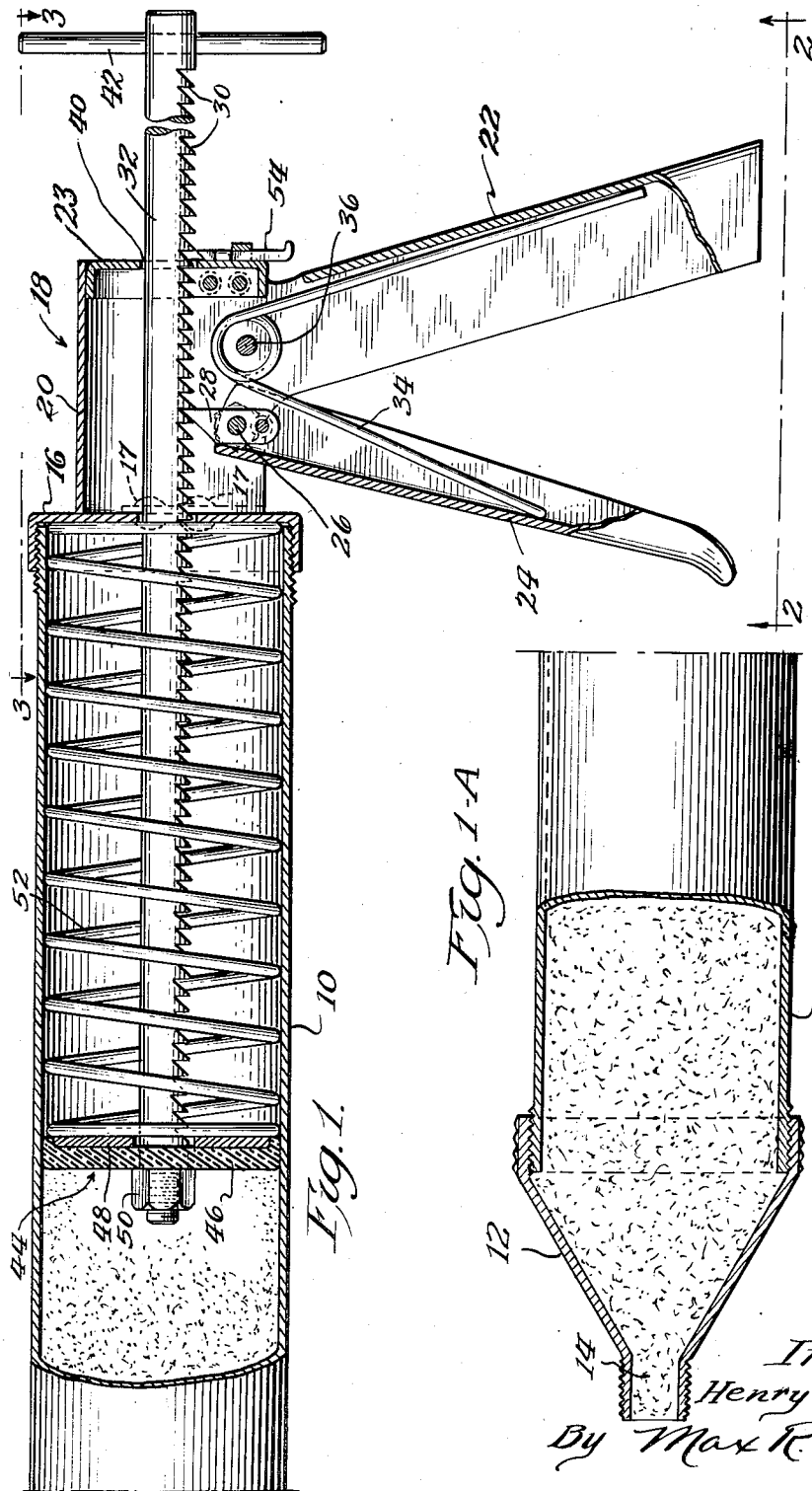


Fig. 1-A

Fig. 1.

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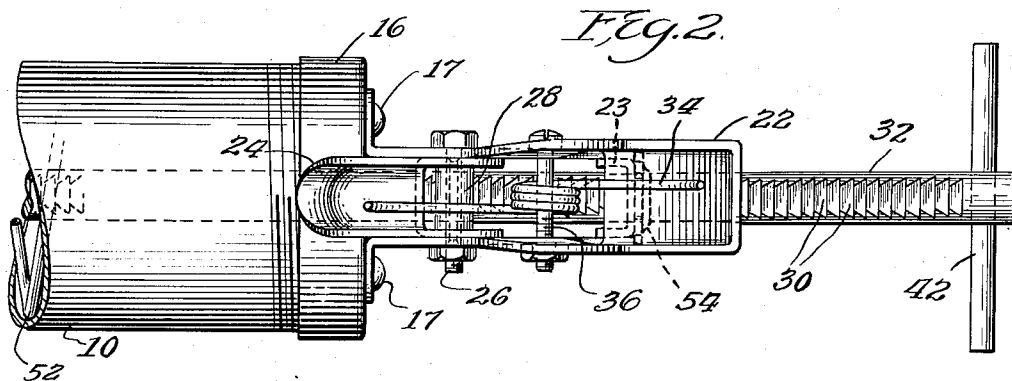
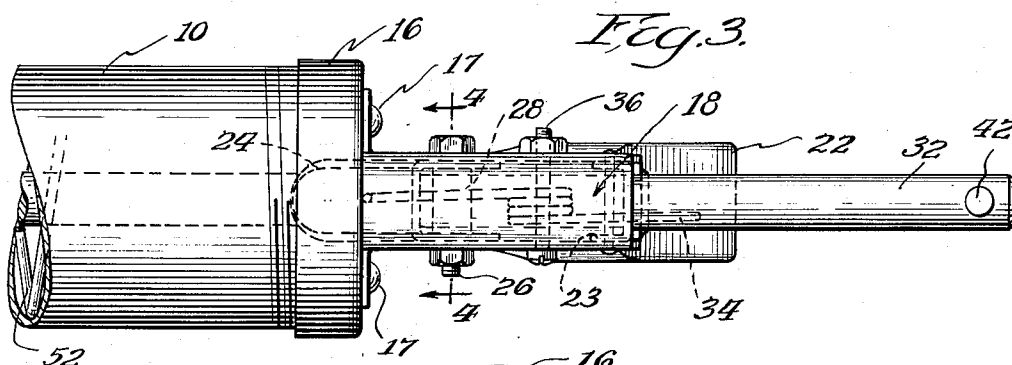
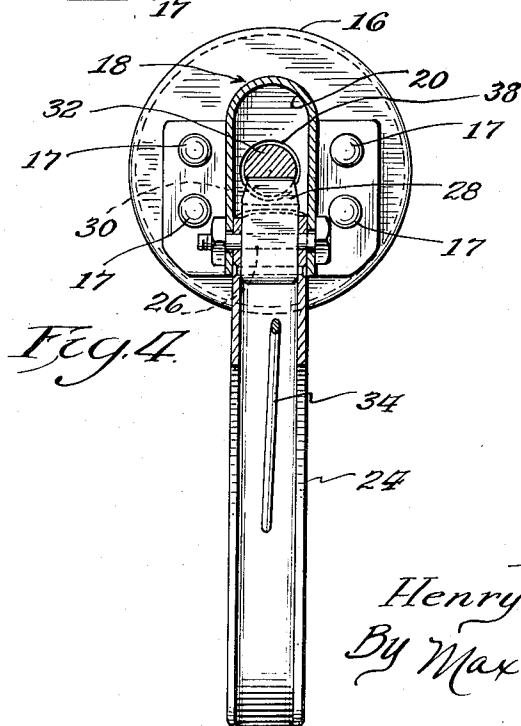
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2 SHEETS—SHEET 2



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2,617,560

GUN FOR DISCHARGING PLASTIC COMPOSITION

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Application June 7, 1947, Serial No. 753,316

3 Claims. (Cl. 222—340)

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This invention relates to a gun for discharging plastic composition, and more particularly to a calking gun.

One of the objects of this invention is to provide a calking gun whereby the substance in the cylinder of the gun is ejected by pressure applied by a spring member upon release of the trigger mechanism.

Another object is to provide a calking gun in which the reciprocating piston when retracted is placed under pressure so that when the actuating mechanism is operated the piston will move forwardly under its own pressure to expel the calking material.

The calking guns of the prior art are made so that a manually operated trigger manually pushes the piston forward to expel the material. This requires a manual exertion and strain on the fingers and hand each time the trigger is operated. Furthermore, the gun cannot be held steady and the discharged material cannot be guided accurately. In the guns where a spring is used to move the piston, the gun requires considerable manipulation to operate which increases its cumbersomeness, also the construction and operating parts of such a device are increased. With my invention the foregoing disadvantages are eliminated and I provide a gun which is simple and efficient to operate and inexpensive to manufacture.

In the drawings:

Fig. 1 is a cross sectional view of the anterior portion of the gun.

Fig. 1A is a cross sectional view of the posterior portion of the gun.

Fig. 2 is a view taken on line 2—2 of Fig. 1.

Fig. 3 is a view taken on line 3—3 of Fig. 1, and

Fig. 4 is a view partly in cross section taken on line 4—4 of Fig. 3.

The gun has a hollow cylinder 10, one end of which is closed by a threaded funnel shaped cap 12, having an opening 14 forming the discharge nozzle of the gun. The opposite end of the cylinder is closed by a threaded rear cap 16. Permanently secured to said cap by rivets 17 is the breech mechanism of the gun, generally indicated at 18. This includes a hollow stock 20 having a downwardly extending handle portion 22, both of which are substantially U-shaped in transverse cross section. The stock 20 is closed at its end by an end piece 23. A trigger like lever 24 which is also U-shaped in transverse cross section is pivoted to the stock 20 by a pin 26, and has a pawl 28 at its upper end adapted to engage the teeth 30 of the ratchet operating bar 32, presently to be described.

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The pin 26 also supports the pawl 28, so that when the lever 24 is operated, the pawl will operate therewith. The trigger lever 24 is normally urged outwardly, as shown in Fig. 1, by a spring 34 which is supported by a cross pin 36 on the stock 20. One end of the spring rests against the trigger 24 and the other end against the handle 22.

The rear cap 16 has an opening 38 which is in alignment with the opening 40 in the end piece 23. The ratchet operating bar 32 passes through said openings and has a transverse pull pin 42 secured at one end thereof. Secured to the opposite end of the ratchet operating bar is the piston indicated at 44, formed of a leather washer 46 and a reinforcing back plate 48. These are held in place by a nut 50 threadedly secured to the end of the bar. A coil spring 52 positioned inside the cylinder 10 circumscribes the ratchet operating bar, and one of its ends rests against the piston head and the other against the inside wall of the rear end cap 16, to normally urge the piston head and operating bar forwardly or to the left, as shown in Fig. 1.

Slidably mounted on the end piece 23 is a safety latch 54, which is adapted to be manually moved to engage the teeth 30 when the gun is being loaded, to prevent the ratchet bar from accidentally moving forward under the tension of the spring.

The operation of the device is as follows. To load the gun with the calking or other plastic material, the nozzle cap 12 is removed from the cylinder and the cylinder is inserted into the calking compound, the trigger lever 24 is retracted or pivoted to the right, as viewed in Fig. 1, thereby simultaneously pivoting the pawl 28, to disengage the pawl from the teeth 30 of the operating rack 32. Simultaneously, by means of the pull pin 42, the operating bar 32 is retracted against the tension of the spring 52, moving the piston 44 to the rear (or to the right as viewed in Fig. 1) to its rearmost position, and simultaneously pulling in the calking or other plastic material into the cylinder. The safety latch 54 is operated when the pawl disengages the teeth 30 to prevent the ratchet bar from accidentally moving forward. The trigger lever 24 is then released and the pawl 28 will engage the teeth 30 to lock the bar 32 in position against movement, after which the safety latch is moved out of engagement with the ratchet bar during the balance of its forward operation.

To operate the gun for the discharge of the calking or other plastic material, the trigger lever 24 is retracted and the pawl 28 disengages

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the teeth 30 and allows the bar to move forwardly until the trigger lever is released and the pawl again engages the teeth and arrests the forward movement of the bar. Thus the ratchet bar can be intermittently or continuously advanced by operation of the trigger lever. With the forward movement of the piston 44, the calking or other plastic material in the cylinder will be expelled through the discharge opening of the nozzle 14. I have thus provided a device wherein the piston is under a constant and even pressure throughout and that upon release of the ratchet bar by the trigger lever, the spring operates to expel the calking or other plastic material and no manual pressure need be exerted to accomplish this operation.

I claim:

1. A gun for discharging plastic composition comprising a relatively long barrel having an end wall with an opening therein and adapted to contain a plastic material, a movable ratchet bar located inside of said barrel and having teeth along substantially the length of said bar, said bar having a piston on one end thereof, a coil spring disposed within said barrel in substantially concentric relation to said ratchet bar and encompassing said ratchet bar, said spring being adapted to abut said wall and said piston to normally urge said piston forwardly, a member for retracting said bar through said end wall opening and manually operated means including a pawl having a tooth so shaped and disposed with respect to the ratchet bar teeth and said manually operated means, that motion of said manually operated means in one direction releases the spring to urge the piston forwardly and motion of said means in the opposite direction engages the pawl with the ratchet bar to lock the piston, and second spring means normally urging the manually operated means to engage the pawl with the ratchet bar.

2. A caulking gun comprising a barrel having an end wall with an opening therein, a retractable ratchet bar within said barrel and retractable through said end wall opening and having a piston on one end thereof, a coil spring disposed within said barrel in substantially concentric relation to said ratchet bar and encompassing said ratchet bar, said spring being adapted to abut said end wall and said piston to normally urge said piston forwardly, an operating handle having a pawl so disposed with respect to the ratchet bar and handle that motion of said handle in one direction releases the spring to urge the piston forwardly and motion of said handle in the opposite direction engages the pawl with the ratchet bar to lock the piston, and second spring means normally urging the handle to engage the pawl with the ratchet bar.

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centric relation to said ratchet bar and encompassing said ratchet bar, said spring being adapted to abut said end wall and said piston to normally urge said piston forwardly, an operating handle having a pawl with a tooth so shaped and disposed with respect to the ratchet bar and handle, that motion of said handle in one direction releases the spring to urge the piston forwardly and motion of said handle in the opposite direction engages the pawl with the ratchet bar to lock the piston, and second spring means normally urging the handle to engage the pawl with the ratchet bar.

3. A caulking gun comprising a barrel having an end wall with an opening therein and adapted to contain caulking material, a discharge nozzle on one end of said barrel, a retractable ratchet bar located inside of said barrel and retractable through said end wall opening and having a piston on one end thereof, a coil spring disposed within said barrel in substantially concentric relation to said ratchet bar and encompassing said ratchet bar, said spring being adapted to abut said end wall and said piston to normally urge said piston forwardly, an operating handle having a pawl so disposed with respect to the ratchet bar and handle that motion of said handle in one direction releases the spring to urge the piston forwardly and motion of said handle in the opposite direction engages the pawl with the ratchet bar to lock the piston, and second spring means normally urging the handle to engage the pawl with the ratchet bar.

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