May 19, 1970 H. G. SUTTON, SR 3,512,684

EXTENDED CAULKING GUN

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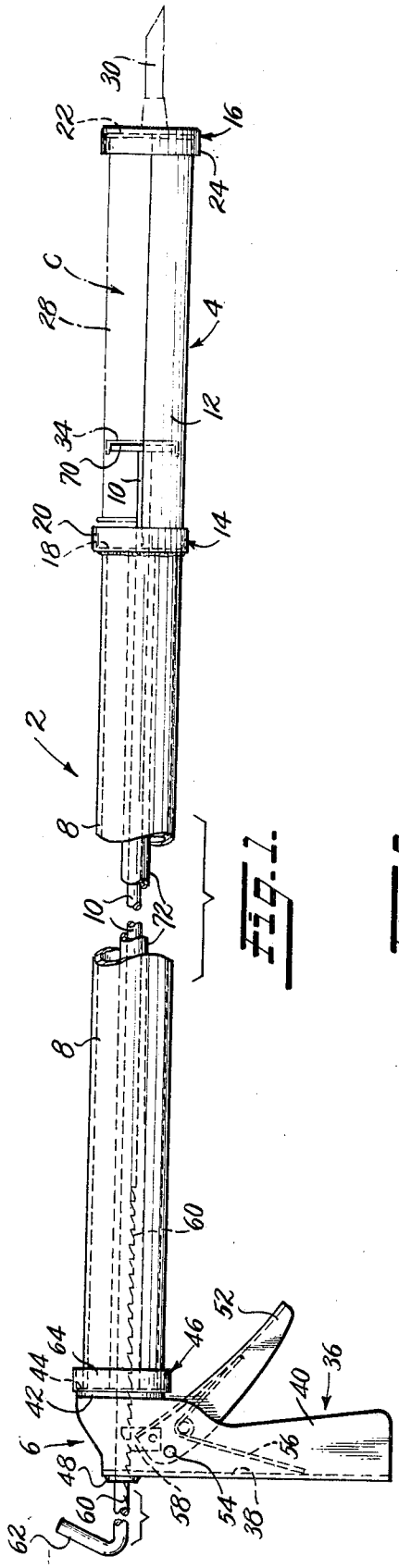


Fig. 1.

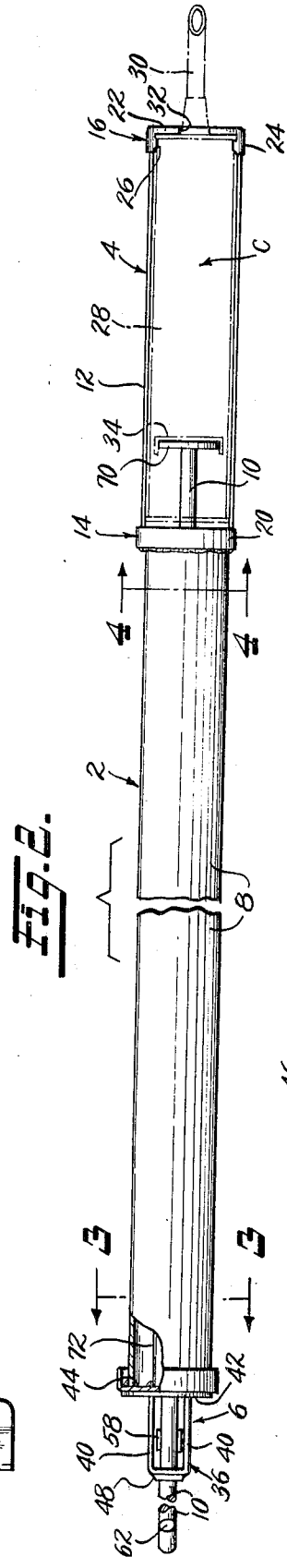


Fig. 2.

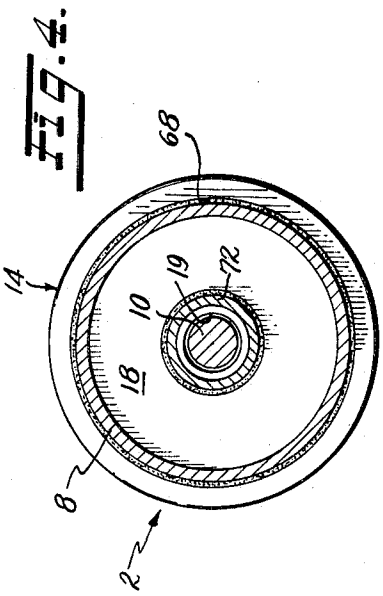


Fig. 4.

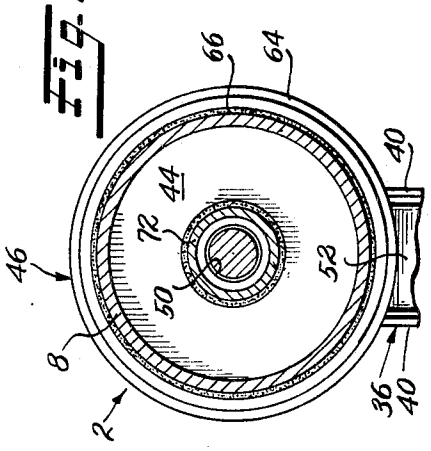


Fig. 3.

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EXTENDED CAULKING GUN

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ABSTRACT OF THE DISCLOSURE

An extended in length gun for use with conventional cartridges of caulking compound and the like. The gun includes a handle and trigger assembly and a cartridge-holding chamber, joined by an elongated cylindrical casing within which a guide tube is mounted for receiving the pressure rod of the gun. The guide tube prevents bowing or deflection of the pressure rod, thereby assuring even dispensing of material when the trigger is operated.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates generally to a gun for receiving a cartridge filled with caulking compound or the like, and which is operable manually to dispense material from the cartridge. More particularly, it relates to a caulking gun of extended length for reaching inaccessible locations, especially designed to provide accurate control over the dispensing of material from a cartridge mounted therein.

Description of the prior art

Currently in the construction industry and elsewhere it is common practice to package caulking compounds and like materials within a cardboard or plastic cartridge having a nozzle mounted on one end thereof, and having a movable cup mounted within the opposite end thereof to serve both as an end closure and a piston for forcing the material out of the cartridge through the nozzle. The cartridges are designed to be mounted in a caulking gun, which is manually operated by a worker to dispense the material contained therein.

A typical conventional caulking gun is about one foot long, and includes a cartridge-holding chamber and a trigger assembly. Because of its short length, a workman using such a gun must be positioned within easy arms reach of the location where material is to be dispensed. Thus, where a workman is working on a ladder or short scaffold, where freedom of movment is limited, he must repeatedly move the ladder or scafford to reach new working areas.

There is thus a need for an elongated caulking gun that would enable a worker to reach many working areas from a single location. It is the purpose of the present invention to satisfy that need.

SUMMARY OF THE INVENTION

The extended caulking gun of the invention includes a cartridge-holding chamber and a trigger assembly, joined by an elongated cylindrical casing of the desired length, say several feet. An elongated pressure rod extends through the cylindrical casing, and has a push plate mounted on its forward end for engaging the cup-like piston in a cartridge of material mounted in the cartridge-holding chamber.

The rear end of the pressure rod, as in a conventional caulking gun, has teeth cut on one side thereof to cooperate with the trigger assembly, whereby the rod is progressively moved forward by operating the trigger. The trigger assembly of a conventional caulking gun is designed to move the pressure rod forward a predetermined distance for each time the trigger is pulled, whereby material can be dispensed evenly from the cartridge nozzle. However, if the pressure rod is elongated to several feet, and no means is provided to prevent deflections therein inherent from such extended length, the desired evenness of material dispensing may not result.

In the present invention evenness of dispensing is ensured by providing support to the pressure rod over its elongated length, whereby the piston push plate will move forward a predetermined distance each time the trigger is pulled. This support is obtained by mounting a guide tube concentrically within the elongated cylindrical casing, to extend from one end to the other end thereof. This guide tube fits like a sheath over the cylindrical pressure rod, and effectively prevents lateral displacement or deflection thereof, while adding structural stability to the extended caulking gun.

It is the principal object of the present invention to provide a caulking gun of extended length, designed to enable a worker to reach many working areas from a single location and to be operable for dispensing material evenly from a cartridge mounted therein.

Another object is to provide means for preventing lateral deflections in the elongated pressure rod of an extended length caulking gun.

Other objects and many of the attendant advantages of the present invention will be readily apparent from the following "Description of the Preferred Embodiment," when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of the extended caulking gun of the invention, partially broken away to show the arrangement of the cylindrical casing, the elongated pressure rod, and the guide tube for preventing deflection of the pressure rod;

FIG. 2 is a top plan view of the caulking gun of FIG. 1, partially broken away to show the connection between the cylindrical casing and the trigger assembly;

FIG. 3 is an enlarged vertical sectional view, taken on the line 3—3 in FIG. 2; and

FIG. 4 is an enlarged vertical sectional view, taken on the line 4—4 in FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the extended caulking gun of the invention is indicated at **2**, and includes a cartridge-receiving chamber **4**, a trigger assembly **6** connected to the chamber **4** by an elongated cylindrical casing **8**, and pressure rod **10**.

The chamber **4** is of conventional design, and comprises a semi-cylindrical body **12** having rear and forward end caps **14** and **16**, respectively, received thereon and welded in place. The rear end cap **14** includes an end plate **18** having a central hole **19** therein to receive the rod **10**, and having a circumferentially continuous flange **20** thereon. The forward end cap **16** also includes an end plate **22** and a flange **24**, but the central upper portion of the latter is cut away at **26** to enable a cartridge C of caulking compound or the like to be mounted within the chamber **4**.

The cartridge C is of conventional disposable design, and includes a tubular body **28** having a nozzle **30** mounted on its forward end, the end plate **22** having a notch **32** cut therein to receive the nozzle **30**. A cup-like piston **34** is fitted within the rear end of the tubular body **28** to close the same, and is movable forwardly through said body to push material out of the cartridge through the nozzle **30**. The cartridge body **28** is shorter than the

distance measured between the end plates **18** and **22**, and is held in place by the flanges **20** and **24**.

The trigger assembly **6** is also of conventional design, and includes a handle **36** bent from sheet metal, the handle including an end wall **38** and a pair of parallel side walls **40**. The upper forward edges **42** of the handle side walls **40** are welded to the end plate **44** of an end cap **46**, and the handle end wall **38** has a bushing **48** thereon aligned with a circular hole **50** in the center of the cap end wall **44** for receiving the pressure rod **10**. A trigger **52** is received between the handle side walls **40**, and is mounted on a pivot pin **54**. A spring **56** is mounted between the trigger **52** and the handle end wall **38** for biasing the trigger toward an extended position, and a pawl **58** is mounted on the upper end of the trigger **52** to cooperate with a row of jack teeth **60** cut into the underside of the pressure rod **10**.

The pressure rod **10** includes a bent handle **62** on its outer end, and is rotatable by said handle **62** to position the row of teeth **60** in operative position relative to the pawl **58**, or in a release position disposed 180° from said operative position. When the pressure rod **10** is in its operative position, the teeth **60** and the pawl **58** will cooperate to move or jack the pressure rod **10** forwardly a given distance for each depression of the trigger **52**. When the pressure rod **10** is then turned to its release position, the teeth **60** are disengaged from the pawl **58** and the rod **10** can be retracted or moved rearwardly.

The trigger assembly **6** is connected to the cartridge-receiving chamber **4** by the elongated tubular casing **8**, said casing being of whatever length desired, say several feet, to permit a workman to reach numerous work areas from a single location, or to reach elevated work areas while standing on the ground. One end of the casing **8** is received within a flange **64** on the end cap **46**, and is welded at **66** to the end plate **44** of said cap. The other end of the casing **8** is welded at **68** to the end plate **18** of the cap **14**.

The pressure rod **10** must have a length chosen to cooperate with the length of the casing **8**, and has a push plate **70** on the forward end thereof of a diameter to be receivable within the cartridge C. The teeth **60** on the pressure rod **10** are located so that when the rod **10** is retracted with the push plate **70** seated against the cap end plate **18**, at least one tooth **60** is operable by the pawl **58**. Further, the toothed portion of the rod **10** is sufficiently long to enable the push place **70** to be jacked completely through the cartirdge C.

As is clearly shown in the drawings, the casing **8** is at least double the length of the chamber **4**, and the distance between the trigger **52** and the chamber **4** is also at least double the length of the chamber **4**, so that the trigger **52** is remote from the chamber **4** and the chamber is beyond the normal reach of an operator who is manipulating the trigger.

In operation, the push rod **10** is first rotated to disengage the teeth **60** from the pawl **58**, after which it is retracted until the push plate **70** is seated against the end plate **18**. A cartridge C is then mounted in the chamber **4**, following which the rod **10** is turned to engage the teeth **60** with the pawl **58**. The trigger **52** is then operated to urge the push plate **70** against the piston **34**.

Considerable pressure by the push plate **70** is normally required to cause extrusion of material through the nozzle **30**. When the pressure rod **10** is several feet in length, as here, the resultant compressive force on an unsupported

rod **10** can cause it to bow or deflect laterally within the casing **8** as the trigger **52** is operated. Such bowing or deflection is most undesirable, and can seriously affect a proper material dispensing operation.

To prevent or limit such bowing or deflection of the pressure rod **10**, in the present invention, a guide tube **72** is received over the pressure rod **10**. The guide tube **72** has a larger diameter than that of the pressure rod **10** so that the rod fits loosely therein, and the opposite ends thereof are welded to the end plates **18** and **44** about the openings **19** and **50**, respectively. The guide tube **72** effectively prevents any lateral deflections of the pressure rod **10** regardless of the length thereof, and thus makes the movements of the push plate **70** fully responsive to the trigger **52**. Further, the guide tube **72** adds strength and stability to the caulking gun **2**.

Obviously, many modifications and variations of the present invention are possible, without departing from the invention as shown and described.

I claim:

1. An extended caulking gun for use in dispensing material from a cartridge having a tubular body provided with a nozzle on one end thereof, and having a movable piston received within its opposite end, said gun comprising: a chamber for receiving said cartridge; a trigger assembly having a trigger; a tubular casing of substantial length connected at one end to said chamber and at its other end to said trigger assembly, both said casing and the distance between said trigger and said chamber being of at least double the length of said chamber, said chamber being disposed in a remote position with respect to said trigger and beyond the normal reach of an operator manipulating said trigger; an elongated pressure rod extending from said trigger assembly and projecting into said chamber; and guide means for the pressure rod for guiding one end thereof for reciprocation relative to said trigger assembly and for guiding the other end thereof for reciprocation in said chamber, the forward end of said rod having push plate means thereon for engaging the cartridge piston, and means responsive to actuation of the trigger for advancing said rod relative to the trigger assembly and for advancing the push plate means in the chamber.

2. A caulking gun as recited in claim **1** in which the rear end of the pressure rod extends through the trigger assembly and has teeth on one side thereof for cooperation with said trigger assembly.

3. A caulking gun as recited in claim **1** in which the pressure rod extends through the tubular casing and additionally means is provided within said casing for limiting lateral deflections of said pressure rod when compressive loads are placed thereon.

4. A caulking gun as recited in claim **3**, wherein said deflection-limiting means comprises a guide tube mounted concentrically within said casing and receiving said pressure rod.

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