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CALKING GUN WITH CLEANING TOOL

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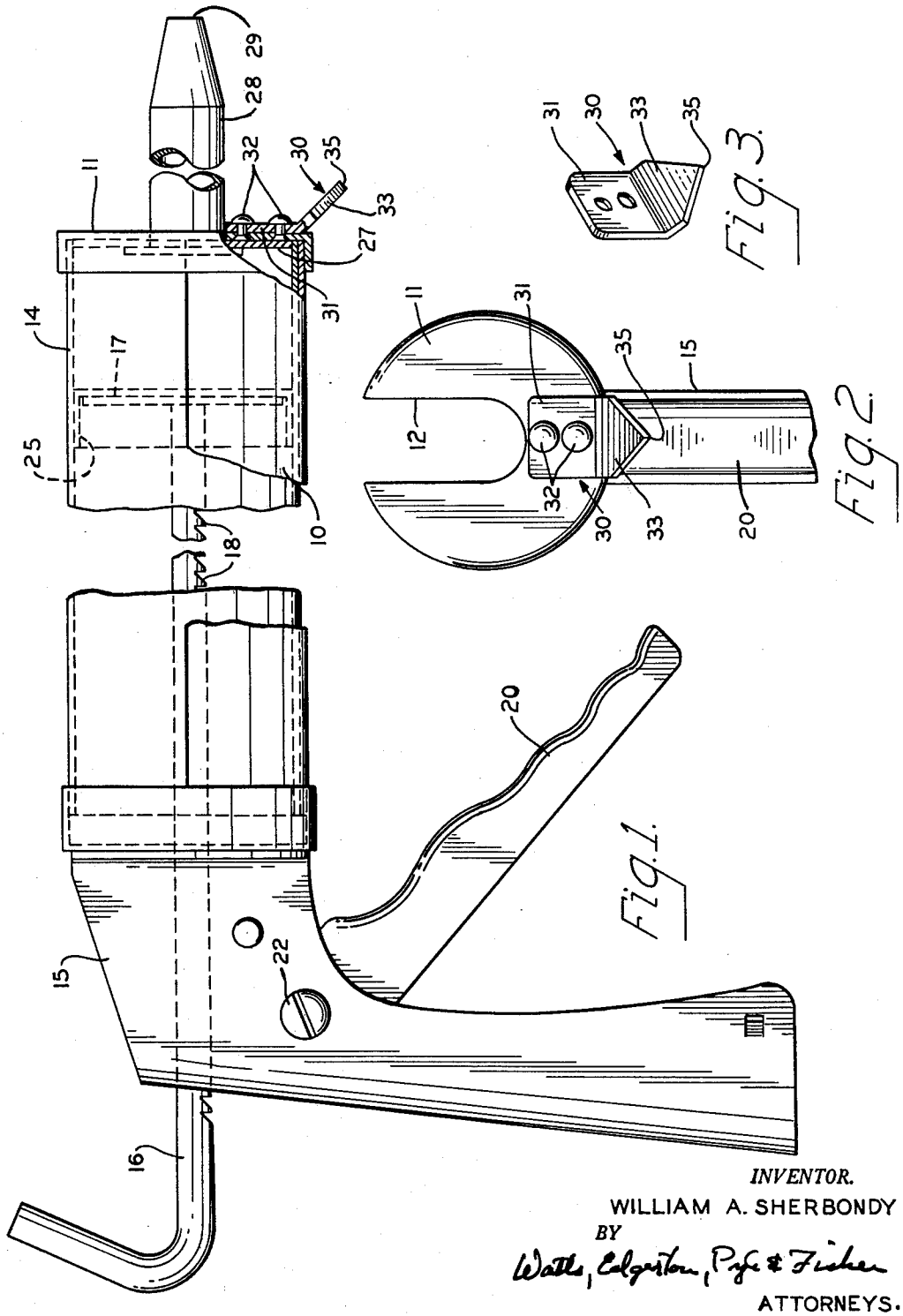

Fig. 1.

Fig. 3.

Fig. 2.

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CALKING GUN WITH CLEANING TOOL

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This invention pertains to calking guns and more particularly to manually actuated calking guns.

It is now accepted practice to fill cracks and seams, such as around window and door frames in buildings with a pliable substance known as calk. This calk is usually applied by an apparatus known as a calking gun. The usual gun carries a quantity of calking compound. The compound is expelled through a nozzle outlet by a plunger. A ratchet assembly is provided to selectively advance the plunger during the expelling operation.

When calk is applied it is desirable to apply it to a seam or crack which is free of foreign substances such as dried pieces of previously applied calking material being replaced. It is also desirable to apply the calk uniformly in order that the crack or seam is properly and uniformly filled and in order that a smooth and uniform finished appearance is obtained. The present invention facilitates the expeditious obtainment of both of these objectives.

The usual calking gun has an elongated barrel, a handle and trigger secured to one end of the barrel, and an outlet at the other end of the barrel. The plunger is selectively advanced along the longitudinal axis of the barrel by manual actuation of the trigger. With the present invention a laterally extending projection is secured to the outlet end of the barrel. This extension flares both transversely and forwardly to a tip which is a sharpened point. With this extension both of the objectives mentioned above are obtained.

The extension provides a highly efficient cleaning tool with which great cleaning pressure can be applied. Great pressure can be applied because the operator may use both hands comfortably and efficiently. The handle, which is a pistol grip type, permits the operator to apply this pressure to the attached forwardly projecting cleaning tool. This pressure is especially great as compared with the conventional cleaning tool where the handle is in longitudinal alignment with the cleaning end rather than transverse to it. In addition, with the tool of this invention, the barrel is readily grasped so that the operator may use his second hand to steady and guide the tool during a cleaning operation.

With the tool of this invention the operator may not only apply great forward "digging" pressure as difficult to clean areas are prepared for calking, he may also readily scrape away loosened foreign particles. This is accomplished by "dragging" the cleaning tool in an opposite or rearward direction as compared to the direction of the tool when pressure is applied as difficult to clean areas are being prepared. Not only may this dragging or scraping be accomplished with great facility, but it may be accomplished as the projection simultaneously serves still another purpose. This other and simultaneously obtained purpose is the highly important function of providing a steady rest and guide for the calk nozzle. Since this projection serves both as a cleaning tool and a guide it will be referred to here as a cleaning guide.

During a calking operation the area to be calked may be first preliminarily prepared by cleaning away the majority of old material with the cleaning guide. Then the cleaning guide is positioned in the seam or crack to be filled and the nozzle is brought into an appropriate application position. Usually the nozzle abuts the walls of the seam when it is in this application position, but, for the first time, this is not necessarily so. This is true because for the first time calking material can be uniformly applied without using the nozzle itself as a guide and especially not as the exclusive and only guide.

Further, with modern day plastic nozzles, the use of the nozzle as the only guide can inhibit the obtainment of uniform and pleasing results. The reason for this is that if excessive lateral pressure is applied to a plastic nozzle it will yield changing the angle at which the calk is applied, deforming the shape of the nozzle outlet and with it the shape of an emitted stream of calk, and, to a degree, the volume of calk emitted. If the nozzle is metal, excessive pressure may permanently deform the shape of the outlet.

Once the tool has been positioned in the described manner, it is advanced along the seam, steadied and guided by the cleaning guide. A uniform and continuous stream of calk is smoothly applied to the seam as the seam is simultaneously prepared by the cleaning action of the cleaning guide. The stream is emitted and applied to the seam—not to one side or the other of it—because the cleaning guide maintains the nozzle in longitudinal alignment with the seam. Further, if areas requiring cleaning other than just scraping by the guide as the gun is advanced, the gun operator may stop the calk applying operation and immediately clean with the cleaning guide. To accomplish this he need not lay the gun down and find another tool. In fact he need not even adjust his grip on the calking gun, as with prior mechanisms.

Accordingly, one of the principle objects of this invention is to provide a novel and improved calking gun equipped with a cleaning guide.

Another object of the invention is to provide a novel and improved calking gun with which a seam or crack may be simultaneously cleaned and calked.

A further object of the invention is to provide an improved cleaning tool for preparing a work area for calking which tool permits great and thorough cleaning pressure to be expeditiously and easily applied.

An additional object of the invention is to provide a cleaning tool fixed to and forming a part of a calking gun in order that the cleaning tool is always immediately and readily available to speed and facilitate the application of calk. This speeding and facilitating is obtained because the operations are obtained with one tool obviating the necessity for the operator to exchange tools periodically.

Other objects and a fuller understanding of the invention may be had by referring to the following description and claims taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a foreshortened side elevational view of one of the novel and improved calking guns;

FIGURE 2 is a foreshortened end elevational view of the gun with the disposable cartridge shown in FIGURE 1 removed; and,

FIGURE 3 is a perspective view of the novel and improved cleaning guide.

The calking gun pictured in the drawings includes a semi-cylindrical barrel **10**. An outlet cup **11**, equipped with a U shaped slot **12** is secured to one end of the semi-cylinder to form an outlet part of the barrel **10**. The barrel **10** and the slot **12** are open at the top to permit ready insertion of a disposable tube of calking material **14**. For the purposes of this invention, a gun equipped with a cylindrical barrel is equally applicable. This latter type of gun is the well-known type used for the dispensing of bulk calk.

With either the pictured or the described type of calking gun a handle **15** is secured to the end of the barrel opposite the outlet. A plunger composed of a ratchet rod **16** and a head **17** is journaled in the top of the handle for reciprocation along and rotation about

the axis of the barrel **10**. In the pictured gun the ratchet rod **16** has a plurality of teeth **18**. A ratchet assembly, not shown, is carried by the handle. The assembly sequentially advances the plunger toward the outlet when a trigger **20** is actuated.

The trigger **20** is mounted on a pivot **22** which is secured to the handle. When the gun is in use the operator grasps the handle and trigger and sequentially and repeatedly depresses the trigger to actuate the ratchet assembly and advance the plunger. The plunger acts against a piston **25** in the tube **14** to propel the piston, and with it the calk, toward the outlet.

The tube **14** has an annular end closure **27** which carries an outlet nozzle or spout **28**. The nozzle **28** extends past the cup **11** terminating at a nozzle outlet **29**. The nozzle **28** serves to form the expelled calk into a smooth stream for even and uniform application to a seam or crack.

A cleaning guide **30** is secured to the outlet cup **11**. The cleaning guide includes a connection portion **31** which is suitably fixed to the outlet cup as by rivets **32**. The cleaning guide **30** also includes a work portion **33** which projects laterally from the barrel **10**. The work portion **33** extends both forwardly and transversely from the barrel. To assure smooth and effective performance of the cleaning guide **30**, the handle **15**, and the trigger **20** are all disposed symmetrically about a common longitudinal plane.

The work portion **33** terminates in a sharp cleaning and guiding tip **35**. This tip is formed by cutting away portions of the work portion on either side of the tip such that the end of the work portion is V shaped. With this construction the tip is not a single point but rather a line having a point at each of its ends. This line tip provides a highly efficient cleaning mechanism when the cleaning guide is urged forwardly for cleaning. At the same time when the direction of movement of the gun relative to a surface being treated in reversed, because of the forward angling of the work portion **33**, only the lower point of the line tip contacts the seam being calked. Since only the lower point of the line tip contacts the seam a very efficient guide is provided.

When the gun is in use, the operator will graps the handle **15** with one hand and the barrel **10** with the other to use the barrel as the shank of a cleaning tool. In preparing a seam for calking the operator will place the tip against the material to be dislodged and press forwardly against it exerting pressure with both hands. When the material has been sufficiently dislodged it can be knocked free of the seam by dragging the work portion **33** rearwardly along the seam. The gun is then positioned with the nozzle outlet **29** at one end of the seam to be calked and the tip **35** in the seam. The trigger **20** is then actuated and the gun is moved along the seam, with the nozzle **28** following the cleaning guide **30** as a stream of calk is expelled.

Should an area be reached where the seam has not been properly prepared and the cleaning action obtained by dragging the cleaning guide along the seam is insufficient to prepare the seam, the actuation of the trigger is stopped. The operator then uses the cleaning guide to loosen any hard to dislodge particles by pressing the cleaning guide forwardly against the particles. There is no need to lay down the calking gun and find and use a suitable cleaning tool. There is in fact no need for the operator to even change his grip of the calking gun. The identical grip is used for both the step of preparation and the step of calking. Clearly, then this tool greatly expedites the calking of seams and cracks both reducing the preparation time required and facilitating and speeding the time required for the application of the calk.

This tool also assures a smooth, uniform, and pleasing finished result. This is especially true because of the guiding action of the cleaning guide. The nozzle is maintained in uniform, aligned and guided relationship so that an ejected stream of calk is smoothly and continuously applied at a uniform angle of application.

While the invention has been described with a great deal of particularity and detail it is believed that it essentially comprises a calking gun including a cleaning guide projecting laterally from the barrel of the gun.

Although the invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. A calking gun comprising:
   (*a*) a barrel for the containment of a supply of calking material and including a spout terminating at an outlet;
   (*b*) a plunger connected to the barrel for relative rectilinear movement toward and away from the outlet;
   (*c*) expelling means connected to the plunger for selectively advancing the plunger forward toward the outlet for expelling calk material through the outlet;
   (*d*) a cleaning guide member secured to the barrel near the outlet, said guide member extending laterally from the barrel and having end surfaces converging forwardly to define a cleaning and following end spaced from the spout outlet and located rearwardly of the spout outlet; and,
   (*e*) said guide member being rigid so as to resist bending when the cleaning and following end of the guide member is positioned against a work surface and supports at least the weight of the calking gun.

2. The device of claim 1 wherein the barrel has a laterally projecting handle and wherein the guide and the handle are each symmetrical about a common plane including the longitudinal axis of the barrel.

3. A calking gun comprising, a barrel, a handle secured to one end of the barrel and an outlet at the other end of the barrel, a plunger connected to the barrel and rectilinearly movable along the longitudinal axis of the barrel, means connected to the handle and operatively connected to said plunger to selectively advance the plunger toward the outlet whereby to expel calk when the gun is in use, a cleaning guide including a connection portion fixed to said other end of the barrel, said guide including a cleaning and steadying portion projecting transversely and forwardly from said connection portion, said cleaning and steadying portion having a sharpened tip at the end remote from the connection portion, the forward end of the cleaning and steadying portion being defined at least in part by a pair of surfaces intersecting at a line cutting edge and defining a V-shape, and the line cutting edge being transverse with respect to the longitudinal axis of the cleaning and steadying portion.

4. A calking apparatus comprising:
   (*a*) a barrel portion having handle means;
   (*b*) a nozzle portion at one end of said barrel portion, said nozzle portion terminating at an outlet spaced from said one end of the barrel portion;
   (*c*) a calk expelling mechanism carried by said barrel portion whereby actuation of said mechanism causes calk to move forward longitudinally through the nozzle portion so as to be expelled from said outlet;
   (*d*) a cleaning guide member fixed to one of said portions, said cleaning guide member having a cleaning and steadying part projecting transversely relative to the longitudinal axis of said nozzle portion;
   (*e*) said cleaning and steadying part having end surfaces converging to define a cleaning and following end for penetrating and breaking hardened substances and for following depressions in a work surface, said end being disposed spaced from said one portion; and,

(*f*) said cleaning and steadying part being rigid so as to withstand bending when the cleaning and following end of the cleaning guide is positioned against the work surface and supports at least the weight of the calking apparatus and when the cleaning and following end is pressed securely against the workpiece surface and is forcibly moved along the work surface to perform cleaning and guiding functions.

5. The apparatus of claim 4 wherein the cleaning and following end of said steadying part is disposed rearwardly of the outlet of the nozzle portion.

6. A calking gun comprising, a barrel, a handle secured to one end of the barrel and an outlet at the other end of the barrel, a plunger connected to the barrel and rectilinearly movable along the longitudinal axis of the barrel, means connected to the handle and operatively connected to said plunger to selectively advance the plunger toward the outlet whereby to expel calk when the gun is in use, a cleaning guide member including a connection portion fixed to said other end of the barrel, said guide member including a cleaning and steadying portion projecting transversely and forwardly from said connection portion, said cleaning and steadying portion having a pointed tip at the end remote from the connection portion, and said cleaning and guiding portion being rigid to withstand bending when the tip is positioned against a work surface and the cleaning and steadying portion supports at least the weight of the calking gun.

7. A calking gun comprising:

(*a*) a barrel having a handle portion at one end and a nozzle opening at the other end, said nozzle opening being adapted to receive a nozzle of a tube supply of calking material placed in said barrel with the nozzle extending forwardly of said opening and terminating at an outlet spaced from the end of the barrel;

(*b*) a calk expelling mechanism carried by said barrel whereby said mechanism is actuated to cause calk to move forward longitudinally through the nozzle so as to be expelled from the nozzle outlet when said gun is in use;

(*c*) a cleaning guide member including a connection portion fixed to the barrel, said guide member including a cleaning and steadying portion projecting transversely and forwardly from said connection portion;

(*d*) said cleaning and steadying portion having forwardly converging end surfaces which define a sharpened end laterally spaced from said barrel; and,

(*e*) said cleaning and steadying portion being laterally rigid to withstand bending when the sharpened end is positioned against a work surface and the cleaning and steadying portion supports at least the weight of the calking gun.

8. A calking gun comprising:

(*a*) a barrel having a handle portion at one end and a nozzle opening at the other end, said nozzle opening being adapted to receive a nozzle of a tube supply of calking material placed in said barrel with the nozzle extending forwardly of said opening and terminating at an outlet spaced from the end of the barrel;

(*b*) a calk expelling mechanism carried by said barrel whereby said mechanism is actuated to cause calk to move forward longitudinally through the nozzle so as to be expelled from the nozzle outlet when said gun is in use;

(*c*) a cleaning guide member including a connection portion fixed to the barrel, said guide member including a cleaning and steadying portion projecting transversely and forwardly from said connection portion;

(*d*) said cleaning and a steadying portion having forwardly converging end surfaces which define a sharpened end laterally spaced from said barrel;

(*e*) said cleaning and steadying portion being laterally rigid to withstand bending when the sharpened end is positioned against a work surface and the cleaning and steadying portion supports at least the weight of the calking gun; and,

(*f*) the sharpened end of the cleaning and steadying portion being located rearward of the outlet of a nozzle extending through the nozzle opening.

9. A tool comprising an elongated central shank, a handle secured to the shank and projecting laterally therefrom, a cleaning member secured to the shank and including a portion projecting both forwardly and laterally from the shank, said portion being disposed laterally relative to said handle, the handle and cleaning member being spaced from one another, said shank and said cleaning member each having a longitudinal axis, the axes of said shank and said cleaning member together locating a longitudinal plane, said handle, said shank, and said cleaning member each being on both sides of said plane, and said cleaning member and said handle projecting from the shank on the same side thereof.

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