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DISPENSING DEVICE FOR CALKING
MATERIAL AND THE LIKE
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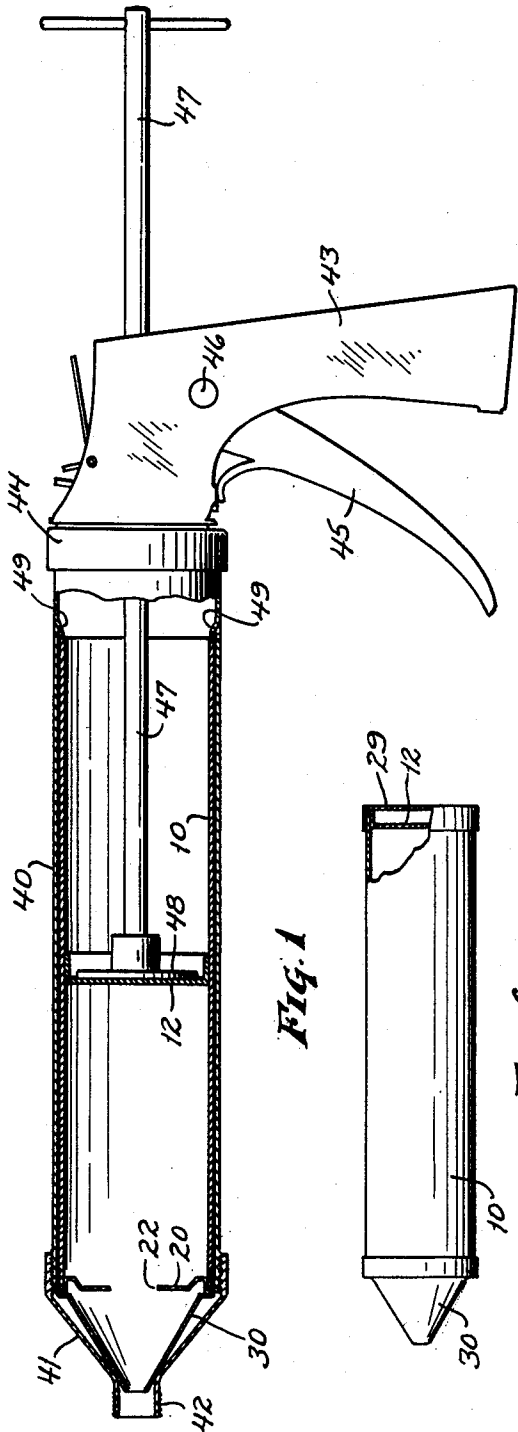


Fig. 1

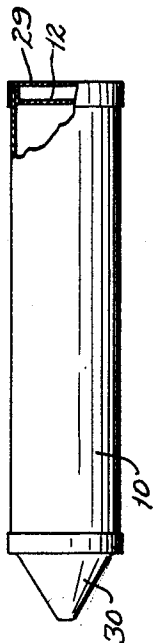


Fig. 6

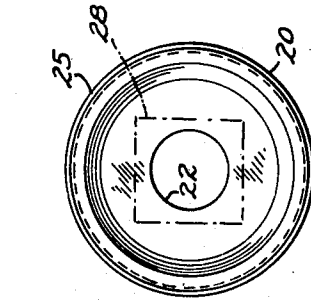


Fig. 5

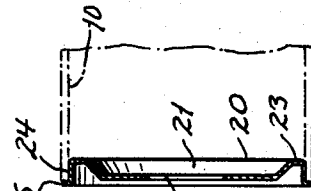


Fig. 4

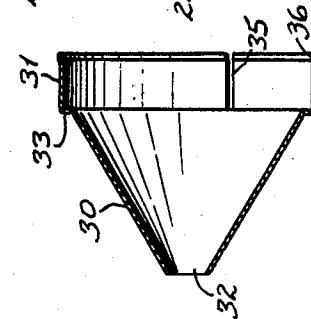


Fig. 3

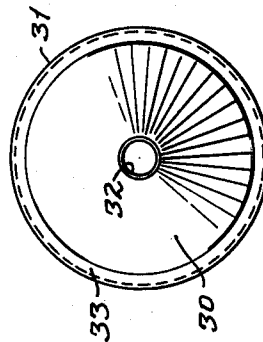


Fig. 2

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DISPENSING DEVICE FOR CALKING
MATERIAL AND THE LIKE

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1 Claim. (Cl. 222-183)

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This invention relates to a dispensing device for caulking material and the like comprising a cartridge adapted to contain such material and provided with a funnel and formed for ready mounting in a caulking gun to enable the discharge of the contents directly from the cartridge without smearing the interior of the gun or clogging the discharge.

The present invention is an improvement on the cartridge and gun combination of Patent No. 2,106,577, issued January 25, 1938, to William E. Sherbondy. The apparatus of that patent had a cartridge with a comparatively small spout adapted to coact with a gasket within a comparatively restricted discharge passageway in closure member of the gun. Difficulties have been encountered however with the clogging by the viscous caulking compound in the narrow discharge passageways of the spout and gun, as such compound is frequently of such a nature that when in small quantities it readily hardens.

An object of my invention is to provide a cartridge with a funnel end of substantially the same entrance area as the cross section of the cartridge, such funnel being adapted to contain sufficient quantity of the material so that it will not quickly harden. Another object is to provide such relation between the funnel and the gun cap that the side surface of the funnel will make a tight connection with the interior surface of the gun cap, effectively preventing any leakage back into the gun and doing away with the necessity of a gasket.

The above and other objects of the invention and the means by which they are accomplished are thoroughly explained in the following description of the preferred embodiment of the invention illustrated in the drawings.

In the drawings, Fig. 1 is a side elevation of a dispensing apparatus of a type known as a caulking gun containing my improved cartridge with its discharging funnel, the gun barrel, cartridge and funnel being shown in section; Fig. 2 is an end view of the funnel of the cartridge; Fig. 3 is a diametric section of the funnel; Fig. 4 is a diametric section of the end closure with the cartridge at the discharge end; Fig. 5 is a face view of such end closure, and Fig. 6 is a side elevation on a reduced scale and partly broken away of my cartridge as delivered loaded.

In Fig. 1, 10 indicates the body of the cartridge which is a cylindrical tube preferably of paper or similar material. This tube may be wound spirally after the manner of a mailing tube or otherwise made as desired. When loaded

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the cartridge is closed at each end. The closure for one end (which is the right hand end in Fig. 1) is shown as comprising an internal flanged cap 12 which is adapted to be pushed into the cartridge barrel and act as a piston in expelling it and is shown in original position in Fig. 6 and in an intermediate location in Fig. 1.

In addition to this internal cap 12, which may be of paper, I place about the exterior in the right hand end of the cartridge a flanged metal cap 29, Fig. 6. The cylindrical wall of the cartridge barrel becomes compressed between the flange of the internal cap 12 and the flange of the external cap 29 and thus maintains a tight connection at that end.

At the left hand end of the cartridge shown in Fig. 1, which is the discharge end, I place an internal cap 20, preferably of metal within the cylindrical barrel, and I place the substantially cylindrical skirt 31 of the funnel 30 about the exterior wall so that the cartridge wall is held at this end between the internal and external members.

The internal cap 20 at the discharge end is formed with a dished central portion 21 having a discharge opening 22, then an annular portion 23, a cylindrical portion 24 and finally, an outward radial flange 25. When put in place in the cartridge barrel, as shown in Fig. 4, the cylindrical wall 24 of the cap snugly engages the interior of the cartridge wall and the flange 25 of the cap abuts the end of the cartridge wall, and insures the internal cap being in place.

The discharge funnel 30 is preferably of sheet metal, has the conical portion open at its end 32 in the form of a comparatively small central discharge aperture, while the other end of the conical portion has an internal diameter only slightly less than that of the cartridge barrel. At this larger end is an outward radial flange 33 and from the outer edge of this flange extends a substantially cylindrical skirt 31. This skirt is incompletely annular being separated a short distance at one point, as indicated at 35, in Fig. 3. The interior diameter of the skirt 31 is normally slightly less than the external diameter of the cartridge wall or the cap flange 25, and the extreme edge of the skirt is chamfered outwardly, indicated at 36 in Fig. 3.

Hence when the skirt of the funnel is forced into place over the exterior of the wall it is sprung slightly outward and by reaction effectively clamps the cartridge wall between said skirt and the cylindrical portion 24 of the in-

ternal cap. This insures a tight closure at this end.

The discharge opening 22 in the cap 20 is closed when the cartridge is not to be used by a small frangible covering, as a piece of paper indicated in broken lines at 28, Fig. 5, and thus the cartridge is in condition for ready transportation or storage with its contents effectively contained within it. When this paper is broken away by the insertion of any suitable instrument through the opening 32 of the funnel the loaded cartridge is in condition for installation and use in the gun.

In Fig. 1, I have illustrated a conventional caulking gun having a cylindrical barrel 40, a conical cup 41 secured on the discharge end thereof, and handle and operating mechanism secured on the other end. The conical closure 41 of the gun is shown with a short cylindrical extension 42 externally threaded for the application of any suitable discharge conduit, if desired.

The handle mechanism, as shown, comprises a hollow hand grip 43 which may be swiveled to a cap 44 screwed onto the gun barrel. The hand grip carries a lever 45, pivoted at 46, which may operate suitable mechanism not shown, within the hand grip to engage and feed forwardly a rod 47, the forward end of which carries a disc 48 adapted to abut against the inner cap 12 of the cartridge. Accordingly, when the cartridge is in the gun successive manipulations of the lever 45 may periodically shove the cap 12 along in the barrel of the cartridge and thus expel the contents as desired through the discharge funnel.

As shown in Fig. 1, the gun barrel is provided with a suitable internal shoulder 49 which the head end of the cartridge may engage. The cartridge has such length with reference to the gun in which it is to be used that when it is put in the gun with its head end engaging the abutment 49, the conical wall of the discharge funnel makes a tight connection with the conical wall 41 of the gun closure slightly back from the discharge end of the funnel, as shown in Fig. 1. Accordingly, as the compound is expelled by the advancing cap plunger 12 through the opening 22 and the funnel 30, it all passes to the exterior of the gun without danger of working back into the gun.

It will be seen that I have provided a cartridge effectively closed at each end adapted for containing heavy viscous material such as calking compound, etc.; that such cartridge is ready for installation in the gun merely by removing and discarding the external cap 29 at one end and puncturing the seal 28 at the other; then after the conical closure of the gun barrel is removed the cartridge is ready for insertion and when the gun barrel closure is returned to position the cartridge is firmly clamped longitudinally and is

ready to have its contents discharged by the manipulation of the gun lever.

It will be observed in Fig. 1 that the conical angle of the funnel is less than that of the gun cap, the result is that the pressure of the cap against the funnel is concentrated in the annular region where the conical portion of the cap merges into the cylindrical extension. This results in a tight connection of these two metal parts, as the cartridge is held by its rear end firmly abutting the gun shoulder 49.

By having the conical cap 41 of the gun threaded on the gun barrel, as shown in Fig. 1, a considerable latitude is allowed in the position of a cap and accordingly even though there may be some variation in the length of the cartridge the closure member 41 may be turned on until the annular shoulder, where the conical portion of the cap merges into the cylindrical extension, is forced firmly against the conical surface of the funnel.

Accordingly, a very tight connection may be made between the gun cap 41 and the funnel, though both of these parts may be of metal. This avoids the necessity of using any gasket, which experience has shown is liable to deterioration or destruction in use.

I claim:

In a dispensing device for calking material and the like having mechanism for forcing calking material from a cartridge, a barrel adapted to receive a tubular cartridge of calking material and having a conical shaped discharge formation projecting from one end thereof, and a cartridge adapted to be received in said barrel, said cartridge having a funnel formation projecting from one end thereof and having a discharge opening, said funnel formation being disposed coaxial with said conical formation and adapted to engage the latter when the cartridge is in said barrel, the angle between opposite outer sides of said funnel formation being appreciably less than the angle between opposite inside surfaces of said conical formation whereby the outer surfaces of the funnel formation engage the inner surfaces of said conical formation within a relatively narrow annular area of said conical formation.

WILLIAM A. SHERBONDY.

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