Nov. 29, 1966 J. VALK, JR 3,288,333

CAULKING GUN CARTRIDGE

Filed Sept. 21, 1965

FIG. 1

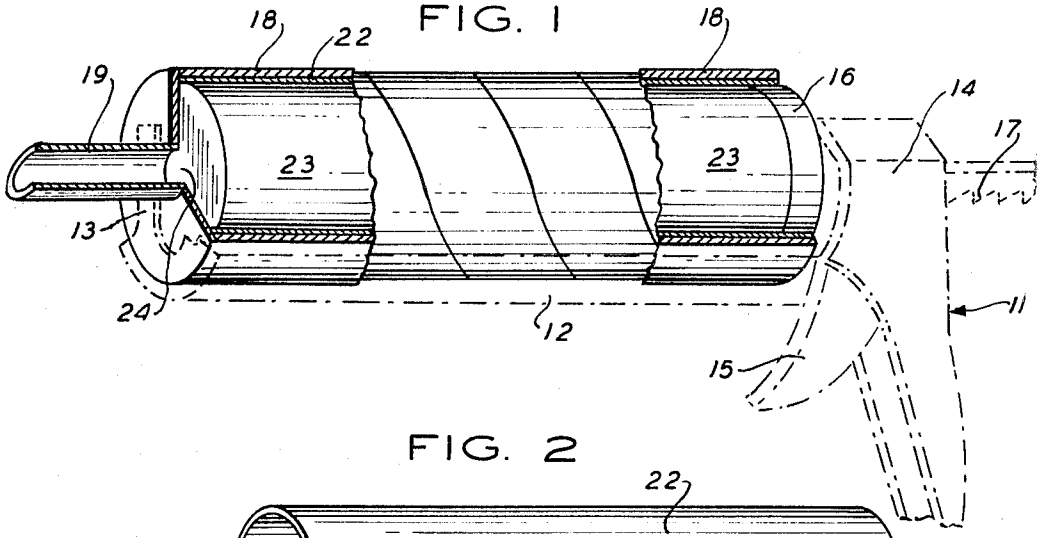


FIG. 2

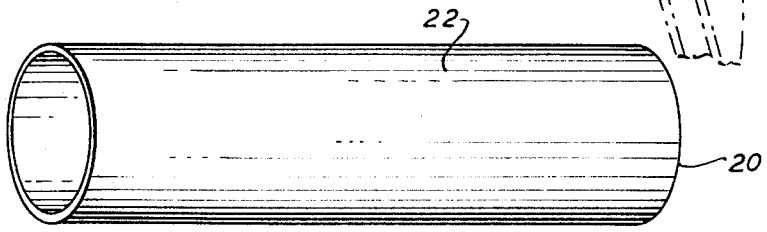
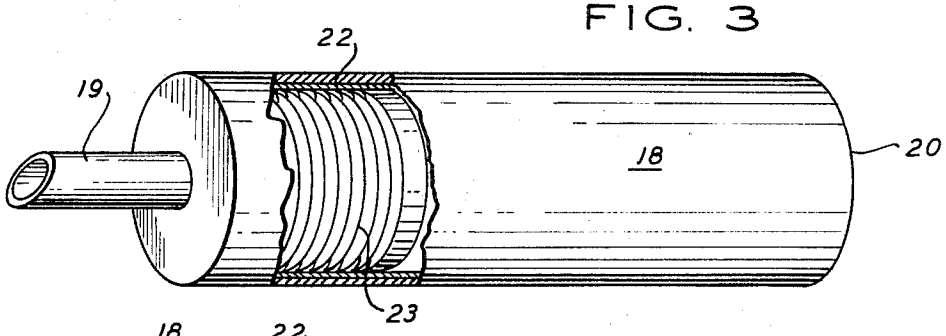


FIG. 3



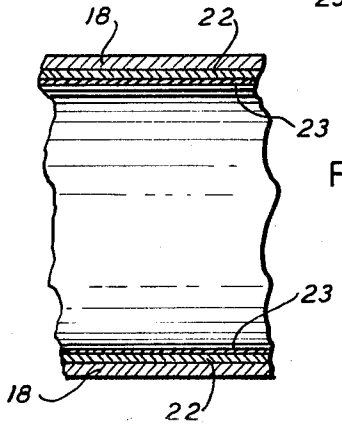


FIG. 4

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CAULKING GUN CARTRIDGE

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This invention relates generally to caulking gun cartridges, and specifically to caulking gun cartridges which are loaded with a sealed bag containing the material to be applied by the caulking gun. It is to be understood that while references are had herein to caulking gun cartridges, the material to be applied from such a cartridge is not necessarily a caulking material, but can be any of numerous other types of material which are usually applied by being extruded from a nozzle; as for example, without limitation, rain gutter sealers, driveway crack fillers, plastic plugging materials, ready mixed cements and water pointing-up materials, masonry fillers, ceramic tile fillers, furnace brick fillers, etc.

It is an object of this invention to provide a cartridge for a caulking gun which will not burst open under pressure during use.

It is another object of this invention to provide a caulking gun cartridge which will seal in the moisture content of its material.

Yet another object of this invention is to provide a caulking gun cartridge which will not discharge the moisture of its contents so as to impair the strength of the cartridge wall, weaken it, and cause it to burst.

It is still a further object of this invention to provide a bag container insert for a caulking gun cartridge which will not jam in the cartridge during use, nor will it rupture and randomly distribute its contents, nor will it jam the piston of the caulking gun.

These objects and advantages as well as other objects and advantages may be attained by the device shown by way of illustration in the drawings, in which:

FIGURE 1 is a perspective, partially sectioned view of a caulking gun cartridge positioned in a caulking gun, which gun is shown by dotted lines;

FIGURE 2 is a perspective view of slick liner or sleeve for the cartridge or tube;

FIGURE 3 is a partially sectioned view of a caulking gun cartridge or tube, with parts of the wall exploded away to show the neat collapse of the bag or liner under pressure; and

FIGURE 4 is a partial, vertical, sectional view of the caulking gun cartridge or tube, liner, and bag, which would contain the caulking material.

Referring now to the drawings in detail, there is shown a conventional, rechargeable caulking gun **11**, having a seat **12** on horizontal bottom portion, a bifurcated front end **13** to receive between its segments, the tube of caulking compound or other material, and a rear end **14**, a trigger **15**, a piston **16**, and a ratchet **17** connected to the piston **16** and engaged with the trigger by which it is propelled forward to compress and discharge the caulking compound.

A spiral wound cylindrical cardboard tube **18**, which is dimensioned to be inserted in the gun **11**, is made with a nozzle **19** at one end. This tube **18** is open at the other end, and is dimensioned to receive the piston **16**, which acts to compress the contents of the tube **18**, and discharge them from the nozzle **19**. The tube **18** has an internal lamination of slick, surfaced paper **29**, or other such slick material, which is applied to the spiral wound material of which the tube is made. This surface of paper **29** or other similar material may be applied in the tube **18** in the form of a sleeve **22**, which sleeve has a slick surface or low coefficient of friction. There are numerous well known smooth or slick surface papers, which may be adhesively secured to the inside of the

tube **18**. Also, if the tube **18** is made from spiral wound cardboard, the spool of cardboard may be prefabricated with a slick inner surface, so that when the spool of cardboard is formed into the tube **18**, a slick surface will already be applied. In any of these manners, or in any other manner, a cylindrical tube **18**, dimensioned to fit into the caulking gun **11**, is formed with relatively rigid walls, preferably made of cardboard and having an interior surface lining of low friction character.

A bag **23** of waterproof, strong, plastic, flexible material, which is sealed or closed in some other suitable manner at one end, is placed in the tube **18**. This bag is generally tubular in shape and having an external diameter slightly less than the internal diameter of the tube **18**. This bag is filled with the caulking compound or other material to be extruded by the caulking gun. It is also sealed at the other end, so that the contents thereof are tightly enclosed, will not leak out, and will not lose their moisture to the atmosphere or to the tube **18**. When it is desired to use the cartridge, it is placed in the caulking gun **11** with the nozzle **19** between the bifurcated ends **13**, and the piston **16** is caused to enter the open end of the tube **18** and engage the bag **23**. The trigger **15** is then manipulated so as to engage the ratchet **17** and urge the piston **16** into pressing engagement with the bag **23**. The front end of the bag **23** is pierced by a piercing element inserted through the nozzle **19**. Thus, the pressure exerted by the piston **16** causes the material in the bag **23** to be extruded through the nozzle **19**. It has been found that the bag collapses regularly, decreasing in length, as accordion-like, regular folds form upon its surface, as shown in FIGURE 3. The bag **23** does not rupture at its opposite end, or at any point along the side, but folds into a neat compact mass when all of the contents of the tube have been discharged. The bag **23** does not permit the contents to lose their moisture or to leak out and moisten the sleeve **22**, so that it weakens and breaks under pressure.

This is considerably more convenient and advantageous over conventional types of dispensing tubes, which do not have the sealed bag **23**. Such conventional cartridges permit their contents to dry out and lose their moisture, thereafter being so dense and tough that they cannot be extruded. Furthermore, such materials when dry lose their capacity to adhere to and fill crevices to be caulked. Likewise, in the conventional cartridge without a bag **23**, but with the caulking material merely deposited in the tube **18**, once the sealed usually applied to the nozzle is broken in order to permit the discharge of the caulking material, the caulking material has to be used up, for the remainder rapidly dries out. On the other hand, with the sealing bag as proposed herein, the contents retain their preferred soft, moldable consistency for long periods of time, even after the end of the bag **23** is pierced to permit the caulking material to be discharged.

Furthermore, conventional tubes being loaded directly with caulking material frequently absorb moisture from the material and when pressure is applied, the spiral wound container ruptures because it has been weakened by the absorption of moisture and has lost its rigidity. Merely, however, to place a bag **23** within the conventional cartridge tube **18** has not been found to be a satisfactory experience because the bag when pressed does not smoothly collapse in accordion-like folds, as shown in FIGURE 3, but jams between the piston **16** and the inside wall of the tube **18**, ultimately rupturing the bag and, of course, permitting the contents of the ruptured bag to dry out much more rapidly, and requiring their immediate use. Furthermore, the piston frequently jams in the tube so that it is impossible to move it to discharge all of the contents of the tube **18**. When greater pres-

sure is applied, the tube **18** ruptures thereby preventing further extrusion of the contents of the bag **23**. In order to insure that the bag **23** should not bind between the piston **16** and the inner wall of the tube **18**, various low friction coatings have been applied to the inner wall of the tube **18** with very little success, until it was discovered that an inner lining of slick surface paper adhered to the inside wall of the spiral wound tube **18**, or loosely deposited therein, would accomplish the smooth, non-binding collapse of the polyethylene bag. This prevents the rupture of the bag. It was also found that a sleeve of slick material could be used and placed inside the tube **18**. The ultimate result of the practice of the invention is to provide a caulking gun cartridge having a sealed bag therein, which bag collapses neatly under pressure without jamming the piston, the contents of which bag retain their moisture, do not dry out, do not wet the tube **18**, nor do they when extruded exert such pressure on the internal walls of the tube **18**, as to cause them to rupture. The bag **23**, likewise, is not jammed or seized by the piston **16** so that it ruptures, but rather it collapses in a smooth accordion-like annulus at the bottom of the tube **18**.

The foregoing description is merely intended to illustrate an embodiment of the invention. The component parts have been shown and described. They each may have substitutes which may perform a substantially similar function; such substitutes may be known as proper substitutes for the said components and may have actually been known or invented before the present invention; these substitutes are contemplated as being within the scope of the appended claims, although they are not specifically catalogued herein.

What is claimed is:

1. A cartridge of extrudable material comprising:
(a) a generally tubular casing;
(b) a discharge nozzle at one end of the casing;
(c) a generally tubular, moisture-resistant, collapsible bag, sealed at both ends, in the casing;
(d) a filler of extrudable material in the bag;
(e) a slick surface on the inside of the casing.

2. A cartridge of extrudable material comprising:
(a) the device according to claim **1**, in which the slick surface is a lamination of slick material.

3. A cartridge of extrudable material comprising:
(a) the device according to claim **1**, and
(b) the slick surface is a tubular sleeve of slick material in the casing and closely conforming thereto.

4. A cartridge of extrudable material comprising:
(a) the device according to claim **1**, and
(b) the slick surface on the inside of the casing is a layer of slick paper.

5. A cartridge of extrudable material comprising:
(a) the combination of a caulking gun with,
(b) the device according to claim **1**.

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