

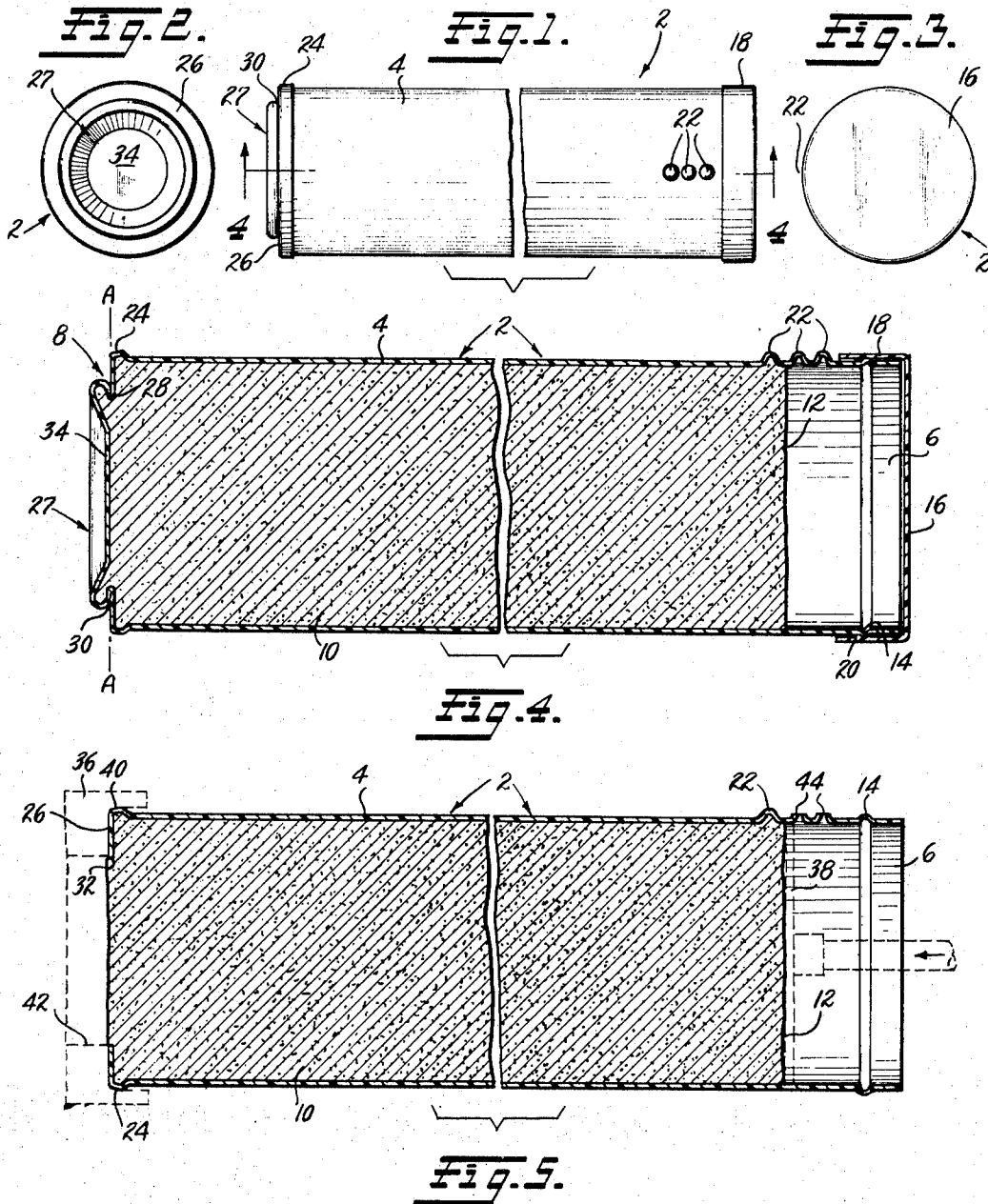
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DISPENSING CARTRIDGE WITH SEVERABLE PORTIONS

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1

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5 Claims

ABSTRACT OF THE DISCLOSURE

A cartridge of thin tough plastic material having a series of severable hollow dimples near its open end for venting trapped air when a plunger is first inserted. A closed end of the cartridge is defined in part by an axially displaced central portion defining a sharp line of juncture with the remainder of the closed end and which serves to accurately guide a cutting tool which severs the central portion to define a discharge opening of predetermined size and shape.

BACKGROUND OF THE INVENTION

This invention relates to cartridges of the type used to package caulking compound, lubricating grease and like materials for use in a dispensing gun or apparatus in which the cartridge is placed.

It is quite common to package materials such as caulking compound, lubricating grease and the like in cartridges having a closed end, formed to define a spout in some cases, and which cartridges are to be placed in a dispensing apparatus wherein a plunger is caused to enter the other or open end of the cartridge and apply pressure to the material therein to discharge the same through the originally closed end. In some cases the cartridge is provided with a nozzle at its closed end, the tip of which could be severed to provide a discharge openly. In other cases the normally closed end of the cartridge is merely perforated and the material discharged into a nozzle comprising a portion of the supporting apparatus. Throughout this application the term "semiliquid material" will be employed to designate such materials as caulking compounds, lubricating grease or the like. For efficient operation it is essential that the plunger which applies pressure to the semiliquid material fit the cartridge quite snugly to prevent reverse leakage. In many prior constructions the cartridges were made of cardboard or the like, which necessitated joints exposed to the interior of the usually cylindrical cartridge. Such joints could cause the plunger to "hang up" or otherwise interfere with operation of the dispensing mechanism and during handling the lip of the open end was easily bent or partially collapsed, rendering it difficult to insert the plunger. Furthermore, in those cartridges wherein an opening must be provided in the closed end, some difficulty was experienced in forming such an opening of the proper shape and dimensions. A further disadvantage existing in prior devices is that the semiliquid material with which the cartridge is charged does not completely fill the same up to its normally open end but a space is left therein and when a close-fitting plunger is introduced into the cartridge, air is trapped between the plunger and the semiliquid material, which air interferes with proper operation of the dispensing device.

SUMMARY OF THE INVENTION

The present invention comprises a cylindrical cartridge of the type referred to, formed of thin plastic material whereby it may be made to precise dimensions and is provided with a smooth inner surface adapted to snugly embrace a plunger or the like without offering any sub-

2

stantial resistance to movement of the plunger and without danger of the plunger engaging a protuberance and be arrested in its movement. The cartridge is provided with a normally closed and a normally open end and a plurality of hollow dimples projecting outwardly from the side of the cartridge adjacent the open end, to a position at least down to the normal level to which the cartridge is filled with semiliquid material. Thus, all of those dimples above the material may be severed to provide vent openings to exhaust air therefrom after the plunger enters the open end. The normally closed end of the cartridge is provided with a central portion axially offset from the rest of the end wall and defining therewith a sharp juncture adapted to precisely guide a cutting tool, such as a knife or the like, whereby a discharge opening of the desired size and shape results.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary side elevational view of a cartridge embodying the present invention;

FIG. 2 is a left end elevational view of the cartridge of FIG. 1;

FIG. 3 is a right end elevational view of the cartridge of FIG. 1;

FIG. 4 is an enlarged fragmentary vertical sectional view taken on the line 4—4 of FIG. 1; and

FIG. 5 is a fragmentary vertical sectional view similar to FIG. 4, with the left end wall and cap removed and assembled with a nozzle structure and actuating piston, the latter elements being shown in dotted lines.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, numeral 2 designates generally a cartridge embodying the present invention and comprises a cylindrical portion 4 preferably formed of relatively thin but tough plastic material, such as polyvinyl chloride or polyethylene. The cartridge is provided with a normally open end 6 and a normally closed end 8 and is filled with the desired semiliquid material 10 to a level, indicated at 12, inwardly of the open end 6. Adjacent its open end the cartridge is provided with a circumferential rib 14 and a cap having an end wall 16 and circumferential flange 18 is employed to close the open end of the cartridge during shipment and prior to use. The inner surface of the flange 18 is provided with an inwardly projecting circumferential rib 20 in position to snap over the rib 14 when the end wall 16 abuts the open end of the cartridge and thereby be releasably retained as a protective closure. Obviously, the cap 16 can be removed at will, when it is desired to dispense the material from the cartridge.

Adjacent the open end 6 the cylindrical side wall 4 is provided with a plurality of longitudinally spaced hollow dimples 22 extending from a position adjacent the inner edge of the flange 18 to a position beyond or inwardly of the surface 12 of the contained material.

At its other end, which may be termed the normally closed end of the cartridge, a circumferential outwardly extending rib 24 is formed and which merges with a substantially planar annular end wall portion 26. A central portion 27 of the closed end is integrally joined to the inner periphery of the annular portion 26 along a fairly sharp fold line 28 and the material of this central portion is shown as being folded outwardly to define a relatively sharp V-notch 30 defining the juncture between the central portion and the annular portion. Thus, a knife or the like may be positioned with its cutting edge in any portion of the notch 30 and can be guided thereby to sever the central portion of the closed end from the annular portion 26 and thus provide a discharge opening 32. As shown in FIG. 4, the central portion of the end

3

wall is folded outwardly, then reversely folded inwardly with the midportion 34 thereof depressed inwardly toward the cartridge. In this manner the amount of material 10 wasted when the central portion of the end wall is cut off in the manner described is minimized.

FIG. 5 schematically shows a cartridge in place in a dispensing apparatus after the end cap 16 has been removed, the central portion of the closed end severed, the cartridge placed in an apparatus, shown partly in dotted line at 36, and a piston or plunger 38 of the apparatus has been projected into the open end of the cartridge, as also shown in dotted line.

The dispensing apparatus 36 includes a recessed portion 40 adapted to releasably engage the rib 24 of the cartridge to properly position and hold the same in the apparatus. A discharge passageway 42 is provided which is in alignment with the opening 32 previously described and may lead to any suitable nozzle or other discharge means.

As shown at the right end of FIG. 5, the two outermost dimples 22 have been severed to provide vent openings 44. Severance of those dimples is accomplished prior to insertion of the plunger 38 in the cartridge and as the plunger approaches the surface 12 of the semiliquid material, any air between the plunger and the material is readily vented and discharged through the openings 44 so that the plunger 38 can directly contact and apply pressure to the semiliquid material 10.

While a single specific embodiment of the invention has been shown and described herein, the same is merely illustrative of the principles involved.

I claim:

1. A cartridge for use in a dispensing device, comprising: a substantially cylindrical thin-wall, hollow container, of plastic material, having a closed end and an open end; the side wall of said container being formed to define a plurality of longitudinally spaced and outwardly extending hollow dimples adjacent said open end whereby selected ones of said dimples may be sheared off to provide vent openings through said side wall adjacent to but inwardly of said open end.

4

2. A cartridge as defined in claim 1 including a body of semiliquid material in said container and filling the same to a level intermediate the innermost and outermost of said dimples.

3. A cartridge as defined in claim 2 including; an outwardly projecting integral rib extending circumferentially around said container between said dimples and said open end; and a cap member having a closure wall seated on said open end and a cylindrical flange embracing said container adjacent said open end, said flange having an inwardly projecting circumferential rib snap-fitted over said rib on said container.

4. A cartridge for use in a dispensing device, comprising: a substantially cylindrical thin-wall, hollow container, of plastic material, having a closed end and an open end; said closed end defining a closure wall having a substantially planar annular outer portion and a central portion integral therewith but being axially displaced outwardly therefrom, said annular and central portions being joined along a sharply bent juncture defining a radially outwardly facing annular V-shaped channel whereby said central portion may be readily severed from said container to provide a material discharge opening, the major portion of said central portion being displaced axially inwardly substantially to the plane of said annular outer portion.

5. A cartridge as defined in claim 4 wherein said container is provided with a radially outwardly projecting circumferential rib at the juncture between said annular portion and the side wall of said container.

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