

Dec. 16, 1969

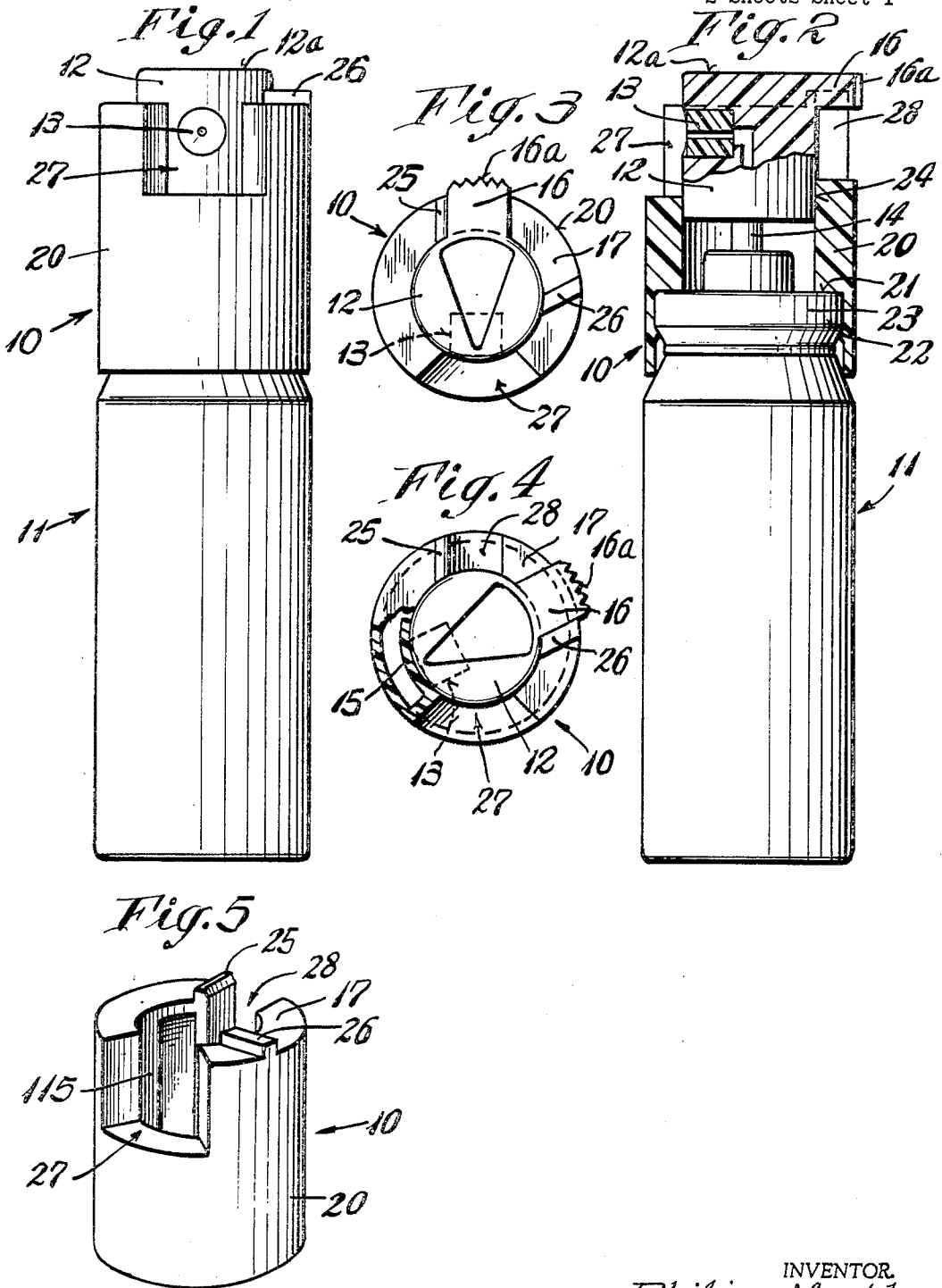
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3,484,023

MEANS FOR DISPENSING MATERIAL UNDER PRESSURE

Original Filed Jan. 6, 1967

2 Sheets-Sheet 1



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Fig. 6

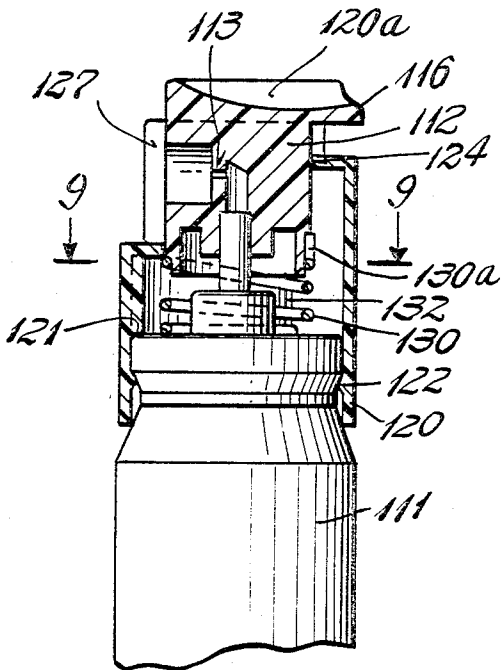


Fig. 9

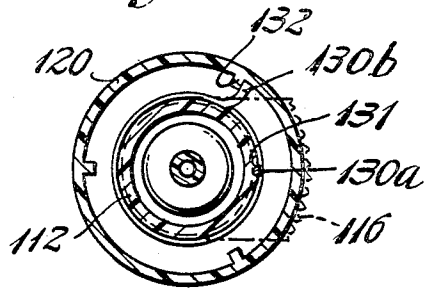


Fig. 10

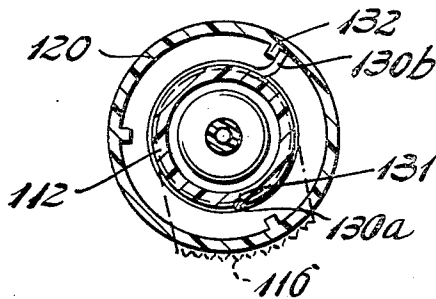


Fig. 7

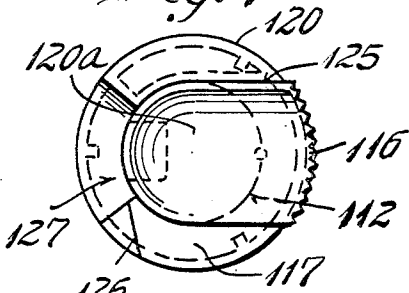


Fig. 8

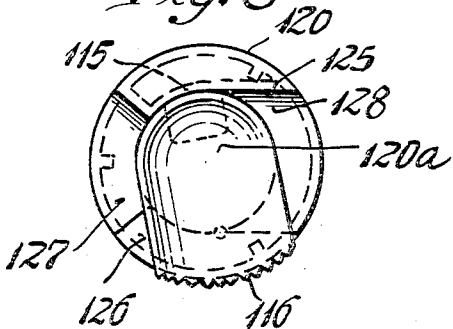
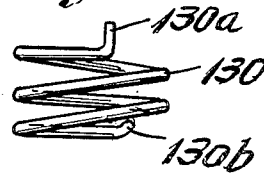


Fig. 11



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MEANS FOR DISPENSING MATERIAL UNDER PRESSURE

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Continuation of application Ser. No. 607,694, Jan. 6, 1967.

This application Oct. 30, 1968, Ser. No. 772,479

Int. Cl. B65d 83/06

U.S. Cl. 222-402.11

4 Claims

ABSTRACT OF THE DISCLOSURE

The dispensing means has a housing carried by a valved container of material under pressure. The housing rotatably and slidably supports a dispensing button in dispensing and nondispersing positions. The button has a dispensing orifice or nozzle in the side thereof and a laterally projecting control tab. With the button in dispensing position, the orifice is exposed and the tab is aligned with a slot in the housing permitting the button to move inwardly to operate the valve to dispense the material from the container. When the button in its outward position is rotated to nondispersing position, manually or automatically, the nozzle engages a flexible wall on the housing to wipe and seal the same and the control tab engages the housing and prevents operation of the button.

This application is a continuation of application Ser. No. 607,694, filed Jan. 6, 1967 now abandoned.

Heretofore dispensing means have been provided with means to prevent operation of the button. They have not had a means to wipe and seal the nozzle or orifice in such a nondispersing position so that excess dispensed material remained and hardened and also the material in the nozzle may be contaminated and/or hardened due to exposure to air or the like.

The present invention overcomes the deficiencies in the prior art in a simple yet efficient manner by providing a housing, preferably a sleeve, in fixed relation to a container of material under pressure and having a control valve for controlling the dispensing of said material. The sleeve has a dispensing button rotatably and slidably mounted therein. The button has a dispensing orifice or nozzle in the side wall and an integral laterally projecting tab. The tab facilitates the rotation of the button on the sleeve between nondispersing and dispensing positions. In dispensing position, the orifice is exposed and the button free to move inwardly to actuate the valve to dispense material from the container. When the button is rotated (by the tab) to nondispersing position the nozzle engages a flexible wall on the sleeve with a wiping action and is sealed by the wall and the tab is blocked by the housing to prevent operation of the button. The wiping action of the wall removes excess material and the subsequent seal prevents any material remaining in the nozzle from being contaminated and/or hardening and clogging to interfere with subsequent dispensing operations.

If desired the button can be made to move automatically, when operating pressure is removed from the button, to the nondispersing position in which the nozzle is wiped and sealed and the button blocked against accidental operation.

The components of the present invention are simple of construction and assembly and can be readily molded from plastic or the like material or otherwise formed.

Other features and advantages of the invention will be apparent from the specification and claims when considered in connection with the accompanying drawings in which:

FIGURE 1 is a front view of the device with the button in dispensing position.

FIG. 2 is a side view of FIG. 1 partly in section.

FIG. 3 is a top view of FIG. 1.

FIG. 4 is a view similar to FIG. 3, partly in section, showing the button in nondispersing position.

FIG. 5 is a perspective of the sleeve or housing.

FIG. 6 is a view, partly in section, showing another form of the invention.

FIG. 7 is a top view of FIG. 6 showing the button in dispensing position.

FIG. 8 is a top view of FIG. 6 showing the button in nondispersing position.

FIG. 9 is a sectional view taken along line 9-9 of FIG. 6.

FIG. 10 is a view similar to FIG. 9 with the button in nondispersing position.

FIG. 11 is a view of the biasing spring.

The invention comprises a housing 10 fixedly secured to a container 11 and having a dispensing button 12 provided with a nozzle or dispensing orifice 13, which button is rotatably carried by the housing for movement between dispensing and nondispersing positions thereon. The button has means 14 (FIG. 2) connected thereto for operating a usual valve (not shown) carried by the container for controlling the dispensing of material under pressure from the container. The button is normally positioned outwardly, as shown in FIG. 1, when the valve is closed, which valve is operated to dispense material from the container in response to inward axial movement of the button on the housing when in dispensing position thereon. In the dispensing position, the orifice 13 is exposed and the button is free to reciprocate or slide on the housing. Upon rotation of the button to nondispersing position the nozzle is moved over a flexible wall 15 on the housing which wipes excess material from the nozzle and also seals the nozzle so that material remaining therein will not be contaminated or exposed to the air and harden therein. This is particularly effective when viscous material is being dispensed.

The button has a control member or tab 16 for facilitating rotation of the button between the dispensing and nondispersing positions and in nondispersing position the tab engages a blocking portion 17 of the housing to prevent inward movement of the button so as to operate the dispensing valve.

In the specific illustrated form of the invention the housing 10 comprises a sleeve 20 molded of a suitable thermoplastic material having a shoulder 21 and rib 22 adjacent the open end adapted to snap over the rim 23 of the container and fixedly hold the sleeve in position thereon.

The sleeve has a bore 24 in which the button 12 is slidably and rotatably mounted. The nozzle 13 is disposed in the side of the button and the tab 16 extends laterally from the button and projects beyond the side of the sleeve as shown in FIGS. 2 and 3. Preferably, the projecting end of the tab can be provided with serrations 16a (FIG. 3) which facilitates the rotation of the button between dispensing and nondispersing positions. If desired the sleeve can have stops 25, 26 (FIGS. 3 and 5) formed thereon for engaging the tab and limiting the rotation of the button in either of the two positions.

When the button is turned to dispensing position the sleeve, in order to expose the nozzle 13, has a relatively large elongate opening or slot 27 in the side wall thereof as shown in FIG. 1. Also the sleeve has an elongate open ended slot 28 disposed in the opposite wall thereof, as shown in FIGS. 2 and 5, to receive the tab 16 as the button is moved inwardly, in response to pressure applied to the end wall 12a, to operate the valve on the container to dispense material.

After a dispensing operation, pressure is removed from the button and it returns to its outward position wherein the tab is engaged and the button turned until the tab contacts the stop 26 and locates the button in nondispensing position as shown in FIG. 4. In this position the tab will overlie the portion 17 of the sleeve adjacent the slot 28 which will block any inward movement of the button as would operate the valve. Also, as an incident to the movement of the button to nondispensing position the nozzle will be moved into engagement with the flexible wall 15 formed on the sleeve adjacent the opening 27. The engagement of the wall with the nozzle is a wiping one which will remove any excess material from the nozzle and the wall will also seal the nozzle so that any material therein will not be contaminated or harden and clog the nozzle.

Under some circumstances it may be desired to provide means for automatically rotatably biasing the button to a predetermined position in the sleeve. In the herein illustrated form of the invention, it is biased to the nondispensing position. This is accomplished as shown in FIGS. 6-11 by a light, helical, torsion spring 130 disposed between a button 112 and a sleeve 120. The button 112 is slidably and rotatably mounted in a bore 124 in the sleeve 120 secured to a container 111 by the shoulder 121 and rib 122. The button has a nozzle or dispensing orifice 113 in the side and a tab 116 projecting laterally therefrom. The sleeve has an opening 127 to align with the nozzle and slot 128 to receive the tab in dispensing position. The button is normally disposed in its outer position on the sleeve, as shown in FIG. 6, by suitable means (not shown) and is biased to rotate from the dispensing position of FIG. 7 to the nondispensing position of FIG. 8 by the spring 130. One end 130a of the spring is connected to the button by being disposed in a groove 131 in the button 112 and the other end 130b engaging an abutment 132 on the sleeve 120 as shown in FIG. 10 so that when the button is disposed in its outward position the torsion spring automatically turns the button with respect to the sleeve to cause the tab 116 to overlie the blocking portion 117.

As shown in the drawings the spring is of such a diameter with respect to the other elements that the slight rotation of the button from nondispensing position to dispensing position will not cause a constriction thereof sufficient to produce any binding thereby to interfere with the operation of the button and is light enough to enable the button to be readily rotated from blocking position as an incident to the actuation of the button for a dispensing operation. Also, the spring, as shown in FIG. 11, has a relatively long pitch so that it will not interfere with the reciprocation of the button when in dispensing position.

When it is desired to dispense material from the container, a rotative and inward pressure is applied to the dish portion 120a of the button 112 causing the button to be rotated against the torsion spring until it engages stop 125 and is located in dispensing position and then it is depressed by the inward pressure on the button to operate the valve to dispense material from the container. As soon as the pressure is relieved on the button it will return to the outermost position thereby closing the valve and, when in said outermost position, will automatically be rotated by the spring 130 to the position wherein it engages the stop 126 in nondispensing position. As an incident to such automatic movement, the dispensing orifice or nozzle is caused to wipe against the flexible wall 115 on the sleeve which will remove excess material

from the nozzle and will seal the same. At the same time, it moves the tab 116 to overlie the portion 117 on the sleeve and is blocked thereby against accidental operation by the engagement of the tab 116 with said portion 117.

As will be noted from the drawings, the structure of the present invention is simple, can be readily made by molding or otherwise forming preferably plastic material, can be easily assembled and operated, and is highly efficient.

What I claim is:

1. Means for dispensing material from a container having a valve for controlling the dispensing of the material under pressure from the container comprising a housing provided with means to be fixedly secured to the container, and a bore extending therethrough, a dispensing button disposed within said bore and surrounded by the housing, said button being slidably and rotatably mounted within the bore and having a dispensing orifice on one side and located within the bore, a valve actuating portion for operating the valve in response to inward movement of the button, said button having a control member on the opposite side thereof from said orifice and projecting laterally over the end of said housing and adapted to facilitate rotation of said button, said button being rotated in the housing by said control member between dispensing and nondispensing positions, stop means on the housing engaging said control member for limiting rotation in said positions, said housing in dispensing position having an opening to expose said orifice and in nondispensing position of the button having a flexible wall within the bore adjacent said opening in wiping relation with the orifice to seal the same, and said housing in dispensing position of the button having means to receive the control member to enable the button to be moved inwardly to operate the valve to dispense material and in nondispensing position having an end wall disposed under the control member to prevent operation of the valve.

2. The invention as defined in claim 1 wherein the stop means on the housing comprises stop members formed on the end of the housing to project beyond said end and engage the sides of the control member projecting laterally over said end of the housing.

3. The invention as defined in claim 1 wherein the control member is integral with the button and extends laterally beyond the housing and has means on the end of the control member to facilitate the rotation of said button between said positions in said housing.

4. The invention as defined in claim 1 wherein the means on the housing to receive the control member in dispensing position comprises an elongate axially extending slot formed in the side of the housing to enable the control member, when in dispensing position, to move inwardly.

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U.S. Cl. X.R.

222—402.12