

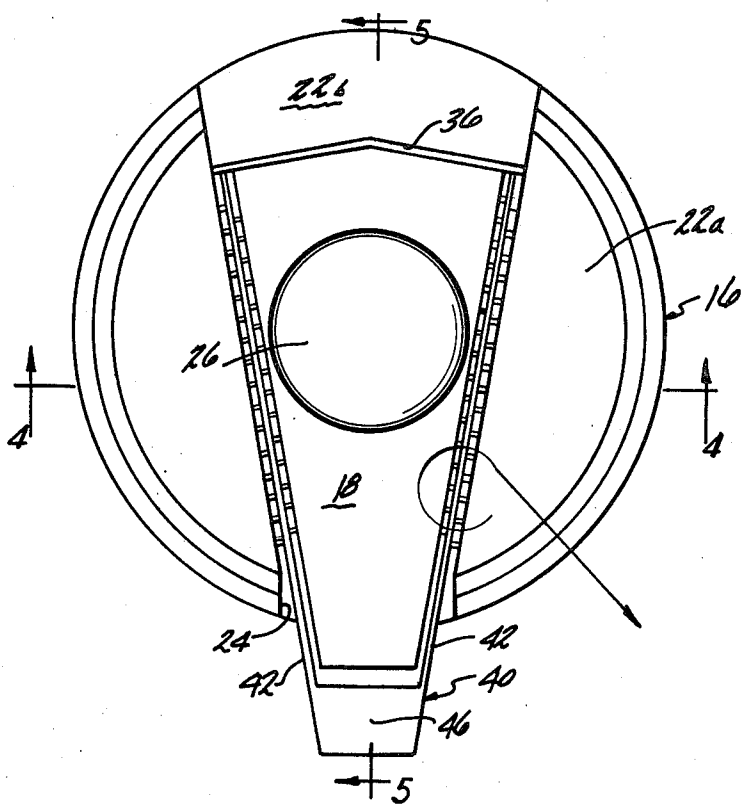
[72] Inventor **Frank Venus, Jr.**
Watertown, Connecticut
[21] Appl. No. **696,755**
[22] Filed **Jan. 10, 1968**
[45] Patented **Nov. 10, 1970**
[73] Assignee **The Risdon Manufacturing Company**
Naugatuck, Connecticut
a corporation of Connecticut

[56] References Cited			
UNITED STATES PATENTS			
3,223,287	12/1965	Sagarin.....	222/402.13X
3,231,142	1/1966	McGhie et al.	222/402.13
3,250,436	5/1966	Kurtz.....	222/153
3,367,540	2/1968	Lehmann	222/541X
3,373,908	3/1968	Crowell	222/402.13

Primary Examiner—Robert B. Reeves
Assistant Examiner—Frederick R. Handren
Attorney—Steward and Steward, Merrill F. Steward and
Donald T. Steward

[54] **ONE-PIECE MOLDED PLASTIC OVERCAP AND VALVE ACTUATOR FOR AEROSOL CONTAINERS**
1 Claim, 7 Drawing Figs.
[52] U.S. Cl..... **222/153,**
222/402.13
[51] Int. Cl..... **B65d 83/14**
[50] Field of Search..... **222/153,**
402.13, 541, 402.11

ABSTRACT: An actuator-overcap assembly for an aerosol dispenser in which the overcap and actuator portions of the assembly are initially molded as an integral part but which are adapted to be severed, when a consumer wishes to operate the actuator to get dispensing of the aerosol product, by pulling a tear strip temporarily joining the cap and actuator.



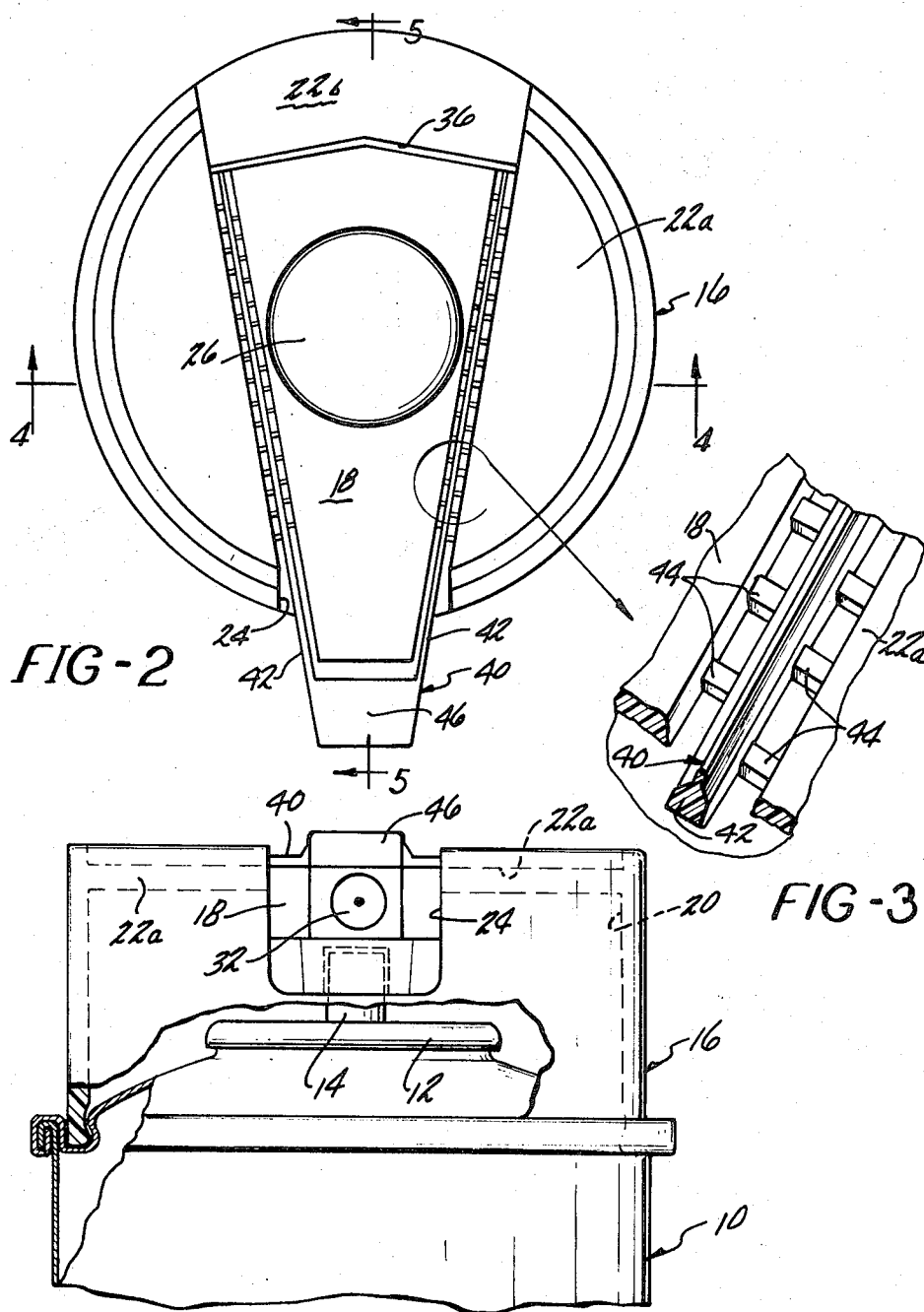


FIG-2

FIG-3

FIG-1

INVENTOR:
FRANK VENUS, JR.

BY

Steward & Steward
his ATTORNEYS

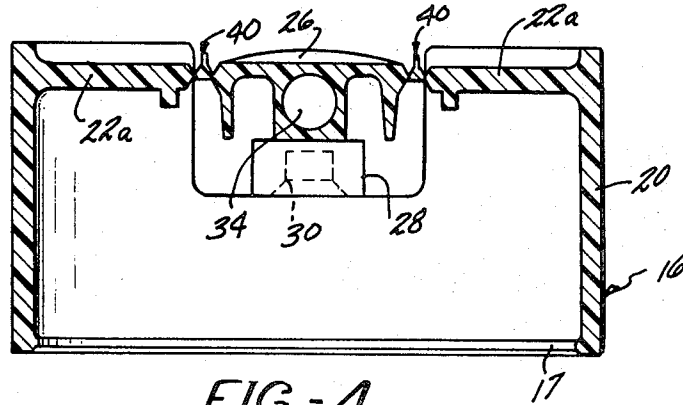


FIG-4

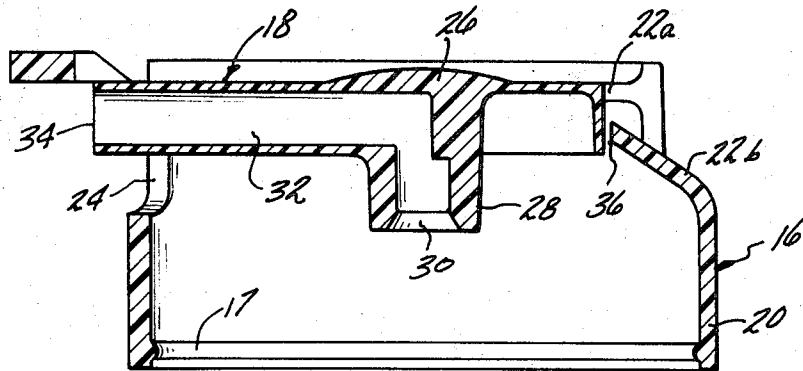


FIG-5

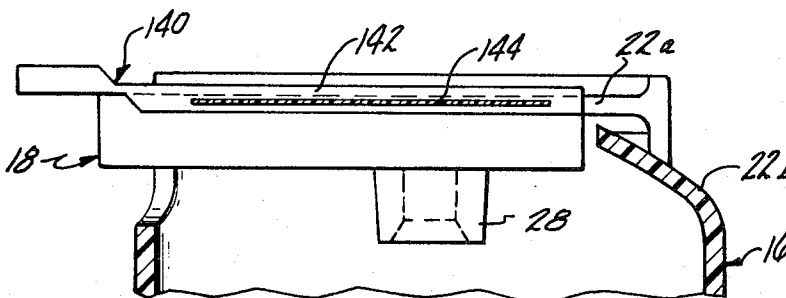


FIG-6

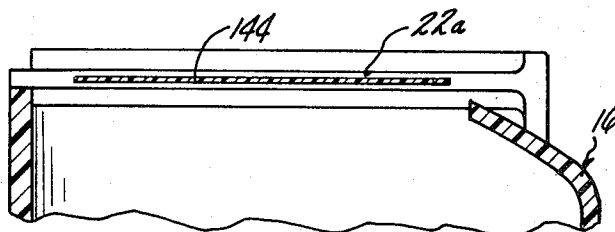


FIG-7

BY

INVENTOR:
FRANK VENUS, JR.

Steward & Steward
his ATTORNEYS

ONE-PIECE MOLDED PLASTIC OVERCAP AND VALVE ACTUATOR FOR AEROSOL CONTAINERS

This invention pertains to valved fluid dispensing containers of the self-pressurized or aerosol type, and more particularly to an overcap and valve actuator assembly for such containers.

The packaging in aerosol dispensers of various fluid products has gained wide acceptance in the consumer trade, owing largely to the convenience of dispensing afforded thereby, the prevention of product deterioration and other advantages. These aerosol packages employ containers, such as the conventional crown-top can, in which a valve unit is mounted in the crown end of the container through which the product is dispensed upon actuation of the valve by the consumer. Others employ glass or plastic containers with valve units similarly incorporated in them. The typical valve unit includes a protruding hollow stem through which the product in the container is actually dispensed upon depression or tilting the stem to open the valve. An actuator button connected to the valve stem and providing a duct for delivering the product in a controlled form, for example as a spray, foam or solid stream, is conventionally employed to facilitate operation of the valve and to orient the direction of fluid discharge.

It is a primary purpose of this invention to provide an improved valve actuating button and protective overcap assembly constituting an integral unit for attachment to the valved end of an aerosol container and facilitating the operation of the valve therein. The overcap member of the novel assembly is designed to frictionally or otherwise detachably engage the valved end of the aerosol container and serves to protect the actuating button against accidental operation while permitting immediate and ready access thereto without removal of the cap when dispensing of the product is desired. It is a further purpose of the invention to provide an actuator button and overcap assembly which constitutes initially an integral structure that can be supplied to the aerosol manufacturer or loading plant for attachment to the aerosol container as a one-piece assembly. The purpose of having a one-piece assembly instead of separate cap and actuator members is to reduce the number of operations required to complete the assembly of the finished aerosol package.

One-piece actuator-overcap assemblies for aerosol containers are not broadly new. But a significant feature of the presently disclosed overcap-actuator assembly resides in the fact that the cap and actuator are so formed integrally, preferably of molded plastic, that the actuator button constitutes at least a portion of an end wall of the overcap and is immovable relative thereto as molded and as assembled to an aerosol container. In order to permit the actuator button subsequently to be operable independently of the overcap when the customer wishes to dispense product from the container, the button is joined to the cap by a tear strip constituting a temporary bridging connection between the two members. The tear strip is defined by lines of weakened areas or reduced thickness in the material of which the actuator-overcap is formed. This tear strip is provided with a terminal or projecting tab portion to furnish a means for gripping and tearing the strip from around the periphery of the actuator button and thereby separating it from the overcap portion, whereby the two then comprise separate, independent but cooperating members. The purposes of this arrangement are manifold. First of all it of course maintains the desired unitary structure of the overcap actuator button for easier molding and subsequent assembly to the dispensing container, as mentioned above. The arrangement also serves the purposes of resisting accidental actuation of the valve assembly and inadvertent dispensing of the product therefrom after assembly to the container and during storage and display. Furthermore it serves as an indicator to the purchaser that the package is intact and has not been tampered with or partially consumed. When the purchaser wishes to use the dispenser for the first time, he merely grasps the finger tab provided on the tear strip and rips the strip from about the periphery of the actuator button. The

button is thus completely severed from the rest of the overcap and is free to move independently thereof for desired actuation of the valve of the container.

These and other objects and advantages of the invention will be more fully apparent from the explanation given hereinafter, with reference to the specific embodiment illustrated in the accompanying drawings, in which:

FIG. 1 is a fragmentary view in front elevation of an overcap and actuator assembly of the invention, parts being broken away for greater clarity of illustration;

FIG. 2 is a top plan view of the overcap and actuator assembly seen in FIG. 1;

FIG. 3 is an enlarged detailed fragmentary view of a portion of the tear strip connecting the actuator to the overcap;

FIG. 4 is a cross-sectional view in side elevation taken on line 4-4 of FIG. 2;

FIG. 5 is a cross-sectional view in side elevation taken on line 5-5 of FIG. 1;

FIG. 6 is a cross-sectional view in side elevation showing a modified form of tear strip connecting the actuator and overcap; and

FIG. 7 is a cross-sectional view in side elevation taken on the other side of the actuator in the embodiment shown in FIG. 6.

In FIG. 1 of the drawings a conventional aerosol container 10 is shown in which a valve unit 12 is mounted by crimping it into an aperture of an end wall, in conventional manner. A tubular valve stem 14 projects from unit 12 to serve as means for opening the valve, either by axial or lateral motion of the stem, to allow discharge of the contents of container 10 through the stem. Container 10 is provided with an overcap 16 and actuating button 18 embodying the present invention and constituting a closure for the valved end of the container. Preferably the overcap and actuator button are molded of polyethylene or similar high strength plastic and the particular device illustrated is especially designed to be formed of such material. The cap and actuator portions 16, 18, respectively are integrally formed initially, as will be further described presently.

Overcap 16 has a cylindrical peripheral side wall 20 forming essentially a continuation of the side wall of container 10 when superimposed upon the valved end of the container as illustrated. At its open end the cap has a rib 17 which grips the container (see FIGS. 1, 4 and 5) to hold the cap in place. Cap 16 is closed at its upper end by a transverse wall formed of oppositely disposed segmental portions 22a, 22a, which are essentially flat, and by a complementary rearwardly sloping portion 22b. The balance of the end wall of cap 16 is formed by the actuating button 18 which, as already mentioned, is molded integrally with the cap. At a point in the periphery of cap 16 diametrically opposed to rear wall 22b, side wall 20 is cut away to form a recess 24.

As seen in plan in FIG. 2 actuator 18 is of generally truncated arrowhead shape and its blunted nose is received in recess 24 and projects slightly beyond the side walls of the cap and container. Actuator 18 is provided with an external central boss or domed protuberance 26 which serves generally as a finger pad indicating the point at which pressure is to be applied by the user to effect dispensing of the contents of the container. With reference to FIGS. 4 and 5, the actuator has a centrally located hub on its underside which extends inwardly a short distance into the cap, and this hub has a socket 30 for the reception therein of valve stem 14. Actuator 18 is also provided with an internal fluid passage 32 and a discharge orifice or outlet 34 which is communicated with the socket by the aforesaid passage.

Actuator 18 is separated along its rear edge from the adjacent rear wall 22b by a narrow slot 36, but is integrally connected at opposite sides to end portions 22a, where those portions and the actuator are contiguous, by a tear strip designated generally at 40 in the drawings. As seen in FIGS. 1 and 3, the tear strip assembly includes a central rib 42 which runs along either side of actuator 18 between the actuator and the respective end walls 22a. Integral bridging elements 44 in

spaced, staggered arrangement along opposite sides of rib 42 join the rib to the respective contiguous end wall and actuator portions. At the forward or discharge end of the actuator, the bridging elements 44 are discontinued and the central ribs 42 extend forwardly free of the actuator and overcap to join an interconnecting tab 46 disposed at the nose of the actuator and spaced slightly therefrom.

The tear strip is removed, to sever actuator 18 from the overcap 16 when the customer is ready to use the aerosol package, by pulling upwardly and rearwardly on tab 46 to rupture the thin bridging members 44, thereby freeing the actuator from the overcap.

A modified form of tear strip is shown in FIGS. 6 and 7 of the drawings. In this illustration, tear strip 140 again consists of a central rib 142 which is joined to the respectively adjacent actuator and overcap end wall portions 118, 122a, respectively, by very thin, imperforate finlike bridging members 144. These fin members 144 are ruptured in a manner similar to that described above for the previous embodiment when the tear tab is stripped from the assembly.

I claim:

1. A one-piece molded plastic overcap and valve actuator button assembly for a pressurized dispenser having a valved outlet for dispensing a fluid product therefrom,

said overcap comprising a cylindrical member having an open end and means thereat for attachment to a dispenser to enclose the valved outlet thereof;

said actuator button being formed in said overcap to constitute an integral part of at least a portion of an end wall therein spaced from the open end of said overcap; said actuator button being of roughly truncated arrowhead shape in plan and said discharge orifice being located in the truncated nose thereof, said actuator being separated from said overcap along its rear edge by a narrow slot and being joined along its opposite sides to said overcap by a tear strip, said tear strip comprising an elongated central rib portion bounded along each side by parallel weakened margins of the material of which said actuator and cap are formed and said tear strip having a projecting tab portion integral with said rib portion and extending outwardly therefrom at the truncated nose of said actuator to provide a finger grip;

said actuator having a hub extending inwardly of said overcap and having a socket formed therein for connection to the valved outlet of the dispenser; said actuator button also having an internal fluid passage connecting the interior of said socket with said discharge orifice.

25

30

35

40

45

50

55

60

65

70

75