

[54] MULTI-PRODUCT DISPENSER PACKAGE

3,443,726 5/1969 Muller et al. 222/80

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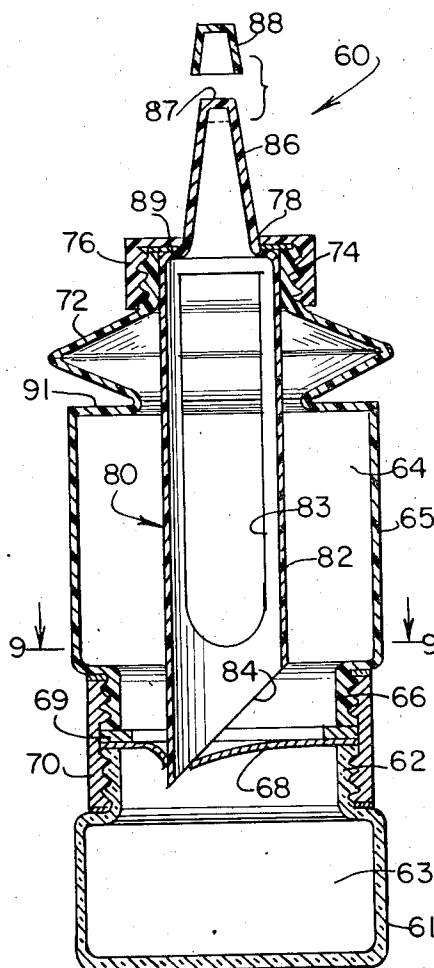
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[57] ABSTRACT

A multi-product dispenser package having two or more compartments separated by a partition or diaphragm wall, each compartment containing a different material or product and having means which when actuated will break, rupture or puncture the separating wall to permit the materials or products to comeingle so that the comeingled material or product may be dispensed from said container.

7 Claims, 9 Drawing Figures



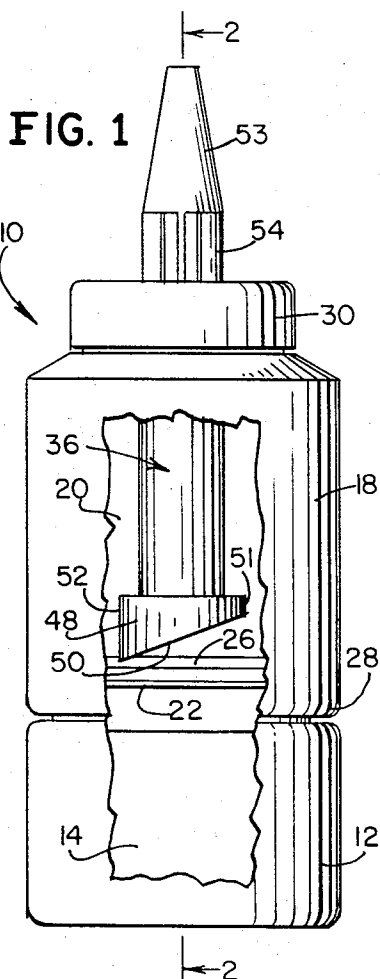
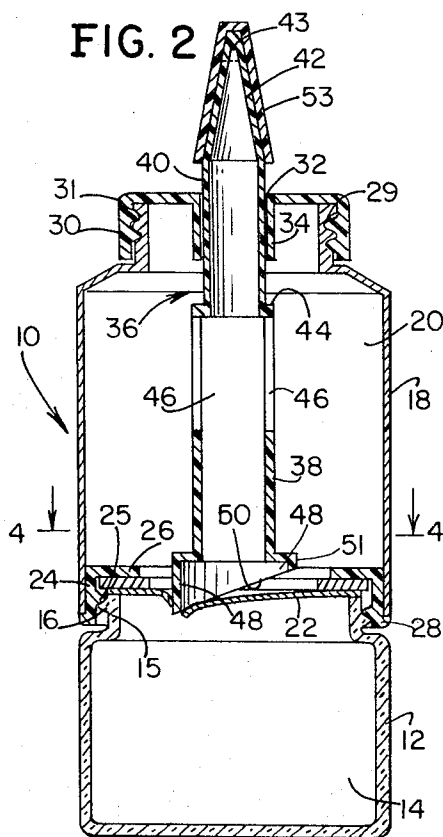
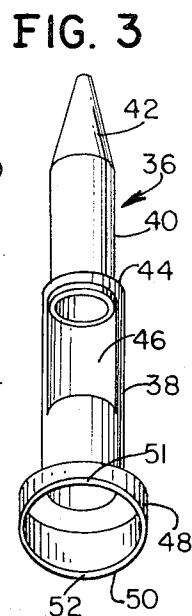


FIG. 5

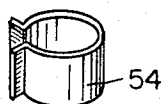
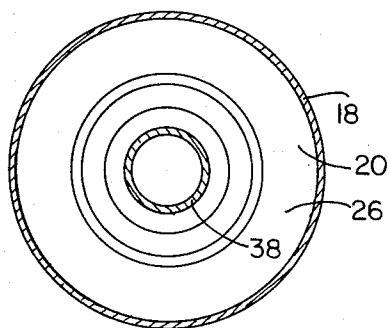
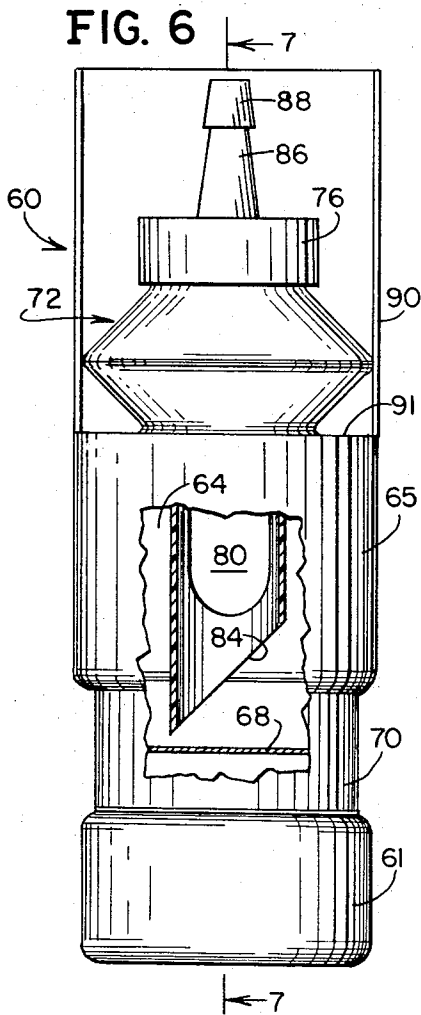
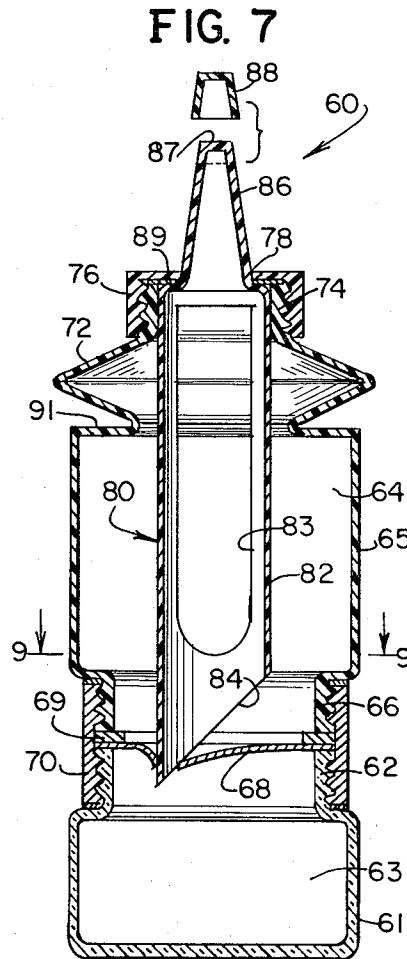
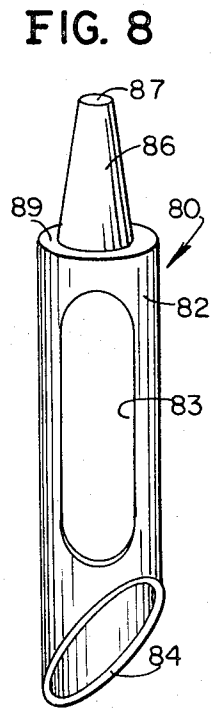
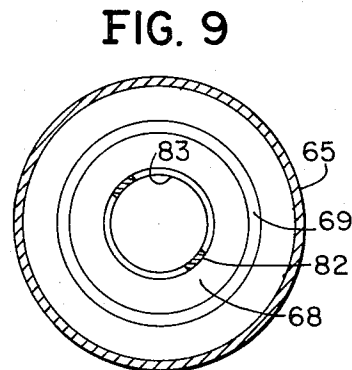


FIG. 4



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MULTI-PRODUCT DISPENSER PACKAGE

BRIEF SUMMARY OF THE INVENTION

One of the objects of this invention is to provide a container comprising a plurality of compartments with a partition or wall between said compartments, with each compartment containing a separate material so that the material is kept separated until it is ready to be used by the consumer, at which time the separating wall or walls may be ruptured or punctured to permit the separated materials to be comingled and to be dispensed in such comingled condition.

In handling a product such as hair coloring or the like, the materials are usually contained in two individual and separate containers, that is, one container will contain the hair coloring material and the other container will contain a peroxide, which the consumer mixes and then applies to the hair. The object of this invention is to provide a single unit comprising two or more compartments, containing in one compartment the coloring material and in the other compartment the peroxide, and which has means for puncturing or rupturing the partition between the compartments so that the peroxide and the coloring material becomes mixed inside of the containers and in this mixed condition can be dispensed through a single spout.

Another object of this invention is to provide in a single unit a multiplicity of compartments, each containing a different ingredient or composition which can be combined within the unit and be dispensed from the unit through a single nozzle.

Other objects will become apparent as this description progresses.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is an elevational view with a portion broken away showing one embodiment of this invention and showing the plunger in retracted position.

FIG. 2 is a central sectional view taken on line 2—2 of FIG. 1 but showing the plunger depressed or moved inwardly to rupture the partition between the compartments.

FIG. 3 is a perspective view of the plunger and cutting member.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 2.

FIG. 5 is a view of the clip which serves to lock the plunger against reciprocal movement.

FIG. 6 is an elevational view with a portion broken away showing another embodiment with the plunger in retracted position.

FIG. 7 is a central sectional view taken on line 7—7 of FIG. 6 but with the plunger depressed or moved inwardly to rupture the partition.

FIG. 8 is a perspective view of the plunger and cutting member shown in the second embodiment, and

FIG. 9 is a sectional view taken on line 9—9 of FIG. 7.

In FIGS. 1 through 5 there is shown a dispensing unit which is generally indicated by the numeral 10 and same includes a lower container indicated by the numeral 12 which may be made of glass or the like and which forms a lower compartment 14. The neck 15 of said container is externally threaded as at 16 and the neck has a reduced diameter in relation to the body of said container. Adapted to be secured to said bottom

container 12 is a tubular member generally indicated at 18, which serves to form a second or upper compartment 20, as will be described. A partition generally designated by the numeral 22 consists of a membrane which prior to puncturing serves to keep the material in the compartments 14 and 20 separated. Said partition 22 which is capable of being punctured is positioned over the top of the bottom container 12. An annular sleeve 24 which is internally threaded as at 25 and having a top flange 26 is adapted to be screwed to the neck 15 of the bottom container 12 and to hold therebetween the partition of membrane 22 to close the top of the bottom container 12. The tubular body 18, which may be made of plastic or like material, is positioned on the sleeve 24 and engages the annular shoulder or lip 28 of the sleeve.

Instead of having a sleeve separate from the tubular member 18, the lower end of the tubular member may be internally threaded and provided with an inwardly extending annular lip or shoulder above the threads so that it can be screwed to the threaded neck of the lower container. The tubular member 18 has a reduced externally threaded neck 29.

As can be seen in FIG. 2, the lower container 12 forms a compartment 14 which is separated from the upper compartment 20 in the upper container 18 and each of the containers or compartments, namely, the lower container and the upper container may be filled with an appropriate material. For example, if used for a hair coloring preparation the lower container may have the coloring material and the upper container may be filled with a peroxide.

A cap 30 which is internally threaded as at 31 is adapted to be secured to the threaded neck 29 of the upper container and said cap is provided with a central annular opening 32, with an annular depending sleeve 34 extending into the interior of the upper compartment.

A plunger generally designated by the numeral 36 is mounted for reciprocal movement in the cap 30. The plunger 36 has a lower tubular body 38, a reduced tubular portion 40 and a tapered tip or spout 42. A shoulder 44 is provided between the tubular body 38 and the tubular portion 40. The tubular body 38 of the plunger is provided with a plurality of spaced openings 46. Integrally formed with the plunger and at the bottom thereof is an annular cutter ring or member 48 of a greater diameter than the tubular body 38. The bottom edge of the cutter ring has a knife edge 50 and the bottom edge slopes or inclines downwardly from the narrowed portion 51 to the widest portion 52. It will be understood that the cutter may be of any other shape or construction as long as it is capable of puncturing the partition 22. The tapered tip 42 of the spout may be molded to form a closed end 43 which is snipped off when ready for use.

A truncated cone-shaped cap 53 may be positioned over the end of the spout and same may be held on the spout frictionally, or it may be internally threaded with respect to said spout. The cap 53 is used to close the spout opening after the tip 43 has been snipped off.

The plunger 36 is positioned so that the tubular portion 40 is slidably received in the sleeve 34 of the cap 30 and the plunger is manually operated by moving it inwardly. When the plunger is moved inwardly relative to the partition or separating membrane 22, the cutter member 48 will when in contact with the partition cut,

rupture or puncture the partition membrane, as shown in FIG. 2, to provide a communicating passageway between the lower compartment 14 and the upper compartment 20 so that the material contained in the two separate compartments will come together and comix. When the dispenser is inverted, such as when the material is to be applied to the hair, the mixed material will pass through the openings 46 in the plunger and through the single spout 42.

To prevent the plunger from being pushed inwardly while the unit is being shipped, a snap-on clip 54 is positioned around the tubular portion 40 of the plunger extending above the top of the cap 30 and the clip will engage the bottom of the cone-shaped cap. While said snap-on clip is thus secured to the plunger, the plunger will be prevented from being moved inwardly relative to the container. After the clip is manually removed the plunger may then be pushed downwardly into the container for the purpose described. The shoulder 44 limits the upward withdrawal of the plunger.

While the drawings illustrate two separate compartments with a single partition therebetween, it will be understood that an identically constructed unit may be formed with three or more compartments, with each of said compartments containing a different material and each of said compartments being separated by a partition similar to the partition previously described so that when the plunger is moved inwardly the cutter on the plunger will puncture the two or more partitions so that all of said compartments will be in communication with each other and the material will flow from one compartment into the other. Thus, the invention here is intended to cover a multiplicity of separate compartments and is not limited to two compartments.

The embodiment shown in FIGS. 6 through 9, generally designated at 60, will now be described. It is generally similar to that previously described, however, the unit forming the upper compartment has a bellows which when manually compressed will move the plunger inwardly to perform the cutting operation. In this embodiment the lower container 61 has an externally threaded neck 62 and same may be formed of glass or the like. It forms compartment 63. The upper compartment 64 is formed of a tubular member 65, formed preferably of the polyethylene material, with the bottom thereof open and having a reduced annular externally threaded portion 66 of the same diameter as the neck 62. A diaphragm or partition 68 is positioned between the two with a washer 69 therebetween. An internally threaded coupling sleeve 70 connects the bottom with the top container. The upper portion of the upper compartment has a bellowed portion 72 which terminates in an externally threaded neck 74. An internally threaded cap 76 is adapted to be secured to the neck 74 and the cap has a central opening 78.

The plunger generally indicated at 80 has a tubular body 82 with an inclined lower cutting edge 84, similar to that previously described. The plunger has openings 83 and a truncated cone-shaped tip 86 which forms the spout. The tip thereof is closed as at 87 to be snipped off, with a cap 88 to be positioned thereon to close the spout opening. The plunger is positioned inside the neck 74 and is held to the neck of the cap with the shoulder 89 of the plunger against the horizontal wall of the cap. The spout 86 of the plunger extends through the cap opening 78 and outwardly thereof.

Normally, during shipment and until used, the unit is as shown in FIG. 6, with the plunger in retracted position and the bellows 72 extended. By positioning a collar or tubular member 90 around the bellows to hug the bellows, the bellows will be prevented from being pressed inwardly during shipment. The tubular member 90 will rest on the shoulder 91 of the upper container 65 and should extend slightly above the cap 88. However, when the collar is removed therefrom the bellows may be compressed, as shown in FIG. 7, to cause the cutting edge 64 of the plunger to rupture the diaphragm 68 for the purpose previously described. Additional compartments may be provided as previously described.

What is claimed is:

1. A dispensing unit for dispensing non-pressurized materials comprising a container having an upper container with a body formed of a substantially rigid material with an opening in the bottom thereof and a separate lower container extending directly below the upper container, said lower container having a body formed of a substantially rigid material and having a top opening substantially that of the circumference of the lower container, a puncturable partition extending completely across the top opening of the lower container, said partition being planar and extending parallel with the bottom of the lower container and separating said upper and lower containers without reducing the volumetric capacity of each container so that each container separately contains a separate non-pressurized material, means for coupling said upper and lower containers adjacent the bottom of the upper container and the top of the lower container so that when coupled the bottom of the upper container is immediately adjacent the top of the lower container and they form an integral unit in which the circumference of the upper and lower containers are substantially the same circumference, an axially depressible member positioned within said upper container and manually depressible to engage and puncture the partition to permit the material within each container to be mixed while said separate containers are connected as a unit, said axially depressible member comprising a hollow tubular plunger having a discharge spout at the outer end in axial alinement with said tubular plunger and puncturing means at the opposite end for puncturing the partition, said tubular plunger having an opening at said opposite end adjacent said puncturing means so that when said tubular member is depressed the material in said lower container will pass into said plunger by gravity flow when the unit is inverted, said plunger having an opening communicating with the upper container through which the material passes and mixes with the material from the lower container before it is discharged by gravity flow through said axially alined discharge spout.

2. A structure as set forth in claim 1 in which the plunger has a cutting edge at the bottom thereof.

3. A structure as set forth in claim 1 in which the cutting edge is of an annular shape and has a bottom cutting edge which slopes downwardly to provide an inclined edge.

4. A structure as set forth in claim 1 in which means are provided for preventing movement of said plunger relative to said container during shipment thereof.

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5. A structure as set forth in claim 1 in which the upper container has bellows which when compressed will actuate the plunger to rupture the partition.

6. A structure as set forth in claim 1 in which the upper container has bellows which when compressed will cause said movable member to move inwardly and

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puncture the partition.

7. A structure as set forth in claim 6 in which means are provided around said bellows to prevent collapsing of said bellows during shipment.

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