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MULTICOMPARTMENT DISPENSING PACKAGE AND METHOD

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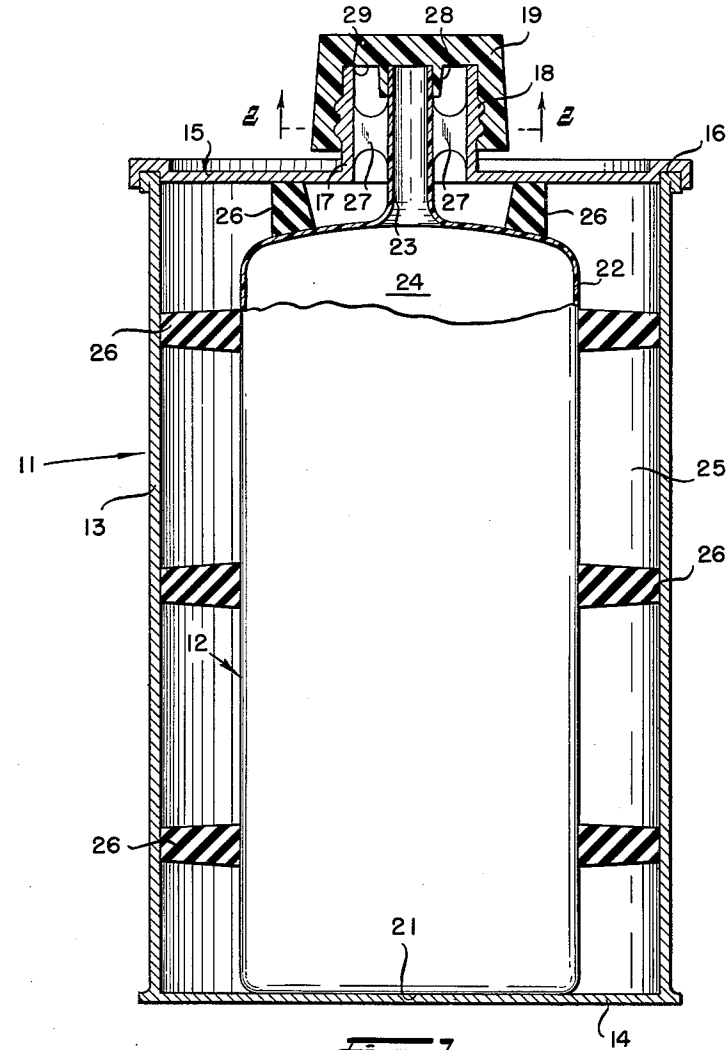


Fig. 1

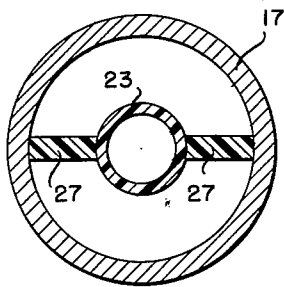


Fig. 2

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MULTICOMPARTMENT DISPENSING PACKAGE AND METHOD

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This invention relates to multicompartment dispensing packages and particularly to a novel assembly and method wherein an inner container is mounted in a special manner within an outer container, the containers providing isolated fluid compartments for simultaneous dispensing.

The invention in its preferred embodiment concerns a relatively standard outer container, fillable by conventional can filling arrangements, and a special subassembly of inner container and dispensing structure combined with the top of the outer container which may be separately filled, inserted into the outer container and attached thereto by a more or less conventional can forming arrangement.

The major object of this invention is to provide a novel manner of making a multicompartment dispensing package wherein the inner container is incorporated in subassembly with the top of the outer container and the two containers are separately filled before being attached in final assembly, the operation including the use of conventional single container filling apparatus as much as possible, particularly in the steps of filling the outer container and attaching the top structure thereto.

It is a further object of this invention to provide a multicompartment dispensing package made by a novel method to produce a finished filled product of novel construction.

Further objects of the invention will presently appear as the description proceeds in connection with the appended claims and the annexed drawings wherein:

FIGURE 1 is a section through a multicompartment dispensing package showing the special subassembly of the outer container top and the inner container; and

FIGURE 2 is a section on line 2-2 of FIGURE 1 showing the fluid discharge openings and the inner container spout connection to the neck.

In the illustrated embodiment the multicompartment dispensing package consists essentially of an outer container 11 and an inner container 12 combined in a special manner which enables optimum use of standard single container filling and handling equipment.

The outer container 11 comprises conventional can body structure of cylindrical, oval or rectangular cross-section having a continuous annular side wall 13, a closed bottom 14 and an open top. Wall 13 and bottom 14 may be of integral conventional sheet metal or plastic structure formed in the usual manner as by stamping or molding. This open topped body may be filled to desired level with a suitable liquid by conventional single container filling apparatus.

The open upper end of the outer container body is adapted to be closed by a sheet metal or plastic top member 15 which is clenched or heat sealed as at 16 about its outer periphery around the upper edge of wall 13.

Top 15 is annular with a central opening defined and surrounded by an upstanding neck 17 which is preferably cylindrical and formed externally with threads 18 for attachment of a cap 19.

The inner container 12 is advantageously a semi-rigid polyethylene integral bottle-like structure having a closed flat bottom 21 adapted to rest on the outer container bottom 14, an annular side wall 22 and a top opening

diameter than neck 17. Spout tube 23 may be a rigid polyethylene part integral or heat bonded to the inner container 12 and it constitutes the only filling and discharge opening for the inner container.

It will be observed that the inner container is smaller in cross section than the outer container, whereby isolated inner and outer liquid or other fluent material compartment spaces 24 and 25 are provided. On its outer surface inner container wall 22 may have rigid therewith a plurality of integral or otherwise fixed projections 26 adapted to extend through outer space 25 into supporting contact with the outer container wall. Projections 26 may be of rubber or like resilient material to buffer shocks to the inner container.

Spout tube 23 is rigidly secured to neck 17 as by the radial webs 27. These webs 27 may be of metal or plastic suitably fixed to both the neck and the spout tube with sufficient strength to support the weight of the inner container 12 and contents during filling if necessary.

As shown in FIGURE 2 spout tube 23 and the neck 17 provide for simultaneous discharge of the different liquids or powders from compartment spaces 24 and 25, in such relative proportions as may be determined by their relative cross-sectional areas. Webs 27 offer little resistance to flow, and may even induce some turbulence to aid immediate mixing of the discharged materials.

A special cap 19 closes both compartments at the same time, and is turnably mounted on threads 18. Internally cap 19 has a downwardly projecting hollow cylindrical boss 28 surrounded by a flat annular surface 29. When cap 19 is turned tight boss 28 telescopes snugly over spout 23, and face 29 bridges the annular space between spout 23 and neck 17, thus sealing off both compartments at the same time.

A very important aspect of the invention is the subcombination structure which is used in the novel filling sequence.

This involves the incorporation of the outer container top assembly with the inner container in such a manner that after the inner container has been filled the package assembly may be completed by the single operation of attaching the top member 15 over the open filled outer container merely by effecting the seal at 16.

In practice we assemble the inner container with its spout 23 rigidly attached within neck 17 which is rigid or integral with the outer container top 15. The inner container in this subassembly can be filled in special machinery in a special filling line, and then the subassembly including the filled inner container transported suitably into the conventional single container filling line where it is assembled with the outer container by insertion from above until top 15 rests on the upper edge of wall 13. Now the assembly proceeds to the next position where the crimping and sealing operation is effected at 16 just as for a single compartment container.

The invention is of such scope as to include the mounting of inner containers that are so flexible as to be plastic and distended by their contents. In any event the projections 26 locate and hold the filled inner container against shifting in the complete package.

The inner and outer containers may have any desired shape, usually comprising a figure of revolution about an axis centrally of spout tube 23. The spout 23 must be of sufficient length to maintain the tops of the containers sufficiently spaced so as not to interfere with flow of liquid from the outer space 25, and the open top of wall 13 must of course be large enough to accommodate insertion of the filled inner container.

The invention may be embodied in other specific forms without departing from the spirit or essential character

fore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by Letters Patent is:

1. A multicompartment dispensing package comprising an open top outer container having a closed bottom, a top structure having an aperture and extending over said open top, a smaller inner container wholly enclosed by said outer container and having an upstanding discharge spout projecting into said aperture, means comprising the sole support for said inner container attaching said spout to said top structure at said aperture, said support being apertured for providing with said spout adjacent individual fluid discharge openings of predetermined relative size for the respective containers, means comprising a fluid tight peripheral seal joint securing said top structure non-removably to said outer container, and a cap removably secured on said top structure extending over and separately closing both said discharge openings.

2. In the package defined in claim 1, said outer container having a rigid wall structure and said inner container having a non-rigid wall structure, and supporting spacer means extending between the inner and outer container walls in the fluid space within said outer container for supporting the filled inner container against undesired distortion and shifting within the outer container.

3. A multicompartment dispensing package comprising an outer container having a closed bottom and an open top, a top structure for said outer container having a reduced diameter hollow neck, means providing a fluid tight peripheral seal joint attaching said top structure to said outer container, an inner container wholly enclosed by said outer container and being sufficiently smaller to provide a fluid compartment space in the outer container isolated from the compartment space within the inner container, a rigid spout tube on said inner container projecting into said neck and being rigidly secured thereto by radially extending support means fixed directly to both said support tube and said neck and apertured to permit discharge therethrough of fluid contents of the outer container, said spout being sufficiently smaller than said neck to provide for said fluid discharge from the outer compartment space, said outer container top structure and said inner container spout being secured together in rigid subassembly prior to filling of said inner container and attachment of said

top structure over the open end of said outer container, and a removable cap on said neck separately closing both said spout and said neck.

4. A dual compartment fluid dispensing package comprising an outer container having a closed bottom and an upwardly open tubular side wall, a top structure for said outer container adapted to extend across said open end and having peripheral means for rigidly securing it non-removably with a fluid tight seal to said side wall, a reduced diameter hollow upstanding neck on said top structure, a smaller inner container adapted to be enclosed by the fluid contents of said outer container and having a spout smaller than said neck projecting within said neck, radially extending inner container support means directly rigidly secured between said spout and neck, said support means being apertured to provide for discharge of the fluid contents of said outer container through said neck in predetermined proportion to the concurrent discharge of the fluid contents of the inner container through said spout, and a closure member removably secured on said neck having internal surfaces separately closing said spout and said neck.

5. In the dual compartment fluid dispensing package defined in claim 4, said support means being radial webs fixed at their inner and outer ends to said spout and neck respectively.

6. In the dual compartment fluid dispensing package defined in claim 4, said inner container having an upper wall surrounding said spout longitudinally inwardly of said top structure, and longitudinally extending spacer means extending between said upper wall and said top structure to insure a fluid flow path to said neck.

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