

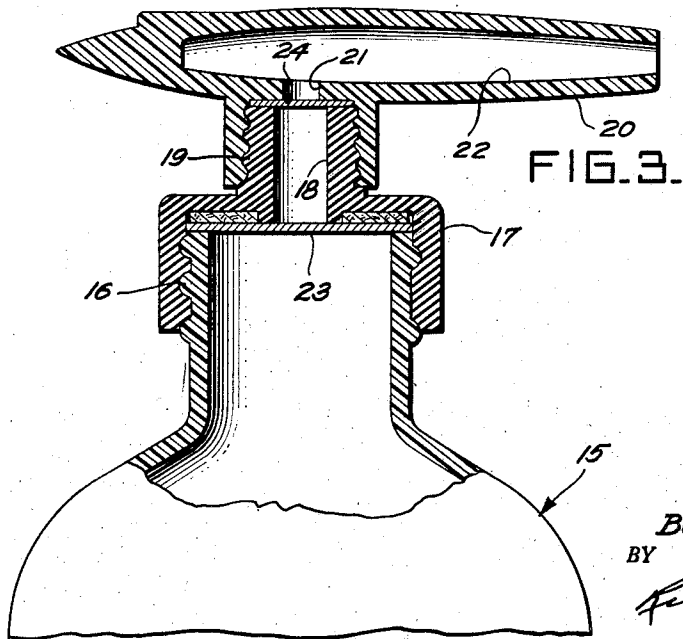
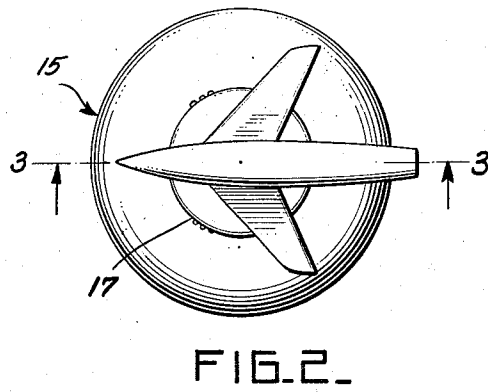
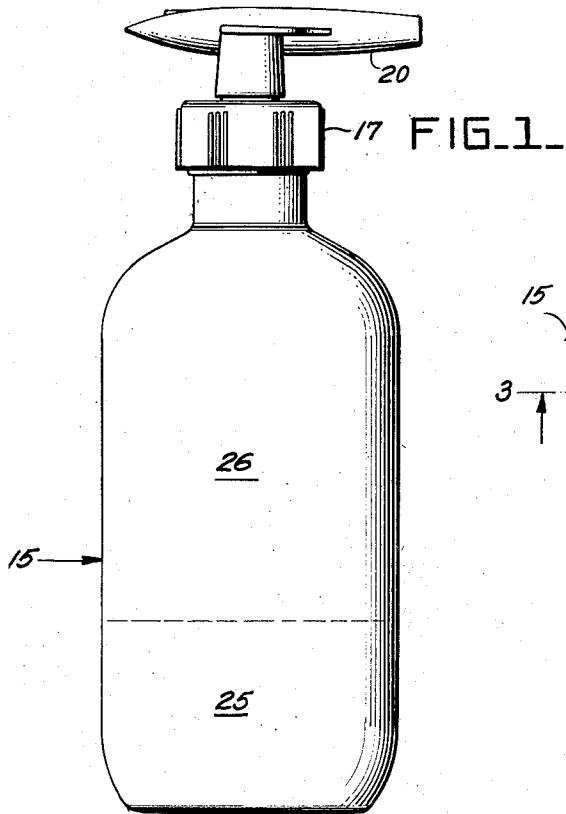
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FOAM-DISPENSING PACKAGE

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FOAM-DISPENSING PACKAGE

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1 Claim. (Cl. 299—90)

My invention relates to a foam-dispensing package adaptable for use as a substitute for bar soap, tube dental creams, aerosol products including foods, and the like.

In the past there has been considerable activity in the development of holding and dispensing packages which would eliminate the messy and wasteful conditions resulting from present techniques for handling certain fluidized products. It is believed that investigations have shown the waste of soap, for example, to be quite substantial in certain institutions, and attempts have been made to restrict this loss through the use of various mechanical devices.

My invention provides a new and unique package which is believed to meet these problems in an efficient and inexpensive manner. My invention involves a package made up of a container having a liquid-containing zone or chamber and a foam-containing zone or chamber. The liquid-containing zone contains a formulation of ingredients capable of producing a rich foam upon agitation, the container being equipped with a dispensing or discharge means for conducting the foam out of the container to the place of use. A means is provided for reducing the volume capacity of the container to cause dispensing of the foam. Mounted in the path of travel of the foam is a means which consolidates and condenses the foam to a rich consistency which retains its heavy rich foam characteristics for a substantial period of time. This foam, as produced by my invention, is not watery and will not run.

Various means may be employed to agitate the foaming solution and cause its passage from the container out through the dispensing means.

It will be apparent that my invention may be employed with suitable modifications for the production of packages of shampoos, dental creams, soaps of all kinds, food products and many other similar uses.

Other important objects and advantageous features of my invention will be apparent from the following description and accompanying drawings wherein for purposes of illustration herein a specific embodiment of this invention is set forth in detail and wherein:

Fig. 1 is a front elevational view of my invention;

Fig. 2 is a top view of Fig. 1; and

Fig. 3 is a fragmentary front elevational view partly in section showing my invention and taken on line 3—3 of Fig. 2.

Referring now to Figs. 1, 2 and 3, it will be seen that the foam-dispensing package of my invention includes a container 15 having a threaded outlet 16 to which is threadedly attached a master cap 17. The master cap 17 has a discharge conduit 18 which is externally threaded at 19 to receive the delivery nozzle 20 which preferably has the configuration of a jet aeroplane with an internal foam discharge passage 21 in fluid communication with the discharge conduit 18 of the master cap 17 and an external discharge passage 22 extending along the body of the jet plane so that the foam is discharged as a simulated jet exhaust from the rear of the plane.

A removable sealing disc 23 is disposed between the master cap 17 and the container outlet 16 to prevent leak-

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age during shipment and storage, this disc 23 being punctured or removed by the user. Other techniques may be employed to prevent leakage during shipment and storage, such as various plastic sealing methods in well known use today.

To produce a rich heavy foam, the package of my invention includes a condensing means 24 positioned and mounted in the path the foam travels when being dispensed. The foam condensing means 24 for providing a uniformly condensed foam may be constructed from a variety of materials and in a variety of shapes and thicknesses.

The container 15 of the specific embodiment shown by way of example is partially filled with a liquid capable of producing foam. The container 15 includes a liquid-containing zone or chamber 25 and a foam-containing zone or chamber 26. To cause dispensing of foam from the foam-containing zone 26, means are provided for reducing the volume capacity of the foam-containing zone; in the specific embodiment shown, the container 15 is made of a flexible material which may be squeezed to discharge the foam.

As shown in Fig. 3, the condensing means is a filter disc 24 of rayon paper mounted between the master cap 17 and the delivery nozzle 20. Placement of the filter at this position has been found most advantageous with the disclosed design since complete assembly of the master cap and the delivery nozzle can be made by the manufacture. It is possible, of course, to place the filter disc 24 between the container outlet 16 and master cap 17.

The master cap 17 and the delivery nozzle 20 have been shown in the preferred embodiment as comprising two separate elements, and it will be readily understood that with a different placement or design of the filter means 24, the master cap and discharge nozzle may be a single unit.

The rayon paper filter disc 24 which has proved highly satisfactory for condensing soap foam is manufactured and sold under the trade name "R-25-S" fabric; the closeness of the mesh of this fabric is such that pores are provided in the order of magnitude of substantially 100,000 pores per square inch. The pore size varies from one hundredth of an inch in diameter downward with the average diameter being in the range from two to five thousandths of an inch.

Other satisfactory filter materials are fabric discs made from the new synthetics (Orlon, Dacron, etc.), silk, spun glass, and the like. In substance, any material known to art which condenses the foam may be suitably adapted for specific uses.

The package of my invention includes a solution comprising a formulation of ingredients capable of producing a large amount of foam upon agitation. As shown in Fig. 1, the package as sold to the consumer is not completely filled. A suitable soap solution which is part of the package and which fills about 1/3 of the container 15 has the following formulation:

	Percent
Cocoonut oil -----	10.
Potassium hydroxide, 85% -----	5.
Sodium hydroxide, 85% -----	.6
Glycerine -----	12.65
Oleic acid -----	14.
Glycerol 40% -----	10.
Lauryl sulphate -----	.08
Stearic acid triple press -----	11.02
Water, q. s. (remainder).	

The container disclosed in the specific embodiment of the drawings is made of deformable or compressible material, preferably plastic. The master cap and the dispenser cap are preferably made of plastic.

In use the container can be held in an upright position

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in one hand and shaken slightly to fill the remaining two-thirds of the bottle with foam. Continuing to hold the container in an upright position and compressing the walls of the container will cause a very concentrated ribbon of rich foam to flow from the jet exhaust of the plane dispenser cap, the filter condensing means causing a reduction in the size of air bubbles in the foam and a consolidation or compression of the foam. Since the soap solution is highly concentrated, only a very small amount is required on the hands for satisfactory cleaning. The foam produced in the bottle will last for hours, thereby eliminating the requirement of shaking the bottle before each use. It will be appreciated that the specific design of the jet exhaust which forms the final discharge nozzle aids in preventing drops of any excess foam upon the bottle. The bottle is therefore maintained in a clean condition. The package is designed to enable the reuse of the foam concentrating and discharge means simply by attaching this structure to a new bottle of the soap concentrate.

The basic dispenser bottle can be reused by refilling from a larger storage container. When necessary the condensing filter means can be easily replaced. It is believed my invention is obviously considerably more economical than the aerosol bomb type containers since the basic unit can be reused indefinitely.

In view of the foregoing, various modifications of my

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invention described herein will be apparent to those skilled in the art without departing from the spirit and scope thereof.

I claim:

- 5 A foam-dispensing package comprising a flexible deformable container, a liquid solution in said container comprising a formulation of ingredients capable of producing foam upon slight agitation of the liquid solution, said liquid solution filling a portion only of said container thereby enabling the production of foam within
- 10 the container, which foam fills the remaining space within the container, dispensing means mounted on said container for conducting foam out of said container after formation thereof when the container volume is reduced
- 15 by deformation of the container, and filter means mounted in said dispensing means in the path of the dispensed foam for condensing and consolidating the foam, said filter means comprising a fabric having pores in the order of magnitude of substantially 100,000 pores per square
- 20 inch, the pores having an average diameter in the range from two to five thousandths of an inch.

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