

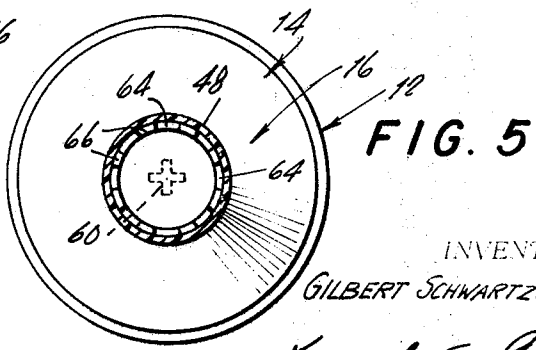
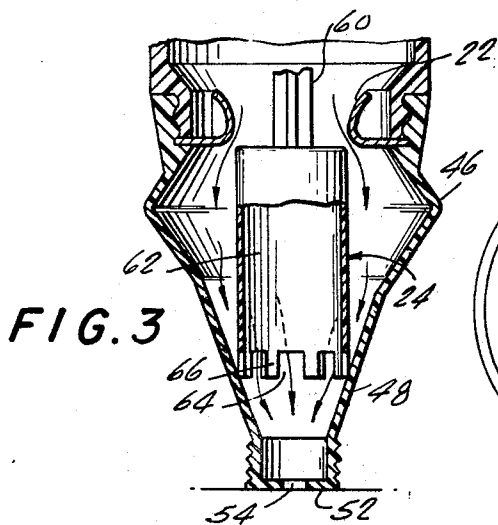
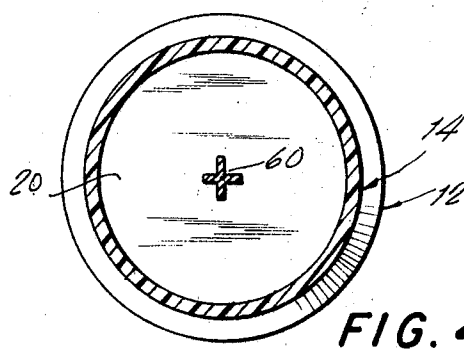
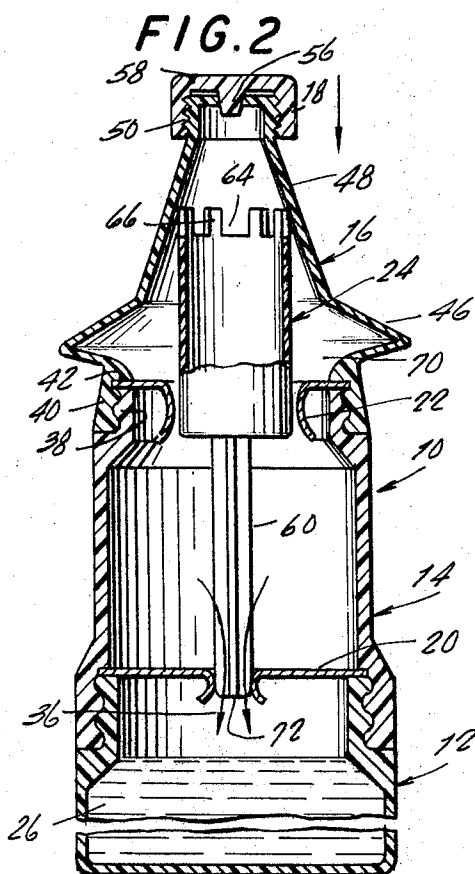
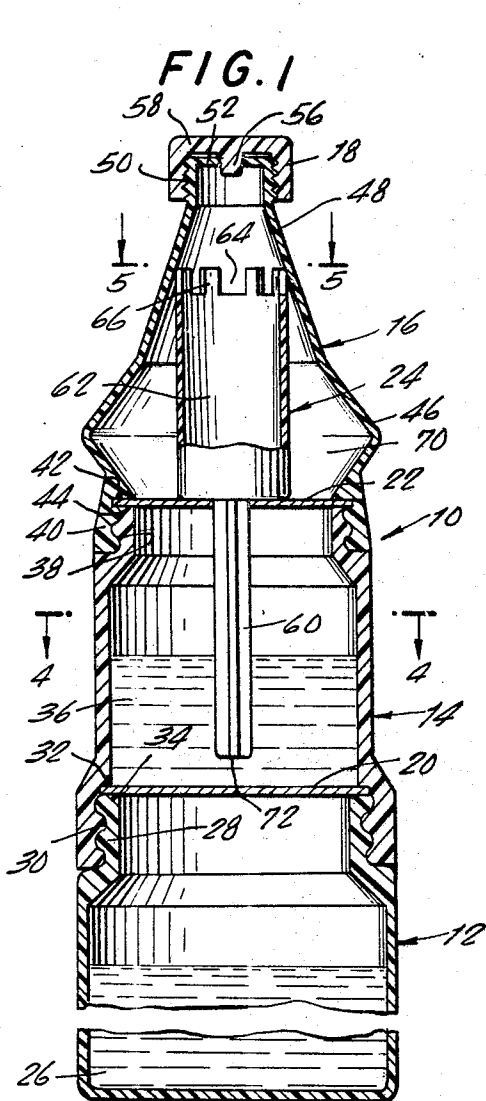
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MIXING PACKAGE

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MIXING PACKAGE

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4 Claims

ABSTRACT OF THE DISCLOSURE

A mixing package for separately storing and thereafter mixing two or three materials comprising a container, an adapter, and a cover, all threadedly secured to each other. Sealing membranes are disposed to form three separate storage compartments and are ruptured when desired by a depression of the cover means which is provided with a bellows and which engages a seal-breaking member. The seal-breaking member is notched to permit flow of fluid out of the package.

This invention relates to a mixing package and has for its primary object the provision of a single package for facilitating the separate shelf storage of two other substances adapted to be thereafter mixed without having to remove the substances from the package, and further facilitates the dispensing of the mixture.

The present invention is especially adapted for use with two or three materials or substances which have an extended shelf life when not mixed, but which must be utilized relatively soon after mixture to prevent deterioration. Further the invention contemplates an initial mixing of two substances and then a further combination of the two mixed substances with a third substance. Various cosmetics, medications, hair dyes, pigments, epoxy adhesives, polishes, cleansing solutions and the like have the foregoing characteristics. For example, conventional hair dyes employ a base material such as a peroxide solution or the like, with which one or more pigmented materials or solutions are mixed for immediate application on the hair. The color is determined by the make-up of the pigmented solutions. If the pigmented materials are mixed with the base and allowed to stand, the mixture may rapidly deteriorate and thus become unusable. It is often very messy to mix these solutions together using separate containers, and the present invention overcomes these difficulties by providing a unitary storage and mixing facility, but also has the additional advantage of providing for convenient dispensing and application of the mixed fluid.

One of the important objects of the invention resides in the provision of a bellows carrying a conical portion engageable with seal-breaking means for either simultaneously rupturing or successively rupturing a pair of membranes.

Further objects of the invention reside in a pair of spaced sealing means adapted to be opened to permit mixture of two or three substances. The sealing means may be in the form of a frangible membrane.

Another object of the invention resides in the provision of a package that permits the separate shelf storage of two or three substances of an unstable mixture and which facilitates the mixture of the two or three substances and further facilitates the dispensing of the mixture immediately after mixing, all without removing the substances from the simple assembly comprising the present invention or requiring any exterior handling thereof.

Still further objects and features of this invention reside in the provision of a mixing package which is simple and inexpensive to manufacture, easy to use, capable of metering fluid, such as hair coloring dyes and the like, of

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various viscosities in an effective manner, and which is especially adapted for use in connection with cosmetics, medications, hair dyes and tints, polishes, and the like.

These, together with the various ancillary objects and features of the invention, which will become apparent as the following description proceeds, are attained by this mixing package, preferred embodiments of which have been illustrated in the accompanying drawing, by way of example only, wherein:

FIG. 1 is a vertical sectional view of a mixing package constructed in accordance with the concepts of this invention;

FIG. 2 is a vertical sectional view similar to FIG. 1, but showing the mixing package after actuation of the seal-breaking means;

FIG. 3 is a partial sectional detail view illustrating how the mixing package is used to dispense and apply the mixed solutions;

FIG. 4 is a horizontal sectional view taken along the plane of line 4—4 in FIG. 1; and

FIG. 5 is a horizontal sectional view taken along the plane of line 5—5 in FIG. 1.

With continuing reference to the accompanying drawing wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates the mixing package comprising the present invention.

The mixing package 10 is formed preferably of a synthetic plastic material in three sections, a container 12, an adapter 14, and a cover 16 which is provided with a detachable cap 18. Disposed between the adapter and the container 12 is a seal means in the form of a membrane 20 and sealing means in the form of a membrane 22 is disposed between the cover 16 and the adapter 14. A seal-breaking member generally indicated at 24 is arranged for either substantially simultaneously or successively breaking the membranes 20 and 22.

The container 12 is adapted to receive a first substance 26 therein in the form of a powder, liquid, or other material, and has an externally threaded neck 28. The adapter 14 has a lower internally threaded portion 30 which is adapted to be threadedly engaged with the container 12 and has a shoulder 32 for holding the peripheral edge of the membrane 30 on the top edge 34 of the neck 28 in a threaded clamp-like manner. The membrane 20 is formed of a thin frangible and rupturable material of any type impervious to the material 26 and to the material 36 disposed in the adapter 14.

The adapter 14 has a threaded neck portion 38 of reduced cross sectional dimension and the cover means has an internally threaded lower end 40 provided with a shoulder 42 for engaging and threadedly clampingly holding the membrane 22 between the shoulder 42 and the upper edge 44 of the neck 38. The membrane 22 may be separately formed or integrally formed with the seal-breaking means 24 and the seal-breaking means 24 extends therethrough.

The cover 16 has a lower bellows portion 46 and an upper truncated conical portion 48 terminating in an externally threaded upper end 50 provided with a flat top 52 having an opening 54 therein for permitting flow of fluid or powdered material and which is sealed by the plug 56 depending from the top 58 of the internally threaded cap 18.

The seal-breaking means 24 includes a lower rod-like member 60 which is of a cruciform shape and extends through the diaphragm 22. An upper cylindrical portion 62 is integrally formed with the rod 60 and is hollow and is formed with notches 64 at the upper end 66 thereof so that fluid may flow through the notches 64. The bellows is such as to cause the conical section 48 to lightly

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bear against the upper edge of the cylindrical portion 62.

A further substance may be disposed in the space 70 above the membrane 22. It is to be noted that the cylindrical portion 62 rests directly on the membrane 22 while the lower edge 72 of the rod 60 is spaced from the membrane 20.

In use, the container 12, the adapter 14, and if desired the cover 16, are successively filled and the mixing package left in the position as shown in FIG. 1. When it is desired to mix the contents, it is merely necessary to press down on the cover. This will cause the bellows 46 to contract through engagement of the conical portion 48 with the upper edge 66 of the seal-breaking means 24 causing the seal-breaking member 24 to rupture the membranes 22 and 20. Because of the spaced relationship of the lower edge 72 of the plunger 60 and the membrane 20, the membrane 22 will be first broken without necessarily breaking the membrane 20 to permit the initial mixing of any material in the space 70 with the material 47. Then, a further actuation of the seal-breaking means 24 will cause the plunger to rupture the membrane 20. Alternatively, if no material is disposed in the space 70 or it is decided to mix all three materials simultaneously, a full depression of the cover will cause rupturing of both the membranes 20 and 22. After the membranes have been ruptured, and the material mixed by selective shaking of the package, the cap 18 can be removed, allowing the mixed contents to pass through the notches 64 and out of the opening 54. The flat surface 52 may serve as an applicator head.

A latitude of modification, change and substitution is intended in the foregoing disclosure, and in some instances some features of the invention will be employed without a corresponding use of other features.

I claim:

1. A mixing package comprising a container for a first material, frangible seal means for initially closing said

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container, an adapter secured to said first container and disposed above said seal means, breakable sealing means for initially closing said adapter, resilient flexible cover means secured to said adapter, and a plunger disposed on said sealing means and including seal breaking means extending below said sealing means to a location spaced above said seal means, said plunger extending above said sealing means for engagement with said cover means so that upon depression of said cover means said seal breaking means and said plunger will break both said seal means and said sealing means, including an upper cylindrical portion having an upper end provided with spaced notches therein, said cover means including an upper conical shaped portion and a lower resilient bellows portion, said upper end engaging said upper conical shaped portion.

2. A mixing package according to claim 1, wherein said sealing means and said seal means are membranes.

3. A mixing package according to claim 2, wherein said adapter is threadedly detachably secured to said container and to said cover means.

4. A mixing package according to claim 3, wherein said cover means includes cap means threadedly detachably secured to said upper conical shaped portion.

References Cited

UNITED STATES PATENTS

2,073,273	3/1937	Wetstein	206—47
2,653,610	9/1953	Smith	206—47
2,659,370	11/1953	Smith	206—47
3,344,914	10/1967	Bloom et al.	206—47
3,347,410	10/1967	Schwartzman	206—47

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