

[54] MIXING CONTAINERS
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 & Demeur

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 [51] Int. Cl..... B67b 7/24
 [58] Field of Search 222/83, 83.5, 85, 86, 91,
 222/94; 128/218 M, DIG. 28; 259/60;
 141/319, 320; 215/41, 43, 43 A

[57] ABSTRACT

The invention relates to a combination in which two containers include a first and a second product respectively, and a coupler which functions both to affix the two containers together and to unseal one or both containers to permit the products to be mixed and then dispensed therefrom.

[56] References Cited
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10 Claims, 9 Drawing Figures

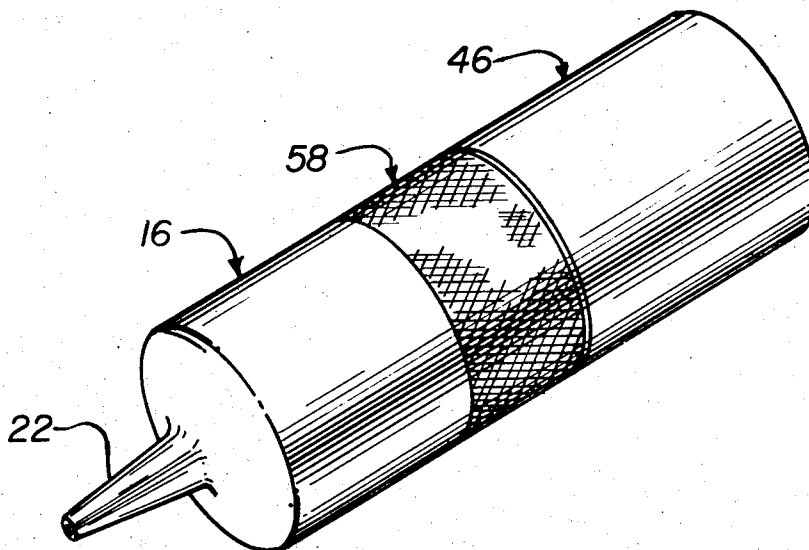


FIG. 1

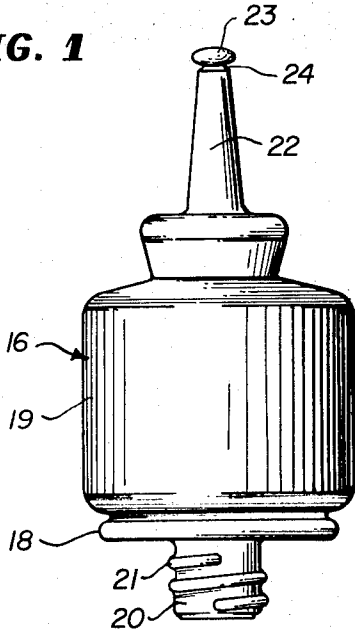


FIG. 4

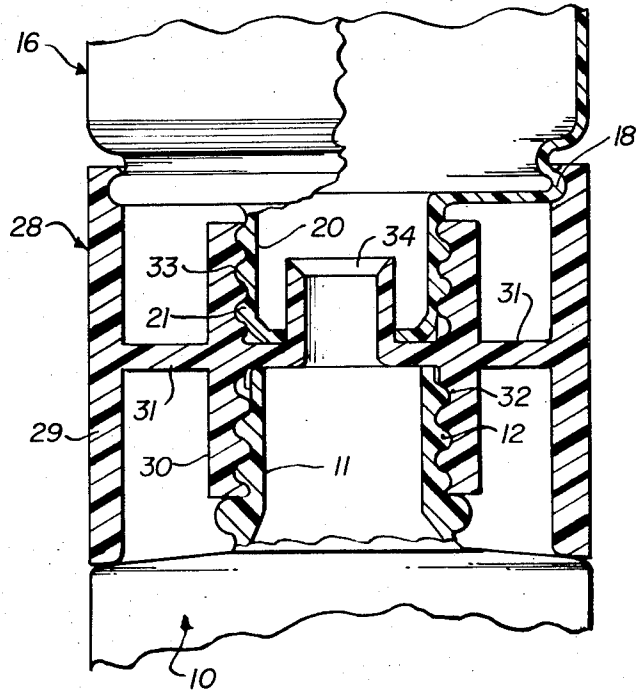


FIG. 2

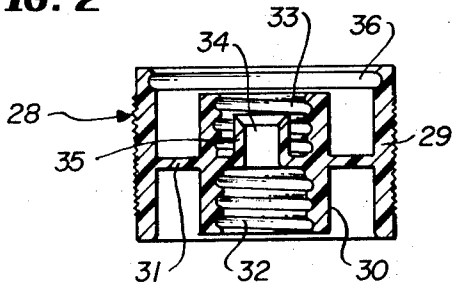


FIG. 5

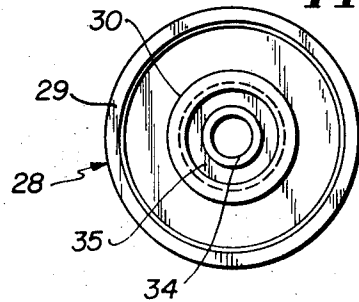


FIG. 3

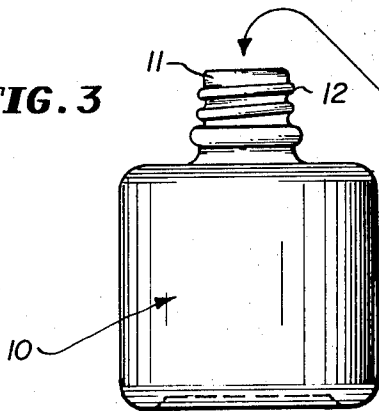


FIG. 6



FIG. 7

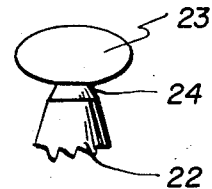


FIG. 8

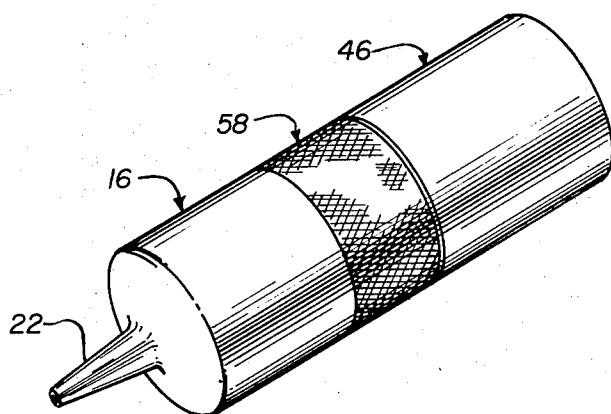
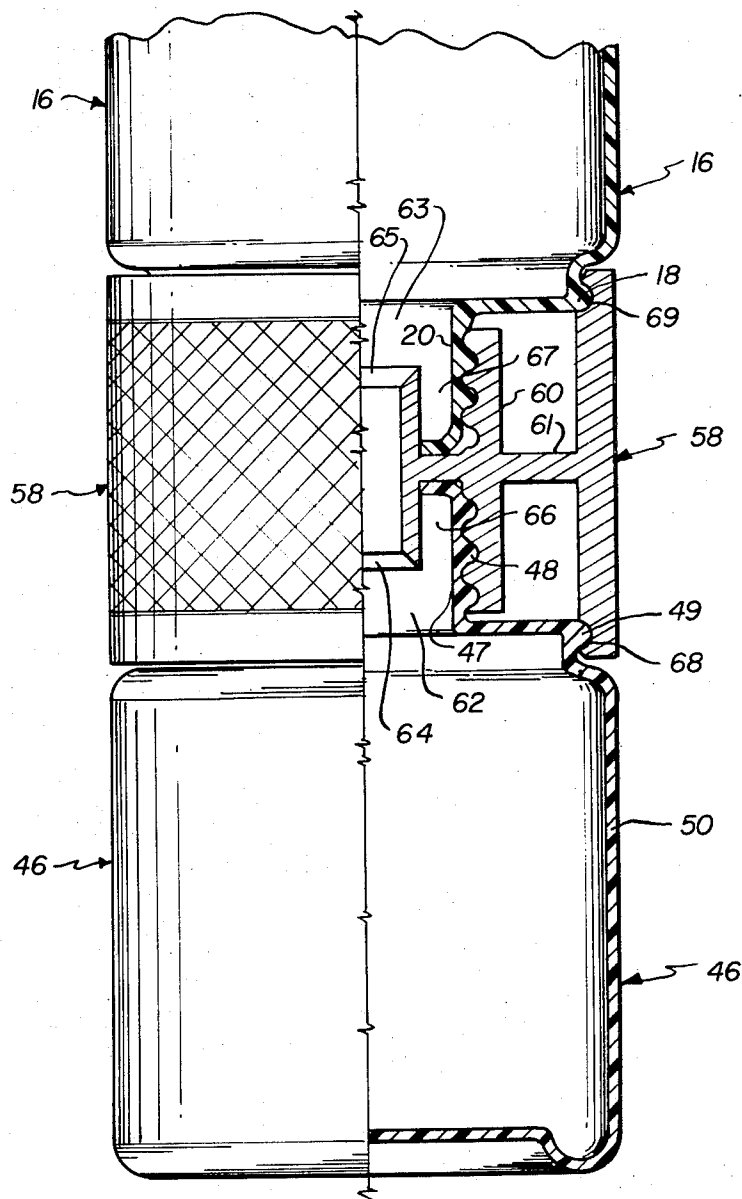


FIG. 9

MIXING CONTAINERS

The present invention relates to mixing and dispensing containers which have two or more containers held together in use, but which comprise separate containers, each of which contains a product which is not desired to be exposed to the other product until shortly before it is desired to use the product which results from mixing the contents of the two containers.

In accordance with a first embodiment, one of the containers can be a standard container of glass or other similar material having therein a first product, the same being sealed by a removable end cap. The other of the two containers is a hermetically sealed plastic container and advantageously can be of the type which is formed, filled and sealed in one continuous operation. This second container is filled with a second product, and has a threaded neck portion on its one end. A coupler is provided and is adapted to be affixed to both containers to affix them together and to provide an opening into the second container to thereby permit the two products to be mixed together.

When it is desired to mix the contents of the two containers, the cap is removed from the container containing the first product and the coupler is affixed thereto. Next, the neck portion on the plastic container is threaded into the coupler, and in doing so, a portion of the neck portion is severed, thereby opening the plastic container and permitting the product therein to flow into and become mixed with the product in the other container. After mixing the contents, the resulting product can be dispensed by severing the tip of the spout provided on the plastic container.

In accordance with a second embodiment, both containers are of a hermetically sealed plastic type, and the coupler is formed to both affix the two containers together and to sever both the seals closing the neck portions thereof, to permit the contents to be mixed.

It is very common today in the cosmetic field, and in particularly in the field of women's hair care, to apply various bleaching or dyeing preparations to the hair. These preparations are in great demand because of their relative safety and reliability, and because aesthetically pleasing results can be obtained with them at a fairly low cost.

However, although these preparations are reliable in use, they are made from ingredients which react with each other and are relatively unstable from a chemical standpoint. Typical ingredients of these bleaches or colorants or other preparations are various peroxides, permanganates and other strong oxidizers, as well as other acids and bases which attack materials from which many containers are commonly made.

When these products are mixed with each other a certain amount of neutralization takes place whereby the product is physically safe and relatively harmless. However, storage of the components has presented considerable problems, and in the case of certain preparations which are widely accepted, it is absolutely necessary to keep the two components separated from each other until just before the time of use. Thus, although convenient in many ways compared to older styles of hair treatment operations, very serious drawbacks to safe and efficient operation, and to convenience for home applications are presented in today's packages by reason of the fact that the user or operator must mix these chemically strong ingredients by pour-

ing or squeezing the contents of one container into another, and then sealing the container and agitating it before dispensing the mixed contents therefrom.

In view of the shortcomings of the prior art, and in view of the large number of such preparations which are sold today, there is a great demand for an improved package for hair coloring or bleaching preparations, or the like, in which two components, which are desired to be mixed later, but which must first be kept separate from each other, may be contained, and in which the container may be safely shipped and attractively merchandised. There is also a demand for such an arrangement which is capable of being simply manipulated to establish a communicating passage between two separate, product-containing containers.

Accordingly, it is an object of the present invention to provide a pair of containers each of which includes a separate product to be mixed together before use, and a coupler for affixing the two containers together, in a fashion such as to permit the two products to be mixed with one another.

Another object is to provide an arrangement as described above wherein one of the containers can be of a standard type of glass or other similar material and the other container can be of plastic, thereby permitting a selection of appropriate containers which are resistant to attack by the product to be contained therein.

Still another object is to provide such an arrangement wherein one of the containers is adapted to be easily opened after the two products have been mixed, to permit the mixed product to be dispensed.

A still further object is to provide such an arrangement wherein the two containers can be easily and quickly affixed together to mix the products therein, and to open at least one of the containers to permit the mixed product to be dispensed.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a side plan view of a plastic container exemplary of the construction and type which can be used in the combination;

FIG. 2 is a sectional view of the coupler used in the combination to affix the two containers together;

FIG. 3 is a side plan view of another container exemplary of the type which can be used in the combination;

FIG. 4 is a partial sectional view generally illustrating the manner in which the coupler affixes the two containers together, and further severs an opening into the one container;

FIG. 5 is a top plan view of the coupler of FIG. 3;

FIGS. 6 and 7 are a top plan view and a partial side plan view of the twist-off closure on the end of the container of FIG. 1;

FIG. 8 is a side plan view, partially sectionalized, of two containers and a coupler constructed in accor-

dance with a second embodiment of the invention; and

FIG. 9 is a perspective view of the assembled combination.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, in FIG. 3 there is shown a container 10 having a neck portion 11 with threads 12 thereon. This container 10 can be of plastic or other suitable material such as glass, which will resist attack by the product container therein. The container 10 is adapted to be closed by a threaded cap 14, or in the manner described more fully below.

In FIG. 1, a second container 16 is shown, and this container 16 is of plastic and is advantageously of the type which is formed, filled and hermetically sealed all in one continuous operation, generally in the fashion disclosed in U.S. Pat. No. 3,597,793, to Automatic Liquid Packaging, Inc. The container 16 has a body portion 19 which is closed at its one end by a neck portion 20 having threads 21 thereon. Between the neck portion 20 and the body portion 19 of the container, there is provided an annular bead-shaped rim 18, the purpose of which is described more fully below. A spout 22 is provided on the opposite end of the body portion 19 of the container 16, and the spout is closed by means of a twist off closure 23. A weakened annular groove 24, couples the spout 22 and the closure 23, to permit the latter to be more easily severed from the container 16. This container 16 contains a second product which is ultimately intended to be mixed with the product in the container 10.

In FIG. 2 there is shown a coupler 28 which is provided for affixing the two containers 10 and 16 together, and to permit the contents thereof to be mixed with one another. This coupler 28 has a cylindrical-shaped side wall 29 and an inner cap portion 30 which is supported therein by means of a connecting flange 31. The inner cap portion 30 is of a hollow cylindrical construction, and has threaded cavities 32 and 33 therein which are adapted to threadedly receive therein the neck portion 11 of the container 10 and the neck portion 20 of the container 16 respectively. An annular shaped cutting edge 34 extends upwardly into the threaded cavity 33, and is spaced from the interior walls thereof so as to provide a sealing cavity 35. The cylindrical side wall 29 also has an annular groove 36 formed on its interior, which groove 36 is adapted to snap-actively receive therein the annular rim 18 on the container 16, to affix the coupler 28 to the container 16 when the neck portion 20 thereof is threaded into the threaded cavity 33.

In affixing the containers 10 and 16 together to mix the products contained in the two containers, the cap 14 first is threadedly removed from the container 10. The coupler 28 then is threadedly affixed to the container 10, by threading the neck portion 11 thereof into the threaded cavity 32. The coupler 28 is threaded down onto the container, until the edge of the cylindrical side wall 29 abuts against the top edge of the container, in the manner illustrated in FIG. 4.

Next, the neck portion 20 of the container 16 is threaded into the threaded cavity 33 of the coupler 28, until the annular rim 18 snap-actively engages within the annular groove 36 in the cylindrical side wall 29 of the coupler. In threading the neck portion into the coupler 28, the cutting edge 34 severs the sealed end por-

tion on the neck portion 20 (FIG. 4), thereby permitting the product within the container 16 to flow through the threaded cavities 32 and 33 into the container 10.

After mixing the two products by agitating the containers 10 and 16, the mixed product can be dispensed by twisting or bending or otherwise removing the closure 23, at the annular groove 24, on the spout 22. When the containers 10 and 16 are inverted, the mixed product will flow from the container 10 through the threaded cavities 32 and 33 into the container 16, and out through the spout 22.

In FIG. 8 there is shown another arrangement which can be used when both products are packaged within hermetically sealed plastic containers. The upper container (as illustrated) can be like the container 16 and for purposes of illustration, is in this case, shown to be the same. The lower container 46, in this case, is formed of plastic and has a neck portion 47 having threads 48 thereon. As in the case of the container 16, an annular rim 49 is formed thereon between the body portion 50 and the neck portion 47 of the container.

The coupler 58, in this embodiment of the invention, has a cylindrical side wall 59 and interiorly thereof there is provided an inner cap portion 60 which is supported therein by means of a flange 61. The inner cap portion 60 is of a hollow cylindrical construction and has threaded cavities 62 and 63 therein, formed to threadedly receive the neck portion 47 of the container 46 and the neck portion 20 of the container 16, respectively. Cutting edges 64 and 65 are formed in the threaded cavities 62 and 63, respectively, and are spaced from the side walls of the inner cap portion 60 so as to provide sealing cavities 66 and 67 therein. Annular grooves 68 and 69 are formed in the interior surface of the cylindrical side wall 59, for receiving the annular rim 49 and 18 on the containers 46 and 16, respectively.

In affixing the container 16 and 46 together to permit the products therein to be mixed, the coupler 58 is affixed to the container 46 by threadedly engaging its neck portion 47 into the threaded cavity 62. The coupler 58 is threaded down onto the container 46, until the annular rim 49 snap-actively engages within the annular groove 68. As the coupler 58 is threaded onto the container 46, the cutting edge 64 severs or cuts an opening into the sealed neck portion 47, thereby opening the container 46. The annular rim 49 being disposed within the annular groove 68 in the coupler 58 provides a seal and also prevents the coupler 58 from being inadvertently unscrewed from the container.

The neck portion 20 of the container 16 next is threaded into the threaded cavity 63 of the coupler 58, to affix the container 16 to the container 46. In this case also, the container 16 is threaded into the coupler 58, until the annular rim 18 snap-fittingly engages within the annular groove 69 in the cylindrical side wall 59 of the coupler 58. The cutting edge 65 severs or cuts an opening into the neck portion 20 of the container 16, thereby opening the latter and permitting the product therein to flow through the threaded cavity 62 and 63 into the container 46.

After the products have been mixed by agitating or otherwise mixing them, the mixed product can be dispensed therefrom by severing the closure 23 from the container 16, in the manner described above. The containers 16 and 46 and the coupler 58, when affixed to-

gether form a unitary container generally as illustrated in FIG. 9.

It is apparent from the above description that various differently shaped containers can be used, it only being essential that the containers have a neck portion which can be affixed within the coupler 28 or 58 in the described fashion. Also, while the couplers 28 and 58 are illustrated to have threaded neck cavities therein, the neck cavities and the neck portions on the containers can as well be correspondingly formed to be affixed together in other different manners, for example, by means of snap-fitting interlocking means and the like. With the arrangement illustrated in FIGS. 1-4, the lower container 16 can be of various different materials, for example, glass, depending upon the particular product contained therein. If the product is not one which will attack or is effected by association with a plastic material, the container 16 can be of plastic also, in which case, the construction can as well be like that of the container 46, and a coupler like the coupler 58 used therewith. Various different spouts or other dispensing means can be provided on the container 16.

Also, in the illustrated embodiment, it is contemplated that the container 10 be sealed closed by means of the cap 14 being threadedly affixed thereto. However, it will be appreciated that the coupler 28 can be threadedly affixed to the container 10, and the exterior of the upper end of the cap portion 30 can be threaded to receive a cap such as the cap 14 to seal the container 10 and the passage through the cap portion 30. In such a case, the cap is merely removed from the cap portion 30, and the neck portion 20 of the container 16 threaded into the neck cavity 33, in the manner described above. Such an arrangement may be advantageously used in shipping, storing and in merchandising the product.

The couplers 28 and 58 can be of any suitable material such as metal or plastic, and if of plastic, can be easily and inexpensively molded. It also can be attractively decorated and can have instructions printed on its side wall, for assembling the two containers.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and certain changes may be made in the above article. Accordingly, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Now that the invention has been described, what is claimed as new and desired to be secured by Letters Patent is:

1. In combination: a first container having a body portion and a neck portion; a second container having a body portion, a neck portion and dispensing means through which a product can be dispensed; said first and second containers containing a first and a second product, respectively; and a coupler for affixing said first and second containers together and for opening at least one of said first and second containers to permit the product therein to be mixed with the product in the other of the containers, said coupler comprising a hollow cylindrical cap portion formed to receive in one end thereof the neck portion of one of said containers and to receive in the opposite end thereof the neck portion of the other one of said containers, means in said cap portion for severing an opening in the neck portion of at least one of said containers, whereby the product

in said one container can flow therefrom through said cap portion into the other one of said containers to be mixed with the product therein, said products after being mixed being dispensed therefrom through said dispensing means in said second container.

2. The combination of claim 1, wherein said neck portion of said first container is sealed with a removable closure cap, said closure cap being removable therefrom before disposing said neck portion in said cap portion of said coupler.

3. The combination of claim 1, wherein said coupler normally is affixed with the neck portion of said first container, said hollow cylindrical cap portion of said coupler being sealed with a removable closure cap to prevent leakage from said first container, said closure cap being removed to permit said neck portion of said second container to be disposed within said cap portion of said coupler.

4. The combination of claim 1, wherein said coupler comprises a cylindrical-shaped side wall having an annular groove on the interior thereof, said cap portion being axially centrally disposed and supported within said side wall, said second container having an annular rim thereon which snap-actively engages within said annular groove to affix said coupler and said second container to one another to prevent them from being accidentally separated after being affixed together.

5. The combination of claim 1, wherein said means in said cap portion for severing an opening in the neck portion of at least one of said containers comprises an annular shaped cutting edge disposed and supported within said cylindrical cap portion.

6. The combination of claim 1, wherein said second container comprises a body portion, a neck portion on one end of said body portion and dispensing means comprising a spout on the other end of said body portion, the end of said spout being sealed with a removable twist-off closure.

7. The combination of claim 1, wherein said neck portions of said first and second containers are threaded, said cylindrical cap portion of said coupler being correspondingly threaded to threadingly receive said neck portions therein.

8. The combination of claim 1, wherein said first and second containers comprise hermetically sealed plastic containers, said cylindrical cap portion of said coupler being adapted to receive the neck portions of both said first and second containers therein and having means therein for severing an opening in the neck portion of each of said first and second containers as said neck portions are disposed within said cylindrical cap portion.

9. The combination of claim 8, wherein said coupler comprises a cylindrical-shaped side wall having a first and a second annular groove on the interior thereof, said cap portion being axially centrally disposed and supported within said side wall, said first and second containers having an annular rim thereon which snap-actively engages within said first and second annular grooves respectively to affix said coupler and said containers together to prevent them from being accidentally separated after once being affixed together.

10. The combination of claim 8, wherein said cylindrical cap portion comprises a pair of annular shaped cutting edges disposed and supported therein for severing an opening in the neck portion of said first and said second containers as the neck portions thereof are disposed within said cap portion.

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