

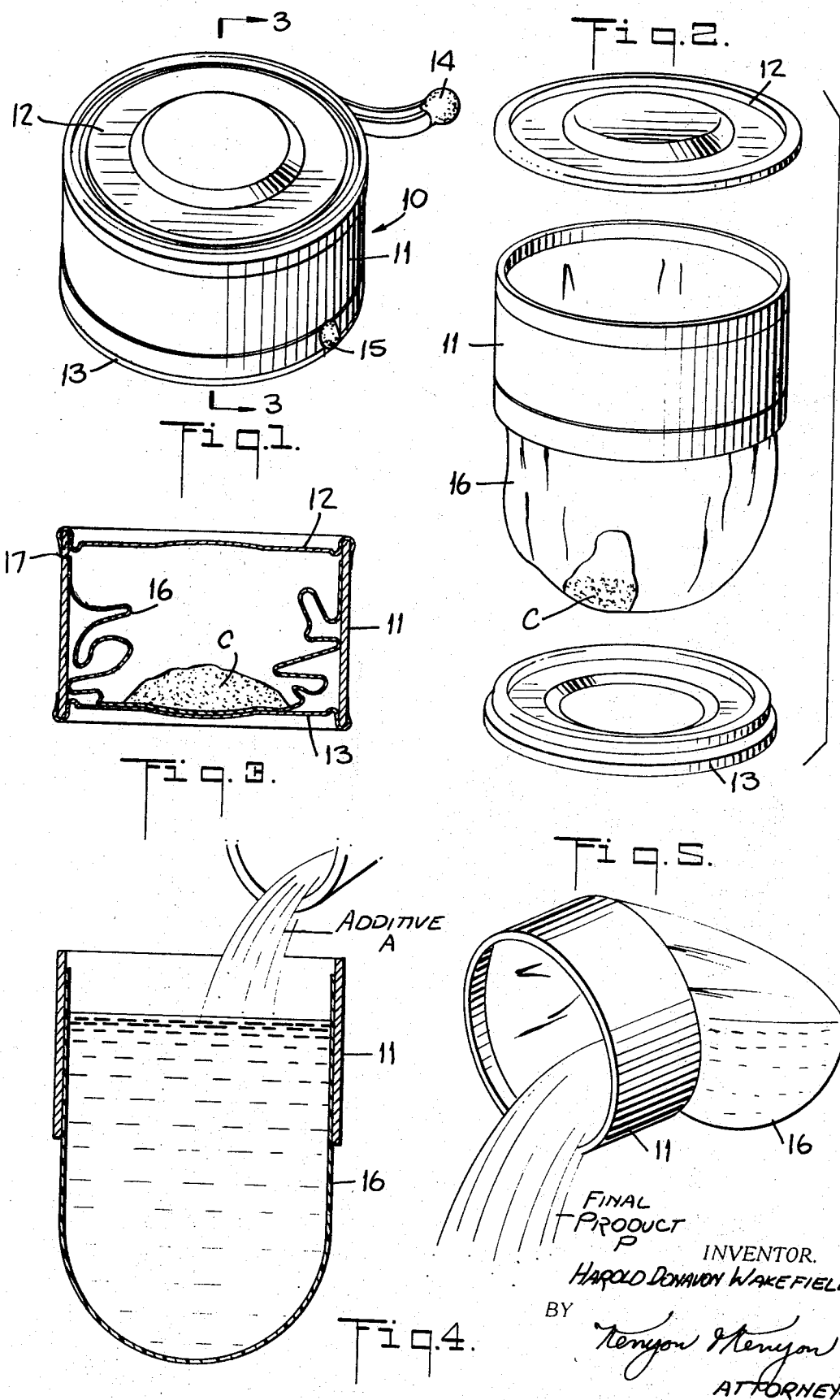
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H. D. WAKEFIELD

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CONTAINER PACKAGE FOR CONCENTRATES

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1

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CONTAINER PACKAGE FOR CONCENTRATES
Harold Donavon Wakefield, Houston, Tex., assignor to
The Coca-Cola Company, New York, N.Y., a corpora-
tion of Delaware

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2 Claims

ABSTRACT OF THE DISCLOSURE

An inexpensive container package for a concentrate which may be opened to permit ready conditioning of the concentrate contents by introduction of an additive without transfer to another container comprising an open-ended tubular part provided with removable end closures and within which an open-mouthed expansible pouch or envelope designed to receive and retain a concentrate is mounted, the lips of the mouth of said pouch or envelope being secured permanently to side walls of said tubular part. The pouch is of pliant liquid-proof material which can be collapsed to small compass together with its concentrate content within the enclosure defined by the tubular part and end closures and retained therein by them. When the concentrate is to be used, the bottom end cover is first removed and the flexible pouch or envelope expands readily through the bottom open end of the tubular part to a larger volume. Thereafter, on removal of the top end closure, an additive such as a diluent may be poured therethrough into the open mouth of the now-expanded pouch or envelope to condition its concentrate contents to the desired extent without any necessity for removing the concentrate from said pouch or envelope or package or for transferring it to another larger container. The conditioned concentrate in the expanded pouch or envelope may then be subjected to turbulence to enhance mixing and thereafter poured therefrom via the upper now-open end of the tubular part and used as desired and the package itself thereafter may be discarded.

FIELD OF INVENTION

The invention relates to the packaging art and particularly to the art of packaging concentrates that require conditioning with additives such as diluents in situ at the time of use. It involves the provision of a novel container package for concentrates which simplifies the problem of conditioning with additives such as diluents at the time of use and eliminates all need for transfer of the concentrate from the original container package in order to effect its required conditioning for use. It embodies a container package including therein an expansible pouch or envelope which in normal unexpanded or partially collapsed condition is designed to retain the concentrate within small compass in the confines of the container package and which upon opening of said package will permit the pouch or envelope to expand automatically to a required larger volume and permit direct introduction into the expanded pouch or envelope of a desired conditioner or additive such as a diluent in an amount sufficient to effect required conditioning of the concentrate still therein for use without any necessity for transfer of the concentrate from the envelope or opened package to a larger container. The concentrate and additive then may be subjected to turbulence to enhance mixing in said expanded envelope and then poured directly from the expanded pouch or envelope for use as needed and the opened package itself then discarded by the user.

Packaging technology has now advanced to a state wherein an abundance of products on the market which

2

are now marketed are sent to the ultimate user in a concentrated form, powdered, liquid or semi-liquid and the user must introduce additives such as diluents to the concentrate to put it into a desired state of use. Perhaps the best known example of products which are shipped for ultimate use in a concentrated form is in the food industry where frozen juices or powdered gelatin products are sold to the consumer for dilution in situ by the latter to desired strength for use.

DESCRIPTION OF THE PRIOR ART

In using such concentrate, no matter what they may be, the ultimate user heretofore has had to transfer them from the relatively small original package to a larger container so that the necessary additives required to produce the final useful product could be introduced and mixed therewith. This is and has been generally a bothersome task as it involves transferring the concentrate to another container, using in some instances the original small container to add measured quantities of additive to the transferred concentrate in the larger container. Frequently, too, particularly if the concentrate is frozen, it is too viscid to permit ready transfer to the larger container without spooning or the like. Often, too, a second larger volume container is not readily available. Thus, conversion of the concentrate to proper condition for required use or consumption has been and is irksome and often difficult.

It is thus apparent that if a container package for concentrate could be provided that could store a given amount of a concentrate indefinitely, and upon being opened could be made readily expansible to receive the amount of the additive necessary for conditioning to the finally useful product, the concentrate in such opened container could be directly mixed in the original container package, thus eliminating the need for transfer of such concentrate to a larger mixing container, such a container package would find widespread demand use. This would be especially true if the original container were sufficiently rigid as is required in so many shipping situations to withstand collapse, particularly when the original containers are shipped and stored in stacked condition one on top of another before acquisition by the ultimate consumer.

SUMMARY OF THE INVENTION

Therefore, it is a principal object of the present invention to improve the art of packaging concentrates by the provision of a container package which can store a selected volume of a concentrated product safely and indefinitely prior to use and upon opening of such package in situ will provide an expanded volume for the concentrate to which the necessary additive such as a diluent can be directly introduced upon such opening, eliminating all need for transferring the concentrate from its original container package to a larger volumed container for mixing with it the necessary additive to prepare or condition it for use.

A further object of the present invention is to provide a container package whose volume will expand automatically upon being opened, the original container being rigid enough to permit vertical stacking with other like container packages during transportation and storage prior to use by the ultimate consumer.

Yet a further object of the present invention is to provide a container package for concentrates whose volume can expand upon being opened to permit direct addition thereto of additives such as diluents and which will be economical to make and use and be of simple construction and be readily discardable after being opened.

Briefly, in accordance with the present invention, the foregoing and other objects are accomplished by provid-

3

ing a container package comprising an open-ended tubular part having removable end closures within which a flexible expansible inner pouch or envelope whose mouth is attached to the side walls of the tubular part may be retained and in unexpanded or partially collapsed form may contain a measured quantity of a concentrated product in the enclosure defined between the removable top and bottom end closure members of the container package. After opening of the container package by removal first of its bottom end closure, the pouch or envelope will expand and drop through the open bottom of the tubular part, its mouth portion being securely held by said side walls of the latter and expand to its full volume which is substantially larger than its initial volume in the closed package and of relatively measured ratio in respect thereto so that thereafter, upon removal of the top end closure additive such as a diluent may be poured into the now-expanded volume of the pouch to effect desired conditioning of the concentrate product to useful state without necessity for any transfer to a second larger container. The measured ratio of expanded volume to original volume insures that introduction of the additive will be limited to the amount normally required to condition the concentrate for use.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects, aspects and features of the present invention will be readily apparent from the following detailed specification and accompanying drawings in which:

FIG. 1 is a plan view of a closed container package incorporating the principles of the present invention;

FIG. 2 is an exploded view of the container package of FIG. 1 in its opened condition;

FIG. 3 is a sectional view along lines 3—3 of FIG. 1;

FIG. 4 is a sectional view of the container package of the present invention in its opened condition with its inner pouch expanded to its larger volume; and

FIG. 5 illustrates the opened container package of the present invention in its expanded state after the concentrate has been conditioned by additive such as a diluent in position for pouring the conditioned contents therefrom.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing, and more particularly to FIG. 1, a preferred embodiment of a container package 10 according to the invention is shown in its filled state ready for marketing. This container package 10 comprises a tubular originally open-ended part 11 having a removable top end closure member 12 and a removable bottom end closure member 13. Tubular part 11 is shown as cylindrical for illustrative purposes only and obviously could have any desired cross-section and shape. End closure members 12 and 13 after mounting are preferably each secured in place and sealed on tubular part 11 as by conventional tear strips 14 and 15, respectively, so that opening of the package requires pulling respective of the tear strips 14 or 15, in order that the respective top and bottom end closure members 12 and 13 may be removed independently. Of course, if desired, the top and bottom closure members 12 and 13 may be made integral with tubular part 11 as in conventional cans so that a conventional can opener will be needed to remove them, or even may be of screw-threaded type. As can be seen readily in FIG. 3, a flexible open-mouthed pouch or envelope 16 of liquid-proof material such as polyethylene or the like plastic has its lips 17 attached by any conventional means, e.g. glueing or the like, preferably to the upper portions of the inside wall of tubular part 11. This flexible pouch or envelope 16 in unexpanded or partially collapsed condition normally lies confined within the tubular part 11 within the enclosure defined by said part 11 and mounted end closures 12 and 13. It, however, is capable of expansion

4

automatically by gravity to much larger volume upon removal of the lower end closure 13 at that time in one embodiment having approximately four times its unexpanded volume or any other desired multiple thereof.

A concentrate C, e.g. powdered fruit or gelatin concentrate or concentrated frozen fruit juice is placed into the pouch or envelope 16 when the latter is in the partially collapsed condition as shown in FIG. 3, prior to sealing attachment of the top and bottom end closures 12 and 13 to said tubular part 11. In this manner, the container package 10 bearing the concentrate in its partially collapsed pouch or envelope 16 and which may be either powder, liquid, semi-solid, or solid, frozen or unfrozen, and edible or inedible, may be safely shipped for marketing to the ultimate user or consumer. The ultimate user in order to condition the concentrate C for use pulls tear strips 15 and 14 to remove the bottom and top closure members of the container package in the order named. This allows the collapsed pouch or envelope 16 to expand under action of gravity and weight of the concentrate C through the bottom now-open end of the tubular part 11 as seen in FIG. 2, to a larger volume. As seen in FIG. 4, the additive A such as a diluent may then be introduced for mixing with the concentrate C in the now-expanded pouch or envelope 16 via the now-open upper end of the tubular part 11 to achieve directly the proper conditioning, e.g. appropriate dilution strength or other conditioning of the product in the expanded envelope or pouch 16 as desired. After the final product P is achieved, it can be poured readily from the open upper end of the container package as seen in FIG. 5 for immediate use by the consumer. No transfer to a second container is required for mixing. The volume ratios of pouch 16 in its expanded state and in its collapsed state in close container package 10 can be selected relative to each other so that the volume of pouch or envelope 16 in its expanded state is a desired multiple of its collapsed volume. For example, conventional frozen fruit juices are marketed in a 6-ounce container with suggestion that this concentrate be diluted with three times its volume, e.g. 18 ounces of water using the emptied container to achieve the proper strength of the final product. Herein, the relative volumes of the collapsed and expanded pouch 16 can be in the same ratio, namely, 1 to 4 or in any other useful ratio. Thus, when the diluent or other additive is introduced into the expanded pouch or envelope 16 to fill it substantially, an automatic measure of the required additive for desired conditioning is achieved. In mixing the final product, after adding the required amount of the additive to the concentrated product in the expanded pouch or envelope 16, the upper closure member 12 may be temporarily replaced over the upper end of container part 11 so that the contents of the expanded pouch may be vigorously shaken without spilling to provide turbulence and speedy mixing. If the concentrated product is not mixing well with the additive, the expanded flexible pouch or envelope 16 may additionally be squeezed to facilitate and speed mixing with the concentrate by providing added turbulence. Thereafter, the conditioned contents P of the expanded pouch 16 may be emptied therefrom for use via the again-removed upper end of the tubular part 11.

Pouch or envelope 16 can be made of any flexible preferably liquid-proof material, but it is believed that the best results will be obtained if it is made of a plastic such as polyethylene which will remain pliant even at freezing temperatures of the concentrate and expanded readily as desired and also be inert to its contents. While tubular part 11 has been shown as cylindrical, it is to be understood that this is for purposes of illustration only and any shape and cross-section could be used. Tubular part 11 is preferably made of a reasonably rigid material so as to be firm and resist compression and deformation so that the sealed container packages 10 after filling of their envelopes 16 and sealing closure may be trans-

5

ported and stored in stacked condition one on top of another without buckling. The container package 10 of the present product can be used to hold any marketable type of concentrated product that is edible or otherwise, powdered, liquid, semi-liquid or solid and either frozen or unfrozen.

While a specific embodiment of the invention has been described and shown, it is apparent that numerous modifications are possible and are contemplated and may be made without departing from the scope of the invention as defined in the appended claims. There is no intention, therefore, of limitation to the exact abstract and disclosure herein presented.

What is claimed is:

1. A package including a food concentrate and a combination storage and mixing container for the concentrate which requires conditioning by the addition of an additive for actual use comprising a relatively rigid tubular open-ended part that will resist compression and deformation during transportation and storage, a removable top end closure member and removable bottom end closure member, both removably and sealably mounted, respectively, on opposite top and bottom ends of said part and in enclosing relation therewith so as to define a pair of rigid stacking surfaces thereon to protect the concentrate in the package during storage and transportation thereof, and collapsible pouch means having an open mouth whose periphery is attached to the upper portion of the inner end wall of the tubular part to provide a continuous pouring mouth at the top end of the tubular part, said pouch means being continuous and unbroken in its extent and defining in a partially collapsed

6

state a first limited concentrate retaining volume within said part between said top and bottom end closure members when said top and bottom closure members are mounted in sealed closing position at the respective ends of the said part, said pouch means being made of a material which is flexible at all temperatures of concentrate and resistant to attack by such concentrate, and which, when fully expanded projects outwardly of the bottom end of the tubular part and defines a larger second volume having a selected ratio relative to the volume of the original concentrate contents of the package and a smooth bottom surface to facilitate speed mixing of the concentrate therein.

2. A combination storage and mixing container package according to claim 1, wherein said top and bottom closure members are mounted on the ends of said tubular part and separate tear strips are provided for each of said end closure members to secure them in place on said tubular part and seal the latter.

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FRANK W. LUTTER, Primary Examiner

W. L. MENTLIK, Assistant Examiner

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