United States Patent

[11] 3,542,190

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[21] Appl. No. **740,601**
[22] Filed **June 27, 1968**
Continuation-in-part of Ser. No. 739,701, June 25, 1968, abandoned.
[45] Patented **Nov. 24, 1970**

[73] Assignee **CPC International, Inc.**
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[54] **CONVENIENCE PACKAGE FOR FLAT STORAGE AND SHIPMENT, THAT IS FOLDABLE TO A TETRAHEDRONAL SHAPE FOR MIXING AND DISPENSING**
7 Claims, 12 Drawing Figs.

[52] **U.S. Cl.** **206/46;** 99/171; 222/107; 229/65, 229/66
[51] **Int. Cl.** **B65d 83/06,** B65d 85/72, B65d 77/14
[50] **Field of Search** 206/46, 46, 47, 47A; 229/65, 66, 62; 128/275; 99/171OM, 171C, 171S; 222/107; 259/72

[56] **References Cited**

UNITED STATES PATENTS

2,103,840	12/1937	Bauer	229/65
2,341,056	2/1944	Moore	206/46MUX
2,760,630	8/1956	Lakso	206/56(A²)
2,973,131	2/1961	Mead et al.	229/66
3,186,625	6/1965	Mead et al.	229/53
3,189,253	6/1965	Mojonnier	229/66
3,282,411	11/1966	Jardine	206/46(Misc)UX
3,311,288	3/1967	Lemelson	229/65

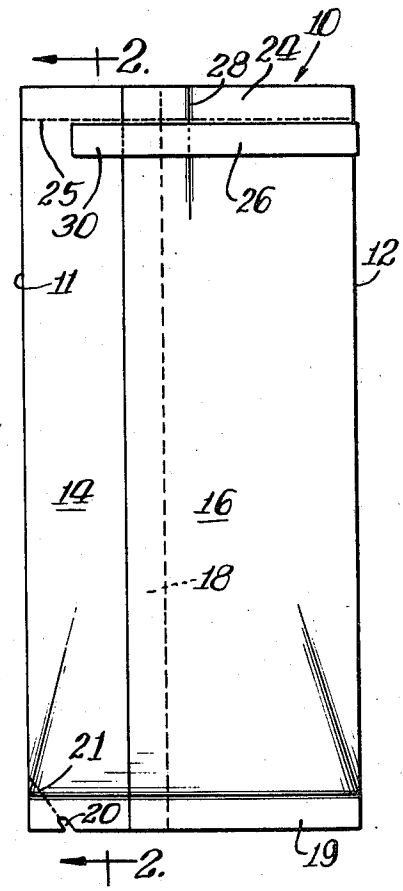
FOREIGN PATENTS

865,476	4/1961	Great Britain	229/66
964,542	7/1964	Great Britain	206/47

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ABSTRACT: Covers a convenience package for a substance, such as a concentrated form of an edible material, that is to be mixed with a liquid for ultimate use. The package is constructed so as to retain a substantially flat or pillow form, when a small quantity of the substance is packed inside, and to be easily opened for adding water. It can be resealed in a tetrahedronal shape and used as a shaker to mix the substance and the liquid. A second easily opened closure is also provided, to form a dispensing opening.



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Fig. 1.

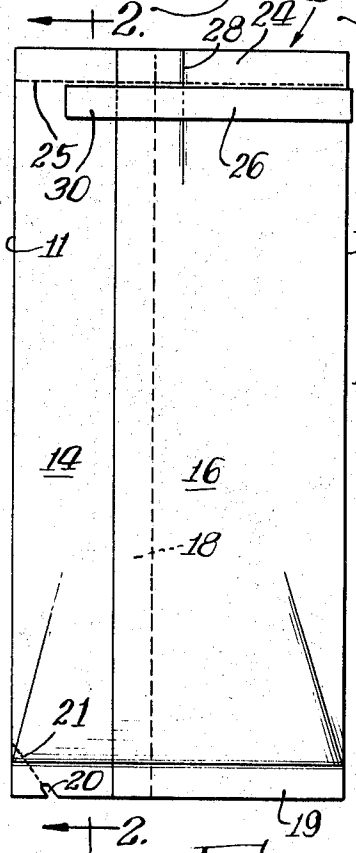


Fig. 2.

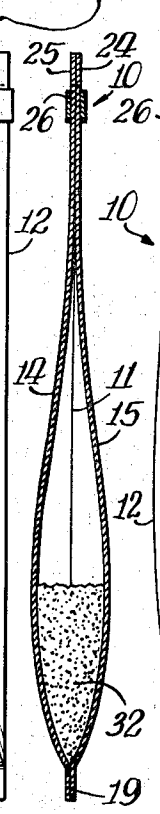


Fig. 3.

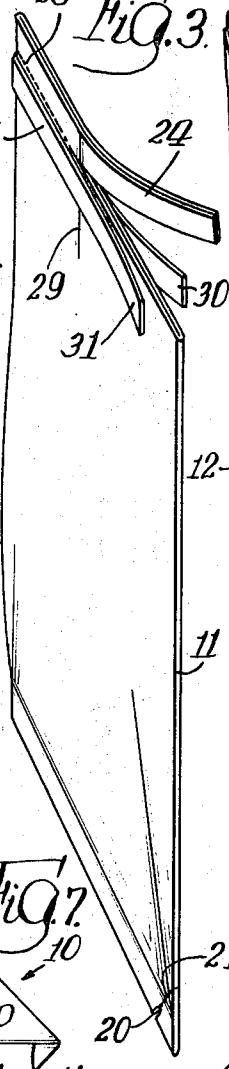


Fig. 4.

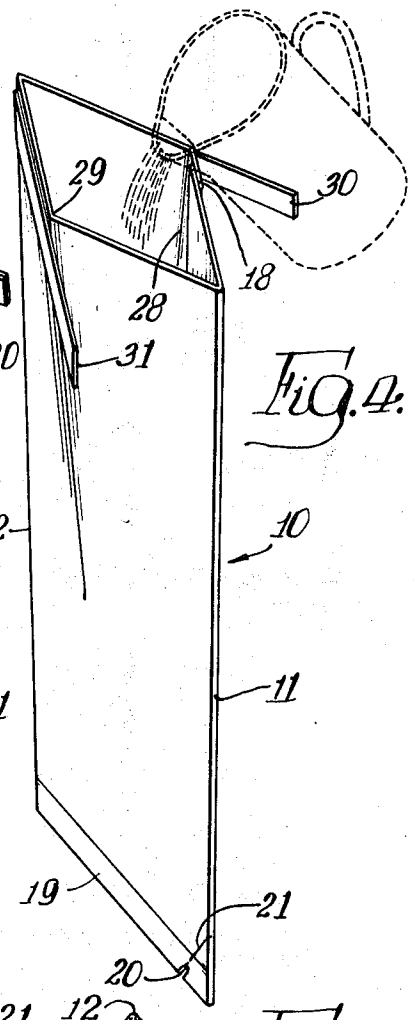


Fig. 5.

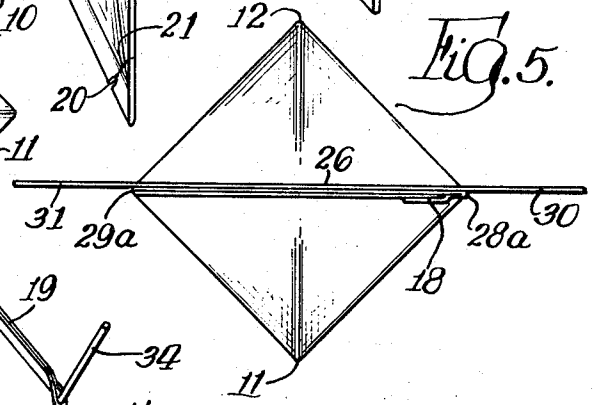


Fig. 6.

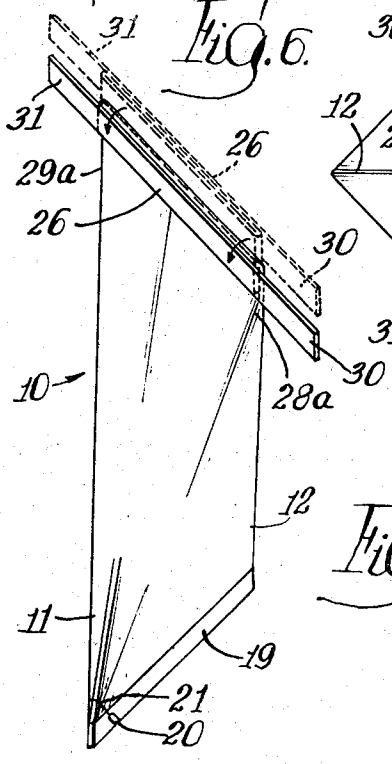


Fig. 7.

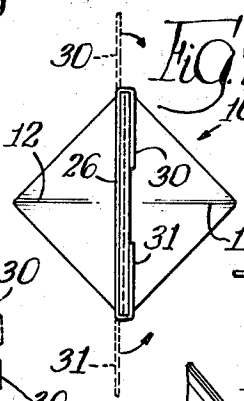
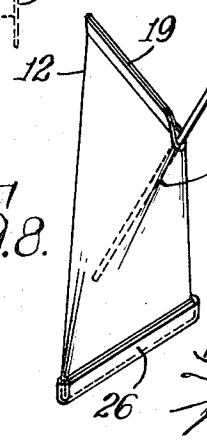


Fig. 8.



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Fig. 9.

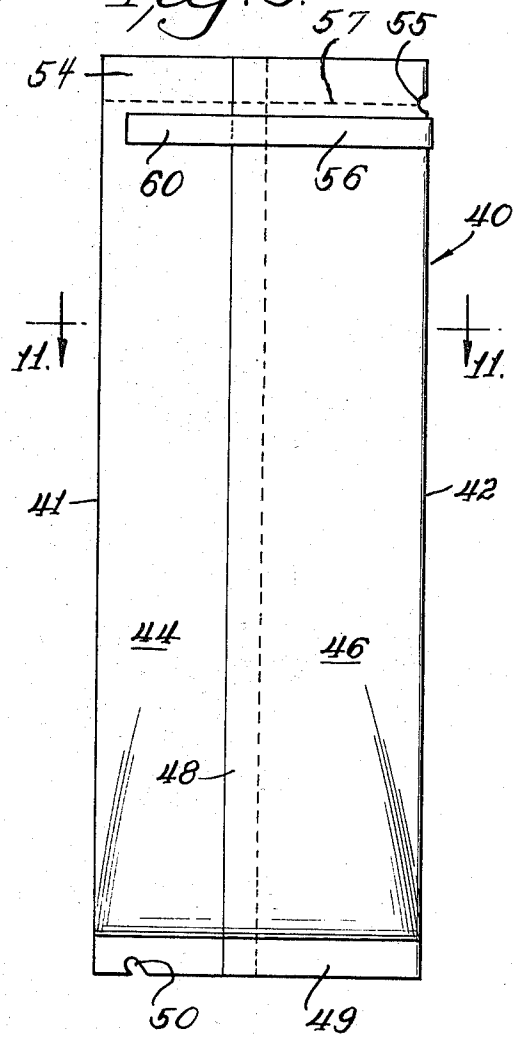
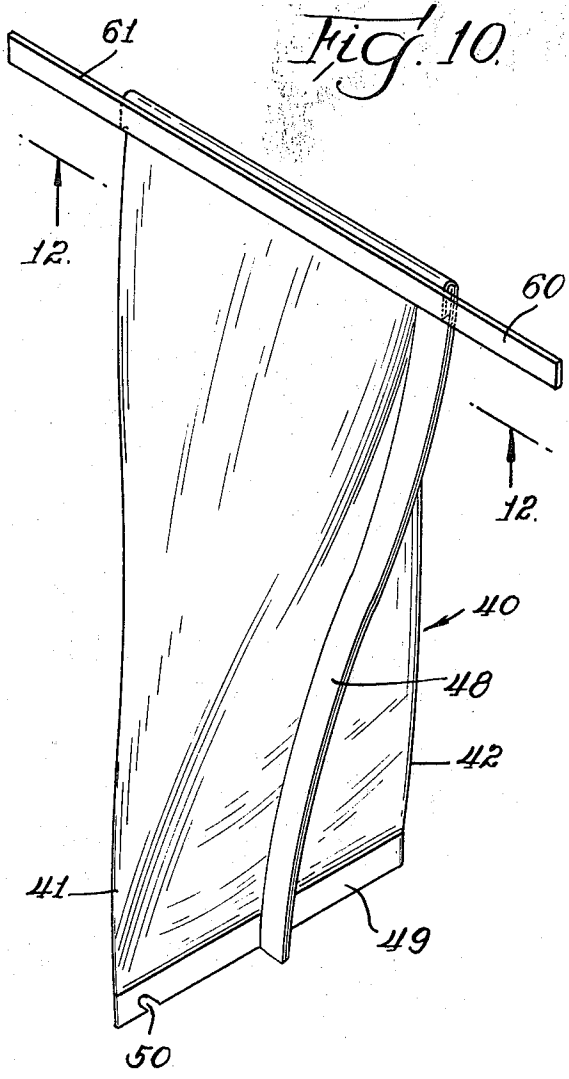


Fig. 10.



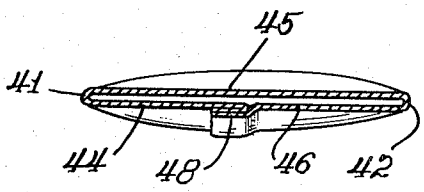
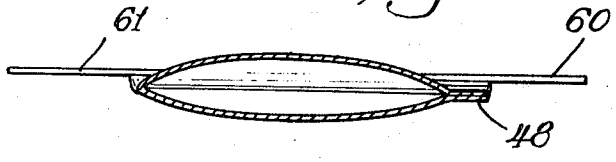


Fig. 11.

Fig. 12.



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CONVENIENCE PACKAGE FOR FLAT STORAGE AND SHIPMENT, THAT IS FOLDABLE TO A TETRAHEDRONAL SHAPE FOR MIXING AND DISPENSING

This application is a continuation-in-part of my pending U.S. Pat. application Ser. No. 739,701 filed June 25, 1968 entitled "CONVENIENCE PACKAGE FOR FLAT STORAGE AND SHIPMENT, THAT IS FOLDABLE TO A TETRAHEDRONAL SHAPE FOR MIXING AND DISPENSING" and executed by me on June 21, 1968, now abandoned.

This invention relates to a novel package construction. More specifically, it relates to a combination container-shaker, in which a substance which is to be mixed with a liquid for ultimate use can be packaged and stored, and which will also serve as a "shaker" for mixing the material with the liquid, and which can ultimately serve as the container for the finished, reconstituted product.

There are many products, particularly food products, on the market which are to be mixed with a liquid for ultimate use. These products are packaged and sold in a dry or liquid concentrated (*e.g.* syrup) form; typical examples of such products are dry or syruplike beverage bases, dry milk powder, instant puddings, instant mashed potatoes, instant or "quick-cooking" cereals such as oat mean, and the like. Such substances, which will be referred to hereinafter as to "bases" or "base substance", are generally packaged in relatively flat envelopes, pouches, or similar "space-saving" packages.

When the consumer wishes to use such a product he transfers the base to a suitable mixing vessel, that is usually in the form of a rigid container, adds the liquid, and mixes. If the mixing container is equipped with closure means, the mixing can be done by shaking the container. After the mixing operation the ultimate product is dispensed from the container, *e.g.*, either consumed directly therefrom or transferred to another suitable container for consumption.

For example, an individual serving of a milk shake powder or an instant breakfast powder may be packaged in a substantially flat, sealed paper or plastic pouch or envelope. For use, the powder may be placed in a blender together with milk or water, and blended. It is then poured from the blender into a glass or cup, for consumption.

It is an object of the present invention to provide a container for substances which are to be mixed with a liquid for ultimate use, which container is in a relatively flat shape and therefore requires very little storage space, which container is further capable, upon opening, of receiving and holding the liquid and, upon reclosing, of functioning as a "shaker" for the mixing of the ingredients.

Another object of the invention is to provide a flat, "space-saving" container for substances which are to be mixed with a liquid for ultimate use, which container will also serve as a shaker for mixing the substance with the liquid, and which will further serve as the ultimate holding vessel from which the final product is consumed or otherwise dispensed.

A further object of the invention is to provide a container for dry or concentrated liquid food products which are to be mixed with liquid prior to consumption, which container originally acts as a compact, flexible, easily stored package for the food product; second, acts as a rigid receptacle for receiving the liquid and as a shaker for mixing the food product and the liquid; and third, acts as a rigid, easily handled vessel from which the final foodstuff may be consumed or otherwise dispensed.

An additional object of the invention is to provide a small, "space-saving" package for dry or syruplike beverage bases or the like which additionally functions as a receptacle for water, milk, or other liquid necessary to formulate th finished beverage, as a shaker for dissolving the base into or diluting it with the liquid, and finally as a container from which the finished beverage can be drunk.

Another object of the invention is to provide a package for containing dry food products which are mixed with a liquid such as water or milk prior to use, and which reconstitute to a semiliquid or gellike consistency, *e.g.* instant pudding bases, instant or quick-cooking cereals, instant gelatin, etc., which package additionally functions as a receptacle for receiving the liquid, as a shaker for mixing the dry food product with the liquid, and as a container from which the finished produce may be consumed or otherwise dispensed.

A further object of the invention is to provide a combination package-shaker-eating or drinking-receptacle for base substances which are to be mixed with a liquid prior to use.

An additional object of the invention is to provide a combination package-shaker-dispensing receptacle for foodstuffs or the like which is inexpensive to construct, simple and convenient to use, and which is particularly attractive to children.

Other objects and advantages of the invention will be apparent hereinafter from the specification and the appended claims.

The drawings illustrate one preferred embodiment of the invention, wherein the package in its original sealed condition is in the form of a relatively flat, rectangular-shaped envelope or pouch, which upon reclosing (after addition of the liquid) is resealable in the shape of a tetrahedron. The resealed package provides a convenient shaker for mixing the original contents of the package with the added liquid. The mixed contents can then be consumed directly from the package, or they may be dispensed to another container for consumption.

In the drawings:

FIG. **1** is a front elevation of a package, that is constructed in accordance with one preferred embodiment of the invention, in its sealed, unopened condition;

FIG. **2** is a section taken along line **2–2** of FIG. **1**, looking in the direction of the arrows;

FIG. **3** is a perspective view of the package, showing one end of the envelope partially removed;

FIG. **4** is another perspective view of the same package, after complete removal of the end of the envelope, showing the upper end of the envelope opened out to receive the liquid that is being poured into the envelope;

FIG. **5** is a top plan view of the envelope after the liquid has been poured into it and after the open upper end has been closed at an angle of 90° to its original position when unopened;

FIG. **6** is a perspective view of the package after the closure flap at the upper end of the envelope has been folded over once, with the position of the flap prior to folding over being shown in dotted lines;

FIG. **7** is a top plan view thereof;

FIG. **8** is a perspective view, on a reduced scale, showing the resealed container inverted from the position shown in FIG. **6**, and with one corner removed and a drinking straw inserted;

FIG. **9** is a front elevation of a package that is constructed in accordance with another preferred embodiment of the invention, showing the package in its sealed, unopened condition;

FIG. **10** is a perspective view of the package shown in FIG. **9**, after the closure flap at the upper end of the package has been folded over once, prior to reclosing the package in tetrahedronal shape;

FIG. **11** is a section taken on the line **11–11** of FIG. **9**, looking in the direction of the arrows; and

FIG. **12** is a section taken on the line **12–12** of FIG. **11**, looking in the direction of the arrows.

The package or container, that is made in accordance with the invention, should preferably be so constructed as to lie relatively flat in its original, closed condition, like a pouch or envelope, and should be made of a semiflexible material which is substantially impervious to liquids. The container should be provided with easily operated means for opening it, whereby the container can be opened and liquid can be introduced. It should be further provided with means for reclosing, or resealing, the opening in such a manner that the container assumes a distended shape whereby the liquid is enclosed therein and whereby there is sufficient free space to facilitate mixing, and whereby the distended container has sufficient rigidity and is sufficiently sturdy to be handled during the mixing, or

"shaking", operation. The container should also be provided with means for reopening same, either at the original opening or, preferably, at a different location, whereby the finished product may be easily dispensed from the container, and should further retain sufficient rigidity after opening to facilitate dispensing or consuming.

The term "semiflexible" is used to refer to a quality of the wall of the container, that is, of the material from which the container is made, that permits it to be yielding so that it does not break or shatter, upon normal handling; that permits folding along crease lines conveniently and without undue effort; and that has sufficient rigidity, nevertheless, in its tetrahedronal shape particularly, to permit its use for the intended purpose of shaking materials to mix them. Many packaging materials can be used having this characteristic, such as, for example, moisture-proof laminates of certain plastic films and paper or paper board.

In order to form the container, after initially opening it, with the desired distended shape, volume, and rigidity for the subsequent operations, it is desirable that it be easily recloseable at an angle to the line along which it was originally opened. The degree of this angle will depend upon the original shape of the container and the amount of distention and volume ultimately desired. Generally, a 90° angle will afford the maximum distention and volume, but smaller angles can also be employed.

In a preferred embodiment of the invention, the container is constructed in the form of a generally rectangular envelope that is provided with opening means at one of its ends, and further provided with means for reclosing it at that same end, at an angle of approximately 90° to the opening line, so that the resealed container is tetrahedronal in shape.

Referring now in detail to the drawings by numerals of reference, the numeral **10** denotes generally a sealed package or container that is made in accordance with one preferred embodiment of the invention. This package **10** is formed from a single sheet of a semiflexible moisture-impervious packaging material such as, for example, paper stock that is coated with metal foil on one surface and a plastic film on the other, such as is in use for many packaging purposes. This angle sheet of packaging material has been folded over upon itself along opposed, lengthwise-extending parallel crease or fold lines **11** and **12** respectively. The somewhat tubular structure formed by the foling operation includes a narrow front panel **14**, a single, wide back panel **15**, and a second front panel **16** that is lapped over one marginal edge of the narrow front panel **14** along a seam **18**, along which the two front panels **14** and **16** respectively are bonded together in moisture-proof fashion, by adhesive, heat-sealing, or some other suitable bonding technique for accomplishing the desired purpose.

The package is sealed at its bottom end (relative to FIG. 1) along a transverse seam **19**. The package is also provided, at its lower left and relative to FIG. 1, with a preformed, punched-out bight **20**, from which a guide line **21** extends diagonally across the lower end of the package, beyond the seam **19**, to the fold line **11**.

The package is sealed at its upper end by a second transverse seam **24**. A transverse guide line **25**, such as, for example, a score line, is formed across the entire upper end of the package **10**, just below the lower edge of the seam **24**.

A strap **26**, preferably of metal, is bonded to the outer surface of the package in such fashion that it extends, somewhat in a U-shape, around both the front and back surfaces of the package, just beneath the guide line **25**. The package **10** is formed in its front face with a preformed, lengthwise-extending crease line **28** and in its rear face, opposite the crease line **28**, with a second, similar preformed crease line **29**. The two opposite ends of the strap **26**, that project beyond the two crease lines **28** and **29** respectively, are free, that is, are not bonded to the surface of the package, and provide tabs **30** and **31** respectively.

To use a package in accordance with the present invention, a base substance **32** is placed within the package before one or both of the end seams **19** and **24** respectively are sealed. Thereafter, the package is sealed to enclose the base substance **32** therein. This base material may be, for example, a powdered concentrate for a beverage such as lemonade or some other fruitade, that can be made up into the drink upon mixing with an appropriate quantity of water. As shown in FIG. **2**, at this point the package is what is sometimes called in the trade a conventional pillow or envelope type of package.

To use the package in accordance with the present invention, the entire upper seam **24** is removed by tearing along the guide line **25**, as shown in FIG. **3**, after the upper seam **24** has been completely removed, the opposite side fold lines **11** and **12** of the package are gently pressed toward each other near the upper end of the package, which causes the upper end of the package to open, to the position shown in FIG. **4**. When the preformed front and back crease lines **28** and **29** serve their purpose properly, the front and back panels of the package fold along these crease lines and the fold lines **11** and **12** are pressed toward each other.

A desired amount of water or other liquid, and any other desired material, can then be poured or otherwise added to the base substance **32** that is already in the package, through the opening at the upper end of the package.

To permit use of the container as a shaker, for mixing the base substance **32** with the liquid and any other added materials, the opposite fold lines **11** and **12** of the package are then brought together further at the upper end of the package, until they meet, thus forming the package into a generally tetrahedronal shape, with the crease lines **28***a* and **29***a* (FIGS. **5** and **6**) extending further along the package from the original, preformed crease lines **28** and **29**. At the same time, the strap **26** is straightened out. This strap **26**, and the adjacent portions of the upper end of the package, are then folded over once, at least, as shown in FIG. **6**, or more often if desired, to form a tight seal that recloses the package. The end tabs **30** and **31** are then folded over, as shown in FIG. **7**, to hold the package securely in its new generally tetrahedronal shape, and to maintain the package in sealed condition at its previously opened end. The user can then shake the package in order to mix the contents and make them uniform.

In order to consume the fruitade, the package is then inverted, to the position shown in FIG. **8**. The corner of the package is then removed by tearing it off along the guide line **21**, using the bight **20** as a convenient means for getting the tear started. A straw **34** can then be inserted through the opening, to permit the consumption of the lemonade. Alternatively, the opening can be used for pouring the lemonade into a cup or glass, or it may even be used as a spout through which the lemonade may be taken directly into the mouth.

In the modified form of the invention that is illustrated in FIGS. **9** and **10**, the numeral **40** denotes generally the container. The construction of this container is generally similar to that of the package illustrated in FIGS. **1** through **8** and previously described. That is, the package **40** is formed from a single sheet of a semiflexible packaging material such as, for example, a plastic film or a laminate of a plastic film and a metal foil. Many kinds of packaging laminates are suitable for forming the package.

This single sheet of packaging material has been folded over upon itself along opposed, lengthwise-extending parallel fold lines **41** and **42** respectively. The somewhat tubular structure formed by the folding operation includes a left front panel **44** (relative to FIG. **9**), a single, wide back panel **45**, and a second, right front panel **46**. The ends of the sheet from which this tubular structure is formed are secured together to form a seam **48** of the face-to-face type. The confronting marginal areas of the material that are joined together at the seam **48** may be bonded together by an adhesive or, preferably, by heat-sealing, although any suitable bonding technique can be employed to accomplish the desired purpose. The face-to-face type of seam, that is employed in this embodiment of the invention, is in contrast to the face-to-back type of seam that was employed in the package construction illustrated in FIGS. **1** through **8** and previously described.

Referring again particularly to FIGS. 9 and 10, the package is sealed at its bottom end, relative to FIG. 9, along a transverse end seam 49. The package is also provided, at its lower left end relative to FIG. 9, with a preformed, punched-out bight 50, to facilitate removal of a part of the seam and preferably a part of the body, to form a dispensing opening at the lower end of the package, when desired.

The package is sealed at its upper end by a second transverse seam 54. A preformed, punched-out bight or notch 55 is formed in the package body adjacent or overlapping the lower edge of the seam 54, to facilitate tearing to separate that seam from the package body. If desired, a guide line 57, such as a dotted line printed on the package or, possibly a line of weakness such as a score line, can be provided extending along the upper end of the package from the notch 55.

A strap 56 is secured to the outer surface of the package in such fashion that it extends, as in the previous embodiment of the invention, around both the front and back surfaces of the package, just beneath the lower edge of the end seam 54. The two opposite ends of the strap 56 that project beyond the center line of the package, are free, that is, are not bonded to the surface of the package, and provide tabs 60 and 61 respectively.

This package is used in the same way as the package embodiment of the invention previously described. However, it has the advantage that the seam 48 facilitates opening of the package to its distended form during use, and in addition, facilitates resealing the package for use as a shaker.

While the invention has been described in connection with a beverage package, it will be understood that this novel package is susceptible to many different uses. For example, it provides a convenient package for dessert powders that must be shaken with water or milk, whether hot or cold, to produce a dessert easily and conveniently. Desserts of readily flowable consistency may be consumed in the same manner as the fruitade previously described, or alternatively, the package may be reopened at its wide end, for desserts of thick consistency, to permit removal of the thick material with a spoon.

Other applications for the package include the packaging of dry pancake mixes that can be formed into batters upon shaking with a liquid component such as water or milk, with or without other added ingredients such as, for example, an egg, vegetable, oil, or the like. Instant breakfasts or liquid or powdered concentrates for other types of instant snacks or meals can also be packaged conveniently in accordance with the invention. Another kind of product that is advantageously packaged in accordance with the invention is syrup solids. These solids can be packaged in unit or other small portions, if desired, and offer a convenient way to package and transport this kind of product.

When the package is to be used for mixing together a hot liquid with a base material, the package must be formed from packaging material that can withstand the high temperature. This would be the case, for example, where the package is used for instant tea, instant coffee, instant cocoa, instant soup, or the like.

The package of the invention is also convenient for packaging materials other than foodstuffs and beverages. For example, tinting pigments for paint can be conveniently packaged. The liquid tint base is poured into the opened container to a previously marked level, the package is resealed in tetrahedronal shape, and the mixing can be completed in the package, with a minimum of labor and mess.

Packages made in accordance with the invention are also very convenient for such uses as the application of flour or seasoned preparations to pieces of poultry, meat, and the like. For example, the package can be used initially for packaging and selling a seasoned breading preparation. The customer opens the package, as previously described, places the pieces of meat, fish, or other material to be breaded in the package, recloses in the tetrahedronal form, and shakes, in order to apply the breading composition neatly and conveniently.

While the invention has been described in connection with specific embodiments thereof, it will be understood that it is capable of further modifications, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosures as come within known or customary practice in the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth, and as fall within the scope of the invention.

I claim:

1. A flat-walled tubular container having substantially parallel side edges and opposing ends extending transversely to said side edges, one of the ends of said container having an opening therein extending from one side edge of the container to the other side edge, the opposing end of said container being closed:

means for sealing said opening in said container;

guide means located adjacent said sealing means and extending across at least one wall of said container to the side edges thereof to facilitate the opening of said container by the removal of said sealing means;

resealing means adjacent said guide means and the opening in said container provided by the removal of said sealing means; and

said resealing means extending from one side edge of said container toward the opposite side edge thereof, and having portions secured to the underlying outer surfaces of the walls of the container and extending from said one side edge to a point approximately midway between said side edges and portions overlying but free from said outer surfaces of said walls and extending a substantial distance toward said opposite side edge of the container.

2. A container in accordance with claim 1, additionally provided with a pair of opposed crease lines that extend generally lengthwise of the body of said container at least from said guide means toward the opposite, closed end of the container, said crease lines being positioned approximately midway between the side edges of the container.

3. A container in accordance with claim 1, additionally provided with second guide means, at the closed end thereof opposite to the end at which the first guide means is located, that extends diagonally from said closed end to a side edge of said container, to facilitate the formation of a dispensing opening in said container.

4. A container in accordance with claim 1, which has at least one lengthwise-extending seam disposed substantially midway of one face of the container and that extends from the opening to the opposing, closed end.

5. A container in accordance with claim 4, wherein said lengthwise-extending seam is a seam of the face-to-face type.

6. A mixing package comprising a flat-walled tubular container as set forth in claim 1, and a substance that is to be mixed with a liquid for ultimate use disposed within said container.

7. A mixing package in accordance with claim 6, wherein said container is formed with means, located remote from the opening means, for forming a second, dispensing opening in the pouch, to facilitate dispensing of the mixture of substance and liquid.