United States Patent

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[54] **SEALED PACKAGE**
10 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **229/43,** 220/29; 215/83
[51] **Int. Cl.** **B65d 5/64,** B65d 43/00, B65d 51/19
[50] **Field of Search** ..... 229/43, 2.5; 220/29, 39, 54; 215/83; 206/46 (Misc); 99/174

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ABSTRACT: A double-sealed package including a container with an inner cover member spanning its open end. An outer cover is sealed to both the container flange and the inner cover member. The method includes pressure forming the container and inner cover member, depositing a material in a container, placing the inner cover member in position, and sealing the outer cover to both the container and inner cover member.

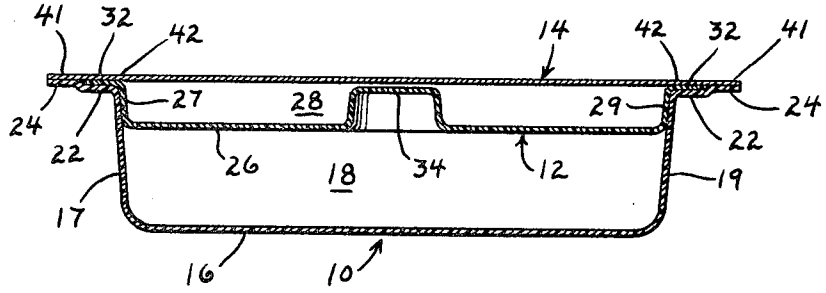

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Fig. 1

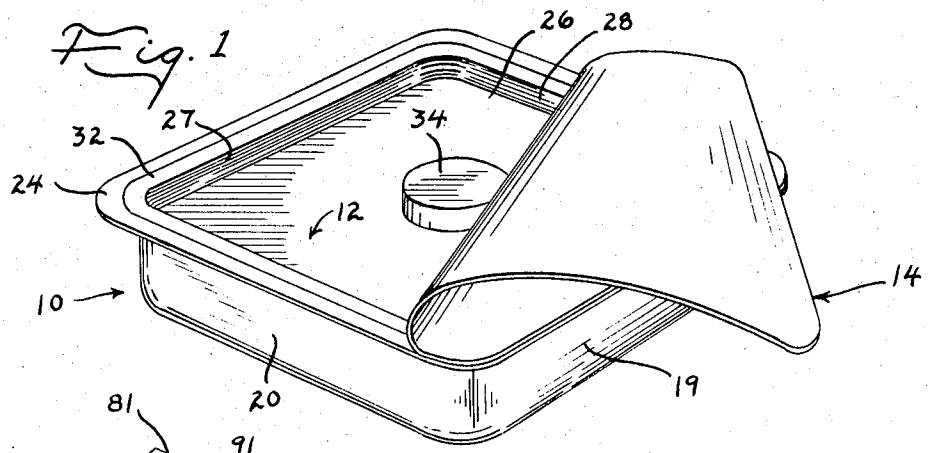


Fig. 2

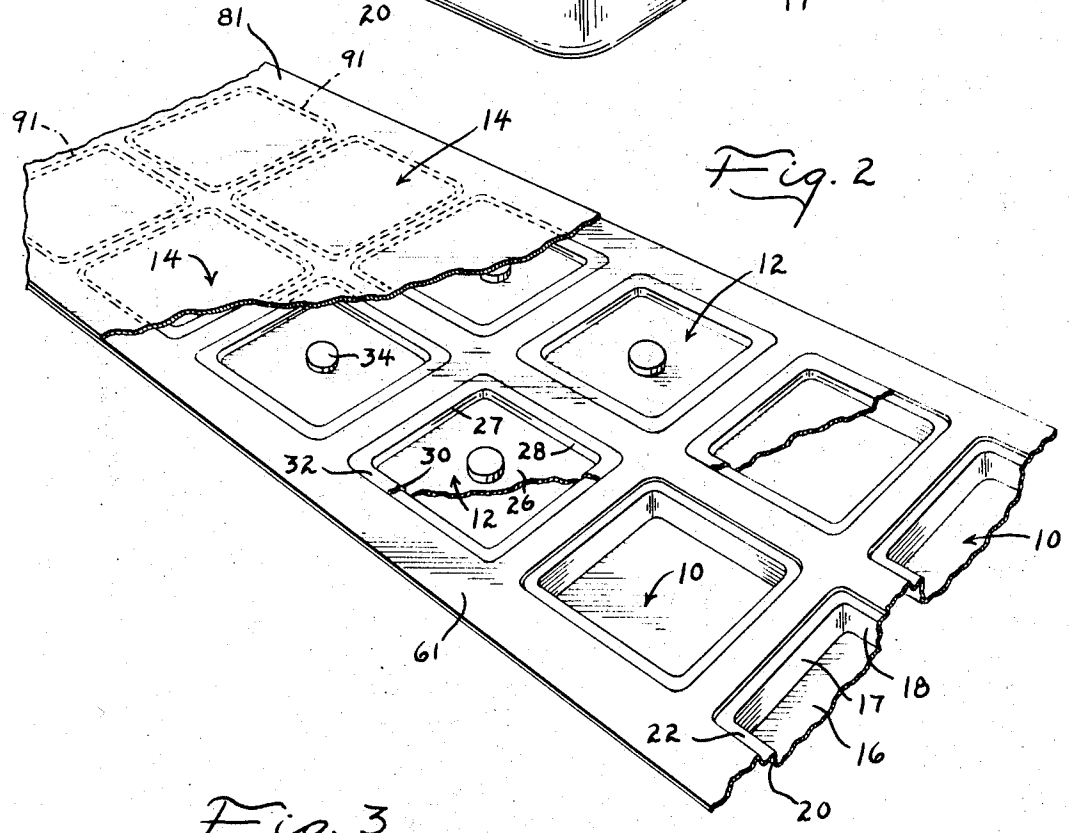
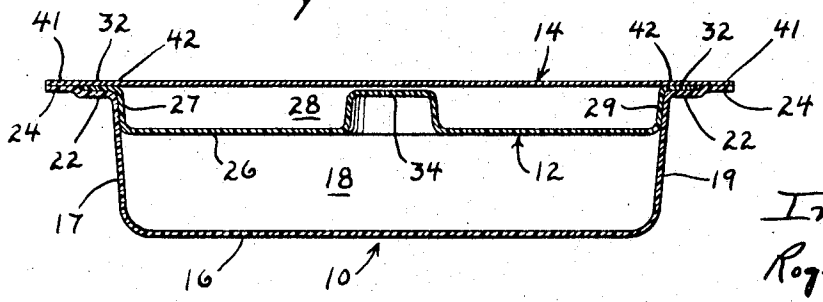


Fig. 3



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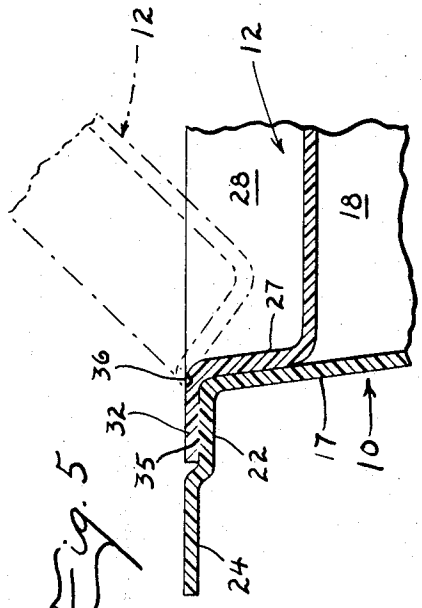

Fig. 5

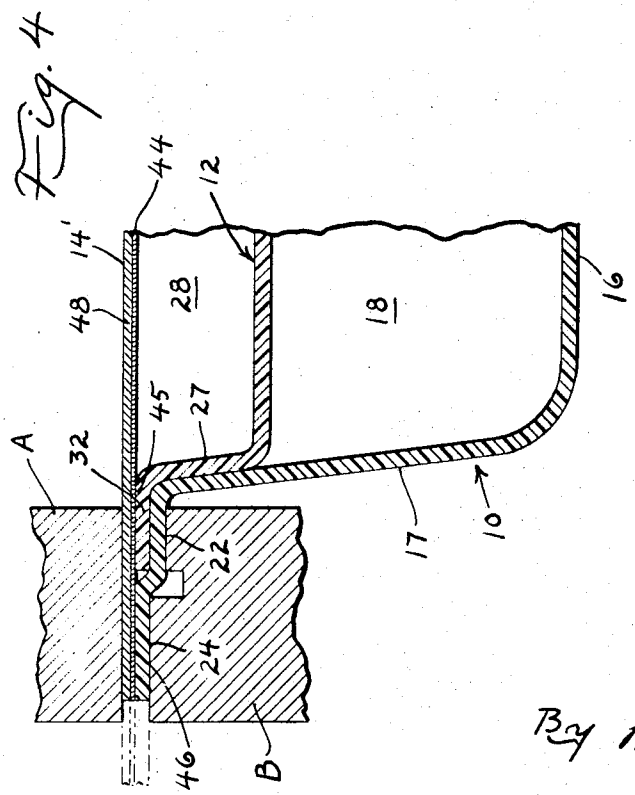

Fig. 4

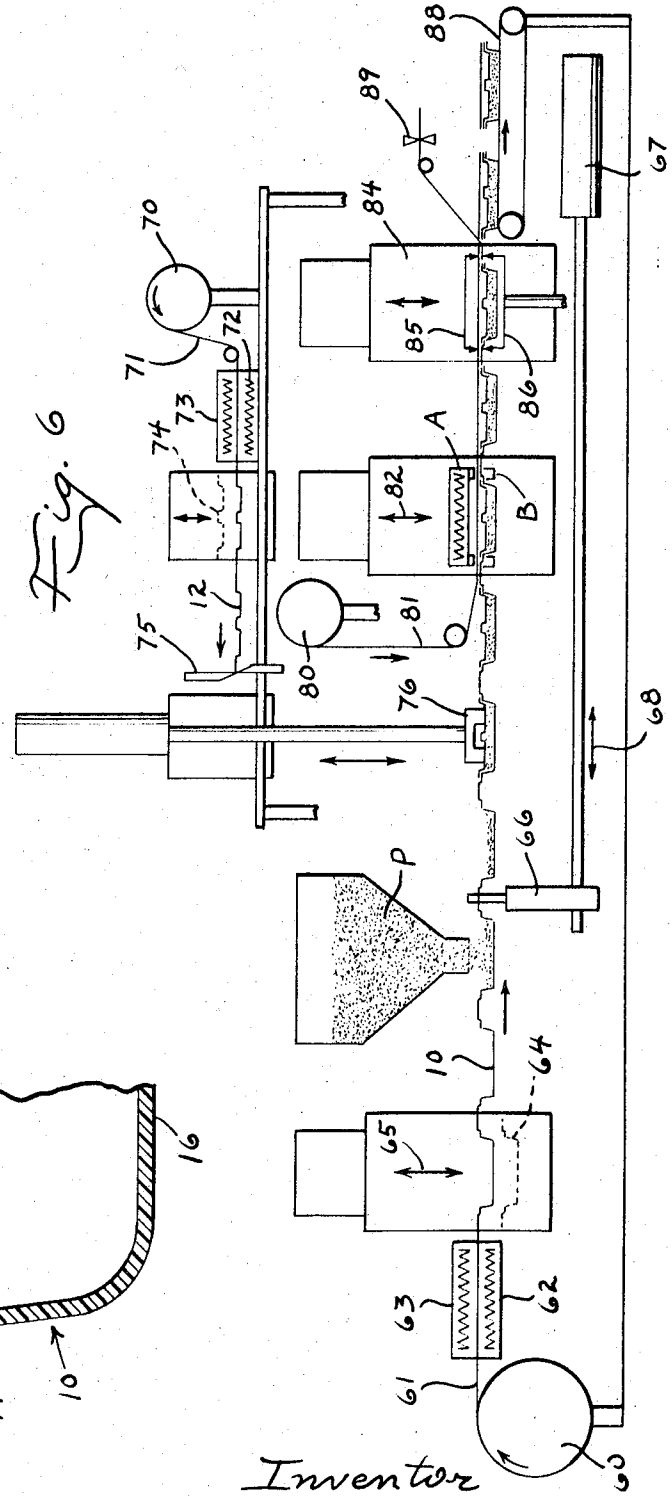

Fig. 6

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SEALED PACKAGE

This invention relates generally to packaging and more particularly to a sealed package.

It is an object of the present invention to provide a new and useful package having a dual seal.

Another object is to provide a package in accordance with the foregoing object, in which both seals are effectuated simultaneously.

Still another object is to provide a new and useful package having an inner and outer cover; which package will generally remain sealed should the outer cover be punctured.

Yet another object of the present invention is to provide a sealed package which can be reclosed and reused after the original seal has been permanently removed.

Other objects are to provide a sealed package having wide utility and good stacking characteristics, and which is easily manufactured and is highly sanitary.

These, and other objects and advantages of the present invention will become apparent as the same becomes better understood from the following detailed description of the sealed package and the steps of making the same, when taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of a preferred embodiment of the package of the present invention and showing the outer cover partially removed;

FIG. 2 is a perspective view of a plurality of packages of FIG. 1 and having parts broken away for better illustration;

FIG. 3 is a longitudinal sectional view of the package of FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view of another embodiment of the invention and illustrating a step of the member

FIG. 5 is an enlarged fragmentary sectional view of a hinge connection between the inner cover and cuplike member; and

FIG. 6 is a diagrammatic illustration of an apparatus for making the sealed package of the present invention.

Reference is now made more particularly to the drawings which illustrate the best presently known mode of carrying out the invention and wherein similar reference characters indicate the same parts throughout the several views.

The package of the present invention includes a cuplike member, designated generally by the numeral **20**, an inner cover, generally designated **12**, and an outer cover, generally designated **14**. While other shapes are contemplated, the cuplike member **10** is herein illustrated as generally rectangular and has a generally flat bottom **16** and sidewalls **17—20**. The sidewalls preferably slope uniformly outwardly from the bottom **16** for a purpose which will hereinafter become apparent. The upper ends of the sidewalls are preferably coplanar and define the open end of the cuplike member. An outwardly projecting flange extends outwardly around the periphery of the sidewalls and at the upper end thereof. The outwardly projecting flange includes an inner portion **22** and an outer or second portion **24** stepped above the inner portion a preselected distance. The inner portion **22** is preferably coplanar with the upper end of the sidewalls and extends a distance outwardly therefrom. The outer portion **24** has its upper face at a level above the upper face of inner portion **22** and defines a plane preferably parallel to the plane of the upper face of inner portion **22**.

Inner cover **12** is preferably made of thin material and, in the embodiment illustrated, includes a spanning portion **26** extending adjacent the sidewalls **17—20** preferably at a level below the upper ends thereof. An intermediate portion in the form of walls **27—30** extend upwardly from the spanning portion **26** and are tapered outwardly generally parallel to sidewalls **17—20** of the cuplike member. In this manner, the intermediate portion or walls **27—30** add rigidity to the inner cover **12** and, because of the taper of walls **27—30**, provide an advantageous self-centering action when the inner cover is placed in position and allows the inner cover to nest in the position illustrated in the drawings with walls **27—30** generally contiguous to sidewalls **17—20**. A peripheral portion **32** extends outwardly from the intermediate portion and is engaged with inner portion **22** of the cuplike member **10**. The upper surface of peripheral portion **32** is preferably coplanar with outer portion **24** for a purpose which will hereinafter become apparent. Thus, the thickness of peripheral portion **32**, which is preferably uniform, determines the above-mentioned predetermined distance that the upper surface of outer portion **24** is above the upper surface of inner portion **22** of the flange. The reclosable inner cover advantageously has a finger grip means to aid in removal of the inner cover to provide access to a product contained in cuplike member **10** beneath the level of inner cover **12**. For this purpose, an upstanding boss **34** is provided on the spanning portion **26** and rises upwardly to a level not above the level of the plane defined by peripheral portion **32**. While it is contemplated that other types of finger grip means may be provided, such as an upstanding tab or a projection on the intermediate portion, the upstanding boss **34** serves to further rigidify the inner cover.

As shown in FIG. 5, peripheral portion **32** may be sealed to inner portion **22** along one side of the package, as shown at **35**. This may be accomplished by heat sealing, for example, along one of the sidewalls, as sidewall **17**, to effectuate a hinge connection between the inner cover **12** and cuplike member **10** adjacent that sidewall. To provide ease in hinging, a notch **36** may be provided on the upper surface of peripheral portion **32** adjacent seal **35** to define a convenient fold line. In this manner, when outer cover **14** is removed inner cover **12** may be moved upwardly as shown in phantom in FIG. 5 to provide access to the product therebelow.

Outer cover **14** is preferably a thin, flexible, flat sheet which is sealed to the outer portion **24** of cuplike member **10**, as at **41** (see FIG. 3. Outer cover **14** is also preferably sealed outwardly of sidewalls **17—20**, as at **42**, to the upper surface of peripheral portion **32** of inner cover **12**. This provides an advantageous dual seal in which the upper surface of the inner cover is sealed from leakage of any product into that area, thereby always keeping the finger grip means clean. In this manner also, an accidental piercing of the outer cover **14** does not destroy the seal of the package. If compatible thermoplastic materials are selected, seals **41** and **42** may be accomplished by heat sealing, and outer cover **14** can be a thin, clear thermoplastic, if desired. This allows the packager wide scope in that the inner cover may have printing thereon and the outer cover, being clear, provides a window for the printing. Since the outer cover is generally peeled off, as shown in FIG. 1, and discarded by the consumer, printing on the reclosable inner cover serves as a constant advertisement for the product. For peeling of the outer cover, the flange of cuplike member **10** may include a stepped-down portion (not shown) outwardly of outer portion **24** and not sealed to outer cover **14**. This can provide a convenient grip for starting the peeling illustrated in FIG. 1. On the other hand, the use of thin plastic materials allows the consumer the alternative of cutting off outer portion **24** of the flange adjacent the end of peripheral portion **32** of inner cover **12**. This also leaves a neat, reusable container closable by inner cover **12**.

The package of the present invention, however, is not limited to compatible thermoplastic materials. As shown in the embodiment illustrated in FIG. 4, for example, if cuplike member **10** and inner cover **12** are not of compatible material, a different outer cover **14'** having a thin layer of adhesive **44** may be utilized. Of course, the adhesive **44** must be compatible with the materials of cuplike member **10** and inner cover **12**. Adhesive **44** may be heat sensitive or pressure sensitive and seals **45** and **46**, outwardly of sidewalls **17—20**, may be accomplished simultaneously by jaws A and B which may apply heat, or pressure, or both depending upon the selection of the packager. In one example of the package, there have been utilized thermoplastic materials for cuplike member **10** and inner cover **12** with outer cover **14'** comprising a thin aluminum outer layer **48** having a pressure-sensitive adhesive **44** bonded thereto.

The method of making a sealed package, as contemplated by the present invention, includes forming inner cover **12** of thin material, forming cuplike member **10** with inner portion **22** of the flange shaped for receiving inner cover **12** and with second portion **24** of the flange stepped above inner portion **22** a distance approximating the thickness of inner cover **12**, depositing a quantity of material to be packaged in the cuplike member, placing inner cover **12** in position engaged with inner portion **22** of the flange, supporting the inner and second portions **22** and **24** of the flange as by jaw B and thereby supporting the peripheral portion **32** of the inner cover, and pressing outer cover **14** against the supported second portion **24** of the flange and peripheral portion **32** of the inner cover as by jaw A, and thereby simultaneously sealing the outer cover thereto outwardly of the walls **17—20**.

An apparatus for making the sealed package of the present invention and performing the steps of the method is diagrammatically illustrated in FIG. **6**. A roll **60** of thermoplastic material is supported adjacent one end of the apparatus. A web **61** is advance longitudinally of the apparatus past successive stations. Heating heads **62** and **63** heat the web **61** so that it may be formed into the shape desired. At the next station, cuplike member **10** is pressure formed in web **61** by mandrel **64** adjacent one side of the web and pressure adjacent the other side. It is contemplated that vacuum forming may also be utilized and the term "pressure formed" should be taken as including both pressure and vacuum forming. Mandrel **64** moves in the direction of arrows **65** between a forming position generally contiguous to the web and a second position (shown in dashed lines) removed from the web so that the web may be intermittently advanced. Web advancement is accomplished by gripper **66** which is reciprocated by piston **67** in the direction of arrows **68**. At a third station, a preselected quantity of product P is dispensed into the cuplike member **10**. Simultaneously, a second roll of thermoplastic material **70** is supported on the machine and a web **71** withdrawn therefrom. In similar fashion, the web **71** is heated by heating members **72** and **73**, and inner cover **12** is pressure formed by mandrel **74**. The web is advanced to a cutting station where cutters **75** accurately cut the inner cover **12** to its required shape. The inner covers **12** are gripped by reciprocating head **76** which deposits the inner cover on the cuplike members **10** which have been filled with product P. The inclined walls of the cuplike member **10** and inner cover **12** provide a centering action whereby the inner cover is easily positioned during this operation. A third roll, comprising an outer cover material **80** of any desired type as described above, is supported on the apparatus and a thin, flexible sheet **81** is withdrawn from the roll. The sheet is positioned above the web **61** and the covers **12**. Portions **22** and **24** of the flange are supported outwardly of sidewalls **17—20** by jaw B, and an upper jaw A presses the thin, flexible sheet **81** against the flange and inner cover to simultaneously effect the double seal of outer cover **14** as described above. Both jaws are reciprocal in the direction of arrows **82**. At this point, a plurality of dual-sealed packages is interconnected in a continuous web as illustrated in FIG. **2**. The web of sealed packages is advanced to another station **84** where the packages are cut from the web as illustrated in FIG. **2**. The web of sealed packages is advanced to another station **84** where the packages are cut from the web by cutters **85** and **86**. The completed packages are deposited on a conveyor **88**, and the waste portion of the web is fed out of the machine and conveniently cut into small waste sections by cutters as at **89**. Cutting station **84** cuts the continuous web at trim lines designated at **91** in FIG. **2**. Preferably, this trim line is inside of the outer extremity of the seal effectuated by jaws A and B to insure that the seal between cover **14** and outer portion **24** of the flange extends entirely to the edge, as illustrated in FIG. **4**. This provides a very neat package with no loose outer cover unless a peel portion is desired as described above.

With the inner cover sealed to the outer cover, as described above, there will be no fog condition on the outer cover, and any printing on the inner cover **12** will not be concealed thereby. Additionally, by sealing the thin, flexible sheet **81** to the continuous web **61** containing cuplike members **10**, the cutting of the sealed sheet and web is performed simultaneously, thereby providing an easy way to cut a very thin outer cover sheet. In an alternate use, it is contemplated that another product (not shown) may be packaged between the outer cover **14** and inner cover **12**, if desired. By utilizing thermoplastic materials and heating them immediately prior to use, a very sanitary package is provided since the various sheets of material are sterilized immediately before use. Additionally, in an apparatus of this nature, the inner cover **12** can be date-coded during the forming operation, if desired.

It is deemed obvious that various shapes of packages can be made within the scope of the present invention and that multicompartment packages can be utilized, if desired.

The invention in its broader aspects is not limited to the specific steps and products shown and described, but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

I claim:

1. A sealed container comprising:

a member for receiving a product to be packaged and having a bottom, wall means extending upwardly from the bottom and having an upper end defining a plane, an outwardly projecting flange at the upper end and extending around the periphery of the wall means, said flange including an inner portion extending outwardly from the wall means and generally coplanar with the upper end of the wall means, said flange having a second portion outwardly of the inner portion and having an upper level disposed at a lever thereabove a preselected distance, said second portion defining a second plane generally parallel to the upper end of the wall means;

an inner cover for closing the upper end of the member and having a peripheral portion extending outwardly of the wall means and engaged with the inner portion of the flange, said peripheral portion having a generally uniform thickness approximating said preselected distance so that the upper level of the peripheral portion is generally coplanar with the upper level of said second flange portion; and

a flat outer cover of sheet material completely overlying the flange and the inner cover, a first peelable peripheral seal between the outer cover and the second portion of the flange outwardly of the wall means, a second peelable peripheral seal between the outer cover and the peripheral portion of the inner cover outwardly of the wall means whereby the upper surface of the inner cover is sealed from the product in said member, and the first and second seals being simultaneously peelable as the outer cover is removed.

2. A sealed container as set forth in claim **1** wherein the peripheral portion of the inner cover extends inwardly of the wall means of the member, and wherein the inner cover includes a spanning portion at least a portion of which is disposed at a level below the upper end of the wall means and extending adjacent the wall means, and an intermediate portion generally parallel to the wall means and connected to the spanning portion and the peripheral portion.

3. A sealed container as set forth in claim **1** wherein the wall means of the member tapers inwardly from the inner flange portion to the bottom so that the entire inner flange portion lies outwardly of the wall means.

4. A container which comprises, in combination, a box of a plastic material, said box including an inner flange and an outer, peripheral flange, an inner lid housed in said box, said inner lid having a peripheral flange bearing against said box inner flange, and said inner lid being adapted to be reused, an outer lid covering said inner lid and welded both to the periphery of said box outer flange and to at least part of the periphery of said peripheral flange of said inner lid bearing against said box inner flange to impede the escape of the con-

tents of the box past said inner lid, said outer lid being adapted to be removed, on breaking the welds by which it is welded to the periphery of said box outer flange and to said peripheral flange of said inner lid, both from the box and from the inner lid.

5. A container according to claim 4 wherein said outer lid is welded to the entire periphery of said peripheral flange of said inner lid.

6. A sealed package comprising:

an outer cup comprising a bottom, a sidewall extending upwardly from said bottom and a flange extending laterally outwardly from the top of said sidewall;

an inner cup comprising a bottom, a sidewall and a flange extending laterally outwardly from the top of said sidewall, the sidewall of said inner cup being smaller than the sidewall of said outer cup and said outer cup being deeper than said inner cup so that said inner cup may be within said outer cup, and the flange of said inner cup resting on an inner portion only of the flange of said outer cup;

a commodity in said inner cup;

a commodity in the portion of the outer cup not occupied by said inner cup; and

a lid sealed to both the flange of said inner cup and the portion of said flange of said outer cup which is not covered by the flange of said inner cup.

7. A sealed package as set forth in claim 6 in which the flange of said outer cup has a recess to receive the flange of said inner cup, the depth of said recess being about the same as the thickness of the flange of said inner cup so that the respective flanges present a substantially flat surface for sealing to a flat lid.

8. A sealed package as set forth in claim 7 in which said recess is wider than the flange of said inner cup so that there is a groove between the upper surfaces of the flanges to facilitate lifting said inner cup.

9. A sealed package as set forth in claim 6 in which said lid is a substantially flat lid which is hermetically sealed to the flanges of both of said cups.

10. A sealed package as set forth in claim 6 in which the interior width of the sidewall of said outer cup is substantially the same as the exterior width of the sidewall of the inner cup so that movement between the cups is limited.