United States Patent [19]

Arneson

[11] **3,767,108**

[45] **Oct. 23, 1973**

[54] **SINGLE SERVING PACKAGE**

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[52] **U.S. Cl.** ..... **229/31**, 229/1.5 B, 229/2.5

[51] **Int. Cl.** **B65d 5/24**, B65d 3/00

[58] **Field of Search** ..... 229/31, 1.5 B, 1.5 H, 229/5.8, 2.5

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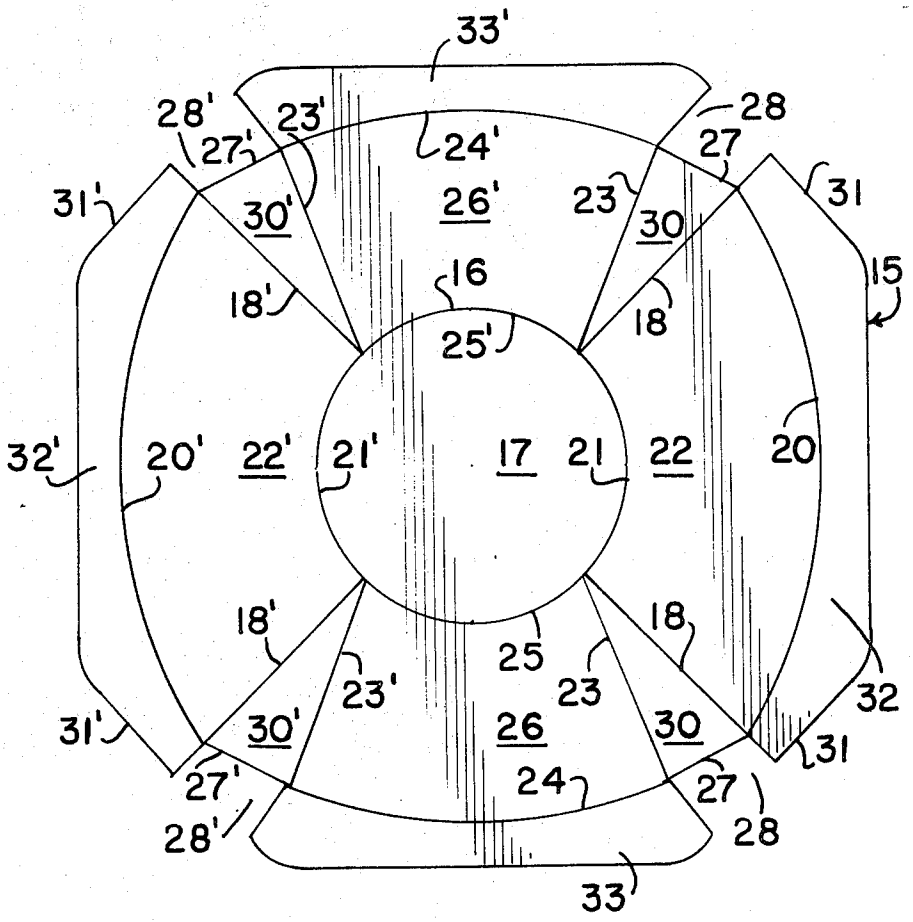
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[57] **ABSTRACT**

A container or package which is particularly adapted for disposable single use in the packaging of products such as, for example, food, where the container may be filled with a portion of the product suitable for a single serving and capable of being consumed from the package. The container is formed from a single paperboard blank which is cut and scored so that it may be folded into a cup-like, or dish-like, body shape which is leakproof and which has an edge flange or margin to which the margins of a cover film may be secured.

1 Claim, 12 Drawing Figures



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FIG. 1

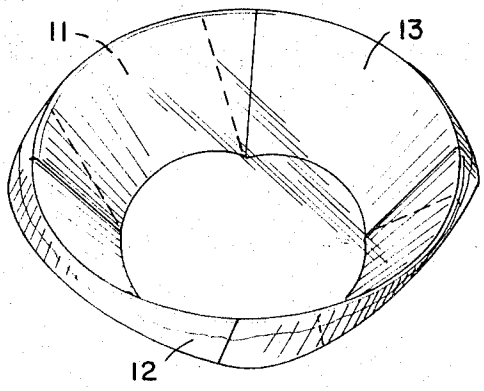
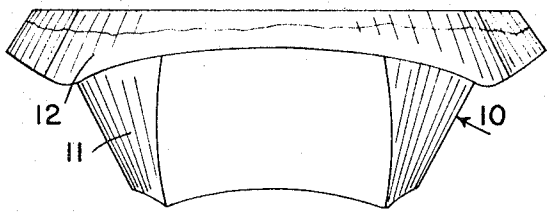


FIG. 2



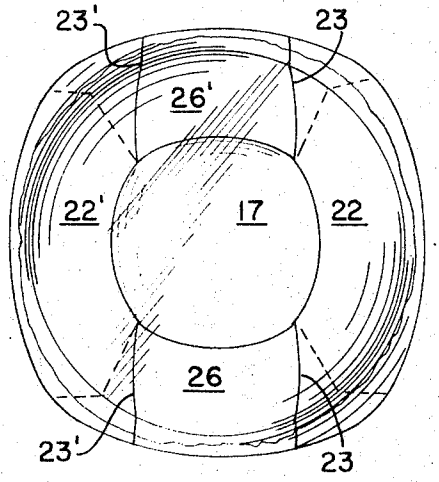


FIG. 3

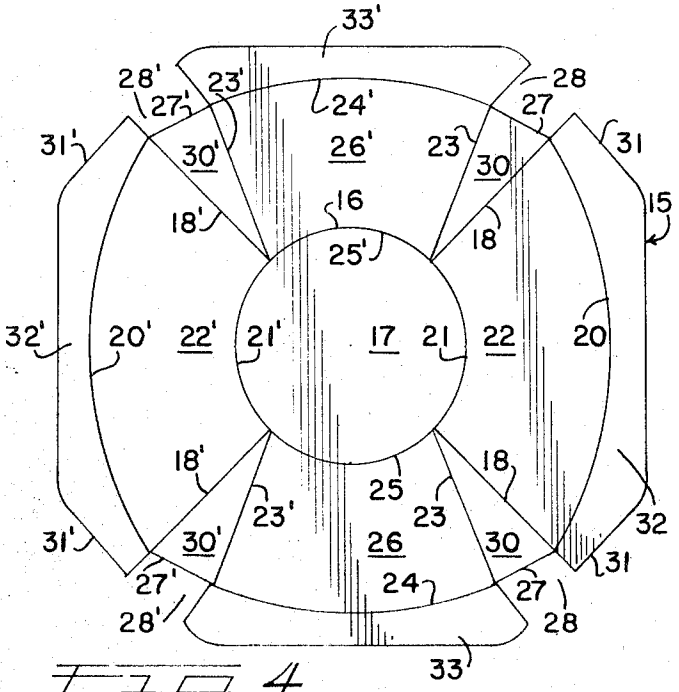


FIG. 4

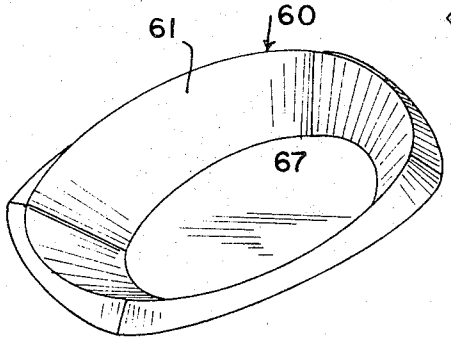


FIG. 5

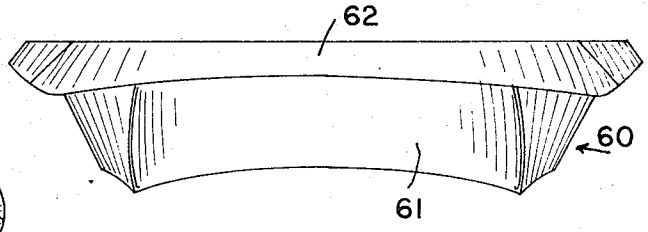


FIG. 6

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FIG. 7

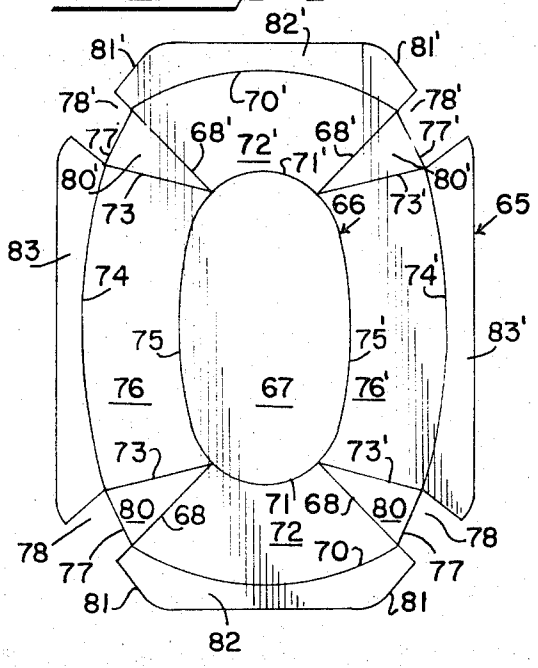


FIG. 10

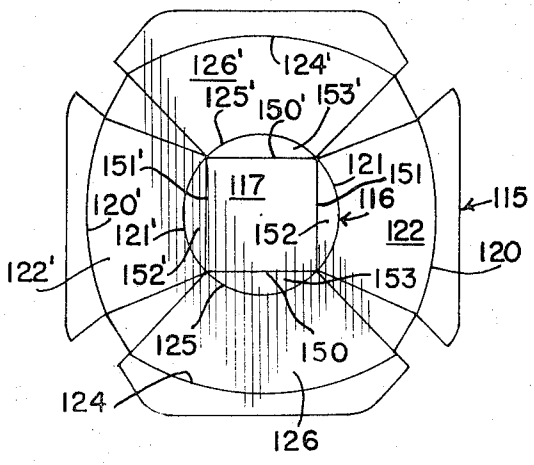
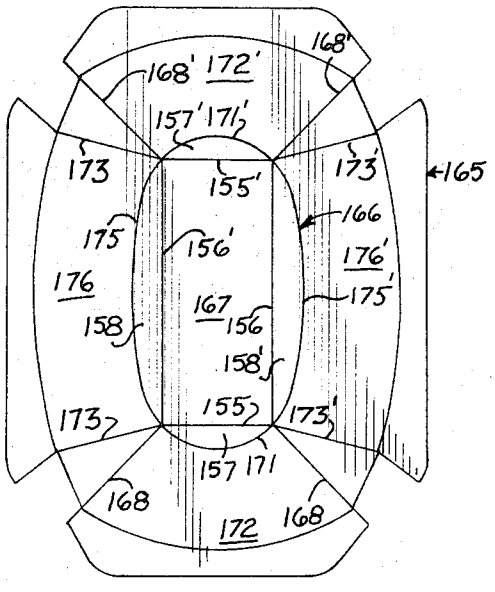


FIG. 12



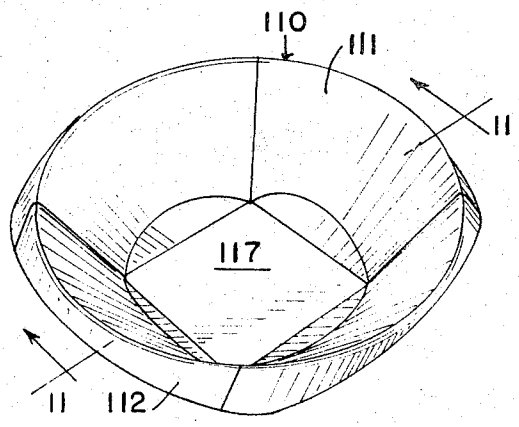


FIG. 8

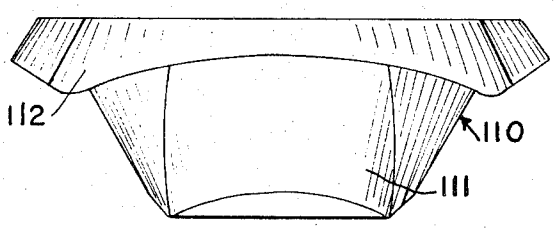


FIG. 9

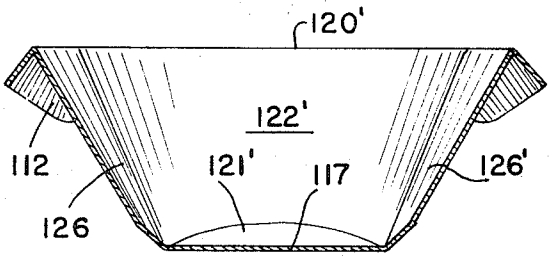


FIG. 11

SINGLE SERVING PACKAGE

This invention relates to packaging and is more particularly concerned with improvements in a package, and a container therfore, which is formed of foldable sheet material and which is especially adapted for use in the marketing of various items, such as, for example, food products, or the like.

Many different types and designs of containers have been developed for packaging food products and the like in order to meet the needs of particular markets. Recently there has developed a need for better packaging units in the "single serving" package market. In the packaging of food products in relatively small portions, such as, for single servings, paper cups and tubs or plastic cups and tubs have generally been resorted to as suitable containers, particularly where it is desired to package small quantities of a product which may be consumed directly from the package and the empty container discarded. Many of the containers available are not particularly adapted for use in this kind of a package either because of their shape, physical characteristics or cost of manufacture, handling or the like. It is a general object, therefore, of the present invention to provide a package or a container for forming the same which is particularly adapted for use in the "single serving" package market, which can be manufactured in large quantities from relatively inexpensive paperboard or similar foldable sheet materials and which can be made sufficiently attractive so as to be aesthetically acceptable to a large number of potential users.

It is a more specific object of the invention to provide a package employing a container which is particularly adapted for foods and similar products, in relatively small quantities, so that they may be consumed directly from the package, which will present a neat and attractive appearance when filled with the product, which can be supplied at sufficiently low cost to justify discarding after a single use and which is readily adaptable to formation, filling and closing by machinery of relatively simple design.

A further object of the invention is to provide a package employing a container which is adapted to be formed of a single sheet of paperboard or similar material, cut and folded so as to have the form of a dish or bowl which can be made sufficiently attractive for serving food and which is adapted to receive a closure film or membrane sheet which may be readily removable to provide access to the contents of the package.

Another object of the invention is to provide a container for packaging products which is formed from a single sheet of paperboard or similar foldable sheet material wherein the sheet is cut and folded so as to form a bowl-like container with gusseted side wall seams and a marginal flange formation enabling the container to be filled to the brim with a liquid product without leakage at the seams and to be readily closed by the application of a cover sheet, of either transparent or opaque material, with its margins secured to the flange formation.

Still another object of the invention is to provide a container of paperboard or similar material which is formed from a single blank cut and scored to provide a bowl-like shape with gusseted side wall seams and a marginal flange formation adapted to receive the margins of a cover sheet wherein the walls and flange are formed so that the material is curved and placed under stress thereby resulting in a container with greatly increased rigidity for the weight or caliper of the stock material employed in the blank.

Another object of the invention is to provide a container for forming a package which is fabricated from a single sheet or blank of paperboard or similar material, with the blank being cut and folded so as to have the form of a cup or bowl with gusseted side wall portions which render the container wall leakproof and with a top marginal rim formation which lends rigidity to the container and enables it to be readily closed by application of a cover member with its margins engaging the rim formation.

A still further object of the invention is to provide a container for packaging products of the type described wherein the bottom wall forming panel has a perimeter defined by straight hinge lines and upwardly bowed score lines are provided in side wall forming panel portions adjoining the hinge lines connecting the bottom wall forming panel and the side wall forming panel portions resulting in planar panels at the bottom of the side wall which merge into curved side wall panel portions, with the latter extending to a curved top edge.

These and other objects and advantages of the invention will be apparent from a consideration of the several forms of package which are shown by way of illustration in the accompanying drawings wherein:

FIG. 1 is a perspective view of a package having a bowl-shaped body of generally round configuration;

FIG. 2 is a side elevational view of the package of FIG. 1;

FIG. 3 is a top plan view of the package of FIG. 1;

FIG. 4 is a plan view of a paperboard blank cut and scored to provide the container which is illustrated in FIGS. 1 to 3;

FIG. 5 is a perspective view of a modified form of the container which is of generally elliptical shape;

FIG. 6 is a side elevational view of the container shown in FIG. 5;

FIG. 7 is a plan view of a paperboard blank cut and scored to provide the container shown in FIGS. 5 and 6;

FIG. 8 is a perspective view of a further modified form of the container of FIG. 1;

FIG. 9 is a side elevation of the container of FIG. 8;

FIG. 10 is a plan view of a paperboard blank cut and scored preparatory to forming the container of FIG. 8;

FIG. 11 is a cross section taken on the line 11—11 of FIG. 8; and

FIG. 12 is a plan view of a paperboard blank cut and scored to provide a modified form of the container of FIG. 8, the container having an elliptical configuration.

In each of the packages and containers illustrated in the drawings, a bowl-like container body is provided which is fabricated from a single paperboard blank. In each form thereof illustrated the container, which is adapted to be filled with the product to be packaged, has a bottom wall and upwardly and outwardly tapering side wall portions terminating at an outwardly extending, marginal flange or rim formation, enabling the adhering thereto of the margins of a closure or cover sheet or membrane which may be a plastic film, transparent or opaque, for enclosing the product therein.

Referring first to FIGS. 1 to 4, there is illustrated a package embodying the invention which comprises a container 10 having the shape of a bowl with an upwardly and outwardly tapering side wall 11 terminating at a top marginal flange 12 which extends outwardly

and slants downwardly for receiving the marginal portions of a cover member **13**. The cover margins are secured on the flange **12** so as to enclose a product in the container **10**.

The container **10** is formed from the blank **15** which is cut and scored as illustrated in FIG. **4**. The blank **15** is formed from a square sheet of paperboard or similar foldable sheet material of suitable gauge, weight or caliper for the size of the container and/or the weight of the product being packaged. A circular score **16** is provided in the center of blank **15** which circumscribes a bottom wall panel **17** and constitutes a bottom edge forming hinge line. Four radially extending score lines **18, 18** and **18', 18'** which are spaced 90° apart about the circular score line **16**, extend outwardly therefrom in paired relation to top edge forming score lines **20, 20'** which are formed on a radius which is longer than the radius of the circular score line **16** by an amount which will provide the desired side wall depth dimension. The score lines **20, 20'** extend between outer portions of the pairs of radial lines **18, 18** and **18', 18'** on oppositely disposed sides of the bottom wall forming panel **17** and these lines, together with portions **21, 21'** of line **16**, define side wall forming panel portions **22, 22'**. The blank is provided with a further set of score lines **23, 23** and **23', 23'** and these lines extend, in paired relation, each from a point where the associated radial lines **18, 18**, and **18', 18'** intersect the circular line **16** at an acute angle to the associated lines **18, 18, 18', 18'** and in an outward direction, to score lines **24, 24'** which are on the same radius as the score lines **20, 20'** and which are adapted to form, when the blank is folded, the portion of the top edge of the container **10** between top edge portions formed by the score lines **20, 20'**. The score lines **23, 23', 24** form with portion **25** of the circular score line **16** a side wall forming panel portion **26** while the score lines **23, 23', 24'** form with portion **25'** of the circular score line **16** a side wall forming panel portion **26'**. Adjacent ends of the circular or curved score lines **20, 20'** and **24, 24'** are disposed at the ends of cutting lines **27, 27**, and **27', 27'** which form the inner edges of notched out corner areas **28, 28** and **28', 28'**. These areas are disposed at the outer ends of the triangular web formations or gusset panels **30, 30** and **30', 30'** which are defined by the four pairs of score lines **18, 23; 18, 23; 18', 23'; 18', 23'** and the associated cutting lines **27, 27, 27', 27'**, respectively. The four corners of the blank **15** are cut away on the lines **31, 31, 31', 31'** leaving pairs of flange forming panels **32, 32'** and **33, 33'** extending between the notched out areas **28, 28; 28', 28'** and **28, 28'; 28, 28'** and outwardly of the pairs of top edge forming score lines **20, 20'** and **24, 24'**.

In setting up or forming the container the inside face of the blank **15** is coated with a heat sealable material if an uncoated stock material is employed. A stock material may be employed which is precoated with a suitable adhesive substance. The blank may be conveniently folded on a punch and die type folding machine of relatively simple design so as to bring the web-like panels **30, 30, 30', 30'** against the end margins of the outside faces of the side wall panels **22, 22'** and the adjacent inside end marginal portions of the panels **26** and **26'**, where they are concealed while forming leakproof gusset seams connecting the erected side wall forming panel portions in the set up position of the container. The flange forming marginal panels **32, 32'** and **33, 33'** are folded outwardly and downwardly with adjacent end marginal portions overlapped and secured together so as to form a continuous, outwardly and downwardly slanted or tapering flange **12** extending about the entire periphery of the top edge of container **10**.

The container thus formed has the shape of a bowl with circular top and bottom edges and with gusseted side wall seams so that it may be filled with a product in either a dry or wet state to the top edge without any leakage at the side wall seams and thereafter closed by the application of a closure sheet or membrane **13** with the margins heat sealed to the exposed top faces of the flange formation **12**. The resulting package is leakproof up to the overflow point since the structure is webbed or gusseted. It has an extremely high degree of rigidity for the caliper of paperboard employed due to the fact that throughout the paperboard is curved and held under stress.

A modified form of the container is illustrated in FIGS. **5** and **6** wherein the container **60** is elongated with top and bottom edges of the upwardly and outwardly tapering side wall **61** being of approximately elliptical or oval shape and with an outwardly and downwardly turned top edge flange or rim **62** on which the margins of a cover sheet (not shown) may be secured.

The blank **65** is scored on an approximately elliptical or oval line **66** in the center portion thereof which circumscribes a bottom wall panel **67**. Score lines **68, 68** and **68', 68'** extend outwardly from the score line **66** in paired relation to top edge forming score lines **70, 70'** which are formed on a radius longer than the radius of the portions **71, 71'** of the score line **66** with which they co-operate to form side wall forming panels **76, 76'**. The score lines **68, 68** and **68', 68'** extend radially with respect to the portions **71, 71'** of the score line **66** and the difference in the radius for the inner score line portions **71, 71'** and for the outer score line portions **70, 70'** will depend upon the desired side wall depth dimension. Further non-radial score lines **73, 73** and **73', 73'** extend, in paired relation, from a point where the associated score lines **68, 68** and **68', 68'** intersect the score line **66**, outwardly at an acute angle to the associated score lines **68, 68** and **68', 68'**, and terminate at the ends of outer score lines **74, 74'**. The latter are circular segments approximately parallel with the circular segments **75, 75'** which form the longer side portions of the score line **66**. The outer score lines **74, 74'** are on a radius longer than the radius for the inner score line portions **75, 75'** by an amount which will be determined by the desired side wall depth dimension. The score lines **73, 73, 74, 75** and **73', 73', 74', 75'** define side wall forming panel portions **76, 76'**. Adjacent ends of the outer curved score lines **70, 70'** and **74, 74'** are disposed at the ends of cutting lines **77, 77'** and **77, 77'** which form the inner edges of notched out corner areas **78, 78** and **78', 78'**. These areas are at the outer ends of triangular web or gusset formations **80, 80** and **80', 80'** which are defined between the pairs of score lines **68, 73; 68, 73** and **68', 73';68', 73'** and the associated cutting lines **77, 77** and **77', 77'**. The four corners of the blank **65** are cut away on the lines **81, 81, 81', 81'** leaving pairs of narrow flange forming panels **82, 82'** and **83, 83'** extending between the notched out corner areas and outwardly of the score lines **70, 70'** and **74, 74'**.

The blank **65** is set up to form the container **60** in the same manner as described with reference to forming of container **10** with the blank **15.** The gusset forming webs **80, 80, 80', 80'** are adhered between overlapped end marginal portions of the side wall panels **72, 72', 76, 76'.** The adjacent ends of the flange portions **82, 82'** and **83, 83'** are overlapped and sealed so as to provide a top surface for adhering thereto the margins of a cover sheet (not shown), when the container is filled with a product, to complete the package.

In FIGS. **8** and **9** there is illustrated a modified form of the container illustrated in FIGS. **1** to **3.** Only so much of the modified container will be described as is necessary to understand the difference in structure over the container **10.** Items corresponding to those shown in the blank **15** will be identified by the same numeral plus **100.** The container body **110** is provided with a bottom having its edges defined by straight lines forming a square configuration and an upwardly slanted or tapered side wall formation **111** which extends to a circular top edge with an outwardly extending, downwardly slanted top flange or rim formation **112.**

The container **110** is fabricated from a blank **115** which is cut and scored as shown in FIG. **10.** The blank **115** is formed from a square sheet of stock material which is cut and scored the same as the blank **115** except for the addition of straight score lines **150, 150'** and **151, 151'** which form a square configuration within a circular score line **116** in the center of the blank and which constitute bottom edges when the container is set up. The corners of the square coincide with the points of intersection of the radial lines **118, 118, 118', 118'** and the circular score line **116.** The score lines **150, 150'** and **151, 151'** define the bottom edges of the container bottom **117** and with the portions **121, 121'** and **125, 125'** of the circular score line **116** define small panels **152, 152'** and **153, 153'** which extend into the associated side wall panel portions **122, 122'** and **126, 126'** and which, in the set up condition of the container, form planar side wall panel portions adjoining the hinge connection of the side wall panel portions with the bottom wall panel, while the remainder of the side wall panel portions which extend to the circular segments **120, 120', 124, 124'** forming the top edge of the container are of outwardly bowed or curved configuration. The provision of the flat panel portions **152, 152', 153, 153'** adjoining the bottom hinge lines permits the bottom panel **117** to remain flat when the container is set up and also provides a more uniform side wall structure. The blank is cut to provide marginal panels for forming the outwardly directed flange **112** but other rim formations may be employed, such as a rolled rim, on which a closure member may be seated and frictionally held thereon or otherwise secured to close the top of the container.

In FIG. **12** there is illustrated a blank which is cut and scored for fabricating a modified form of the container which is illustrated at **60** in FIGS. **5** and **6.** To simplify the description, where the elements duplicate those employed in the blank **65** they will be referred to by the same number plus **100.** The blank **165** is generally rectangular and is cut and scored in the same manner as the blank **65** with the addition of the straight score lines **155, 155', 156, 156'** which form a rectangular configuration in the center of the blank with the corners thereof coinciding with the points of intersection of the radial score lines **168, 168, 168', 168'.** The score lines **155, 155', 156, 156'** co-operate with the circular segments **171, 171', 175, 175'** of the inner, generally elliptical score line to define panels **157, 157', 158, 158'** which extend from the edges of the bottom forming panel **167,** defined by the straight score lines, into the side wall forming panel portions **172, 172' 176, 176'** and form flat panels at the bottom of the latter when the container is set up in the same manner as described with reference to the other forms of the container.

I claim:

1. A container having the general shape of a bowl which is fabricated from a single blank of flexible paperboard material, said blank being cut and scored to provide in the set-up container a bottom wall forming panel and a plurality of upwardly and outwardly slanted side wall forming panel portions which are integrally connected to the bottom wall forming panel on straight hinge lines defining the perimeter of said bottom wall forming panel, each said side wall forming panel portion having an upwardly bowed score line at the bottom which provides a flat surface bottom side wall panel area which extends a relatively short distance above said hinged connection with the bottom wall forming panel and merges into the curved top area of said panel portion, said side wall forming panel portions being connected to each other at adjoining ends by integral triangular web portions, each of said web portions being connected to the end edges of a pair of side wall forming panel portions on hinge lines which form an outwardly opening V configuration, said web portions each extending from the hinge line along which the associated side wall forming panels are connected to the bottom wall forming panel to the top edges of said side wall forming panels and terminating at said top edges, said web portions being folded and secured between overlapping end margins of said pair of side wall forming panel portions, said side wall forming panel portions each having at the top edge a relatively narrow out-turned rim forming member which is hingedly connected to the top edge thereof, said rim forming members each having an end section which is overlapped and adhered to a like section of an adjoining rim forming member so as to form a relatively narrow continuous top edge reinforcing rim thereon which is outwardly and downwardly inclined, with said side wall forming portions and said rim forming portions both having continuous curved surfaces extending in the direction around the perimeter of said container and which are held under stress thereby imparting substantial rigidity to the container.

* * * * *