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Bestehorn et al.(10) **Pub. No.: US 2007/0295794 A1**(43) **Pub. Date: Dec. 27, 2007**(54) **CURVILINEAR PRODUCT PACKAGE**(30) **Foreign Application Priority Data**(75) Inventors: **Stephan Bestehorn**, Hannover
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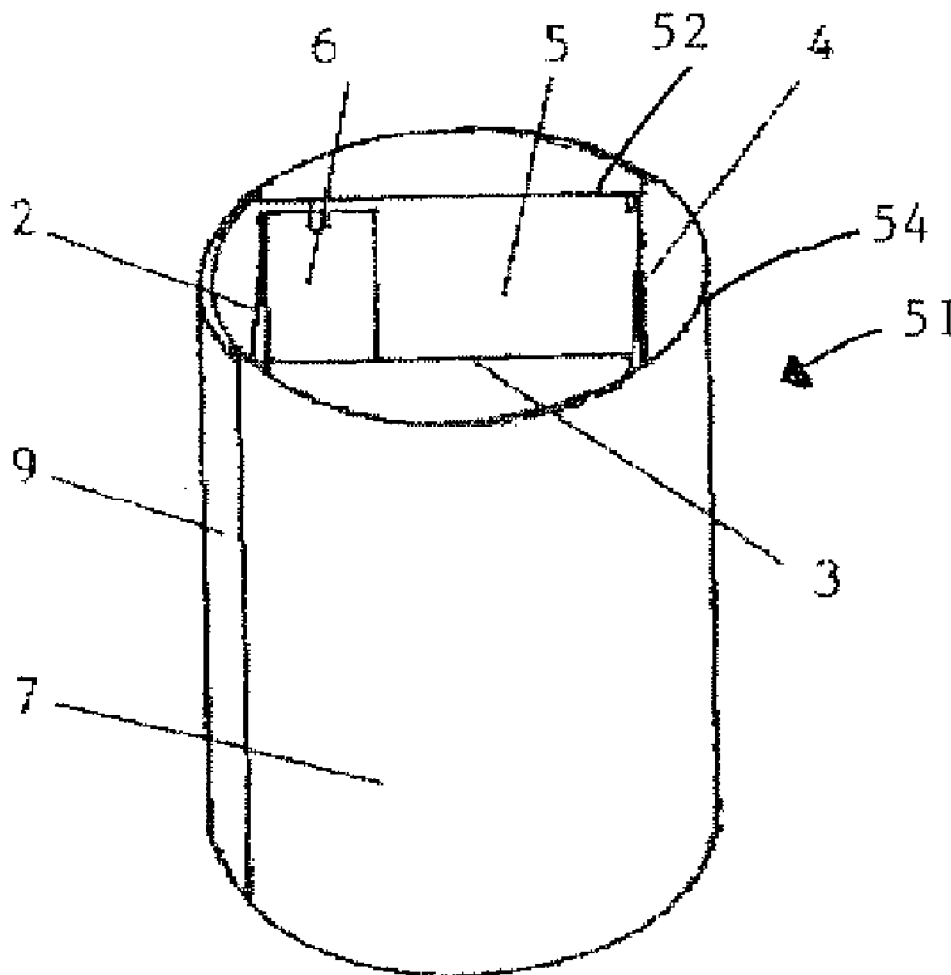
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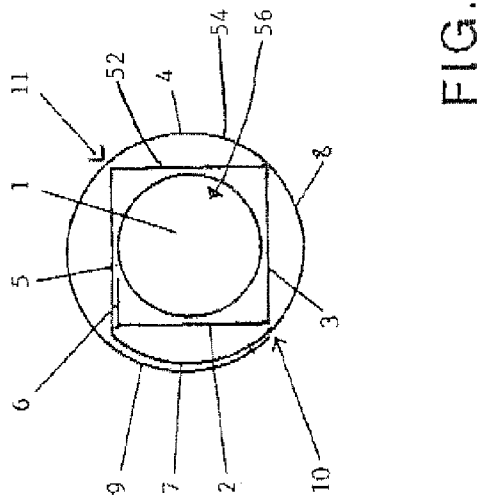
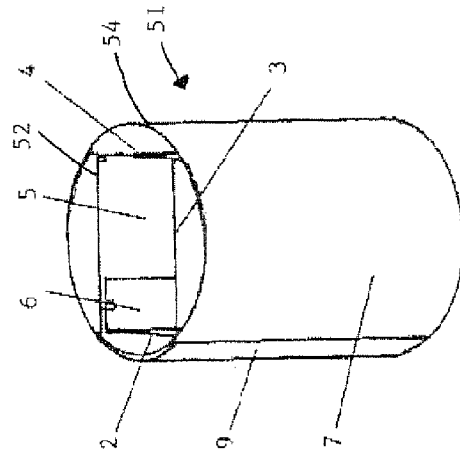
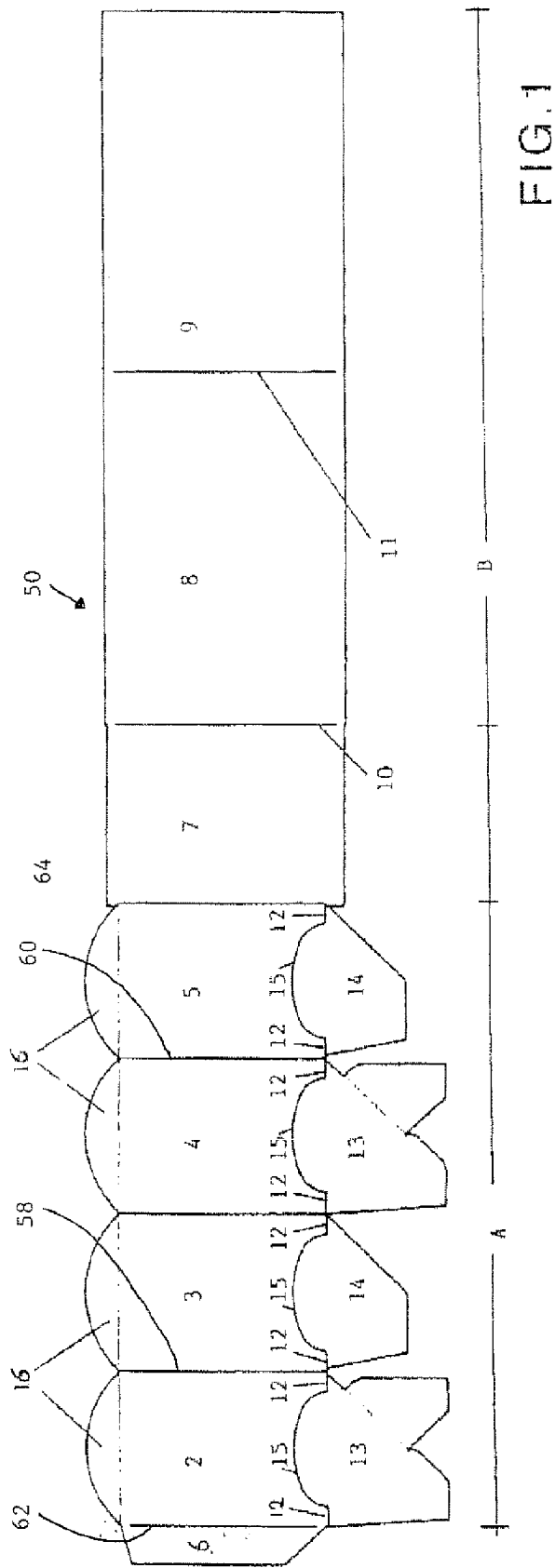
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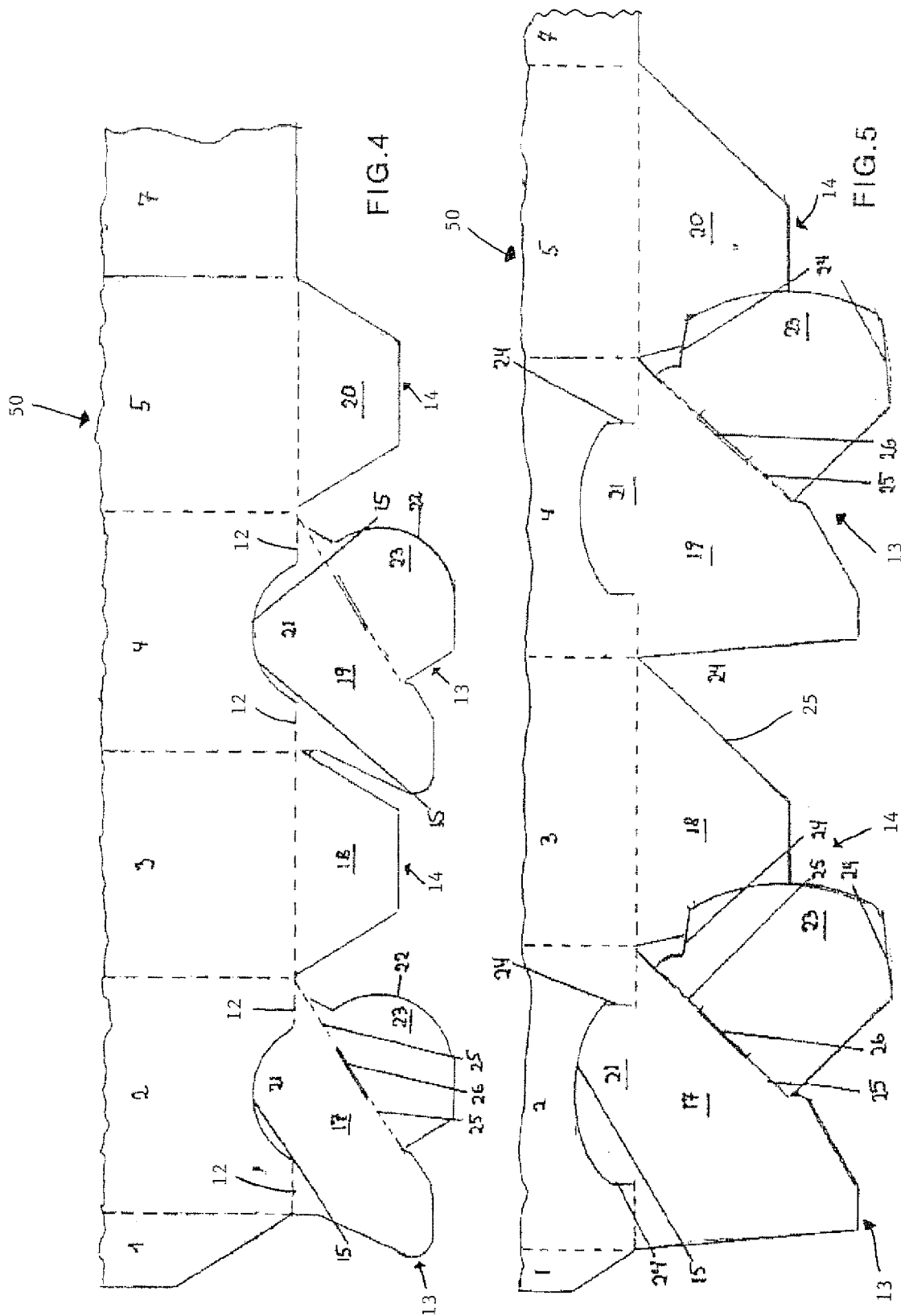
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A package assembly comprising a single piece blank folded to define a freestanding package having at least four panels, a set of bottom forming flaps and a first top flap, wherein at least two of the four panels form an inner package at least partially closed by the bottom forming flaps and the top flap and wherein at least two of the four panels form an outer package encompassing the inner package, the at least two panels forming an outer package being substantially curvilinear. The top flap may include tabs and a curvilinear periphery corresponding to a periphery of the outer package wherein the tabs and curvilinear periphery urges the periphery of the inner walls of the outer package to help maintain the package shape.







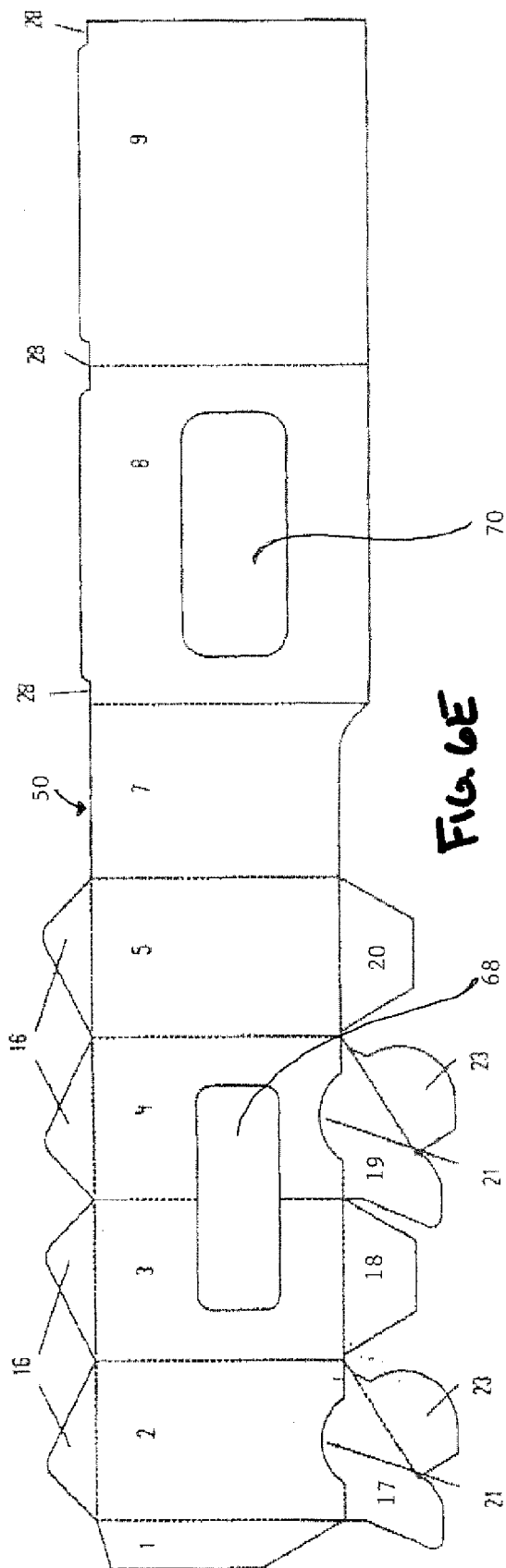
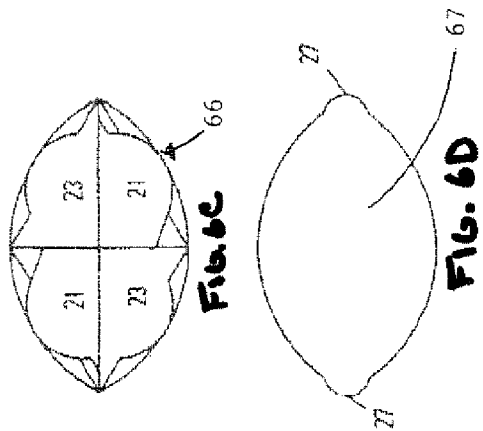
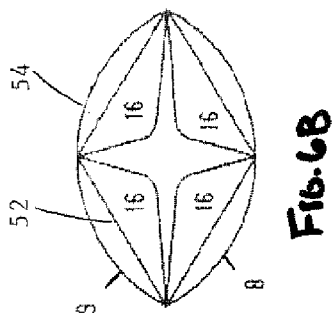
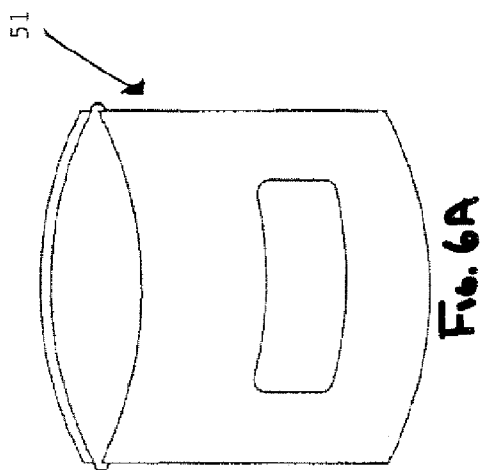
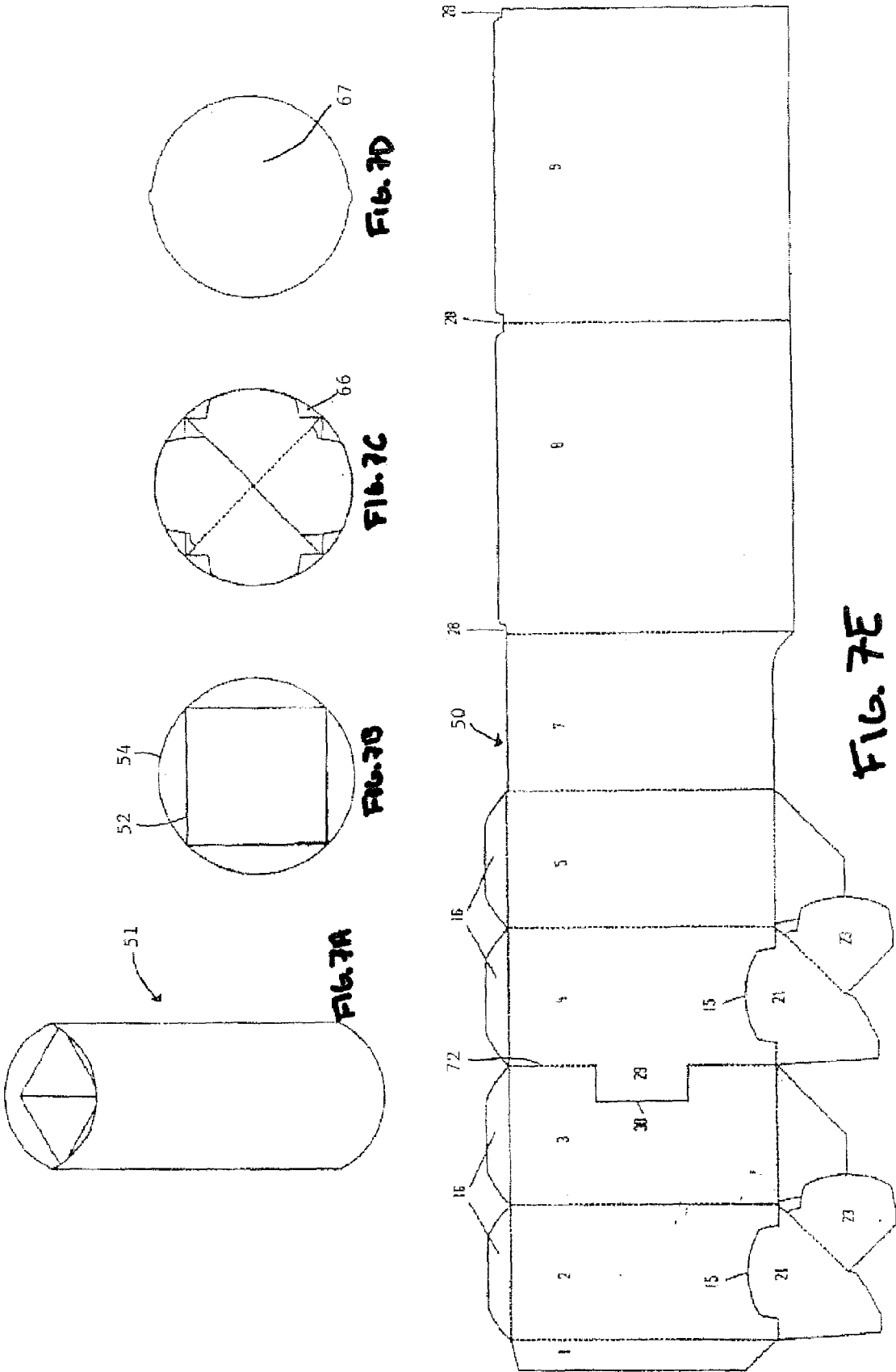
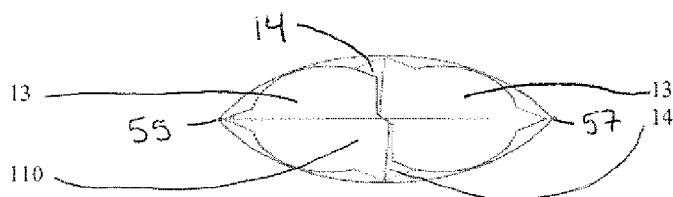
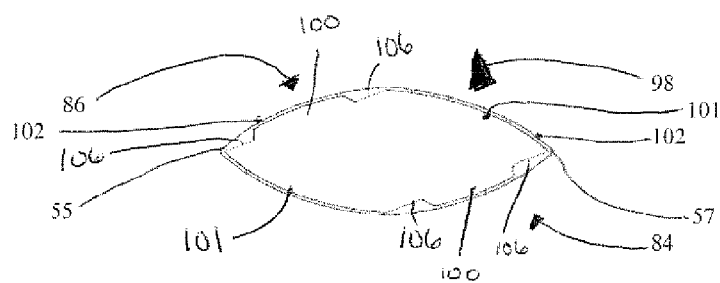
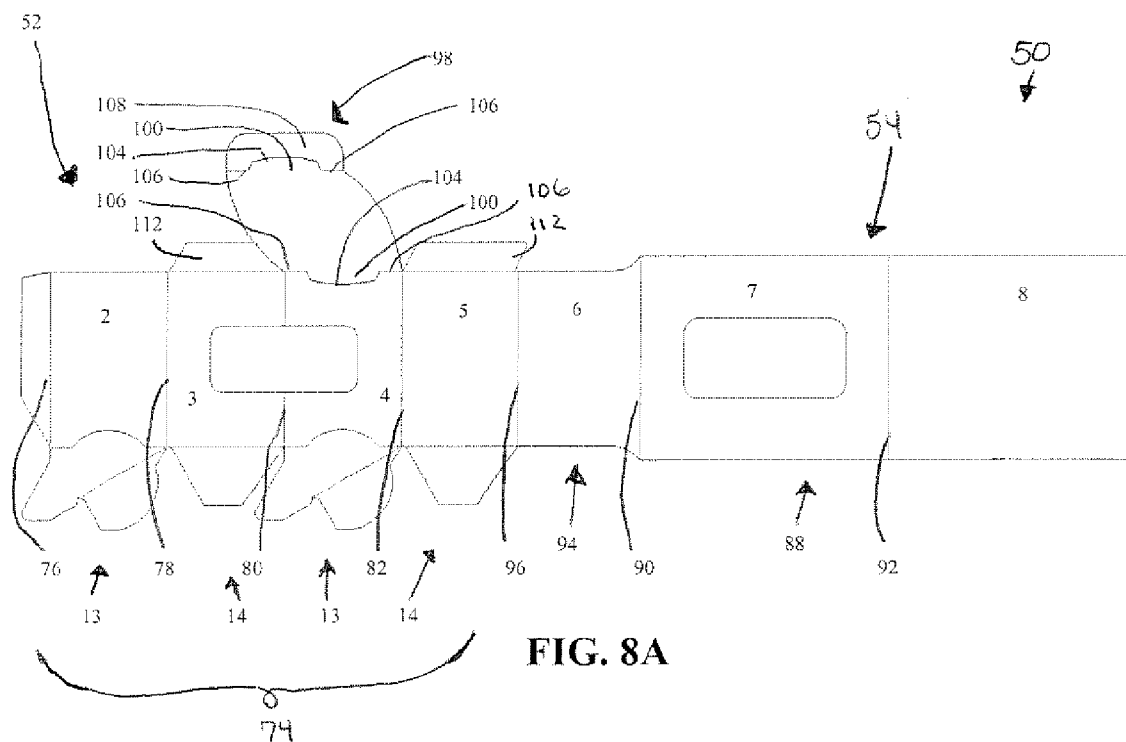


FIG. 6E





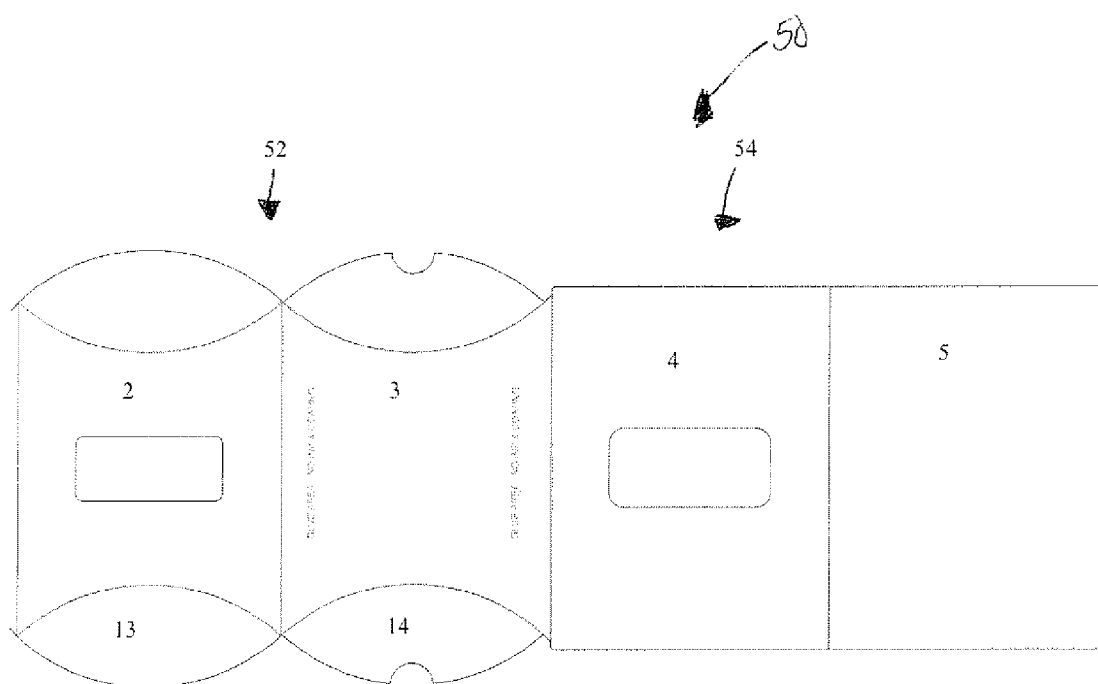


FIG. 9

CURVILINEAR PRODUCT PACKAGE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority of German Patent Application Number 10 2006 028 824.6, filed Jun. 21, 2006, which is hereby incorporated by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

REFERENCE TO A "SEQUENCE LISTING"

[0003] Not applicable.

TECHNICAL FIELD

[0004] The present invention relates generally to a container for receiving a plurality of product types and more particularly to a blank for forming a curvilinear package capable of standing on at least one of its curvilinear ends.

BACKGROUND OF THE INVENTION

[0005] Packages for holding products to be distributed and sold in the marketplace are well known in the art. It is desired to have a package that is attractive to a consumer so that one is more likely to notice and purchase the product. One type of attractive product package is a pillow shaped package. While aesthetically pleasing, pillow shaped packages do not stand upright, and therefore, are inconvenient for manufacturers and store owners because such packages are difficult to ship and display.

[0006] Therefore, the need exists for a product package that is attractive and interesting to the consumer but can stand upright so that the package is easy to ship and display on the shelves.

SUMMARY OF THE INVENTION

[0007] The present invention broadly comprises a single piece blank folded to define a freestanding package having at least four panels, a set of bottom forming flaps and a first top flap, wherein at least two of the four panels form an inner package at least partially closed by the bottom forming flaps and the top flap and wherein at least two of the four panels form an outer package encompassing the inner package, the at least two panels forming an outer package being substantially curvilinear.

[0008] A general object of the invention is to provide a curvilinear package that is attractive to the consumer.

[0009] Another object of the invention is to provide a curvilinear package which is freestanding

[0010] These and other objects, features and advantages of the present invention will become readily apparent to those having ordinary skill in the art upon reading the following detailed description of the invention in view of the several drawing figures.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0011] FIG. 1 is a top plan view of a blank of an embodiment of the present invention;

[0012] FIG. 2 is a top plan view of a package formed from the blank of the embodiment of the present invention;

[0013] FIG. 3 is a perspective view of the package formed from the blank of the embodiment of the present invention;

[0014] FIG. 4 is a partial top plan view of the blank of another embodiment of the present invention;

[0015] FIG. 5 is a partial top plan view of the blank of another embodiment of the present invention;

[0016] FIGS. 6A-6E are various views of another embodiment of the present invention;

[0017] FIGS. 7A-7D are various views of another embodiment of the present invention;

[0018] FIGS. 8A-8C are various views of another embodiment of the present invention; and

[0019] FIG. 9 is a top plan view of another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Referring to the figures, FIGS. 1-3 are views of a blank 50 of an embodiment of a freestanding package 51 (as shown in FIG. 3). The blank 50 is a single piece and comprises panels 2, 3, 4, 5, 6, 7, 8 and 9. The blank 50 forms an inner package 52 by folding panels 2, 3, 4 and 5 inwardly. The inner package 52 may be adhered together by the glue flap 6, which assists in securing the inner package 52 together. It should be appreciated that by "folding panels inwardly," it is meant that panels 2, 3, 4 and 5 are folded in a direction toward panels 7, 8 and 9 allowing the glue flap 6 to be adhesively secured to the panel 5. The panels 2, 3, 4 and 5 further have top glue-tabs 16 and bottom flaps 13 and 14. It should be appreciated that top glue-tabs 16 and bottom flaps 13 and 14 can partially close or fully close the top and bottom ends of the package 51, respectively, and these modifications are intended to be within the spirit and scope of the invention as claimed. Further, it should be appreciated that FIG. 1 shows a generic automatic bottom end closure for purposes of locating bottom flaps 13 and 14, and are described in more detail in FIGS. 4 and 5.

[0021] The panels 8 and 9 form a substantially curvilinear outer package 54 by encompassing inner package 52. That is, the panels 7, 8 and 9 are folded around the entire perimeter of the inner package 52 wherein a portion of the panel 9 overlaps the panel 7. By "substantially curvilinear," it is meant that portions of the outer package 54 may be curved or straight.

[0022] The panel 7 is an extending panel connecting the inner package 52 and the outer package 54 together. The panel 9 may be adhered to the panel 7. In a preferred embodiment, two glue strips (not shown) are placed on the panel 7 and the panel 9 is adhered thereto. However, it should be appreciated by those having ordinary skill in the art that other means for fixedly securing the outer package 54 to the inner package 52 are possible such as adhesive tape, staples, etc. and these means are intended to be within the spirit and scope of the invention as claimed.

[0023] The panels 2, 3, 4, 5, 6, 7, 8 and 9 have a width extending left to right in the figure and a height extending along a transverse direction. The extending panel 7 is slightly wider than the width of each panel 2, 3, 4 and 5, all having approximately the same width, to allow the panels 8 and 9 to extend slightly beyond the width of the inner package 52. Therefore, the outer package 54 is wider than the inner package 52 and is capable of accommodating the

circumference of the inner package 52. In addition, the panels 7, 8 and 9 have a common height and are all disposed in the same plane. The panels 2, 3, 4 and 5 are all in a same plane and have a different common height from panels 7, 8 and 9. That is, panels 2, 3, 4 and 5 are recessed with respect to the plane of panels 7, 8 and 9. Therefore, the package 51 stands along the plane of the panels 7, 8 and 9 forming the outer package 54 while the panels 2, 3, 4 and 5, forming the inner package 52, are recessed therein. This feature allows the package 51 to be freestanding while having a curvilinear cross-sectional shape.

[0024] When the blank 50 is assembled, the glue-tabs 16 can be folded inwardly or outwardly. By “folded inwardly,” it is meant that the glue-tabs 16 are folded toward an opening 56 of the package 51. By “folded outwardly,” it is meant that the glue-tabs 16 are folded away from the opening 56 of the package 51 and thereby urge against an inside surface of the panels 8 and 9. As described in more detail infra, a cover (for example, a cover 67 similar to that shown in FIG. 7D) can be adhered to the glue-tabs 16 to provide a top end closure of the package 51. It should be appreciated that the glue-tabs 16 are omitted from FIGS. 2 and 3 for purposes of clarity. The opening 56 is formed by the inner package 52 and receives product 1. The fold line 10, between the panels 7 and 8, aligns with the fold line 58 between the panels 2 and 3. Similarly, the fold line 11 aligns with the fold line 60 between the panels 4 and 5.

[0025] The glue flap 6 has a fold line 62 which aligns with the fold line 64 between the panels 5 and 7. It should be appreciated by those having ordinary skill in the art that the package 51 may be any curvilinear shape. For example, in FIGS. 2 and 3, the embodiment shown is cylindrical, while the embodiment shown in FIGS. 6 and 8 is elliptical. Adjustments to at least the diameter of the package 51 and the length of the panels 2, 3, 4, 5, 6, 7, 8 and 9 can be made to obtain a plurality of curvilinear shapes.

[0026] FIGS. 4 and 5 are partial top plan views of the blank 50 of a second embodiment showing the bottom locking flaps 13 and 14. More specifically, FIG. 4 shows the typical bottom locking flaps 13 and 14 for an oval shaped package 51 and FIG. 5 shows the typical bottom locking flaps 13 and 14 for a more cylindrical shaped package 51. The bottom locking flaps 13 comprise arched perforated sections 15 and fold lines 12, which allow for the formation of bottom inner wall contacting tabs 21. The flaps 13 also comprise an interlocking portion 17 and 19, and inner wall contacting tabs 23 having a periphery 22. A perforation 26 is formed between a fold line 25 which allows the contacting tabs 23 to be folded more easily. By “inner wall contacting tabs,” it is meant that the tabs 21 and 23 urge against the inner surface of the outer package 54 when the blank 50 is assembled, and the bottom locking flaps 17, 18, 19 and 20 are closed. More specifically, when the blank 50 is assembled, the tab 23 of the panel 2 is adhered to the flap 18 such that the tabs 21 and 23 extend outwardly from the inner package 52. Similarly, the tab 23 of the panel 4 is adhered to the flap 20 such that the tabs 21 and 23 extend outwardly from the inner package 52. To form a closed bottom of the package 51, the tabs 23 are actuated over the flaps 18 and 20. Then the interlocking portions 17 and 19 are overlapped to automatically form a bottom end 66 (as shown in FIG. 6C) of the package 51. For the cylindrical shaped configuration as shown in FIG. 5, the interlocking portions 17 and 19 are overlapped until the set of perimeter sections 24 on tab 23

of the panel 2 are substantially parallel with respect to the set of perimeter sections 24 on tab 23 of the panel 4. This type of package end closure is known in the art as a himes lock, automatic bottom or quick lock. It should be appreciated by those having ordinary skill in the art that this type of package end closure is typically limited in use to square or rectangular packages. However, it was found that an automatic bottom can be used for non-square or rectangular shaped packages as well. To obtain the automatic bottom 66 as shown in FIG. 6C, the desired angle (x) of each parallelogram side was determined and then divided in half ($x/2$). The value of the angle divided in half ($x/2$) was then used as the angle for the placement of the fold line 25 measured from the fold line 12. For example, for an oval shaped package 51, such as that shown in FIGS. 6A-6E, the interlocking portions 17 and 19 have the fold line 25 that is disposed at an approximately 30° angle from the fold line 12. For a more cylindrical shaped package 51, such as that shown in FIGS. 7A-7E, the interlocking portions 17 and 19 have the fold line 25 that is disposed at an approximately 45° angle from the fold line 12. It should also be appreciated that the panels in other embodiments may or may not have perforated sections to form inner wall contacting tabs. For example as shown in FIG. 1, each panel is shown having a perforated section and a corresponding inner wall connecting tab. As shown in FIGS. 4 and 5, every other panel has a perforated section 15 and a corresponding inner wall connecting tab 21.

[0027] FIGS. 6A-6E are various views of another embodiment of the present invention. This embodiment comprises the top glue-tabs 16 which fold inwardly to provide partial closure for the package 51. The bottom interlocking flaps 17, 18, 19, 20, when folded as described supra, form the inner wall connecting tabs 21 and 23 which urge against the inner surface of the outer package 54. This embodiment further comprises notches 28 disposed along the same plane as the panels 2, 3, 4, 5 and 7. The notches 28 receive the tabs 27 of a cover 67 as shown in FIG. 6A to provide complete closure for the package 51. The cover 67 can be glued to the surface of the top glue-tabs 16. To remove the cover 67, one can pull the tabs 27 upwardly, thereby breaking the adhesive bonding between the glue-tabs 16 and the cover 67. Alternatively, the cover 67 can have a removeable inner perforated section (not shown). Although the cover 67 can be used in any curvilinear shaped package 51, the cover 67 is especially useful in closing a more cylindrical shaped package 51. It should be appreciated that FIG. 6E is shown having a first window 68 on the panels 3 and 4 and a second window 70 on the panel 8, wherein the window 70 overlaps the window 68 when the package 51 is assembled.

[0028] FIGS. 7A-7E show a third embodiment of the present invention showing the package 51 having a cylindrical shape. This embodiment includes a support tab 29 protruding from a fold line 72 between the panels 3 and 4. The support tab 29 is cut along a perforation line 30 and helps maintain the cylindrical shape of the package 51 by urging the inner surface of the panel 8.

[0029] FIGS. 8A-8C show various views of another embodiment of the present invention comprising the blank 50 forming the package 51 (shown in FIG. 6A) having a first portion 74 having fold lines 76, 78, 80 and 82 forming the panels 2, 3, 4 and 5. The panels 2, 3, 4 and 5 are foldable to form the inner package 52 having a front wall 84 and a back wall 86. The blank 50 further comprises a second portion 88 having fold lines 90 and 92 forming the panels 7 and 8

respectively. The panel 7 overlaps the front wall 84 and the panel 8 overlaps the back wall 86 forming the outer package 54. The outer panels 7 and 8 forming the outer package 54 further include at least two spaced edges 55 and 57 which may be urged toward each other as discussed in more detail infra. The blank 50 may also have a third portion 94 having fold lines 90 and 96 forming the panel 6. The panel 6 connects the first portion 74 and the second portion 88 together and may further have an adhesive for the panel 8 to be secured thereto. The first portion 74 also includes a top flap 98 having inner wall contacting tabs 100 and a curvilinear periphery 101 which corresponds to an outer package periphery 102. The top flap 98 includes perforated edges 104 and parallel fold lines 106. When a closure tab 108, also known in the art as a tuck flap, is folded downwardly along the fold line 106 and the top flap 98 is actuated to close the package, the tabs 100 and the curvilinear periphery 101 have multiple points of contact with the inner surface of the outer package 54 along the outer package periphery 102. More specifically, the tabs 100 are curved to correspond with the shape of the outer package periphery 102 such that the entire perimeter of the tabs 100 directly contacts a portion of the outer package periphery 102. This design is advantageous because the tabs 100 help urge the panels 7 and 8 to a curvilinear profile which provides a stronger package that is more likely to maintain its form during shipping, handling and displaying. Furthermore, the perforated edge 104 and the fold line 106 connecting the top flap 98 to panel 4 allow the top flap 98 to close along a straight fold line rather than a curved fold line. The perforated edge 104 and the fold line 106 allow the closure tab 108 to be folded along a straight fold line as well. This is an important design feature as it allows the package 51 (shown in FIG. 6A) to be assembled easily. However, it should be appreciated by those having ordinary skill in the art that fold lines 106 may be arched to correspond with the shape of the outer package periphery 102 and this modification is intended to be within the spirit and scope of the invention as claimed. The inner package 52 further includes bottom interlocking flaps 13 and 14 automatically forming a bottom 110 upon the forming of the package as discussed supra.

[0030] In use, the blank 50 is cut, glued, folded and compressed to a generally flattened configuration. In the flattened configuration, the panels 7 and 8 forming the outer package 54 are generally planar. The flattened package is transported to the location of the product to be packaged.

[0031] By urging the spaced edges 55 and 57 of the outer panels 7 and 8 toward each other, the package 51 transforms from the flattened configuration to an assembled, freestanding configuration, wherein the bottom flaps 13 and 14 engage to form the bottom 110 of the inner package 52. The product is then disposed within the inner package 52, and the top flap 98 is closed. Upon closing the top flap 98, the top flap 98 is urged against the inner surface of the outer package 54, thereby urging the panels 7 and 8 into the curvilinear configuration. It should be appreciated that the top flap 98 can be any shape that corresponds with the desired shape of the package. The top tabs 112, also known as dust flaps, are connected to the panels 3 and 5 and partially close an opening (not shown) of the inner package 52. The top tabs 112 frictionally engage closure tab 108 and further assist the panel 2 in frictionally engaging the closure tab 108 by urging the closure tab 108 against the inner surface of the panel 2.

[0032] Although the present invention is shown in the figures with the inner package 52 having four panels 2, 3, 4 and 5, it should be appreciated by those having ordinary skill in the art that the inner package 52 can comprise any number of panels including as few as two panels. For example, as shown in FIG. 9, blank 50 can comprise panels 2 and 3 which form an inner package 52. Rather than the automatic bottom flaps shown in the previous figures, the inner package 52 includes bottom flaps 13 and 14 to close the bottom package 51. Panels 4 and 5 encompass the inner package 52 and form outer package 54. Furthermore, the outer package 54 can comprise any number of panels. However, it is preferable that the outer package 54 comprises only two panels to provide a more seamless package.

[0033] Although the present invention has been described in terms of particular embodiments, it is not limited to these embodiments. Alternative embodiments, configurations or modifications which will be encompassed by the invention can be made by those skilled in the embodiments, configurations, modifications or equivalents may be included in the spirit and scope of the invention, as defined by the appended claims.

1. A package assembly comprising:
 - a single piece blank folded to define a freestanding package having at least four panels, a set of bottom forming flaps and a first top flap, wherein at least two of the four panels form an inner package at least partially closed by the bottom forming flaps and the top flap and wherein at least two of the four panels form an outer package encompassing the inner package, the at least two panels forming an outer package being substantially curvilinear.
2. The package assembly of claim 1, further having an extending panel connecting the inner package and the outer package.
3. The package assembly of claim 2 wherein one panel of the outer package is adhered to the extending panel.
4. The package assembly of claim 1 wherein the at least two of the four panels forming the outer package are longer than the at least two of the four panels forming the inner package.
5. The package assembly of claim 1 wherein the panels forming the outer package are disposed along the same plane, and wherein the panels forming the inner package are at a recessed plane from the plane of the panels forming the outer package.
6. The package assembly of claim 1, wherein the set of bottom forming flaps are automatic bottom end closures and include a first flap having a first tab and a second flap having a second tab, wherein at least a portion of the first flap overlaps with the second tab and wherein at least a portion of the second flap overlaps with the first tab.
7. The package assembly of claim 1, wherein the inner package includes at least two tabs connected to each of the at least two of the four panels forming the inner package.
8. A blank for a package having free-standing ends comprising:
 - a first portion having fold lines forming at least two panels, the two panels foldable to form an inner package having a front wall and a back wall; and
 - a second portion having fold lines forming a third and fourth panel, the third panel overlapping the front wall and the fourth panel overlapping the back wall to form an outer package.

9. The blank of claim 8 further having a third portion having fold lines forming a fifth panel, the fifth panel connecting the first and second portions together.

10. The blank of claim 8, wherein the first portion further includes a first top flap having a tab and a curvilinear periphery corresponding to a periphery of the outer package and is connected to one of the at least two panels foldable to form an inner package.

11. The blank of claim 8 wherein the first portion further includes a top flap having four glue-tabs, each glue-tab is connected to one of the four panels.

12. The blank of claim 8 wherein the inner package further includes a set of bottom forming flaps automatically locking to form a bottom end upon the forming of the curvilinear shaped package.

13. A package assembly comprising:

an inner package having a first front wall and a first back wall, the first front wall including a fold line and the first back wall including two panels wherein the fold line and two panels allow for the forming of the elliptical package, the inner package further having a top flap and a set of bottom flaps; and

an outer package adhesively secured to the inner package and further having a second front wall and a second back wall.

14. The package assembly of claim 13, wherein the set of bottom flaps automatically form an interlocking bottom end when the elliptical shaped package is formed.

15. The package assembly of claim 13, wherein the first and second front walls include a first and a second corresponding aperture.

16. A package assembly comprising:

a single piece blank folded to define a free-standing package having at least six panels, a set of bottom forming flaps and a first top flap, wherein at least four of the six panels form an inner package at least partially closed by the bottom forming flaps and the top flap, and wherein at least two of the six panels form an outer package encompassing the at least four panels, the at least two panels being substantially curvilinear.

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