A package is described which is formed from two paperboard panels joined through a lens-shaped end. Optionally a blister may be utilized with the package.
FIG. 1

140

135
138

130

125
120

115
110

118
PAPERBOARD PACKAGE WITH LENS-SHAPED END

REFERENCE TO RELATED APPLICATION


BACKGROUND

[0002] This disclosure relates to a package for a product, the package formed from two paperboard panels joined through a lens-shaped end. Optionally a blister may be utilized with the package.

[0003] Certain products are housed in paperboard packages. Some packages may be flat packages where a relatively thin product may be contained between two paperboard panels or cards. Other packages may be carton or box structures of cuboidal shape, whose size may be chosen to fit any particular product.

[0004] Disclosed herein is a package with front and back panels joined through a lens-shaped end to provide more interior volume than a flat card package.

SUMMARY

[0005] According to one embodiment of the invention, a package is disclosed which includes a front and back panel, joined along one end by a lens-shaped end panel.

[0006] According to certain embodiments, the package is paperboard. According to certain embodiments, there is a window in the package. According to certain embodiments, a blister may be positioned in the window.

[0007] Other exemplary and optional features of the invention will be apparent from the following description and from the subsidiary claims.

BRIEF DESCRIPTION OF DRAWINGS

[0008] The invention will now be further described, merely by way of example, with reference to the accompanying drawings, in which:

[0009] FIG. 1 is a plan view of a blank for forming a package;

[0010] FIG. 2 is a view of a step in making a package from the blank for FIG. 1;

[0011] FIG. 3 is a view of a further step in making the package;

[0012] FIG. 4A is a top end view of the finished package;

[0013] FIG. 4B is a front view of the finished package;

[0014] FIG. 4C is a bottom end view of the finished package;

[0015] FIGS. 5A-5F are plan views of alternative blanks for forming packages;

[0016] FIG. 6 shows a front view of an example package, and cross sections at various elevations;

[0017] FIGS. 7A and 7B show front and back views of the example package of FIG. 6; and

[0018] FIGS. 8A and 8B show side views of the example package of FIG. 6.

DETAILED DESCRIPTION

[0019] FIG. 1 is a plan view of a blank 101 for making package 100. The blank may include a front panel 110, joined through score or fold line 115 (or perforation, crease or other delineation) to a bottom end panel 120 which may have a convex lens shape as shown. As seen on FIGS. 5A-5F, various other shapes are also suitable for the bottom end panel. Bottom end panel 120 in turn may be joined through score or fold line 125 to back panel 130. Although not required for the package, a reinforcement portion 140 may be joined to back panel 130 through fold line 135. Each of the front panel 110, back panel 130, and reinforcement portion 140 may include a hang hole 118, 138, 148 respectively which may be superimposed in the final package 100.

[0020] Fold lines 115, 125 may be formed by scoring, perforating, creasing, or any other suitable method of forming delineations in the blank. Preferably fold lines 115, 125 will exhibit a tendency to encourage folding along the fold lines as opposed to the remainder of the blank. Fold lines 115, 125 may be continuous or discontinuous.

[0021] As shown in FIG. 2, the reinforcement portion 140 may be curved forward as denoted by arrow A1 onto back panel 130 along fold line 135, causing the hang holes 138, 148 to be superimposed.

[0022] Next, as shown in FIG. 3, front panel 110 may be moved upward as denoted by arrow A2 into a facing (parallel) relation with back panel 130, while bottom end panel 120 becomes substantially perpendicular to the front and back panels. This is accompanied by a creasing or folding of fold lines 115 and 125. Due to the curved nature of the fold lines 115 and 125, the bottom end panel 120 may take the form of a curved surface, for example having a concave (e.g. slightly “hollow”) outside surface. The lower surfaces of the front panel 110 and back panel 130 may also become somewhat curved, for example exhibiting a slightly convex outward surface along the fold lines 115, 125. This provides storage volume in the lower part of the package. Meanwhile the upper regions of the front panel 110 and back panel 130, as well as the upper and side edges of these panels, may be substantially flat, which facilitates sealing together the edges of front panel 110 and back panel 130. However, the front panel, back panel, and bottom panel may be shaped in various configurations depending on manufacturing preference.

[0023] FIG. 4A shows a top end view of the resulting package 100, while FIG. 4B shows a front view, and FIG. 4C shows a bottom end view. The top and side edges of front panel 110 and back panel 130 may be fastened together for example by adhesive or heat sealing along joint region 150. The sealing region may be continuous as shown, or discontinuous. If desired more of the upper portion of the package 100 may be sealed together, for example in the region of reinforcement 140.

[0024] Since the sealable areas—the top end and the side edges—of the package are relatively flat and substantially in one plane, no special tooling is needed for heat sealing equipment. However, the seal tooling may be designed to result in different shapes of the lower part of the package, either for functional or aesthetic reasons.

[0025] Other shapes are also suitable for bottom panel 120. As shown in FIG. 5A, the bottom panel 120A may provide a thicker lens shape for bottom panel 120A. As shown in FIG. 5B, the curved lines 115, 125 may instead by a combination of linear lines 115B, 125C forming a polygonal bottom panel 120B. As shown in FIG. 5C, a series of linear lines 115C on one of the panels may be used in combination with a curved line or lines 125C on the other panel. As shown in FIG. 5D, the bottom panel 120D may have a diamond shape. As shown
in FIG. 5E, the shape of fold lines 115D, 125E may differ between the panels. As shown in FIG. 5F, fold lines 151F, 125F may be combinations of linear and curved lines.

One or both of lines 115, 125 may be considered “non-linear”, a term that may be used to describe curved lines, as well as a series of two or more straight lines that are not collinear. “Non-linear” may also be used to describe combinations of curved lines, or combinations of curved and straight lines. However, in some packages (not shown), one of lines 115, 125 may be a single straight line, with the other of lines 115, 125 being non-linear.

FIG. 6 shows an example package 100A, and cross sections of the package at several elevations. The package shown from the front, so front panel 110 is visible in FIG. 6. The line 111 represents an approximate edge of a curved portion 112 of front panel 110 (see also the following Figures) and not the fold line 115 between the front panel 110 and bottom panel 120.

As seen in FIG. 6, at a lower elevation the cross section X1 may be quite similar to the shape of the bottom panel, for example a lens shape as shown. At a slightly higher elevation, the cross section X2 may begin to change, depending on the package contents and the forces imposed during the sealing operation. At an even higher elevation, the cross section X3 may show readily apparent differences in the front and back surfaces of the package. Finally at elevations approaching the top edge of the package, the front and back panels may become relatively flat and parallel. FIG. 6 shows examples for only one particular style of package, and it should be understood that many shapes may be achieved.

Fig. 7A shows a perspective view of the package 100A of FIG. 6, from the front, showing front panel 110, and the curved surface 112 at the lower portion of the front panel. The grid lines X superimposed on the surface were drawn onto the photo to show approximately the topography of the surface.

Fig. 7B shows a perspective view of the package 100A of FIG. 6, from the back, showing back panel 130, and the curved surface 132 at the lower portion of the back panel. The grid lines X superimposed on the surface were drawn onto the photo to show approximately the topography of the surface.

Fig. 8A shows a side view of the package 100A of FIG. 6, in this view having the front panel 110 facing down and the back panel 130 facing up. The curved surfaces 112, 132 of the respective panels are also indicated. FIG. 8B shows the same side view with outlines Y drawn onto the photo, to show approximately the topography of the surface.

Many different shapes of package may be achieved.

The disclosed package has the advantage over typical card packages in that it provides storage volume within the lower part of the package. Due to the structure, a relatively stiff package is formed which may be beneficial in protecting the package contents. By appropriate design of the bottom panel, the package may be made to stand upright on a shelf. Alternatively the optional hang holes may provide for display on pegs or hooks. The package also has an interesting appearance while using a relatively small amount of material.

Blank 101 may be formed from a sheet material, such as cardboard, plastic or other planar material, preferably being somewhat stiff and suitable for printing one or both sides. Although shown as one piece, blank 101 may be provided in more than one piece. The blank may have a heat-sealable coating.

The example packages illustrated here utilize the bottom panel 120 as a sort of hinge or joining panel between the front panel 110 and back panel 130. However, instead of the joining panel being the bottom panel, it could be at the top or a side of the package.

The finished shape of the packages may be adjusted to suit the package contents. The front and back surface may have identical or similar shapes, for example they may both be equally curved. However, the front and back surface may have different shapes, for example one surface or a portion thereof being convex while the opposite surface or a portion thereof is concave. Even portions of the same surface may have different curvatures, for example the front surface may bow outward at its lower end and inward at its upper end. Preferably the front panel and back panel may be flexed into a desired form prior to sealing their edges together. Preferably after sealing the edges together the package shape will be maintained.

When a panel or surface is described as having a “curved surface”, this means the panel or surface is a curved area (such as a bulge, convex shape, concave shape, etc) rather than a flat area (such as a flat plane). Additionally, the panel or surface may have a curved edge or perimeter.

The embodiments described above provide a wide variety of features. Many of these features can be interchanged between embodiments. Further embodiments are thus envisaged which use a selection of the features from those described above. The invention thus extends to cover packages having other combinations of the features described. 1. A package, comprising:

a front panel having an upper end and a lower end and two side edges;
a lower end panel attached to the lower end of the front panel by a first non-linear fold line;
a back panel having an upper end and a lower end and two side edges, the lower end attached to the lower end panel by a second non-linear fold line;
wherein the front panel is fastened to the back panel along their upper ends and side edges; and
wherein the front panel and back panel are spaced apart at their lower ends to form a storage space with the package.

2. The package of claim 1, wherein the lower end panel has a convex lens shape.

3. The package of claim 1, formed from cardboard.

4. The package of claim 1, wherein the lower portion of at least one of the front panel and back panels has a curved surface.

5. The package of claim 1, wherein the lower portion of both of the front panel and back panels has a curved surface.

6. The package of claim 1, wherein at least one of the first and second non-linear fold lines comprises a curved line segment.

7. The package of claim 1, wherein the at least one of the first and second non-linear fold lines comprises a straight line segment in combination with at least one additional straight or curved line segment.

8. A package, comprising:
a front panel having an upper end and a lower end and two side edges;
a lower end panel attached to the lower end of the front panel by a first fold line that is a non-linear fold line; a back panel having an upper end and a lower end and two side edges, the lower end attached to the lower end panel by a second fold line; wherein the front panel is fastened to the back panel along their upper ends and side edges; and wherein the front panel and back panel are spaced apart at their lower ends to form a storage space with the package.

9. The package of claim 8, formed from paperboard.

10. The package of claim 8, wherein the lower portion of at least one of the front panel and back panel has a curved surface.

11. The package of claim 8, wherein the lower portion of both of the front panel and back panel has a curved surface.

12. The package of claim 8, wherein the first fold line comprises a curved line segment.

13. The package of claim 8, wherein the first fold line comprises a straight line segment in combination with at least one additional straight or curved line segment.

* * * * *