

[54] **BLANK FOR MAKING CONTAINERS AND CONTAINER WITH TOP FORMED BY CURVED SURFACES**

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262,141 6/1949 Switzerland..... 229/8

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[52] **U.S. Cl.**..... **229/39 R, 229/8, 229/37 R**

[51] **Int. Cl.**..... **B65d 5/10**

[58] **Field of Search** 229/6, 8, 16, 37 R, 45, 229/39 R; 206/45.31, DIG. 35

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Primary Examiner—George E. Lowrance

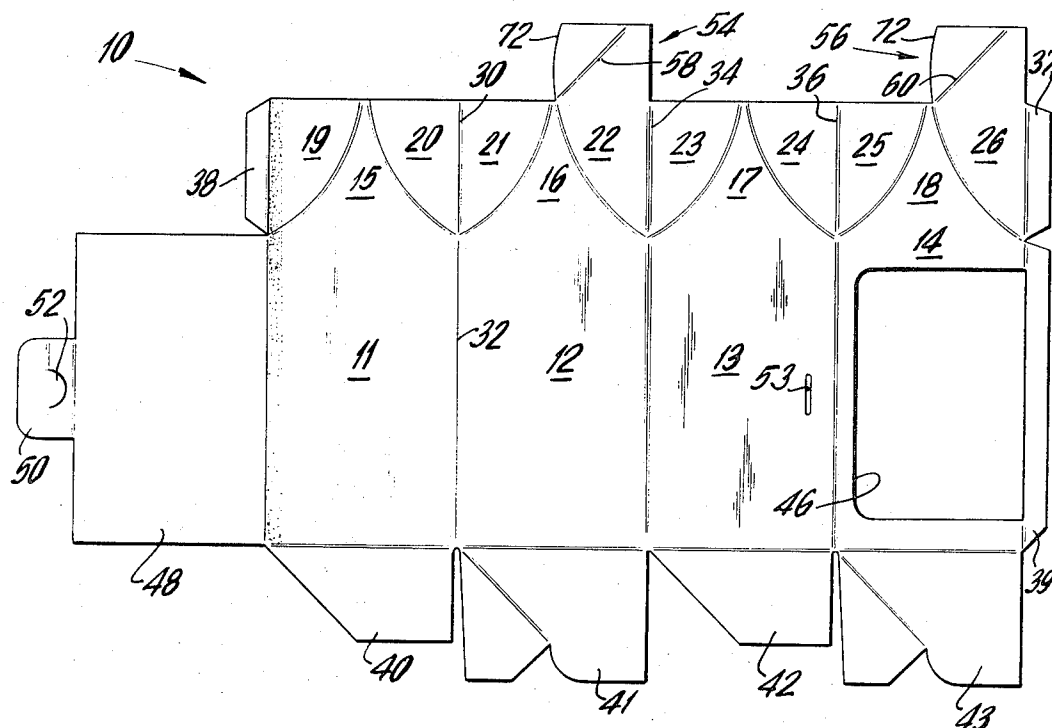
Assistant Examiner—Stephen Marcus

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[57] ABSTRACT

A container which can be formed from a single paper-board blank divided by fold lines, includes a plurality of side panels, and a plurality of outer top panels each of which extends upwardly from one of the side panels and has two curved edges that converge to form a substantially pointed end. A plurality of inner top panels extend from the curved edges of the outer top panels. The outer top panels can be bent inwardly to assume a curved orientation so that their respective pointed ends are brought together, and the inner top panels are folded downwardly toward the interior of the container. The top of the container thus made is formed by curved surfaces.

13 Claims, 5 Drawing Figures



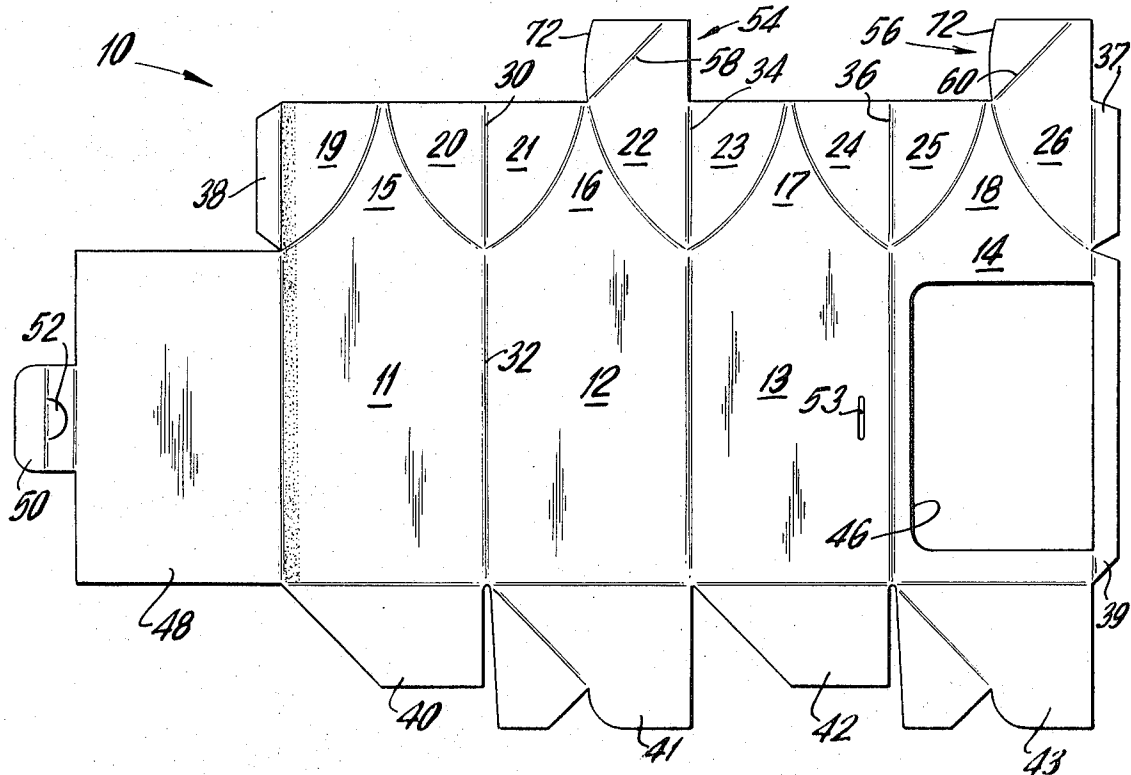


FIG. 1

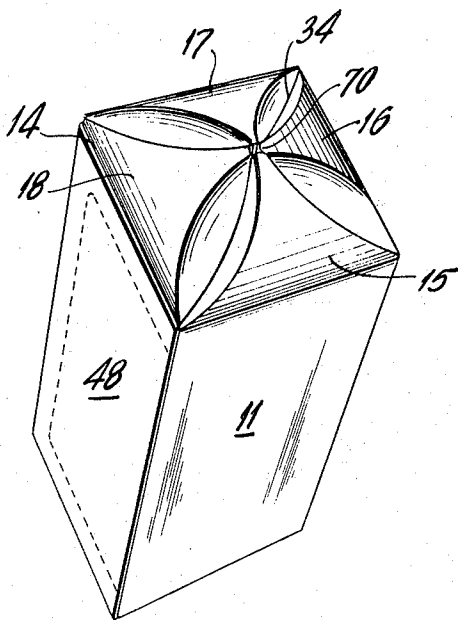


FIG. 2

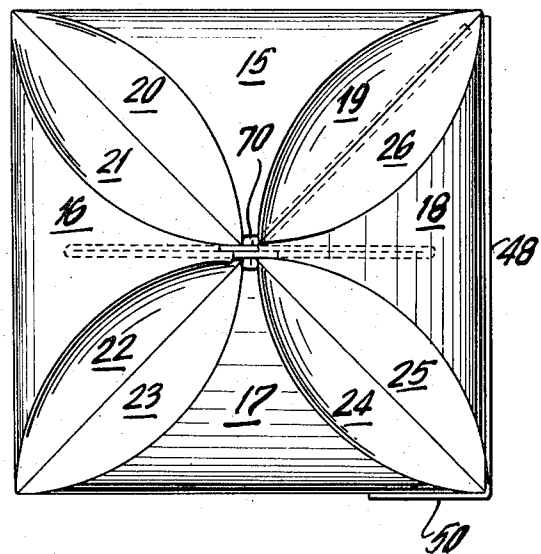


FIG. 3

SHEET 2 OF 2

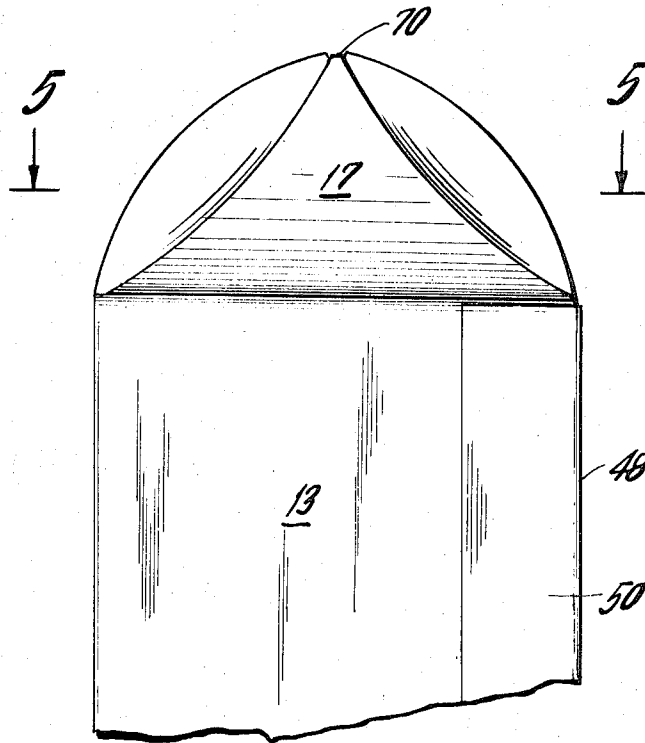


FIG. 4

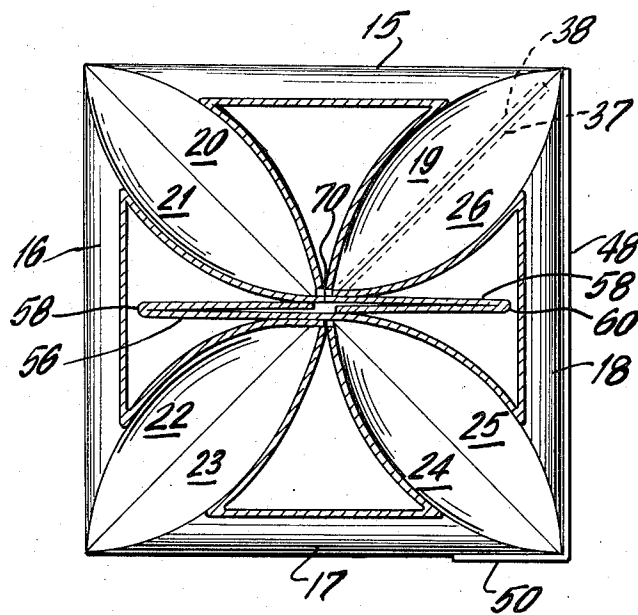


FIG. 5

BLANK FOR MAKING CONTAINERS AND CONTAINER WITH TOP FORMED BY CURVED SURFACES

BACKGROUND OF THE INVENTION

This invention relates to containers. More particularly, it relates to a container having a top formed by curved surfaces and blanks used to make such containers.

A variety of containers that are presently in use are formed from one or more paperboard blanks that are divided by fold lines into a plurality of panels. This type of container has attained a great popularity because it is inexpensive and takes little storage space before it is folded. In addition, it can be made attractive and provides adequate protection for many types of articles.

Most containers of this type include a top formed by a single rectangular top panel that is joined to a side panel along a fold line. If it is desired to have a more elaborate top, either for added structural protection or aesthetic reasons, it has usually been necessary to depart from folded container construction, thus sacrificing its inherent advantages.

SUMMARY OF THE INVENTION

According to the present invention, a container made from one or more sheets of folded material comprising a plurality of side panels, and a plurality of outer top panels each of which extends upwardly from one of the side panels and has two curved edges that converge to form substantially pointed ends. A plurality of inner top panels each extend downwardly from a curved edge of an outer top panel. The outer top panels are bent inwardly to assume a curved orientation so that their respective pointed ends are brought together, and each outer top panel forms a curved surface. No fold lines are formed where the outer top panels join the side panels.

The inner top panels also form curved surfaces and the lower edge of each inner top panel is co-extensive with the lower edge of another inner top panel. In one embodiment of the invention there are four side panels, four outer top panels and eight inner top panels.

A means for securing the outer top panels in a curved orientation with their respective pointed ends brought together is attached to two or more of the inner top panels. This securing means may comprise two interlocking tabs that extend from oppositely disposed inner top panels respectively. Each interlocking tab is folded to double its thickness whereby it is prevented from sliding past the other interlocking tab.

The container described above can be made from a single integrally formed blank. This blank is another aspect of the invention. It comprises a plurality of side panels, and a plurality of outer top panels, each of which extends from one of the side panels and has two curved edges defined by fold lines that converge to form a substantially pointed end, a plurality of inner top panels which extend from a curved edge, and an outer top panel. The outer top panels can be bent inwardly so that their respective pointed ends are brought together and the inner top panels can be folded downwardly toward the interior of the container to provide a top for the container formed entirely by curved surfaces.

A means for securing the outer top panels in a curved orientation with their respective pointed ends brought

together may be an integral part of the blank from which the container is formed. It may comprise two tabs each of which extends from one of the inner top panels. Each of these tabs is divided by a fold line so that it can be folded to double its thickness and to interlock with the other tab when the blank is folded to form a container.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows an unfolded blank constructed in accordance with invention from which a container can be made;

FIG. 2 is a pictorial three-dimensional representation of a container made from the blank of FIG. 1;

FIG. 3 is a top elevation of a container made from the blank of FIG. 1;

FIG. 4 is a side elevation of a container made from the blank of FIG. 1; and

FIG. 5 is a cross-sectional view of the container of FIG. 4 taken along the line 5—5.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows a single integrally formed blank 10 divided by fold lines from which a container may be constructed in accordance with the invention. It includes a plurality of side panels 11, 12, 13, and 14, and a plurality of outer top panels 15, 16, 17, and 18 extending from each of the side panels 11 through 14, respectively. The outer top panels 14 through 18 each have two curved edges defined by fold lines that converge to form substantially pointed ends.

The container 10 includes a plurality of inner top panels 19, 20, 21, 22, 23, 24, 25, and 26 that extend from the curved edges of the outer top panels. The inner top panel 20 which extends from the right hand side of the outer top panel 15 is attached to the inner top panel 21 which extends from the lefthand side of the outer top panel 16. These attached inner panels 20 and 21 have coextensive edges along which they are divided from each other by a fold line 30 which is an extension of the fold line 32 that divides the side panels 11 and 12. In a similar manner, the attached inner top panels 22 and 23 are divided by a fold line 34, and the attached inner top panels 24 and 25 are divided by a fold line 36. The inner top panel 26, which is located at one end of the blank 10 is provided with a tab 37 to which it can be attached by glue to a similar tab 38 that extends from the inner top panel 19 that is located at the opposite end of the blank 10. A tab 39 that extends from outside edge of side panel 14 can be glued to side panel 11 when the blank 10 is folded.

Four conventional bottom panels 40, 41, 42, and 43 are attached to the lower edges of the side panels 11 through 14 respectively. One of the side panels 14 includes an opening 46 which provides access to the interior of the container. A flap 48 is attached to the side panel 11, and, when the container is assembled, it may be folded across the opening 46. A tab 50 attached to the flap 48 carries a tongue 52 which engages a slot 53 in the side 13 to secure the flap 48 in its closed position.

An interlocking tab 54 is attached to the inner top panel 22 and a similar interlocking tab 56 is attached to the inner top panel 26 which is outside the inner top panel 22 when the blank 10 is folded to form a container. The tabs 54 and 56 form a means for securing

the top panels 15 through 26 in the desired curved orientation when the blank 10 is properly folded and brought together in the center of the container. The tab 54 includes a fold line 58 so that it can be folded over to double its thickness, and the tab 56 includes a similar fold line 60. The double thickness of the tabs 54 and 56 prevent them from sliding past each other once they are folded and interlocked.

The assembled container made from the blank 10 is shown in FIGS. 2, 3, and 4. To form this container, a tab 49 is glued in place and the bottom panels 40 through 43 are interlocked in a conventional manner. The tabs 54 and 56 are then folded along the fold lines 58 and 60, respectively. The outer top panels 15 through 18 are then bent inwardly to form curved surfaces until their pointed ends are brought together at a point 70 in the center of the container. At the same time, the inner side panels 19 through 26 are folded downwardly along the curved fold lines which separate them from the outer top panels 15 through 18 pushing the fold lines 30, 34 and 36 toward the interior of the container so that they assume a substantial horizontal orientation. Thus, all of the top panels 15 through 26 form smooth surfaces. No fold lines are formed when the outer top panels 15 through 18 are joined to the side panels 11 through 14 respectively.

As the outer top panels 14 through 18 are bent inwardly, the double thickness tabs 54 and 56 slide past each other and assume the interlocking position shown in the cross-sectional view of FIG. 5. Each tab 54, 56 has a curved edge 72 which facilitates this movement. The edges of the inner top panels 19 and 20 press against the tabs 54 and 56 from one side and the edges of the inner top panels 23 and 24 press against the tabs 54 and 56 from the opposite side. If the top of the container were to unfold, it would be necessary for the two double thickness tabs 54 and 56 to slide past each other between the opposing edges of the inner top panels. Since the space between the edges of the inner top panels does not readily permit this movement, the interlocking tabs 54 and 56 form a means for securing the outer top panels 11 through 14 in a curved orientation when their respectively pointed ends are brought together at a point 70 in the center of the container.

Although the preferred container and blank 10 described above has four side panels, four outer top panels, and eight inner top panels, the invention could be practiced using a container having a different number of sides, for instance six. In another variation, the securing means could be a metal clip instead of the interlocking tabs 54 and 56. The preferred material is paperboard, but any foldable material of appropriate rigidity and flexibility could be used.

These and other variations of the invention will occur to those skilled in the art. The invention is not, therefore, limited to the exemplary embodiment described above. The scope of the invention is defined only by the appended claims.

I claim:

1. A container made from at least one sheet of folded material having a top formed by curved surfaces comprising a plurality of side panels, a plurality of outer top panels each of which extends upwardly from one of the side panels and has two curved edges defined by fold lines that converge to form a substantially pointed end, and a plurality of inner top panels each of which extends from a curved edge of an outer top panel, said

inner top panels having innermost edges adjacent the innermost edges of adjacent inner top panels, the outer top panels being bent inwardly so that their respective pointed ends are brought together and each outer top panel forms a curved surface, and the inner top panels extending downwardly and inwardly toward the interior of the container thus defining indentations.

2. The container of claim 1, wherein the inner top panels are bent to form curved surfaces.

3. The container of claim 1, wherein there are four side panels and four outer top panels.

4. The container of claim 1, wherein there are four side panels, four outer top panels, and eight inner top panels.

5. The container of claim 1, wherein the lower edges of at least some inner top panels are divided from the lower edges of other inner top panels by fold lines.

6. The container of claim 1, wherein each outer top panel and the side panel to which it is attached form a continuous surface that is not interrupted by a fold line.

7. The container of claim 1 further comprising a means for securing the outer top panels in a curved orientation with their respective pointed ends brought together, said securing means being attached to two or more of the inner top panels.

8. The container of claim 7, wherein said securing means comprises two interlocking tabs that extend respectively from oppositely disposed inner top panel, each interlocking tab being folded to double its thickness and prevented from sliding past the other interlocking tab by its double thickness.

9. The container of claim 1, wherein the container is made from one integrally formed blank divided by fold lines.

10. A blank that can be folded to make a container comprising a plurality of side panels, a plurality of outer top panels each of which extends from one of the side panels and has two curved edges defined by fold lines that converge to form a substantially pointed end, a plurality of inner top panels each of which extends from a curved edge of an outer top panel, at least two tabs which extend from inner panels for securing the outer top panels in a curved orientation with their respective pointed ends brought together when the blank is folded to form a container, and at least some inner top panels being attached to other inner top panels that extend from different outer top panels, the attached inner top panels being divided from each other by fold lines, each panel being proportioned so that the outer top panels can be bent inwardly with their respective pointed ends brought together and the inner top panels can be folded downwardly toward the interior of the container to provide a top for the container formed by curved surfaces.

11. The blank of claim 10 further comprising a series of perforations along the fold lines that separate the attached inner top panels.

12. The blank of claim 10, wherein there are four side panels, four outer top panels, and eight inner top panels.

13. The blank of claim 10, wherein each of said tabs is divided by a fold line so that it can be folded to double its thickness and is, thus prevented from sliding past the other tab when the blank is folded to form a container.

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