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(54) A tray container and blank

(57) A tray for holding foodstuff or the like and blank for forming a tray, which tray is formed from foldable material, the tray including a base and opposed end and side walls hingedly connected to the base wherein one or more of said side or end walls is a multi-ply structure. The foldable material has first and second opposed sides and the inside and outside surfaces of the multi-ply structure expose the first and second sides of the foldable material respectively.

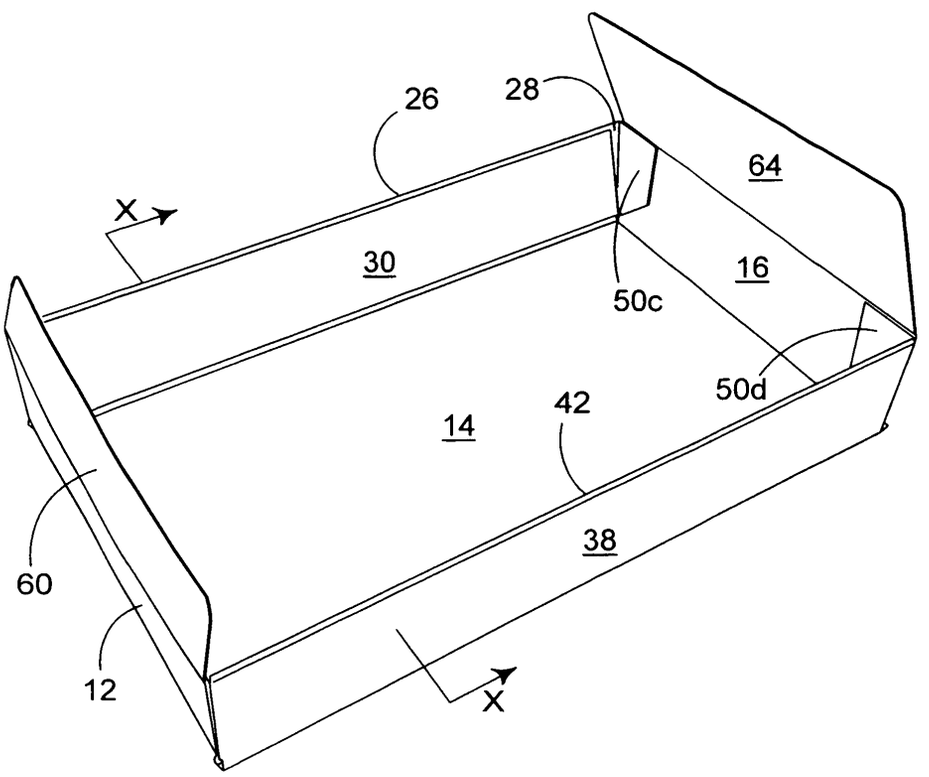


FIGURE 4

EP 1 415 923 A2

Description

[0001] The present invention relates to a carton (or tray) for accommodating foodstuff, for example fish or meat, and more particularly to a carton formed from one or more blanks of paperboard or other suitable foldable sheet material.

[0002] Tray structures for meat are commonly formed from plastics material, for example polystyrene.

[0003] There can be excess food liquid, for example blood or water from foodstuff which is undesirable. One solution is illustrated in US 3 156 402, which shows a food products support tray including two layers in which the liquid is stored. The liquid passes through openings and is held between the layers. It is apparent that handling of the tray will push liquid back through the openings. Further, if the tray is stored in an upright position, the liquid will collect along the edges and at the corners.

[0004] It is known from WO 93/15962 to provide a fluid tight packaging tray formed from cardboard comprising a single base panel surrounded by side and end wall structures and connected by an enclosure arrangement to maintain a food tight seal and to prevent liquid from rising by capillarity.

[0005] The present invention and its preferred embodiments seek to overcome or at least mitigate the problems of the prior art.

[0006] A first aspect of the invention provides a tray for holding foodstuff or the like, which tray is formed from foldable material, the tray including a base and opposed end and side walls hingedly connected to the base wherein one or more of the side or end walls is a multi-ply structure. The foldable material has first and second opposed sides and the inside and outside surfaces of said side or end wall expose the first and second sides of the foldable material respectively.

[0007] Preferably, the tray is of a one piece construction formed from a single blank of foldable material.

[0008] In one class of embodiments, the multi-ply structure forming said side or end wall comprises a first panel hingedly connected to the base panel along its lower edge, and second and third juxtaposed panels disposed along the inside surface of the first panel, the first and second panels are hingedly connected together along their common upper edge and the second and third panels are hingedly connected together along their common lower edge.

[0009] It is preferred for the foldable material has been processed to provide a first side with a desired property suitable for the first side to directly contact the article to be received in the tray. Optionally, the first side is coated with an impermeable layer. Preferably, the impermeable layer is formed from any one of a plastics film, a waxed layer or a co-polymer, for example carboxylated styrene or butadiene.

[0010] A second aspect of the invention provides a blank for forming a tray for holding foodstuff or the like, which blank is formed from foldable material, the blank including a base panel and opposed end and side wall panels hingedly connected to the base panel wherein one or more of the side or end wall panels is adapted to form a multi-ply structure in a set up tray. The foldable material of the blank has first and second opposed sides and the inside and outside surfaces of said multi-ply structure expose the first and second sides of the foldable material respectively.

[0011] In one class of embodiments of the second aspect of the invention the multi-ply structure forming said side or end wall comprises a first panel hingedly connected to the base panel along its lower edge in a set up tray, and second and third juxtaposed panels disposed along the inside surface of the of the first panel, the first and second panels may be hingedly connected together along their common upper edge and the second and third panels may be hingedly connected together along their common lower edge.

[0012] Preferably, the foldable material has been processed to provide a first side with a desired property suitable for the first side to directly contact the article to be received in the tray. More preferably, the first side is coated with an impermeable layer.

[0013] A third aspect provides a method of forming the multiply structure in a tray formed from a blank according to a second aspect of the invention wherein the second and third panels are folded inwardly with respect to the first panel so that the second panel is in face contacting arrangement with the first panel and the third panel is then folded outwardly with respect to the second panel to place the second and third folded panels in face contacting relationship to be secured thereto, thereby revealing the first surface of the foldable material.

[0014] Exemplary embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

FIGURE 1 is a plan view of a blank for forming a carton according to a preferred embodiment of the invention;

FIGURES 2, 3 and 4 illustrate the folding steps in forming the carton from the blank of Figure 1; and

FIGURE 5 is a cross-sectional view X - X of the carton formed from a blank shown in Figure 4.

[0015] Referring first to Figure 1 there is shown a blank 10 for forming a collapsible tray or carton made from one or more blanks of paperboard or similar foldable sheet material. The blank 10 comprises first end wall panel 12, base panel 14, and second end wall panel 16 hingedly connected together in series along fold lines 18, 20 respectively. There further comprise opposed side walls 22, 24 hingedly connected to opposite lateral edges of base panel 14 along fold lines 32, 44 respectively.

[0016] When the tray is in a set up condition, each

side wall 22, 24 is multiply which, in this embodiment is formed by one or more panels. In this embodiment, a triple-ply is provided in part by outer side wall panels 26, 38, side support panels 28, 40 hingedly connected to outer side wall panels 26 and 38 by fold lines 34, 46 respectively. There may further comprise inner side wall panels 30, 42 foldably connected to side support panels 28. 40 along fold lines 36, 48.

[0017] Optionally, side support panels 28, 40 substantially correspond to the height and/or shape of outer side panels 26, 38 respectively. Likewise, inner side wall panels 30, 42 may substantially correspond to the height and/or shape of outer side wall panels 26, 38.

[0018] Suitable securing means for connecting the end and side panels together is provided. In this embodiment, there comprises a pairs of oppositely disposed securing flaps 50a, 50d; 50b, 50c extending from opposite ends of outer side wall panels 26, 38 and connected thereto along fold lines 52a, 52d; 52b, 52c.

[0019] There further comprises a web structure formed in the corners between each outer side wall and end wall. Each web structure is identical and therefore only that formed in the corner comprising end flap 50a will now be described. The web structure comprises web panel 56a hingedly connected to outer side wall panel 38 and end wall panel 12 along fold lines 52a and 54a respectively. There further comprises a cut line 58a to separate the web panel 56a from the end flap 50a.

[0020] Each end wall panel 12, 16 may further comprise one or more flaps, for example flap 60 hingedly connected to an end wall panel 12 along fold line 62 and flap 64 hingedly connected to end wall panel 16 along fold line 66. The end wall flaps are adapted to provide additional "ad-panels" and to support the structure placed over the tray.

[0021] Turning to the construction of the tray illustrated in Figures 2 and 3, side support panels 28 and 40 and inner side wall panels 30, 42 are folded inwardly about fold line 34 and 46 and into face contacting relationship with outer side wall panels 26 and 38 respectively and base panel 14, and is secured thereto by glue G or other suitable securing means known in the art. Thereafter, inner side wall panels 30 and 42 are folded outwardly about fold lines 36 and 48 and into face contacting relationship with side support panels 28, 40 and are secured thereto by glue G or other suitable securing means known in the art, as shown in Figure 3.

[0022] Figures 2 and 3 illustrate one example of the position of glue G applied to the blank prior to folding the carton. Preferably, the glue is in the form of "hot melt" so to provide a seal between the base and the respective support walls to prevent migration of the liquid. Thus, the carton is in a flat collapsed form to be supplied to the user so that it can be erected to provide a tray.

[0023] It is envisaged that the carton of the present invention can be formed by a series of sequential folding and gluing operations, which can be formed in a straight line machine so that the carton is not required to be rotated or inverted to complete its construction. The folding process is not limited to that described below and can be altered according to the particular manufacturing requirements.

[0024] The carton (or tray) is formed by folding outer side wall panels 26, 38 inwardly about fold lines 32, 44 respectively to define the side walls 22, 24 as shown in Figure 4. The end walls are formed by folding the end wall panels 12, 16 about fold lines 18, 20. Finally, the securing flaps 50a-d are secured to the end wall panels 12, 16 by glue or other suitable means to retain the tray in a set up condition shown in Figure 4. The web structures are formed at the same time to seal the comers by folding web panels 56 about fold lines 52 and 54.

[0025] Thereafter, foodstuff is loaded into the tray from above and stretch film can be applied to the tray to seal the package. In those embodiments with end flaps 60 and 64, they are folded over along fold lines 62, 66 to support the stretch film.

[0026] Thus, a tray 80 for holding foodstuff or the like which tray is formed from paperboard or like foldable sheet material and can be erected from a flat collapsed condition into a position of use and includes a multiply structure along one or more walls of the tray, for example the side walls 22, 24 is shown in Figure 4.

[0027] As shown best in Figure 5, the foldable material forming the blank has two surfaces, an inner surface I, and an outer surface O. Each surface may be provided with a different coating or layer. With the present invention, the inner surface I is revealed on all walls within the tray. The panels providing an internal surface I for example the base 14, side walls 22, 24 and end walls 12, 16 are coated with an impermeable layer. In the embodiment described above the impermeable layer is a co-polymer for example carboxylated styrene or butadiene or it could be a plastics film or a waxed layer. The cross section of the blank of this embodiment would comprise in series from the inner surface: co polymer, printed matter (if desired), and board.

[0028] Therefore, by folding the side walls in the manner shown in Figures 2 and 3, there is provided a multiply structure used to impart rigidity to the tray, but also having the coated surface I revealed within the tray. It is envisaged the outer surface O does not need to be coated, thereby to reduce manufacturing costs.

[0029] Beneficially, the multiply embodiment hereinbefore described provides a structure that is strengthened to retain foodstuff. The use of paperboard material provides an "environmentally friendly" alternative to trays formed from plastics material and the tray can include printed matter for marketing purposes. The arrangement of the panels for the tray in the embodiment described above allows printed matter to be placed on the external side and end walls of the tray.

[0030] It will be recognised that as used herein, directional references such as "top", "base", "end", "side", "inner" and "outer" do not limit the respective panels to such orientation, but merely serve to distinguish these

panels from one another. Any reference to hinged connection should not be construed as necessarily referring to a single fold line only: indeed it is envisaged that hinged connection can be formed from one or more of one of the following, a score line, a frangible line or a fold line, without departing from the scope of invention.

[0031] The present invention and its preferred embodiment relates to a tray which is shaped to provide satisfactory rigidity to hold items such as meat or fish securely but with a degree of flexibility. The shape of the blank minimises the amount of paperboard required for the carton. The items can be applied to the carrier by hand or automatic machinery. It is anticipated the invention can be applied to a variety of carton or tray types and not limited to those of the flat tubular sort, for example the flat tubular structure could be replaced by a structure with longer sides and end panels to receive larger cuts of meat.

Claims

1. A tray for holding foodstuff or the like, which tray is formed from foldable material, the tray including a base and opposed end and side walls hingedly connected to the base wherein one or more of said side or end walls is a multi-ply structure and the foldable material has first and second opposed sides, the inside and outside surfaces of said multi-ply structure expose the first and second sides of the foldable material respectively.

2. A tray according to claim 1 wherein the tray is of a one piece construction formed from a single blank of foldable material.

3. A tray according to claim 1 or claim 2 wherein the multi-ply structure forming said side or end wall comprises a first panel hingedly connected to the base panel along its lower edge, and second and third juxtaposed panels disposed along the inside surface of the first panel, the first and second panels are hingedly connected together along their common upper edge and the second and third panels are hingedly connected together along their common lower edge.

4. A tray according to any preceding claim wherein the foldable material has been processed to provide a first side with a desired property suitable for the first side to directly contact the article to be received in the tray.

5. A tray according to claim 4 wherein the first side is coated with an impermeable layer.

6. A tray according to claim 5 wherein the impermeable layer is formed from any one of a plastics film, a waxed layer or a co-polymer, for example carboxylated styrene or butadiene.

7. A blank for forming a tray according to any one of claims 1 to 6.

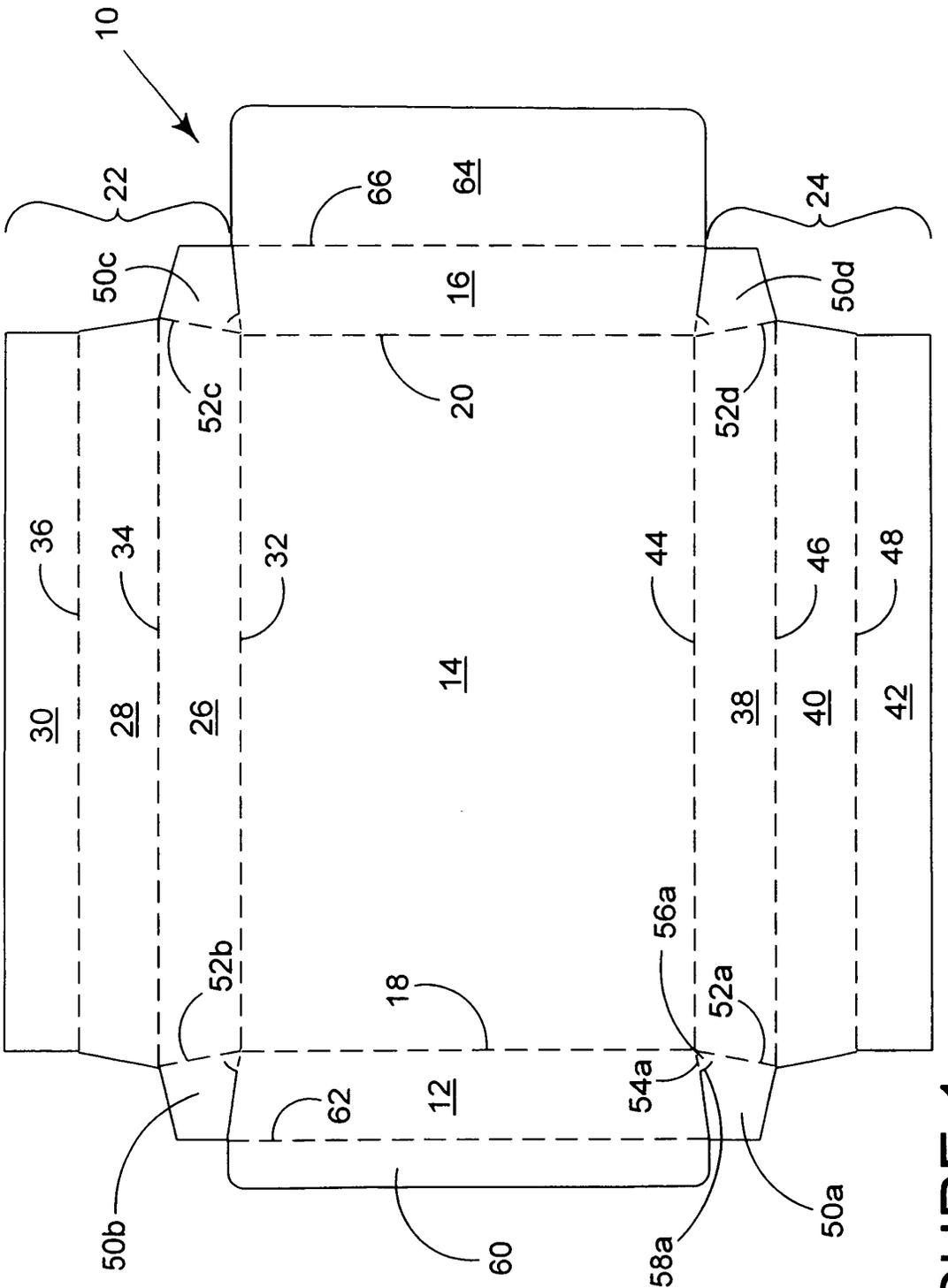
8. A blank for forming a tray for holding foodstuff or the like, which blank is formed from foldable material, the blank including a base panel and opposed end and side wall panels hingedly connected to the base panel wherein one or more of said side or end wall panels is adapted to form a multi-ply structure in a set up tray, wherein the foldable material of the blank has first and second opposed sides and the inside and outside surfaces of said multi-ply structure expose the first and second sides of the foldable material respectively.

9. A blank according to claim 8 wherein the multi-ply structure forming said side or end wall comprises a first panel hingedly connected to the base panel along its lower edge in a set up tray, and second and third juxtaposed panels disposed along the inside surface of the of the first panel, the first and second panels are hingedly connected together along their common upper edge and the second and third panels are hingedly connected together along their common lower edge.

10. A blank according to claim 8 or claim 9 wherein the foldable material has been processed to provide a first side with a desired property suitable for the first side to directly contact the article to be received in the tray.

11. A tray according to claim 10 wherein the first side is coated with an impermeable layer.

12. A method of forming the multiply structure in a tray from a blank as claimed in claim 9 wherein the second and third panels are folded inwardly with respect to the first panel so that the second panel is in face contacting arrangement with the first panel and the third panel is then folded outwardly with respect to the second panel to place the second and third folded panels in face contacting relationship to be secured thereto, thereby revealing the first surface of the foldable material.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24
66
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32
44
46
48
30
28
26
14
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42
56a
52b
18
52a
54a
62
12
50b
60
58a
50a

FIGURE 1

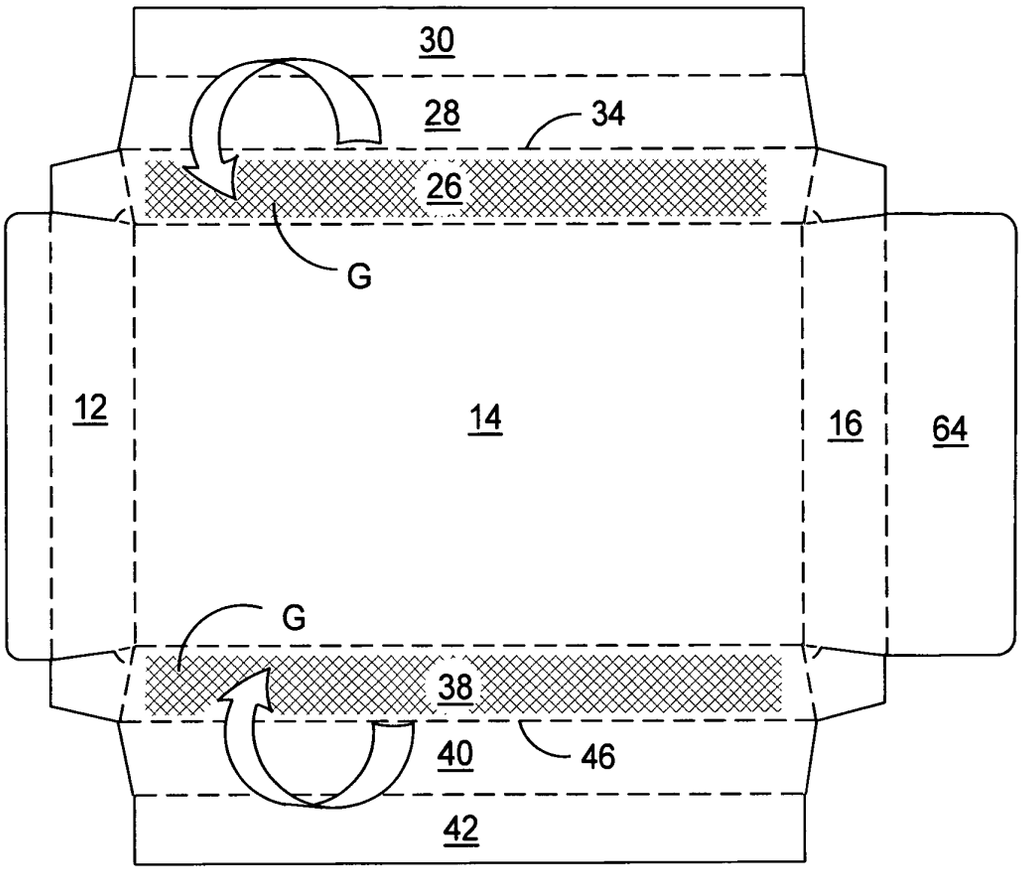

FIGURE 2

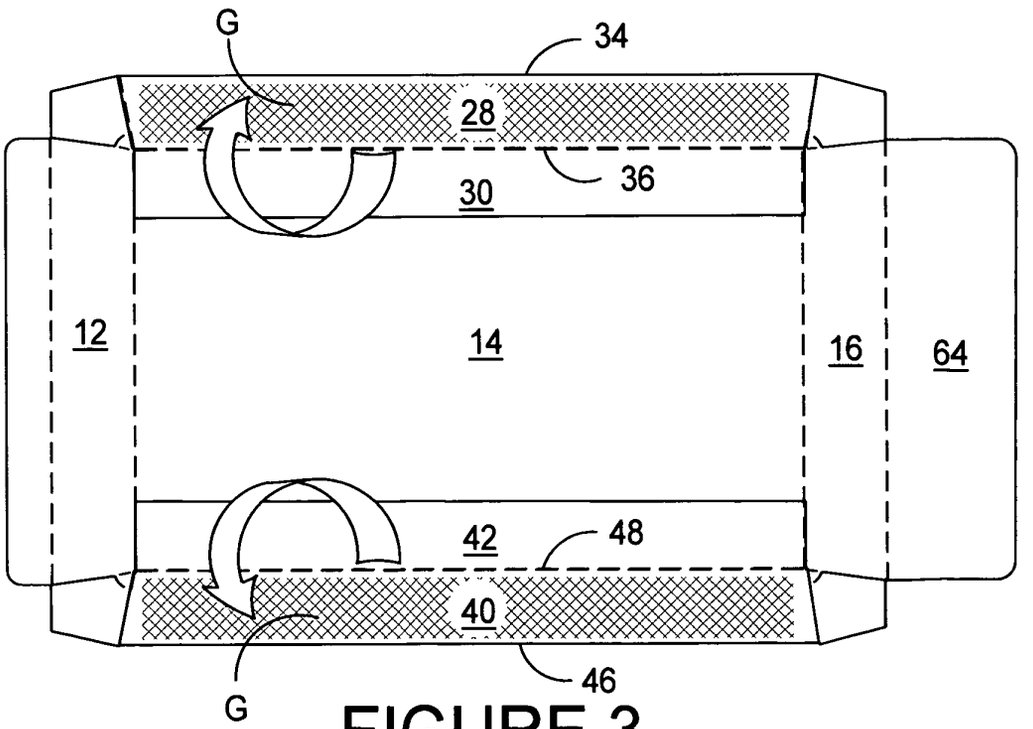

FIGURE 3

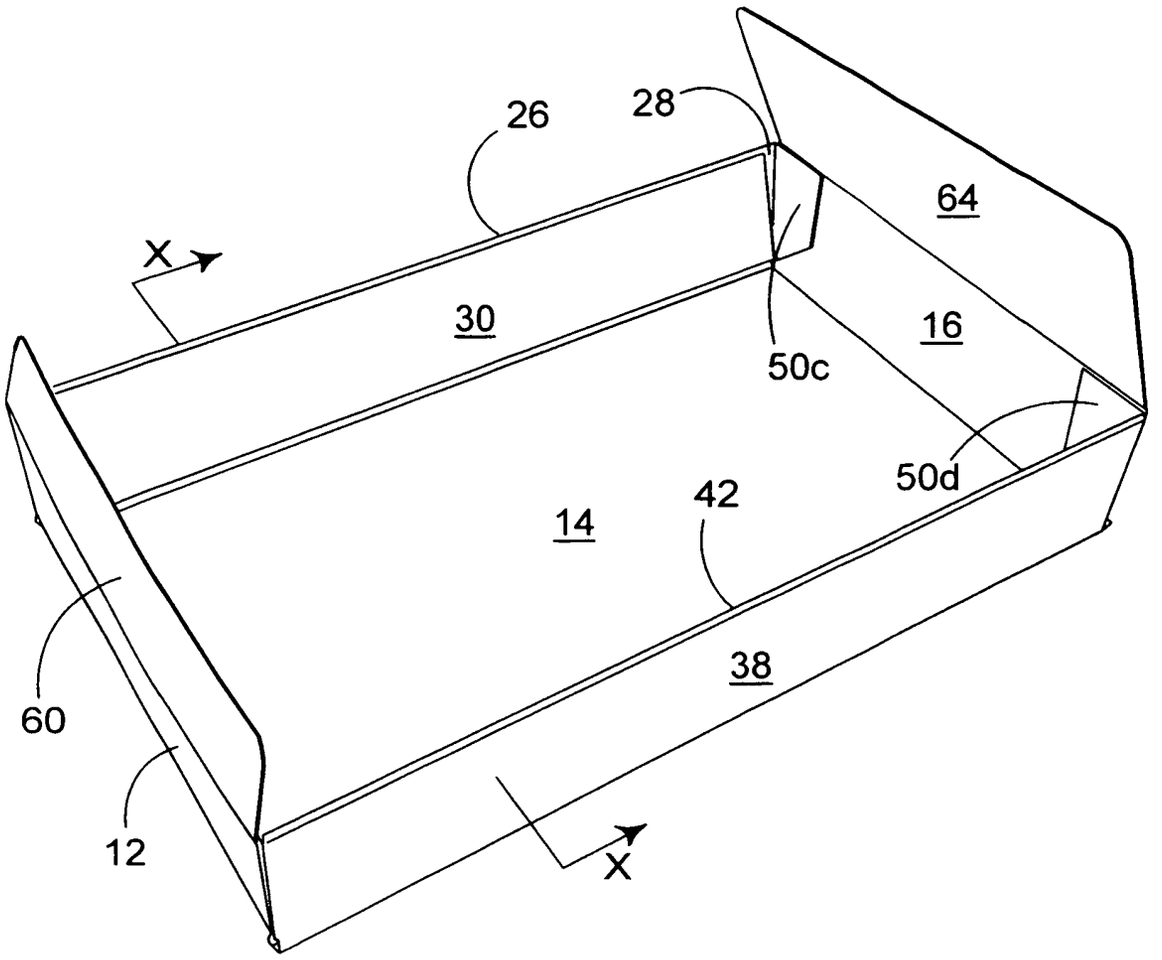

FIGURE 4

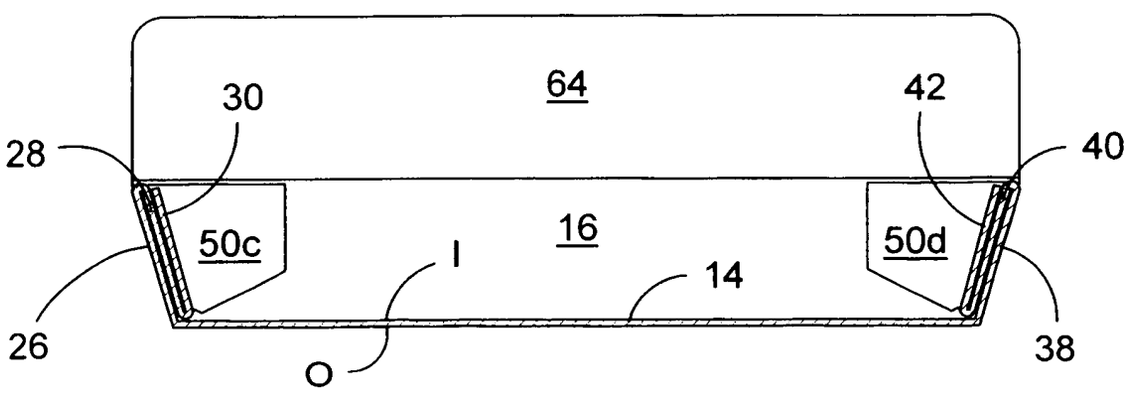

FIGURE 5