CONTAINER WITH INNER-CUSHIONING STRUCTURE

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ABSTRACT OF THE DISCLOSURE

The carton as disclosed herein comprises a bottom wall, side walls foldably joined to the bottom wall, a top wall foldably joined to the side walls, end structure including an end panel foldably joined to one edge of the top wall, a spacer panel disposed in normal relation to each end panel, a cushioning panel foldably joined to the edge of each spacer panel remote from its associated end panel, a tray forming panel associated with each end panel, said cushioning panel being in generally parallel relation to the associated end wall, an anchoring panel foldably joined to each cushioning panel and secured in position adjacent the inner surface of the top wall, a pair of cushioning panels folded to the top wall and foldable into parallel relation to the side walls. A cover structure is disposed within the main body of the carton and secured by at least one holding tab disposed underneath the bottom edge of one of the cushioning walls.

This invention relates to a container which is specially constructed with inner-cushioning structure and which is particularly effective in packaging fragile objects.

Hereinafter, cushioning containers of the folding box type have been utilized wherein each wall of a pair of oppositely disposed side walls is constructed of a pair of spaced apart panels. While such containers afford protection for fragile packaged items in the region immediately adjacent the hollow walls, such containers ordinarily do not afford protection for the remaining two sides or end walls. Furthermore, bottom protection is achieved in such known containers by simply placing a panel of corrugated paperboard or the like inside the container so that the packaged items simply rest on the corrugated cushioning panel. Such cushions obviously do not afford protection for fragile articles which is equivalent to that afforded by a yieldably supported separate panel which is spaced from the main bottom wall and which, therefore, effectively protects the articles from breakage during shipment and during rough handling.

A principal object of this invention is to provide an improved cushioning container for packaging fragile items wherein cushioning panels are disposed inside all four walls and inside the bottom wall in spaced relation to the outer walls of the container.

Another object of the invention is to provide an improved cushioning type container in which the cover portion of the container is yieldably biased toward the closed position and wherein the cover panel itself is sturdy and rigid so as to afford maximum protection for the packaged items within the container.

Another object of the invention is to provide an improved and closure structure for a cushioning type container wherein exposed raw cut edges of material are eliminated entirely and wherein a bracing action is provided whereby the container is rendered particularly rigid and sturdy.

Still another object of the invention is to provide an improved bottom cushioning panel which is spaced from the main bottom wall along one edge by suitable pedestal means and along the other edge by a back panel suspended from the cover.

The invention insofar as it concerns the end closure structure comprises an end panel foldably joined to an end edge of one of the walls of the container, a spacer panel foldably joined to the end panel along an edge thereof remote from the container wall and extending inwardly of the container, a cushioning panel foldably joined to the inner edge of the spacer panel and disposed generally in parallel relationship to the outer end panel, a fastening flap for securing the cushioning panel to the said one wall of the container, locking means for holding the end and cushioning panels in their closed positions, and web structure foldably interconnecting each end of the end panel and the adjacent ends of the adjacent outer walls of the container, said web structure being collapsible upon closure of the end structure and being effective to brace the container into set-up condition and also to improve the appearance of the end structure by eliminating exposed raw edges.

According to a feature of the invention, a bottom cushioning panel is disposed above the main bottom panel and held in spaced relation thereto by a series of pedestal tabs along the front edge and by a back panel suspended from above and shorter than the carton side walls. According to another feature of the invention, the bottom cushioning panel is provided along its back edge with one or more holding tabs anchored under the bottom edge of the rear side cushioning wall for biasing the back panel of the cushioning structure and the cover downwardly toward the closed position.

For a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawings in which FIG. 1 is a perspective view of the main body portion of the container shown in set-up condition; FIG. 2 is a plan view of a blank from which the container depicted in FIG. 1 is formed; FIGS. 3 through 10, inclusive, depict the various gluing and folding operations through which the blank of FIG. 2 is manipulated in order to form the carton depicted in FIG. 1, the completed carton being shown upside down in FIG. 10; FIG. 11 is a perspective exploded view of a carton as is depicted in FIG. 1 in set-up condition together with the lid portion shown removed; FIG. 12 is a cross-sectional view taken along the plane designated 12--12 in FIG. 11 and showing the cover in assembled condition within the body portion of the carrier but in its opened position; FIG. 13 is a view similar to FIG. 12 but showing the cover in closed position; and in which FIG. 14 is a plan view of a blank from which the cover shown in FIGS. 11, 12 and 13 is formed.

With reference to the drawings, the numeral 1 designates the container bottom wall which is foldably joined
along fold line 2 to the container side wall 3. A glue flap 4 is foldably joined along fold line 5 to the bottom wall 1. A pair of anchoring panels 6 and 7 are foldably joined along fold lines 8 and 9, respectively, to the end edges of bottom wall 1. Top wall 10 is foldably joined to side wall 3 along fold lines 10 and to the opposite side wall 12 along fold line 13. End panels 14 and 15 are foldably joined to the end edges of top wall 10 along fold lines 16 and 17, respectively. A spacer panel 18 is foldably joined to an edge of end panel 14 along fold line 19, and a similar spacer panel 20 is foldably joined to an edge of end panel 15 along fold line 21.

For the purpose of cushioning the packaged items against external shock, a pair of end cushioning panels are provided at each end of the carton in generally parallel relation to the end panels 14 and 15. These cushioning panels are designated in the drawings by the numerals 22 and 23 and are foldably joined respectively to their adjacent spacer panels along the lines 24 and 25. The spacer panels 18 and 20 serve to hold the cushioning panels 22 and 23 in spaced relation to their cushioning end panels 14 and 15, respectively.

In order to provide side cushioning walls in generally parallel relation to the side walls 3 and 12, a pair of side cushioning wall panels designated in the drawings by the numerals 30 and 31 are strutted out of the top panel 10 and fold downwardly along their respective fold lines 32 and 33 to occupy positions in parallel to their respective side walls 3 and 12.

For securing the side cushioning walls 30 and 31 in their cushioning positions, a pair of fastening flaps 34 and 35 are foldably joined to the bottom edge of side cushioning wall 30 along their respective fold lines 36 and 37. Fastening flaps 34 and 35 are simply affixed to the bottom panel 1 in flat face contacting relation in such manner as to hold the side cushioning wall 30 in parallel relation to the side wall 3. Similarly, side cushioning wall 31 is provided with a pair of fastening flaps 38 and 39 which are foldably joined respectively along fold lines 40 and 41 to the bottom edge of side cushioning wall 31. These fastening flaps 38 and 39 are affixed in any suitable manner such as by glue to the bottom panel 1 in such a way as to hold the side cushioning wall 31 in parallel relation to side wall 12.

For the purpose of engaging the inner edge of in-turned anchoring panel 6 and thereby to hold the end closure structure in closed position, a pair of locking tabs 42 and 43 are struck from spacer panel 18 and constitute extensions of cushioning panel 22. In like fashion, a pair of locking tabs 44 and 45 are formed along an edge of cushioning panel 23 and serve to engage the inwardly extending edge of anchoring panel 7 to hold the closure structure in closed position at the other end of the carton.

In order to brace the carton in its set-up position as depicted in FIG. 1 and also to improve the appearance of the container at the corners thereof, suitable web structure is provided at each corner of the carton. In FIG. 2 the web panels are designated at the upper left hand corner of top wall 10 by the numerals 46 and 47. Panel 46 is triangular in shape and is foldably joined to side wall 3 along fold line 48 and to triangular web panel 47 along fold line 49. Web panel 47 is foldably joined to end panel 14 along fold line 50. In like fashion, web structure at the lower left hand corner of top wall 10 is designated in FIG. 3 by the numerals 51 and 52 which numerals identify a pair of triangular panels interconnected with each other along a fold line 53. Web panel 51 is foldably joined to the end edge of side wall 3 along the fold line 54, while web panel 52 is foldably joined to an end edge of end panel 15 along the fold line 55.
inate raw cut edges of material at the ends of end panels 14 and 15 and at the ends of side walls 3 and 12. Thus, the appearance and sturdiness of the body portion of the container as depicted upside down in FIG. 10 is substantially improved utilizing the improved web structure according to this invention.

For the purpose of affording clearance for the web structure at each corner of the carton during the folding operation as depicted in FIGS. 8, 9 and 9, the end edges of the spacer panels 18 and 20 are notched inwardly as are the end edges of the cushioning panels 22 and 23. These cutaway areas are indicated in FIG. 3 by the numerals 66, 67, 68 and 69.

The lid of the container is formed from the blank depicted in FIG. 14 and constitutes a bottom cushioning wall 70 along one edge of which a front panel 71 is foldably joined by fold line 72. A plurality of pedestal tabs 73, 74 and 75 are formed along the one edge of front panel 71 and are structuring the bottom cushioning wall 70. Foldably joined along the back edge 76 of bottom cushioning panel 70 is a back panel 77 to the top edge 78 of which the inner cover panel 79 is foldably joined. Outer cover panel 80 is foldably joined along fold line 81 to inner panel 79 and a glue flap 82 is foldably joined along fold line 83 to outer panel 80.

In order to assemble the lid, the glue flap 82 is first folded downwardly and underneath the left hand edge of outer panel 80 and secured thereto as by glue or other suitable means. Thereafter, the outer panel 80 is folded downwardly along the fold line 81 underneath the panel 79 and secured thereto as by glue. Upon completion of this folding operation, the cover then appears as depicted in FIGS. 11, 12 and 13.

In order to mount the cover and its bottom cushioning wall 70 into the body portion of the container, the bottom cushioning wall 70 is placed into the container as shown in FIG. 12 with the front panel 71 disposed vertically and with the pedestal tabs 73, 74 and 75 resting on the bottom wall 1. Holding tabs 84 and 85 are slipped underneath the bottom edge of side cushioning wall 31. When the lid 79-80 is open as depicted in FIG. 12, holding tabs 84 and 85 are fixed as shown in FIG. 12. The inherent "fight" or bias of the tabs 84-85 tends to urge the lid portion 79-80 closed so that when the cover is closed as indicated in FIG. 13, tabs 84 and 85 tend to bias the cover in its closed position.

Of course, this effect is achieved due to the fact that the back panel 77 is of less height than the height of the side cushioning wall 31. When the container is assembled, the bottom cushioning wall 70 is spaced from the bottom wall 1 as depicted for example in FIG. 13, thus affording a cushioned support for fragile items packaged in the container. The general biasing action of the holding tabs 84 and 85 tends to hold the cover 79, 80 in closed position against inadvertent opening. Furthermore, the double wall thickness 79-80 of the cover affords a stiff panel which protects the container contents from shocks from above. As is best shown in FIG. 13, the cover 79-80 is arranged in overlying relationship to the opening defined in the top wall 10 by the side cushioning walls 30 and 31.

While a particular embodiment of the invention has been shown and described, it will be understood that the invention is not limited thereto and it is intended in the appended claims to cover all such changes and modifications that fall within the true spirit and scope of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A container comprising a bottom panel, top, bottom, and side walls foldably interconnected to form a tubular arrangement, said structure comprising an end panel foldably joined to an end edge of one of said walls, a spacer panel foldably joined to the edge of said end panel remote from said one wall and extending inwardly toward the interior of the container, a cushioning panel foldably joined to the inner edge of said spacer panel and extending in a direction generally parallel to said end panel, a fastening flap secured to said one wall and foldably joined to said cushioning panel along the edge thereof which is remote from said spacer panel, an anchoring panel foldably joined to the end edge of a wall of the container opposite to said one wall and extending into the interior of the container, at least one locking tab disposed on said cushioning panel and engageable with a part of said anchoring panel for holding said end and said cushioning panels in generally normal closed relation to said one wall of the container, and web structure foldably joined respectively to each end edge of said end panel and to the adjacent end edges of the adjacent two container walls, said web structure being collapsible upon closing of said end panel and the end edges of said spacer panel and of said cushioning panel being configured to afford clearance for the collapsing of said web structure.

2. A container comprising a bottom panel, top, bottom, and side walls foldably interconnected to form a tubular arrangement, said structure comprising an end panel foldably joined to an end edge of one of said walls, a spacer panel foldably joined to the edge of said end panel remote from said one wall and extending inwardly toward the interior of the container, a cushioning panel foldably joined to the inner edge of said spacer panel and extending in a direction generally parallel to said end panel, the inner surface of said cushioning panel being disposed in normal close relation to the ends of a pair of cushioning walls strung from said one wall and folded into parallel spaced relation to said adjacent container walls respectively, a fastening flap secured to one wall and foldably joined to said cushioning panel along the edge thereof which is remote from said spacer panel, securing means for holding said end and said cushioning panels in generally normal closed relation to said one wall of the container, web structure foldably joined respectively to each end edge of said end panel and to the adjacent end edges of the adjacent two container walls, said web structure being collapsible upon closing of said end panel and the end edges of said spacer panel and of said cushioning panel being configured to afford clearance for the collapsing of said web structure.

3. A container comprising a bottom wall, side walls, top wall foldably joined to the side edges of said bottom wall, a top wall foldably joined to the top edges of said side walls, a pair of side cushioning walls strung out of said top wall and folded downwardly into spaced parallel relation to said side walls respectively and with at least portions of their bottom edges fixed in spaced parallel relation to said bottom wall, a pair of end panels foldably joined respectively to the end edges of said top wall, a pair of spacer panels foldably joined respectively to the edges of said end panels remote from said top wall, a pair of cushioning panels foldably joined respectively to the edges of said spacer panels remote from said end panels, means for securing the edges of said cushioning panels which are remote from said spacer panels to said top wall, web structure foldably connected to each end of each side panel and to the adjacent end edges of each of said side walls respectively, a bottom cushioning wall extending at least one locking tab along one edge and arranged for disposition underneath the bottom edge of one of side cushioning walls, a back panel foldably joined to one side edge of said bottom cushioning panel and disposed in parallel relation to said side walls, and a cover foldably joined to the upper edge of said back panel and arranged when closed with its outer edges overlying said top wall so as to cover the opening defined therein by said side cushioning walls.

4. A container according to claim 3 wherein a front panel is foldably joined to the edge of said bottom cushioning wall which is opposite to said back panel and
wherein a plurality of pedestal tabs are disposed along the bottom edge of said front panel, said tabs being engageable with said bottom panel to aid in holding said bottom cushioning wall in spaced relation to said bottom wall.

5. A container according to claim 3 wherein the height of said back panel is less than the height of said side walls and of said side cushioning walls so as to hold said bottom cushioning wall in spaced relation to said bottom wall.

6. An arrangement according to claim 3 wherein said holding tab bases said cover toward its closed position.

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