United States Patent [19]

Curley

[11] **3,841,548**

[45] **Oct. 15, 1974**

[54] **SHIPPING CONTAINER AND BLANK THEREFOR**

[75] Inventor: **William J. Curley,** Marshalltown, Iowa

[73] Assignee: **Packaging Corporation of America,** Evanston, Ill.

[22] Filed: **Sept. 13, 1972**

[21] Appl. No.: **288,748**

[52] **U.S. Cl.** **229/40,** 206/472, 229/22

[51] **Int. Cl.** **B65d 5/02**

[58] **Field of Search** ..... 229/40, 22; 206/46 FR

[56] **References Cited**

UNITED STATES PATENTS

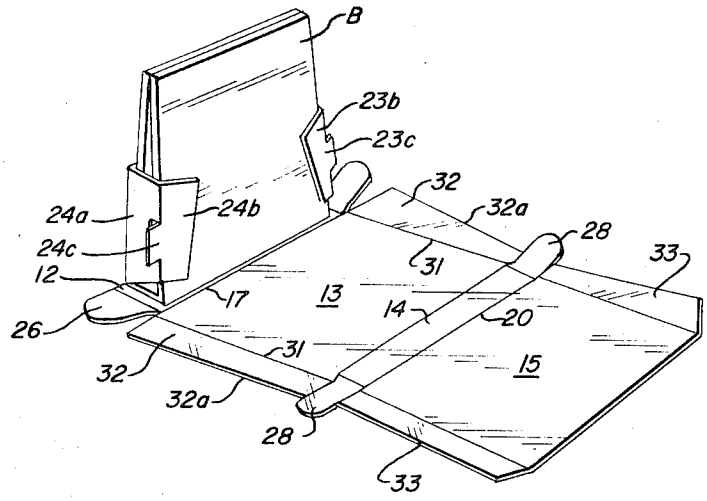
1,669,139	5/1928	Martin	229/22
2,792,981	5/1957	Grammer	229/40
2,885,842	5/1959	Boitel	53/34
3,380,643	4/1968	Sorenson et al.	229/40

Primary Examiner—William T. Dixson, Jr.
Assistant Examiner—Bruce H. Bernstein
Attorney, Agent, or Firm—Neuman, Williams, Anderson & Olson

[57] **ABSTRACT**

A shipping container and blank therefor are provided for packaging an article, such as a book, notebook, or the like, wherein the bound edge thereof is thicker than the opposite open edge thereof. The container utilizes a minimum amount of blank material and has the top and bottom panels thereof extending convergently from an end panel which engages the bound edge of the packaged article. The article is snugly held within the container so that the sides thereof are spaced from the adjacent sides of the container.

9 Claims, 7 Drawing Figures



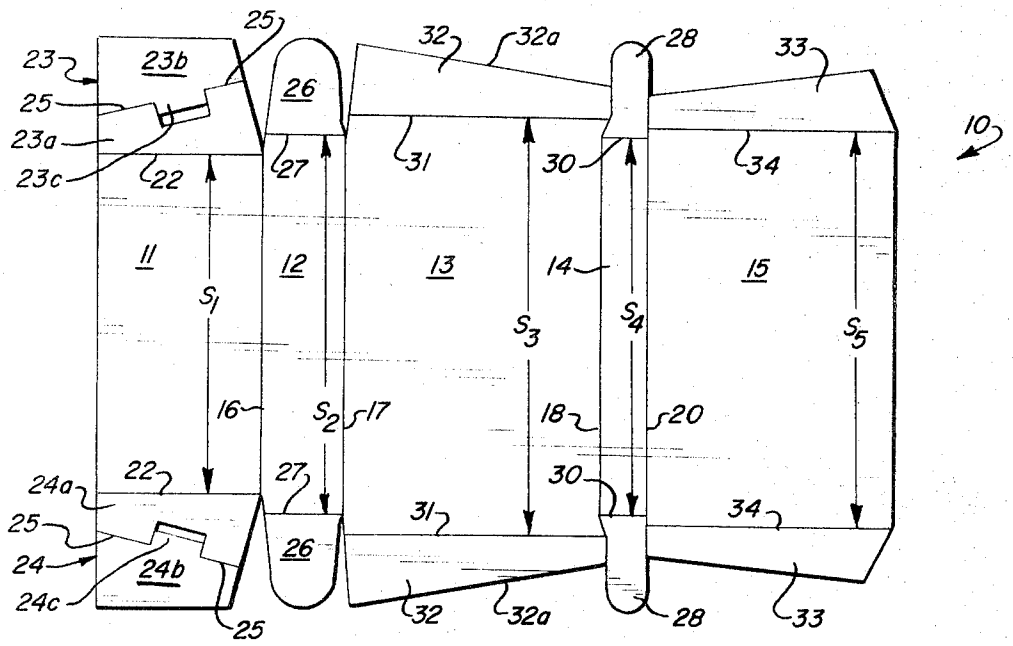


FIG. 1

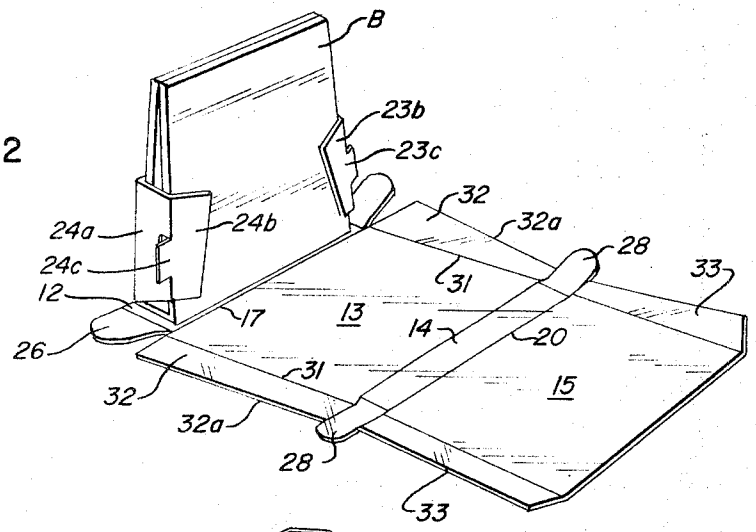


FIG. 2

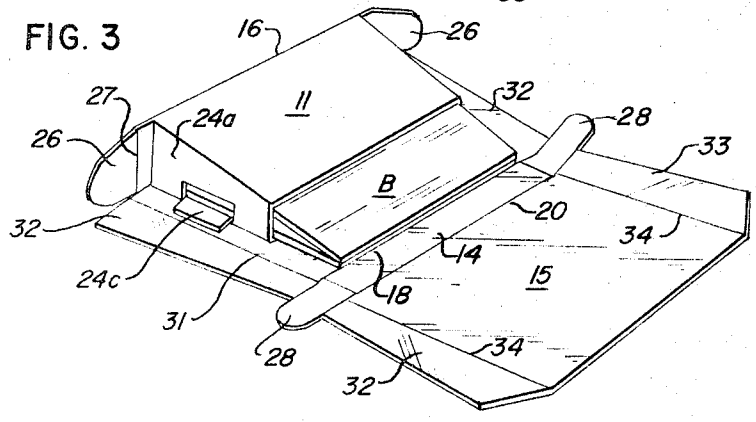


FIG. 3

FIG. 4

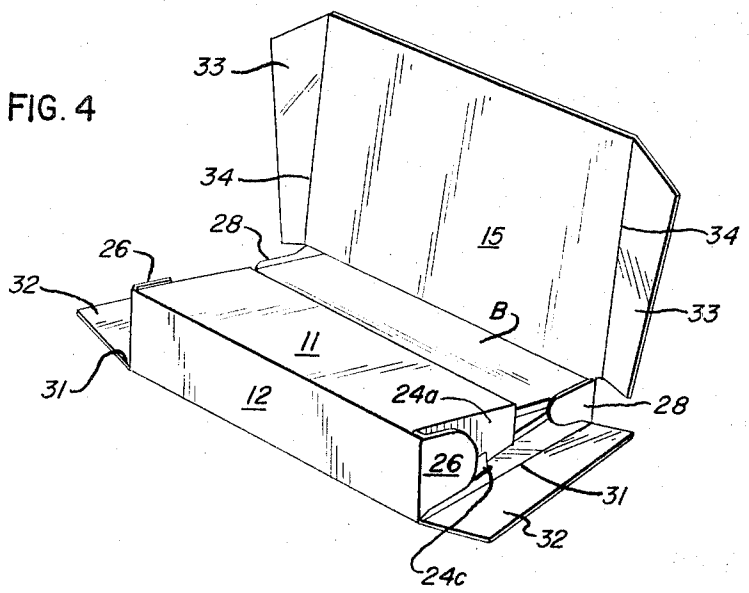


FIG. 5

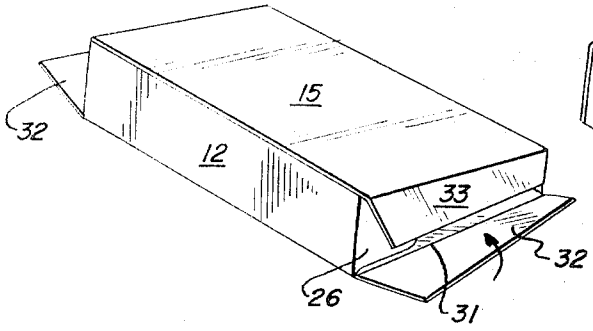


FIG. 6

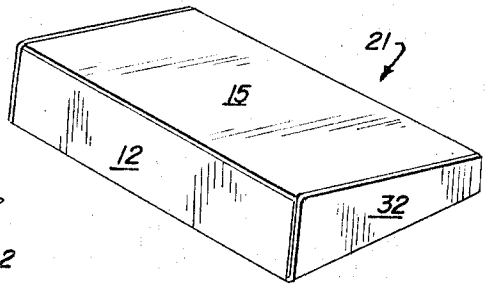
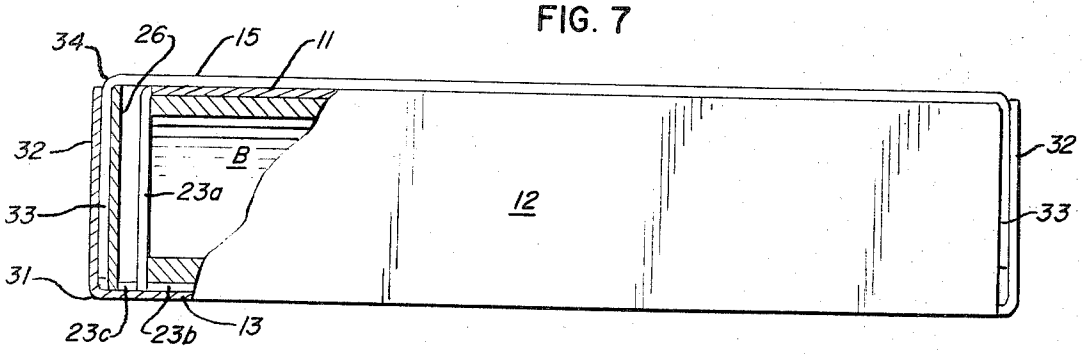


FIG. 7



SHIPPING CONTAINER AND BLANK THEREFOR

BACKGROUND OF THE INVENTION

Various containers for this general purpose have heretofore been provided, however, because of certain inherent design characteristics they are possessed of one or more of the following shortcomings: (a) the blank utilizes an inordinate amount of blank material; (b) the blank is difficult to form and awkward to set up; (c) the packaged article is not securely accommodated within the container; (d) the corners and sides of the packaged article are susceptible to defacement even when the loaded container is subjected to normal handling; and (e) difficulty is encountered in manually opening the package.

SUMMARY OF THE INVENTION

Thus, it is an object of the invention to provide a shipping container which is of simple, inexpensive construction, and yet provides effective protection for the accommodated article.

It is a further object of the invention to provide a shipping container blank which may be readily formed by high speed automatic equipment of conventional design.

It is a still further object of the invention to provide a shipping container which is of compact construction and conforms substantially to the shape of the packaged article.

Further and additional objects will appear from the description, accompanying drawings and appended claims.

In accordance with one embodiment of the invention, a shipping container is provided for use in packaging an article such as a book, or the like, wherein the bound edge thereof is thicker than the opposite open edge thereof. The container includes an inner top panel and a bottom panel which are disposed adjacent the front and back surfaces, respectively, of the article. The panels are interconnected by an elongated first end panel which is disposed adjacent to the bound edge of the article. The inner top and bottom panels extend convergently from the first end panel. Foldably connected to opposite sides of the inner top panel are sectional panels which cooperate with the inner top panel and snugly embrace the front, side and back surfaces of the article. Each sectional panel includes a first section which engages the side surface of the article, and a second section connected to the first section by an angularly extending foldline. The second section is adapted to subtend the back surface of the article. The foldline connecting the sections is interrupted by a tab which is struck out from the first section and extends outwardly therefrom when the second section is folded into engagement with the back surface of the accommodated article.

Foldably connected to the side of the bottom panel opposite the first end panel is a second end panel. The second end panel is adapted to engage the open edge of the article which is opposite the bound edge. Foldably connected to the second end panel and opposite the bottom panel is an outer top panel which is adapted to overlie and be secured to the inner top panel. The bottom and outer top panels have closure flaps foldably connected thereto which are secured to one another in overlapping relation. The overlapping closure flaps are

spaced outwardly from the first section of the adjacent sectional panel. The outwardly projecting tabs of the sectional panels engage the interior surface of the overlapping closure flaps; and, thus, retain the folded sectional panels in snugly embracing relation with respect to the article.

DESCRIPTION

For a more complete understanding of the invention, reference should be made to the drawings wherein:

FIG. 1 is a plan view of a blank for one form of the improved shipping container.

FIG. 2 is a perspective view of the blank of FIG. 1 showing the latter in an initial stage of setup with the sectional panels thereof folded about a hook in embracing relation.

FIGS. 3 and 4 are fragmentary perspective views of the blank of FIG. 1, shown in successive stages of setup.

FIG. 5 is a fragmentary perspective view of the blank of FIG. 1 in a further stage of setup, and showing one of the closure flaps in a folded condition and an arrow indicating the direction of fold of the other closure flap so as to effect overlapping of the flaps.

FIG. 6 is a fragmentary, perspective view of one form of the improved shipping container.

FIG. 7 is an enlarged fragmentary elevational end view of the container shown in FIG. 6.

Referring now to the drawings, and more particularly to FIG. 1, a blank 10 is shown which is formed from a single sheet of foldable material (e.g., double-faced corrugated fibreboard). The blank is capable of being formed by automatic high speed cutting, slotting and scoring equipment of conventional design. In the illustrated embodiment, the blank 10 includes an inner top panel 11, a first end panel 12, a bottom panel 13, a second end panel 14, and an outer top panel 15, all of which are arranged in side-by-side relation. Foldlines 16 and 17 interconnect the first end panel 12 with top panel 11 and bottom panel 13, respectively. The opposite edge of panel 13 is connected to the second end panel 14 by a foldline 18. A foldline 20 interconnects panel 14 and outer top panel 15. Foldlines 16 – 18 and 20 are disposed in spaced, substantially parallel relation.

Inner top panel 11 is adapted to at least partially overlie the front of the article (e.g., book) B to be packaged. First end panel 12 is sized so that it conforms substantially to the bound edge of the book. The bound edge of book B is thicker than the opposite open edge thereof.

Bottom panel 13 is adapted to subtend the back surface of the book B, and is sized to conform substantially to the shape thereof.

The second end panel 14 is adapted to engage the open end of the accommodated book.

Outer top panel 15 is adapted to at least partially overlap and be secured to the inner top panel 11 when the blank is fully set up to form the improved shipping container 21, see FIGS. 6 and 7.

Connected by foldlines 22 to opposite sides of inner top panel 11 are sectional panels 23 and 24, which are of like configuration. The sectional panels include first sections 23*a* and 24*a*, which assume substantially parallel relation when the container is formed. Each section 23a or 24*a* snugly engages the adjacent side of the book B, see FIG. 2. Connected to the outer edge of the first

section 23*a* or 24*a* by an angularly extending foldline 25 is a second section 23*b* or 24*b*. Each second section is folded relative to the corresponding first section so that it engages the back surface of the book B, see FIG. 2. The slant or angularity of each foldline 25 corresponds to the extent to which the front and back surfaces of the book converge relative to the bound edge.

Each foldline 25 is interrupted by a tab 23*c* or 24*c*, which projects outwardly when the second section is folded at a right angle relative to the first section so as to snugly embrace the book.

Tuck flaps 26 are connected by foldlines 27 to opposite ends of the first end panel 12. Similar tuck flaps 28 are connected by foldlines 30 to opposite ends of the second end panels 14.

Connected by foldlines 31 to opposite sides of the bottom panel 13 are a first set of closure flaps 32. The outer edge 32*a* of each flap is slanted so as to conform to the convergency of the book back and front surfaces.

A second set of closure flaps 33 are connected by foldlines 34 to the opposite sides of the outer top panel 15. Flaps 33 are adapted to be overlapped by flaps 32 when the container is fully set up so as to form side walls, as seen in FIGS. 6 and 7.

It should be noted in FIG. 1 that the spacing S_1 between foldlines 22 is less than the spacing S_2 between foldlines 27. The spacing S_3 between foldlines 31 is greater than both spacings S_1 and S_2. The spacing S_4 between foldlines 30 is substantially the same as spacing S_2. The spacing S_5 betweeen foldlines 34, however, is greater than spacings S_1, S_2 and S_4, but is less than spacing S_3. These spacing differentials are of importance when the blank 10 is set up to form the container 21.

The procedure to be followed in loading and setting up the improved container is substantially shown in FIGS. 2 – 6, and is as follows: (a) the bound edge of the book to be packaged is positioned so that it rests upon the first end panel 12; b) the inner top panel 11 is folded about foldline 16 as an axis to an upright position so as to engage the top surface of the book; (c) the sectional panels 23 and 24 are then folded about the respective foldlines 22 so as to snugly embrace the top, side and bottom surfaces of the book, see FIG. 2; (d) the embraced book and the end panel 12 are then folded as a unit about foldline 17 as an axis so that the embraced book overlies the bottom panel 13; with the second sections 23*b* and 24*b* sandwiched between the back surface of the book and the bottom panel 13; (e) second end panel 14 and the outer top panel 15 are then folded as a unit about foldline 18 to an upright position, and the tuck flaps 26 and 28 folded so as to assume substantially parallel, closely spaced relation with respect to the adjacent sides of the book, see FIG. 4; (f) the outer top panel 15 is then folded downwardly about foldline 20 as an axis so as to at least partially overlie top panel 11; panel 15 is secured to panel 11 by any suitable means, such as adhesive or the like; and (g) closure flaps 33 are folded downwardly so as to overlie the previously folded tuck flaps and closure flaps 32 are then folded upwardly so as to overlap flaps 33 and are secured thereto by adhesive or any other suitable means.

It will be noted in FIG. 7 that the overlapping closure flaps are spaced outwardly from the sections 23*a* and 24*a* of the panels 23 and 24. Furthermore, the tab 23*c* and 24*c*, which project outwardly from panel sections 23*a* and 24*a*, engage the interior surfaces of the tuck flaps 26 when the latter are folded parallel to panels 23*a* and 24*a;* and, thus, the folded sectional panels remain in snugly embracing relation with the accommodated book.

When the container is to be opened, a knife or similar tool may be utilized to slit the container along either foldline 31 or 34, thereby allowing the overlapping closure flaps to be folded outwardly, and the sectional panel 23 or 24, pulled outwardly to an unfolded position, whereby the book may be slipped sidewise out from between the bottom panel 13 and the overlapping top panels 11 and 15.

The size and shape of the various panels, flaps, etc., comprising the blank as well as the ultimate container, may vary from that shown, and will depend in large measure upon the type and size of article being packaged.

While the invention has heretofore been described in relation to a book, it is not intended to be limited thereto, as the improved container may be utilized in packaging various other articles, wherein one side thereof is thicker than the opposite side thereof, and the intermediate sides of the article have converging top and bottom surfaces.

Thus, it will be seen that an improved shipping container has been provided which utilizes a minimum amount of blank material, and yet provides effective protection for the accommodated article. The container is of inexpensive, compact design, and may be readily opened when desired to permit removal of the article.

I claim:

1. A shipping container for an article thicker at one edge than at a second edge opposite thereto, said container being formed from a single blank of foldable sheet material and comprising a bottom panel for subtending the back surface of the article; an inner top panel for at least partially overlying the front surface of the article; a first end panel for engaging the one edge of the article, said first end panel foldably interconnecting said inner top panel and said bottom panel, said inner top panel and said bottom panel extending convergently from said first end panel; a second end panel for engaging the second edge of the article, said second end panel being foldably connected to an edge of the bottom panel disposed opposite said first end panel; an outer top panel foldably connected to an edge of said second end panel disposed opposite said bottom panel, said outer top panel overlying and being secured to the entire surface of said inner top panel, the distance between the folding connections of said second end panel with said outer top panel and said bottom panel being less than the distance between the folding connections of said first end panel with said inner top panel and said bottom panel; side embracing panels foldably connected to opposite sides of said inner top panel and cooperating therewith for partially embracing the front, back and side surfaces of the article, each side embracing panel having a first section foldably connected to the inner top panel for engaging the adjacent side surface of the article, and a second section foldably connected to said first section for engaging the back surface of the article and being sandwiched between said bottom panel and the article back surface, the folding

connection between said first and second sections being interrupted by a tab struck out from said first section and extending angularly outwardly from said first section when said sections are engaging the side and back surfaces of the article; tuck flaps foldably connected to opposite ends of said first and second end panels and adapted to be outwardly disposed relative to the side surfaces of the article; first closure flaps foldably connected to said outer top panel and outwardly disposed relative to the folded tuck flaps; and second closure flaps foldably connected to said bottom panel, corresponding closure flaps being secured to one another in overlapping relation whereby the overlapped closure flap is in abutting engagement with the outwardly protruding end of the struck-out tab and retained thereby in a predetermined folded position.

2. The shipping container of claim 1 wherein the end edges of said first and second closure flaps disposed adjacent said first end panel have a greater dimension than the opposite end edges thereof disposed adjacent said second end panel.

3. The shipping container of claim 1 wherein the foldline connection between the sections of each side embracing panel is angularly disposed relative to the foldline connection between said inner top panel and said first section.

4. The shipping container of claim 1 wherein each second closure flap substantially spans the distance between the bottom panel and the outer top panel and between the first and second end panels.

5. The shipping container of claim 4 wherein the length of the foldline connection between each second closure flap and the bottom panel is greater than the distance between said first and second end panels, and the tab of each side embracing panel engages the interior surface of the adjacent first closure flap.

6. A container blank of foldable sheet material for use in packaging an article wherein one edge thereof is thicker than a second edge opposite thereto; said blank comprising a bottom panel conforming substantially to the back surface of the article to be packaged; a first end panel having one side thereof foldably connected to a side of said bottom panel and adapted to engage the one edge of the article; a second end panel having one side thereof foldably connected to the opposite side of said bottom panel and adapted to engage the second edge of the aritcle, the dimension of said first end panel measured transversely of the folding connection being greater than the corresponding dimension of said second end panel; an inner top panel foldably connected to a second side of said first end panel opposite said one side, said inner top panel being adapted to at least partially overlie the front surface of the article; an outer top panel foldably connected to a second side of said second end panel opposite the one side thereof, said outer top panel being adapted to overlie and be secured to the entire exterior surface of said inner top panel; sectioned panels foldably connected to opposite sides of said inner top panel and adapted to cooperate with said inner top panel to partially embrace the front, back and side surfaces of the article to be packaged, each sectional panel including a first section foldably connected to said inner top panel and adapted to engage a side surface of the article, and a second section foldably connected to said first section and adapted to engage the back surface of the article, the folding connection between said sections being angularly disposed relative to the folding connection between said inner top panel and said first section, the folding connection between said sections being interrupted by a tab struck out from the first section and movable as a unit with said second section; and closure flaps foldably connected to opposite sides of said bottom and outer top panels, the closure flaps connected to corresponding sides of said bottom and outer top panels being adapted to be in overlapping relation, the end edge of each closure flap adjacent said second end panel being of lesser dimension than the opposite end edge of each closure flap; and tuck flaps foldably connected to opposite ends of said end panels, one tuck flap on each side of the blank being separated from and disposed intermediate a sectional panel and a closure flap, and the other tuck flap on the same side being separated from and disposed intermediate said closure flaps.

7. The container blank of claim 6 wherein the spacing between the folding connections of the closure flaps and bottom panel is greater than the spacing between the folding connections of the sectional panels and the inner top panel.

8. The container blank of claim 7 wherein the spacing between the folding connections of the tuck flaps and the first end panel, and the spacing between the folding connections of the tuck flaps and the second end panel are both greater than that between said sectional panels and said inner top panel, but less than that between said closure flaps and said bottom panel.

9. The container blank of claim 8 wherein the spacing between the folding connections of the closure flaps and the outer top panel is greater than that between said tuck flaps and the end panels, but less than that between said closure flaps and said bottom panel.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,841,548 Dated October 15, 1974

Inventor(s) William J. Curley

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 15, "hook" should be book

Column 6, line 7 (claim 6), "sectioned" should be sectional

Signed and sealed this 10th day of December 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents

FORM PO-1050 (10-69)

USCOMM-DC 60376-P69
* U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334