United States Patent [19]

Skaggs

[11] **3,871,572**

[45] **Mar. 18, 1975**

[54] **ANGLE LOCK END FOLDER**

[75] Inventor: **Boyd T. Skaggs,** Ravenna, Ohio

[73] Assignee: **Container Corporation of America,** Chicago, Ill.

[22] Filed: **Jan. 21, 1974**

[21] Appl. No.: **434,883**

[52] **U.S. Cl.** **229/40,** 206/424

[51] **Int. Cl.** **B65d 5/02,** B65d 85/30

[58] **Field of Search** 229/40, 16; 206/424

[56] **References Cited**

UNITED STATES PATENTS

3,399,821	9/1968	Ringholz	229/40
3,666,168	5/1972	Partain	229/40
3,722,668	3/1973	Carpenter	206/424
3,792,811	2/1974	Carpenter	229/40

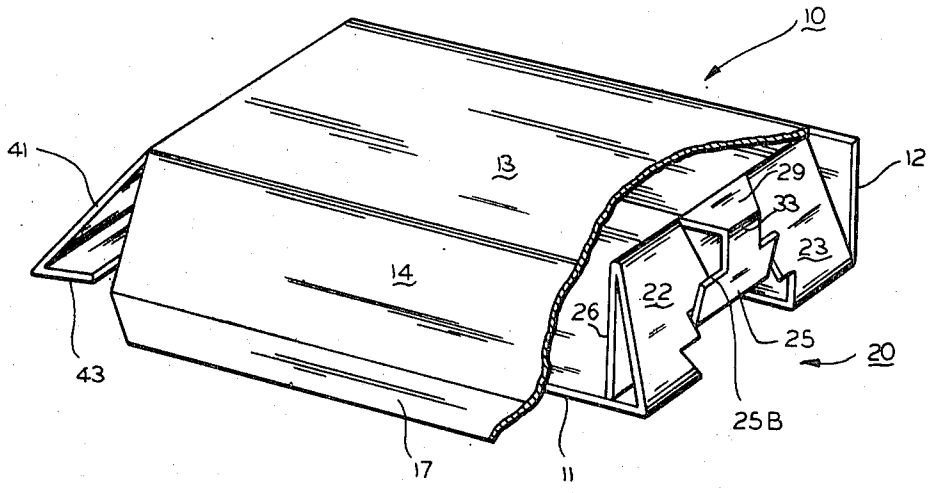
Primary Examiner—Edward J. McCarthy

Attorney, Agent, or Firm—Carpenter, Ostis & Lindberg

[57] **ABSTRACT**

A mailing folder for a heavy object such as a book of great thickness is formed from a cut and scored blank of paper board folded into position to provide a pair of opposite protective cells for ends of the book. The folder comprises a plurality of rectangularly shaped panels connected to define a tube, and cell forming elements extend from opposite ends of a main panel thereof and are foldably connected to each other and to the main panel to enclose opposite ends of the book. Each of the cell forming elements comprises first and second spaced outer flap elements foldable to an inclined upright position with an inner flap element foldably connected to the first and second flap elements at a distal flap edge thereof and foldable to a vertical position with the distal edge bearing against the main panel. A central reinforcing element extends between the first and second outer flap elements and is foldably connected at its ends to the main panel and the inner flap element, the central element having first and second portions additionally defined by spaced edges in the first and second outer flap elements and in the main panel, the central reinforcing element being folded upon folding of the first and second outer flap elements to a position where a portion thereof is braced against the first and second spaced flap elements. Closure elements extend from a top panel of the tube and are foldable to a position over the protective cell forming elements to provide a pair of opositve protective cells for the book contained within the folder.

1 Claim, 5 Drawing Figures



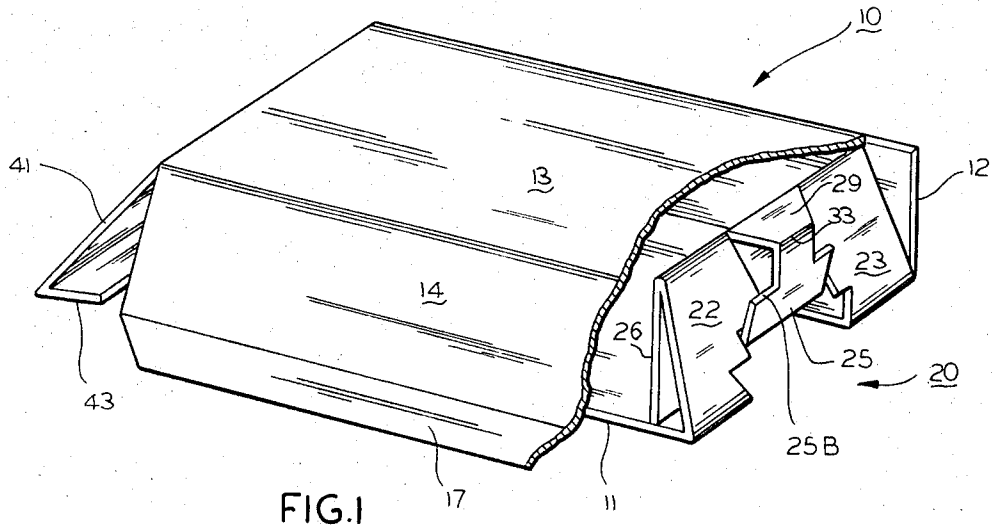

10
41
13
12
29
33
23
14
22
26
25
20
43
25B
17
11

FIG.1

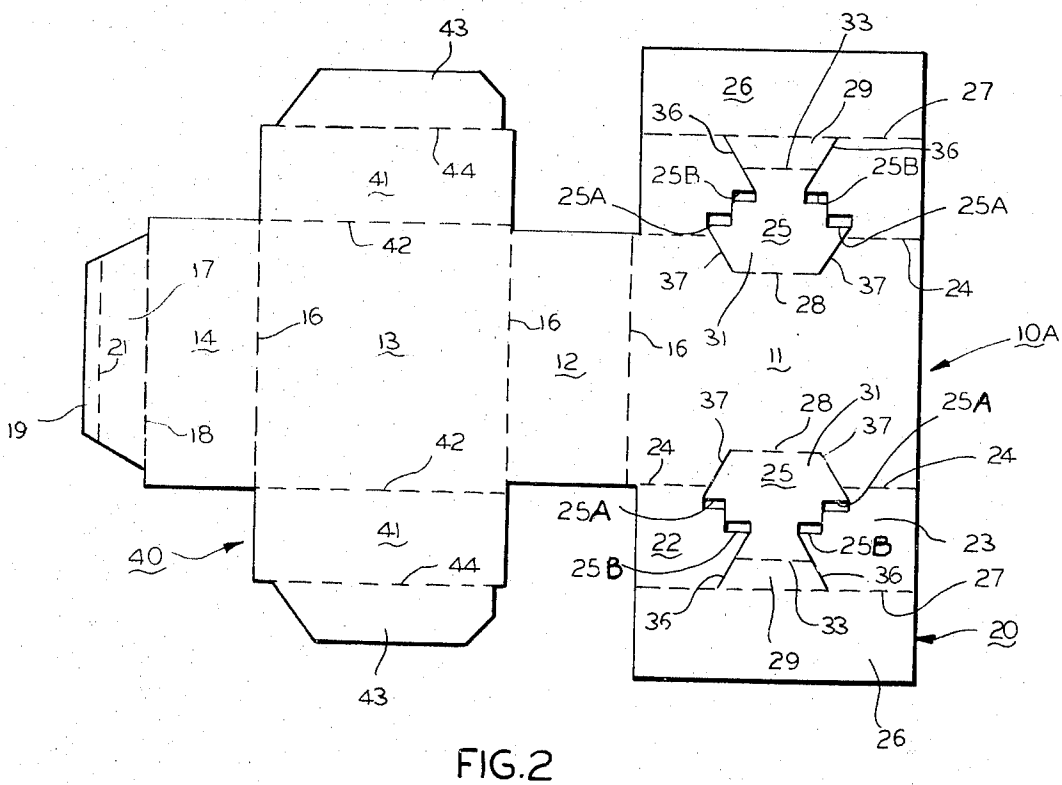

43
33
26
29
27
36
36
41
44
25B
25B
25A
25A
25
42
37
37
24
28
17
16
16
16
31
10A
14
13
12
11
21
19
18
37
28
31
25A
37
42
24
24
25
41
25A
22
23
40
44
25B
25B
36
27
36
33
20
29
43
26

FIG.2

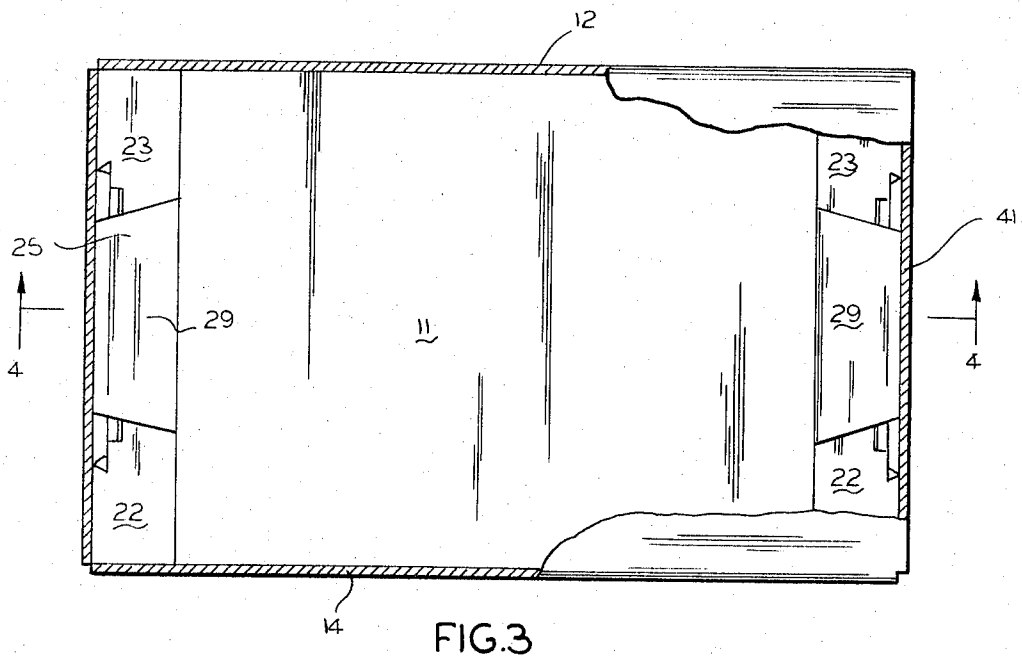


FIG.3

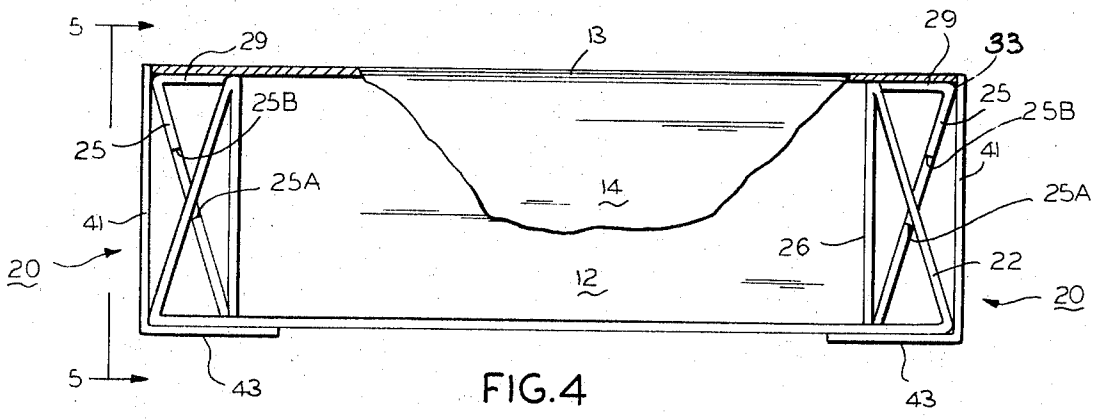


FIG.4

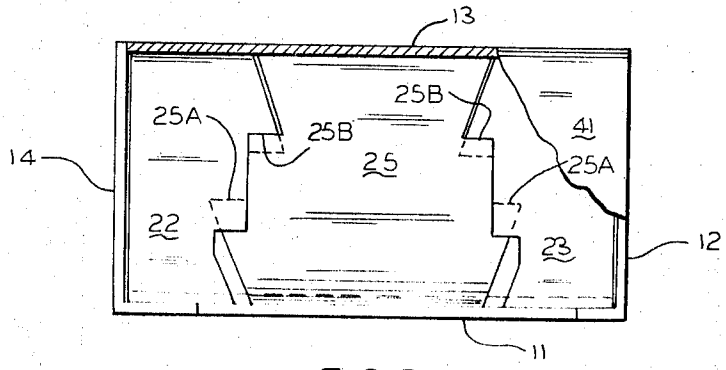


FIG.5

ANGLE LOCK END FOLDER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The structure according to the present invention relates to folders of the type which are employed for shipping and protecting somewhat heavy articles such as books of great thickness.

2. Prior Art

The closest prior art developed in a search thereof appears to be exemplified in the following patents:

Ringholz	3,399,821	Class 229-40
Partain et al	3,666,168	Class 229-40

The structure according to the present invention constitutes an improvement over the aforesaid prior arts patents in that a book of relatively great thickness can be more efficiently and properly protected because of the particular configuration of protective cells provide for opposite ends of the book. The cells are characterized by spaced angularly positioned elements causing a vertical element to bear against an edge of the book, the angularly positioned elements being maintained in position by a central element which is contacted by closure elements for the protective cell forming elements to provide a cell of the opposite protective cells.

THE DRAWINGS

FIG. 1 is a perspective view showing details of an improved mailing folder constructed according to the teachings of the present invention, certain parts being broken away;

FIG. 2 is a plan view of a cut and scored blank of paper board or the like for constructing the folder seen in FIG. 1;

FIG. 3 is a plan view looking downward and taken along a plane beneath the top cover panel of the folder;

FIG. 4 is a vertical sectional view taken substantially along the line 4—4 of FIG. 3 looking in the direction of the arrows; and

FIG. 5 is a view looking in the direction of the arrows 5—5 of FIG. 4, certain parts are being broken away to show details of construction.

The improved mailing folder according to the present invention is denoted generally by the reference numeral **10** and is formed from a cut and scored blank **10A** seen in FIG. **2.** As seen in FIG. **2,** blank **10A** comprises rectangularly shaped main, first side, top and opposite side panels denoted respectively by the reference numerals **11, 12, 13** and **14,** these panels being foldably connected together along fold lines **16** and forming a tube. Closure flap **17** is foldably connected to opposite side panel **14** along a fold line **18,** and is connected to the main panel **11,** there being a lift tab **19** foldably connected to closure flap **17** along a score line **21.**

Protective cell forming elements are referred to generally by reference numeral **20,** and extended from opposite ends of the main panel **11,** and are foldably connected to each other and to the main panel **11** and foldable to positions to enclose opposite ends of a book, not shown. Protective cell forming elements **20** comprise respective spaced first and second flanking flap elements **22** and **23** foldably connected to the main panel **11** along a fold line **24.** An inner flap element **26** is foldably connected to the first and second flanking

flap elements **22** and **23** at a distal edge **27** thereof, and is foldable to a vertical position with the distal edge of inner flap element **26** bearing against main panel **11.** In the folding of the inner flap element **26** to the vertical position the first and second flap elements **22** and **23** adopt an inclined upright position as seen more clearly in FIGS. **1** and **4.**

A central reinforcing element indicated generally by reference numeral **25** extends between the first and second flap elements **22** and **23** and is foldably connected at its inner end along a score line **28** to the main panel **11** and to the inner flap element **26** along score line **27.** Central reinforcing element **25** comprises first and second portions referred to respectively by reference numerals **29** and **31,** these portions being foldably connected along a fold line **33.** Central reinforcing element **25** is additionally defined by partly converging spaced edges **36** in the first and second outer flap elements **22** and **23,** and by spaced edges **37.** In the forming of the central reinforcing element **25,** portions of the outer flap elements **22** and **23** cut out as seen particularly in FIG. **2,** and provide shoulders **25A** and **25B.** Shoulder **25A** is formed in central element **25,** and shoulder **25B** is formed in flap elements **22** and **23.** In the folding of the protective cell forming element **20** central reinforcing element **25** is caused to bear against the first and second spaced outer flap elements **22** and **23** as seen particularly in FIGS. **1** and **4.**

In the folding of the central reinforcing element **25,** element **29** thereof adopts an horizontal position as seen in FIGS. **1** and **4.** Top panel **13** is provided with closure elements **41** foldably connected to the top panel **13** along a fold line **42,** and a closure element **43** foldably connected to closure element **41** along a fold line **44.** When the closure elements **41** and **43** and brought into the closing position flap **41** bears against the fold line **33** between reinforcing element **25** and portion **29.**

When the folding and erection operation is completed the shoulders **25A** on central element **25** are in abutting relationship with the underside of flanking elements **22** and **23,** element **25** adopting the inclined position shown and providing an effective cell brace with elements **22** and **23.**

I claim:

1. A mailing folder for a heavy object such as a book of great thickness, said folder being formed from a cut and scored blank of paper board or the like and folded into position so as to provide opposed and braced end protective cells for opposite ends of said book, said folder comprising:

a. rectangularly shaped main, first side, top and opposite side panel connected along fold lines and folded to define a tube;

b. protective cell forming elements extending from opposed ends of said main panel foldably connected to each other and to said main panel and foldable to position to enclose opposite ends of said book, said elements each comprising:

i. first and second spaced flanking flap elements foldably connected to said main panel and foldable to an inclined upright position;

ii. an inner flap element foldably connected to said flanking flap and foldable to a vertical position with the distal edge thereof bearing against said main panel;

iii. a central reinforcing element extending between said first and second flanking elements and foldably connected at its ends to said main panel and said inner panel;

iv. said central reinforcing element comprising first and second portions additionally defined by spaced edges in said first and second flanking flap elements and in said main panel;

v. said central reinforcing element being folded upon folding of said first and second flanking flap elements to an inclined position.

c. closure elements extending from said top panel and foldable to a position over said protective cell forming elements to provide a pair of opposed protective cells.

* * * * *