Dec. 23, 1969 A. GREENE ET AL 3,485,435

SHIPPING CONTAINER

Filed Jan. 5, 1968 4 Sheets-Sheet 1

FIG. 1

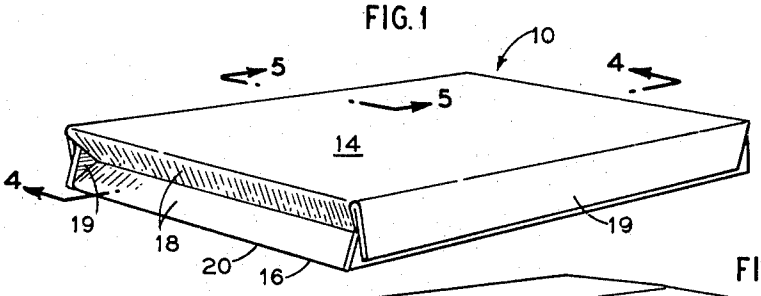


FIG. 2

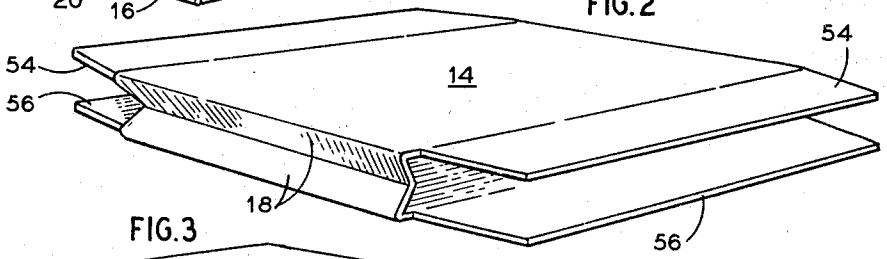


FIG. 3

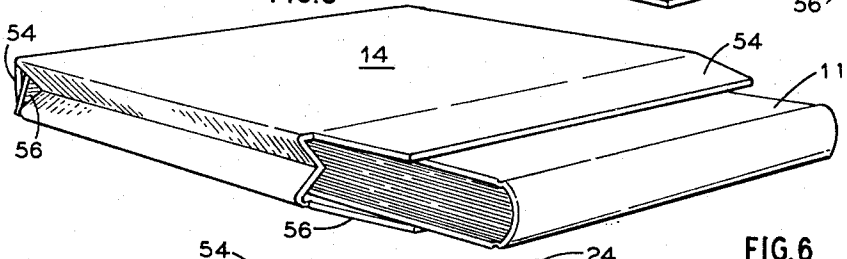


FIG. 6

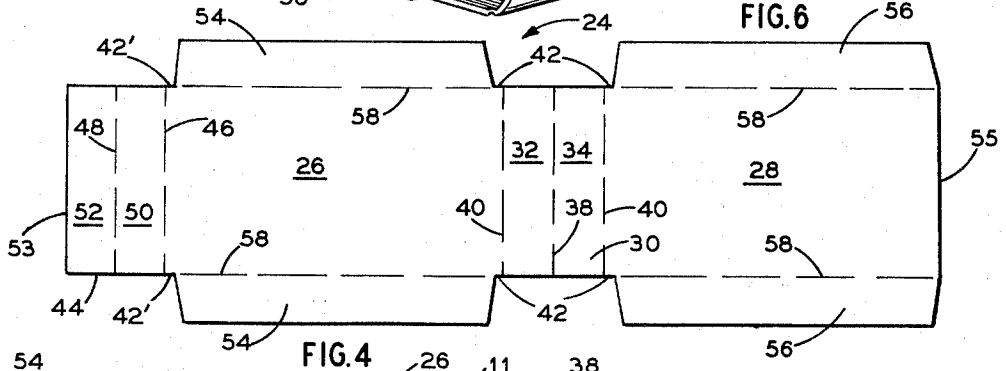


FIG. 4

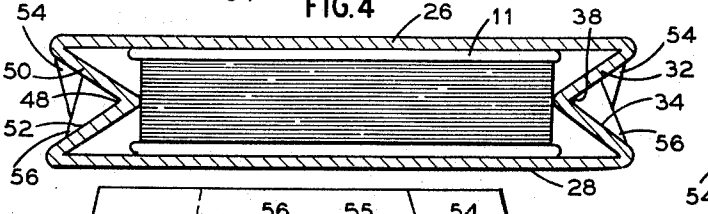


FIG. 5

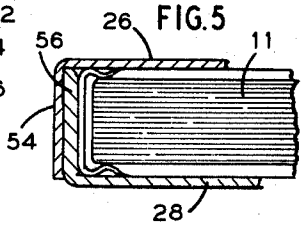
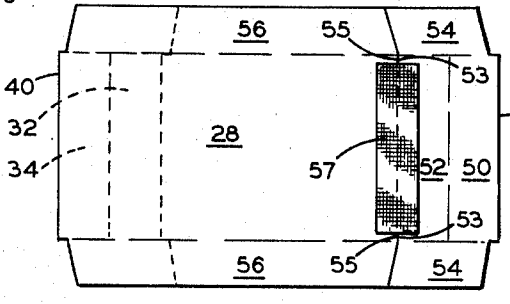


FIG. 7



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ATTORNEY

FIG.10

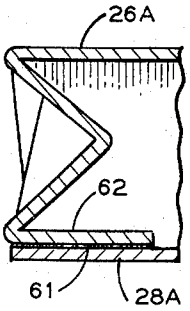


FIG.9

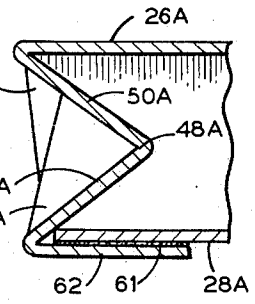


FIG. 8

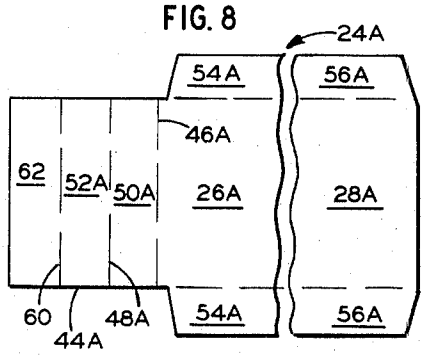


FIG.11

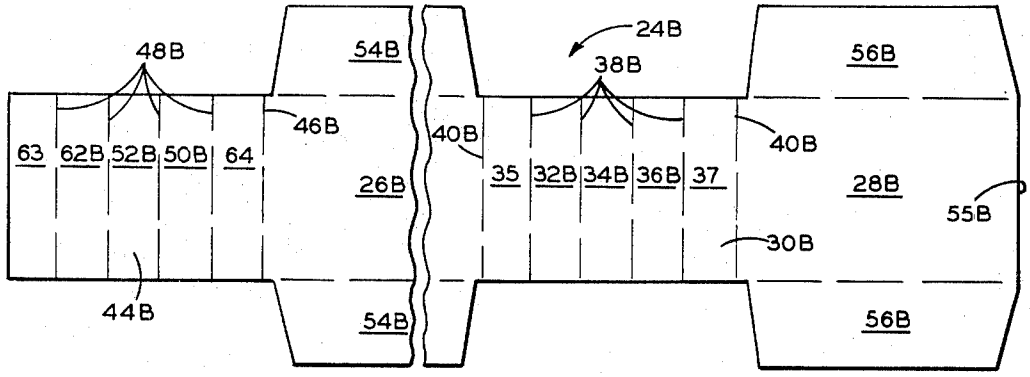


FIG.13

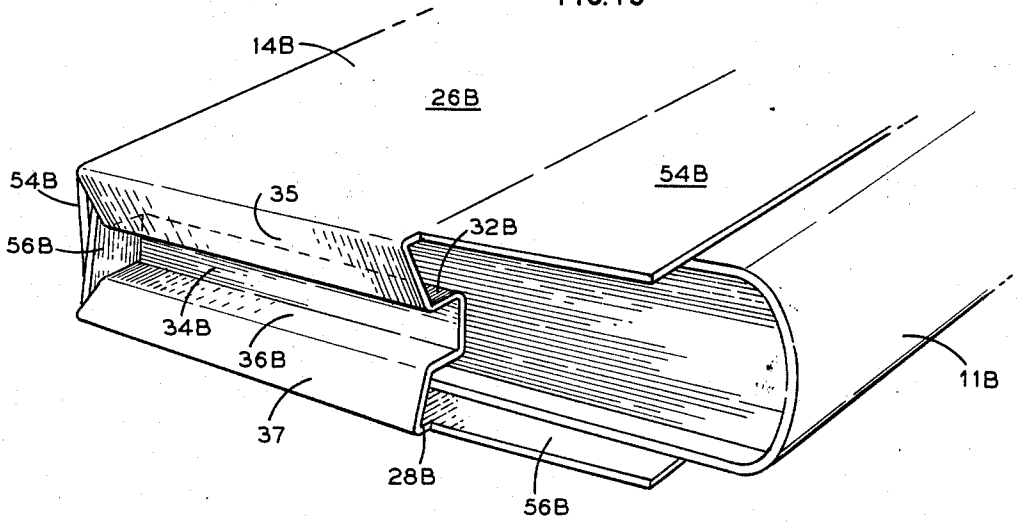


FIG. 15

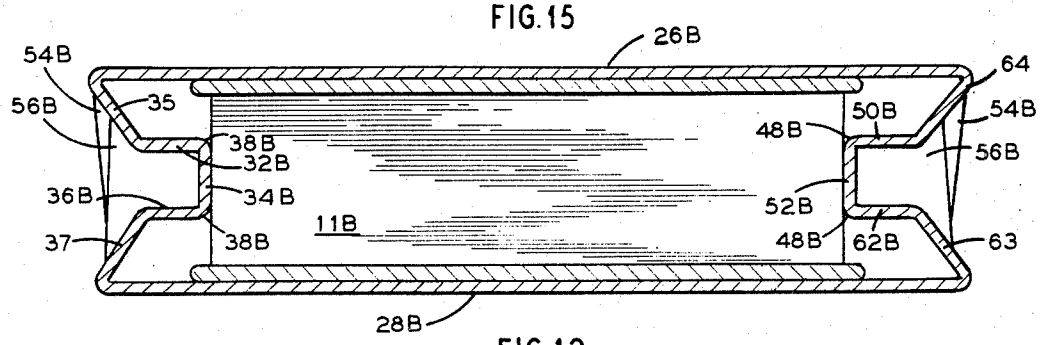


FIG. 12

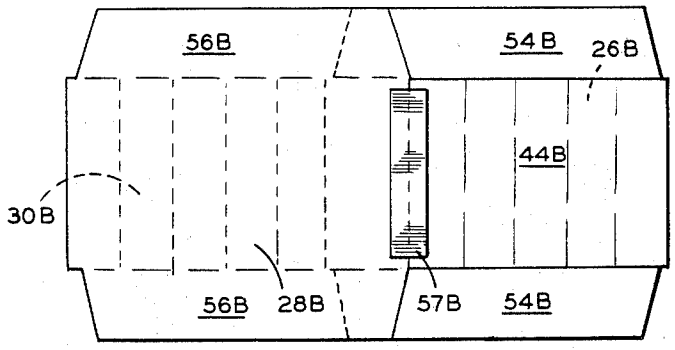


FIG. 14

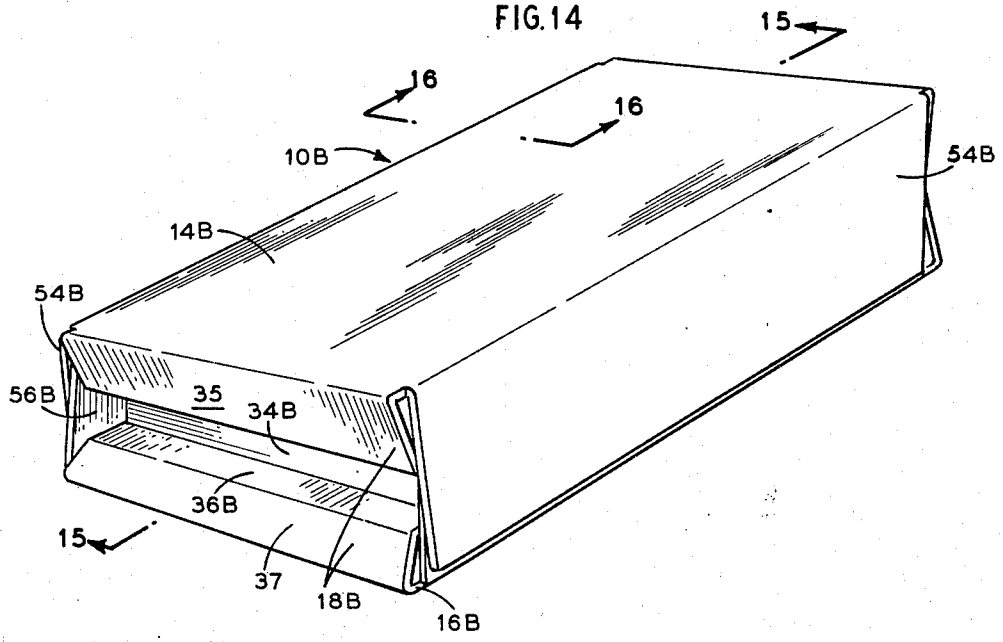


FIG. 16

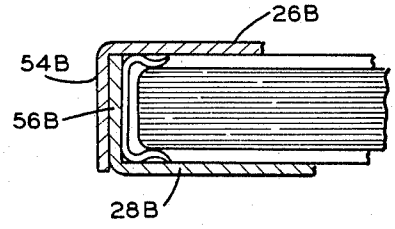


FIG. 17

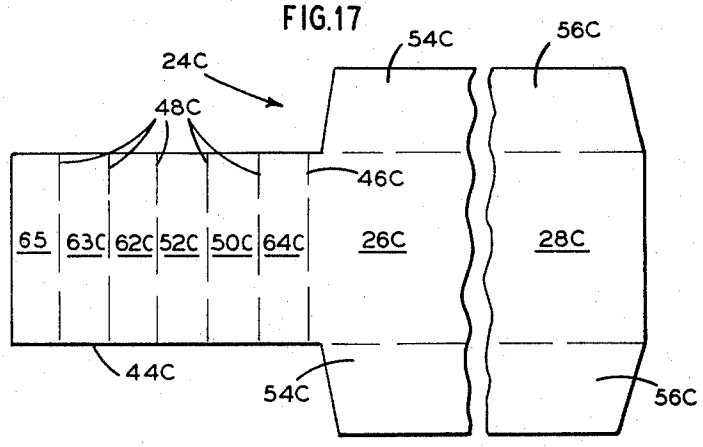


FIG. 18

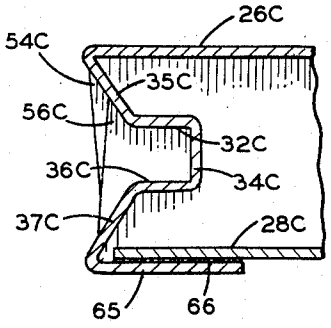
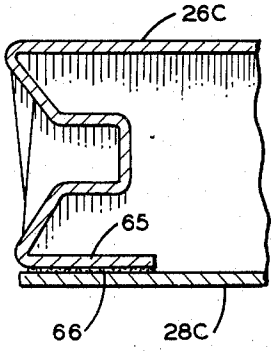


FIG. 19



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3,485,435

SHIPPING CONTAINER

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Int. Cl. B65d *5/08, 85/00*
U.S. Cl. 229—40 16 Claims

ABSTRACT OF THE DISCLOSURE

A shipping carton for a book, or the like, comprising an open-ended sleeve formed of a pair of rectangular panels adapted to be spaced one from the other in parallel relation to accommodate the book, or the like, therebetween, rectangular flexible webs interconnected with said panels to define the sleeve with the panels, the webs having a certain number of folds to provide strips which make a hinged connection with the juxtaposed panels, the folds being arranged to move inwardly as the panels are moved toward one another for collapsing the webs, and the edges opposite the webs having flap means adapted to close off the open ends of the sleeve and confine the book within the carton.

This invention relates to paperboard containers and more particularly to an improved carton constructed from a single integral blank which is especially suitable for mailing articles, such as books.

Briefly, it is an object of the invention to provide a carton which can be assembled from an economical paperboard blank for adequate protection for the packaged book during mailing and handling of the carton to avoid having the corners and edges of the book distorted and mutilated during shipment.

A further object is to provide a carton which can be manufactured by means of high speed production methods.

Still another object is to provide a carton which can accommodate articles such as books which vary in thickness, size and shape.

A further object is to provide a carton which would not be destroyed in opening it and is capable of repeated use, such as for the return of the goods, or book, by the purchaser. In many cartons heretofore used, the construction did not permit the carton to be readily opened without mutilation or destruction so as to permit the carton to be re-sealed easily. It is therefore, an object to provide a carton which could be easily opened and re-sealed so that it could be re-mailed in order to return the goods, if desired.

An object of the invention is to provide a carton for the shipment of books or like articles, comprising a sleeve of rectangular cross-section having a pair of opposite side walls normally open and adapted to be closed for shipment of the goods and opposite end walls, or webs, adapted to be collapsed toward the packaged goods, said end walls functioning generally to center the goods in the package when so collapsed and providing cushioning means for protecting the goods during shipment of same.

A further object is to provide a carton having the opposite side and end walls, or webs, somewhat expandable one relative to the other to permit some variation in the thickness of the carton.

Another object is to provide a carton formed from a pre-formed integral blank of paperboard, or the like, which is adapted to be folded so that the opposite end walls are closed and the opposite side walls are open in order to permit the carton to remain in a flat condition for storage purposes and shipment before use and which

can be erected easily and rapidly for inserting the goods therein and sealing the carton thereafter for mailing.

A further object is to provide a carton which is economical to manufacture and use, and which is sufficiently strong, compact and easy to handle and prevents the goods from shifting about during shipment and mailing and centers the goods in the carton, and which also permits easy access into the carton for packaging and removal of the goods.

Still another object is to provide a carton which is not liable to accidental opening and has considerable strength to the carton at portions thereof where the goods within the carton is apt to be damaged.

These and other objects and advantages of the invention will be apparent from the following detailed description and accompanying drawings, in which

FIGURE 1 is a perspective view of the carton embodying the invention fully assembled and sealed with a book, for example, packaged therein;

FIGURE 2 is a perspective view of the carton in a partial condition of assembly with the side walls thereof open;

FIGURE 3 is a view similar to FIGURE 2 showing a book in the process of being inserted into the partially assembled carton;

FIGURE 4 is a sectional view taken through the carton along the line **4—4** of FIGURE 1 and in the direction indicated generally;

FIGURE 5 is a fragmentary sectional view taken along line **5—5** of FIGURE 1 and in the direction indicated generally;

FIGURE 6 is a plan view of the integral blank from which the carton of FIGURE 1 is assembled;

FIGURE 7 is a plan view of the integral blank from which the carton of FIGURE 1 is assembled in folded over and flattened out condition by collapsing the end walls along certain fold lines with the left and right ends adhesively secured together with a tape;

FIGURE 8 is a fragmentary plan view of a modified form of a modified form of an integral blank for assembling a modified form of carton embodying the invention;

FIGURE 9 is a fragmentary sectional view taken vertically through the modification of the carton of FIGURE 8 to illustrate the resulting alternative collapsible end wall structure thereof and showing one form of attaching the end strip to the panel;

FIGURE 10 is a fragmentary sectional view taken vertically through the modification of the carton of FIGURE 8 showing another way of adhering the end strip to the panel;

FIGURE 11 is a plan view of a modified form of an integral blank from which the carton of FIGURE 14 is assembled;

FIGURE 12 is a plan view of the integral blank from which the carton of FIGURE 14 is assembled shown in folded over and in flattened out condition by collapsing the end walls along certain fold lines with the left and right sides adhesively secured together with a tape.

FIG. 13 is a perspective view of the carton shown in FIGURE 14 showing a book in the process of being inserted into the partially assembled carton;

FIGURE 14 is a perspective view of a carton embodying a modified form of the invention fully assembled and sealed with a book, for example, packaged therein;

FIGURE 15 is a sectional view taken through the carton along line **15—15** of FIGURE 14 and in the direction indicated;

FIGURE 16 is a fragmentary sectional view taken along line **16—16** of FIGURE 14 and in the direction indicated;

FIGURE 17 is a plan view of a modified form of an integral blank of the carton of FIGURES 11 to 16, inclusive, from which the carton of FIGURES 18 and 19 is assembled;

FIGURE 18 is a fragmentary sectional view taken vertically through the modification of the carton of FIGURE 17 to illustrate the resulting alternative collapsible end wall structure thereof and showing one form of attaching the end strip to the panel; and

FIGURE 19 is a fragmentary sectional view taken vertically through the modification of the carton of FIGURE 17 showing another ways of adhering the end strip to the panel.

Referring to the drawings, numeral **10** represents a carton completely assembled and sealed with the goods therein. The goods may be a book **11**, for example, as seen being inserted in the carton in FIGURE 3. The carton **10** is comprised of a rectangular sleeve formed of a suitable paperboard material having a pair of parallel walls **14** and **16** forming the top and bottom walls of the carton, respectively, opposite end walls, such as the end wall **18** and the opposite side walls **19**. Each of the end walls **18** is recessed or offset inwardly relative to the corners **20** of the sleeve and are hingedly connected to the walls **14** and **16** along said corners **20** so as to permit collapse of the carton into an end wall structure that may be characterized as an angular pleat. The folder can be assembled to a preliminary stage wherein at least one of the side walls is open to permit insertion of the goods, such as book **11**, between the end walls **18** into the folder and the folder sealed thereafter. The recessed or inwardly offset end walls **18** engage the goods or book **11** with said goods protected by the outwardly protruding corners **20** of the sleeve during mailing or shipment of the package **10**.

Referring to FIGURE 6, the carton **10** preferably can be assembled from a simple, integral sheet or blank **24** of paperboard material such as corrugated board, pressed board or the like which may be stamped or die-cut advantageously from a continuous web of sheet material passed at high speed through automatic punch press equipment. Blank **24** is comprised of a pair of rectangular panels **26** and **28** of substantially identical size. The panels **26** and **28** are conjoined end to end by an end wall formation **30** which is crossed by a parallel fold at **38** and therefore is comprised of two strips **32** and **34** connected side by side. The strips **32** and **34** are substantially identical in width. Each strip **32** and **34** is hingedly connected to a panel **26** and **28** respectively along the fold line **40**. Considering the length of the blank **24** to be from left to right in FIGURE 6, the width of wall portion **30** is slightly less than the width of a panel **26** or **28**. Each panel **26** and **28** is notched at the corner **42** thereof adjacent the connection of said panel with the end wall formation **30**.

The panel **26** has an end flap **44** hingedly connected thereto along the fold line **46** and has a transverse score line **48** entirely across the same dividing the end flap into a pair of strips **50** and **52**. Dimension-wise, strip **50** and **52** is identical to strip **32** and **34**. Panel **26** has its opposite corners **42'** notched in the same manner as described for corners **42**.

Each panel **26** and **28** also has a pair of side flaps **54** and **56** respectively hinged along opposite longitudinal edges **58** thereof, said side flaps each being equal in width to each other and approximately equal to the width of strips **32**, **34**, **50** and **52**. The side flaps extend substantially continuously between opposite notched corners **42** and **42'** and the outer end of panel **28**.

The carton **10** is represented in two stages of assembly thereof in FIGURES 2 and 3 respectively, each stage of assembly being accomplished by selective folding of the blank **24** and securing certain portions thereof together, as will be hereinafter explained. Initially, the blank of FIGURE 6 is folded transversely along a fold line **40**, for instance, to superimpose the panels **26** and **28** one

over the other and to bring the outer end **53** of end flap **44** together in close proximity with the outer end **55** of panel **28**. Thus, panel **26** becomes the bottom wall **16** and panel **28** becomes the top wall **14** of the carton. The strip **52** of the end flap **44** then can be adhesively secured together with the outer end **55** of panel **28** preferably by a paper or fabric tape **57** shown in FIGURE 7 to become one of the end walls **18** of the carton **10**. The end wall portion **30** comprising strips **32**, **34** becomes the opposite end wall **18** of the carton and is identical in proportions to the end wall formed by conjoined end wall **18**. The flaps **54** and **56** need not be secured together at this point in the assembly of the carton.

At this stage of assembly, the carton can be flattened out, as shown in FIGURE 7, by collapsing the end walls along the lines of fold **40** and **46** so that the panels **26** and **28** are engaged face to face but laterally displaced one relative to the other. Thus, the flattened carton can be stored and shipped conveniently to users thereof in this flattened condition illustrated in FIGURE 7.

To load the carton, the flattened, partially assembled blank is opened by spreading the walls **14** and **16** apart the fullest extent permitted by the end wall structures. The book **11** can be inserted into the carton through one of the open side walls thereof and the panels **26** and **28** moved one toward the other to collapse the end walls of the carton to the condition thereof shown in FIGURES 2 and 3. The strips **32**, **34** and **50**, **52** are recessed and normal to panels **26** and **28**. With the book in the interior of the carton, collapsing of the end walls will result in the portion formed by parallel folds **38**, **48** engaging the book and centering the same in the carton.

Another manner of packaging the book in the carton is first to collapse the same to the condition thereof shown in FIGURE 3 wherein one pair of side flaps **54** and **56** has been secured together while the other pair of side flaps is not secured together leaving one side wall of the carton open. The book can then be inserted into the carton through the open side wall thereof as shown in FIGURE 3. Thereafter, the carton can be sealed by bringing the side flaps **54** and **56** together face-to-face and securing them by suitable means.

FIGURE 8 is a modified form of the invention, the integral blank from which this carton is formed is identified by the reference character **24A**. Portions of said modified blank equivalent to blank **24** will be identified by like reference characters but including the aphabetical character A assigned to this form. In all respects this carton is assembled and operates in the same manner as carton **10**.

The blank **24A** in FIGURE 8 is comprised of end-to-end connected panels **26A** and **28A** each having side flaps **54A** and **56A**. The panels **26A** and **28A** are connected by an end wall formation (not shown) identical to end wall formation **30** of blank **24**. The panel **26A** has an end flap **44A** hingedly connected thereto along the fold line **46A** and has two transverse score lines **48A** and **60** entirely across the same dividing the end flap into three strips **50A**, **52A** and **62** instead of two strips as in blank **24**. Strips **50A** and **52A** are identical and the strip **62** may be the same or narrower or wider than strips **50A** and **52A**. The blank **24A** is folded like the blank **24** and strip **62** is adhesively secured to panel **28** as shown in FIGURE 9 and as indicated by adhesive **61**. While strip **62** is shown overlapping panel **28**, it is also within the scope of this invention to lap panel **28** over strip **62** as shown in FIGURE 10. The blank shown in FIGURE 8 when assembled either in the form shown in FIGURE 9 or FIGURE 10 may be flattened for storing and shipping like the carton blank shown in FIGURE 7.

FIGURE 11 is another modified form of the invention, the integral blank from which this carton is formed being identified by the reference character **24B**. Portions of this modified blank equivalent to blank **24** will be identified by like reference characters but including the alphabetical character B assigned to this form. In all respects generally

this carton is assembled and functions in a similar manner to carton **10**.

The blank **24B** in FIGURE 11 is comprised of end-to-end connected panels **26B** and **28B** each having side flaps **54B** and **56B**. The panels **26B** and **28B** are connected by an end wall formation **30B** which is crossed by a series of four parallel folds at **38B** and is therefore comprised of five strips **32B**, **34B**, **36B**, **35** and **37** connected side by side. The strips **35** and **37** and **32B** and **36B** are substantially identical in width, the strip **34B** being located centrally between the strips **32B** and **36B** and the said five strips are connected to adjacent edges thereof along the fold lines **38B**. The strips **35** and **37** are hingedly connected to the panels **26B** and **28B** respectively along the fold line **40B**.

Panel **26B** has an end flap **44B** hingedly connected thereto along the fold line **46B** and has four parallel transverse score lines at **48B** entirely across the same dividing the end flap **44B** into five strips **64**, **50B**, **52B**, **62B** and **63**. Strips **63** and **64**, **50B** and **62B** are identical to each other respectively and are also identical to strips **35** and **37** and **36B** and **32B** respectively. Strip **52B** is identical in size to strip **34B** and both strips are located centrally of the end wall formations **44B** and **30B** respectively. The blank **24B** is folded generally like the blank **24** and **24A** and strip **63** of the end flap **44B** can then be adhesively secured together with the outer end **55B** of panel **28B** preferably by a paper or fabric tape **57B** as shown in FIGURE 12 to become one of the end walls of the carton **10B**. The end flap **44B** in FIGURE 12 is shown folded over and superposed upon panel **26B**. The end wall portion **30B** comprising strips **35**, **32B**, **34B**, **36B** and **37** becomes the opposite end wall of the carton and is identical in proportions to end wall formed by conjoined end wall **18B**. The flaps **54B** and **56B** need not be secured together at this point in the assembly of the carton.

At this stage of assembly of carton **10B**, the carton can be flattened as shown in FIGURE 12 by collapsing the end walls along the lines of fold **40B** and **46B** so that the panels **26B** and **28B** are engaged face to face but laterally displaced one relative to the other. Thus, the flattened carton can be stored and shipped conveniently to users in the flattened condition shown in FIGURE 12.

To load the carton **10B**, the flattened, partially assembled blank is opened by spreading the walls **14B** and **16B** apart practically the fullest extent permitted by the end wall structures. The book **11B** can be inserted into the carton through one of the open side walls thereof and the panels **26B** and **28B** moved toward the other to collapse the end walls of carton to the condition thereof shown in FIGURES 13, 14 and 15. The strips **35**, **32B**, **34B**, **36B** and **37** of end wall formation **30B** and strips **63**, **62B**, **52B**, **50B** and **64** of end wall formation **44B** are recessed and normal to panels **26B** and **28B**. With the book **11B** in the interior of the carton **10B**, collapsing of the end walls will result in the portion formed by parallel folds **38B** and **48B** engaging the book **11B** and centering the same between central strips **52B** and **34B** as shown in FIGURE 15. Such arrangement provides a resilient cushioning for the book so that the book can withstand a great deal of shock without damage.

Another manner of packaging the book **11B** in the carton is first to collapse the same to the condition thereof shown in FIGURE 13 wherein one pair of side flaps **54B** and **56B** has been secured together while the other pair of side flaps is not secured together leaving one side wall of the carton open. The book **11B** can then be inserted into the carton through the open side wall thereof as shown in FIGURE 13. Thereafter, the carton can be readily sealed by bringing the side flaps **54B** and **56B** together face-to-face and securing them by suitable means, such as adhesive.

FIGURE 17 is a modified form of the carton of FIGURES 11 to 16, inclusive, the integral blank from which this carton is formed is identified by the reference character **24C**. Portions of said modified blank equivalent to blank **24B** will be identified by like reference characters but including the alphabetical character C assigned to this form. In all respects the carton is assembled and operates in the same manner as carton **10B**.

The blank **24C** in FIGURE 17 is comprised of end-to-end connected panels **26C** and **28C** each having side flaps **54C** and **56C**. The panels **26C** and **28C** are connected to an end wall formation (not shown) identical to end wall formation **30C** of blank **24B**. The panel **26C** has an end flap **44C** hingedly connected thereto along the fold line **46C** and has five transverse score lines **48C** entirely across the same dividing the end flap **44C** into six strips **64C**, **50C**, **52C**, **62C**, **63C** and **65**. The blank **24C** is folded like the blank **24B** and the strip **65** is adhesively secured to panel **28C** as shown in FIGURE 18 and as indicated by adhesive **61C** as indicated by adhesive **66**. While strip **65** is shown overlapping panel **28C**, it is also within the scope of this invention to lap panel **28C** over strip **65** as shown in FIGURE 19. The blank shown in FIGURE 17 when assembled either in the form shown in FIGURE 18 or FIGURE 19 may be flattened for storing and shipping like the carton of blank shown in FIGURE 11.

It is contemplated that various changes, modifications and variations may be made by those skilled in the art without departing from the scope or sacrificing any of the advantages of the invention.

What is desired to secure by Letters Patent is:

1. A shipping carton for a book or the like comprising

(a) an open-ended sleeve formed of a pair of rectangular panels adopted to be spaced one from the other in parallel relation to accommodate such book therebetween,

(b) said rectangular panels of said pair having first opposite edges and second opposite edges,

(c) a pair of rectangular and relatively flexible webs,

(d) each of said webs interconnecting the juxtaposed first edges of said panels, respectively, to define said sleeve with said panels,

(e) said sleeve being formed by adhering a tape to the outer end of one of said webs and one of said panels to provide one end wall of said carton,

(f) each web having one fold parallel to said first opposite edge to provide two web strips,

(g) each said web strips making a hinged connection with a juxtaposed one of said panel edges,

(h) the fold arranged to move inwardly as the panels are moved toward one another for collapsing said webs forming an angular pleat and outwardly protruding corners, and

(i) the second opposite panel edges having flap means adapted to close off the open ends of the sleeve and confine a book disposed in said carton.

2. A carton as set forth in claim **1** wherein at least one web of said pair is conjoined to one of the first edges of one of said rectangular panels.

3. A carton as set forth in claim **1** wherein at least one web of said pair is integral with both rectangular panels of said pair.

4. A carton as set forth in claim **3** wherein the remaining web of said pair is integral with at least one rectangular panel of said pair.

5. A carton as set forth in claim **1** wherein each web of said pair having first opopsite edges substantially corresponding in length to the juxtaposed first edges of said rectangular panels, the first opposite edges of each web being hingedly connected with corresponding first edges of said panels, whereby the fold of each of said webs is movable freely in a direction parallel to the plane of said panels for collapsing and expanding said webs in response to movements of said panels toward and away from one another, said flap means hingedly associated with each of the second opposite edges of said rectangular panels for closing the corersponding ends of said sleeve and confining the book disposed therein.

6. A shipping carton for a book or the like comprising
(a) an open-ended sleeve formed of a pair of rectangular panels adapted to be spaced one from the other in parallel relation to accommodate such book therebetween,
(b) said rectangular panels of said pair having first opposite edges and second opposite edges,
(c) a pair of rectangular and relatively flexible webs,
(d) each of said webs interconnecting the juxtaposed first edges of said panels, respectively, to define said sleeve with said panels,
(e) one of said webs having one fold parallel to said first opposite edge to provide two web strips,
(f) the other of said webs having two folds parallel to said first opposite edge to provide three web strips, one of said strips being an outer strip,
(g) each said web strips making a hinged connection with a juxtaposed one of said panel edges,
(h) the fold of said web having two strips and the fold nearest the rectangular panels of the web having three strips ararnged to move inwardly as the panels are moved toward one another for collapsing said webs forming an angular V pleat and outwardly protruding corners,
(i) said outer strip of the web having three web strips adapted to be adhesively secured to one of said rectangular panels to form said sleeve,
(j) the second opposite panel edges having flap means adapted to close off the open ends of the sleeve and confine a book disposed in said carton.

7. A carton as set forth in claim 6 wherein said outer strip of the web having three strips overlies the end of one of said panels and is adhesively secured thereto.

8. A carton as set forth in claim 6 wherein the end of one of said panels overlies said outer strip of the web having three strips and is adhesively secured thereto.

9. A shipping carton for a book or the like comprising
(a) an open-ended sleeve formed of a pair of rectangular panels adapted to be spaced one from the other in parallel relation to accommodate such book therebetween,
(b) said rectangular panels of said pair having first opposite edges and second opposite edges,
(c) a pair of rectangular and relatively flexible webs,
(d) each of said webs interconnecting the juxtaposed first edges of said panels, respectively, to define said sleeve with said panels,
(e) each web having four parallel folds to provide two outer web strips, two intermediate web strips and a median strip,
(f) the outer strip of each web making a hinged connection with a juxtaposed one of said panel edges,
(g) all of said strips of each web being arranged to move inwardly as the panels are moved toward one another for collapsing said webs, and
(h) the second opposite panel edges having flap means adapted to close off the open ends of the sleeve and confine a book disposed in said carton.

10. A carton as set forth in claim 9 wherein at least one web of said pair is conjoined to one of the first edges of one of said rectangular panels.

11. A carton as set forth in claim 9 wherein at least one web of said pair is integral with both rectangular panels of said pair.

12. A carton as set forth in claim 11 wherein the remaining web of said pair is integral with at least one rectangular panel of said pair.

13. A carton as set forth in claim 9 wherein each web of said pair having first opposite edges substantially corresponding in length to the juxtaposed first edges of said rectangular panels, the first opposite edges of each web being hingedly connected with corresponding first edges of said panels whereby the fold of each of said webs is movable freely in a direction parallel to the plane of said panels for collapsing and expanding said webs in response to movements of said panels toward and away from one another, said flap means hingedly associated with each of the second opposite edges of said rectangular panels for closing the corresponding ends of said sleeve and confining the book disposed therein.

14. A shipping carton for a book or the like, comprising:
(a) an open-ended sleeve formed of a pair of rectangular panels adapted to be spaced one from the other in parallel relation to accommodate such book therebetween,
(b) said rectangular panels of said pair having first opposite edges and second opposite edges,
(c) a pair of rectangular and relatively flexible webs,
(d) each of said webs interconnecting the juxtaposed first edges of said panels, respectively, to define said sleeve with said panels,
(e) one of said webs having four folds parallel to said first opposite edge to provide five web strips,
(f) said five web strips comprising two outer web strips, two intermediate web strips and a median strip,
(g) the outer strip of each web making a hinged connection with a juxtaposed one of said panel edges,
(h) the other of said webs having five folds parallel to said first opposite edge to provide six web strips,
(i) five of said web strips of each web being arranged to move inwardly as the panels are moved toward one another for collapsing said webs,
(j) the outer strips of the web having six web strips adapted to be adhesively secured to one of said rectangular panels to form said sleeve, and
(k) the second opposite panel edges having flap means adapted to close off the open ends of the sleeve and confine a book disposed in said carton.

15. A carton as set forth in claim 14 wherein said outer strip of the web having six web strips overlies the end of one of said panels and is adhesively secured thereto.

16. A carton as set forth in claim 14 wherein the end of one of said panels overlies said outer strip of the web having six web strips and is adhesively secured thereto.

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206—46