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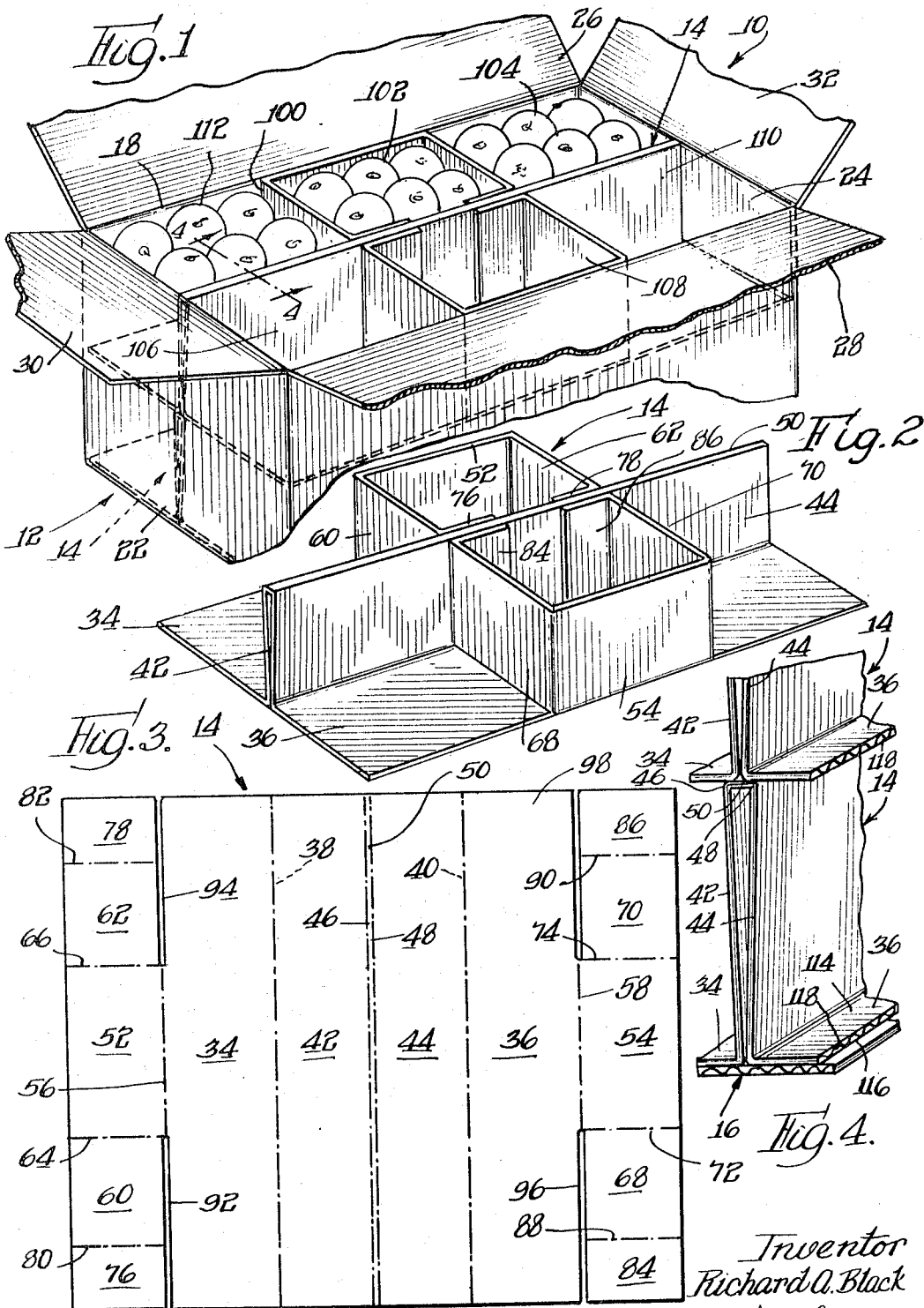
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3,317,111

CARTON CONSTRUCTION

Filed Oct. 19, 1965

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

<u>76a</u>	<u>60a</u>	<u>62a</u>	<u>52a</u>
			<u>56a</u>
<u>34a</u>	<u>38a</u>		
<u>42a</u>	<u>46a</u>	<u>50a</u>	<u>66a</u>
<u>44a</u>	<u>48a</u>		<u>74a</u>
<u>36a</u>	<u>58a</u>		
<u>84a</u>	<u>88a</u>	<u>72a</u>	<u>54a</u>
	<u>68a</u>		

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3,317,111

CARTON CONSTRUCTION

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9 Claims. (Cl. 229—15)

This application is a continuation-in-part of my copending application Serial No. 469,786 filed July 6, 1965.

The present invention relates to a novel carton structure, and more specifically, to a novel shipping container.

While cartons incorporating features of the present invention may be utilized for packing and shipping a variety of products, the cartons are especially suitable for packing fruit items such as apples, pears, and the like. Such items are subject to injury if packed too tightly within a container or if the containers are subject to crushing when a plurality of them are stacked. On the other hand, fruit and similar items are also subject to injury if packed too loosely within a container so that they are free to roll or shift therein.

It is an important object of the present invention to provide a novel carton structure having simple, lightweight and economical means for dividing the carton into a plurality of cells and preventing undue shifting of items packed within the carton, and also for padding the interior of the carton for minimizing any injury to the packed articles.

A further object of the present invention is to provide a novel carton structure having simple, lightweight and rugged cell dividing and padding means which also serves to minimize any possibility of crushing of the carton for further reducing any possibility of injury to the packed article.

A more specific object of the present invention is to provide a novel cell dividing and padding member for a carton structure and adapted to be easily assembled within a carton and economically formed from sheet material.

A further object of the present invention is to provide a novel carton structure of the above described type which may be modified for obtaining different numbers of substantially equally divided cells.

Other objects and advantages of the present invention will become apparent from the following description wherein:

FIG. 1 is a perspective view showing a carton structure incorporating features of the present invention;

FIG. 2 is a perspective view showing a combined cell dividing and padding member incorporating features of the present invention;

FIG. 3 is a plan view of a one-piece sheet material blank from which the member of FIG. 2 may be formed;

FIG. 4 is a large fragmentary sectional view taken along line 4—4 in FIG. 1;

FIG. 5 is a fragmentary perspective view showing a modified form of the present invention;

FIG. 6 is a perspective view showing the modified combined cell divider and padding member incorporated in the carton structure of FIG. 5;

FIG. 7 is a plan view of a blank from which the member shown in FIG. 6 may be formed; and

FIG. 8 is an enlarged fragmentary sectional view taken along line 8—8 in FIG. 6.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a carton structure 10 incorporating features of the present invention is shown in FIG. 1 and comprises an outer carton 12 and an inner cell dividing and padding member 14. In the embodiment shown, two of the members 14 are stacked within the carton. The carton 12 may be of known construction and is preferably

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formed from foldable sheet material such as corrugated board. Preferably the carton 12 is formed in one piece from corrugated board or other sheet material which is scored so as to provide a bottom 16 formed by one or more panels, upstanding pairs of opposed sides 18—20 and 22—24 integrally articulated to edges of the bottom 16 and closure or top means. In the embodiment shown, the closure comprises foldable top panels 26 and 28 integrally articulated to upper edges of the sides 18 and 20 and additional top panels 30 and 32 integrally articulated to upper edges of the other opposite side or end panels 22 and 24. As will be understood, the top panels may be folded from the opened position shown in FIG. 1 to a closed position over to the bottom of the container, in which closed position they complement each other for completely covering the top of the carton.

Each combined divider and pad member 14 is formed from a one-piece blank of sheet material as shown in FIG. 3. The sheet material of the blank is light in weight and has high strength and rigidity as well as cushioning characteristics. Preferably the sheet material of the blank is a corrugated paper or fiberboard.

The member 14 has first and second bottom sections 34 and 36 adapted to fit against and cover the bottom 16 of the carton as indicated in FIGS. 1 and 4. When the member 14 is in a fully assembled or folded condition as shown in FIGS. 1, 2 and 4, the bottom sections 34 and 36 are positioned in a common plane. The lowermost member 14 rests against the bottom 16 with longitudinally extending inner side edges 38 and 40 of the sections 34 and 36 in adjacent substantially abutting relationship while the upper member 14 rests on upper edges of the lower member. The bottom sections 34 and 36 not only add strength and rigidity to the bottom of the carton, but also provides for cushioning articles packed within the carton.

First and second longitudinal divider sections 42 and 44 are integrally articulated to the inner side edges 38 and 40 of the bottom sections. The divider sections 42 and 44 are adapted to be folded to a substantially upright position when the member 14 is assembled in the carton. Upper edges 46 and 48 of the sections 42 and 44 are integrally articulated to and joined together by a narrow connecting section 50. Preferably the edges of, or in other words, the integral junctions between the sections 34, 36, 42, 44 and 50 are defined by scored bend lines. The upper edges 42 and 44 of the lower member 14 combine to provide a platform supporting the inner margins of the upper member 14 bottom sections as shown in FIG. 4.

While the inner edges 38 and 40 of the bottom sections are in substantially abutting relationship as shown in FIG. 4, the width of the connection section 50 is such that the divider sections 42 and 44 are maintained in slightly spaced apart relationship for increasing resistance to crushing under downwardly directed pressures and also for increasing the cushioning or padding effect between opposite sides of the central partition provided by the sections 42 and 44. The section 50 also increases the width of the aforementioned platform for increasing the support of the upper member 14.

The member 14 is provided with outer side panels or sections 52 and 54 integrally articulated along scored bend lines 56 and 58 respectively to intermediate portions of outer side edges of the bottom sections 34 and 36. The panels or sections 52 and 54 are adapted to be folded to upright positions and to fit against the inner surfaces of the carton sides 18 and 20 when the member 14 is assembled within the carton 12 as shown in FIG. 1.

First transverse divider sections or panels 60 and 62 are articulated to opposite upstanding end edges 64 and 66 respectively of the outer side panel 52. Additional

transverse divider sections or panels 68 and 70 are similarly integrally articulated along scored bend lines 72 and 74 to opposite upstanding end edges of the outer side panel 54. Flaps or short sections 76 and 78 are connected along scored bend lines 80 and 82 to the divider sections 60 and 62 and additional flaps 84 and 86 are connected along scored bend lines 88 and 90 to inner end edges of the divider sections 68 and 70. The sections 60 and 76 are separated from the bottom section 34 by elongated slot 92 having a width greater than the thickness of the corrugated board or other sheet material from which the member 14 is formed. The slot 92 is in alignment with the scored bend line 56. An identical but oppositely extending slot 94 is provided for separating the sections 62 and 78 from the bottom section 34. Still additional and substantially identical slots 96 and 98 are formed in the blank material for separating the opposite bottom section 36 from the sections 68-84 and 70-86 respectively.

The member 14 may be easily and quickly assembled with the carton 12 by first folding the member blank along the various scored bend lines so that the inner longitudinally extending divider sections 42 and 44 and the outer upstanding sections and the transverse divider sections or panels are arranged generally in the upstanding position shown in FIG. 2. In addition the flaps or sections 76 and 78, 84 and 86 are folded, preferably inwardly, so as to abut against the divider sections 42 and 44 as shown in FIG. 2. Then the unit 14 may be easily inserted within the carton 12 and positioned against the bottom 16 thereof.

As shown in FIG. 1, the members 14 divide the interior of the carton 12 into a plurality of compartments 100, 102, 104, 106, 108 and 110. Each of these compartments is adapted to receive a plurality of articles 112 to be packed, which articles may, as indicated above, be items of fruit or any other goods. The articles 112 may be sufficiently loosely packed within each of the compartments to prevent crushing thereof during packing and at the same time the compartments are sufficiently small so as to resist rolling or shifting of the articles in a manner which might cause injury thereto. Furthermore, the padding provided by the bottom sections and divider sections of the member 14 serves to reduce any possibility of injury to the articles. It may be observed that the articles within the intermediate compartments 102 and 108 will bear against the flaps 76-78 and 84-86 for pressing the flaps against the interior divider sections and thereby aiding in holding the transverse divider sections in the desired position.

As previously indicated, the member 14 is preferably formed from a laminated and corrugated paper of fiberboard. This board may be of known construction and, as shown in FIG. 4 comprises flat opposite side sheets 114 and 116 and a corrugated core 118 to which the sheets 114 and 116 are adhesively bonded. The previously described panels or sections and scored bend lines are formed on the corrugated board so that the corrugations of the core 118 extend transversely of the panels or sections. Thus when the member 14 is assembled within the carton, the corrugations of the core 118 extend vertically in the upstanding sections and provide these sections with high resistance to crushing. Thus a plurality of the cartons with the fruit or other goods packed therein may be arranged in stacked relationship without danger of the lower cartons being crushed and the fruit therein being injured. In this connection it may be observed that not only do the bottom sections 34 and 36 provide padding for aiding and protecting the fruit, but the bottom sections also aid in distributing any downward crushing loads imposed on the upstanding divider sections for resisting localized deflection of the bottom of the carton and possible injury thereto or to a carton and goods which may be stacked therebeneath.

In FIGS. 5 through 8 a modified embodiment of the present invention is shown, which embodiment is similar

to the structure described above as indicated by the application of identical reference numerals with the suffix *a* added to corresponding elements. This embodiment differs in that the divider and padding member 14a is constructed for providing five cells of substantially equal size rather than six cells as does the divider of the previously described embodiment. More specifically, the construction is such that cells or compartments 110a, 102a, 106a, and 108a are provided which are essentially identical to but slightly longer than the corresponding cells of the previously described structure and a fifth cell or compartment 120 is formed which is elongated transversely of the carton rather than longitudinally as are the other cells or compartments.

In order to form the compartment 120, one end portion of the central connecting section 50a is provided with a slot 122 having a width equal to the width of the cell or compartment 120. Slots 124 and 126 having a similar length are cut in end portions of the junctions 38a and 40a. As a result transverse divider panels 62a and 70a are formed from portions of the central longitudinally extending dividers 42a and 44a rather than from the outer side sections of the blank as are the corresponding transverse dividers of the previously described structure. In this embodiment the outer upstanding wall sections 52a and 54a extend from the junction lines 64a and 72a to the opposite ends of the blank and thus traverse the opposite ends of the cell or compartment 120 for aiding in supporting a superimposed divider and padding member when a plurality of the members are positioned in a carton as shown.

While preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. In a carton including a rectangular bottom, pairs of opposite upstanding sides and top means, a one-piece divider and a cushion member comprising first and second coplanar bottom sections disposed on said carton bottom and having adjacently disposed inner side edges and parallel outer side edges, first and second longitudinal divider sections respectively integrally articulated to said inner edges of said first and second sections, said divider sections extending upwardly from said inner edges in adjacent relationship, a connecting section integrally joining upper edges of said divider sections, first and second outer upstanding sections respectively integrally articulated to said outer side edges of said bottom sections, first spaced apart upstanding opposed transverse divider sections respectively integrally articulated to one upstanding end edge of and extending between said first outer side section and said first longitudinal divider section, second spaced apart upstanding opposed transverse divider sections respectively integrally articulated to one upstanding end edge of and extending between said second outer section and said second divider section, and flaps integrally articulated to inner upstanding edges of certain of said transverse divider sections and extending along and abutting said first and second longitudinal divider sections.

2. A carton as defined in claim 1, wherein said first and second outer upstanding sections are respectively integrally articulated to intermediate portions of said outer side edges of said bottom sections with remaining opposite end portions of said outer edges being free, said first opposite transverse divider sections respectively being integrally articulated to opposite upstanding end edges of said first outer upstanding sections and extending inwardly substantially to said first divider section, said second opposed transverse divider sections respectively being integrally articulated to opposite upstanding end edges of said second outer upstanding section and extending inwardly substantially to said second divider section, and said flaps being integrally articulated to inner upstanding end edges of all of said transverse divider sections.

3. A divider and cushion member as defined in claim

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1, wherein certain of said transverse divider sections are articulated to said outer upstanding sections, and other of said transverse divider sections are articulated to said longitudinal divider sections.

4. A carton structure, as defined in claim 1, wherein said one-piece sheet material divider and cushion member is formed from laminated corrugated board including opposite side sheets and a corrugated core, said corrugated core comprising corrugations extending substantially vertically in said upstanding sections.

5. A one-piece divider and cushion member formed from a laminated board having opposite side sheets and a core having corrugations extending in a predetermined direction, said member comprising first and second substantially coplanar bottom sections having adjacently disposed inner side edges extending transversely of said corrugations and substantially parallel outer side edges, first and second divider sections respectively integrally articulated to said inner edges of said first and second bottom sections and extending upwardly therefrom, the corrugations of the board in said divider sections extending in upwardly directions, a connecting section integrally joining upper edges of said divider sections, first and second outer upstanding sections respectively integrally articulated to portions of said outer side edges of said bottom sections, and transverse divider sections respectively integrally articulated to one upstanding end edge of and extending between said outer upstanding sections and said first and second divider sections.

6. A divider and cushion member as defined in claim 5, wherein said connecting section has a width greater than a thickness of said board for spacing the upper edges of said first and second divider sections, lower edges of said first and second divider sections being in substantially abutting relationship and said first and second divider sections diverging with respect to each other from their lower edges toward their upper edges.

7. A divider and cushion member as defined in claim 6, which includes flaps integrally articulated to upstanding inner end edges of certain of said transverse divider sections, said flaps abutting said first and second divider sections.

8. A carton including a rectangular bottom, pairs of opposite upstanding sides having a predetermined height

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and top means, first and second superimposed divider and cushion members disposed within said carton, each of said divider and cushion members comprising first and second coplanar bottom sections having adjacently disposed inner side edges and parallel outer side edges, each of said members including first and second longitudinal divider sections respectively integrally articulated to said inner edges of said first and second bottom sections and extending upwardly therefrom in adjacent relationship, each of said members including means integrally joined upper edges of said divider sections, each of said members including first and second outer upstanding sections respectively integrally articulated to outer side edges of said bottom sections, each of said members including first opposed transverse divider sections respectively articulated to one end edge of and extending between said first outer side sections and said two longitudinal divider sections and second opposed transverse divider sections respectively articulated to one end edge of and extending between said second outer sections, and said second longitudinal divider section, said bottom sections of said first member being disposed on said carton bottom and said bottom sections of said second member being disposed on upper edges of the divider sections of said first member, the upper edges of said first and second divider sections of the first member providing platform means supporting the inner side edges of the bottom sections of said second member.

9. A carton structure, as defined in claim 8, wherein said means connecting said upper edges of the first and second divider sections of said first member comprises a connecting section having a substantial width and combining with said edges in providing said platform for supporting the upper member.

References Cited by the Examiner

UNITED STATES PATENTS

1,345,711	7/1920	Shapiro	229—42
1,860,567	5/1932	Boeye	229—15

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