

Carton with an Internal Partition

Field of the Invention

The invention relates generally to the field of cartons for packaging articles. More specifically, though not exclusively, the invention relates to cartons that have a partition panel by which the carton may be lifted and which divides an interior volume of the carton into two or more sections.

Background of the Invention

Cartons are required that allow articles to be carried by some form of handle structure, and further that divide an interior volume of the carton into sections such that articles loaded into the carton do not contact substantially contact one another.

In order to create a partition within the interior volume of the carton, it is necessary to provide a number of panels that, during erection of the carton, are positioned between outer walls of the carton to create sections into which the articles can be loaded. These panels are disadvantageous at least in that they increase the area of a blank required to form such a carton, an increase in which area leads to higher unit cost as each carton requires a physically greater amount of material, such as paperboard. Another disadvantage is that the partition requires means by which it is secured to proximal parts of the carton walls, which securement is required to be robust to withstand the stress placed upon the carton during use.

The present invention seeks to overcome or at least mitigate the above disadvantages by providing a carton blank that uses a reduced amount of material in providing the necessary panels to form a carton, and also by providing additional strength in the manner in which at least portions of the partition is secured to the proximal parts of the carton wall.

Summary of the Invention

A first aspect of the present invention provides a carton for holding articles, which carton comprises walls formed from a linear series of panels connected one to the next which walls that define an interior volume for accepting the articles, the

carton further comprising first and second partition panels for forming a partition to divide that interior volume, from which partition extends a handle structure, which handle structure is formed from a first handle element provided by a portion of the first partition panel, and a second handle element hinged to a side edge of the first
 5 handle element, the two partition panels being hinged to one another, a third handle element for forming the handle structure being provided by a portion of the second partition panel.

Preferably, the second partition panel is folded into coplanar contact with the first
 10 partition panel such that the third handle element is in coplanar contact with the first handle element.

Preferably, the second handle element is one or more of a) folded into coplanar contact with the third handle element thereby to sandwich that third handle element
 15 between the first and second handle elements; or b) hinged to a connecting tab that connects the second handle element to an end wall of the carton.

Preferably, the second partition panel comprises a hinged tab that extends from a
 20 side edge of the second partition panel, through an aperture formed in an end connecting panel and is secured to an end wall of the carton, wherein said end connecting panel connects one end of the first partition panel to a side wall of the carton.

Preferably, the distance between the fold line connecting the first and second
 25 partition panels and the opposed edges of those two partition panels is less than or equal to half the total distance between those two opposed edges.

A second aspect of the present invention provides a blank for forming a carton,
 30 which blank comprises panels in linear series connected one to the next for forming walls of the carton defining an interior volume for accepting articles, the blank further comprising first and second panels for forming a partition to divide that interior volume, from which

partition extends a handle structure, which handle structure is formed from first and second handle elements that are hinged to one another along a side edge thereof and extending along one edge of the aforesaid linear series, the first handle element being provided by a portion of the first panel for forming the partition, the second panel for forming the partition being hinged to the first panel for forming the partition and providing a third handle element for forming the handle structure.

Preferably, the second panel for forming the partition is foldable into coplanar contact with the first panel for forming the partition such that the third handle element is in coplanar contact with the first handle element.

Alternatively, the second handle element is one or more of a) foldable into coplanar contact with the third panel thereby to sandwich that third handle element between the first and second handle elements; or, b) is hinged to a connecting tab that connects the second handle element to a panel for forming an end wall of the carton.

Preferably, the blank further comprises a first and a second bottom panel hinged to an edge of the aforesaid linear series adjacent the third handle element, and wherein the third handle element is substantially half the width of the first handle element such that a distance between adjacent edges of the third handle element and the first bottom panel, is substantially equal to the width of the second bottom panel.

Preferably, the first and second bottom panels have equal width and are spaced apart by a distance substantially equal to that width to allow first and second bottom panels of an identical blank to nest between the first and second bottom panels of the blank.

Preferably, the first panel for forming the partition is hinged to a first panel of the linear series, which first panel of the linear series connects the first panel for forming the partition to a panel for forming an exterior wall of the carton and which comprises an aperture defined therein, whereby a portion of the partition is securable to a

portion of an exterior wall of the carton through that aperture when the carton is erected.

Preferably, the panels of the blank are sized such that a carton erected from that blank is capable of receiving six bottles each of a first volume, whilst the blank is nestable with other such blanks to allow six such blanks to be cut from a sheet of material measuring 1 meter by 1.4 meters, wherein said first volume is one of:

330ml; or

400ml; or

500ml.

~~A third aspect of the present invention provides a method of erecting a carton for holding articles, from a blank, which method comprises folding a secondary partition panel of the blank into coplanar contact with a primary partition panel so that a hinged connecting tab extends away from an edge of the resulting composite partition and overlies an aperture formed in an end connecting panel to which the composite partition is hinged, the method further comprising folding an end panel of the blank into coplanar contact with the end connecting panel and securing the hinged end tab of the secondary partition panel to the end panel through the aforesaid aperture, such that erecting the carton causes the hinged end tab to pass through the aforesaid aperture to extend along a portion of the end panel.~~

~~Preferably, a package comprising a carton is loaded with one or more articles.~~

~~A fourth aspect of the present invention provides a sheet of material within which are defined a plurality of blanks for forming cartons, each blank comprising panels in linear series for forming walls of the carton defining an interior volume for accepting articles, the blank further comprising first and second panels for forming a partition to divide that interior volume, from which partition extends a handle structure, which handle structure is provided by a first and a second handle element that are hinged one to the other and extending along one edge of the aforesaid linear series, the first handle element extend from the first panel for forming the partition, the second panel~~

for forming the partition being hinged to the first panel for forming the partition and comprising a third handle element for forming the handle structure, and each blank comprising a first and a second bottom panel hinged to an edge of the aforesaid linear series adjacent the third handle element, and wherein the third handle element is substantially half the width of the first handle element such that a distance between adjacent edges of the third handle element and the first bottom panel, is substantially equal to the width of the second bottom panel, and wherein the first and second bottom panels have equal width and are spaced apart by a distance substantially equal to that width to allow first and second bottom panels of an identical blank to nest between the first and second bottom panels of the blank.

A ~~third~~^{fifth} aspect of the invention provides a blank for forming a carton for receiving a plurality of articles, said blank comprising: an elongate medial section having an axis of elongation and including first and second side wall panels and first and second end wall panels connected one to the next in a linear series; a first exterior section formed alongside said medial section and including a plurality of handle elements for, when said blank is erected into a finished carton, forming a composite handle structure by which said carton is lifted, said plurality of handle elements comprising first and second handle elements, said first handle element being arranged at one end of said first exterior section; and a second exterior section formed alongside said medial section such that the medial section is disposed between the first and second exterior sections, the second exterior section including first and second bottom panels and a third handle element for, when said blank is erected into a finished carton, forming the composite handle structure in cooperation with the first and second handle elements.

Preferably, there further comprises first and second partition panels for forming a partition for dividing an interior volume of a carton when the blank is erected, wherein the first partition panel is hingedly connected to the medial section along a first fold line disposed generally perpendicular to the axis of elongation and wherein the second partition panel is hingedly connected to the first partition panel along a second fold line substantially parallel to the axis of elongation.

CLAIMS

1. A carton for holding articles, which carton comprises walls formed from a linear series of panels connected one to the next which walls define an interior volume for accepting the articles, the carton further comprising first and second partition panels for forming a partition to divide that interior volume, from which partition extends a handle structure, which handle structure is formed from a first handle element provided by a portion of the first partition panel and a second handle element hinged to a side edge of the first handle element, the first and second partition panels being hinged to one another, a third handle element for forming the handle structure being provided by a portion of the second partition panel.
2. The carton according to claim 1, wherein the second partition panel is folded into coplanar contact with the first partition panel such that the third handle element is in coplanar contact with the first handle element.
3. The carton according to claim 2, where the second handle element is one or more of: a) folded into coplanar contact with the third handle element thereby to sandwich that third handle element between the first and second handle elements; or, b) hinged to a connecting tab that connects the second handle element to an end wall of the carton.
4. The carton according to any one of claims 1 to 3, wherein the second partition panel comprises a hinged tab that extends from a side edge of the second partition panel, through an aperture formed in an end connecting panel and is secured to an end wall of the carton, wherein said end connecting panel connects one end of the first partition panel to a side wall of the carton.
5. A blank for forming a carton, which blank comprises panels in linear series connected one to the next for forming walls of the carton defining an interior volume for accepting articles, the blank further comprising first and second panels for forming a partition to

divide that interior volume, from which partition extends a handle structure, which handle structure is formed from first and second handle elements that are hinged to one another along a side edge thereof and extending along one edge of the aforesaid linear series, the first handle element being provided by a portion of the first panel, the second panel being hinged to the first panel and providing a third handle element for forming the handle structure.

6. The blank according to claim 5, wherein the first partition panel is hinged to the second partition panel along a lower edge thereof.

7. The blank according to claim 50, wherein the second panel is foldable into coplanar contact with the first panel such that the third handle element is in coplanar contact with the first handle element.

8. The blank according to claim 50, where the second handle element is one or more of: a) foldable into coplanar contact with the third panel thereby to sandwich that third handle element between the first and second handle elements; or, b) is hinged to a connecting tab that connects the second handle element to a panel for forming an end wall of the carton.

9. The blank according to any one of claims 50 to 8, wherein the blank further comprises first and second bottom panels hinged to an edge of the aforesaid linear series, the first bottom panel being disposed adjacent the third handle element, and wherein the third handle element is substantially half the width of the first handle element such that a distance between adjacent edges of the third handle element and the first bottom panel, is substantially equal to the width of the second bottom panel.

10. The blank according to claim 9, wherein the first and second bottom panels have equal width and are spaced apart by a distance substantially equal to that width to allow first and second bottom panels of an identical blank to nest between the first and second bottom panels of the blank.

11. The blank according to any one of claims 50 to 10, wherein the first panel for forming the partition is hinged to a first panel of the linear series, which first

panel of the linear series connects the first panel for forming the partition to a panel for forming an exterior wall of the carton, the first panel of the linear series comprising an aperture defined therein, whereby a portion of the partition is securable to a portion of an exterior wall of the carton through that aperture when the carton is erected.

12. The blank according to any one of claims ~~50~~ to 11, wherein the panels of the blank are sized such that a carton erected from that blank is capable of receiving six bottles each of a first volume, whilst the blank is nestable with other such blanks to allows six such blanks to be cut from a sheet of material measuring 1 meter by 1.4 meters, wherein said first volume is one of:

- a. 330ml; or
- b. 400ml; or
- c. 500ml.

13. The carton according to any one of claims 1 to ~~40~~, wherein the distance between the fold line connecting the first and second partition panels and the opposed edges of those two partition panels is less than or equal to half the total distance between those two opposed edges.

14. A blank for forming a carton for receiving a plurality of articles, said blank comprising:

an elongate medial section having an axis of elongation and including first and second side wall panels and first and second end wall panels connected one to the next in a linear series;

a first exterior section formed alongside said medial section and including a plurality of handle elements for, when said blank is erected into a finished carton, forming a composite handle structure by which said carton is lifted, said plurality of handle elements comprising first and second handle elements, said first handle element being arranged at one end of said first exterior section; and

a second exterior section formed alongside said medial section such that the medial section is disposed between the first and second exterior sections, the second exterior section including first and second bottom panels and a third handle element for, when said blank is erected into a finished carton, forming the composite handle structure in cooperation with the first and second handle elements;

further comprising first and second partition panels for forming a partition for dividing an interior volume of a carton when the blank is erected, wherein the first partition panel is hingedly connected to the medial section along a first fold line disposed generally perpendicular to the axis of elongation and wherein the second partition panel is hingedly connected to the first partition panel along a second fold line substantially parallel to the axis of elongation;

wherein the second handle element is hingedly connected to the first handle element along a third fold line that is disposed generally perpendicular to the axis of elongation.