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3,381,809

CARTON FOR COLLAPSIBLE UMBRELLA

Filed June 2, 1966

2 Sheets-Sheet 1

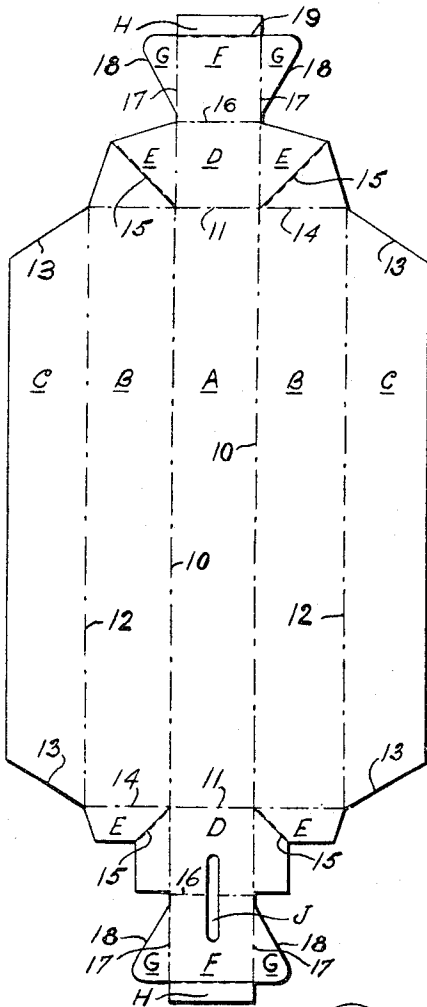


FIG. 1

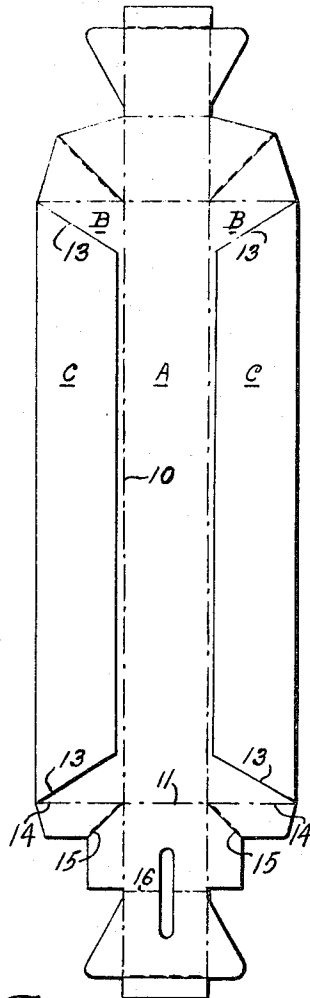


FIG. 2

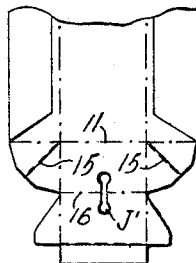


FIG. 3

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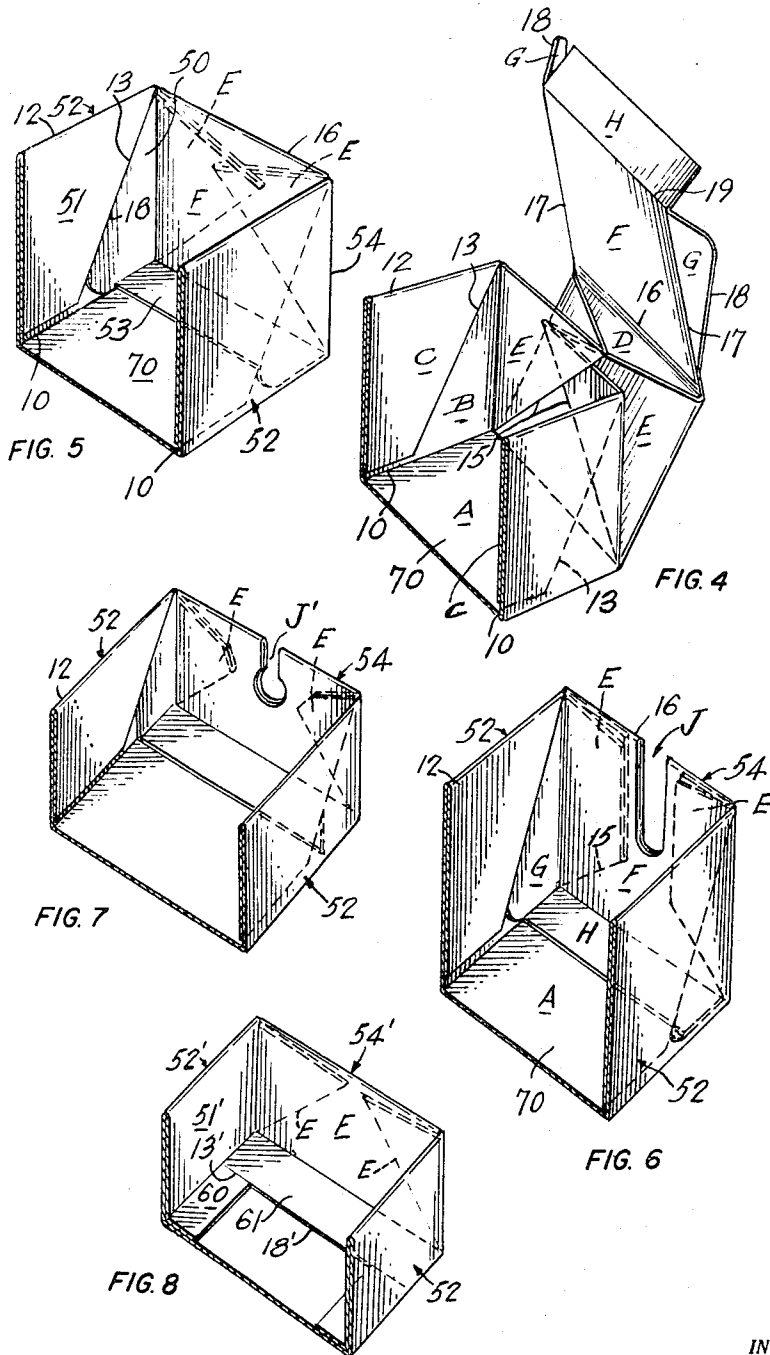
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CARTON FOR COLLAPSIBLE UMBRELLA

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960,864

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ABSTRACT OF THE DISCLOSURE

A foldable flat tray including, when erected, double thicknesses of paperboard material in which gusset folds orient end and side walls in right angular relation and wing elements on an inner end wall panel retain the trays in erected relation, and in which slot portions in one pair of end wall panels accommodate the shank portion of an umbrella therethrough and are flanked by cut-off portions of the gussets folds of tray.

The present invention relates to a carton of foldable material and to a blank out of which the carton may be formed by folding, certain parts being secured against unfolding by the use of means such as adhesive or staples. The word "carton" as used herein is intended to encompass an open box-like structure which may be a container or a lid for a container or a container having a hinged lid. The invention includes the combination of a container portion and a lid portion, both of which are constructed in accordance with the invention.

It is known to fold a blank to form a carton by providing tabs at the ends of the side walls, which tabs have oppositely cut slots, such slots being adapted to interlock to retain the side walls in the desired upright position. A tab forming an extension of the floor may then be folded up against the outside of the tabs to complete the end walls, such portion being adhered or locked in place.

It is an object of the present invention to provide the means of constructing the end walls of a container which avoids the necessity for such interlocking slots, which both require a complicated blank and which introduce a weakness in the end walls.

In accordance with one aspect of the invention, there is provided a carton of foldable material comprising opposite side walls, opposite end walls, and a floor.

A first inwardly folded portion defining at a fold line the edges of a first side wall, such portion being folded flat against the remaining part of such side wall and secured against unfolding, and having opposite edge portions terminating inwardly of said end walls.

Web portions connecting the side walls and end walls at the corners of the carton, the web portions being flat-folded along folds inwardly directed in the plane of the end walls so as to constitute part of the end walls.

Second inwardly folded portions each defining at a fold line the edge of an end wall, such portions being flat-folded over and against the flat-folded web portions.

The second folded portions each having at least one locking tab folded to extend towards and abut the edge of an adjacent said opposite edge portion of said first inwardly folded portion so as to lock the second folded folded against unfolding.

If the carton is an empty box like construction, a secondly inwardly folded portion is provided on the opposite side wall. On the other hand, a lid may alternatively be hinged along the top edge of that side wall.

The flat folded web portions, being integral with the side walls and end walls, greatly strengthen the carton at the corners, and provide a stiff and very rigid end wall, which is substantially thick. At the same time, the fold-

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ing of the carton may be formed more easily and rapidly than is the case where slotted tabs have to be locked together as part of a separate folding step.

In a preferred form of the invention, a first folded portion is provided on each side wall and also the opposite edges of such first folded portions taper inwardly and downwardly from the corners of the carton, the portions terminating short of the floor and being adhered to their respective side walls, the locking tabs having sloping abutting edges arranged to abut the tapering edges of the first folded portion.

The invention also includes a blank from which the carton may be folded. Thus, in accordance with a second aspect of the invention, there is provided a blank of foldable material for forming a carton, the blank comprising:

A rectangular floor area in an internal region of the blank and bounded by fold lines defining the lower edges of opposite side walls and opposite end walls.

Side wall and end wall areas extending outwardly of said fold lines by a distance equal to the height of the carton and constituting at least part thicknesses of said side walls and end walls.

At least one of said areas defining a part thickness of a side wall having a fold line at its outward edge defining the position of the upper edge of the wall.

An inwardly foldable side area extending outwardly from said one area along substantially the length of its edge fold line, such side area having opposite edge portions terminating inwardly of the end extremities of said one side wall area.

Web areas interconnecting said side wall and end wall areas at the corners of the blank and each divided into two parts by diagonal fold lines extending outwardly from the corners of the floor area.

Inwardly foldable end areas, substantially of the same size as the end wall area, extending each outwardly from a fold line at the outward edge of each end wall area, which fold line defines the upper edge of such end wall.

At least one locking tab area joined by a fold line to each of said inwardly foldable end areas at an edge thereof and of a size, shape and position to abut and lock by one edge against the adjacent edge portion of the inwardly foldable side area when the blank is folded to carton form with said foldable side area flat-folded and secured inwardly, and the web areas, end wall areas and foldable end areas folded to form the end walls of the carton.

Having thus generally described the invention, a preferred embodiment is hereafter more particularly and fully described and illustrated with respect to the following drawings in which:

FIGURE 1 is a plan view of a blank from which a carton may be folded in the form of an elongate box-like container for containing short, telescopic umbrellas;

FIGURE 2 is a plan view of the embodiment of FIGURE 1 after the first folding and adhering step;

FIGURE 3 is a plan view similar to FIGURE 2 of part of the blank for a lid portion adapted to fit the umbrella container of FIGURE 1;

FIGURE 4 is a perspective view of one end of the blank of FIGURE 1 illustrating a manner of folding the end walls;

FIGURE 5 is a perspective view similar to FIGURE 4 showing the final form of the end of the folded carton;

FIGURE 6 is a view similar to FIGURE 5 showing the final folded form of the other end of the carton;

FIGURE 7 is a view similar to FIGURE 6 showing the end of the lid portion in the folded state; and

FIGURE 8 is a view similar to FIGURE 5 of an alternative form of construction.

There is shown in FIGURE 1 a blank of foldable material such as, for example, white newslined card of

either chip-back or Manila, and of a thickness, for example, in the range of .018 to .032 inch, preferably .024 inch. The blank comprises a rectangular floor area A in an internal region of the blank surrounded by longitudinal fold lines 10 defining the lower edges of opposite side walls, and fold lines 11 defining the lower edges of opposite end walls. Side wall areas B extend outwardly of the fold lines 10 by a distance equal to the height of the carton and constitute at least part of the thickness of the side walls. Similarly, end wall areas D extend from the fold lines 11 to a distance equal to the height of the carton, for the purpose of forming part of the thickness of the end walls.

In the embodiment shown, both side wall portions B terminate laterally at fold lines 12 which define the positions of the upper edges of the side walls of the folded carton. Extending laterally outwardly of the fold lines 12, along substantially the length of the fold lines 12, are inwardly foldable side areas C. In the embodiment illustrated in FIGURES 1 and 2, the inwardly foldable side areas C are of a width less than the side wall areas B so that upon being inwardly flat folded as shown in FIGURE 2, they terminate short of the fold lines 10. In this first folded position, the areas C are adhered and flat folded against the areas B, the combined areas B and C constituting side walls of double thickness. It will be appreciated that the blank may be sold in this condition, and that such a folded blank is within the scope of the invention.

The inwardly foldable side areas C have opposite edges 13 at least portions of which terminate inwardly of the end extremities, i.e. fold lines 14, of the side wall areas B. As shown, the edges 13 slope or taper inwardly from the fold lines 14 of the adjacent side wall areas B, but the edges 13 may alternatively be stepped to provide inwardly terminating edge portions.

Thus, in the folded condition of FIGURE 2, the areas C stand proud of the areas B along the edges 13 which form lines of abutment for the purposes to be described.

Web areas E interconnect the side wall and end wall areas B and D at the corners of the blank and each web area E is divided into two parts by a diagonal fold line 15 extending outwardly from the adjacent corner of the floor area.

The end wall areas D terminate in fold lines 16 from which extend, for a distance also substantially equal to the height of the folded carton, inwardly foldable end areas F. The end areas F are identical in size with the end wall areas D and the fold line 16 which divides them defines the upper edge of the end wall in the finished carton.

Locking tab areas G extend from the sides of the end areas F, from which they are divided by fold lines 17. As will become apparent, the tab areas G are of a size, shape and position to abut and lock by one edge against the adjacent edge portion 13 of the nearest inwardly foldable side area C when the blank is folded to carton form. Thus, for this purpose, the locking tab areas have abutting edges 18 which slope generally diagonally from a corner substantially level with the outer end of the respective area F towards the fold line 16. Thus, in FIGURE 2, each tab area G is arranged substantially to fit in the triangular space between the fold line 14 and the edge 13 nearest thereto.

The inwardly foldable end areas F terminate outwardly in fold lines 19 from which extend spacer tab areas H. The areas H extend outwardly from fold lines 19 along the whole length of the fold lines 19 which are substantially the width of the floor area A, so that the spacer tab areas H, in the folded position of the carton which will become more apparent, are adapted to maintain the locking tab areas G against the side walls.

In the form of carton being described, a slot is provided to take the shank of the umbrella, and in the blank this appears as a slot J which extends a substantially

equal distance perpendicularly in both directions from the fold line 16 at one of the two ends of the blank, such slot J terminating short of the ends of areas D and F opposite to the fold line 16.

In the blank from which the container part of the box is formed, the slot J has straight parallel elongate sides and rounded ends. The web areas E on the side of the blank adjacent the slot J have a right-angled area cut away at the end of the diagonal fold line 15, so that the web areas in their folded positions do not cover the slot J.

The lid portion of the umbrella box of the present embodiment is formed substantially similarly, but is slightly enlarged so as to fit closely over the open end of the box. The end of the lid blank as shown in FIGURE 3 is slightly different in that the slot J' is dumbbell shaped, that is, it has enlarged approximately circular areas at each end, and a relatively narrow portion joining the enlarged ends. Since the shank portion of the slot J' is slightly narrower, the portion cut away at the end of the diagonal fold lines 15, takes the form merely of a cut corner, as shown in FIGURE 3. The opposite end of the lid blank, which is not shown, is fashioned substantially like the unslotted end of the blank of FIGURES 1 and 2, each part being slightly increased proportionately, except the dimension which represents the height of the walls, which is of course smaller in a lid. The approximate relative proportions within the blank can be seen in FIGURE 3.

The folding of the walls of the carton is illustrated in FIGURES 4 to 6. The first step is shown in FIGURE 4. The web portions E are folded at their fold lines 15 which are brought upwardly and inwardly, raising the side walls and end walls as shown in FIGURE 4. The web portions E are finally flat-folded at their dividing fold lines 15 and brought flat against the adjacent end wall area D. The adjacent end area F is then folded over the flat folded web portions E so as to enclose them against the end wall area D, and the tab areas G and spacer area H are forwardly folded towards the centre of the box to assume the position shown in FIGURE 5. In such position, the edges 18 of the original tab areas G now denoted as tabs 50 in the finished carton abut and lock against the end edges 13 of the inwardly folded portions 51 formed by areas C of the blank which form the inner thicknesses of the side walls 52. The locking action of the tabs 50 against the edges 13 prevents unfolding of the inwardly folding end areas F. As shown in FIGURE 5, the spacer tab 53 which is formed from the spacer tab area H of the blank, maintains the tabs 50 apart and against the side walls 52 so as to retain them in the locking position. The position of the flat-folded web areas E is indicated in dotted lines in FIGURE 5.

The opposite end of the carton assumes exactly the same folded position, as shown in FIGURE 6, which also shows the configuration of the slot in the container part of the umbrella box. It can be seen that the slot extends downwardly from the central part of the upper edge of one end wall 54. The web portions E are cut away so that they run short of and parallel to the edges of the slot J and do not cover it.

The slotted end of the lid portion of the box is shown in FIGURE 7. It can be seen that the slot J' assumes the form of a narrow neck portion and an enlarged approximately circular interior portion and that the approaching corners of the folded web areas E are cut away so as to leave the slot unimpeded.

In the final folded form of the box, the container portion is adapted to receive a telescoped umbrella with the shank portion received in the slot J, so that the handle protrudes from the end of the box. The lid is then closed upon the container with the slot J' also closing in upon the shank. Since the neck portion of the slot J' is narrower than the enlarged portion, the neck portion expands slightly to take the shank of the umbrella which then rests in the enlarged portion and locks the container

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from opening until the neck is pushed inwardly to expand it and allow the shank to slip through.

Thus, the carton of FIGURES 5 and 6 in the folded form comprises opposite side walls 52, opposite end walls 54, a floor 70, a first inwardly folded side wall portion 51 defining at fold line 12 the edge of the side wall, the portion 51 being folded flat against the remaining part of the side wall 52 and secured by adhesive against unfolding with a part or portion of each end edge 13 terminating inwardly of the end walls 54. The finished carton includes web portions E shown in dotted lines, connecting the side walls and end walls at the corners of the carton, the web portions being folded flat along folds inwardly directed in the plane of the end walls so as to constitute part of the end walls. Second inwardly folded portions which correspond to the blank portions F each define at a fold line 16 the edge of an end wall and such portions are folded flat over and against the flat folded web portions. The second folded portions which correspond to the blank portions F each have at least one locking tab 50 folded to extend towards and abut an inwardly terminating portion of the edge 13 of an adjacent opposite first inwardly folded portion 51 so as to lock the second folded portion against unfolding.

In the form of embodiment shown in FIGURES 1 to 7, the locking is achieved by means of locking tabs which extend parallel to the side walls and engage abutting edge portions formed in part of the side walls. An alternative form of locking arrangement is shown in FIGURE 8. In this arrangement the inwardly folding portions 51' of the side walls are made of a width which is larger than the height of the carton, so that ends 60 of the portions 51' are folded along the floor of the carton. The ends 60 have side edges 13' which terminate short of the end walls 54' and are substantially parallel with the end walls 54'. In this form of embodiment, no locking tabs are formed parallel to the side walls, but a portion similar to the spacer tab H, shown at 61, is folded forwardly from the end of the inwardly folding portion F and acts as a locking tab, with its forward edge 18' abutting the edge 13' of the inwardly folding side wall portion. It will be appreciated that this embodiment is not so secure as the embodiment of FIGURES 1 to 7 in that there is no spacer tab to retain the locking tab in abutting relationship. Furthermore, more cardboard is needed. On the other hand, it provides the advantage of a reinforced floor. The end walls 54' are formed with web portions E as in the previous embodiment.

Numerous other modifications may be made within the scope of the invention. For example, a hinged lid may be provided adjacent the upper edge of one side wall. Such lid may be formed with its free corner folded with a web portion similar to the web portions E, if desired, or may be fabricated in known ways. Other modifications may be made within the scope of the following claims.

I claim:

1. A carton of foldable material comprising opposite side walls, opposite end walls, and a floor, said walls being equal in height, the combined width of said side walls being greater than that of said floor,
a first inwardly folded portion defining at a fold line the edge of a first side wall, such portion being folded flat against the remaining part of such side wall and secured against unfolding, and having opposite edge portions terminating inwardly of said end walls, web portions connecting the side walls and end walls at the corners of the carton, the web portions being flat-folded along folds inwardly directed in the plane of the end walls and extending across a major portion thereof so as to constitute part of the end walls, second inwardly folded portions each defining at a fold line the edge of an end wall, such portions being flat-folded over and against the flat-folded web portions, the second folded portions each having at least one locking tab folded to extend towards and abut the

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edge of an adjacent said opposite edge portion of said first inwardly folded portion so as to lock the second folded portion against unfolding, one of said end walls including a slot above said floor, said slot opening into the edge of said end wall, inner edge portions of said web portions immediately flanking adjacent side portions of said slot.

2. A carton as claimed in claim 1 further comprising a second inwardly folded portion substantially the mirror image of the first folded portion and defining at a fold line the edge of the opposite side wall.

3. A carton as claimed in claim 1 wherein said locking tabs extend parallel to the floor, each first folded portion being flat-folded against its corresponding side wall and part of the floor inward of, and in abutting relationship with, said locking tabs.

4. A carton as claimed in claim 2 wherein a pair of said locking tabs extend from each end wall, the tabs being folded to extend parallel to and inwardly of the side walls.

5. A carton as claimed in claim 4 comprising a spacer tab folded to extend from the end of each of said second folded portions parallel to and inwardly of said floor and having side edges abutting said locking tabs and maintaining the locking tabs in contact with the side walls.

6. A carton as claimed in claim 1 wherein said opposite edge portions of said first folded portion taper inwardly and downwardly from the corners of the carton, the portions terminating short of the floor and being adhered to their respective side walls, said locking tabs having sloping abutting edges arranged to abut said tapering edges.

7. A carton as claimed in claim 1 wherein the slot comprises a narrow neck adjacent the edge of the end wall and an approximately circular enlargement at the inward end.

8. The structure as claimed in claim 1 including in combination a lid portion of a size and shape to fit closely over and close said carton.

9. The structure as claimed in claim 8 in which said lid portion includes an end wall having a slot opening into an edge portion thereof, said respective slots being in alignment and overlying each other when the container is closed.

10. The structure as claimed in claim 9 in which said slots are of different lengths and form an aperture in the end wall of the closed container.

11. A blank of foldable material for forming a carton, the blank comprising:

a rectangular floor area in an internal region of the blank and bounded by fold lines defining the lower edges of opposite side walls and opposite end walls, side wall and end wall areas extending outwardly of said fold lines by a distance equal to the height of the carton and constituting at least part thicknesses of said side walls and end walls, the combined width of said side walls being greater than the width of said floor area,

at least one of said areas defining a part thickness of a side wall having a fold line at its outward edge defining the position of the upper edge of the wall, an inwardly foldable side area extending outwardly from said one area along substantially the length of its edge fold line, such side area having opposite edge portions terminating inwardly of the end extremities of said one side wall area,

web areas interconnecting said side wall and end wall areas at the corners of the blank and each divided into two parts by diagonal fold lines extending outwardly from the corners of the floor area, and being of a combined length along the diagonal equal to a major portion of the width of said floor and end walls,

inwardly foldable end areas substantially of the same size as the end wall areas, extending each outwardly

from a fold line at the outward edge of each end wall area, which fold line defines the upper edge of such end wall,

at least one locking tab area joined by a fold line to each of said inwardly foldable end areas at an edge thereof and of a size, shape and position to abut and lock by one edge against the adjacent edge portion of the inwardly foldable side area when the blank is folded to carton form with said foldable side area flat-folded and secured inwardly, and the web areas, end wall areas and foldable end areas folded to form the end walls of the carton, one end wall area and its adjacent foldable end area containing a slot extending a substantially equal distance perpendicularly in both directions from the fold line dividing such areas and terminating short of the ends of such areas opposite to the fold line.

12. A blank as claimed in claim 11 further comprising a second inwardly foldable side area substantially the mirror image of the first foldable side area and extending from a fold line at the outward edge of the other side wall area.

13. A blank as claimed in claim 12 comprising a pair of said locking tab areas extending from the side edges of each foldable end area.

14. A blank as claimed in claim 13 wherein the locking tab areas have said abutting edges which slope generally diagonally from a corner substantially level with the outer end of each foldable end area towards the fold line at the inward edge of such end area, the correspond-

ing said abutting edges of said inwardly foldable side areas sloping inwardly from the fold lines of the adjacent side wall areas.

15. A blank as claimed in claim 14 further comprising spacer tab areas extending outwardly from the outward extremities of said inwardly foldable end areas and joined thereat by fold lines, the spacer tab areas being of substantially the width of the floor area and adapted to maintain the locking tabs against the side walls in the folded position of the carton.

16. A blank as claimed in claim 11 wherein the ends of the slot are enlarged to form approximately circular apertures.

17. A blank as claimed in claim 12 wherein said inwardly foldable side areas are folded flat at their adjacent fold lines and are adhered to their adjacent side wall areas.

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