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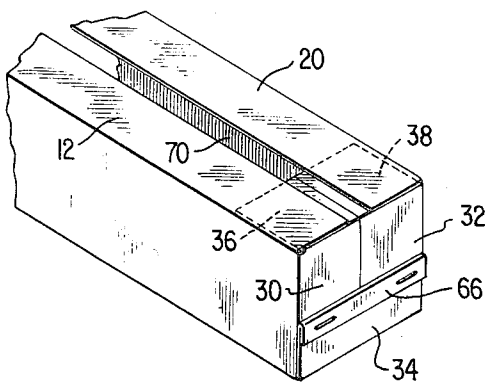
[54] **IMPERFORATE CARTON WITH INTEGRAL HANDLES**
5 Claims, 9 Drawing Figs.

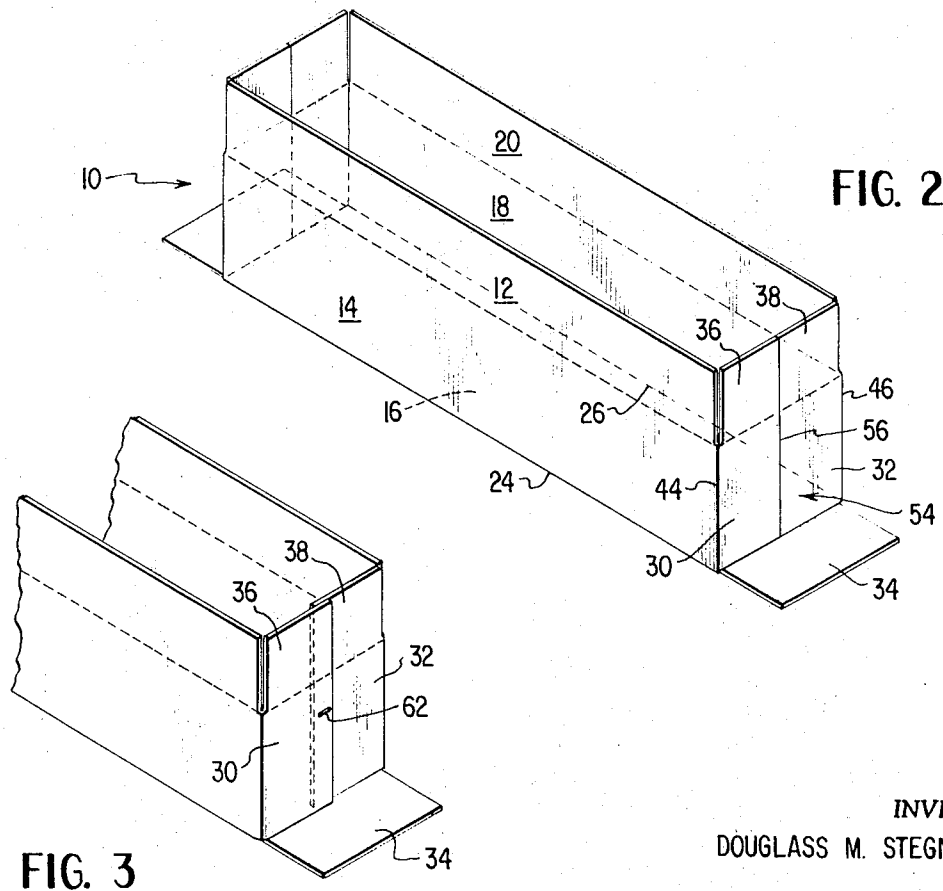
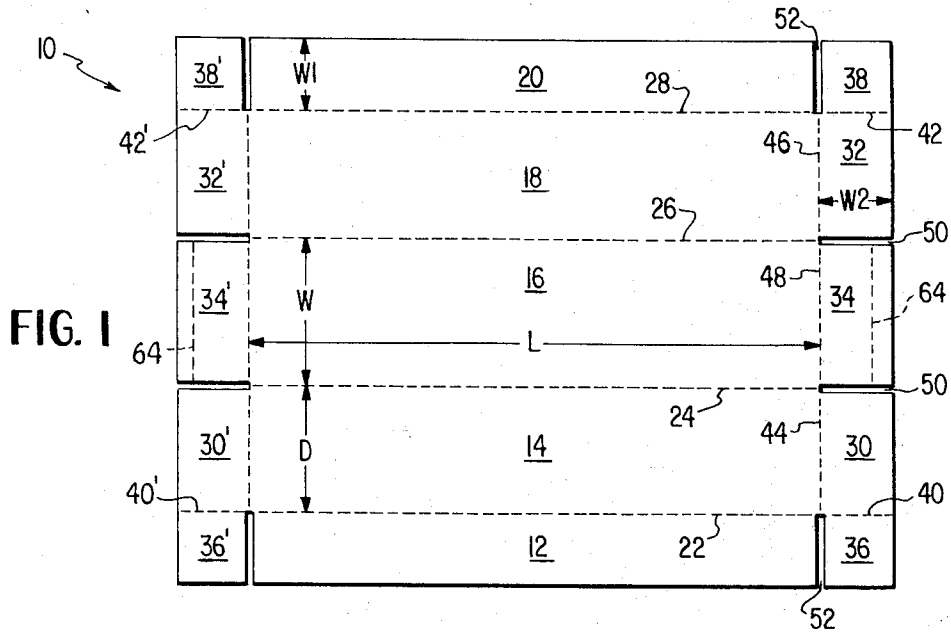
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[51] Int. Cl..... **B65d 5/22,**
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[50] Field of Search..... **229/33,**
52B, 44, 45, 37

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ABSTRACT: An improved carton which includes a one-piece bottom wall and carrying handles which do not require openings communicating with the interior thereof, and the blank from which the carton is assembled. The carton is fabricated from a unitary blank which includes a series of successively hingedly connected parallelogram panels which form the bottom wall, a pair of opposed side walls, and the top wall. The panel forming the bottom wall has a given width, while the top wall is formed of two panels, each of a width determined by considerations of whether they overlap, gap, or just meet. The sidewall forming panels each have a first flap panel at each end thereof which fold inwardly to form a pair of opposed end walls. At each end of the bottom wall-forming panel is a second flap panel which fold inwardly to overlie the first flap panels and is secured thereto. The upper portion of the second flap panel can be folded outwardly upon itself and secured thereto to form handles. The first flap panels each have a third flap panel hingedly attached thereto which fold inwardly to form top securing flaps.





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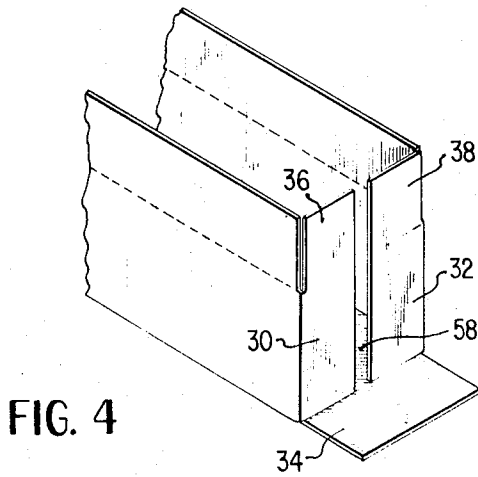


FIG. 4

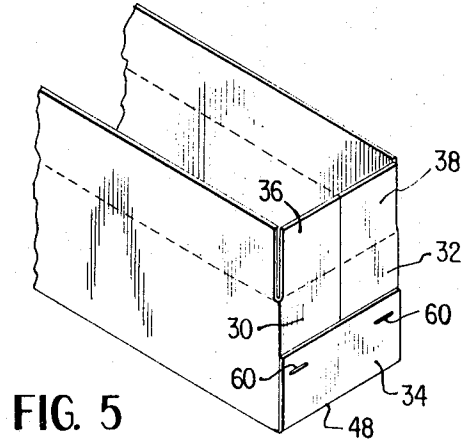


FIG. 5

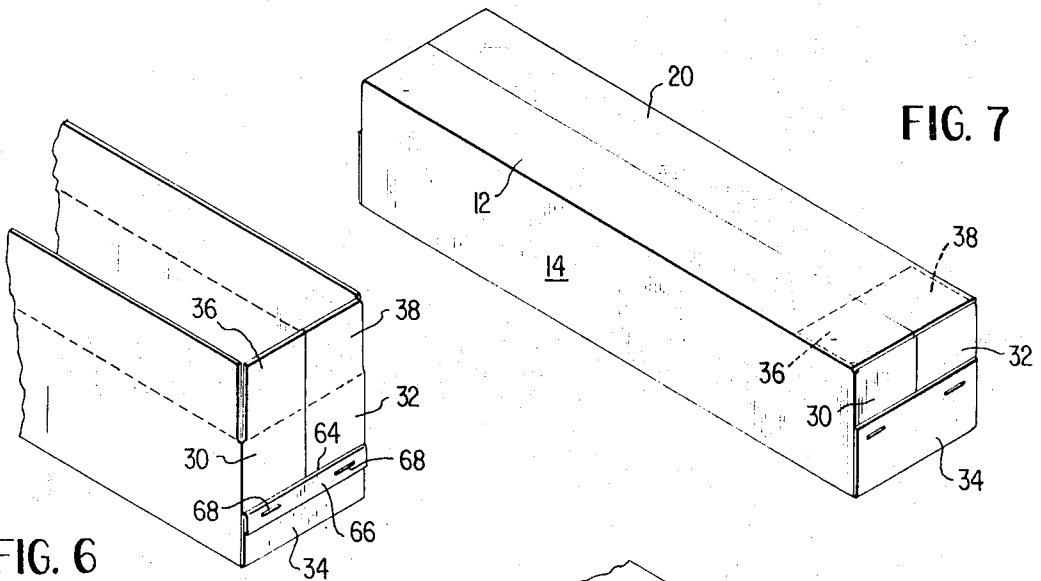


FIG. 6

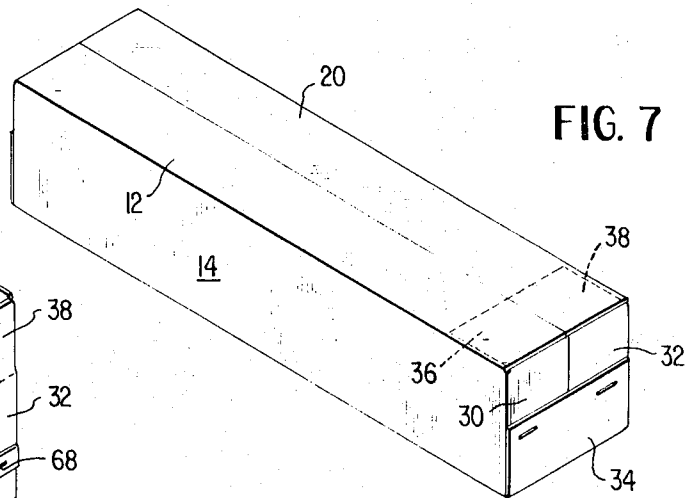


FIG. 7

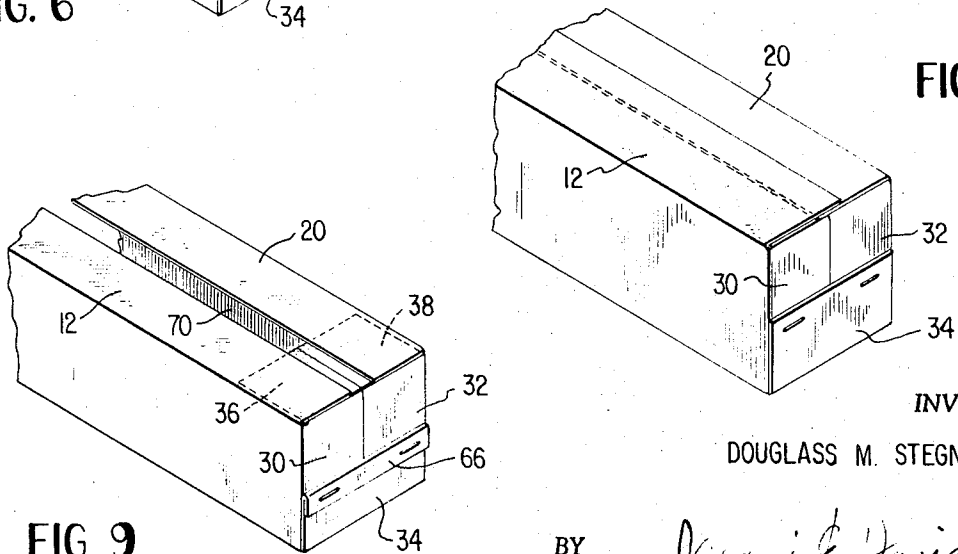


FIG. 8

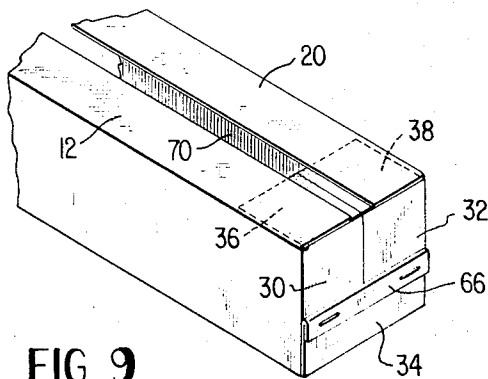


FIG. 9

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IMPERFORATE CARTON WITH INTEGRAL HANDLES

This invention relates generally to cartons, and is more particularly concerned with cartons and the blanks from which they are formed.

The blank and the assembled carton are advantageously constructed of a corrugated cardboard material which includes outer faces of smooth fiber board separated by a layer of corrugated fiber board. As is well known to those of ordinary skill in the art, corrugated cartons possess certain structural advantages over cartons made of ordinary cardboard. It is also well known that corrugated cartons find many commercial uses.

The most familiar type of corrugated carton includes four upstanding side walls defining the side walls of a parallelogram shaped box, a bottom and a top. Both the bottom and the top of the conventional carton are made up of a plurality of closure flaps folded inwardly from at least one pair of opposed side walls to meet approximately midway between such side walls where they are sealed by various conventional sealing means. One of the many uses to which such conventional cartons are put is the packing and shipping of fresh or frozen meat. The ordinary meat box is closed and sealed at the bottom and thereafter filled with meat before sealing the top.

An extremely troublesome problem associated with shipping meat in a conventional corrugated carton is caused by the fact that the moisture from the contents of the carton seeps through the bottom thereof and severely weakens the joint where the closure flaps meet. Due to this seepage of moisture it has been found that tape joints are often unsatisfactory, since the glue on the tape softens thereby allowing the tape to fall off. Another, slightly more satisfactory, means of sealing the bottom closure flaps is by stitching or stapling. It has been found, however, that stitched joints also become weakened by the moisture and tend to open up. A further disadvantage of a corrugated carton with a stitched bottom is that the holes formed by the stitches allow dirt and other contamination to enter the carton thereby rendering the contents, in the case of meat or other food stuffs, unusable or, at the very least, unpalatable.

A further feature of the conventional meat box is the provision of a handle at each end thereof. Since the full meat carton is relatively heavy, typically weighing in the range of 55 pounds, a handle at each end thereof is found extremely convenient for lifting and moving the carton. The handle usually provided is an oval or rectangular hole punched in the panel forming the end wall of the carton. Often, the hole is only partially cutout and scored along the remaining side thereof so that the flap formed thereby may be folded inwardly providing a convenient handle which does not easily cut into the hands of the person carrying the loaded carton. It is immediately apparent that such handle holes provide convenient and ready access for all manner of contamination including dirt and live organisms.

It is, therefore, a primary object of this invention to provide a carton which is free of the aforementioned and other such disadvantages, and a blank from which the carton is fabricated. It is another important object of the present invention to provide a carton which includes a one-piece bottom wall and is thereby particularly adaptable for packing and shipping meat therein, and which can be run on conventional automatic and semiautomatic loading and sealing lines. A further important object of this invention is the provision of a carton which includes handle means for ease in carrying the carton when it is loaded but which do not provide an opening directly communicating with the interior thereof to thereby allow contamination of the contents. Consistent with the foregoing objects it is another important object of the present invention to provide a carton with a one-piece bottom and a convenient flap top which can be easily and cheaply manufactured.

More specifically, a primary object of this invention is to provide a parallelogram carton formed from a unitary carton blank, comprising a bottom wall, a pair of opposed sidewalls

and a pair of opposed end walls extending upwardly from the bottom wall, and a top wall, with the top wall including a pair of panels extending from the upper edges of the side walls, each of the end walls comprising a pair of first flap panels hingedly joined to the side wall and folded inwardly and a second flap panel hingedly joined to the bottom wall and folded inwardly in overlying relation with the first flap panels.

Yet another primary, and important, object of the present invention is to provide a unitary carton blank which can be easily made by die or rotary cutting and which can be assembled into a carton having a one-piece bottom and four top flaps consistent with the foregoing objects. Still another specific, but important, object of the present invention is to provide a unitary carton blank comprising first, second, third, fourth and fifth successively hingedly joined parallelogram wall-forming panels, with the third panel adapted to form the bottom wall of the carton, the second and fourth panels adapted to form the side walls of the carton, the first and fifth panels adapted to form the top wall of the carton, a first flap panel hingedly joined to each of the second and fourth panels and adapted to form an end wall of the carton, a second flap panel hingedly joined to each end of the third panel and adapted to overlie the first flap panels forming the end walls, and a third flap panel hingedly joined to each of the first flap panels of the second and fourth panels adjacent to and coextensive with the respective first and fifth panels and separated therefrom by a slit, each of the first flap panels being separated from the adjacent second flap panels by a slit.

The invention will be better understood, and objects other than those set forth above will become apparent, when consideration is given to the following detailed description. Such description makes reference to the annexed drawings presenting preferred and illustrative embodiments of the invention.

IN THE DRAWINGS

FIG. 1 is a top plan view of a blank which can be utilized to form a carton in accordance with the present invention;

FIG. 2 is an elevational view of a carton formed from the blank of FIG. 1 with the carton being shown in a partially fabricated position;

FIG. 3 is a fragmentary elevational view of a partially fabricated carton in accordance with a modified embodiment of this invention;

FIG. 4 is a fragmentary elevational view of a carton in accordance with a further modified embodiment of this invention;

FIG. 5 is a fragmentary elevational view of the carton shown in FIG. 2 indicating a further step in the assembly thereof;

FIG. 6 is a fragmentary elevational view of the carton of FIG. 5 showing another embodiment of this invention;

FIG. 7 is an elevational view of the carton shown in FIG. 2 in a fully fabricated form;

FIG. 8 is a fragmentary elevational view of the carton shown in FIG. 7 in accordance with another modified embodiment of this invention; and

FIG. 9 is a fragmentary elevational view of the carton shown in FIG. 7 in accordance with still another modified embodiment of this invention.

Referring now to FIG. 1, it will be seen that the carton blank therein depicted and generally designated by the numeral 10, comprises first, second, third, fourth and fifth successively hingedly joined parallelogram wall-forming panels 12, 14, 16, 18 and 20 respectively. The wall-forming panels 12-20 are hingedly joined each to the next adjacent panel by fold lines 22, 24, 26 and 28. Panel 16 forms the bottom wall of the assembled carton and has a given width W between fold lines 24 and 26. Panels 14 and 18 form the side walls of the carton when folded inwardly along fold lines 24 and 26 respectively. Panels 12 and 20 together form the top wall of the carton.

At each end of sidewall forming panels 14 and 18 is a first flap panel 30, 30' and 32, 32' respectively. A second flap panel extends from each end of bottom wall-forming panel 16

and is designated 34 and 34'. Finally, third flap panels 36, 36' and 38, 38' extend outwardly from their respective first flap panels from which they are separated by fold lines 40, 40', 42 and 42' respectively and lie adjacent to, and coextensive with, panels 12 and 20. It should be understood that reference to any of flap panels 30—38 in describing the carton blank or the assembled carton of the present invention includes their respective opposed flap panels 30'—38', which are identical therewith.

The first flap panels 30 and 32 are hingedly joined to their respective wall-forming panels 14 and 18 by score or fold lines 44 and 46 respectively. Similarly, second flap panel 34 is hingedly joined to wall-forming panel 16 by score or fold line 48. First flap panels 30 and 32 are laterally separated from the adjacent second flap panel 34 by slots 50 extending outwardly from fold lines 24 and 26. In a like manner, third flap panels 36 and 38 are separated from their adjacent wall-forming panels 12 and 20 by slots 52 extending outwardly from fold lines 44 and 46 respectively.

The dimensions of the carton blank 10 and of the panels thereof are determined by the use to which the assembled carton will be put. As shown in FIG. 1, the length L of the wall-forming panels 12—20 is greater than the width W of bottom wall-forming panel 16 and the depth D of sidewall forming panels 14 and 18, thereby resulting in a rectangular shaped carton in the preferred embodiment. It should be understood that a square-shaped carton may be made simply by shortening the length L of the wall-forming panels 12—20. Clearly, since the given width W of bottom wall-forming panel 16 designates the width of the finished carton, and wall-forming panels 12 and 20 together form the top wall of the carton, if top wall-forming panels 12 and 20 are to meet without forming a gap or an overlap the width W1 of top wall-forming panels 12 and 20 will be equal to one-half the width W of bottom wall-forming panels 16. If, however, top wall-forming panels 12 and 20 are to have a gap therebetween, the width W1 will be less than one-half the given width W of bottom wall-forming panel 16 by an amount sufficient to form the required gap. Conversely, if top wall-forming panels 12 and 20 are to overlap, the width W1 will be greater than one-half the given width W of bottom wall-forming panel 16 by an amount sufficient to provide the desired overlap.

As will be described in more detail herein below, the first flap panels 30 and 32 which form the end wall of the carton may also either meet, overlap or gap. The width W2 of the first flap panels 30 and 32 will, therefore, be equal to one-half the width W, greater than one-half the width W or less than one-half the width W according to the desired configuration of the end wall of the assembled carton.

Turning now to FIG. 2 there is depicted a carton 10 in a partially assembled condition. It can be seen that the first step in the assembly of the carton is to fold the sidewall forming panels 14 and 18 inwardly at their respective fold lines 24 and 26. Next, first flap panels 30 and 32 are folded inwardly at their respective fold lines 44 and 46 to form the end wall 54. It will be noted that flap panels 30 and 32 meet at 56 without a gap or an overlap, indicating that in the construction the width W2 of the first flap panels 30 and 32 equal to one-half the given width W of bottom wall-forming panel 16, and, therefore, of the carton 10. In FIG. 3 is shown, a fragmentary elevational view, a carton according to this invention in which the end flap panels 30 and 32 overlap. Similarly, in FIG. 4, the width W2 of flap panels 30 and 32 is less than one-half the width W of bottom wall-forming panel 16 and, therefore, flap panels 30 and 32 do not meet but have a gap 58 therebetween.

After folding the sidewall forming panels 14 and 18 inwardly and folding the first flap panels 30 and 32 inwardly, the next step in the assembly of the carton is the folding of flap panel 34 inwardly along its associated fold line 48 to at least partially overlie first flap panels 30 and 32. For convenience in assembly second flap panel 34 may then be secured to first flap panels 30 and 32 by such conventional means as stitches or staples 60. If first flap panels 30 and 32 are provided with

an overlap they may be secured by one or more stitches 62 prior to folding second flap panel 34 inwardly as shown in FIG. 3.

In FIG. 1 there is shown a score or fold line 64 on second flap panel 34, which score line extends across the full width of the second flap panel 34 parallel to the fold line 48. In accordance with another important embodiment of the present invention second flap panel 34 may be folded outwardly along fold line 64 as shown in FIG. 6 to form a handle 66. After forming the handle by folding along score line 64 the complete end wall assembly, which consists of flap panels 30 and 32 and flap panel 34 with its associated handle means 64, is secured by stitches or staples 68. Thus, it can be seen that the carton according to this invention can be fabricated from a single unitary blank and made ready for use by forming the side walls 14 and 18 and the end walls 54 by utilizing sealing means at the ends thereof. The bottom wall 16 is formed of one panel in the absence of any weakening sealing means. After filling the carton, the top is closed off by folding third flap panel members 36 and 38 inwardly along their respective fold lines 40 and 42 and thereafter folding top wall-forming panels 12 and 20 inwardly along their respective fold lines 22 and 28. The top wall is then secured by ordinary means according to the desires of the user.

It is not necessary for the construction of the end walls to match the construction of the top wall insofar as the presence or absence of an overlap or a gap between mating panel members is concerned. For instance, in FIG. 7 is shown a carton wherein top wall-forming members 12 and 20 meet but do not overlap or gap, end flap panels 30 and 32 also meet without an overlap or a gap and flap panel 34 overlies flap panels 30 and 32 with the provision of a handle. On the other hand, the carton fragmentally depicted in FIG. 8 provides for overlap of top wall forming panels 12 and 20 but not for flap panels 30 and 32. Still further, in FIG. 9 is a carton in which top wall-forming panels 12 and 20 form a gap 70, flap panels 30 and 32 just meet and flap panel 34 is folded over to form a handle 66.

Since, one use of the carton of this invention is the packing and transportation of fresh meat wherein moisture may collect and seep through the carton with the possibility of weakening the corrugated cardboard stock of which the carton is made, it is desirable to use a coated cardboard stock which is resistant to the absorption of moisture. The coating, of course is one which is well known in the art and does not form a part of this invention. Such a waterproof coating can comprise paraffin wax, synthetic resins, and combinations thereof. The coating is preferably applied by a dipping process well known to those skilled in the art, whereby both the inside of the ultimate carton and the outside of the same have the coating thereon. It is equally clear, that while this invention has been described in terms of a carton which finds particular utility for packing and transporting meat therein, the inventive carton can be used for any number of purposes which require the added strength of a one-piece bottom wall or the lack of extraneous openings which permit contamination to enter the carton. Further, the provision of the handles which do not communicate with the interior of the carton also lends itself to many and varied uses.

Having now described the invention in terms of exemplary embodiments thereof, it will be appreciated that the objects set forth at the outset of the present specification have been successfully achieved.

I claim:

1. A unitary carton blank comprising first, second, third, fourth and fifth successively hingedly joined parallelogram wall-forming panels, said third panel adapted to form the bottom wall of the carton, said second and fourth panels adapted to form the side walls of said carton, said first and fifth panels adapted to form the top wall of the carton; a first flap panel hingedly joined to each end of said second and fourth panels and adapted to form an end wall of said carton; a second flap panel hingedly joined to each end of said third panel and adapted to overlie said first flap panels forming said end walls; a third flap panel hingedly joined to each of said first flap

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panels of said second and fourth panels adjacent to and coextensive with said first and fifth panels respectively and separated therefrom by a slit; and handle means on each of said second flap panels defined by a score line extending across the full width of each of said second flap panels, whereby said handle means may be folded outwardly and downwardly from said second flap panels when said blank is folded to form the carton; each of said first flap panels being separated from the adjacent second flap panels by a slit; said wall-forming panels being hingedly joined to each other and to the respective flap panels by fold lines.

2. A unitary carton blank as defined in claim 1, wherein said third panel has a given width and each of said first and fifth panels has a width equal to one half of said given width, whereby said first and fifth panels will abut to form the top wall of the assembled carton.

3. A unitary carton blank as defined in claim 1, wherein said third panel has a given width and each of said first and fifth panels has a width greater than one half of said given width by an amount sufficient to provide an overlap between said first and fifth panels when said carton is in assembled condition.

4. A parallelogram carton formed from a unitary carton

blank, said carton comprising a bottom wall, a pair of opposed side walls and a pair of opposed end walls extending upwardly from said bottom wall, and a top wall; said top wall comprising a pair of panels hingedly joined to the upper edges of said pair of side walls by a fold line; each of said end walls comprising a pair of first flap panels hingedly joined to said walls by a fold line and folded inwardly, and a second flap panel hingedly joined to said bottom wall by a fold line and folded inwardly in overlying relation with said first flap panels and secured thereto; a closure flap joined to each of said first flap panels and extending upwardly therefrom and adapted to be folded inwardly along a fold line to underlie said top wall; and handle means defined by a score line on each of said second flap panels parallel to the top edge thereof and extending across the full width of each of said second flap panels, said second flap panels being folded outwardly and downwardly along said score line to thereby form a handle portion overlying at least a portion of said second flap panel and secured thereto.

5. A carton as defined in claim 4, wherein said pair of panels forming said top wall overlap each other.

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