

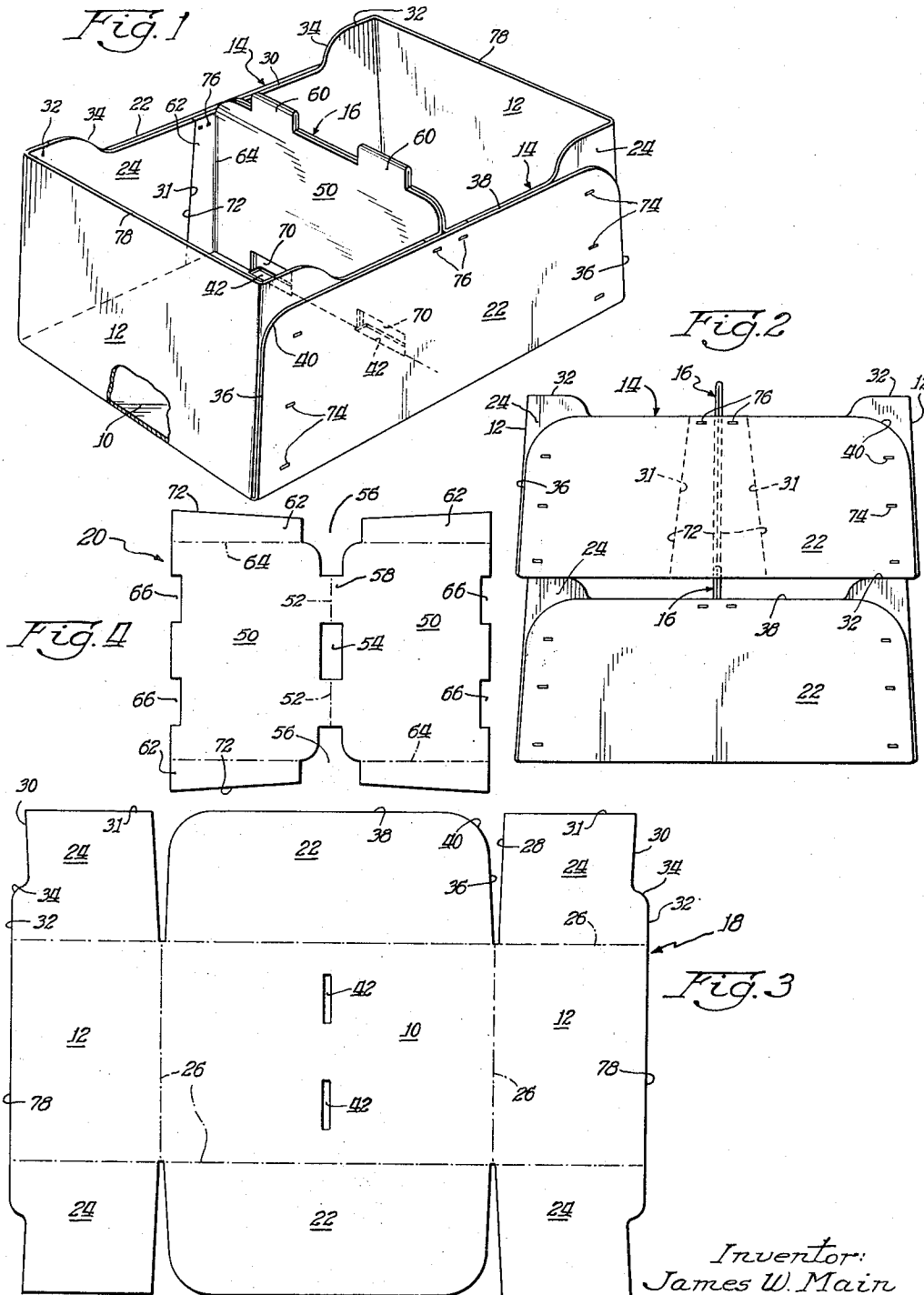
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COMPARTMENTED SHIPPING CONTAINER

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COMPARTMENTED SHIPPING CONTAINER

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1

The present invention relates to shipping containers and more particularly to a paperboard container suitable for use in the shipping and marketing of fruit and which is possessed to good stacking qualities, as well as being, in itself, of improved reinforced design.

The objects of the present invention are manifold and principal among them are the provision of a corrugated or similar paperboard container which is of extremely rigid construction yet which is formed from but two pieces of the paperboard material in the blank form; one which is not complex in its design and which consequently may easily be set up; one which in the setting up thereof requires but relatively few fastening devices; one which is possessed of a wide margin of safety in stacking by presenting ample stacking area; one which, when stacked with similar containers, is self-centering so that there will be no shifting of the containers, and one which, when so stacked, is adequately reinforced to receive the downward pressure or thrust of overlying containers without danger of collapse.

It is another and important object of the invention to provide an open top paperboard container having a bottom and four upwardly extending side walls in which at least each wall of one pair of opposed side walls is inclined inwardly of the container body as a whole and toward each other in such a manner that the distance between the upper edges thereof is somewhat less than the distance between the lower edges thereof so that when one container is stacked upon another, a relatively large seating area or stacking area will be afforded by the bottom of the upper container for the rim of the lower container. Stated otherwise, it is an object of the invention to provide an open top container having a rim which defines a horizontal portion that is somewhat less in extent than the area of the container bottom to afford increased stacking area.

A specific and equally important object of the invention is to provide a shipping container of the character outlined above having associated therewith a medial transversely extending partition wall which constitutes one of the two unitary paperboard members of which the container is formed and which, in addition to performing its normal function as a dividing wall, also serves in the manner of a strut to prevent outward bulging of the container side walls, as well as performing the function of a thrust member to absorb downward thrust when several filled containers are stacked upon one another.

2

Another specific object of the invention is to provide a container having such a structural member in which the member further serves as an aligning and centering device for locating the containers in proper vertical alignment when a number of them are stacked upon one another in superimposed relationship.

A still further object of the invention is to provide a shipping container of this character in which adequate provision is made for proper ventilation of the articles contained therein when a number of the containers are stacked together in the manner indicated above.

Still another object is to provide such a container in which the two component structural parts of members which co-operate to make up the completed container fit and are joined together in such a manner that there are no internal overlapping edges or seams so that the interior of the container presents a substantially smooth and unbroken confining surface for the articles undergoing shipping.

Other objects and advantages of the invention not at this time enumerated will become readily apparent as the nature of the invention is better understood.

In the accompanying single sheet of drawings forming a part of this specification one embodiment of the invention has been shown.

In these drawings:

Fig. 1 is a perspective view of an erected shipping container constructed in accordance with the principles of the present invention;

Fig. 2 is a side elevational view of a pair of the shipping containers, one container being supported upon the other in stacked relationship;

Fig. 3 is a plan view of a blank which, when erected, constitutes the outer shell portion of the shipping container; and

Fig. 4 is a plan view of a blank which, when erected and assembled in the shipping container, constitutes a dividing wall, strut, thrust-receiving member and locating device.

Referring now to the drawings in detail and in particular to Fig. 1, the improved shipping container embodying the present invention involves in its general organization a structure of generally rectilinear design including a bottom 10, and walls 12, composite side walls 14 of identical design, and a transversely extending medial partition wall 16 which, to a large extent, embodies many of the novel features of the present invention and the nature and function of which will be set forth presently. The bottom 10, end walls 12 and composite side walls 14 constitute

3

the container shell or enclosure in which the transverse partition member 16 is installed. The container shell is formed from the blank 18, shown in detail in Fig. 3, while the partition member is formed from the blank 20, shown in Fig. 4.

Referring now to Fig. 3, the blank 18 includes a central panel section 10 (so designated because in the erected structure it constitutes the container bottom), end wall panel sections 12, side wall panel sections proper 22, wall flaps 24 forming parts of the side walls and for convenience being designated side wall flaps. The panel sections 22 and 12 are connected to the central panel section 10 along fold lines 26 and the side wall flaps 24 are similarly connected to the end wall panel sections 12 along fold lines designated 26. The side wall flaps 24 are separated from the adjacent panel sections 22 by clearly defined cut-away portions of the blank representing a definite removal of paperboard material in such a manner that the erected container shell will assume a particular form and overall shape for purposes that will be made clear presently.

In the cutting or stamping of the blank 18, the inside transversely extending edges 28 of the side wall flaps 24 are cut at a slight angle to the transversely extending fold lines 26 so that when the folds along these lines are made the end walls 12 will be inclined upwardly and inwardly with respect to the vertical as shown in Fig. 2. This upward and inward inclination of the end walls 12 affords an increased stacking area along the end regions of the container bottom 10 and considerably widens the degree of permissible tolerances in the manufacture and assembly of the containers as well as facilitating alignment of the containers for stacking purposes, all in a manner that will be made clear subsequently.

The outside transversely extending edges of the side wall flaps 24 at the ends of the blank are formed with inwardly offset edge regions 30 extending inwardly from their free edges 31 and laterally spaced regions 32 which are connected to the edge regions 30 by arcuate edge portions 34. The width of the side wall flaps 24 between the edges 28 and 30 is equal to the transverse width of the side wall panel sections 22 or, in other words, to the height of the side walls 14 in the erected container shell. The distance between the opposite edges 28 and 32 of the side wall flaps 24 is equal to the height of the end walls 12 and this distance is somewhat greater than the height of the side wall panels 22. Thus when the container shell is erected by folding the various panel sections and flaps along the lines 26, and when the side wall flaps 24 are brought into contiguity with the inner faces of the side wall panels 22 proper, an open area is afforded along the upper edge of each composite side walls 14 as clearly shown in Figs. 1 and 2 for ventilating purposes as will also be made clear presently.

The transverse width of the side wall flaps 24 as viewed in the blank 18 is less than one-half the longitudinal extent of the bottom 10 and thus in the erected structure the outer free edges 31 of the flaps 24 remain spaced from each other in opposed relation as indicated in dotted lines in Fig. 2.

The side edges 36 of the side wall panels 22 are cut at a slight angle to the transverse fold lines 26 so as to maintain these edges within the confines of the end walls 12 of the erected carton structure as shown in Fig. 2. These inclined edges

4

36 may merge with the upper longitudinal edge 38 of the side wall panel sections 22 by arcuate edge regions 40.

The central panel section 10 of the blank 18 is formed with a pair of transversely aligned, spaced slots 42 which are disposed midway between and parallel to the transverse fold lines 26. These slots 42 in the erected container shell constitute centering slots and are designed for reception of interlocking tabs or lugs which are provided on the partition wall 16 and which will be described in detail when the nature of the partition wall and of the blank 20 from which it is formed is set forth.

Referring now to Figs. 1 and 4, the partition blank 20 includes two complementary panel sections 50 joined together along a fold line 52 which is interrupted by a rectangular slot or opening 54 in the material of the blank. The slot 54, together with a pair of aligned notches 56 in the edges of the blank, provide a pair of spaced connecting strips 58 which are adapted to assume the form of centering tabs or lugs 60 when the blank 20 is folded on the interrupted fold line 52. Each panel section 50 is formed with a pair of oppositely extending attachment flaps 62 which are adapted to be bent at right angles to the plane of the panels 50 along fold lines 64 so that adjacent flaps at each end of the folded blank assume the same plane as shown in Fig. 1.

The blank 20 is formed with a pair of marginal notches 66 at opposite ends of the blank. The notches 66 are of rectilinear configuration and are so disposed in longitudinal alignment with the strips 58 that when the blank is folded along the interrupted fold line 52, the notches 66 of the panels 50 will be brought into register to provide a pair of voids 70 in the erected partition wall 61 the function of which will become clear presently.

Because of the fact that the transversely extending edges 28 of the side wall flaps 24 of the blank 18 of Fig. 3 are inclined with respect to the fold line 26, when these edges are brought into coextensive contact with the central panel 10, i. e. the bottom 10 of the container, the opposed edges 31 (Fig. 1) will assume an inclined position with respect to the vertical and with respect to each other. The edges 72 (Fig. 4) of the blank 20 are preferably cut on an incline with respect to the longitudinal direction of the blank in such a manner that each pair of adjacent aligned attachment flaps 62 of the partition member 16 constitutes, in effect, a tapered wedge-shaped, attachment portion for the partition member capable of fitting into the space existing between the opposed edges 31 of the side wall flaps 24. With the partition member in position in the container shell, the edges 72 of the attachment flaps 62 will abut the edges 31 of the side wall flaps 24 as shown in Fig. 1 so that a substantially smooth interior wall surface is provided within each compartment of the erected container.

The side wall panels 22 may be secured to the side wall flaps 24 by staples as indicated at 74 and a single staple 76 may be employed for securing each attachment flap 62 in position against its adjacent side wall panel 22. The staples 74 and 76 may constitute the sole fastening means for maintaining the container structure in its erected assembled condition.

Referring again to Fig. 1 it will be seen that when the partition member 16 is installed within the container shell, the voids 70, which are

5

created by virtue of the registering notches 66 of the blank 20, will overlie the slots 42 (see also Fig. 3) in the container bottom 10. The lugs 60 at the top of the partition member are complementary in shape to the voids 70 and these lugs extend vertically above the plane of the upper edges 78 of the end walls 12 of the container shell so that it is possible to stack one container upon another in the manner shown in Fig. 2 with the lugs 60 of the lower container projecting upwardly through the slots 42 in the bottom wall of the upper container and with these lugs substantially filling the voids 70 in the partition member 16 of this latter container. With lugs 60 of one container thus received in the slots 42 of another container, the upper edges 78 of the end walls 12, as well as the short upper edge portions 32 of the side wall flaps 24 of the lower container will bear against and support the bottom 10 of the upper container. Due to the previously described upward and inward inclination of the container end walls 12, the edges 78 of the container rim will fall well within the confines of the adjacent container bottom as seen in Fig. 2 and thus the container bottoms 10 may be said to possess a large "stacking area" as set forth in describing the general objects of the present invention. This increased stacking area will prevent misalignment of the container edge regions or, in other words, it will prevent the tendency for an upper container to seat within a lower container at the end regions thereof. Thus the end regions of each container bottom will be assured of support upon the next adjacent lower container so that the contents of the latter container will not be subjected to pressure. The increased stacking area further affords a certain amount of "trial area" for support of one container upon another while the stacker is aligning the lugs 60 and notches 42. Since the overall area of the container bottom on each side of the partition wall 16 is greater than the overall area defined by the rim of the container on one side of the partition wall, the tendency for the stacker to allow one end or corner of the upper container to fall into a lower container will be materially reduced.

Since, when the containers are stacked in the manner illustrated in Fig. 2, the lugs 60 lie within the plane of the partition members on adjacent containers, and since they completely fill the voids 70, a substantially smooth, unbroken surface area is afforded on both sides of the partition member. Furthermore, the upper edges of the voids rest upon the upper edges of the lugs 60 and thus the weight of the central regions of a filled container is distributed through the partition member 16 of the underlying container in the stack and transmitted through the attachment flaps 62 to the latter container.

The invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in this specification as various changes in the details of construction may be resorted to without departing from the spirit of the invention. Only insofar as the invention has particularly been pointed out in the accompanying claims is the same to be limited.

I claim:

1. In a paperboard shipping container, a generally rectangular open top container shell having a bottom and four side walls extending upwardly therefrom and a partition member extending across said shell medially thereof and bridging the distance between an opposed pair

6

of side walls, the major portion of said partition member being of a height equal to the maximum height of said side walls, the upper edge of said partition member being formed with an upstanding centering lug thereon at an intermediate region therealong, the lower edge of said partition member being provided with a notch in vertical alignment with said lug, there being an opening in said bottom directly underlying and in register with said notch, the vertical extent of said lug being greater than the thickness of the paperboard material of the container bottom whereby one container may be stacked upon a similar container with the upstanding lug on the partition member thereof projecting completely through the opening in the bottom of the other container and extending into the notch provided in the partition member of the latter container.

2. In a paperboard shipping container, a generally rectangular open top container shell having a bottom and four side walls extending upwardly therefrom, a partition member extending across said container shell medially thereof and bridging the distance between an opposed pair of side walls, the major portion of the upper edge of said partition member being of a height equal to the maximum height of said side walls, and an upstanding centering lug on the upper edge of said partition member intermediate of the ends thereof, there being a notch formed in the lower edge of said partition member in vertical alignment with said lug, there being an opening in said container bottom underlying and in register with said notch, the vertical extent of said lug being substantially equal to the combined thickness of the paperboard material of said container bottom and the depth of said notch whereby one container may be stacked upon a similar container with the lug thereof projecting through the slot in the bottom of the other container and disposed in and substantially filling said notch.

3. A paperboard shipping container as set forth in claim 2 wherein there are two centering lugs on and two notches provided in the partition member, the lugs and notches being of substantially identical size and shape whereby upon stacking of the two containers in the manner indicated, the lug of one container substantially fills the notch of the other container and either lug will fit within any notch.

4. In a paperboard shipping container, a generally rectangular open top container shell having a bottom and two pairs of opposite side walls extending upwardly therefrom, and a partition member extending across said container shell medially of one pair of opposed side walls thereof and bridging the distance between the other opposed pair of side walls, the height of the major portion of the upper edge of said partition member being substantially equal to the maximum height of said side walls, a pair of upstanding lugs formed on the upper edge of said partition member in spaced relation to one another and at places equally spaced inwardly from said opposed side walls, there being a notch formed in the lower edge of said partition member underlying and in alignment with each lug, there being a slot in said container bottom underlying each lug and in alignment with each notch, the height of each lug above the upper edge of the partition member being substantially equal to the combined thickness of the paperboard material of the container bottom and the depth of said notches

whereby one container may be stacked upon a similar container with the lugs thereof projecting through the bottom of the other container and extending into the notches overlying the latter.

5 5. A generally rectangular container composed from a single piece of paperboard and including a bottom wall, opposite pairs of side walls rising from the bottom wall and a securing flap on each end of each of one pair of opposite side walls, each securing flap being disposed flat against and secured to the inside face of the adjacent one of the other pair of opposite side walls, each of the securing flaps having a terminal end edge extending upwardly from the bottom wall toward the container top, the terminal end edges of the pair of flaps that are secured to the inside face of each of the other pair of side walls being spaced from one another throughout a substantial portion of their height, said bottom wall having a pair of spaced and aligned slots therethrough, the major axis of each slot lying medially between said one pair of opposite side walls, each slot being spaced from the other pair of side walls, and a paperboard partition member extending between said other pair of side walls and parallel to and medially between said one pair of opposite side walls, and having transversely extending flap portions at each end with edges in mating engagement with the respectively adjacent terminal end edges of said side wall flaps, the thickness of the material of said flaps and flap portions being substantially the same, said partition member having notches in its lower edge in alignment with said slots in the bottom wall and projections along its upper edge extending above the top level of the container walls and in vertical alignment with said slots and notches.

6. A generally rectangular container formed from a single blank of paperboard and comprising a rectangular bottom wall, opposite pairs of side walls hinged to and rising from the edges of said bottom wall, and a securing flap attached to and extending from each end of each of one pair of

opposite side walls, each such securing flap being disposed and secured in face to face contact to and against the inside face of the adjacent one of the other pair of side walls, each of said securing flaps having a terminal edge extending transversely of the length of the side wall to which it is secured and in spaced relation to the corresponding edge of the other securing flap secured to the same side wall, said rectangular bottom wall having a pair of spaced and aligned slots therethrough, the major axis of each slot lying medially between said one pair of opposite side walls, each slot being spaced from the other pair of side walls, and a vertically extending paperboard partition member extending medially between said one pair of side walls from one to the other of said other pair of side walls and from the bottom wall to the top edges of the side walls, each end of said partition member having transversely extending and oppositely directed flap portions disposed in face to face contact with the inner face of the adjacent one of said other pair of side walls and having terminal edge portions substantially in edge to edge contact with and substantially throughout the lengths of the terminal edges of the respectively adjacent securing flaps, said partition member having notches in its lower edge in alignment with said slots in the bottom wall and projections along its upper edge extending above the top level of the container side walls and in vertical register with said slots and notches.

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