

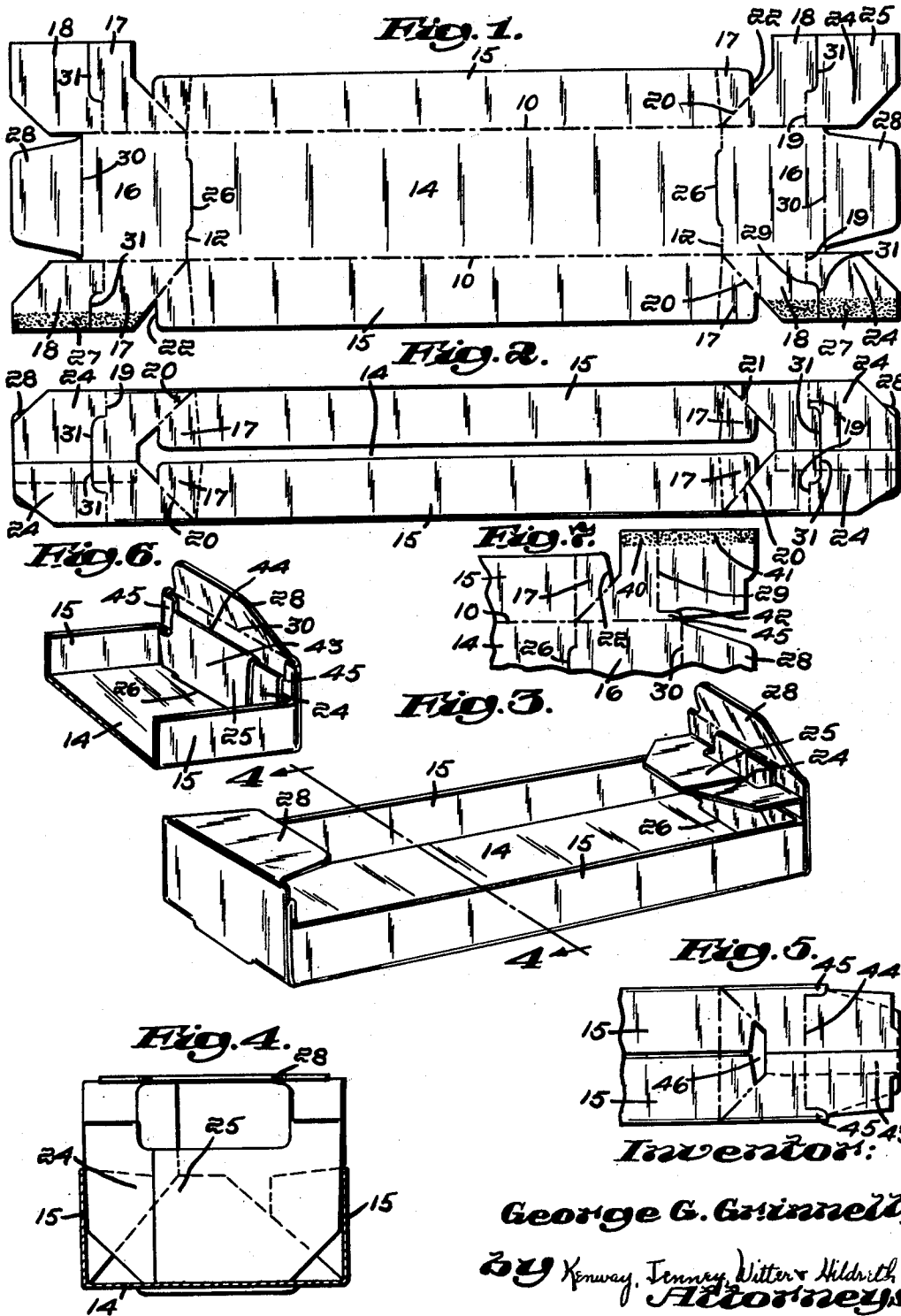
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FOLDABLE TRAY BLANK AND TRAY

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FOLDABLE TRAY BLANK AND TRAY

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1

This invention contemplates an improved foldable tray blank embodying a single flat sheet scored longitudinally and transversely to form bottom, side and end panels foldable into overlapping relation on the longitudinal scorings to form a flat folded blank adapted to form a tray when the side and end panels are elevated. The improved blank includes foldable corner forming sections at the ends of the side panels so scored and severed that they combine to provide corner portions and a reinforcing inner wall for the end panels and furthermore provide locking flaps for cooperating with slots in the bottom wall to hold the blank set up in tray form. The end walls of the tray are higher than the side walls and the corner forming sections are so constructed that they provide an inner reinforcing wall for and extending substantially to the top of each end wall and furthermore provide the said locking flaps pivotally attached to and cooperating with the said section below the top of the end wall for holding the two ends of the blank in set up tray position. The production of an improved blank and tray of this nature comprises the primary object of the invention.

The said walls of the blank are of a combined width substantially equal to the width of the bottom wall and when folded flatly thereonto they cover the bottom wall except for a gap therebetween. In setting up the blank a lifting tool or tools for the side walls is inserted in this gap. It may in some cases be desirable to employ a blank in which the side walls are of a combined width equal to the width of the bottom wall and in this case no gap is left therebetween. A further feature of the invention embodies the production of a blank having cut-out openings beyond the ends of the side walls for receiving side wall lifting tools when setting up the blanks. The production of a blank of this nature and embodying this feature comprises a further object of the invention.

These and other features of the invention will be best understood and appreciated from the following description of preferred embodiments thereof selected for purposes of illustration and shown in the accompanying drawing, in which—

Fig. 1 is a bottom plan view of a flat blank comprising my invention,

Fig. 2 is a top plan view of the folded blank constructed by folding the side wall panel portions of Fig. 1 onto the bottom and end wall panel portions,

Fig. 3 is a perspective view of the blank set up to form a tray,

2

Fig. 4 is a view taken on line 4—4 of Fig. 3,

Fig. 5 is a fragmentary end top plan view of a folded blank embodying a modified construction,

Fig. 6 is a fragmentary end view of a tray formed therefrom, and

Fig. 7 is a fragmentary bottom view of one end of the flat blank before folding.

Referring first to Figs. 1—4 of the drawing, the flat blank shown in Fig. 1 is scored longitudinally at 10 and transversely at 12 to form a bottom panel 14, two side panels 15 and two end panels 16. Each end portion of the blank is provided with a pair of corner forming panels 17—18 respectively at opposite sides thereof and each is integral with the adjacent side panel 15 and end panel 16. Each such corner forming panel is scored diagonally at 20 from the corner junction of the adjacent panels 15 and 16 to a point interiorly thereof and is slit or cut out at 22 from such point to the side margin of the blank.

Also integral with each pair of panels 17—18 along a scored line 19 at their outer end margins are two tabs 24 of a width to overlap when the side panel portions of the blank are folded along the longitudinal score lines 10 onto the bottom and end panel portions of the blank as shown in Fig. 2. As illustrated in Fig. 1, I preferably make one tab of each pair of a width corresponding to its side panel and the other companion tab of a greater width at 25 which extends outwardly beyond its side panel. The bottom face of one tab 24 is coated with adhesive as shown at 27. Each score line 19 extends from the side margin thereof that is attached to the end wall 16 inwardly to a point 29, and each tab is severed along a line 31 extending from the point 29 a predetermined distance toward the adjacent end of the blank and from thence laterally to the opposite side margin of the tab.

Each end of the bottom panel 14 is slotted transversely at 26 along and adjacent to its score line 12 junction with the end panels to receive locking tabs as hereinafter described. The end panels 16 are substantially longer than the width of the side panels 15 and each end panel 16 has a cover flap 28 integral therewith at its free end along a score line 30 for receiving and supporting a cellulose cover on the assembled tray for enclosing a product therein.

The flat blank of Fig. 1 is formed into the folded blank of Fig. 2 by folding the two side panel portions inwardly and flatly onto the bottom panel portion along the longitudinal score lines 10, the adhesive coated faces of the tabs 24 being brought into face to face contact. The

overlapped and adhesively joined tabs 24—25 thereupon form at each end of the blank an inner reinforcing panel or wall 32 integrally attached to the side panel portions at 19 and in contact with the top face of its end wall panel 16.

The folded blank of Fig. 2 is adapted automatically to assume the tray shape of Fig. 3 when the side panels 15 and end panels 16 are elevated. This can be done manually by hand and is also done mechanically by inserting side panel lifting fingers in the gap between the two side panels. The blank is thus formed into a tray by lifting the side panels slightly in advance of the end panels. Each corner forming panel thereupon automatically folds to V shape along its scored line 20 and the panel portions 17 fold inwardly along their scored line 12. The panel portions 18 fold in face to face contact with the portion 17 forwardly of the end wall 16. The adhesively joined panel 24—25 is then folded inwardly and downwardly about its scored lines 19 to the position illustrated in Fig. 5 in which the free ends of the joined tabs 24—25 have snapped into the slots 26, the tabs being somewhat longer than the corner forming portions 17—18 to effect this slot engaging function. The end walls 16 of the tray shown in Fig. 3, are substantially higher than the side walls 15 and it will be noted that the intermediate portion of the reinforcing wall 32 extends substantially to the top of the end wall 16 whereby fully reinforcing the wall 16 at its inner face. The scorings 19 are disposed therebelow a distance permitting the locking flap 24—25 to engage within the slot 26. Thus it will be apparent that the relatively high end wall is fully reinforced to its top margin by the same panel which also forms the locking flap 24—25, and the end wall can be thus supported regardless of its relative height.

In Figs. 5-7 I have illustrated a modified construction which is like that shown in Figs. 1-4 except that each score line 29 extends inwardly from the free outer side margin of its panel 40—41 and the panel is severed at 42. The tray formed from this blank has the locking flap 43 pivoted to the reinforcing wall at 44 intermediately of the end wall and the reinforcing wall extends to the top of the end wall at both attached margins of the locking flap as indicated at 45.

The combined width of the side walls of the Fig. 5 blank is so nearly equal to the width of the bottom wall that the gap therebetween is not sufficient to admit of a lifting tool. In this case I cut out a portion of the blank at 46 for the reception of a side wall lifting tool when opening the blanks. It will be understood that the tray setting-up machine employs two lifting tools that enter the two openings 46 at the two ends of the folded blank. A similar blank has a cellophane-windowed cover integral with and forming an extension of one side wall 15. In this type of blank the cover overlaps the blank and makes opening from the ends through the openings 46 imperative.

My improved tray is particularly adapted to be used for packaging and distributing tomatoes and like fruits. After the fruit has been packed in the tray a sheet of cellophane is attached by machinery to the end flaps 28 and side walls 15 to cover the fruit. My novel end wall and locking flap construction permits extending and supporting the end wall to any desired height without affecting the locking function of the locking flap and without requiring any additional board material for the locking flap. As illustrated in the drawing, the end walls 16 of the tray are sub-

stantially higher than the side walls and are supported by the overlapped panels 18 to the full height of the end walls. This inner reinforcement prevents collapsing of the end walls when the cellophane is applied by machinery and the additional height of the end walls gives greater protection to the packaged product and prevents crushing of fruit which may be higher than the side walls.

Having thus disclosed my invention what I claim as new and desire to secure by Letters Patent is:

1. A foldable tray blank comprising a rectangular flat sheet scored along longitudinal and transverse lines to form a bottom panel, two side panels and two end panels, a pair of corner forming sections at each end portion of the blank respectively integral with the adjacent side and end panels, each corner forming section being scored diagonally from the corner junction of the adjacent side and end panels to a point interiorly of the corner forming section and being slit from such point to the adjacent side margin of the blank, a pair of tabs integral with each pair of corner forming sections along two scored lines each extending from one side margin of its section and tab to a point interiorly thereof, each tab being severed from its section along a cut line extending from the last named point a predetermined distance toward the adjacent end of the blank and from thence laterally to the opposite side margin of the section and tab, one side wall portion of the blank at each end thereof between said slit and the adjacent end of the blank being of a width to overlap the other side wall portion when the side panel portions are folded along the longitudinal score lines onto the bottom and end panel portions to form a folded tray blank, the two tabs at each end of the blank when folded into overlapping relation being adapted to form a locking flap pivotally movable about an axis coincident with said two scored lines, each end of the bottom panel having a transverse slot formed therein along and adjacent to its junction with the end panels for receiving the adjacent locking flap, and a cover flap integral with and extending outwardly beyond the free end of each end panel and pivoted thereto on a scored line substantially coincident with the laterally extending portion of said cut line at each side of the blank.

2. The foldable tray blank defined in claim 1 in which said two scored lines each extends inwardly of its section and tab from the side margin thereof that is attached to the end panel.

3. The foldable tray blank defined in claim 1 in which said two scored lines each extends inwardly of its section and tab from the free outer side margin thereof.

4. A folded box blank comprising a portion embodying a bottom panel and integral end wall panels, two side panel portions integral with and folded flatly onto the bottom and end wall panels along longitudinal scored lines and including two folded corner forming sections integral with the side and end panels at each end of the blank and forming an inner reinforcing wall in contact with the top face of each end wall panel, a marginal portion of each corner forming section being cut away adjacent to and beyond the adjacent ends of the side panels and forming an opening to receive a lifting tool beneath the side wall panels, and a locking flap integral with and pivoted to the free end of each corner forming section, each end of the bottom panel having a

5

transverse slot formed therein along and adjacent to its junction with an end panel for receiving the adjacent locking flap.

5. A folded tray comprising a bottom wall, side and end walls integral with the bottom wall, the end walls being higher than the side walls, an inner wall in face to face reinforcing contact with each end wall, folded corner forming sections integral with the side and end walls and forming a part of said inner wall, a portion of said inner wall disposed between and integral with the corner forming sections extending upwardly and reinforcing the end wall substantially to its top margin, and a locking flap integral with the inner wall and pivotally movable thereon on coaxial and spaced apart fold lines disposed below the top margin of the inner wall, said spaced apart fold lines being joined by a U-shaped cut edge of the locking flap disposed therebetween and spanning said portion of the inner wall, each end of the bottom wall having a transverse slot formed therein along and adjacent to its junction with an end wall for receiving the free end of the adjacent locking flap.

6. A folded tray comprising a bottom wall, side and end walls integral with the bottom wall, the end walls being higher than the side walls, an inner wall in face to face reinforcing contact with each end wall, folded corner forming sections in-

6

tegral with the side and end walls and forming a part of said inner wall, a portion of said inner wall disposed between and integral with the corner forming sections extending upwardly and reinforcing the end wall substantially to its top margin, and a locking flap integral with the inner wall and pivotally movable thereon on a scored line disposed below the top margin of the inner wall, each end of said scored line being joined to the adjacent margin of the adjacent end wall by a cut edge of said inner wall extending from the scored line end upwardly substantially to the top margin of the end wall and from thence laterally to said adjacent margin, each end of the bottom wall having a transverse slot formed therein along and adjacent to its junction with an end wall for receiving the free end of the adjacent locking flap.

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