

Sept. 7, 1965

R. B. NAWMAN ETAL
FOLDING TRAY CONSTRUCTION

3,204,778

Filed June 15, 1962

2 Sheets-Sheet 1

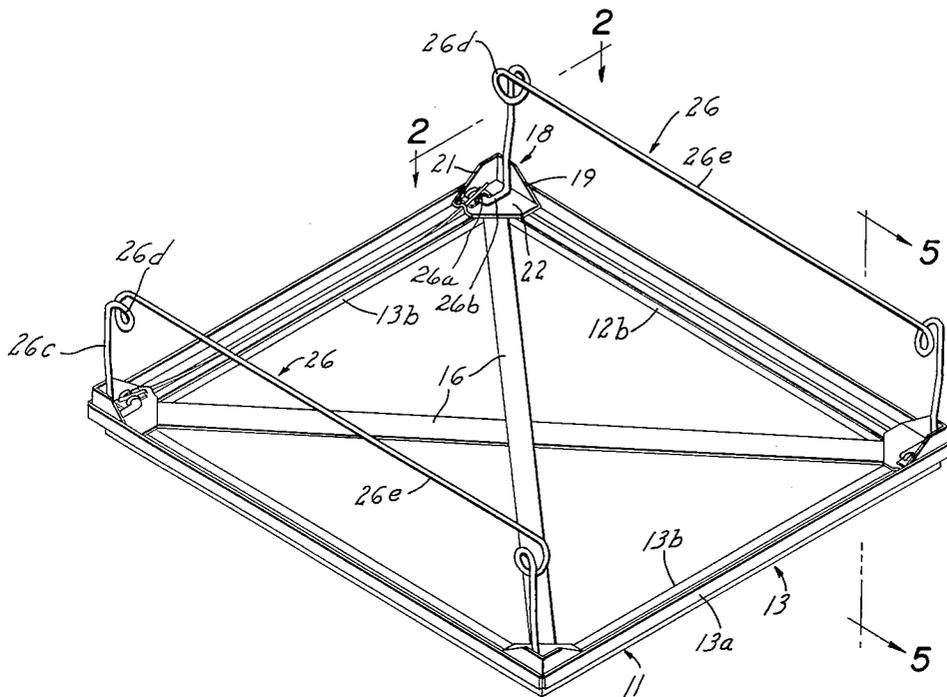


Fig. 1.

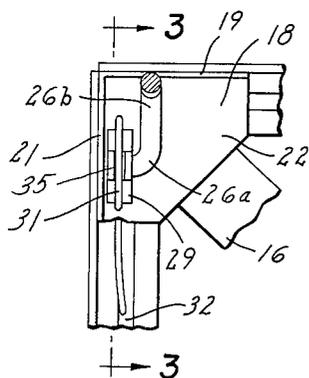


Fig. 2.

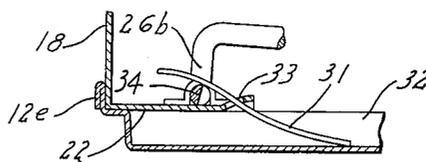


Fig. 4.

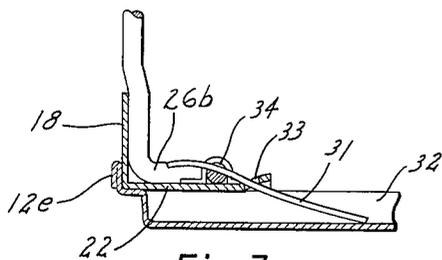


Fig. 3.

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2 Sheets-Sheet 2

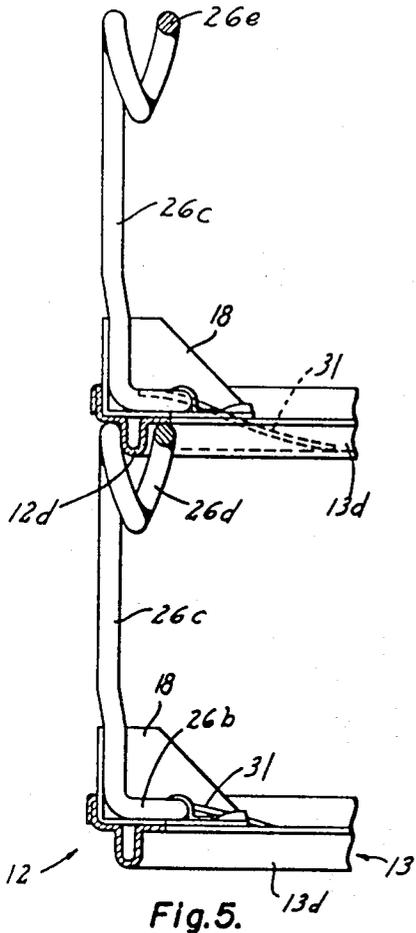


Fig. 5.

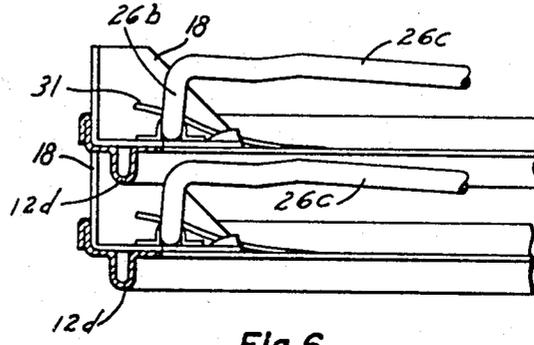


Fig. 6.

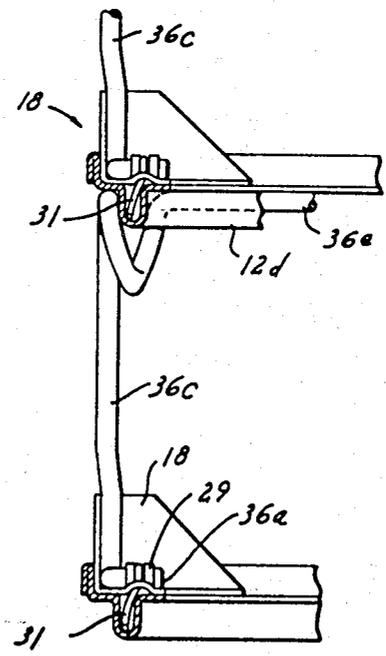


Fig. 8.

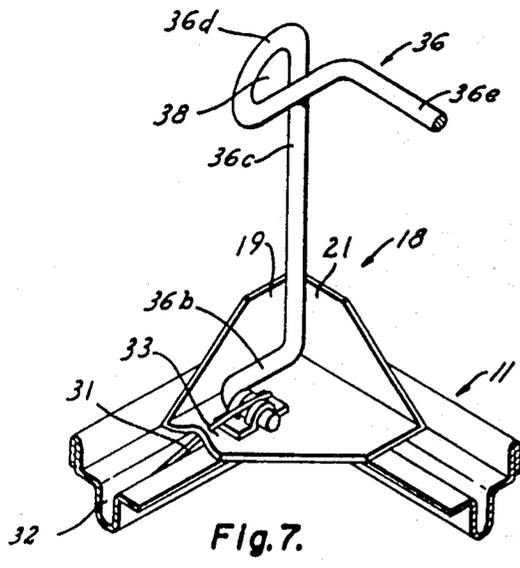


Fig. 7.

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3,204,778

FOLDING TRAY CONSTRUCTION

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12 Claims. (Cl. 211-126)

This invention relates to a folding tray construction and more particularly to a folding tray construction which is particularly adapted for carrying loaves of bread and the like.

Folding trays have heretofore been provided. However, such folding trays have not been completely satisfactory because the bails of such trays, when not properly raised, have had a tendency to collapse, particularly when the trays are stacked one above the other, thereby crushing the bread within the tray. In addition, this causes collapse of the entire stack of loaded trays. There is, therefore, a need for a new and improved folding tray in which the handles or bails cannot accidentally be moved out of an upright position.

In general, it is an object of the present invention to provide a folding tray in which the bails cannot accidentally collapse.

Another object of the invention is to provide a folding tray of the above character in which the bails are yieldably retained in an upright position.

Another object of the invention is to provide a folding tray of the above character which can be readily stacked with other trays in either folded or unfolded conditions.

Additional objects and features of the invention will appear from the following description in which preferred embodiment has been set forth in detail in conjunction with the accompanying drawings.

Referring to the drawings:

FIGURE 1 is a perspective view of a folding tray incorporating our invention.

FIGURE 2 is an enlarged cross-sectional view taken along the line 2-2 of FIGURE 1.

FIGURE 3 is a cross-sectional view taken along line 3-3 of FIGURE 2 showing the bail in an upright position.

FIGURE 4 is a cross-sectional view similar to FIGURE 3 with the bail in a collapsed or folded position.

FIGURE 5 is a cross-sectional view of portions of a pair of trays showing the trays stacked one above the other with the bails in an upright position.

FIGURE 6 is a cross-sectional view of portions of a pair of trays showing the trays stacked one above the other with the bails in a folded position or collapsed position.

FIGURE 7 is a partial perspective view of a folding tray incorporating another embodiment of our invention.

FIGURE 8 is a cross-sectional view of portions of a pair of trays of the type shown in FIGURE 7 stacked one above the other with the bails in an upright position.

In general, our folding tray consists of a rectangular framework which is comprised of a pair of spaced parallel vertical sidewalls and a pair of spaced parallel vertical end walls. The framework is also provided with a bottom wall portion extending around the perimeter of the framework and has runner-like means depending therefrom. A pair of the spaced bails are pivotally mounted in the framework adjacent a pair of the spaced parallel walls for movement between upright and folded positions towards and away from the adjacent walls. Means is provided for yieldably retaining the bails in an upright position so that they cannot accidentally collapse.

As shown in the drawings, our folding tray consists of a generally rectangular framework 11 which is formed by a pair of spaced parallel ends 12 and a pair

of spaced parallel sides 13. The ends and sides forming the framework 11 are formed of a suitable material such as cold rolled steel and have the same general configuration as shown in the drawings. Thus, the ends and sides 12 and 13 are provided with vertical walls or wall portions 12a and 13a, respectively, and with horizontal wall portions 12b and 13b, respectively, which form bottom wall portions for the tray.

The horizontal or bottom wall portions 12b and 13b of the ends and sides are provided with depending U-shaped runner portions 12d and 13d which are formed integral therewith and which are spaced inwardly from the vertical wall portions 12a and 13a of the associated walls. As can be seen from the drawings, the U-shaped runner portions form a runner which extends around the entire perimeter of the bottom portion of the frame 11. The ends and sides also provide outwardly and downwardly turned portions 12e and 13e to reinforce the vertical walls and also to provide rounded upper surfaces for the ends and sides.

A pair of diagonal reinforcing strips 16 are secured to the corner portions of the horizontal portions 12b and 13b of each of the corners of the rectangular frame 11 by suitable means such as spot welding as shown in the drawings. The strips, in addition to reinforcing the frame, also serve to provide a support for the liner (not shown) which may be placed in the framework 11.

A reinforcing corner member 18 is provided in each of the four corners of the framework 11 and is secured therein by suitable means such as spot welding. The corner members 18 are each provided with a pair of side walls 19 and 21 which extend at right angles to each other and a bottom wall 22 which extends at right angles to the walls 19 and 21. As can be seen from the drawings, the walls 19 and 21 extend substantially above the corresponding walls of the sides and ends 12 and 13.

A pair of substantially U-shaped carrying bails 26 formed of a suitable rod-like material have their ends pivotally mounted in the framework 11 adjacent the ends 12 for pivoted movement toward and away from the ends of the framework about an axis which is substantially parallel to the ends of the framework between upright and folded positions. The ends of the bails are provided with portions 26a which extend in a direction at right angles to the side walls 13. The ends of the bails are also provided with portions 26b which extend in a direction perpendicular to the end walls 12 and lie in a plane parallel to the bottom wall 22 of the corner member 18 when the bails are in an upright position, and extend in a substantially vertical direction when the bails are in a folded position. The bails are also provided with portions 26c which extend in a substantially vertical direction parallel to the walls when the bails are in an upright position. The vertical portions 26c are joined by looped portions 26d which are connected by a straight horizontal portion 26e. The looped portions 26c, as set forth in copending application Serial No. 178,297, filed March 8, 1962, are formed in such a manner that they are adapted to receive runners of the tray above as shown in FIGURE 5.

The portions 26a of the bails 26 are rotatably mounted on the frame 11 in a suitable manner such as by means of a pair of spaced straps 29 which are secured to the corner members 18 and are formed so as to provide bearing surfaces for the ends 26a of the bails.

The bails 26 are movable between upright and folded positions as shown in FIGURES 5 and 6. Means is provided for yieldably retaining the bails in an upright position and consists of spring members 31 which have one end mounted within the slot 32 formed by the runner portions 13d, as shown particularly in FIGURE 3. The end of the spring member is secured within the groove or

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recess in a suitable manner such as by welding. The other end of the spring member extends through a hole 33 provided in the bottom wall 22 of the corner member 18. As shown particularly in FIGURES 3 and 4, the portions 26a of the bails are formed with inclined cam surfaces 34 in the slots 35 in alignment with the space between the straps 29 which are adapted to receive the other ends of the springs 31, as shown particularly in FIGURES 3 and 4. The members 31 are made of relatively heavy spring steel and are held in position by the holes 33 in the angle member 18 so that substantial forces are applied to the cam surfaces 34 in the slots 35 in a direction to yieldably retain the bails in an upright position. The strength of the springs 31 is such that when the bails are moved past the 45° angle positions, the spring members 31 will move the bails to their upright or vertical positions and yieldably retain the same in these positions, so that the bails cannot accidentally collapse or fall from the upright position.

When it is desired to move the bails 26 to a folded position as is shown in FIGURE 6, the bails can both be moved out of engagement with the angle bracket 18 against the force of the yieldable means and folded into the collapsed positions. As this is accomplished, it will be noted that the free ends of the spring members 31 are raised to positions such as shown in FIGURE 4. The bails will remain in a folded position because the spring members 31 have moved off of the cam surfaces provided in the slots 34 as shown in FIGURE 4. As soon as it is desired to move the bails 26 to an upright position, the bails can be lifted past the 45° angle position and the spring members 31 will return the bails to their upright position.

The stacking of the folding trays with the bails in an upright position is shown in FIGURE 5 in which movement of the trays longitudinally with respect to each other is limited by the runner portions 12d seated within the looped portions 26d of the bails as shown particularly in FIGURE 5. The portion 26e of the bails is seated inside the runner portions 12d as also indicated in FIGURE 5. Lateral movement of the trays with respect to each other is prevented by the runner portions 13d coming into contact with the curved portions 26d of the upstanding bails.

When the bails are folded as shown in FIGURE 6, the trays are supported one above the other by the corner members 18 supporting the framework of the tray above. Lateral and longitudinal movement of the trays with respect to each other is prevented by the runner portions 12d and 13d engaging the corner members 18. Thus it can be seen that the trays can be stacked one above the other either with the bails in the collapsed or folded position or with the bails in an upstanding position.

As explained in the copending application Serial No. 178,279, our folding trays can be utilized with a bread tray of the type which has been marketed for a number of years under the name of "Deltra" and which is similar to the trays shown in Patent Nos. 2,688,420 and 2,801,766.

Another embodiment of our invention is shown in FIGURES 7 and 8 in which the framework 11 is substantially identical to that described in the embodiments shown in FIGURES 1 through 6. However, in place of the bails 26, bails 36 have been provided. The lower ends of the bails 36 are provided with portions 36a which extend in a direction at right angles to the side walls in the same manner as the portions 26a of the bails 26 in the previous embodiment with the exception that in the embodiment shown in the FIGURES 7 and 8, the portions 36a extend away from the side walls whereas the portions 26a extend towards the side walls. The lower ends of the bails 36 are also provided with portions 26b which extend in a direction perpendicular to the end walls 12 lying in a plane parallel to the bottom walls 22 of the corner members 18 when the bails are in an upright position and extending in a substantially vertical direction when the bails are in a folded position. The bails 36 are

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also provided with portions 36c which extend in a substantially vertical direction parallel to the end and side walls 12 and 13 when the bails are in an upright position. The vertical portions 36c are joined by looped portions 36d which are connected by a straight horizontal portion 36e. The looped portions 36d are substantially different from the looped portions 26d. The portions 36a of the bails 36 are pivotally mounted on the frame 11 in the same manner as the bails 26 are pivotally mounted in the embodiment hereinbefore described. Thus, spaced straps 29 are secured to the corner members 18. Also spring members 31 are provided for yieldably retaining the bails 36 in an upright position in the same manner as described in the previous embodiment.

In the embodiment shown in FIGURES 7 and 8, it can be seen that the portions 36b lie immediately adjacent the side walls 19 of the corner members 18 and that the vertical portions 36c are disposed in the corner formed by the side members 18 and 19 as shown particularly in FIGURE 11. This has distinct advantage in that the bails occupy much less space than in the embodiment shown in FIGURES 1 through 5.

In order to make possible this arrangement of the portions 36b and 36c of the bails, the looped portions 36d have been changed to that shown in which the looped portions 36d form recesses 38 which lie in a plane which is parallel to the side walls 13. In the embodiment shown in FIGURES 1 through 5, the runner receiving recesses provided by the looped portions lie in a plane which is parallel to the end walls.

With the arrangement of the looped portions 36d shown in FIGURES 7 and 8, the connecting portions 36e have been disposed so that they will lie outside of the runner portions 12d when the trays are stacked one above the other with the bails in the upright position as shown particularly in FIGURE 8. Thus longitudinal movement of the trays with respect to each other when they are stacked with the backs in an upright position is prevented by the runner portions 12d engaging the portions 36e of the bails whereas lateral movement of the trays with respect to each other is prevented by the runner portions 13e engaging the looped portions 36d of the bails.

When the bails are in a folded position, lateral and longitudinal movement of the trays with respect to each other is prevented by the runner portions 12d and 13d engaging the corner members 18 in the same manner as shown in FIGURE 6.

As in the previous embodiment the bails 36 are yieldably retained in an upright position by the spring members 31 in the same manner as the bails 26 are retained in an upright position.

It is apparent from the foregoing that we have provided a new and improved folding tray which has the unique advantage in that the bails are yieldably retained in an upright position to prevent accidental collapse of the same.

We claim:

1. In a folding tray, a framework comprised of a pair of spaced parallel substantially vertical side walls and a pair of spaced parallel substantially vertical end walls, the framework also being comprised of bottom wall portions extending around the entire perimeter of the framework and having runner-like means depending from the same, the runner-like means being positioned inwardly from the side and end walls, and a pair of spaced bails pivotally mounted in the framework adjacent two of the spaced parallel walls for movement between upright and folded positions towards and away from said adjacent walls, and means yieldably retaining said bails in an upright position said means yieldably retaining said bails in an upright position consisting of a plurality of spring members, said bails being formed with cam portions, said spring members engaging the cam portions provided on the bails when the bails are in an upright position.

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2. A folding tray as in claim 1 wherein the spring members are mounted in the recesses formed by the runners in the bottom walls.

3. A folding tray as in claim 1 together with corner members mounted in the four corners of the rectangular framework, the bails having end portions extending at right angles to the other walls, and means rotatably mounting the end portions in the corner members.

4. A folding tray as in claim 3 wherein the bails are provided with portions which lie in a plane parallel to the plane of the bottom wall portions of the frame when the bails are in an upright position and which extend in a substantially vertical direction when the bails are in a folded position.

5. A folding tray as in claim 3 wherein the end portions of the bails extending at right angles to the other walls face towards said other walls.

6. A folding tray as in claim 3 wherein said end portions of the bails extending at right angles to the other walls face away from the other walls.

7. A folding tray as in claim 4 wherein the bails are provided with portions which extend in a vertical direction upwardly from the bottom wall portions of the framework when the bails are in upright position, said last named portions being disposed in the corners of the corner members when the bails are in an upright position.

8. A folding tray as in claim 1 wherein the bails are provided with looped portions forming runner receiving recesses lying in a plane parallel to said other walls.

9. A folding tray as in claim 8 wherein the bails are provided with portions which extend in a vertical direction when the bails are in an upstanding position and with interconnecting portions connecting the looped portions and wherein the interconnecting portions lie in substantially the same plane as the portions which extend in a vertical direction.

10. In a folding tray, a framework comprised of a pair of spaced parallel substantially vertical side walls

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and a pair of spaced parallel substantially vertical end walls, the framework also being comprised of bottom wall portions extending around the entire perimeter of the framework and having runner-like means depending from the same, the runner-like means being positioned inwardly from the side and end walls, and a pair of spaced bails pivotally mounted in the framework adjacent to a pair of the spaced parallel walls for movement between upright and folded positions towards and away from said adjacent walls, the upper extremities of the bails being formed to provide means extending in a direction at right angles to the adjacent walls for receiving the runner-like means of a tray above to permit stacking of the trays one above the other when the bails are in an upright position.

11. A folding tray as in claim 10 wherein the bails are provided with portions extending substantially the entire length of the adjacent walls and wherein the last named portions are disposed outside of the associated runner-like means of the tray above when the trays are stacked one above the other with the bails in an upright position.

12. A folding tray as in claim 10 together with means for yieldably retaining the bails in an upright position.

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