

A Convertible Food Tray

Technical Field

[0001] The present invention relates to a convertible food tray. For example, a disposable convertible food tray that is adapted to be converted into a food box.

Background

[0002] Food trays are commonly being used in the eateries to serve food therein. Food trays may be plates, dishes, etc. In order to reduce labour to wash the food trays, eateries typically use disposable food trays. When a customer needs to order a takeaway, disposable food boxes are used to pack the food. In order to cater to the high demand and to avoid running out of food trays and/or food boxes, the eateries need to maintain a large inventory of food trays and food boxes. Consequently, a large storage area is required to store the food trays and food boxes. Eateries that have a small space, e.g. where rental is high, maintaining a large storage area may be costly. Frequently, if insufficient stock is maintained, one of the food trays and food boxes may run out and disrupts the sale of the food.

[0003] The present invention aims to solve or reduce the abovementioned problem.

Summary

[0004] According to various embodiments, a convertible food tray that is adapted to be converted to a food box is provided. Food tray includes a floor, a wall extending from and surrounding the floor, such that the wall surrounding the floor forms an opening of the food tray, a lid pivotally connected to the wall, such that the lid includes a folding line thereon, such that the lid is foldable along the folding line into a folded position, such that in the folded position, the lid forms the wall of the food tray, such that the lid is unfoldable to cover the opening of the food tray to form the food box.

[0005] According to various embodiments, the lid may be connected to the wall along a hinge axis, such that the folding line may be parallel to the hinge axis.

[0006] According to various embodiments, the lid may be divided into a front portion and a back portion by the folding line, such that the back portion may be connected to the wall and the front portion may be foldable into the tray to form the wall.

[0007] According to various embodiments, the front portion may include a holder adapted to hold a utensil.

[0008] According to various embodiments, the food tray may further include a locking mechanism adapted to lock the front portion in the folded position.

[0009] According to various embodiments, the wall may include a front wall, a back wall opposite the front wall, a pair of side walls extending from the front wall and the back wall, such that the lid may be connected to the back wall, and foldable onto the back wall to form the back wall of the food tray, such that the food tray may further include a pair of side flaps, each pivotally attached to one of the side walls, the pair of side flaps adapted to fold into the food tray into a folded position to form the pair of side walls, such that the pair of side flaps, in the folded position, may be adapted to engage the lid to retain the pair of side flaps and lid in the folded position.

[0010] According to various embodiments, the lid may include a connecting edge connected to the wall, a free edge opposite the connecting edge, a pair of side edges extending from the free edge to the connecting edge, a pair of apertures disposed adjacent the pair of side edges respective, the side flaps each may include a protrusion protruding therefrom forming a pair of protrusions, such that the pair of protrusions may be adapted to engage the pair of apertures respectively.

[0011] According to various embodiments, at least one of the side flaps may include a recess adapted to receive a container.

[0012] According to various embodiments, the lid may include a slit, such that in the folded position, the slit may be adapted to receive an accessory therein.

[0013] According to various embodiments, the slit may be disposed along the folding line.

Brief Description of Drawings

[0014] Fig. 1 shows a perspective view of an example of a convertible food tray.

[0015] Fig. 2 shows a perspective view of an example of the food box.

[0016] Fig. 3 shows a sectional view of the food tray along line A-A in Fig. 1.

[0017] Fig. 4 shows a sectional of the food box along line B-B in Fig. 2.

[0018] Fig. 5 and Fig. 6 show the food tray being converted into the food box.

[0019] Fig. 7 shows a perspective view of an example of the food tray with a closeup view of a locking mechanism.

[0020] Fig. 8 shows a perspective view of an example of the food tray.

[0021] Fig. 9 shows a perspective view of an example of the food tray.

[0022] Fig. 10 shows a perspective view of the food tray in Fig. 9.

Detailed Description

[0023] In the following examples, reference will be made to the figures, in which identical features are designated with like numerals.

[0024] Fig. 1 shows a perspective view of an example of a convertible food tray 100 . Food tray 100 is adapted to be converted to a food box. Fig. 2 shows a perspective view of an example of the food box. Food tray 100 has a floor 110, a wall 120 extending from and

surrounding the floor 110, such that the wall 120 surrounding the floor 110 forms an opening 102 of the food tray 100. Food tray 100 also has a lid 130 pivotally connected to the wall 120. Lid 130 has a folding line 130L thereon, such that the lid 130 is foldable along the folding line 130L into a folded position, such that in the folded position, the lid 130 forms the wall 120 of the food tray 100. Lid 130 is unfoldable to cover the opening 102 of the food tray 100 to form the food box. Fig. 1 shows the food tray 100 with the lid 130 in the folded position. Fig. 2 shows the food tray 100 with the lid 130 in the unfolded position.

[0025] Lid 130 may include a lid flap 132. Referring to Fig. 2, the lid flap 132 may be adapted to overlap onto the wall 120 when the lid 130 covers the opening 102 to form the food box. Alternatively, the lid flap 132 may be inserted into the opening 102. Referring to Fig. 1, when used as a food tray 100, the lid flap 132 may form part of the wall 120 of the food tray 100. Food tray 100 may have a retaining mechanism 134 adapted to retain the lid 130 onto the opening 102 to retain the lid 130 onto the opening 102 so as to keep the food box covered. Retaining mechanism 134 may include an engaging portion 134E disposed on the lid 130 and a receiving portion 134R disposed on the wall 120, such that the engaging portion 134E may be adapted to engage the receiving portion 134R to retain the lid 130 onto the opening 102. Engaging portion 134E may be disposed on the lid flap 132. Engaging portion 134E may be a hook and the receiving portion 134R may be a slot adapted to receive the hook.

[0026] By having a food tray 100 that can be convertible into a food box, it is possible to use the food tray 100 as a tray or a box. Therefore, it is not necessary to maintain separate inventories for the food tray 100 and the food box. In this way, the eateries no longer need to maintain a large storage area to keep the inventories. Consequently, the eateries are able to make better use of the freed-up space or save costs.

[0027] Referring to Fig. 2, the lid 130 may be connected to the wall 120 along a hinge axis 122. Lid 130 may be divided into a front portion 130F and a back portion 130B by the folding line 130L. Back portion 130B may be connected to the wall 120. When converted into the food box as shown in Fig. 2, the front portion 130F and the back portion 130B may be aligned to form a plane and adapted to cover the opening 102. Lid flap 132 may overlap the wall 120 such that the engaging portion 134E of the retaining mechanism 134 may

engage the receiving portion 134R. Folding line 130L may be spaced from the hinge axis 122. Folding line 130L may be parallel to the hinge axis 122. Referring to Fig. 1, by having the folding line 130L spaced from the hinge axis 122, the lid 130, when in the folded position as shown in Fig. 1, is taller than the surrounding wall 120. As explained later, the higher front portion 130F may be useful for holding items, e.g. utensils, serviette etc. Alternatively, the folding line 130L may be along the hinge axis 122 such that the lid 130 is a single planar panel where the lid 130 may not have a front portion 130F or back portion 130B. In this configuration, the lid 130 may be rotated at the hinge axis 122 and into the opening 102 and to adjacent the wall 120 to form the wall 120. Referring to Fig. 1, the food tray 100 may have a locking mechanism 136 adapted to lock the front portion 130F of the lid 130 in the folded position. By locking the lid in the folding position, the front portion 130F may not be easily be unfolded.

[0028] Fig. 3 shows a sectional view of the food tray 100 along line A-A in Fig. 1. Fig. 4 shows a sectional of the food box along line B-B in Fig. 2. As shown in Fig. 3, the lid 130 may extend from the wall 120 and foldable along the folding line 130L into the food tray 100 such that the lid 130 forms part of the wall 120 of the food tray 100. Specifically, the back portion 130B of the lid 130 may be in line with the wall 120 and the front portion 130F may be foldable into the tray to form the wall 120 the food tray 100. In the folded position, the front portion 130F may be parallel and adjacent to the back portion 130B and/or the wall 120. Lid flap 132 may be aligned with the front portion 130F of the lid 130 to form part of the wall 120 of the food tray 100 such that the lid flap 132 may be substantially parallel and may be adjacent to the wall 120. As shown in Fig. 3, the front portion 130F of the lid 130 may face inwards of the food tray 100 and the back portion 130B of the lid 130 may face outwards or rearwards. As shown in Fig. 3, the wall 120 may extend outwardly from the floor 110 such that the opening 102 is larger than the floor 110. In this way, the food tray 100 may be stacked onto one another by disposing one food tray 100 into another. When the food tray 100 is stackable, less storage space is required to store the food tray 100 when compared to food trays 100 that are not stackable.

[0029] Fig. 4 shows a sectional view of the food box along line B-B in Fig. 2. From the food tray 100 in Fig. 3, the lid 130 may be rotated at about the hinge axis 122 to be converted from

the food tray 100 as shown in Fig. 3 to the food box as shown in Fig. 4. As shown in Fig. 4, the lid 130 may extend to the unfolded position where the front portion 130F and the back portion 130B are aligned to cover the opening 102 (not shown in Fig. 4).

[0030] Fig. 5 and Fig. 6 show the food tray 100 being converted into the food box. Referring to Fig. 5, the wall 120 may include a front wall 120F, a back wall 120R (not shown in Fig. 5) opposite the front wall 120F, a pair of side walls 120A,120B (one of the side walls 120A,120B not shown in Fig. 5) extending from the front wall 120F and the back wall 120R, such that the lid 130 may be connected to the back wall 120R, and foldable onto the back wall 120R to form the back wall 120R of the food tray 100. Referring to Fig. 5, the opening 102 may be formed by the front wall 120F, the side walls 120A,120B and the lid 130, e.g. the front portion 130F of the lid 130. Food may be placed into the food tray 100 through the opening 102. As shown in Fig. 5, the food tray 100 may have a pair of side flaps 140A,140B, each pivotally attached to one of the side walls 120A,120B. Referring to Fig. 5, the pair of side flaps 140A,140B may be adapted to fold into the food tray 100 into a folded position to form part of the wall 120. Pair of side flaps 140A,140B, in the folded position, may be adapted to engage the lid 130 to retain the pair of side flaps 140A,140B and lid 130 in the folded position.

[0031] Referring to Fig. 5, to convert the food tray 100 into the food box, the lid 130 may be rotated about the hinge axis 122 (not shown in Fig. 5) away from the back wall 120R (not shown in Fig. 5) and the front portion 130F may be rotated at about the folding line 130L away from the back portion 130B until the front portion 130F is substantially aligned with the back portion 130B as shown in Fig. 6. Side flaps 140A,140B may first be rotated away from the side walls 120A,120B and through the opening 102. Thereafter, the front portion 130F of the lid 130 may be rotated out of the opening 102 at about the folding line 130L for food to be placed into the food tray 100. When the food is in the food tray 100, the side flaps 140A,140B may be rotated onto the opening 102 and the lid 130 may be rotated onto the side flaps 140A,140B to close the opening 102. Engaging portion 134E of the retaining mechanism 134 may engage the receiving portion 134R to retain the lid 130 onto the food tray 100. In this configuration, the food tray 100 is converted into the food box as shown in Fig. 2. While the example of the food tray 100 in Fig. 5 shows the food tray 100 having side

flaps 140A,140B, it is possible that the food tray 100 has no side flaps where the lid 130 alone may be unfolded to cover the food tray 100.

[0032] As shown in Fig. 6, the food tray 100 may have a locking mechanism 136 adapted to lock the front portion 130F of the lid 130 in the folded position. Locking mechanism 136 may include a protrusion 136P extending from a side flap, e.g. side flap 140A, and an aperture 136A disposed on the lid 130 such that the aperture 136A may be adapted to receive the protrusion 136P therein so as to lock the side flap 140A onto the lid 130. As such, each of the side flaps 140A,140B may include the protrusion 136P protruding therefrom forming a pair of protrusions 136P, such that the pair of protrusions 136P may be adapted to engage the pair of apertures 136A respectively. Consequently, the lid 130 may be locked in the folded position. Side flap 140A may have an interface edge 140AE where the side flap 140A engages the lid 130. Protrusion 136P may extend from the interface edge 140AE. The same configuration can be found on side flap 140B.

[0033] Lid 130 may include a connecting edge 130C that is connected to the wall 120, a free edge 130D opposite the connecting edge 130C, and a pair of side edges 130SA,130SB extending from the connecting edge 130C to the free edge 130D. Connecting edge 130C may be along the hinge axis 122. Free edge 130D may be at the lid flap 132.

[0034] Lid 130 has two opposing corners 138A,138B at the intersection between the free edge 130D and the side edges 130SA,130SB. When the lid 130 is in the folded position, the side edges 130SA,130SB may engage the side walls 120A,120B of the food tray 100. When the side edges 130SA,130SB engage the side walls 120A,120B, the front portion 130F of the lid 130 may be retained in the folded position via friction. As shown in Fig. 6, the two opposing corners 138A,138B may be folded to form two folded corners to accommodate the profile of the side walls 120A,120B. As the sides of the back wall 120R are tapered by the side walls 120A,120B, the front portion 130F of the lid 130, which is wider than the back wall 120R, may include the folded corners 138A,138B which may be folded away from the back wall 120R when the front portion 130F is folded into the folded position so that the front portion 130F may be able to be adjacent to the back wall 120R. Folded corners 138A,138B may be folded along folding lines 138FA,138FB. Folding lines 138FA,138FB

may extend from the side edges 130SA,130SB to the free edge at an angle that compliments the angle of the tapered side walls 120A,120B. Folding lines 138FA,138FB may extend through the lip flap 132. Aperture 136A may be disposed along each of the folding lines 138FA,138FB such that when the folded corners 138A,138B are folded when the front portion 130F is in the folded position, the aperture 136A may be disposed at about the intersection between the back wall 120R and the side walls 120A,120B.

[0035] Fig. 7 shows a perspective view of an example of the food tray 100 with a closeup view of a locking mechanism 136. As shown in Fig. 7, as the side flaps 140A,140B are folded into the folded position, the protrusions 136P of the side flaps 140A,140B may be slotted into the apertures 136A on the lid 130 to lock the side flaps 140A,140B into the folded position. Lid flap 132 may consequently be locked in the folded position as well. By locking the lid 130 and the side flaps 140A,140B in the folding position, the front portion 130F and the side flaps 140A,140B may not be easily be unfolded.

[0036] Referring to Fig. 6, the lid 130 may include a slit 130S, such that in the folded position, the slit 130S may be adapted to receive an item 10, e.g. serviette, therein (as shown in Fig. 1). Slit 130S may be disposed along the folding line 130L. Slit 130S may be a curved line such that a portion of the front portion 130F is formed on the back portion 130B. Referring to Fig. 1, when the lid 130 is folded, a cut out 131C may be formed on the front portion 130F and an extension 131E may be formed on the back portion 130B to form a pocket 131 on the lid 130. As mentioned earlier, the front portion 130F may extend higher than the wall 120 of the food tray 100. In this way, the pocket 131 formed may be able to receive a relatively large piece of item, e.g. serviette 10, as shown in Fig. 1.

[0037] Fig. 8 shows a perspective view of an example of the food tray 200. Floor 210 of the food tray 200 may be of any shape, e.g. square, circular, as long as the top edge 220T of the wall 220 has a regular quadrilateral shape, e.g. square, rectangular. As shown in Fig. 8, the lid 230 may extend from the wall 120 and be folded along the folding line 230L. Lid 230 may include a holder 250 adapted to hold a utensil, e.g. a spoon, a fork, a pair of chopsticks. Holder 250 may be formed on the front portion 230F of the lid 230. Holder 250 may be a pair of slits extending in the direction parallel to the side edges 130SA,130SB of the lid 230.

Holder 250 may be a slot extending in a direction parallel to the free edge 230D or any other equivalent design for holding utensils.

[0038] Fig. 9 shows a perspective view of an example of the food tray 300. As mentioned earlier, the floor 310 of the food tray 300 may be of a circular shape. Further, the wall 320 may be taller than the front portion 330F of the lid 330. In other words, the length of the front portion 330F of the lid 330 may be dependent on the size of the opening 302 rather than the height of the wall 320. In this example, the front portion 330F of the lid 330 may extend into the food tray 300 but may not reach the floor 310.

[0039] Fig. 10 shows a perspective view of the food tray 300 in Fig. 9. At least one of the side flaps 340B may include a recess 342 adapted to receive a container, e.g. a cup, a saucer. Each of the side flaps 340A, 340B may include a plurality of cut lines and fold lines to allow the side flaps 340A, 340B to be folded to form useful sections. For example, in Fig. 10, the side flap 340B may be folded to form the recess 342 for holding a container (not shown in Fig. 10). While the described feature is shown in this example, the feature may be applicable to the other examples in this description.

[0040] A skilled person would appreciate that the features described in one example may not be restricted to that example and may be combined with any one of the other examples.

[0041] The present invention relates to a convertible food tray generally as herein described, with reference to and/or illustrated in the accompanying drawings.

Claim

1. A convertible food tray adapted to be converted to a food box, the food tray comprising:
a floor, a wall extending from and surrounding the floor, wherein the wall surrounding the floor forms an opening of the food tray, wherein the wall comprises a front wall, a back wall opposite the front wall, a pair of side walls extending from the front wall and the back wall, wherein the food tray further comprises a pair of side flaps, each pivotally attached to one of the side walls, the pair of side flaps adapted to fold into the food tray into a folded position to form the pair of side walls;
a lid pivotally connected to the wall, wherein the lid is connected to the back wall, wherein the lid comprises a folding line thereon, wherein the lid is foldable along the folding line into a folded position and foldable into the food tray onto the back wall to form the back wall of the food tray, wherein in the folded position, the lid forms the wall of the food tray, wherein the lid is unfoldable to cover the opening of the food tray to form the food box,
wherein the lid comprises two opposing foldable corners adapted to fold along folding lines when the lid is folded into the folded position,
wherein the pair of side flaps is adapted to fold onto the lid, wherein in the folded position, the pair of side flaps is adapted to engage the folding lines, wherein the pair of side flaps is adapted to lock onto the lid to retain the pair of side flaps and the lid in the folded position.
2. The convertible food tray of claim 1, wherein the lid is connected to the wall along a hinge axis, wherein the folding line is parallel to the hinge axis.
3. The convertible food tray of claim 1 or 2, wherein the lid is divided into a front portion and a back portion by the folding line, wherein the back portion is connected to the wall and the front portion is foldable into the tray to form the wall.
4. The convertible food tray of claim 3, wherein the front portion comprises a holder adapted to hold a utensil.
5. The convertible food tray of any one of claims 1 to 4, further comprising a locking mechanism adapted to lock the front portion in the folded position.

6. The convertible food tray of any one of claims 1 to 5, wherein the lid comprises a connecting edge connected to the wall, a free edge opposite the connecting edge, a pair of side edges extending from the free edge to the connecting edge, a pair of apertures disposed adjacent the pair of side edges respective, the side flaps each comprises a protrusion protruding therefrom forming a pair of protrusions, wherein the pair of protrusions is adapted to engage the pair of apertures respectively.
7. The convertible food tray of claim 5 or 6, wherein at least one of the side flaps comprises a recess adapted to receive a container.
8. The convertible food tray of any one of claims 1 to 7, wherein the lid comprises a slit, wherein in the folded position, the slit is adapted to receive an accessory therein.
9. The convertible food tray of claim 8, wherein the slit is disposed along the folding line.