

A Food Box

Technical Field

[0001] The present invention relates to a food box. Specifically, the present invention relates to a food box suitable for food packaging along a food assembly line. Preferably, the present invention relates to disposable food box suitable for packing food for immediate consumption or to be consumed within a short period of time, e.g. within 4 hours.

Background

[0002] Food boxes have been ubiquitously used to pack food for transportation. Food may be packed into the food boxes manually or using machines. For large scale food packaging, the food may be packed along assembly lines. When food is packed along assembly lines, it is necessary for the food to be packed into food boxes easily and securely. Food that needs to be preserved for a long period of time, e.g. few months, are usually packed and sealed in airtight packets before being packed into a box. Food that needs to be consumed within a short period of time, e.g. within 4 hours, are typically packed in disposable food boxes made from paper or plastic, e.g. polypropylene or polystyrene.

[0003] It is common to see human operators along the assembly line covering and securing the food boxes after the food is being packed into the food boxes. Some of the food boxes require additional securing parts, e.g. elastic rubber bands and plastic wrappers, to secure and prevent the food boxes from opening, while some food boxes are designed to be self-secured. For example, transparent polypropylene food box with lid that has a securing perimeter edge for engaging the rim of the tray, clam shell Styrofoam food box with a tongue on its lid to be inserted into a slot at the tray to prevent the lid from opening. However, such food boxes are difficult to be closed and secured, especially if a machine is used to pack the food. Hence, human intervention is required to close and lock the food box. Such a food packaging process is time consuming and not cost-effective.

[0004] Therefore, it is necessary to come up with a food box that allows its lid to be easily secured onto its tray and preferably allows the lid to be easily locked onto the tray so that it is fast and cost-effective to pack food, especially along the assembly line.

Summary

[0005] According to various embodiments, a food box is provided. The food box includes a tray having a base having a base perimeter edge, a perimeter wall extending from the base perimeter edge, the perimeter wall including a perimeter rim spaced from the base perimeter edge, a lid adapted to cover the tray, such that the lid including a top panel having a top panel perimeter edge and adapted to contact the perimeter rim, a perimeter awning extending from the top panel perimeter edge, such that the perimeter awning extends over the perimeter wall when the lid covers the tray, such that the lid is separated from the tray, and a pair of a set of securing elements adapted to secure the lid to the tray when the lid covers the tray, such that each of the pair of set of securing elements includes a male securing portion disposed on the perimeter wall and a female securing portion disposed on the perimeter awning, such that the pair of female securing portions are disposed on opposing parts of the perimeter awning and the pair of male securing portions are disposed on opposing parts of the perimeter wall and adapted to engage the pair of female securing portions to secure the lid to the tray.

[0006] According to various embodiments, the male securing portion may be disposed on the perimeter rim of the perimeter wall and rotatable about the perimeter rim.

[0007] According to various embodiments, the pair of set of securing elements may include a pair of a set of retaining elements adapted to retain the lid to the tray or a set of locking elements to lock the lid to the tray.

[0008] According to various embodiments, the male securing portion of the set of securing elements may include a male retaining portion and the female securing portion of the set of securing elements comprises a female retaining portion, such that the male retaining portion may include an engaging panel pivotally connected to the perimeter rim and adapted to engage the female retaining portion.

[0009] According to various embodiments, the male retaining portion may further include an actuating member connected to the engaging panel, such that the actuating member, when actuated, may be adapted to enable the engaging panel to engage the female retaining portion.

[0010] According to various embodiments, the female retaining portion of the set of retaining elements may include a ledge disposed on the perimeter awning and adapted to retain the engaging panel, such that the engaging panel engages the ledge when the lid covers the tray to retain the lid on the tray.

[0011] According to various embodiments, the female retaining portion of the set of retaining elements may include a slit disposed on the perimeter awning and adapted to receive the engaging panel therethrough, such that the engaging panel engages the slit when the lid covers the tray to retain the lid on the tray.

[0012] According to various embodiments, the actuating member may include an actuating panel extending from the engaging panel and pivotally connected to the perimeter rim.

[0013] According to various embodiments, the set of locking elements comprises a male locking portion and a female locking portion, such that the female locking portion of the set of locking elements may include a slot disposed on the perimeter awning of the lid, the male locking portion may be adapted to be slotted through the slot when the lid covers the tray and activated to lock the lid to the tray.

[0014] According to various embodiments, the male locking portion of the set of locking elements may include a foldable flap extending from the perimeter rim of the perimeter wall, such that the foldable flap may include a protrusion protrudable from the foldable flap when the foldable flap may be folded and adapted to abut the lid to lock the lid to the tray when the foldable flap is folded.

[0015] According to various embodiments, the female locking portion may be disposed adjacent the top panel perimeter edge.

[0016] According to various embodiments, the food box may further include another pair of the set of securing elements, such that each of the another pair of set of securing elements may include another male securing portion disposed on the perimeter wall and another female securing portion disposed on the perimeter awning, such that the another pair of female securing portions may be disposed on opposing parts of the perimeter awning and the another pair of male securing portions may be disposed on opposing parts of the perimeter wall and adapted to engage the another pair of female securing portions to secure the lid to the tray.

[0017] According to various embodiments, the perimeter wall may include a front wall panel and a rear wall panel opposite the front wall panel and the perimeter awning may include a front awning panel and a rear awning panel opposite the front awning panel, such that the pair of set of securing elements and the another pair of set of securing elements may be disposed on the opposing front wall panel and rear wall panel and the opposing front awning panel and rear awning panel.

[0018] According to various embodiments, the perimeter wall may include a front wall panel, a rear wall panel opposite the front wall panel and a left wall panel and a right wall panel extending from the front wall panel to the rear wall panel and spaced apart from each other, and the perimeter awning may include a front awning panel, a rear awning panel opposite the front awning panel, a left awning panel and a right awning panel extending from the front awning panel to the rear awning panel and spaced apart from each other, such that the pair of set of securing elements may be disposed on the opposing front wall panel and rear wall panel and the opposing front awning panel and rear awning panel and the another pair of set of securing elements may be disposed on the opposing left wall panel and right wall panel and the opposing left awning panel and right awning panel.

Brief Description of Drawings

[0019] Fig. 1A shows a perspective view of an exemplary embodiment of a food box in an open configuration.

[0020] Fig. 1B shows a partial sectional view of the food box in Fig. 1A.

[0021] Fig. 2A shows a perspective view of another exemplary embodiment of the food box 200 in the open configuration.

[0022] Fig. 2B shows a partial sectional view of the food box in Fig. 2A.

[0023] Fig. 2C shows a perspective view of the embodiment in Fig. 2A in a closed configuration.

[0024] Fig. 3A shows a perspective view of an embodiment of the food box in the open configuration.

[0025] Fig. 3B shows a perspective view of the food box in Fig. 3A in the closed configuration.

[0026] Fig. 4 shows an exemplary embodiment of the food box in the open configuration.

[0027] Fig. 5 shows a perspective view of another embodiment of the food box in the open configuration.

Detailed Description

[0028] In the following examples, reference will be made to the figures, in which identical features are designated with like numerals.

[0029] Fig. 1A shows a perspective view of an exemplary embodiment of a food box 100 in an open configuration. Food box 100 includes a tray 120 having a base (not shown in Fig. 1A) having a base perimeter edge 122P, a perimeter wall 124 extending from the base perimeter edge 122P, the perimeter wall 124 including a perimeter rim 124M spaced from the base perimeter edge 122P, a lid 140 adapted to cover the tray 120, such that the lid 140 including a top panel 142 having a top panel perimeter edge 142P and adapted to contact the perimeter rim 124M, a perimeter awning 144 extending from the top panel perimeter edge

142P, such that the perimeter awning 144 extends over the perimeter wall 124 when the lid 140 covers the tray 120, such that the lid 140 is separated from the tray 120, and a pair of a set of securing elements 160 adapted to secure the lid 140 to the tray 120 when the lid 140 covers the tray 120, such that each of the pair of set of securing elements 160 includes a male securing portion 160M disposed on the perimeter wall 124 and a female securing portion 160F disposed on the perimeter awning 144, such that the pair of female securing portions 160F are disposed on opposing parts of the perimeter awning 144 and the pair of male securing portions 160M are disposed on opposing parts of the perimeter wall 124 and adapted to engage the pair of female securing portions 160F to secure the lid 140 to the tray 120.

[0030] By having a pair of a set of securing elements 160 disposed at opposing parts of the perimeter wall 124 and perimeter awning 144, it is possible to secure the lid 140 properly to the tray 120 as the lid 140 is secured at opposite sides to the tray 120. Further, it is possible for the lid 140 to be manoeuvred vertically downward onto the tray 120 and be secured to the tray 120 once the top panel 142 of the lid 140 contacts the tray 120. Compared to single piece food box 100 where the cover is pivotally connected to the tray, it is not possible for the lid 140 to cover the tray 120 in a vertically downward direction. Furthermore, it is more complexed to design a machine to rotatably close the cover onto the tray.

[0031] While it is shown that the tray 120 has a quadrilateral shape, the tray 120 may be formed in other shapes, e.g. octagonal, hexagonal, circular. As an exemplary embodiment, a rectangular shape box is used to describe the food box 100 of the present invention. As shown in Fig. 1A, the perimeter wall 124 may include a front wall panel 124F, a rear wall panel 124B opposite the front wall panel 124F and a left wall panel 124L and a right wall panel 124R extending from the front wall panel 124F to the rear wall panel 124B and spaced apart from each other. Perimeter rim 124M may be formed by the top edges of the front wall panel 124F, the rear wall panel 124B, the left wall panel 124L and the right wall panel 124R and may extend along a single plane. In other words, the front wall panel 124F, rear wall panel 124B, left wall panel 124L and right wall panel 124R may be of the same height or the height of the left wall panel 124L and the right wall panel 124R may be sloped such that one end of each panel is of the same height as the front wall panel 124F and the other end of the panel is of the same height as the rear wall panel 124B. Perimeter awning 144 may include a front awning panel 144F, a rear awning panel 144B opposite the front awning panel 144F, a

left awning panel 144L and a right awning panel 144R extending from the front awning panel 144F to the rear awning panel 144B and spaced apart from each other. Perimeter awning 144 may have a consistent height throughout. Set of securing elements 160 may be disposed at the opposing parts of the perimeter wall 124 and perimeter awning 144, i.e. the front wall panel 124F and rear wall panel 124B and the front awning panel 144F and rear awning panel 144B respectively. Top panel 142 may be of the same size and shape as the mouth of the tray 120 so that the top panel 142 can fit onto the mouth of the tray 120 to cover the tray 120 fittingly. Perimeter rim 124M may contact the top panel perimeter edge 142P to support the lid 140 on the tray 120. In this way, the food box 100 is able to withstand a higher amount of weight thereon without being crushed compared to other types of food boxes. By supporting the top panel 142 of the lid 140 directly onto the perimeter wall 124, it is possible to support the weight of another plurality of packed food boxes thereto as the weight may be distributed evenly along the perimeter wall 124. As such, it is possible to stack a few food boxes onto each other for more efficient transportation of the packed food boxes. In addition, as the perimeter rim 124M may be continuous without any gaps, the contact between the perimeter rim 124M and the top panel perimeter edge 142P provides a good seal between the lid 140 and tray 120 to prevent leakage from within the food box 100. Tray 120 may be single compartmentalized or multiple compartmentalized. Food box 100 may be made from food grade paper or plastic.

[0032] Referring to Fig. 1A, the pair of set of securing elements 160 may include a pair of a set of retaining elements 170 adapted to retain the lid 140 to the tray 120. Pair of set of retaining elements 170 may include a male retaining portion 172 and a female retaining portion 174. Male securing portion 160M of the set of securing elements 160 may include the male retaining portion 172 and the female securing portion 160F of the set of securing elements 160 may include the female retaining portion 174. Male retaining portion 172 may be disposed on the perimeter wall 124 of the tray 120 and the female retaining portion 174 may be disposed on the perimeter awning 144 of the lid 140. Male retaining portion 172 may include an engaging panel 172E pivotally connected to the perimeter rim 124M and adapted to engage the female retaining portion 174. Male retaining portion 172 may further include an actuating member 172A connected to the engaging panel 172E, such that the actuating member 172A, when actuated, may be adapted to enable the engaging panel 172E to engage the female retaining portion 174. As shown in Fig. 1A, the female retaining portion 174 of

the set of retaining elements 170 may include a ledge 174L disposed on the perimeter awning 144 and adapted to retain the engaging panel 172E, such that the engaging panel 172E engages the ledge 174L when the lid 140 covers the tray 120 to retain the lid 140 on the tray 120. Each of the front wall panel 124F and the rear wall panel 124B may include two or more male securing portions 160M spaced apart from each and correspondingly, each of the front awning panel 144F and the rear awning panel 144B may include two or more female securing portions 160F spaced apart from each other. Actuating member 172A may include an actuating panel extending from the engaging panel 172E and pivotally connected to the perimeter rim 124M.

[0033] Fig. 1B shows a partial sectional view of the food box 100 in Fig. 1A. As shown in Fig. 1B, the perimeter wall 124 may form an obtuse angle with the base 122 such that the mouth of the tray 120 is larger than the base 122. Perimeter wall 124 may be perpendicular to the base 122. Perimeter awning 144 may form an obtuse angle with the top panel 142 such that the opening of the lid 140, where the tray 120 enters the lid 140, is larger than the top panel 142. Perimeter awning 144 may be perpendicular to the top panel 142. Perimeter awning 144 may be adapted to guide the tray 120 towards the top panel 142 as the lid 140 is fitted onto the tray 120 so that the lid 140 is aligned to the tray 120 when covered to allow the pair of set of securing elements 160 to meet each other. Furthermore, the angle between the top panel 142 and the perimeter awning 144 retains and prevents the perimeter wall 124 from shifting away from the top panel 142 when the weight on the lid 140 increases. Perimeter awning 144 may form an acute angle with the top panel 142. For example, the perimeter awning 144 may be angled to be parallel to the perimeter wall 124. In this configuration, the opening of the lid 140 may be smaller than the mouth of the tray 120. To cover the tray 120, the perimeter wall 124 may be pushed inwards toward the centre of the food box 100 to be accommodated within the opening of the lid 140 to enable the lid 140 to be closed onto the tray 120. Once the tray 120 is within the perimeter awning 144 of the lid, the perimeter wall 124 may automatically return to its original shape to retain the lid 140 onto the food box 100.

[0034] Referring to Fig. 1B, the male securing portion 160M may be disposed on the perimeter rim 124M of the perimeter wall 124 and rotatable about the perimeter rim 124M. Female securing portion 160F may be disposed on the inner side of the perimeter awning 144

of the lid 140. Before closing the lid 140 onto the tray 120, the engaging panel 172E and the actuating member 172A may be in the same plane. Engaging panel 172E and the actuating member 172A may be divided by and rotatable at about a pivotal axis 172S (as shown in Fig. 1A), whereby the pivotal axis 172S may be along the perimeter rim 124M. Actuating member 172A may be on one side of pivotal axis 172S and the engaging panel 172E may be on the other side of the pivotal axis 172S opposite the one side. When the lid 140 closes onto the tray 120, the perimeter awning 144 of the lid 140 may push the engaging panel 172E downward in an anti-clockwise direction while the top panel 142 of the lid 140 may push the actuating member 172A downward in a clockwise direction. In this way, due to the rigidity of the material of the food box 100, the engaging panel 172E may experience a clockwise force towards the perimeter awning 144 due to the rotation of the actuating member 172A. As the lid 140 closes onto the tray 120, the engaging panel 172E may engage the ledge 174L on the perimeter awning 144 causing the lid 140 to be retained onto the tray 120. In this position, the engaging panel 172E and actuating member 172A may be folded such that the angle between the engaging panel 172E and the actuating member 172A may be less than 180 degrees. As the opposite sides of the perimeter awning 144 are retained by the engaging panels 172E, the lid 140 is securely retained by the pair of retaining elements 170 to the tray 120. While the lid 140 is retained by the pair of retaining elements 170, the food box 100 may still be opened by lifting the lid 140 from the tray 120 with an amount of force to dislodge the pair of engaging panels 172E from the pair of ledges 174L. As the lid 140 is being lifted from the tray 120, the engaging panel 172E may deform and disengage from the ledge 174L and release the lid 140 from the tray 120. Hence, the retaining elements 170 are intended to retain but not to lock the lid 140 onto the tray 120.

[0035] Fig. 2A shows a perspective view of another exemplary embodiment of the food box 200 in the open configuration. Food box 200 may include the tray 220 having the front wall panel 224F, the rear wall panel 224B, the left wall panel 224L and the right wall panel 224R, and the lid 240 having the front awning panel 244F, the rear awning panel 244B (not shown in Fig. 2A), the left awning panel 244L (not shown in Fig. 2A) and the right awning panel 244R. Food box 200 may include the pair of set of retaining elements 270 as described above on the front wall panel 224F and rear wall panel 224B of the tray 220 and the front awning panel 244F and rear awning panel 244B of the lid 240. Fig. 2A shows another exemplary embodiment of the set of retaining elements 270A. Male retaining portions 272A of the

another set of retaining elements 270 may be disposed on the left wall panel 224L and right wall panel 224R and the female retaining portions 274A may be disposed on the left awning panel 244L and the right awning panel 244R. Male retaining portion 272 of the set of retaining elements 270 may be substantially similar to the male retaining portion 172 in Fig. 1A apart from the length of the respective engaging panels 272E, 272E in the direction perpendicular to the perimeter rim 224M. Female retaining portion 274A of the set of retaining elements 270A may include a slit 274S disposed on the perimeter awning 244 and adapted to receive the engaging panel 272EA therethrough, such that the engaging panel 272EA engages the slit 274S when the lid 240 covers the tray 220 to retain the lid 240 on the tray 220. Female retaining portion 274A may be disposed adjacent the top panel perimeter edge 242P.

[0036] Fig. 2B shows a partial sectional view of the food box 200 in Fig. 2A. Male retaining portion 272 may be pivotally connected to the perimeter rim 224M of the perimeter wall 224. Engaging panel 272E in the embodiment of Fig. 2B may be shorter than the engaging panel 172E in Fig. 1B in the direction perpendicular to the perimeter rim 224M. Before closing the lid 240 onto the tray 220, the engaging panel 272E and the actuating member 272A may be in the same plane. When the lid 240 closes onto the tray 220, the perimeter awning 244 of the lid 240 may exert a force on the engaging panel 272E downward in an anti-clockwise direction while the top panel 242 of the lid 240 may push the actuating member 272A downward in a clockwise direction. Engaging panel 272E may experience a clockwise force towards the perimeter awning 244 due to the rotation of the actuating member 272A. As the length of the engaging panel 272E is short, due to the rigidity of the material of the food box 200, the engaging panel 272E may not bend as the actuating member 272A is being pushed downward such that the engaging panel 272E and the actuating member 272A may remain in the same plane before and after the lid 240 covers the tray 220. As the lid 240 closes onto the tray 220, the actuating member 272A may be parallel to the top panel 242 of the lid 240 thereby causing the engaging panel 272E to protrude through and engage the slit 274S on the perimeter awning 244 of the lid 240 thus retaining the lid 240 onto the tray 220. As the opposite sides of the perimeter awning 244 are retained by the engaging panels 272E, the lid 240 is securely retained by the pair of set of retaining elements 270. While the lid 240 is retained by the pair of set of retaining elements 270, the food box 200 may still be opened by lifting the lid 240 from the tray 220. As the lid 240 is being lifted from the tray 220, the

engaging panel 272E may rotate in a clockwise direction and exits the slit 274S to disengage from the slit 274S to release the lid 240 from the tray 220. Slit 274S may be disposed adjacent the top panel 242 perimeter edge.

[0037] Fig. 2C shows a perspective view of the embodiment of the food box 200 in Fig. 2A in a closed configuration. When the lid 240 covers the tray 220, the engaging panel 272E protrudes through the slit 274S to retain the lid 240 to the tray 220.

[0038] As shown in the above embodiments, the set of retaining elements 270 may be automatic retaining elements such that the set of retaining elements 270 may automatically retain the lid 240 to the cover without intervention. Male retaining portion 272 of the set of retaining elements 270 may be actuated to engage the female retaining portion 274 as the lid 240 closes onto the tray 220 automatically. In this way, the lid 240 is automatically retained onto the tray 220 of the food box 200. This is very useful for food assembly line as the lid 240 may be lowered onto the tray 220 by a machine and it can be retained onto the food tray 220 automatically.

[0039] Fig. 3A shows a perspective view of an embodiment of the food box 300 in the open configuration. Pair of set of securing elements 360 may include a pair of a set of locking elements 380 to lock the lid 340 to the tray 320. Set of locking elements 380 may include a male locking portion 382 and a female locking portion 384. Male locking portion 382 may be disposed on the perimeter wall 324 of the tray 320. Female locking portion 384 may be disposed on the perimeter awning 344 of the lid 340. Female locking portion 384 of the set of locking elements 380 may include a slot 380S disposed on the perimeter awning 344 of the lid 340. Male locking portion 382 may be adapted to be slotted through the slot 380S when the lid 340 covers the tray 320 and activated to lock the lid 340 to the tray 320. Male locking portion 382 of the set of locking elements 380 may include a foldable flap 382F extending from the perimeter rim 324M of the perimeter wall 324, such that the foldable flap 382F may include a protrusion 382P protrudable from the foldable flap 382F when the foldable flap 382F may be folded and adapted to abut the lid 340 to lock the lid 340 to the tray 320 when the foldable flap 382F is folded. Female locking portion 384 may be disposed adjacent the top panel perimeter edge 342P.

[0040] Fig. 3B shows a perspective view of the food box 300 in Fig. 3A in the closed configuration. When the lid 340 covers the tray 320, the foldable flap 382F extends through the slot 380S such that the protrusion 382P may be disposed marginally above the lid 340. Foldable flap 382F may be folded outwardly away from the top panel 342 of the lid 340 or inwardly towards the top panel 342 of the lid 340. When the foldable flap 382F is folded away from the top panel 342 (as shown in Box A1 and Box A2), the protrusion 382P abuts the top panel 342 of the lid 340 and locks the lid 340 to the tray 320. When the foldable flap 382F is folded towards the top panel 342, the protrusion 382P abuts the perimeter awning 344 of the lid 340 and locks the lid 340 to the tray 320. Protrusion 382P may be a cut out 382C of the foldable flap 382F (as shown in Box B) such that when the foldable flap 382F is folded, the protrusion 382P is rotated out and protrudes out of the foldable flap 382F. Protrusion 382P may be pushed out of the cut out to abut the top panel 342 or the perimeter awning 344 (as shown in Box C) without folding the foldable flap 382F. As shown in Fig. 3B, the male locking portion 382 may be activated to secure the lid 340 while the female locking portion 384 may be adapted to receive the male locking portion 382 without any activation to lock the lid 340 onto the tray 320. Male locking portion 382 as shown in Fig. 3B allows easy locking of the lid 340 to the tray 320. When the pair of male locking portions 382 are pushed outwardly from the centre of the food box 300, the protrusions 382P of the male locking portions 382 easily abuts the top panel 342 of the lid 340 to lock the lid 340 to the tray 320. Food box 300 as shown in Fig. 3B is suitable for food assembly line as the only movements required by the machine is a downward movement to lower the lid 340 to cover it onto the tray 320 and sideward movements in opposite directions to activate the pair of male locking portions 382 to lock the lid 340 to the tray 320. As clearly shown, the food box 300 is easy to lock. While the food box 300 is easy to lock and locks the lid 340 to the tray 320 effectively, the food box 300 is easy to open as well. Protrusion 382P may be retracted back to the foldable flap 382F to allow the foldable flap 382F to be able to be withdrawn from the slot 380S when the lid 340 is lifted from the tray 320. Protrusion 382P may be retracted by returning the foldable flap 382F to the upright position or pushing the protrusion 382P back into the foldable flap 382F. Food box 300 is designed to have self-alignment property such that the lid 340 is guided by the tray 320 or vice versa to be in line with each other to be covered. Pair of set of retaining elements 370 is able to retain the lid 340 onto the tray 320 for the pair of set of locking elements 380 to be activated to lock the lid 340 to the tray 320.

Foldable flap 382F may be T-shaped such that the foldable flap 382F comprises a head portion 382T and a neck portion 382N such that the head portion 382T is wider than the neck portion 382N. Upon slotting the foldable flap 382F through the slot 380S, the head portion 382T of the foldable flap 382F may be jammed by the slot 380S and prevented from being released from the slot 380S so that the lid 340 may be retained to the tray 320. In other words, the food box 300 may have a double locking mechanism such that the foldable flap 382F may lock the lid 340 via the head portion 382T and the protrusion 382P of the foldable flap 382F.

[0041] Fig. 4 shows an exemplary embodiment of the food box 400 in the open configuration. Food box 400 may include the pair of the set of securing elements 460 and further include another pair of the set of securing elements 460A, such that each of the another pair of set of securing elements 460A may include another male securing portion 460MA disposed on the perimeter wall 424 and another female securing portion 460FA disposed on the perimeter awning 444, such that the another pair of female securing portions 460FA may be disposed on opposing parts of the perimeter awning 444 and the another pair of male securing portions 460MA may be disposed on opposing parts of the perimeter wall 424 and adapted to engage the another pair of female securing portions 460FA to secure the lid 440 to the tray 420.

[0042] Referring to Fig. 4, the perimeter wall 424 may include the front wall panel 424F, the rear wall panel 424B, the left wall panel 424L and the right wall panel 424R, and the perimeter awning 444 may include the front awning panel 444F, the rear awning panel 444B, the left awning panel 444L and the right awning panel 444R. Pair of set of securing elements 460 may be disposed on the opposing front wall panel 424F and rear wall panel 424B and the opposing front awning panel 444F and rear awning panel 444B and the another pair of set of securing elements 460A may be disposed on the opposing left wall panel 424L and right wall panel 424R and the opposing left awning panel 444L and right awning panel 444R. Similar to the earlier embodiment in Fig. 1A, the pair of male securing portions 460M may be disposed on the front wall panel 424F and rear wall panel 424B, the pair female securing portions 460F may be disposed on the front awning panel 444F and rear awning panel 444B, the another pair of male securing portions 460MA may be disposed on the left wall panel 424L

and right wall panel 424R and the another pair of female securing portions 460FA may be disposed on the left awning panel 444L and right awning panel 444R. Pair of set of securing elements 460 and the another pair of set of securing elements 460A may include any combination of set of retaining elements 470 and set of locking elements 480. As shown in Fig. 4, the pair of set of securing elements 460 may be a pair of set of retaining elements 470, while the another pair of set of securing elements 460A may be a pair of set of locking elements 480. As shown in Fig. 1, the pair of set of securing elements 460 and the another pair of set of securing elements 460A may each include a pair of retaining elements 470. While the embodiment in Fig. 4 shows a food box 400 with four sides, as mentioned earlier, it is possible for the box to have more than four sides. Similarly, it is possible for the food box 400 to have two or more sets of securing elements 460. When the lid 440 is covered onto the tray 420, the food box 400 may be as shown in Fig. 2C.

[0043] Fig. 5 shows a perspective view of another embodiment of the food box 500 in the open configuration. Pair of set of securing elements 560 and the another pair of set of securing elements 560A may be disposed on the opposing front wall panel 524F and rear wall panel 524B and the opposing front awning panel 544F and rear awning panel 544B (not shown in Fig. 5). As shown in Fig. 5, the pair of set of retaining elements 570 and the pair of set of locking elements 580 may be disposed on the front wall panel 524F and rear wall panel 524B of the tray 520 and the front awning panel 544F and rear awning panel 544B of the lid 540. There may be two sets of retaining elements 570 disposed on opposing parts of the perimeter wall 524, e.g. the front wall panel 524F and rear wall panel 524B, and opposing parts of the perimeter awning 544, i.e. the front awning panel 544F and rear awning panel 544B and spaced apart from each and a set of locking elements 580 may be disposed along the same opposing parts and between the two sets of retaining elements 570. When the lid 540 covers the tray 520, the closed configuration may be shown in Fig. 3B.

[0044] 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.

[0045] The present invention relates to a food box generally as herein described, with reference to and/or illustrated in the accompanying drawings.

Claim

1. A food box comprising:
 - a tray comprising a base having a base perimeter edge, a perimeter wall extending from the base perimeter edge, the perimeter wall comprising a perimeter rim spaced from the base perimeter edge,
 - a lid adapted to cover the tray, wherein the lid comprises a top panel having a top panel perimeter edge and adapted to contact the perimeter rim, a perimeter awning extending from the top panel perimeter edge, wherein the perimeter awning extends over the perimeter wall when the lid covers the tray, wherein the lid is separated from the tray, and
 - a pair of a set of securing elements adapted to secure the lid to the tray when the lid covers the tray, wherein each of the pair of set of securing elements comprises a male securing portion disposed on the perimeter wall and a female securing portion disposed on the perimeter awning, wherein the pair of female securing portions are disposed on opposing parts of the perimeter awning and the pair of male securing portions are disposed on opposing parts of the perimeter wall and adapted to engage the pair of female securing portions to secure the lid to the tray.
2. The food box according to claim 1, wherein the male securing portion is disposed on the perimeter rim of the perimeter wall and rotatable about the perimeter rim.
3. The food box according to claim 1 or 2, wherein the pair of set of securing elements comprises a pair of a set of retaining elements adapted to retain the lid to the tray or a set of locking elements adapted to lock the lid to the tray.
4. The food box according to claim 3, wherein the male securing portion of the set of securing elements comprises a male retaining portion and the female securing portion of the set of securing elements comprises a female retaining portion, wherein the male retaining portion comprises an engaging panel pivotally connected to the perimeter rim and adapted to engage the female retaining portion.

5. The food box according to claim 4, wherein the male retaining portion further comprises an actuating member connected to the engaging panel, wherein the actuating member, when actuated, is adapted to enable the engaging panel to engage the female retaining portion.
6. The food box according to claim 4 or 5, wherein the female retaining portion of the set of retaining elements comprises a ledge disposed on the perimeter awning and adapted to retain the engaging panel, wherein the engaging panel engages the ledge when the lid covers the tray to retain the lid on the tray.
7. The food box according to claim 4 or 5, wherein the female retaining portion of the set of retaining elements comprises a slit disposed on the perimeter awning and adapted to receive the engaging panel therethrough, wherein the engaging panel engages the slit when the lid covers the tray to retain the lid on the tray.
8. The food box according to claim 5, wherein the actuating member comprises an actuating panel extending from the engaging panel and pivotally connected to the perimeter rim.
9. The food box accordingly to claim 3, wherein the set of locking elements comprises a male locking portion and a female locking portion, wherein the female locking portion of the set of locking elements comprises a slot disposed on the perimeter awning of the lid, the male locking portion is adapted to be slotted through the slot when the lid covers the tray and activated to lock the lid to the tray.
10. The food box according to claim 9, wherein the male locking portion of the set of locking elements comprises a foldable flap extending from the perimeter rim of the perimeter wall, wherein the foldable flap comprises a protrusion protrudable from the foldable flap when the foldable flap is folded and adapted to abut the lid to lock the lid to the tray when the foldable flap is folded.
11. The food box according to claim 9 or 10, wherein the female locking portion is disposed adjacent the top panel perimeter edge.

12. The food box according to any one of claims 1 to 11, further comprising another pair of the set of securing elements, wherein each of the another pair of set of securing elements comprises another male securing portion disposed on the perimeter wall and another female securing portion disposed on the perimeter awning, wherein the another pair of female securing portions are disposed on opposing parts of the perimeter awning and the another pair of male securing portions are disposed on opposing parts of the perimeter wall and adapted to engage the another pair of female securing portions to secure the lid to the tray.

13. The food box according to claim 12, wherein the perimeter wall comprises a front wall panel and a rear wall panel opposite the front wall panel and the perimeter awning comprises a front awning panel and a rear awning panel opposite the front awning panel, wherein the pair of set of securing elements and the another pair of set of securing elements are disposed on the opposing front wall panel and rear wall panel and the opposing front awning panel and rear awning panel.

14. The food box according to claim 12, wherein the perimeter wall comprises a front wall panel, a rear wall panel opposite the front wall panel and a left wall panel and a right wall panel extending from the front wall panel to the rear wall panel and spaced apart from each other, and the perimeter awning comprises a front awning panel, a rear awning panel opposite the front awning panel, a left awning panel and a right awning panel extending from the front awning panel to the rear awning panel and spaced apart from each other, wherein the pair of set of securing elements are disposed on the opposing front wall panel and rear wall panel and the opposing front awning panel and rear awning panel and the another pair of set of securing elements are disposed on the opposing left wall panel and right wall panel and the opposing left awning panel and right awning panel.