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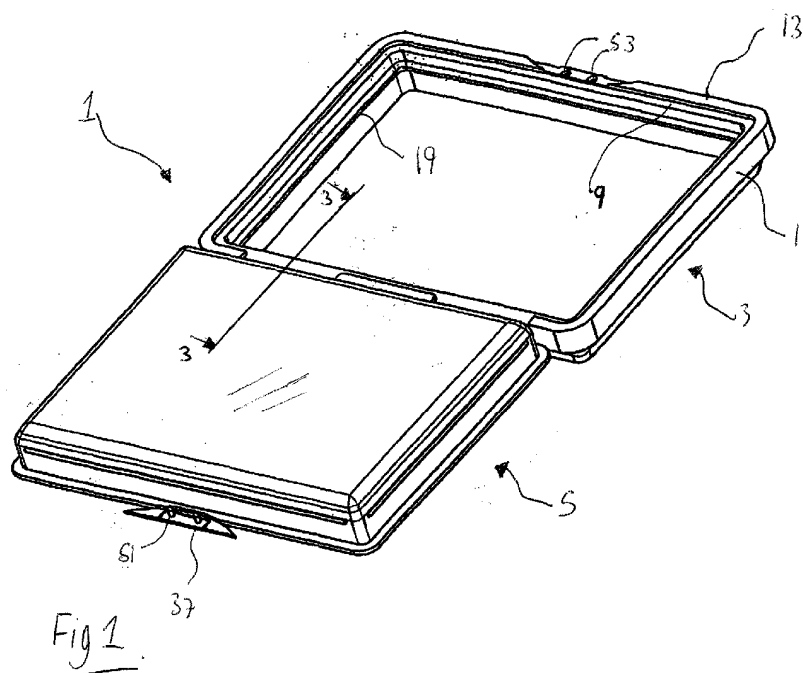
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(54) Container closures

(57) A container closure comprises two hingedly connected portions (3, 5), the first portion (3) being in the form of a framework comprising an upright inner flange (9) of substantially rectangular outline in plan, adapted to be secured to the margin of a container body with a permanent, sealing connection, the second portion (5) comprising a substantially rectangular closure panel (23), the second portion being movable about the hinge (7) to a closed condition in which the panel (23)

is received within the area defined by the inner flange (9) of the first portion, and permanently acting securing means (51, 53) being provided to secure the portions (3, 5) in said closed condition. The securing means comprises pins (51) on one portion of the closure, and sockets (53) on the other portion, the pins (51) being received within the sockets (53) when said portions are initially brought to said closed condition. The pins (51) are mounted on a tab (49), the tab (49) being secured to a removable tear strip (37).



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Description

[0001] The present invention relates to container closures and is concerned in particular, although not exclusively, with closures for containers typically used for food items such as, for example, sugar.

[0002] According to a first aspect of the present invention there is provided a container closure, the closure comprising two hingedly connected portions, the first portion in the form of a framework comprising an upright inner flange of substantially rectangular outline in plan, adapted to be secured to the margin of a container body with a permanent, sealing connection, the second portion comprising a substantially rectangular closure panel, the second portion being movable about the hinge to a closed condition in which the panel is received within the area defined by the inner flange of the first portion, permanently acting securing means being provided to secure the portions in said closed condition.

[0003] By 'upright' we mean that the inner flange extends generally perpendicular to the plane of the framework.

[0004] Preferably the inner flange is of oblong-rectangular outline in plan.

[0005] Preferably the securing means comprises a pin on one portion of the closure, and a socket on the other portion, the pin being received within the socket when said portions are initially brought to said closed condition. Preferably the pin is received in the socket with a snap fit.

[0006] Preferably the pin or socket of the securing means is mounted on a tab, the tab being secured to a removable tear strip along a first line of predetermined weakness, the tear strip being secured to said one portion along a second line of predetermined weakness, and the arrangement being such that the second portion is movable to an open condition in which the panel is not received within the area defined by the inner flange only when the tear strip is torn from the tab and said one portion along the lines of predetermined weakness.

[0007] The closure is intended to be permanently secured to the container itself. This may be effected using an adhesive layer between the container and the closure.

[0008] Preferably the securing means comprises a plurality of pins and a plurality of sockets. The pins are adapted to be permanently received in the sockets. Again, this may be effected using adhesive.

[0009] Alternatively the pins can be in the form of rivets.

[0010] Access to the interior of the container is only possible by moving the second portion of the closure to the open condition. This will necessitate tearing the tear strip and thus the tear strip provides tamper evidence.

[0011] Preferably sealing means is provided on at least one of the portions of the closure to provide a seal between the two portions when the portions are in the closed condition.

[0012] Preferably the seal effects a moisture and vapour seal between said portions.

[0013] Preferably the seal comprises an elongate sealing strip extending outwardly and downwardly from the inner flange of the first portion into the area defined by the inner flange, the sealing strip engaging with a walled region of the second portion of the closure when said portions are in said closed condition.

[0014] Preferably at least one of said inner and outer flanges is provided with one or more protrusions directed towards the opposing flange and adapted to provide a snap action on re-closing of the closure. Preferably the one or more protrusions are provided on the second portion and snap past the free end of the sealing strip to provide said snap action on re-closing of the closure.

[0015] According to a second aspect of the present invention there is provided a container closure for permanent attachment to a container, the closure comprising two hingedly connected portions, the first portion comprising an upright inner flange, of substantially rectangular outline in plan, adapted to be permanently secured to the margin of a container body, the second portion comprising a substantially rectangular closure panel, the second portion being movable relative to the first portion about the hinge to a closed condition in which the panel is received within the area defined by the inner flange of the first portion, sealing means being provided between the inner flange of the first portion and the panel of the second portion to effect a seal between the portions when the portions are in the closed condition.

[0016] Preferably the inner flange is integrally connected with an outer down-turned flange by way of a peripheral bridge to define a downwardly facing slot.

[0017] Preferably the sealing means effects a moisture and vapour seal between the two portions.

[0018] Preferably the sealing means comprises a sealing strip extending downwardly from the inner flange of the first portion into the area defined by the inner flange.

[0019] According to a third aspect of the present invention there is provided a container closure comprising the features of both the first and second aspects of the invention.

[0020] Other embodiments of the present invention may include any combination of the features or limitations referred to herein.

[0021] The present invention may be carried into practice in various ways, but embodiments will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is a perspective view from above of two portions of a container closure in accordance with the present invention with the two portions shown in an open condition;

Figure 2 is a perspective view from below of the container closure of Figure 1;

Figure 3 is an enlarged sectional view taken on line 3-3 of Figure 1;

Figure 4 is a plan view of a tab and tear strip of the container closure of Figures 1 and 2; and

Figure 5 is a sectional view taken on line 5-5 of Figure 4.

[0022] Referring initially to Figures 1 and 2, an injection moulded plastics container closure 1 comprises a first portion 3 and a second portion 5 which are hingedly connected by integral hinges 7.

[0023] The first portion 3 is in the form of a framework comprising an upright inner flange 9, of oblong-rectangular outline as viewed in plan, integrally connected with an outer down-turned flange 11 by way of a peripheral bridge 13 to define a downwardly facing slot 15 adapted to permanently receive the margin of a container body (not shown) such as a wax-board carton. Protrusions 17 are spaced around the slot 15 on the outside face of the inner flange 9. Similar protrusions could also be spaced around the inside of the outer flange 11. Any number of protrusions could be provided.

[0024] Sealing means comprising an elongate sealing strip 19 is provided on the inside face of the inner flange 9. The sealing strip 19 extends downwardly from the inner flange 9 into the rectangular area 21 defined by the inner flange 9. The sealing strip 19 extends continuously around the inner flange 9 and may be formed integrally with the inner flange 9 or may be a separate component secured to the inner flange 9 by adhesive or any other suitable method.

[0025] The second portion 5 comprises an oblong-rectangular closure panel 23 and an upright wall 25 extending generally perpendicular to the plane of the panel 23, the wall 25 extending around the periphery of the panel 23 for engagement with the sealing strip 19 in the closed condition of the closure. The outside of the wall 25 is provided with a plurality of outwardly directed, elongate protrusions 26, a respective protrusion 26 being on each side of the wall 25. The protrusions 26 snap past the free edge of the sealing strip 19 on the first portion 3 on re-closing of the closure portions to provide a clicking action felt by the user to provide assurance that the fully closed condition has been reached. The protrusions 26 can be replaced by a single, continuous protrusion extending around the wall 25.

[0026] The top of the wall 25, as viewed in Figure 2, terminates in an outwardly directed flange 27 which is substantially perpendicular to the wall 25. One side 29 of the flange 27 is hingedly connected to one side of the inner flange 9 of the first portion 3 of the closure as will be further described hereinafter. An opposed side 31 of the flange 27 defines an arcuate finger tab 33 which extends in the opposite direction from the flange 27, towards the side 29 of the flange 27. The finger tab 33 is spaced from the closure panel 23.

[0027] Referring now to Figure 3, the integral hinges 7 are shown in more detail. Each hinge 7 comprises a relatively thin strip 8 which extends from the outside of the outer flange 11 on the first portion 3 to the rear edge of the flange 27 on the second portion 5. The upper surface of each hinge 7 is concave and the lower surface of each hinge 7 is convex. There are six hinges 7 altogether, the six hinges being arranged in two sets of three hinges 7. The first set of three hinges are spaced from the second set of three hinges along the flanges 11 and 27. Any other number or arrangement of hinges 7 could alternatively be used.

[0028] Referring now to Figures 4 and 5, securing means is shown comprising an elongate tear strip 37. One edge 39 of the tear strip 27 is arcuate and is secured to the flange 27 of the second portion 5 of the closure along a line 41 of predetermined weakness. This line 41 of predetermined weakness is created by perforations 43 between the tear strip 37 and the flange 27. Alternatively, the line 41 of weakness may be created by reducing the material thickness along this line 41.

[0029] An opposed edge 45 of the tear strip 37 is substantially straight. A second line 47 of predetermined weakness initially extends perpendicularly away from the straight edge 45 of the tear strip 37, then extends parallel to the edge 45 and then extends back towards the edge 45. The second line 47 of predetermined weakness thus defines an oblong tab 49 within the tear strip 37. Two pins 51 extend downwardly from the underside of the tab 49 away from the tear strip 37.

[0030] The securing means further comprises a pair of circular socket apertures 53 in part of the peripheral bridge 13 which is opposed to the hinges 7. The pins 41 can be received in the apertures 53 with a snap fit as will be further described.

[0031] In use, the closure 1 is initially in an open position as shown in the Figures. Adhesive is applied within slot 15 of the first portion 3 of the closure 1 which is then placed on an upper margin of an oblong container (not shown) the upper margin defining the mouth of the container. The margin of the container is received in the downwardly facing slot 15 and the protrusions 17 within the slot engage with the margin of the container with an interference fit. The adhesive, when dried, provides a permanent, sealing connection between the first portion 3 of the closure and the container.

[0032] The container is then filled with a foodstuff such as sugar or the like. The closure of the present invention is also suitable for any other foodstuff or any other substance that would be transported or sold in containers.

[0033] The second portion 5 of the closure 1 is then pivoted, from the open condition shown in the drawings, about the hinges 7 into a closed position in which the closure panel 23 is received within the area defined by the inner flange 9 of the first portion 3 of the closure 1. The peripheral wall 25 of the second portion 5 engages with the inner flange 9 of the first portion 3 and, more

particularly the peripheral wall 25 engages with the sealing strip 19. When the closure panel has been brought to the closed position, the sealing strip 19 effects a moisture and vapour seal between the two portions 3, 5 of the closure. When the two portions 3, 5 of the closure 1 are in the closed position, the pins 51 on the underside of the tear strip 37 are received in the apertures 53 on the peripheral bridge 13 of the first portion 3 of the closure 1. The pins 51 are received in the apertures 53 with a snap fit to provide a user of the closure 1 with a positive indication that the portions 3, 5 of the closure 1 are fully closed. When so received the pins 51 cannot be removed from the apertures 53. This may be effected using adhesive or the pins 51 may comprise rivets or snap-engageable barbs.

[0034] Thus, the only way to move the second portion 5 to the open position shown in the figures, is to tear the tear strip 37 by gripping either end of the tear strip 37 and tearing along the lines 41 and 47 of predetermined weakness. When the tear strip 37 is torn in this way, the pins 51 remain in the apertures 53 and remain attached to the oblong tab 49. However the oblong tab 49 is no longer attached, via the tear strip 37, to the second element 5 and thus the second element 5 can be pivoted away from the first element 3 about the hinges 7 so that the closure 1 is in the open position. The second portion 5 can be gripped by the user inserting a finger or fingers underneath the finger tab 33 and applying an upwardly directed force. When the tear strip 37 has been torn away, clear visual evidence is provided that the closure 1 has been opened and is no longer sealed. This provides a measure of tamper evidence.

[0035] It will be appreciated that the combination of the tear strip 37 and pins 51 provides both a positive indication to the user that the portions 3, 5 of the closure 1 are fully closed and also provides some tamper evidence. The sealing strip 19 ensures that when the pins 51 are fully inserted in the apertures 53, a moisture and vapour seal is effected between the two portions 3, 5 of the closure 1.

[0036] Once the closure has been opened then, on re-closing the closure, protrusions 26 provide the clicking action previously described.

Claims

1. A container closure comprising two hingedly connected portions (3, 5), the first portion (3) being in the form of a framework comprising an upright inner flange (9) of substantially rectangular outline in plan, adapted to be secured to the margin of a container body with a permanent, sealing connection, the second portion (5) comprising a substantially rectangular closure panel (23), the second portion being movable about the hinge (7) to a closed condition in which the panel (23) is received within the area defined by the inner flange (9) of the first por-

tion, and permanently acting securing means (51, 53) being provided to secure the portions (3, 5) in said closed condition.

2. A closure as claimed in claim 1 in which the inner flange (9) is of oblong-rectangular outline in plan.
3. A closure as claimed in claim 1 or claim 2 in which the securing means comprises a pin (51) on one portion of the closure, and a socket (53) on the other portion, the pin (51) being received within the socket (53) when said portions are initially brought to said closed condition.
4. A closure as claimed in claim 2 in which the pin is received in the socket with a snap fit.
5. A closure as claimed in claim 3 or claim 4 in which the pin or socket of the securing means is mounted on a tab (49), the tab (49) being secured to a removable tear strip (37) along a first line (47) of predetermined weakness, the tear strip being secured to said one portion along a second line (41) of predetermined weakness, and the arrangement being such that the second portion (5) is movable to an open condition in which the panel is not received within the area defined by the inner flange only when the tear strip (37) is torn from the tab (49) and said one portion (5) along the lines of predetermined weakness.
6. A closure as claimed in any one of claims 3 to 5 in which the securing means comprises a plurality of pins (51) and a plurality of sockets (51).
7. A closure as claimed in any of the preceding claims comprising sealing means (19) on at least one of the portions of the closure to provide a seal between the two portions when the portions are in the closed condition.
8. A closure as claimed in claim 7 in which the seal effects a moisture and vapour seal between said portions.
9. A closure as claimed in claim 7 or claim 8 in which the seal comprises an elongate sealing strip (19) extending outwardly and downwardly from the inner flange (9) of the first portion, when the first portion is viewed in its position of use closing an upwardly open container mouth, into the area defined by the inner flange, the sealing strip (19) engaging with a wall (25) of the second portion of the closure when said portions are in said closed condition.
10. A closure as claimed in claim 9 in which at least one of said inner and outer flanges is provided with one or more protrusions (26) directed towards the op-

posing flange and adapted to provide a snap action on re-closing of the closure.

11. A closure as claimed in claim 10 in which the one or more protrusions (26) are provided on the second portion and snap past the free end of the sealing strip (19) to provide said snap action on re-closing of the closure. 5
12. A container closure for permanent attachment to a container, the closure comprising two hingedly connected portions (3, 5), the first portion (3) comprising an upright inner flange (9), of substantially rectangular outline in plan, adapted to be permanently secured to the margin of a container body, the second portion (5) comprising a substantially rectangular closure panel (23), the second portion being movable relative to the first portion about the hinge to a closed condition in which the panel is received within the area defined by the inner flange of the first portion, sealing means (19) being provided between the inner flange of the first portion and the panel of the second portion to effect a seal between the portions when the portions are in the closed condition. 10 15 20 25
13. A closure as claimed in claim 12 in which the inner flange (9) is integrally connected with an outer down-turned flange (11) by way of a peripheral bridge (13) to define a downwardly facing slot (15). 30

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