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(54) A closure member for a container

(57) A tamper evident closure member 10 for storage containers, such as salt container, comprising a lid portion 12 and a wall portion 14, wherein the wall portion 14 is attached around the circumference of the lid portion 12, extending generally perpendicular away from the lid portion 12. At least one opening 16 is provided through the lid portion 12, and the, or each, opening 16 is closeable by a tab member 18 that is pivotably moveable between respective open and closed positions.

A lock member 24 associated with the, or each, tab member 18, is detachably attached to the closure member 10 so that it engages the respective tab member 18, locking the tab member 18 in its closed position, until the lock member 24 is permanently detached from the closure member 10.

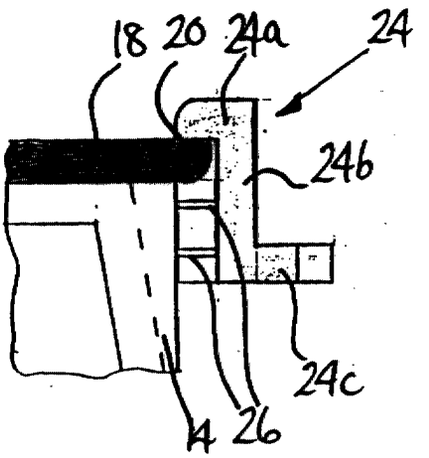

Figure 5

EP 1 160 173 A2

Description

[0001] The invention relates to a closure suitable for use particularly, but not exclusively, on containers for flowable solids such as salt, sugar and other granular or powdered products whether foodstuffs or not. Herein such containers are referred to as "salt containers".

[0002] Lids on salt containers are commonly provided with an opening through the top of the lid that is closeable by a tab pivotably moveable between an open position and a closed position. Such openings allow salt to be dispensed from the container without removing the lid. They also allow salt to be dispensed from the container in a more controlled manner than if the lid is completely removed from the container.

[0003] Such lids must be light in weight and cheap to manufacture.

[0004] A known closure for a salt container comprises a lid disc and secured thereto a wall portion, extending generally perpendicular to the lid disc around its circumference. In use the wall portion is secured around a neck defining an open end of a salt container, whereby the closure member covers and hence closes the open end. An opening perforates the lid disc and is closeable by a tab pivotably moveable between an open position and a closed position. The tab is secured to an edge of the lid disc by a living hinge and is provided with two planar wall members extending from opposing edges of its underside. When the tab is open the wall members extend between the tab and the lid portion such that the wall members and the tab define a spout. This allows salt, etc. to be poured out of the container when required.

[0005] One or more of the wall members, and/or the tab, includes a detent engageable with the wall portion to keep the tab closed when not required for dispensing of salt, etc.

[0006] The wall members include a projection (eg. a bar interconnecting the wall members) that engages the underside of an inner edge of the lid portion, when the tab member opens a predetermined extent. This limits opening of the tab.

[0007] The known closure member suffers several disadvantages. One is that the tab is not tamper evident. Hitherto it has not been possible to produce a satisfactory tamper evident closure, for a salt container, that is manufacturable at low cost.

[0008] A further disadvantage is that although the tab is prevented from opening beyond a predetermined extent, the tab is not held open at this predetermined extent, and is not prevented from dropping shut.

[0009] According to the invention there is provided a closure for storage containers, such as salt containers, comprising:

a lid member having secured thereto a wall portion that projects from the lid portion for securing the closure to the neck of a said container;
an aperture, perforating the lid portion, that is closeable by a tab pivotably moveable between respective closed and open positions; and
a lock member associated with the tab, irreversibly detachably secured to the closure and engaging the tab, locking the tab in its closed position until the lock member is permanently detached from the closure member.

[0010] An advantage of the invention is that once the lock member has been detached from the closure, it cannot be reattached. This means that it is obvious to a consumer when the tab has been opened or tampered with.

[0011] The lock member may be attached at either end to the wall portion by one or more frangible legs.

[0012] These advantageously provide a readily tamper evident attachment that is breakable by hand to allow dispensing of the contents of the container. Preferably the wall portion, the legs and the lock member are formed integrally with one another.

[0013] In preferred embodiments, the lock member overlies a portion of the tab.

[0014] More specifically the tab includes a portion projecting beyond the lid member and the lock member overlies the said projecting portion to prevent movement of the tab away from the closure until the lock member is permanently detached from the closure.

[0015] Particularly preferred embodiments of the components arranged to accommodate the projecting portion are claimed in Claims 6 and 7. Regardless of the precise form adopted, covering of a projecting portion of the tab by the lock member prevents the tab from being moved away from the lid portion of the closure member into its open position, and also discourages or prevents manual grasping and opening of the tab.

[0016] The opening may be provided with a rim extending at least part way round the inner periphery of the aperture. This means that when the tab is in its closed position it abuts the rim surrounding the opening, preventing the tab from pivoting past its closed position and passing through the opening.

[0017] Conveniently when in its closed position the tab occupies a recess in the lid member. This means that, when closed, the tab is flush with the lid member of the closure providing a neat appearance, and further discouraging grasping or levering of the tab.

[0018] The closure may be as defined in Claim 10. The guide wall is advantageous because in the open position of the tab the guide wall and the tab member define a spout. Further, advantageous features of the co-operating detent parts are defined in Claims 11 and 12.

[0019] The aperture may optionally include a perforated grille.

[0020] Alternatively the closure may be as defined in Claim 14. This is advantageous because the tab is then retained in its closed position until it experiences a force sufficient to urge the tab past the projections thereby re-

leasing the detent.

[0021] Preferably the closure is as defined in Claim 15. Hence when the tab is in its open position, the bar engages a side of the rim, preventing travel of the tab beyond a predetermined position.

[0022] In a preferred embodiment of the invention the closure includes a plurality (eg two) of the apertures; and a corresponding plurality of the tabs and lock members, functionally arranged as defined herein.

[0023] Preferred embodiments of the invention will now be described, by way of non-limiting example, with reference to the accompanying drawings in which:

Figure 1 is a plan view of part of a closure according to an embodiment of the invention;

Figure 2 is a cross-sectional view of the closure of Figure 1 along the line I-I showing the tab in a closed position;

Figure 3 is a further cross-sectional view of the closure of Figure 1 along the line I-I, showing the tab in an open position;

Figure 4 is a side view of the closure of Figure 1;

Figure 5 is an enlarged cross-sectional view of a section of the closure of Figure 1 along the line I-I;

Figure 6 is a cross-sectional view of a closure according to a second embodiment of the invention; and

Figure 7 is a further cross-sectional view of the closure of Figure 6.

[0024] A closure 10, according to an embodiment of the invention, is shown in Figure 1. The closure 10 includes a circular planar lid member 12. A wall portion 14 projects from the lid 12. In the embodiment shown, wall portion 14 is attached around the circumference of the lid portion 12 so that it extends generally perpendicular to the lid portion 12.

[0025] An aperture 16 perforates the lid portion 12. Aperture 16 is closeable by a planar tab 18 that is pivotably moveable between closed and open positions. Figures 1, 3 and 4 show the tab open; Figures 2 and 5 show the tab closed.

[0026] The tab 18 is generally rectangular in shape, and is provided with a projecting end portion 20. The tab member 18 is hingedly secured by means of living hinge 22 extending along one of its edges, to an edge of aperture 16. The hinge 22 extends along a said edge that lies on the opposite side of aperture 16 to the projecting end portion 20 of the tab member 18.

[0027] In the embodiment shown in Figure 1, a lock member 24 is irreversibly detachably secured to the wall portion 14 of the closure member 10. Lock member 24 includes a recess enclosing the projecting end portion of the tab 18. The lock member 24 prevents the tab 18 from being opened.

[0028] The aperture 16 includes a perforated grille 26 in the Figure 1 embodiment.

[0029] In this embodiment, the perforated grille 26 is a similar size to the aperture 16, and is attached around its circumference to the edge of the lid portion 12 surrounding the aperture 16. A plurality of perforations 28 are formed in the grille 26.

[0030] As can be seen from Figure 2, the aperture 16 is recessed in the lid member 12 of the closure 10, and in its closed position a first planar surface 18a of the tab member 18 is flush with a first planar surface 12a of the lid member 12.

[0031] A projection 19 (shown in Figure 1) is formed on each of two opposing side walls (not shown) of the lid member 12 surrounding the aperture 16. Each projection 19 is formed so that it projects flush with, and parallel to, the first surface 12a of the lid member 12, towards the centre of the aperture 16. The tab 18 snap-fittingly engages each of the projections 19 when it is in its closed position, so that it is retained in its closed position between the projections 19 and the perforated grille 26.

[0032] The tab 18 is locked in its closed position by a locking flange 24a that partially defines the recess in the lock member 24, as shown in Figure 5.

[0033] The locking flange 24a is attached to a first end of an elongate body portion 24b of the lock member 24, such that it extends perpendicular to the elongate body portion 24b. A release flange 24c is attached to the other end of the elongate body portion 24b, such that it extends perpendicular to the elongate body portion 24b in an opposite direction to the lock flange 24a.

[0034] The lock member 24 is at either end irreversibly detachably secured to the wall portion 14 of the closure 10 by narrow, frangible leg portions 26 extending between the elongate body portion 24b and the wall portion 14.

[0035] To detach the lock member 24 from the closure member 10, a force (eg. a manual force) may be applied to the release flange 24c in a direction parallel to the length of the elongate body portion 24b, and towards the locking flange 24a. This in turn applies a turning force to the elongate body portion 24b, which is resisted by the narrow leg portions 26, so stretching the leg portions. When the leg portions 26 break, at least one end, and more commonly both ends, of the lock member 24 detach from the wall portion 14. This frees the end of tab 18 and permits its opening. Since detachment of lock member 24 is, by virtue of breaking of the legs 26, irreversible, it becomes permanently evident when the closure 10 has been unsealed.

[0036] To open the tab member 18 when the locking member 24 has been detached from the wall portion 14 of the closure 10, a force sufficient to force the tab member 18 past the projections 19 may be applied to the projecting end portion 20 of the tab member 18.

[0037] In Figures 3 and 4, the tab member 18 is shown in its open position, extending from the first surface of the lid member 12.

[0038] A closure member 10 according to a second embodiment of the invention is shown in Figures 6 and

7.

[0039] As in the Figure 1 embodiment, the closure member 10 comprises a circular planar lid member 12 and a wall portion 14 preferably attached around the circumference of the lid portion 12 so it that extends generally perpendicular to the lid portion 12. An aperture 16 is provided through the lid portion 12 and is closeable by a tab 18 pivotably moveable between an open position and a closed position. Pivoting of tab 18 occurs by virtue of a living hinge similar or identical to hinge 22 of Figure 1.

[0040] The aperture 16 is recessed in the lid portion 12 so that a first surface 18a of the tab member 18 is flush with a first surface 12a of the lid portion 12 when the tab member 18 is in its closed position.

[0041] A rim 36 is provided around the inner circumference of the opening 16 spaced from the first surface 12a of the lid portion 12.

[0042] The tab member 18 is locked into its closed position by a locking member 24 irreversibly detachably secured to the wall portion 14 of the closure member 10 in substantially the same manner as in the Figure 1 embodiment.

[0043] The tab 18 includes two wall members 30. Only one of the wall members is shown in Figures 6 and 7. Each wall member 30 extends generally perpendicular to a second planar surface 18b of the tab 18.

[0044] Each wall member 30 is formed with a curved first edge 32 that passes in close proximity to a first edge 34 of a rim 36 attached around the inner circumference of the aperture 16 as the tab 18 moves between its open and closed positions.

[0045] The first edges 32 of the wall members 30 are interconnected by a bar 38 that is attached to an end of each wall member 30, remote from the tab 18.

[0046] A first projection 40 is formed on the first edge 32 of each of the wall members 30, between the tab 18 and the bar 38, at a position proximate the bar 38. The distance between the first projection 40 and the bar 38, along the first edge 32 of each of the wall members 30, is generally equal to the depth D of the first edge 34 of the rim 36.

[0047] A second projection 42 is also formed on the first edge 32 of each of the wall members 30, between the tab member 18 and the bar 38, at a position proximate to the tab 18. The distance between the second projection 42 and the tab 18, along the first edge 32 of each of the wall members 30, is generally equal to the depth D of the first edge 34 of the rim 36.

[0048] The tab 18 is retainable in its closed position, by snap-fitting engagement of the second projections 42 with the first edge 34 of the rim 36. The second projections 42 and the protruding portion 20 of the tab member 18 engage opposing sides of the first edge 34 of the rim 36.

[0049] Tab member 18 moves to its open position when the protruding portion 20 of the tab 18 experiences a force (eg. a manual force) sufficient to force the second projections 42 past the first edge 34 of the rim 36.

[0050] As the tab 18 opens, the first projections 40 meet the first edge 34 of the rim 36. As long as the force applied to the tab member 18 is sufficient to force the first projections 40 past the first edge 34, the first projections snap-fittingly engage the first edge 34. The tab 18 is held in an open position at this predetermined extent by engagement of the first projections 40 and the bar 38 on opposing sides of the first edge 34 of the rim 36.

[0051] The length of the first edge 32 of each of the wall members 30 determines the extent to which the tab 18 may be opened in relation to the first planar surface 12a of the lid portion 12.

[0052] In its open position, the wall members 30 of the tab 18 extend between the tab member 18 and the lid portion 12, enclosing opposing sides of the region between the tab member 18 and the opening 16. Hence the wall members 30, together with the tab member 18, define a spout for pouring of the contents of the container via the closure 10.

[0053] In other embodiments of the invention, the closure 10 may include two openings 16, one according to the embodiment described with reference to Figures 1 to 5, and another according to the embodiment described with reference to Figures 6 and 7.

Claims

1. A closure for storage containers, comprising:

   a lid member having secured thereto a wall portion that projects from the lid member, for securing the closure to the neck of a said container;
   an aperture, perforating the lid portion, that is closeable by a tab pivotably moveable between respective closed and open positions; and
   a lock member, associated with the tab, irreversibly detachably secured to the closure and engaging the tab locking the tab in its closed position until the lock member is permanently detached from the closure.

2. A closure as claimed in Claim 1 wherein the lock member is attached at either end to the wall portion, by one or more frangible legs.

3. A closure according to Claim 2 wherein the wall portion, the frangible legs and the lock member are formed integrally with one another.

4. A closure as claimed in Claim 1 or Claim 2 wherein the lock member overlies a portion of the tab.

5. A closure according to Claim 4 when dependent from Claim 2, wherein the tab includes a portion pro-

jecting beyond the lid member and the lock member overlies the said projecting portion to prevent movement of the tab away from the closure until the lock member is permanently detached from the closure.

6. A closure according to Claim 5 wherein the lock includes a recess for receiving the said projecting portion.

7. A closure according to Claim 5 or Claim 6 including a shoulder engageable by the said projecting portion to limit movement of the tab towards the closure.

8. A closure as claimed in any preceding claim wherein the opening includes a rim extending at least part way round the inner periphery of the opening, to limit movement of the tab towards the lid member.

9. A closure as claimed in any preceding claim wherein when in its closed position the tab occupies a recess in the lid member.

10. A closure as claimed in any of Claims 1 to 9 including a guide wall projecting from the tab towards the interior of the container, to define a guide surface for flowable material dispensed via the closure, the guide wall and the aperture including co-operating detent parts that releasably secure the guide wall, and hence the tab, in a predetermined position.

11. A closure according to Claim 10 wherein the co-operating detent parts are located for releasably securing the guide wall and tab in an open position of the tab.

12. A closure according to Claim 10 wherein the co-operating detent parts are located for releasably securing the guide wall and tab in a closed position of the tab.

13. A closure as claimed in any preceding claim wherein the aperture includes a perforated grille.

14. A closure as claimed in any of Claims 1 to 9 or 13 wherein at least one edge of the aperture includes a projection engageable with the tab to define a releasable detent for the tab when the tab occupies its closed position.

15. A closure as claimed in Claim 10 or any claim dependent therefrom including two said guide walls spaced from and extending parallel to one another, the said guide walls being interconnected, at a location remote from the tab, by a bar engageable with the closure to limit opening of the tab.

16. A closure as claimed in any preceding claim including a plurality of the apertures and a corresponding plurality of the tabs and lock members.

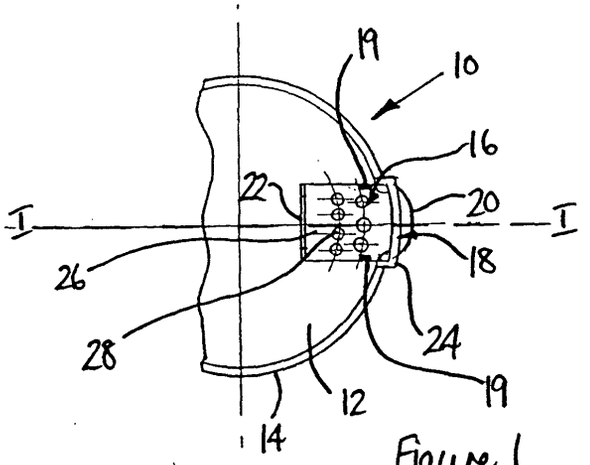

Figure 1

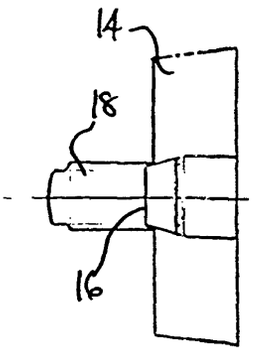

Figure 4

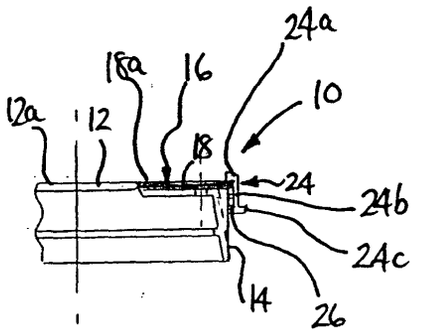

Figure 2

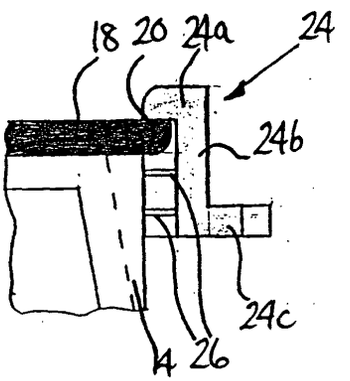

Figure 5

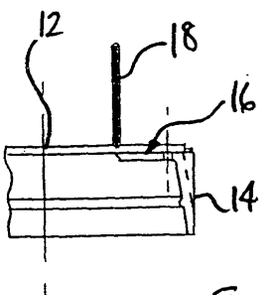

Figure 3

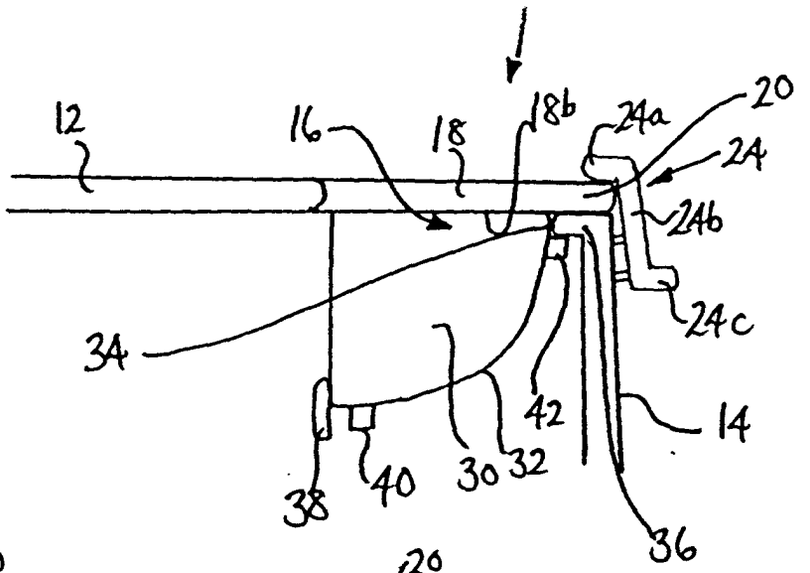

Figure 6

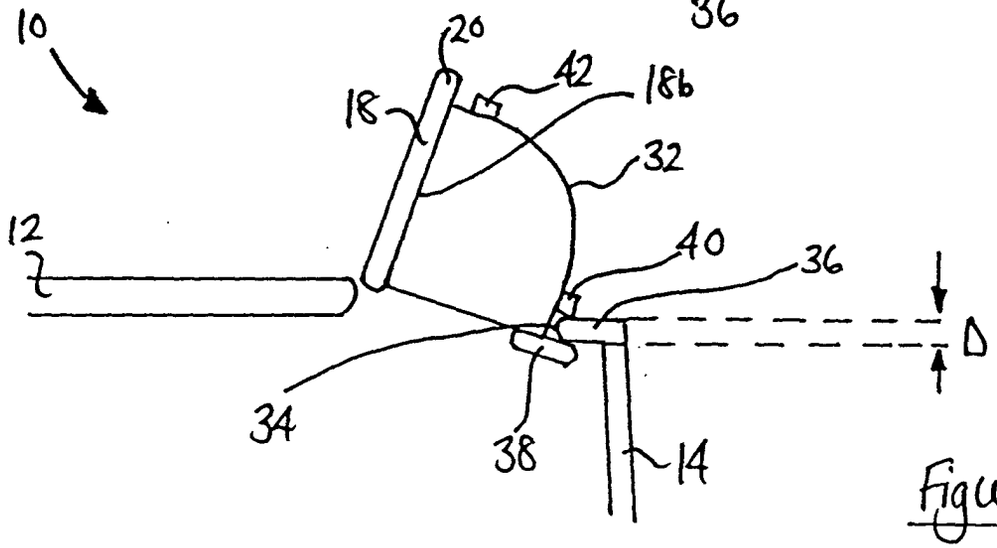

Figure 7