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B8T TWJ T14D T14E
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(56) Documents cited
GB 2207909 A GB 2165225 A

(58) Field of search
UK CL (Edition L) B8T TWJ
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(54) Tamper evident closure for dispenser

(57) A closure assembly e.g. for a salt or spice dispenser has a lid 12 on which a closure disc 28 having dispensing apertures 33 - 35 is rotatably mounted by a spigot 130 positively engaging a socket 20, a line of weakness 140 surrounding (at least partially) the spigot or the socket (preferably the one which is uppermost in use). Thus forcible separation of the disc from the lid will lead to tearing of the line of weakness, so that the fact of the separation will be evident. The socket 20 is preferably provided in a recess in the lid (16, Figure 2), the recess also including a press-in area 22 for creating a dispensing aperture. An enlarged head 132 of the spigot prevents removal, the spigot being solid (30, Figure 6) or hollow and having sloping walls 152, 154 around the head 132 for assembly purposes. The line of weakness 10 is preferably a recess of curved profile.

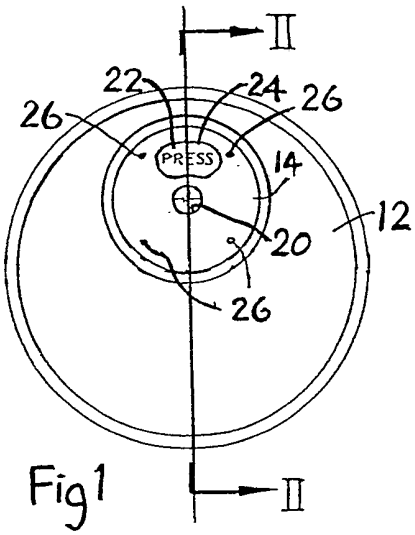

Fig 1

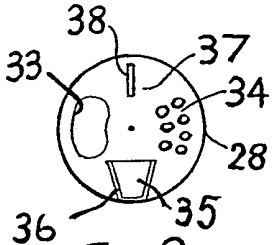

Fig 3

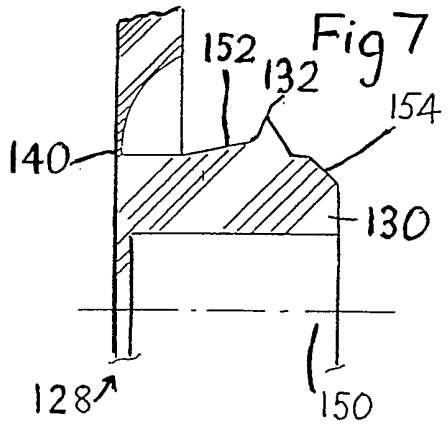

Fig 7

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

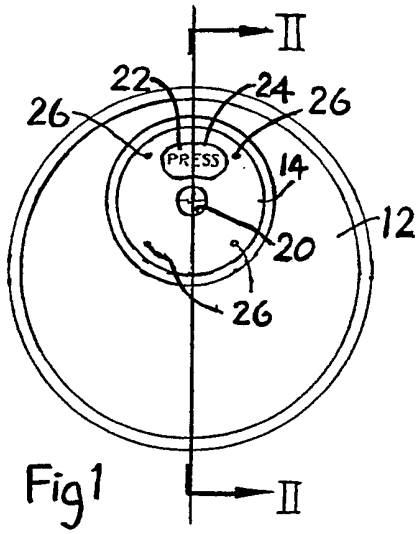

Fig 1

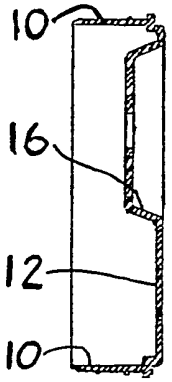

Fig 2

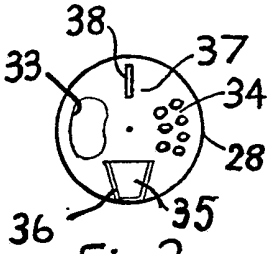

Fig 3

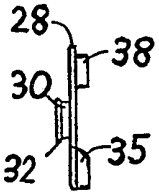

Fig 5

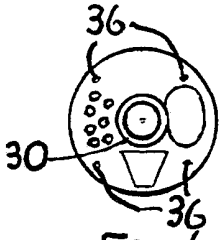

Fig 4

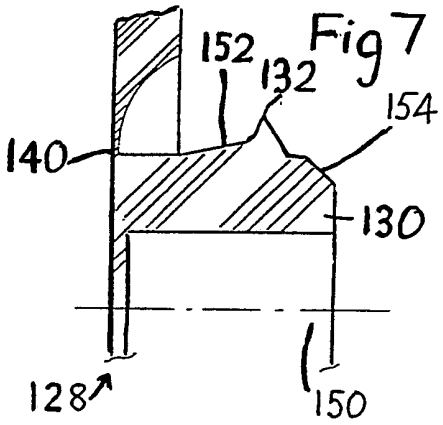

Fig 7

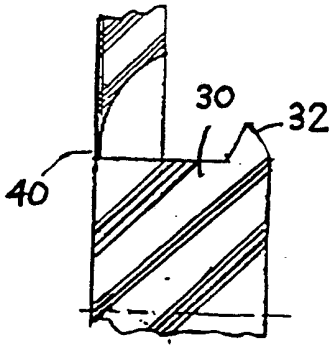

Fig 6

TAMPER EVIDENT CLOSURE

The present invention relates to a tamper evident closure, and particularly to a rotary closure having a first fixed wall portion and a second wall portion rotatably mounted to the first by a spigot passing through an opening. In a known type of container, e.g. for salt for domestic use, a container in the form of a drum has a permanently fixed lid which has an opening; and a rotatable disc has a spigot by which it is rotatably mounted to the lid. The disc has one or more openings which can be brought into alignment with a dispensing opening in the lid, to allow the contents to be poured. However, in the initial state, the dispensing opening in the lid is closed by a closure portion delimited by a line of weakness. Thus the customer buys a sealed container, and pushes out the closure for use. However, if the disc is pulled away from the lid, the spigot-receiving opening is revealed, allowing access to the container interior. Increasingly there are fears about unscrupulous persons who may wish to contaminate foods on sale in supermarkets. Such a person could remove a disc, add a contaminant through the spigot aperture, and re-engage the disc to produce a container which, externally, appeared never to have been opened.

According to the invention, there is provided a closure assembly comprising a first wall portion having

an opening, and a second wall portion having a spigot portion such that the wall portions are engageable with the second overlying the first by passing the spigot portion into the opening, there being means for resisting withdrawal of the spigot portion e.g. an enlarged head of the spigot portion that is forced past a constraining portion of the opening; and wherein at least one of the wall portions has a zone of weakness at least partly surrounding the opening or the spigot portion such that forceable pulling apart of the engaged wall portions leads to rupture. Generally it will be the uppermost wall portion that has the zone of weakness, so that the rupture would be clearly visible even if a malefactor endeavoured to re-engage the parts. Preferably the zone of weakness entirely surrounds the relevant formation, which will generally be the spigot portion.

In another aspect the invention provides a container which includes a closure assembly according to the first aspect. The first wall portion may be integral with the body of the container or it may be a separate item. For example, the first wall portion may be provided by a cap portion which normally provides the top of a spirally wound card tub (whose base may be of card or plastics).

An embodiment of the invention will now be described in more detail by way of example, with reference to the accompanying drawings in which:

Fig. 1 is a top plan view of a lid member;

Fig. 2 is a section of the lid member on II-II in Fig. 1;

Fig. 3 is a top plan view of a disc member;

Fig. 4 is a bottom plan view of the disc member;

Fig. 5 is a sectional view on V-V in Fig. 3;

Fig. 6 is an enlarged detail of a central part of Fig. 5; and

Fig. 6 is a view similar to Fig. 5 but showing a preferred variant.

The lid member shown in Figs. 1 and 2 is a shallow cup, having a short cylindrical wall 10 and a base wall 12. The base wall 12 has a circular recess 14, with a frustoconical wall 16. The bottom of the recess is a circular wall portion 18 penetrated by a small central aperture 20. There is also a kidney-shaped closure area 22 delimited by a line of weakness 24 such that the closure can be pressed out to create a dispensing aperture. The circular wall 18 also bears four small upstanding pips 26.

The disc member shown in Figs. 3-6 is a flat plastics disc 28 having a spigot 30 extending rearwardly from its centre. The spigot is of uniform diameter for a thickness slightly greater than the thickness of the wall 18 of the lid means, and terminates in an enlarged head portion defined by a tapered annular rib 32. The disc 28

also has, at 90° intervals, various forms of dispensing opening 33, 34, 35. As seen in Fig. 3, at 9 o'clock there is a large kidney-shaped opening 33 similar to the opening screened by the closure 22 in the lid. At 3 o'clock there is a set of small openings 34. At 6 o'clock there is a trapezoidal opening 35 bordered by the pouring spout 36. At 12 o'clock there is a non-apertured wall portion 37 with a raised nib 38. The underside of the disc has four small recesses 38. The disc means 28 is engageable with the lid means by pushing it into the recess 14 so that the spigot 30 passes through the aperture 20, until the flange 32 snap-engages behind it. The disc is then rotatable between configurations in which different openings 33, 34, 35 or the un-apertured wall portion 37 overlie the line of weakness 24 of the disc means. The pips 26 can register with respective recesses 36, so that the disc can be indexed around in 90° steps. The customer will rotate the disc, using the rib 38 and spout 36 as finger grips, so that the large aperture 34 overlies the kidney-shaped portion 22, which can then be pushed out to open the container.

This much is generally conventional. However, the illustrated assembly also has a tamper-evidence feature. As can be seen in Fig. 6, the disc 28 is not of uniform thickness but, adjacent the boss 30, it is thinned by a curved profile opening rearwardly, such that adjacent the

boss, the thickness is very small indeed. Thus there is a line of weakness 40 surrounding the spigot 30. This means that it is still perfectly straightforward to engage the disc in the recess, by pushing downwardly on the centre of the disc. However, if someone endeavours to prise the disc away from the lid, it will rupture around the line of weakness 40. It will then be impossible to re-engage the portions, without it being clearly evident that the assembly has been damaged.

Fig. 7 shows a variant 128 of the disc. Once again there is a ribbed boss 130 projecting from the main web of the disc, with a line of weakness 140 defined by a curved profile. However the form of the boss 130 is somewhat different. It is tubular, having a central cavity 150. This facilitates assembly, enabling the boss to flex as it is pushed through the aperture 20 and to spring lock resiliently once the rib 132 has passed through. Above the rib 132, the wall 152 slopes, so that the disc is urged down against the wall 18 of the recess. The end of the boss has a chamfer 154 which further assists assembly.

Claims

1. A closure assembly comprising a first wall portion having an opening, and a second wall portion having a spigot portion such that the wall portions are engageable with the second overlying the first by passing the spigot portion into the opening, there being means for resisting withdrawal of the spigot portion; and wherein at least one of the wall portions has a zone of weakness at least partly surrounding the opening or the spigot portion such that forceable pulling apart of the engaged wall portions leads to rupture.

2. A closure assembly according to claim 1 wherein the means for resisting withdrawal comprises an enlarged head of the spigot portion that is forced past a constraining portion of the opening when the wall portions are engaged.

3. A closure assembly according to claim 1 or claim 2 wherein the zone of weakness entirely surrounds the opening or the spigot portion.

4. A closure assembly according to any preceding claim wherein the line of weakness at least partly surrounds the spigot portion.

5. A closure assembly according to claim 4 wherein the line of weakness is provided by a recess opening into the face of the wall portion that overlies the other wall portion; the recess being of tapered cross section so

that it deepens towards the spigot portion.

6. A closure assembly according to any preceding claim wherein one wall portion is adapted to provide at least part of an end face of a container, and the other wall portion overlies it when engaged and is provided with the zone of weakness.

7. A closure assembly according to any preceding claim wherein the two wall portions are relatively rotatable when mutually engaged and each has at least one opening or openable portion arranged to be bringable into and out of register with an opening or openable portion of the other wall portion by relative rotation.

8. A closure assembly substantially as herein described with reference to and as illustrated in the accompanying drawings.

9. A container which includes a closure assembly according to any preceding claim.

10. A container according to claim 9 wherein the first wall portion is provided by a cap portion which provides the top of a spirally wound card tube.

Patents Act 1977
E: niner's report to the Comptroller under Section 17 (The Search Report)

Application number

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Relevant Technical fields

(i) UK Cl (Edition L) B8T (TWJ)

(ii) Int Cl (Edition 5) B65D 47/20, 47/26, 55/02

Search Examiner

LINDA HARDEN

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

26 FEBRUARY 1993

Documents considered relevant following a search in respect of claims 1-10

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2207909 A (WEATHERCHEM) see Figures 2 and 5	1-10
X	GB 2165225 A (WEATHERCHEM) see Figures 2 and 5 and page 2 lines 85 to 90	1-10

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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