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- *as to applicant's entitlement to apply for and be granted a  
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- *as to the applicant's entitlement to claim the priority of the  
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- *of inventorship (Rule 4.17(iv))*

[Continued on next page]

- (54) Title: CAN END

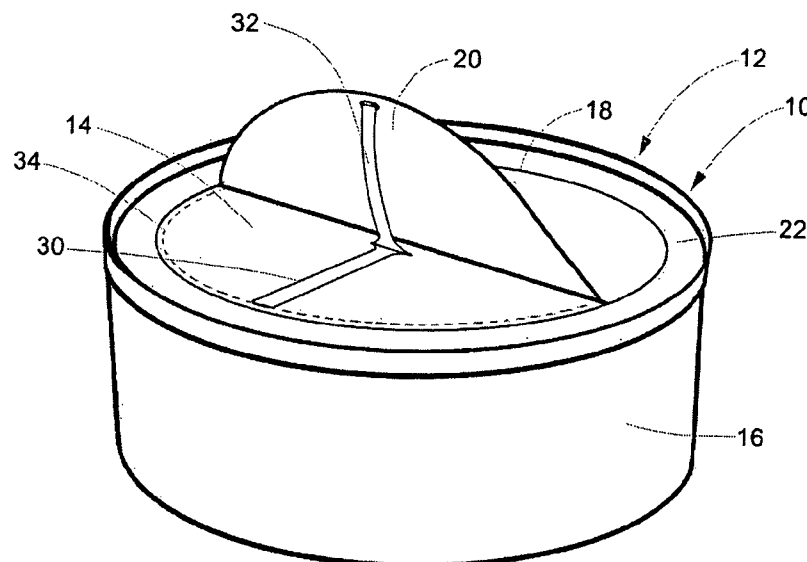


Figure 4

- (57) Abstract: A can end (10) includes a substantially planar portion (12) and a first frangible line (18) on the substantially planar portion (12). The first frangible line (18) divides the substantially planar portion (12) into: a first cover (20) substantially bounded by the first frangible line (18); and a residual portion (22). The can end (10) further includes: means (24) for separating the first cover (20) from the residual portion (22) along the first frangible line (18) to create an aperture therebetween; and a second cover (14) secured to the residual portion (22). Such that, the second cover (14) at least partially closes the aperture when the first cover (20) is partially separated from the residual portion (22).

**Published:**

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## CAN END

### BACKGROUND

The present invention relates to a can end that is seamed onto a can body. More particularly, the invention relates to a can end that includes first and second covers to facilitate decanting of the can contents when the first cover is partially pulled back.

Known cans include a body and a seamed-on end. It is also known for the can end to include a pull tab to enable a removable portion of the can end to be separated therefrom along a frangible line.

In some applications, such as cans containing tuna fish and beans, users tend partially to remove the removable portion and invert the can to decant liquid, while attempting to retain the solids within the can.

A drawback of known cans is that when decanting liquid therefrom, the aperture created by separating the removable portion from the can end is not designed effectively to regulate escape of solids from the can.

The present invention aims to address this drawback.

### SUMMARY OF THE INVENTION

According to a preferred embodiment of a first aspect of the present invention there is provided a can end including:

a substantially planar portion;

a first frangible line on the substantially planar portion, the first frangible line dividing the substantially planar portion into:

a first cover substantially bounded by the first frangible line; and

a residual portion;

means for separating the first cover from the residual portion along the first frangible line to create an aperture therebetween; and

a second cover secured to the residual portion, wherein the second cover at least partially closes the aperture when the first cover is partially separated from the residual portion.

Typically, the second cover is secured to the residual portion in the region of the separating means.

Generally, the second cover is also secured to the first cover.

Optionally, the second cover defines a drainage aperture. Alternatively, the second cover defines a second frangible line bounding a removable portion. The second frangible line on the second cover may include two parallel lines such that the removable portion is in the shape of a strip. Preferably, the removable portion is secured to the first cover in the region of the separating means such that the removable portion is torn from the second cover as the first cover is separated from the residual portion, thereby to define a drainage aperture in the second cover.

Typically, the second cover is releasably secured along a first portion of its perimeter to the residual portion and along a second portion of its perimeter to the first cover.

Generally, the second cover remains secured to the residual portion until the first cover is separated from the residual portion along at least a half of the length of the first frangible line on the substantially planar body, and wherein continued separation of the first cover from the residual portion causes the second cover to start separating from the residual portion.

Preferably, the second cover defines a third frangible line that runs adjacent to the area where the second cover is secured to the residual portion.

Typically, the second cover is made from an aluminium foil, PET sheeting, a food grade extruded plastic, a waxed paper or a foil laminate.

Generally, the thickness of the second cover is less than 1mm.

Preferably, the separating means is a pull tab or a tab that is, in use, connectable to a churn key.

#### BRIEF DESCRIPTION OF THE DRAWINGS

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

- Figure 1** is a top view of a can end according to a preferred embodiment of the invention;
- Figure 2** is a bottom view of the can end in Figure 1;
- Figure 3** is a perspective view of the can end in Figure 1 secured to a can body;
- Figure 4** is a perspective view of the can end in Figure 1 secured to a can body with the first cover partially separated from the residual portion; and
- Figure 5** is a perspective view of a second embodiment of the can end secured to a can body with the first cover partially separated from the residual portion.

#### DESCRIPTION OF THE INVENTION

With reference to Figures 1 to 4, according to a preferred embodiment of the invention a can end 10 is provided. The can end 10 includes a substantially planar portion 12 and a second cover 14.

The substantially planar portion 12 is in the shape of a circular disc. The perimeter of the substantially planar portion 12 is formed to engage with and seam onto the open end of a

can body 16. Although not shown, it will be appreciated that the substantially planar portion 12 may include formations (such as circular ridges) to provide additional strength.

A first frangible line 18 is scored into the substantially planar portion 12. The first frangible line 18 is circular, concentric with the disc 12 and has a radius 1mm to 5mm less than that of the disc 12.

It will be appreciated that although the first frangible line 18 has been shown as forming a closed circle, it need not form a continuous line.

The first frangible line 18 divides the substantially planar portion 12 into a first cover 20, which is bounded by the first frangible line 18 (i.e. within the first frangible line 18) and a residual portion 22, located outside the first frangible line 18.

A means 24 for separating the first cover 20 from the residual portion 22 is located on the first cover 20.

The separating means 24 is shown in the form of a pull tab. However, it will be appreciated that it may alternatively comprise a tab that is, in use, connectable to a churn key.

The second cover 14 is made from an aluminium foil, PET sheeting, a food grade extruded plastic, a waxed paper or a foil laminate having a thickness less than 1mm. The second cover 14 is more flexible than the first cover 20. The second cover 14 is secured to: (i) the residual portion 22 along a first weld line 26; and (ii) the first cover 20 along a second weld line 28.

The second cover 14 also defines a second frangible line 30 in the shape of a rectangle with a minor side adjacent the residual portion 18 in the area of the pull tab 24, and parallel major sides extending radially towards the centre of the can end 10. A removable portion 32 of the second cover 14 is bounded on three sides by the second frangible line 30.

It will be appreciated that the removable portion 32 defined by the frangible line 30 can be any shape, including non-linear shapes normally associated with spouts.

The removable portion 32 is secured to the first cover 20 within the area of the separating means 24.

The second cover 14 also defines a third frangible line 34 that runs adjacent the first weld line 26.

Figure 3 shows the can end 10 seamed onto a tuna can body 16.

As is shown in Figure 4, to open the can, a user lifts and pulls the pull tab 24 to separate the first cover 20 from the residual portion 22 along the first frangible line 18 and create an aperture therebetween. Initially, this aperture is closed by the second cover 14, restricting access to and from the can body 16. However, as the first cover 20 is peeled back further, the removable portion 32 is separated from the surrounding material along the second frangible line 30 to define a drainage aperture that permits access to and from the inside of the can body 16. In this condition, the can may be inverted to decant liquid therefrom, while substantially retaining the solid content. Peeling the first cover 20 further (i.e. such that the first cover 20 is separated from residual portion 22 along about half the first frangible line 18) causes the second cover 14 to separate from the residual portion 20 along the third frangible line 34. When the first cover 20 is completely separated from the residual portion 22, the second cover 14 would have separated completely from the residual portion 22 and the first cover 20 with second cover 14 attached thereto along weld line 28 may be disposed of.

Figure 5 shows a second embodiment of the end can 110. This embodiment is similar to the preferred embodiment described above. However, it does not include a second frangible line or a removable portion. Instead, the second cover 114 defines circular apertures 136 that permit liquids to drain from the can when the first cover 120 is partially separated from the residual portion 122.

CLAIMS

1. A can end including:

a substantially planar portion;

a first frangible line on the substantially planar portion, the first frangible line dividing the substantially planar portion into:

a first cover substantially bounded by the first frangible line; and

a residual portion;

means for separating the first cover from the residual portion along the first frangible line to create an aperture therebetween; and

a second cover secured to the residual portion, wherein the second cover at least partially closes the aperture when the first cover is partially separated from the residual portion.

2. A can end according to claim 1, wherein the second cover is secured to the residual portion in the region of the separating means.
3. A can end according to claim 2, wherein the second cover is also secured to the first cover.
4. A can end according to claim 3, wherein the second cover defines a drainage aperture.
5. A can end according to claim 3, wherein the second cover defines a second frangible line bounding a removable portion.
6. A can end according to claim 5, wherein the second frangible line on the second cover includes two parallel lines such that the removable portion is in the shape of a strip.
7. A can end according to claim 6, wherein the removable portion is secured to the first cover in the region of the separating means.



8. A can end according to claim 7, wherein the connection between the first cover and the removable portion causes the removable portion to tear from the second cover as the first cover is separated from the residual portion, thereby to define a drainage aperture in the second cover.
9. A can end according to any one of the preceding claims, wherein the second cover is releasably secured along a first portion of its perimeter to the residual portion and along a second portion of its perimeter to the first cover.
10. A can end according to claim 9, wherein the second cover remains secured to the residual portion until the first cover is separated from the residual portion along at least half the length of the first frangible line on the substantially planar body, and wherein continued separation of the first cover from the residual portion causes the second cover to start separating from the residual portion.
11. A can end according to claim 10, wherein the second cover defines a third frangible line that runs adjacent to the area where the second cover is secured to the residual portion.
12. A can end according to claim 11, wherein the second cover is made from an aluminium foil, PET sheeting, a food grade extruded plastic, a waxed paper or a foil laminate.
13. A can end according to claim 12, wherein the thickness of the second cover is less than 1mm.
14. A can end according to any one of the preceding claims, wherein the separating means is a pull tab or a tab that is, in use, connectable to a churn key.

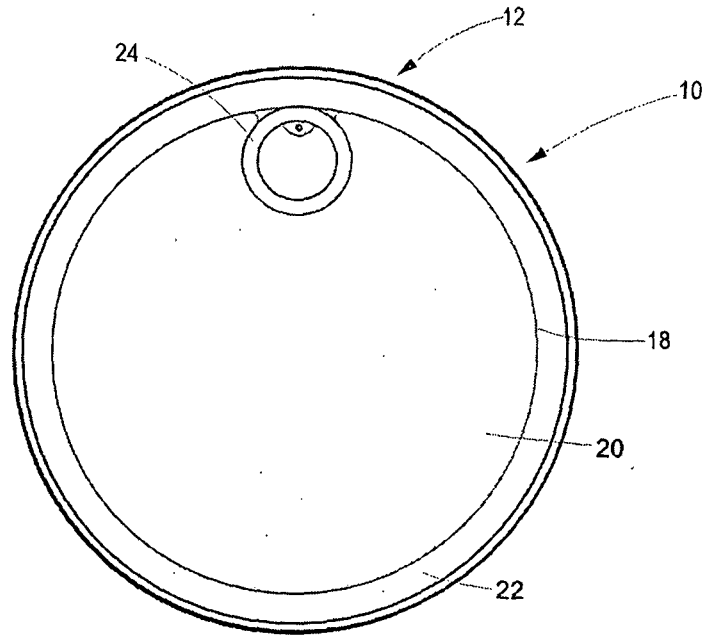


Figure 1

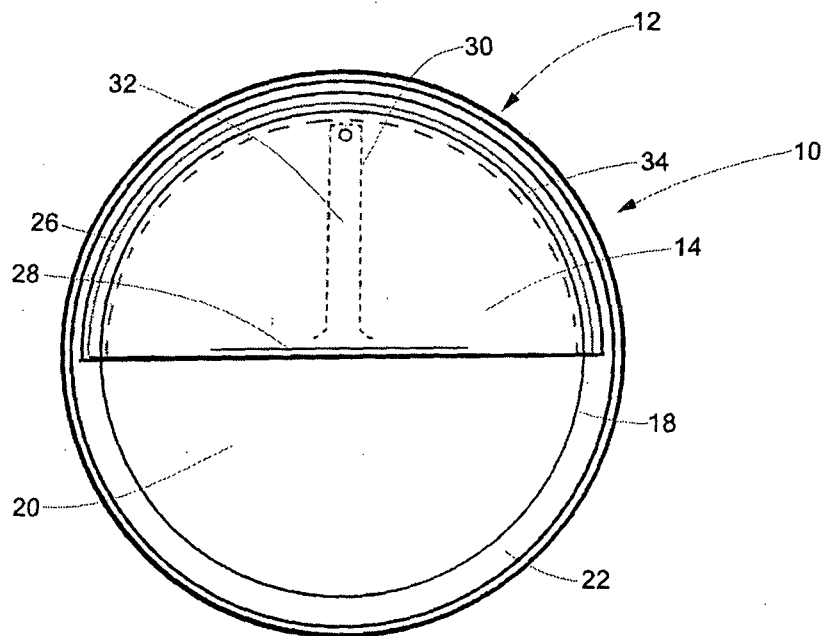


Figure 2

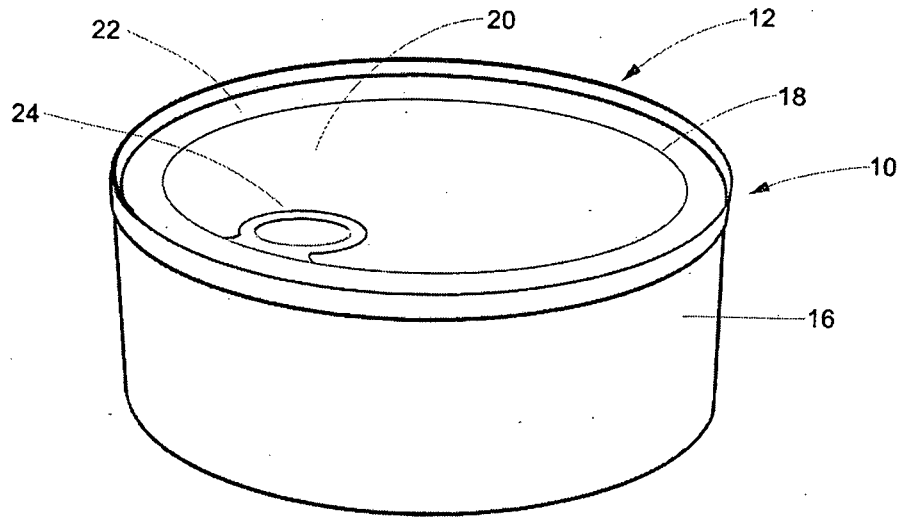


Figure 3

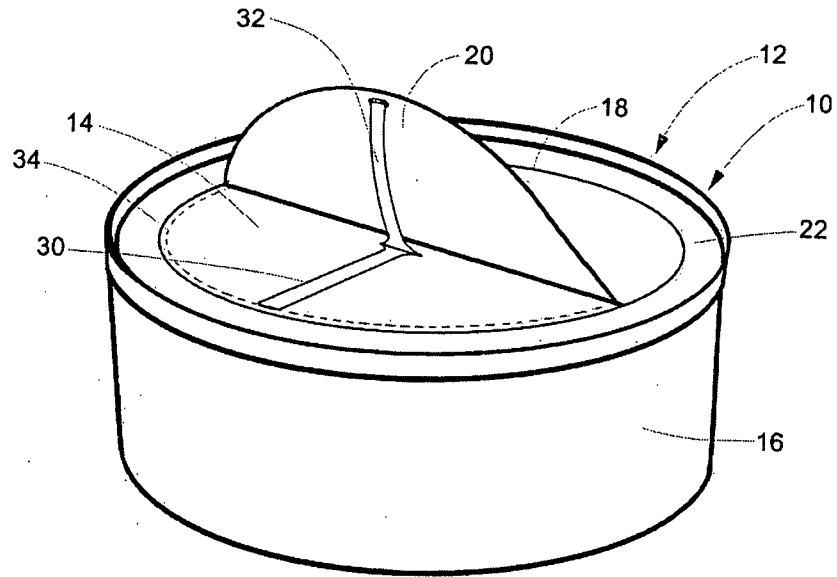


Figure 4

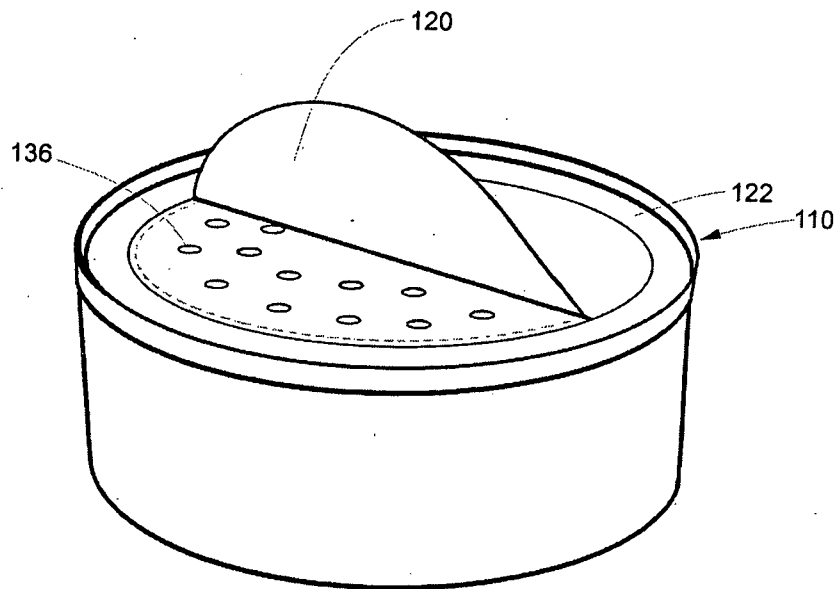


Figure 5

## INTERNATIONAL SEARCH REPORT

International application No.

PCT / ZA 2013/000076

A. CLASSIFICATION OF SUBJECT MATTER IPC: <b>B65D 17/00</b> (2006.01) According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) B65D Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPI; EPODOC; TXInn		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5688544 A (BOLTON ET AL.) 18 November 1997 (18.11.1997) entire document	1-14
X	US 2009001079 A1 (BITTON) 01 January 2009 (01.01.2009) entire document	1-14
X	US 4020969 A (ANDO) 03 May 1977 (03.05.1977) entire document	1-14
X	EP 1164093 A1 (NISSIN SHOKUHIN) 19 December 2001 (19.12.2001) entire document	1-14
X	US 3154225 A (WADLINGER ET AL.) 27 October 1964 (27.10.1964) entire document	1-14
<input checked="" type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.
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"A" document defining the general state of the art which is not considered to be of particular relevance		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.

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