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# **EUROPEAN PATENT APPLICATION**

21 Application number: **89304117.8**

51 Int. Cl.<sup>4</sup>: **B 65 D 47/28**  
**B 65 D 55/02, B 65 D 41/04**

22 Date of filing: **25.04.89**

30 Priority: **25.04.88 ZA 882916 13.02.89 ZA 891119**

43 Date of publication of application:  
**02.11.89 Bulletin 89/44**

84 Designated Contracting States:  
**AT BE CH DE ES FR GB GR IT LI LU NL SE**

71 Applicant: **METAL BOX SOUTH AFRICA LIMITED**  
**Metal Box Centre 25 Owl Street**  
**Auckland Park Johannesburg (ZA)**

72 Inventor: **Vopel, Rudolf Karl**  
**No.2 Lucy's Port Singlehurst Road**  
**Casseldale Springs (ZA)**

74 Representative: **Sawers, Lawrence Peter et al**  
**PAGE, WHITE & FARRER 54 Doughty Street**  
**London WC1N 2LS (GB)**

54 Closure devices for containers, and container assemblies incorporating such closure devices.

57 A closure device 14 for a container 12 includes a closure body adapted to fit onto the container thereby to close off an access opening in the container. A dispensing opening is provided in the closure body, and a closure member 35 is slidable along a guide path on the closure body, from a first position in which it closes off the dispensing opening, to a second position in which the dispensing opening is uncovered. A displaceable stop 24 is provided on the closure body so that, when the closure member is in its first position, it is held by the stop against being moved to its second position. The stop hence has to be displaced to permit movement of the closure member from its first to its second position.

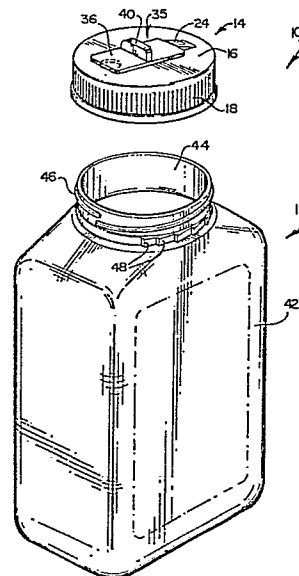


FIG 1

## Description

## CLOSURE DEVICES FOR CONTAINERS, AND CONTAINER ASSEMBLIES INCORPORATING SUCH CLOSURE DEVICES

THIS INVENTION relates to a closure device for a container. It relates also to a container assembly.

According to a first aspect of the invention there is provided a closure device for a container, which includes

a closure body adapted to fit onto a container thereby to close off an access opening in the container;

a least one dispensing opening in the closure body; a closure member slidable along a guide path on the closure body, from a first position in which it closes off the dispensing opening, to a second position in which the dispensing opening is uncovered;

and

a displaceable stop on the closure body so that, when the closure member is in its first position, it is held by the stop against being moved to its second position, the stop hence having to be displaced to permit movement of the closure member from its first to its second position.

The closure body may comprise a disc-like component with a peripheral skirt depending from the disc-like component, so that the disc-like component has an inner surface surrounded by the skirt as well as an outer surface, with the dispensing opening being provided in the disc-like component and the guide path being provided on the outer surface of the disc-like component, and with the skirt being adapted to engage a neck of the container, the disc-like component further having a portion resiliently movable with respect to the remainder of the disc-like component, and the stop being in the form of a protrusion protruding from the outer surface of said portion of the disc-like component so that the protrusion is displaceable by moving or flexing said portion of the disc-like component relative to the remainder of the disc-like component.

The closure member may comprise a slide, and at least one securing component depending from the slide and extending through a slot in the disc-like component, with the securing component and the slot adapted so that the slide is held captive on the disc-like component yet can move along the outer surface of the disc-like component from its first to its second position, and vice versa. The slide may be of elongate form. The protrusion may be arranged at one end of the guide path so that one end of the slide abut against the protrusion when the slide is in its first position.

The disc-like component may be of substantially constant thickness save in said position where it is of reduced thickness, eg by being provided with a concave recess in its inner surface, to permit the displacing or flexing of said portion.

The closure body may be of plastics material, and may be of unitary construction, eg a moulding.

The skirt of the closure body may be adapted for screwing onto the container neck. Hence, it may be provided with a screw thread formation for engaging

a complementary screw thread formation on the container neck. At least one locking formation extending inwardly from the skirt and adapted to engage a complementary outwardly protruding locking formation on the container neck, thereby to lock the skirt against being unscrewed from the container neck, may be provided. A plurality of the locking formations, spaced apart about the periphery of the skirt, may be provided.

According to a second aspect of the invention, there is provided closure device for a container, which includes

a disc-like component adapted to span a container access opening defined by a container neck;

a peripheral skirt depending from the disc-like component and adapted to be screwed onto the container neck; and

at least one inwardly extending locking formation on the skirt, the locking formation adapted to engage a complementary outwardly protruding locking formation on the container neck, thereby to lock the skirt against being unscrewed or removed from the container neck.

As mentioned hereinbefore, a plurality of the locking formations, spaced apart circumferentially, may be provided.

According to a third aspect of the invention, there is provided a container assembly, which includes a container body defining an enclosed zone for holding goods and having a neck defining an access opening to the zone;

a closure device comprising a disc-like component adapted to span the access opening of the body, and a peripheral skirt depending from the disc-like component, the skirt and/or the container neck adapted so that the skirt can be screwed onto the neck;

at least one inwardly extending locking formation on the skirt;

and

at least one complementary outwardly protruding locking formation on the container neck, engaging the locking formation on the skirt, thereby locking the skirt against unscrewing or removal from the container neck.

The invention will now be described by way of example, with reference to the accompanying drawings.

In the drawings,

FIGURE 1 shows an exploded three-dimensional view of a container assembly according to the third aspect of the invention, incorporating a closure device according to the first aspect of the invention;

FIGURE 2 shows a plan view of the closure device of Figure 1, without its closure member;

FIGURE 3 shows a view from the bottom of the closure device of Figure 2;

FIGURE 4 shows a sectional view through IV-IV in Figure 2;

FIGURE 5 shows a plan view of the closure device of Figure 1, with its closure member in its first position;

FIGURE 6 shows a sectional view through VI-VI in Figure 5;

FIGURE 7 shows, in part, a sectional view through VII-VII in Figure 5, but with the closure member in its second position; and

FIGURE 8 shows an end view of the closure member of the closure device of Figure 1.

In the drawings, reference numeral 10 generally indicates a container assembly according to the third aspect of the invention.

The container assembly 10 includes a container, generally indicated by reference numeral 12, as well as a closure device, generally indicated by reference numeral 14.

The closure device 14 includes a closure body, generally indicated by reference numeral 15. The closure body 15 comprises a disc-like component 16 and a peripheral skirt 18 depending from the disc-like component 16. In the disc-like component 16 are provided a circular dispensing opening 20, as well as two spaced parallel elongate slits 22, the purpose of which will be described in more detail hereunder.

A stop or protrusion 24 protrudes from the outer surface 19 of the disc-like component 16 and is spaced from the access opening 20. The stop 24 has a leading edge 26, the purpose of which will be described in more detail hereunder.

The closure body 15 is moulded integrally from plastics material, and the disc-like component 16 is of substantially constant thickness, save for a portion 28 thereof, located immediately below the protrusion 24, which is of reduced thickness. The portion 28 is defined by a concave recess provided in the undersurface 17 of the disc-like component 16.

The skirt 18 is provided on its inside with a screw thread formation 30. A plurality of tooth or ratchet-like locking formations 32, the purpose of which will be described in more detail hereunder, extend inwardly from the skirt 18, with the screw thread 30 being located between these formations and the disc-like component 16. The locking formations 32 are spaced circumferentially apart.

The closure device 14 also includes a closure member, generally indicated by reference numeral 35. The closure member 35 includes a rectangular (when seen in plan view) slide 36 which is slidable along an elongate guide path defined on the upper surface 19 of the disc-like component 16, with the access opening 20 and stop 24 being located in the guide path. The member 35 is arcuate-shaped along its length, when seen from the side. A pair of spaced parallel bulbous securing components 38 protrude from the slide 36 and are located slidably in the slits 22 in the disc-like component 16. The securing components 38 have portions 39 which are wider than the slits 22, these wider portions being located below the undersurface 17 of the disc-like component 16, so that while the slide 36 is held captive against the upper surface 19 of the disc-like component 16, it can also slide along the guide path.

A transverse finger-engaging formation 40 protrudes from the operatively upper surface of the slide 36.

In use, when the slide 36 is located in a first position, as indicated in Figures 5 and 6, it closes off the dispensing opening 20 with an edge 37 of the slide 36 abutting against the edge 26 of the protrusion or stop 24, thereby preventing accidental uncovering of the dispensing opening 20, eg dispensing by children. However, when it is desired to open the access opening 20, the protrusion 24 is depressed. This causes the portion 28 of the disc-like component 16 to flex relative to the remainder of the disc-like component 16. The slide 36 can hence slide over the stop 24, to a second position, as indicated in Figure 7, in which the dispensing opening 20 is uncovered. The contents of the container 12 can then be dispensed via the dispensing opening 20.

The container 12 comprises a container body 42 having a neck 44. A screw thread formation 46, which is complementary to the screw thread formation 36 provided on the closure device 14, extends around the neck 44. A plurality of circumferentially spaced tooth or ratchet-like locking formations 48 protrude outwardly from the neck 44; and are complementary to the locking formations 32 on the closure device 14. Hence, once the closure device 14 has been screwed onto the neck 44 of the container, the locking formations 32, 48 engage one another, thereby preventing accidental unscrewing of the closure device 14, eg by children.

The Applicant believes that the closure assembly 10 is to a large degree childproof since, as described hereinbefore, the closure device 14 cannot readily be unscrewed accidentally from the container 12, due to the locking formations 32, 48, and the closure member 35 also cannot easily be opened or moved by children, due to the stop 24.

## Claims

1. A closure device for a container, which includes  
a closure body adapted to fit onto a container thereby to close off an access opening in the container;  
at least one dispensing opening in the closure body;  
a closure member slidable along a guide path on the closure body, from a first position in which it closes off the dispensing opening, to a second position in which the dispensing opening is uncovered;  
and  
a displaceable stop on the closure body so that, when the closure member is in its first position, it is held by the stop against being moved to its second position, the stop hence having to be displaced to permit movement of the closure member from its first to its second position.

2. A device as claimed in Claim 1, wherein the closure body comprises a disc-like component with a peripheral skirt depending from the

disc-like component, so that the disc-like component has an inner surface surrounded by the skirt as well as an outer surface, with the dispensing opening being provided in the disc-like component and the guide path being provided on the outer surface of the disc-like component, and with the skirt being adapted to engage a neck of the container, the disc-like component further having a portion resiliently movable with respect to the remainder of the disc-like component, and the stop being in the form of a protrusion protruding from the outer surface of said portion of the disc-like component so that the protrusion is displaceable by moving or flexing said portion of the disc-like component relative to the remainder of the disc-like component.

3. A device as claimed in Claim 2, wherein the closure member comprises a slide, and at least one securing component depending from the slide and extending through a slot in the disc-like component, with the securing component and the slot adapted so that the slide is held captive on the disc-like component yet can move along the outer surface of the disc-like component from its first to its second position, and vice versa.

4. A device as claimed in Claim 3, wherein the protrusion is arranged at one end of the guide path so that one end of the slide abut against the protrusion when the slide is in its first position.

5. A device as claimed in any one of Claims 2 to 4 inclusive, wherein the disc-like component is of substantially constant thickness save in said position, where it is of reduced thickness by being provided with a concave recess in its inner surface, to permit the displacing or flexing of said portion.

6. A device as claimed in any one of Claims 2 to 5 inclusive, wherein the closure body is a moulding of plastics material, with the skirt of the closure body being provided with a screw thread formation for engaging a complementary screw thread formation on the container neck, and with at least one locking formation extending inwardly from the skirt and adapted to engage a complementary outwardly protruding locking formation on the container neck, thereby to lock the skirt against being unscrewed from the container neck, being provided.

7. A device as claimed in Claim 6, wherein a plurality of the locking formations, spaced apart about the periphery of the skirt, are provided.

8. A closure device for a container, which includes

a disc-like component adapted to span a container access opening defined by a container neck;

a peripheral skirt depending from the disc-like component and adapted to be screwed onto the container neck; and

at least one inwardly extending locking formation on the skirt, the locking formation adapted

to engage a complementary outwardly protruding locking formation on the container neck, thereby to lock the skirt against being unscrewed or removed from the container neck.

9. A device as claimed in Claim 8, wherein a plurality of the locking formations, spaced apart circumferentially, are provided.

10. A container assembly, which includes a container body defining an enclosed zone for holding goods and having a neck defining an access opening to the zone;

a closure device comprising a disc-like component adapted to span the access opening of the body, and a peripheral skirt depending from the disc-like component, the skirt and/or the container neck adapted so that the skirt can be screwed onto the neck;

at least one inwardly extending locking formation on the skirt;

and

at least one complementary outwardly protruding locking formation on the container neck, engaging the locking formation on the skirt, thereby locking the skirt against unscrewing or removal from the container neck.

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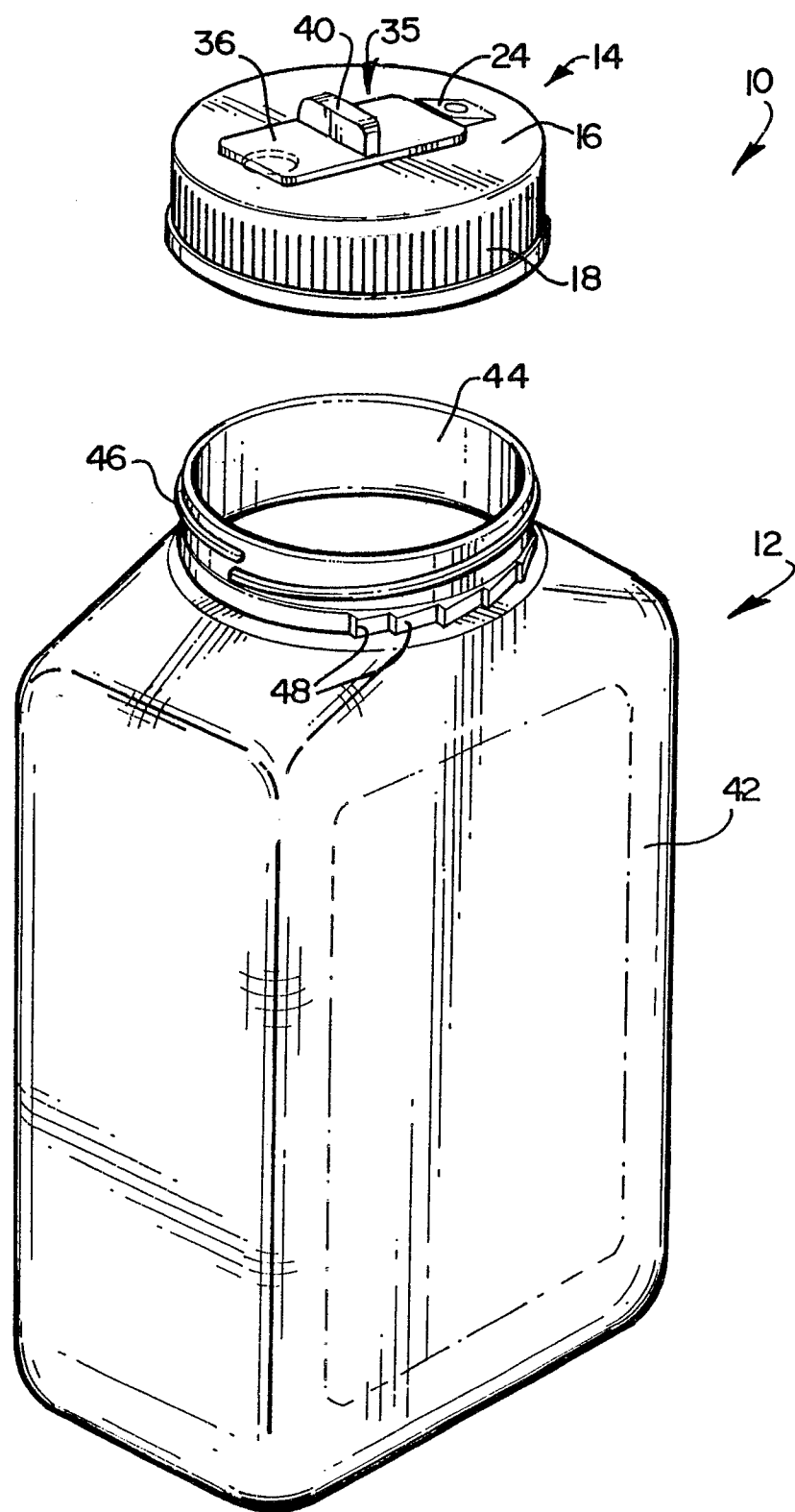


FIG 1

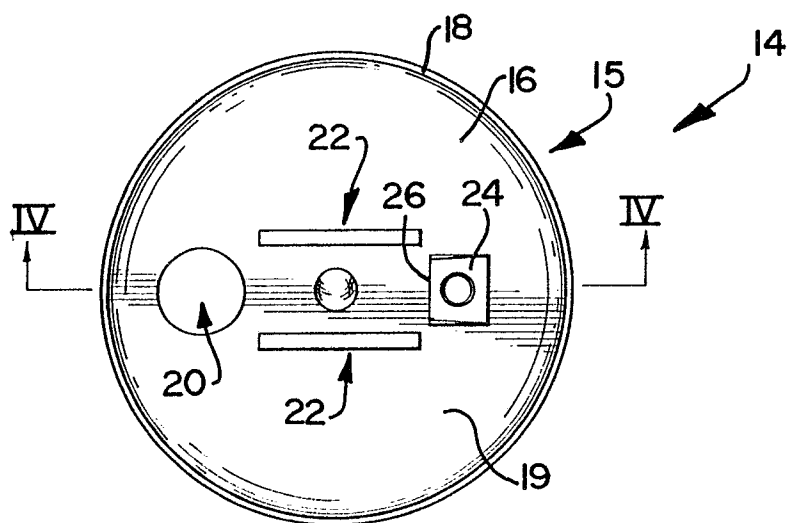


FIG 2

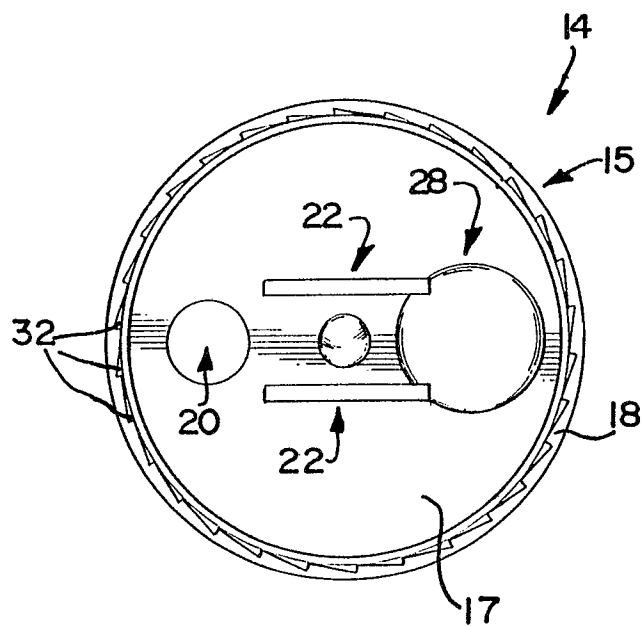


FIG 3

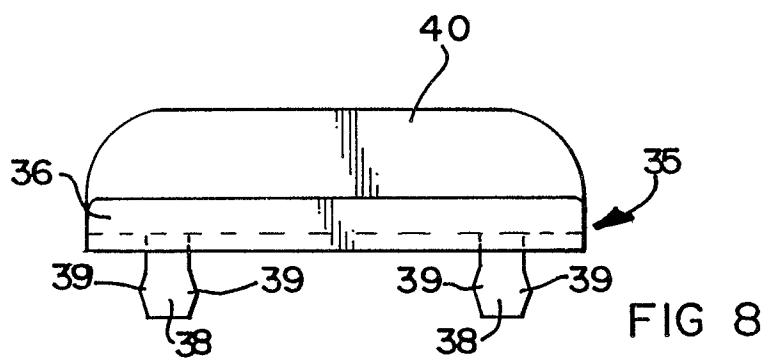


FIG 8

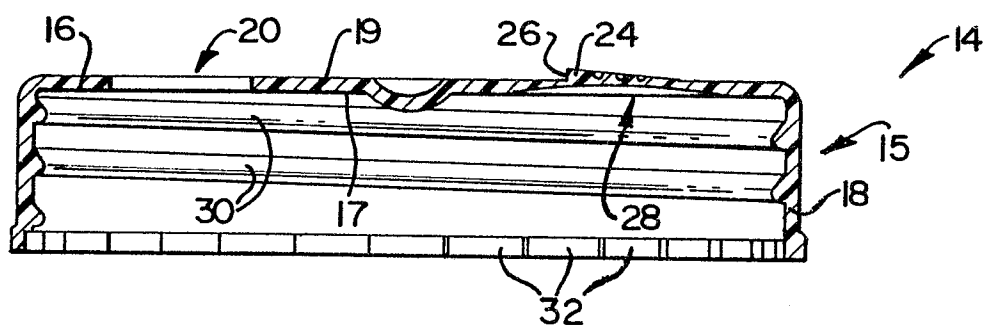


FIG 4

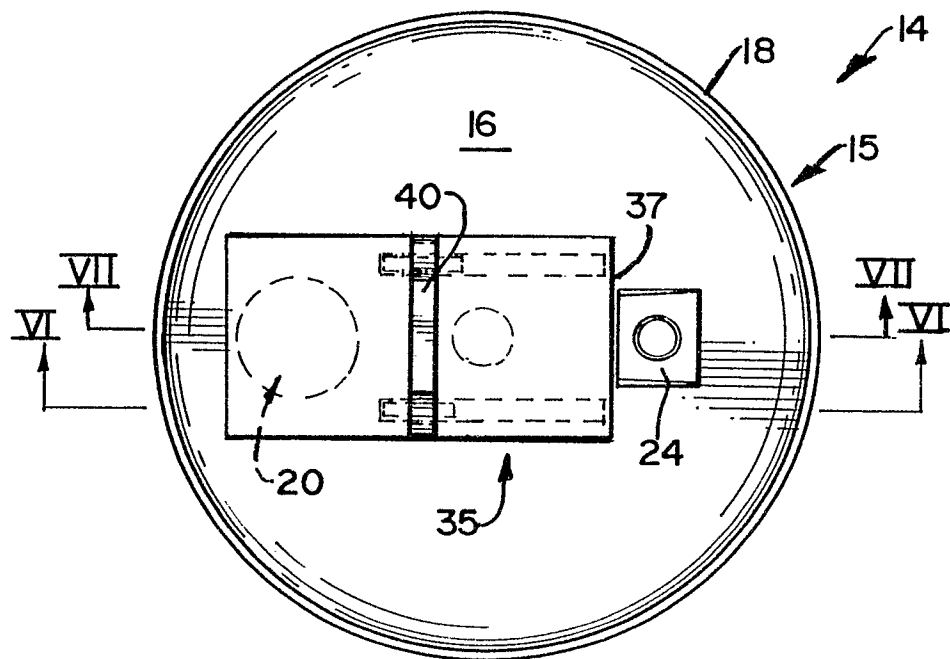


FIG 5

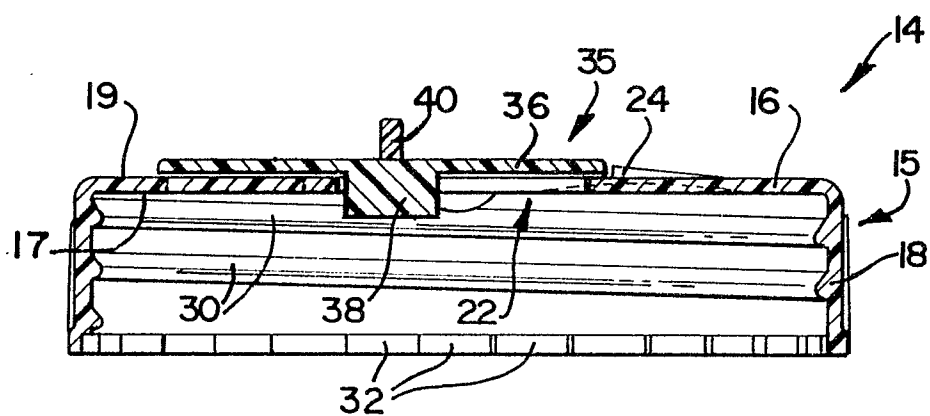


FIG 6

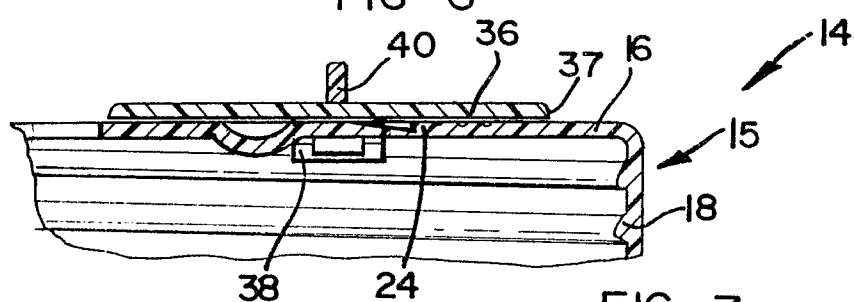


FIG 7