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(54) **A CLOSING DEVICE FOR A CONTAINER**

SCHLIESSVORRICHTUNG FÜR EINEN BEHÄLTER

DISPOSITIF DE FERMETURE POUR UN CONTENEUR

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Description

[0001] The present invention relates to an improved closing device for containers of different types, such as bottles, cans, medicine phials and the like.

Background

[0002] A multitude of goods are sold in containers of different kinds where the container can be opened and closed using a screw cap. The opening and closing of screw caps usually requires two hands. Moreover, screw caps may be difficult to open if they have been screwed on tight or for persons who are physically disabled.

[0003] Vast amounts of beverages, both carbonated and non-carbonated, are sold in bottles with screw caps. For car drivers it is dangerous to use both hands to open a bottle. For other users it may also be advantageous to be able to open and close a bottle without having to use both hands.

[0004] Opening and closing devices, which can easily be opened and closed repeatedly, for bottles with a bead around the upper end of the neck are known from US 2,903,148, US 3,973,688 and DE 3009568. A common feature of these opening and closing devices is that they comprise a flexible internal sealing member that is slidably mounted in a cavity in a rigid outer cap. The cavity in the outer cap is a substantially conical bore. When the outer cap is pressed down onto the neck of a bottle, the inner sealing member is pressed into engagement with the neck of the bottle and the bead around the top thereof, so that the bottle is temporarily closed. When the bottle is to be opened, the outer cap is pulled up, the sealing member disengages from the neck of the bottle and the device can be removed.

[0005] However, the previously known opening and closing devices of the prior art as mentioned above relate to bottles having a bead uppermost on the neck of the bottle.

[0006] An opening and closing device for bottles with a threaded neck is known from PCT/NO01/00449, later WO 02/38461. This device comprises a plurality of retainers that are pressed into engagement with a bottom part by means of an outer part that lies around the retainers and is movable along the longitudinal axis of the bottle. However, the solution is difficult and expensive to produce, and it protrudes from the neck of a bottle more than a traditional screw map. This could cause problems when bottles on which this device has been fitted are to be placed and transported in the crates for bottles that exist today.

[0007] US-A-4 358 024 discloses a closing device according to the precharacterizing portion of claim 1. The opening and closing mechanism of this known device is not optimal for all purposes.

[0008] Thus, there is a need for an improved opening and closing device for containers such as bottles, cans, medicine phials and the like, wherein the container can be opened and closed in a simple way without the user having to use both hands.

[0009] This object is achieved by the features of claim 1.

[0010] It is preferable that the press member should be approximately axially movable between a position in which it presses the retainers into engagement with the edge or flange and a position in which it does not press the retainers into engagement with the edge or flange.

[0011] It is also preferable that the retainers are elastic and retract from engagement with the edge or flange when they are not pressed by the press member.

[0012] Preferably, the press member is an elastic body that is fastened to a central portion of the top member so that the elastic body is moved into a position in which it does not press on the retainers when the central portion is pressed down.

[0013] According to a preferred embodiment, the central portion is elastically mounted in the top member in such manner that the central portion is drawn up and draws the elastic body with it when pressure on the central portion ceases.

[0014] It is preferable that the container should be a bottle.

Brief description of the figures

[0015] The invention will be described below with reference to the attached figures, wherein:

Figure 1 is a longitudinal section through an embodiment of the present opening and closing device in a closed position;

Figure 2 is a longitudinal section through the opening and closed device shown in Figure 1 in an open position;

Figure 3 is a longitudinal section through the embodiment of the device shown in Figure 1 ready to be opened;

Figure 4 is a perspective view of an elastic body from the embodiment according to Figure 1; and

Figure 5 is a section though a perspective view of the device shown in Figure 1.

Detailed description of the invention

[0016] Figures 1 to 4 show a preferred embodiment of the present invention, and Figure 5 shows a detail of the same. This preferred embodiment comprises a base member 20 and a top member 21.

[0017] The top member 21 comprises a main part 19, a central portion 22 and retainers 27, 28. The main part 19 is designed to rest against the top of the container or against the top of the base member 20. The specific design of the main part 19 may therefore have a different appearance and shape depending upon the area of usage and the container or base member with which it is to be used. The main part 19 of the device shown in

Figures 1 and 2 is annular and has a lower part 32 that projects downwards and is adapted to surround the top of the base member 20.

[0018] A plurality of retainers 27, 28 are arranged in a ring on the side of the main part that is to rest against the base member. The ring of retainers 27, 28 is adapted to be inserted into the opening 31 in the base member that is to be closed. The top member 21 also comprises a central portion 22 that is fastened to an elastic intermediate member 23. An elastic body 24 is fastened to the central portion 22. When the central portion 22 is pressed, the elastic body can be shifted from a position in which it can push the retainers 27, 28 out from a central line through the device, and a position in which it is disengaged from the retainers.

[0019] Figures 1 and 2 show a longitudinal section through the retainers 27, 28 which are elongate and have a projection 28 at the lower end that is adapted to engage with a edge or flange 25 on the inside of the base member 20.

[0020] When the device is to be closed, the top member 21 is put on the base member in that the retainers 27 are inserted into the opening 31 in the base member. During the closing and when the device is closed, the retainers are pressed out against the sides of the base member by means of an elastic body 24. Figure 1 shows an embodiment of the present invention in the form of a bottle cap, in a position in which the cap is closed. The retainers 27 are then pressed out against the base member 20 by the elastic body 24.

[0021] When the device is to be opened, the central portion 22 is pressed down. This causes the elastic body 24 to be pressed down below the retainers so that the elastic body no longer presses against the retainers 27. Figure 3 shows the device when the elastic body 24 is pressed down below the retainers 27, thereby allowing the projections to disengage from the edge or flange 25 so that the top member 21 can be pulled up and out of the base member, and the device is open.

[0022] As can be seen from Figure 3, the opening 31 is slightly conical with the smallest opening at the top so that the retainers rest against the edge of the opening at the top and are thus pressed out of engagement with the edge or flange 25. When the top member has been taken out of the base member, the central portion 22 that is mounted in the elastic intermediate member 23 will be drawn up and will draw the elastic body with it. The elastic body 24 will then in turn pull up the inside of the ring of retainers and press the retainers outwards.

[0023] When the top member is replaced on the base member, the elastic body will be compressed so that the ring of retainers can be put into the top member, and will press the retainers out against the edge of the opening 31 and into engagement with the edge or flange 25 so as to close the device.

[0024] The retainers 27 and the elastic body 24 press in different directions when the device is closed. When the outward pressure from the elastic body ceases in that it is pressed down below the retainers, the lowermost part of the retainers, and thus the projections, 28 will swing out of engagement with the edge or flange 25. The retainers 27 are preferably swung out of engagement with the edge or flange 25 because they are elastic.

[0025] When it is required or desirable that the present device should be almost air or watertight, it must be sealed with one or more seals between the base member and the top member. This is shown in the figures by a seal 26. However, there may be a question of optimising the location of the seal. It is also possible that it may be advantageous for the seal to be fastened to the top member.

[0026] The main part 19, the central portion 22, the intermediate member 23 and the retainers 27, 28 are preferably made in one piece.

[0027] The base member is designed to be fastened to the container on which the device is to be used. For example, on the inside of the base member there may be threads, or there may be other means on the base member for fastening to the container. The base member does not need to be a separate part. If the container opening is made so that but can also be a part of the container.

Claims

1. A closing device for repeatedly opening and closing a container, comprising a base member (20) and a top member (21), wherein an opening (31) is provided in the base member (20), which base member (20) is adapted to be fastened to a container opening on the container or is a part of the container opening, and the top member (21) is adapted to be locked to the base member (20) and close the opening (31), wherein a plurality of retainers (27) adapted to be inserted into the opening (31) are provided on the top member (21), and wherein an axially extending edge or flange (25) adapted to engage with projections (28) on the retainers is provided in the opening (31), and wherein a press member (24) adapted to press the retainers (27) out against the base member (20) and into engagement with the edge or flange (25) is provided in the top member (21),
characterised in that
the press member (24) is fastened to a central portion (22) of the top member (21) so that the press member (24) can be disengaged from the retainers (27) by downwards pressure on the central portion (22), and so that the press member (24) is shifted to a position in which it does not press the retainers (27) when the central portion is pressed down and that the press member (24) is elastically drawn into the plurality of retainers to press them outwards, when the top member (21) is taken out of the base member.

2. The device according to claim 1, **characterised in that** the press member (24) is an elastic body.

3. A device according to claim 1 or 2, **characterised in that** the container is a bottle.

Patentansprüche

1. Schließvorrichtung zum wiederholten Öffnen und Schließen eines Behälters, mit einem Basiselement (20) und einem oberen Element (21), wobei eine Öffnung (31) in dem Basiselement (20) vorgesehen ist, das Basiselement (20) derart ausgebildet ist, dass es an einer Behälteröffnung an dem Behälter befestigt werden kann oder ein Teil der Behälteröffnung ist, und das obere Element (21) derart ausgebildet ist, dass es mit dem Basiselement (20) verriegelt werden und die Öffnung (31) schließen kann, wobei eine Vielzahl von Haltern (27), die zum Einsetzen in die Öffnung (31) ausgebildet sind, an dem oberen Element (21) vorgesehen sind, und wobei ein axial verlaufender Rand oder Flansch (25), der zum Eingriff mit Vorsprüngen (28) an den Haltern ausgebildet ist, in der Öffnung (31) vorgesehen ist, und wobei ein Presselement (24), das zum Pressen der Halter (27) nach außen gegen das Basiselement (20) und in Eingriff mit dem Rand oder Flansch (25) ausgebildet ist, an dem oberen Element (21) vorgesehen ist, **dadurch gekennzeichnet, dass**
das Presselement (24) an einem zentralen Abschnitt (22) des oberen Elements (21) befestigt ist, so dass das Presselement (24) von den Haltern (27) durch Abwärtsdruck auf den Zentralabschnitt (22) ausgerückt werden kann, und so dass das Presselement (24) an eine Position verschoben wird, in der es die Halter (27) nicht presst, wenn der Zentralabschnitt nach unten gepresst wird, und dass das Presselement (24) elastisch in die Vielzahl von Haltern gezogen wird, um diese nach außen zu pressen, wenn das obere Element (21) aus dem Basiselement heraus genommen wird.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Presselement (24) ein elastischer Körper ist.

3. Vorrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Behälter eine Flasche ist.

Revendications

1. Dispositif de fermeture pour ouvrir et pour fermer à répétition un conteneur, comprenant un élément de base (20) et un élément de dessus (21), dans lequel une ouverture (31) est ménagée dans l'élément de base (20), ledit élément de base (20) étant adapté à être fixé sur une ouverture sur le conteneur, ou constituant une partie de l'ouverture du conteneur, et l'élément de dessus (21) étant adapté à être verrouillé sur l'élément de base (20) et à fermer l'ouverture (31), dans lequel une pluralité d'éléments de retenue (27) adaptés à être insérés dans l'ouverture (31) sont prévus sur l'élément de dessus (21), et dans lequel un bord ou une bride s'étendant axialement (25) adapté(e) à engager des projections (28) sur les éléments de retenue est prévu(e) dans l'ouverture (31), et dans lequel un élément presseur (24) adapté à presser les éléments de retenue (27) vers l'extérieur contre l'élément de base (20) et jusqu'en engagement avec le bord ou la bride (25) est prévu dans l'élément de dessus (21),
caractérisé en ce que
l'élément presseur (24) est fixé sur une portion centrale (22) de l'élément de dessus (21) de sorte que l'élément presseur (24) peut être dégagé depuis les éléments de retenue (27) par une pression vers le bas sur la portion centrale (22), et de telle sorte que l'élément presseur (24) est décalé à une position dans laquelle il ne presse pas les éléments de retenue (27) quand la portion centrale est pressée vers le bas, et de sorte que l'élément presseur (24) est tiré élastiquement jusque dans la pluralité d'éléments de retenue pour les presser vers l'extérieur, lorsque l'élément de dessus (21) est enlevé de l'élément de base.

2. Dispositif selon la revendication 1, **caractérisé en ce que** l'élément presseur (24) et un corps élastique.

3. Dispositif selon la revendication 1 ou 2, **caractérisé en ce que** le conteneur est une bouteille.

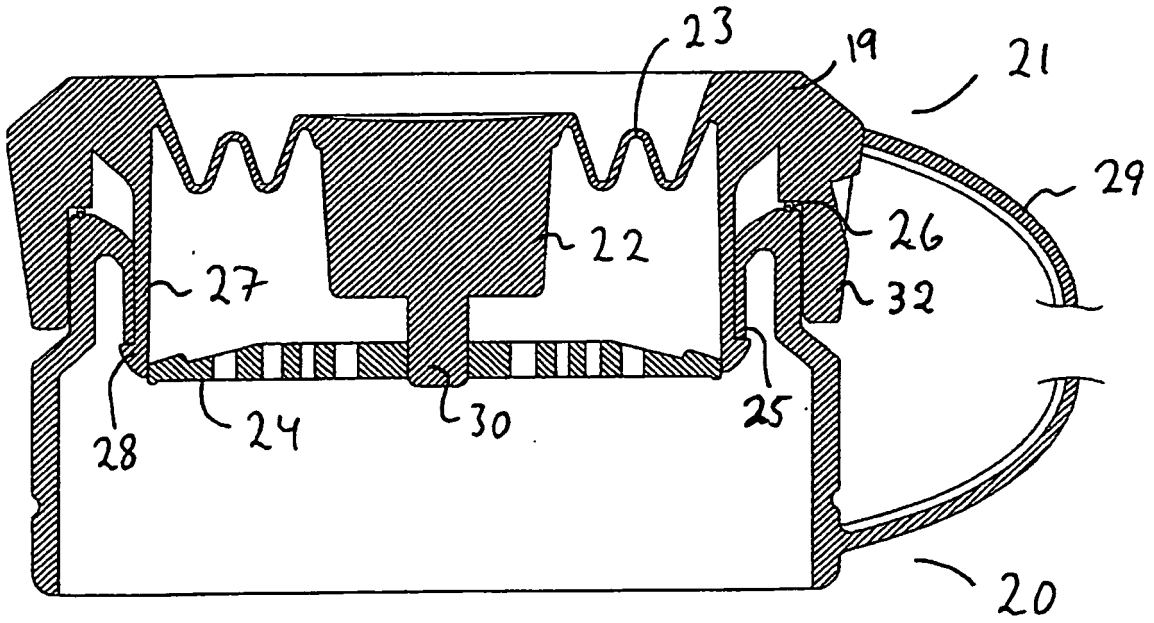

Fig. 1

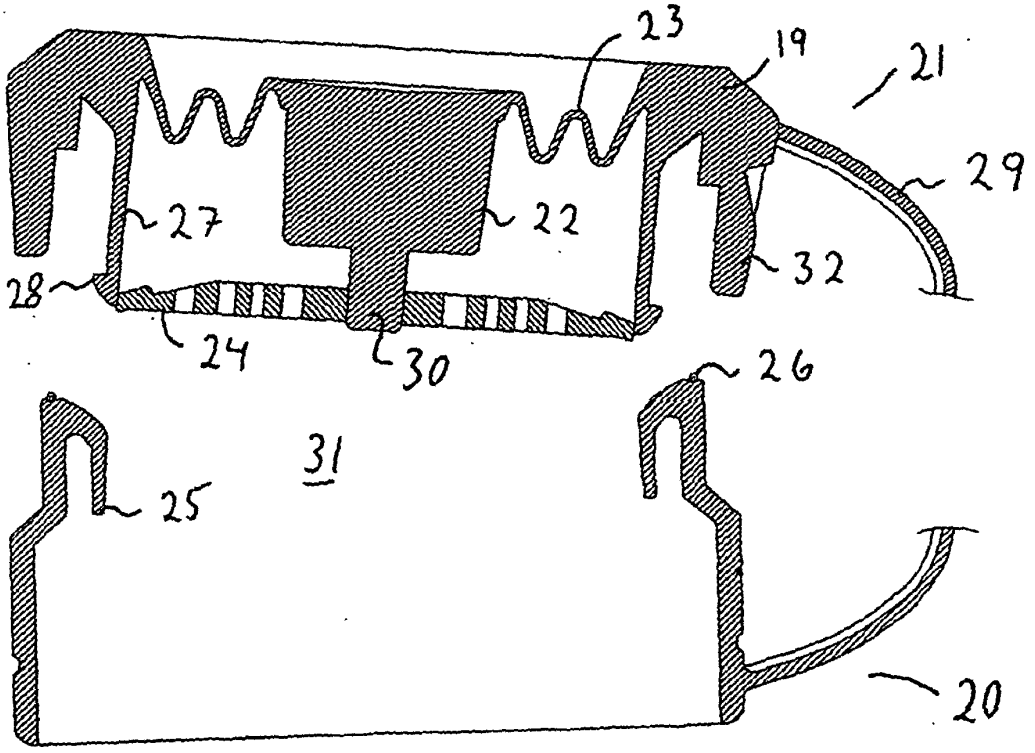

Fig. 2

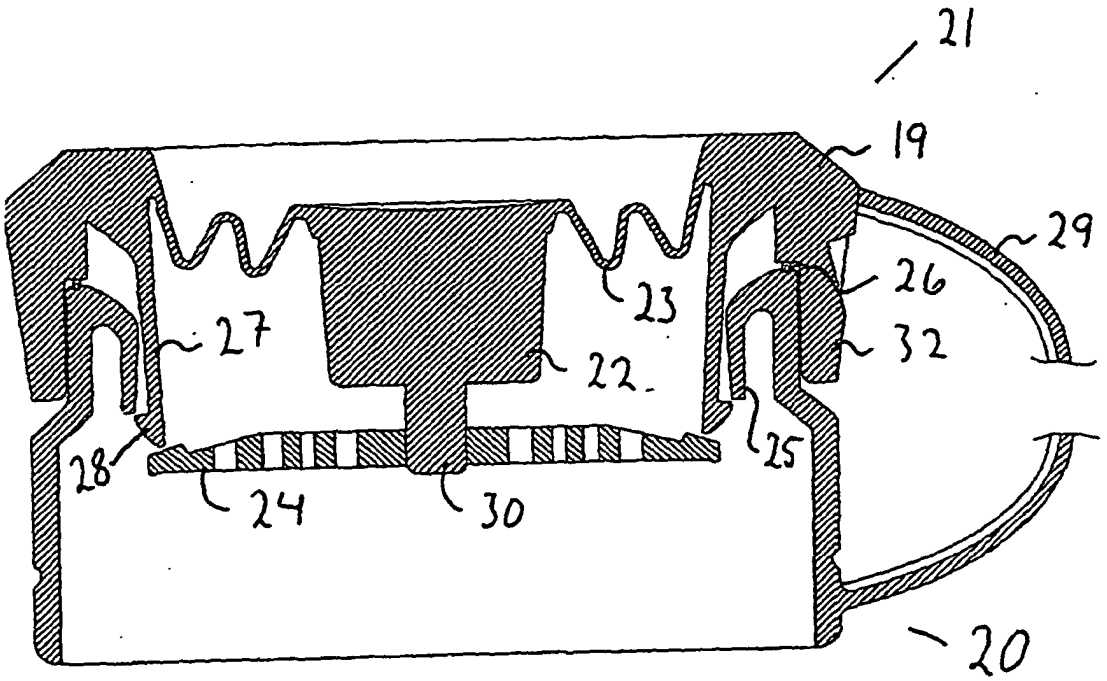

Fig. 3

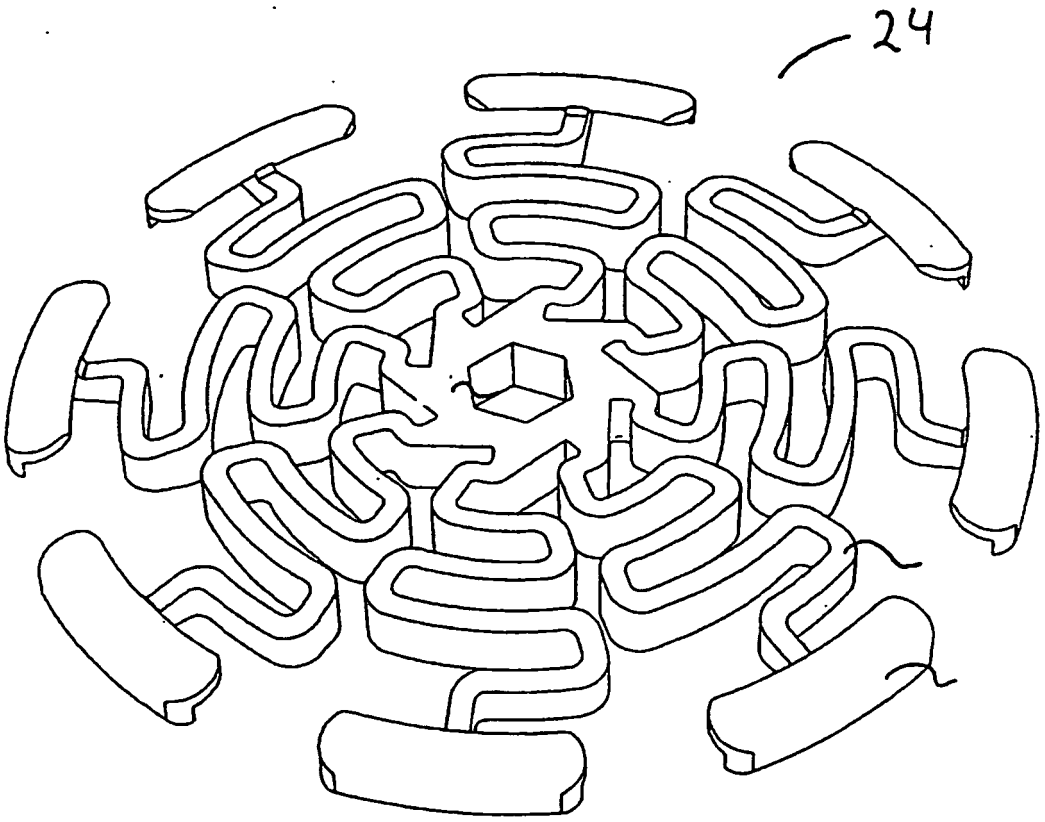

Fig. 4

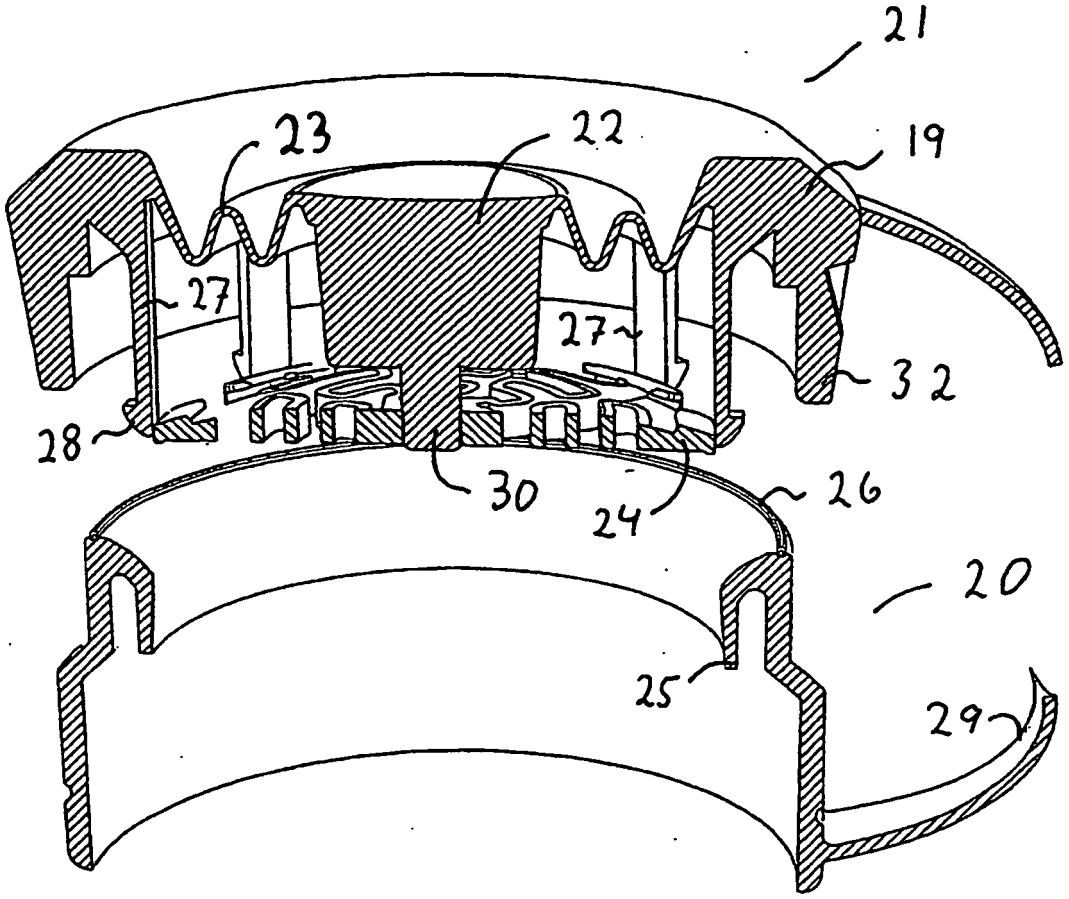

Fig. 5