(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 138 075 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
30.12.2009 Bulletin 2009/53

(51) Int Cl.:
A47G 19/22 *(2006.01)*

(21) Application number: **08011462.2**

(22) Date of filing: **25.06.2008**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(71) Applicant: **Thorfinn, Cecelia Maria Elisabeth**
7481 LR Haaksbergen (NL)

(72) Inventor: **Thorfinn, Cecelia Maria Elisabeth**
7481 LR Haaksbergen (NL)

(74) Representative: **'t Jong, Bastiaan Jacob et al**
Arnold & Siedsma
Sweelinckplein 1
2517 GK Den Haag (NL)

(54) Lip operable lid for a container

(57) The invention relates to a lid for a liquid container to substantially seal the container, wherein the lid comprises:
- a mounting frame for mounting the lid to the container, the frame having at least one passage opening for passage of the liquid in the container;
- a valve portion for closing the at least one passage opening of the mounting frame;
- a lip-operable operating portion for operating the valve portion; and
- spring means for urging the valve portion to a closing position, in which the at least one passage opening in the mounting frame is closed.

The invention also relates to a combination of a lid and a liquid container.

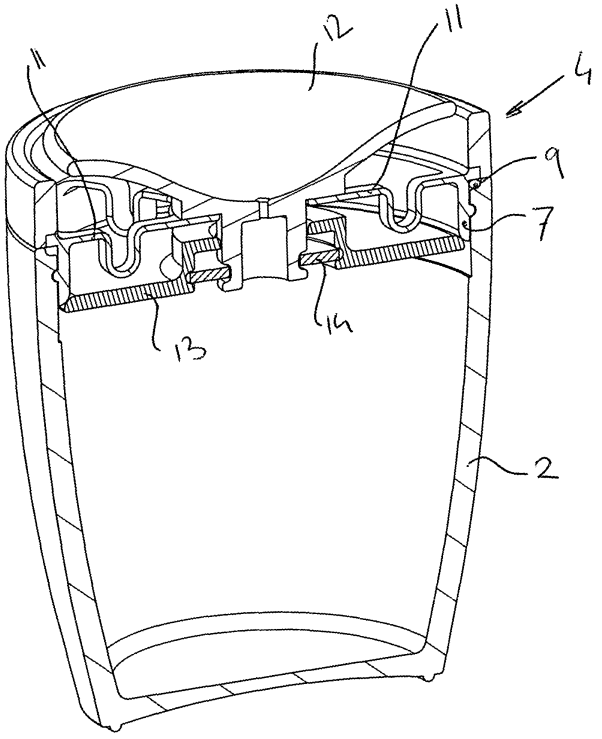

FIG. 3

EP 2 138 075 A1

Description

[0001] The invention relates to a lid for a liquid container to substantially seal a container.

[0002] When having children around, the chance of the child having an accident is substantial. One category relates to accidents with hot liquids such as hot coffee or tea. Especially little children tend to grab any object within their reach to examine the object. If a parent places a cup of hot coffee or tea onto a table while holding the child, it is possible that the child will try to grab the cup of hot liquid. If liquid is spilled it could come in contact with the child's skin, causing burns.

[0003] It is therefore of advantage, when the cup with hot liquid can be sealed by a lid and it is still possible to drink out of the cup without having to operate the cup with two hands. This is in particular of advantage when holding a child.

[0004] WO-A-02/11587 discloses a lip operable lid, which can be mounted to a container to seal off this container. The lid comprises a mounting ring in which a valve is arranged, which can be deformed by ones lips. The described lid is intended as an alternative to cups with a spout for young children. By pushing parts of the lid downward a small opening is created through which liquid can flow into the mouth of the user. As the lid is partially deformed in order to drink from the cup, the opening created by deformation is not optimal for a flow similar to a cup without a lid. As the sealing portion of the lid deforms, it is required that the deformed portion has a certain stiffness, such that in not deformed condition the lid seals the container fully.

[0005] It is now an object of the invention to provide for a lid according to the preamble which improves the known

prior art.

[0006] This object is achieved by a lid comprising:

- a mounting frame for mounting the lid to the container, the frame having at least one passage opening for passage of the liquid in the container;
- a valve portion for closing the at least one passage opening of the mounting frame;
- a lip-operable operating portion for operating the valve portion; and
- spring means for urging the valve portion to a closing position, in which the at least one passage opening in the mounting frame is closed.

[0007] With the lid according to the invention separate parts are provided, such that the functions can be separated. The valve portion can be designed to effectively seal the lid, the lip operating portion can be optimally designed for operation by lips and the spring means can be designed to have an optimal spring function and to urge the valve portion to a closed position. It is no longer necessary, as with the prior art to combine all these functions in just one single element.

[0008] In an embodiment of the lid according to the invention, the spring means are arranged between the mounting frame and the valve portion. These spring means urge the valve portion to a closed position and it is of advantage when the spring means are arranged between the mounting frame and the valve portion in order to be able to design the springs optimally for the function of urging the valve portion to a closed position.

[0009] Preferably the spring means comprise leaf springs which are easy to manufacture and provide a sufficient flexibility in combination with spring force for urging the valve portion to a closed position.

[0010] In a preferred embodiment of the lid according to the invention, the valve portion is arranged to the spring means movable between a fixed position, wherein the valve portion is fixed to the spring means, and a loose position, wherein the valve portion is loosely attached to the spring means.

[0011] As the lid is generally arranged to containers comprising a liquid and the liquid is emptied from the container through the lid, the lid gets dirty. In order to be able to clean the lid thoroughly it is necessary that all parts of the lid can either be disassembled or be brought into such a position that no small spaces remain and the remaining portions can easily be accessed by the cleaning action.

[0012] Now by arranging the valve portion movable to the spring means it is possible to bring the valve portion into a loose position in respect to the spring means such that the valve portion is no longer urged to the closed position and the full surface of the valve can be cleaned. The valve is no longer urged in contact to a valve seat.

[0013] In another preferred embodiment of the lid according to the invention the valve portion and operating portion are slidable arranged to each other between a first position and a second position, wherein the spring means are arranged in between the operating portion and the valve portion, such that in the first position the valve portion is fixed through the spring means and the operating portion and in the second position the valve portion is loosely attached to the spring means and the operating portion.

[0014] In this embodiment the spring means are in fact clamped between the operating portion and the valve portion resulting in a fixation of the spring means to the valve portion. In the second position this clamping action is removed such that the elements of the lid are loosely connected and as a result can easily be cleaned.

[0015] In yet another embodiment of the invention, the lid further comprises blocking means for blocking the slidable movement from at least the first position. These blocking means ensure that the operating portion and valve portion can only be brought from the first position to the second position when unblocking this movement.

[0016] In a very much preferred embodiment of the lid according to the invention the blocking means comprise

a flexible element arranged between the valve portion and the operating portion, which flexible element has a bivalent shape for urging the valve portion and operating portion in either the first position or the second position. With this flexible element having a bivalent shape the lid can easily be put from a first position to a second position or the other way around. This enables the user to simply deform the flexible element into the other shape. So when using the lid on a cup, the flexible element is put in the shape, such that the valve portion or operating portion are in the first position and when putting the lid in for example a dish washer, the flexible element is put in the second position such that all elements of the lid are loose and cleaning is easily performed.

[0017] The invention also relates to a combination of a lid according to the invention and a liquid container. Preferably the lid is mounted to the container by screw thread arranged on the outside of the mounting frame. A seal can be provided near the screw thread such that the lid does not leak contents from the container along the screw threads.

[0018] These and other advantages of the invention will be elucidated in conjunction with the accompanying drawings.

[0019] Figure 1 shows a perspective view of a combination according to the invention.

[0020] Figure 2 shows in perspective view the combination of figure 1 in exploded view.

[0021] Figure 3 shows in perspective view with cutaway portions the combination of figure 1.

[0022] Figure 4A-4C show three cross-sectional views of the combination of figure 1 in three different positions.

[0023] Figure 1 shows a combination 1 according to the invention. This combination 1 has a container 2 with a handle 3 onto which a lid 4 is mounted.

[0024] In figure 2 the combination 1 is shown in an exploded view. The container 2 has an opening 5 with an internal screw thread 6. Onto this screw thread 6 the lid 4 is mounted. As also shown in figure 3 the lid 4 comprises a ring-shaped mounting frame 7 which is also provided with a screw thread 8 which cooperates with the screw thread 6 in the opening 5 of the container 2.

[0025] In order to seal the mounting frame 7 with respect to the container 2 an O-ring 9 is provided.

[0026] In the mounting frame 7 a spider like spring element 10 is arranged. This spring element 10 has a number of leaf springs 11 which are radially arranged. Due to the arrangement of this spider like spring element openings are present between the leaf springs 11 enabling content from the container 2 to flow through the mounting frame 7.

[0027] A lip operable operating portion 12 is inserted into the spider like spring element 10. At the bottom of this spring element 10 a valve portion 13 is arranged, which seals off against the mounting frame 7.

[0028] The operating portion 12 and valve portion 13 are connected to each other by a flexible ring 14. This flexible ring 14 has a bivalent shape which will be elucidated here below.

[0029] Furthermore, the lid 4 comprises a housing ring 15 which contributes to the appearance of the combination 1 and also improves the drinking experience from the combination 1.

[0030] The valve portion 13 has a central protrusion which is provided by openings 16. These openings 16 are sealed off by the flexible element 14 and ensure that any cleaning action reaches the space between the flexible element 14 and the valve portion 13.

[0031] In figure 4A the combination 1 is shown in cross-sectional view. From this figure it is clear that the opening 16 provide access to the space 17 between the valve portion 13 and the flexible element 14.

[0032] Now referring to figure 4B, when the operating portion 12 is operated by the lips of a user by exerting a force F to the edge of this operating portion 12, the leaf springs 11 will deform such that the valve portion 13 moves away from the seat 17 at the mounting frame 7 such that an opening 18 is obtained and liquids L can flow through the lid into the users mouth.

[0033] In figure 4B and 4A the flexible element 14 is shown in its first shape. In figure 4C the flexible element 14 is put into its second shape resulting in that the valve portion 13, the leaf springs 11 and the operating portion 12 are in a loose position such that sufficient space is present between the elements and the elements can easily be cleaned in for example a dish washer.

[0034] In the operating portion 12 a small opening 19 can be provided in order to compensate for any pressure difference between the content of the container 2 and the outside. In particular with hot liquids the pressure could rise within the container such that the valve portion 13 cannot be operated any more. By providing such a passage 19 pressure is always compensated and the valve portion 13 can easily be operated.

Claims

1. A lid for a liquid container to substantially seal the container, wherein the lid comprises:

   - a mounting frame for mounting the lid to the container, the frame having at least one passage opening for passage of the liquid in the container;
   - a valve portion for closing the at least one passage opening of the mounting frame;
   - a lip-operable operating portion for operating the valve portion; and
   - spring means for urging the valve portion to a closing position, in which the at least one passage opening in the mounting frame is closed.

2. Lid according to claim 1, wherein the spring means are arranged between the mounting frame and the valve portion.

3. Lid according to claim 2, wherein the spring means comprise leaf springs.

4. Lid according to any of the preceding claims, wherein the valve portion is arranged to the spring means movable between a fixed position, wherein the valve portion is fixed to the spring means, and a loose position, wherein the valve portion is loosely attached to the spring means.

5. Lid according to claim 4, wherein the valve portion and operating portion are slidable arranged to each other between a first position and a second position, wherein the spring means are arranged in between the operating portion and the valve portion, such that in the first position the valve portion is fixed to the spring means and the operating portion and in the second position the valve portion is loosely attached to the spring means and the operating portion.

6. Lid according to claim 5, further comprising blocking means for blocking the slidable movement from at least the first position.

7. Lid according to claim 6, wherein the blocking means comprise a flexible element arranged between the valve portion and the operating portion, which flexible element has a bivalent shape for urging the valve portion and operating portion in either the first position or the second position.

8. Combination of a lid according to any of the preceding claims and a liquid container.

9. Combination according to claim 8, wherein the lid is mounted to the container by a screw thread arranged on the outside of the mounting frame.

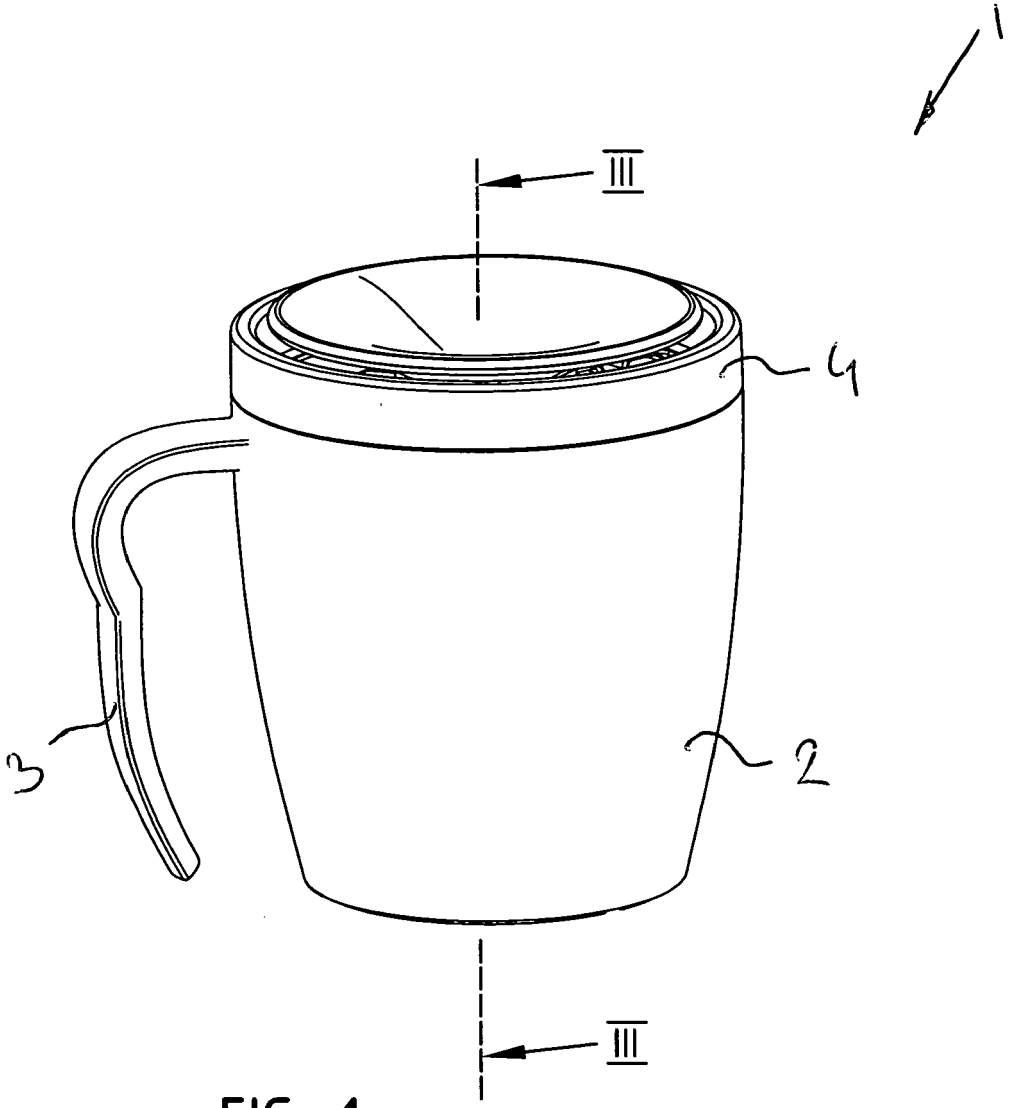

FIG. 1

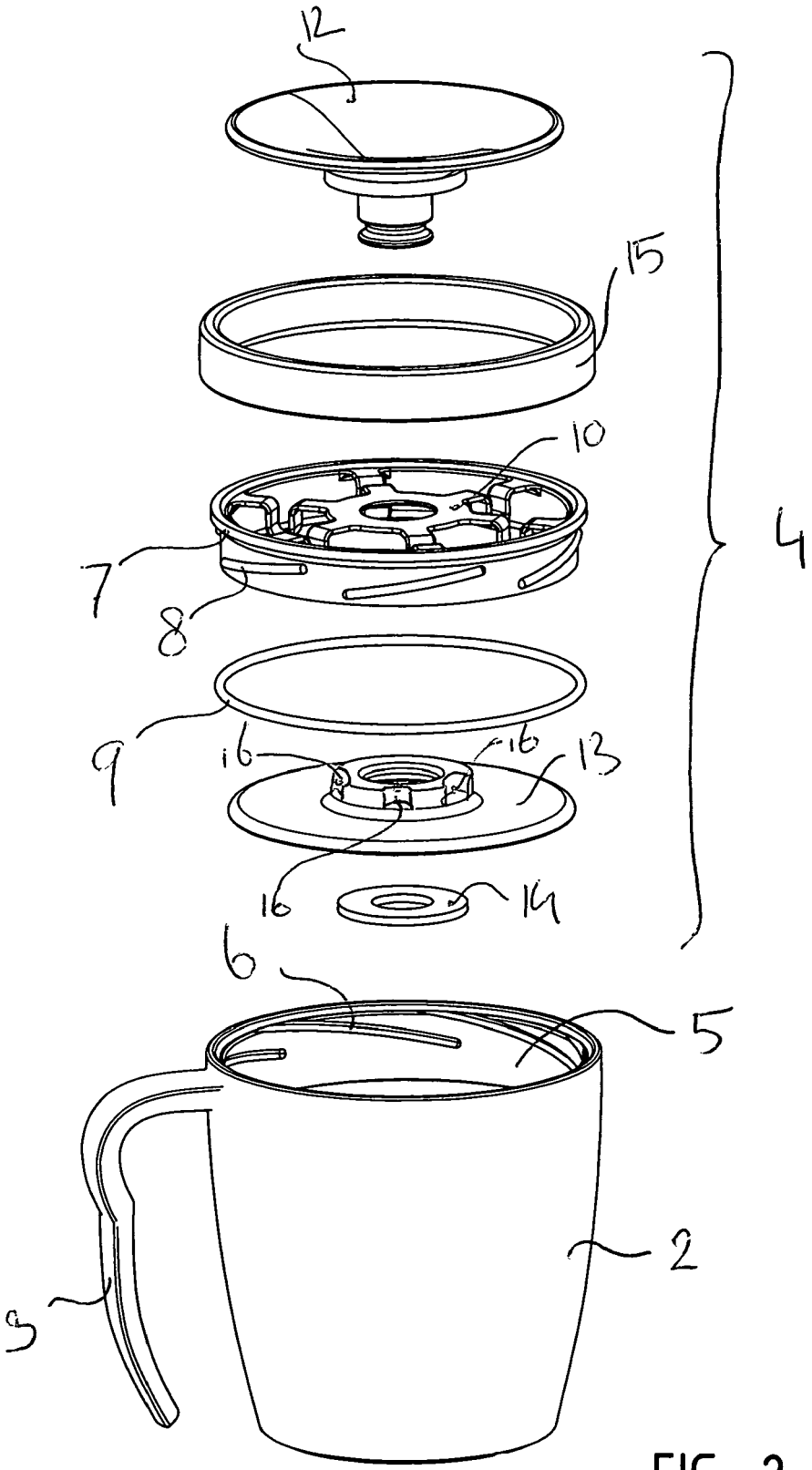

FIG. 2

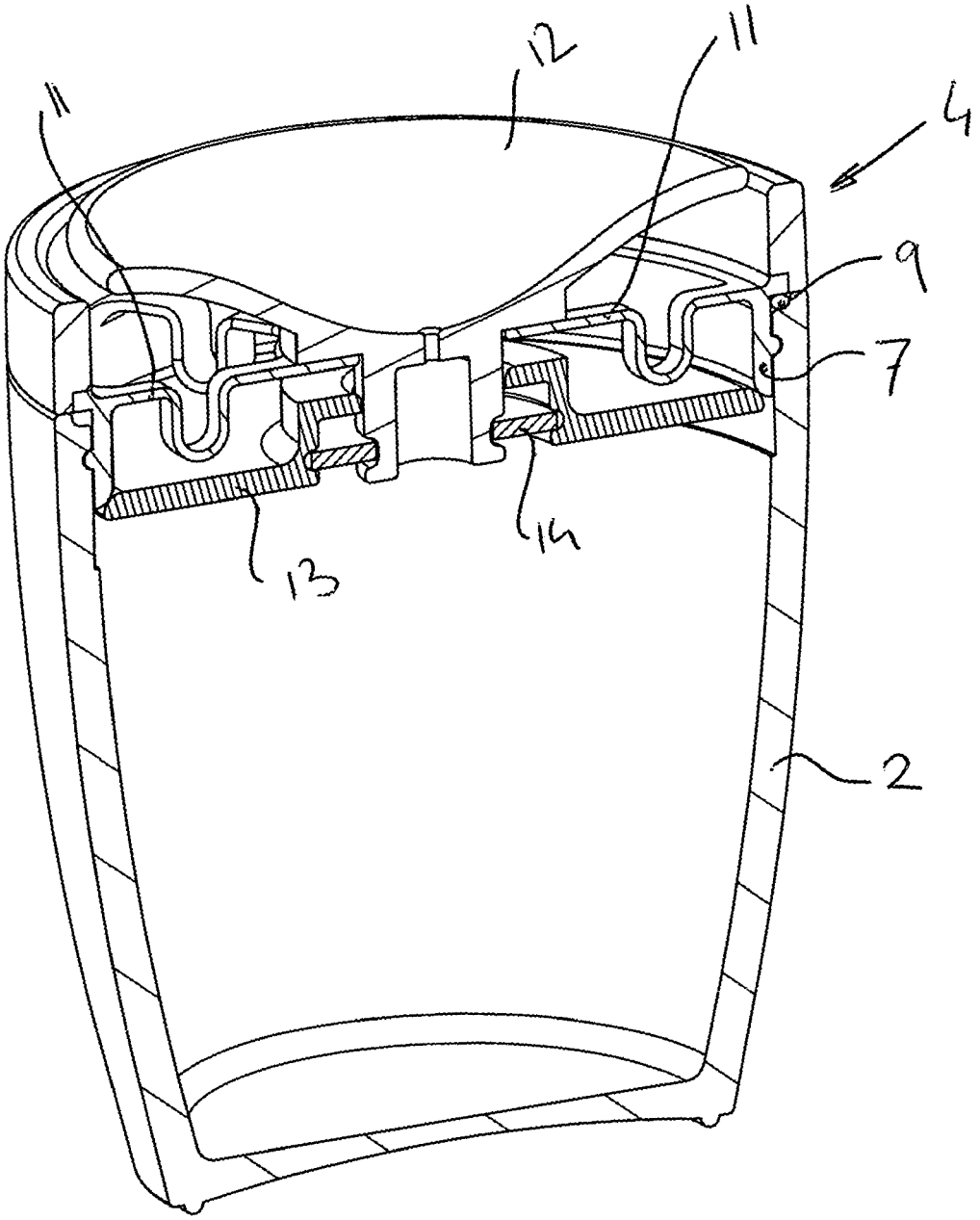

FIG. 3

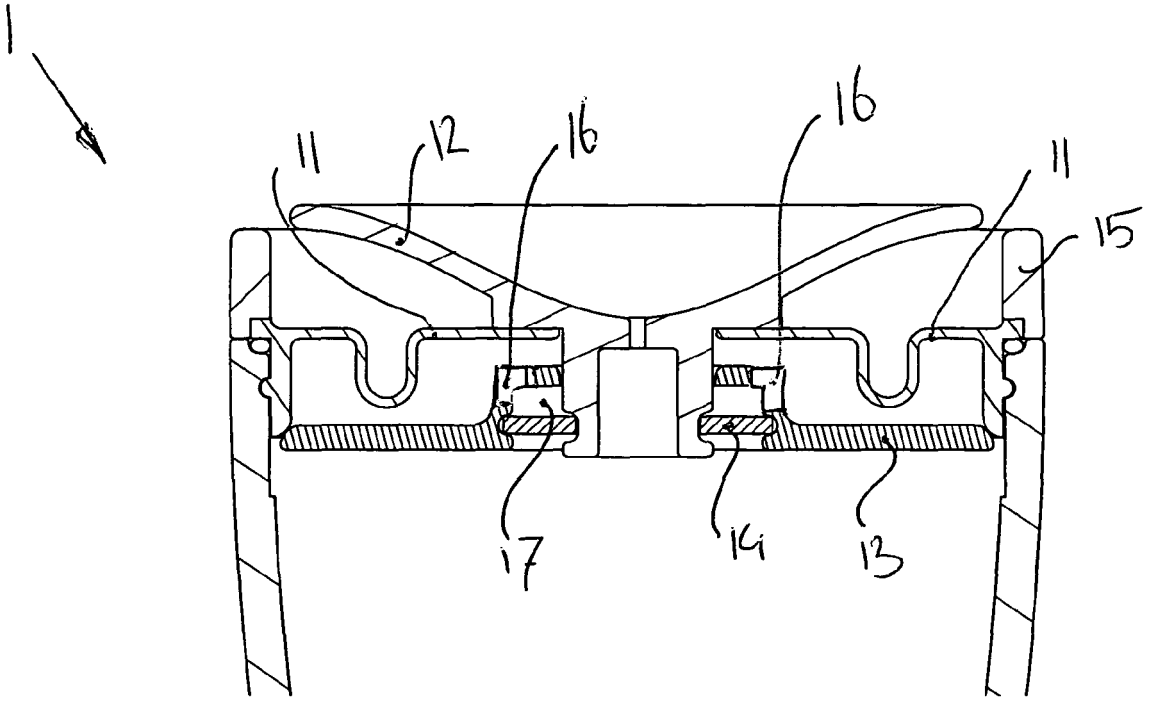

FIG. 4A

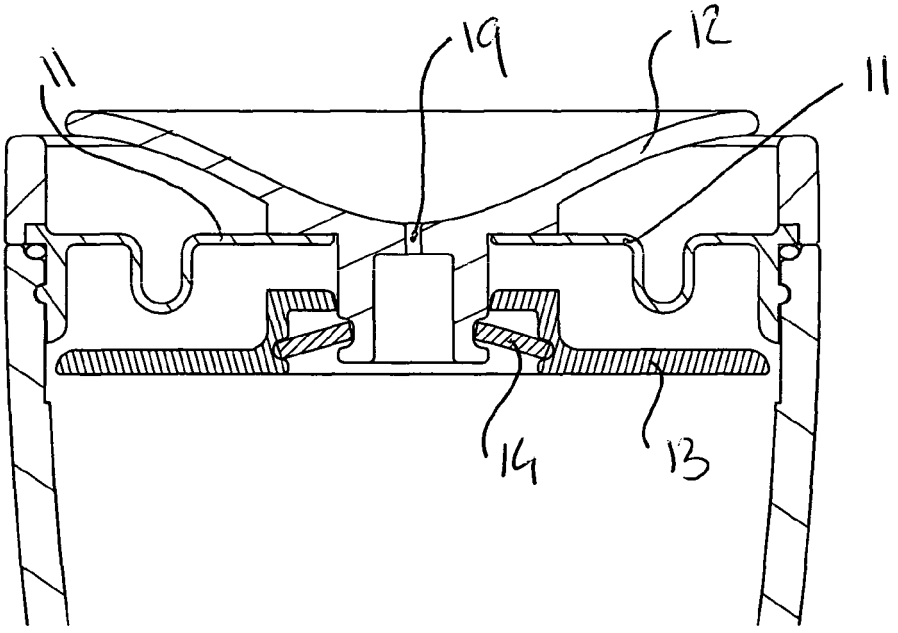

FIG. 4C

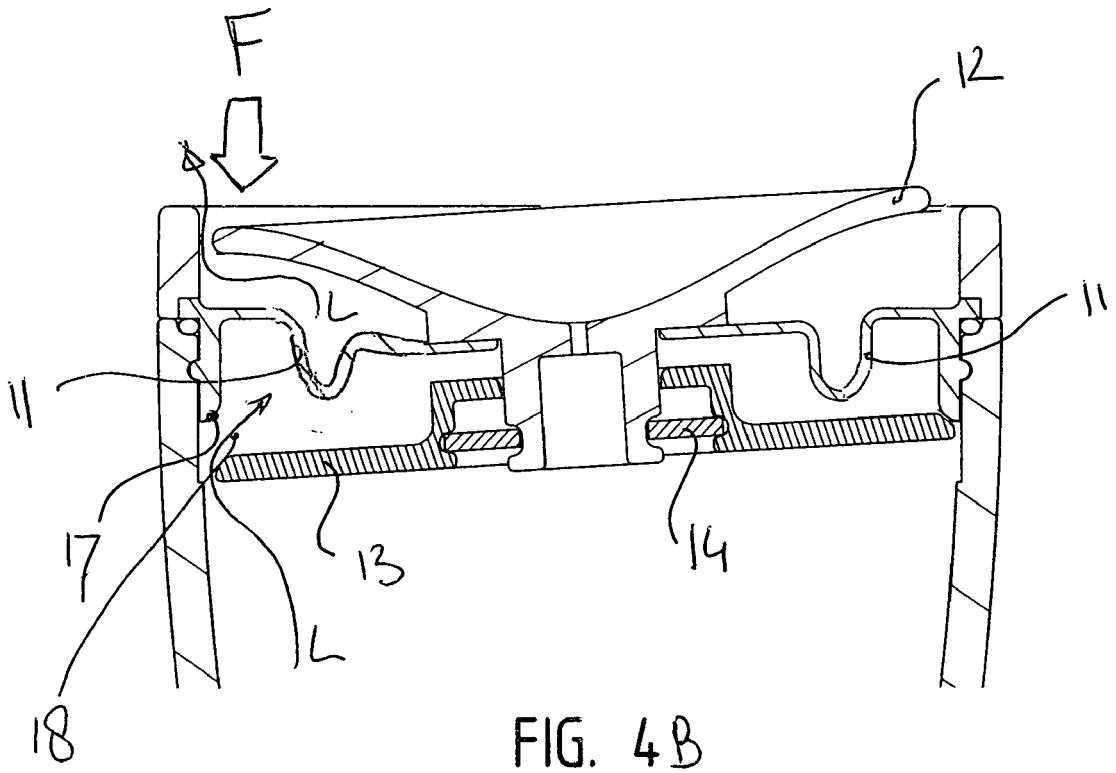

FIG. 4B

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 08 01 1462

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	WO 02/11587 A (PLAYTEX PRODUCTS INC) 14 February 2002 (2002-02-14) * the whole document *	1-3,8,9	INV. A47G19/22
X	US 4 238 045 A (D'ANDRIA ERNEST F) 9 December 1980 (1980-12-09) * figure 1 *	1-3,8,9	
X	US 4 184 603 A (HAMILTON CALVIN G SR) 22 January 1980 (1980-01-22) * figure 3 *	1-3,8,9	
X	US 3 338 467 A (ALBERT KENNETH J) 29 August 1967 (1967-08-29) * figure 1 *	1,2,8,9	

TECHNICAL FIELDS SEARCHED (IPC)

A47G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	30 October 2008	Reichhardt, Otto

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 01 1462

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-10-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0211587 A	14-02-2002	AU 8119501 A	18-02-2002
		AU 2001281195 B2	15-12-2005
		CA 2417239 A1	14-02-2002
		EP 1309262 A1	14-05-2003
		MX PA03001188 A	05-09-2003
US 4238045 A	09-12-1980	CA 1124684 A1	01-06-1982
US 4184603 A	22-01-1980	NONE	
US 3338467 A	29-08-1967	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 0211587 A **[0004]**