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(54) **CONTAINERS WITH ADHESIVELY ATTACHED CHIMES**

BEHÄLTER MIT ANGEKLEBTER ZARGE

RÉCIPIENTS À BASES FIXÉES DE MANIÈRE ADHÉSIVE

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Description

TECHNICAL FIELD OF THE INVENTION

[0001] This invention relates to containers, particularly kegs, which are suitable for holding beverages such as beer or fruit juices as well as other liquids.

BACKGROUND

[0002] Kegs for holding beverages such as beer are increasingly being manufactured of plastics. They are cheaper to manufacture and transport compared with traditional metal kegs, and they can be recycled without having to be returned over long distances for re-filling. Such kegs include a main container which is formed by blow moulding, and at least one injection moulded chime secured to the top end, or both the top and bottom ends, of the container. See WO 2008/098 935-A1.

[0003] In a known form of container a bottom chime is secured to the container using a hot melt adhesive as the primary means of attachment. (See WO 2009/024 940-A1.) This fixing method is quick and inexpensive, and the points of attachment can be distributed over a substantial area rather than being concentrated in a small region of the bottom wall. As a result, the kegs are better able to withstand rough handling without detachment of the chimes. The use of a hot melt adhesive is also compatible with current re-cycling methods.

[0004] It has been found that in a small number of cases, when the kegs have been stored under certain conditions, the container can become tilted over within the bottom chime so that the container no longer stands upright. This means that the dip tube which is used to withdraw the contents of the keg is no longer at the lowest part of the container and a small residual volume of liquid may remain in the keg.

[0005] The present invention seeks to provide a new and inventive form of attachment which retains the advantages of adhesive fixing but which enables a larger quantity of liquid to be withdrawn under a wider range of conditions leaving a smaller residual volume.

SUMMARY OF THE INVENTION

[0006] The present invention proposes a container assembly including a container and a chime fixed to each other by means of an adhesive;
the container having:

- a peripheral side wall,
- a top wall formed with a central neck containing a valve fitting provided with a dip tube which extends into the container, and
- a bottom wall formed with a central projection, said central projection defining an internal well inside the container;

and
the chime having:

- an inner hub with a central opening,
- a plurality of legs extending outwardly from the inner hub, and
- an outer skirt joined to outer ends of the plurality of legs;

in which the central opening of the inner hub receives the central projection to locate the inner hub against lateral movement without fixation between the inner hub and the central projection, and a bottom end of the dip tube extends into the internal well of the central projection.

[0007] The invention also provides a container assembly including a container and a chime fixed to each other by means of an adhesive, in which an end of the container has a central projection and the chime has an inner hub with a central opening having the same internal profile as the outer profile of the central projection to locate the inner hub against lateral movement without fixation between the inner hub and the central projection.

[0008] The invention also provides a container assembly including a container and a chime fixed to each other by means of an adhesive, in which an end of the container has a central projection and the chime has an inner hub with a central opening having a plurality of slots which radiate outwardly from the central projection and the plurality of slots define a plurality of flexible inwardly-directed fingers which locate the inner hub against lateral movement without fixation between the inner hub and the central projection.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The following description and the accompanying drawings referred to therein are included by way of non-limiting example in order to illustrate how the invention may be put into practice. In the drawings:

Figure 1 is a vertical section through a known keg as stood on a level surface;

Figure 2 is a vertical section through the same keg which has been subject to heating under certain conditions;

Figure 3 is an exploded general view of a modified bottom part of the keg;

Figure 4 is a general view of the modified bottom part in the assembled keg;

Figure 5 is a vertical section through the modified bottom part of the assembled keg; and

Figure 6 is a general view of the bottom part of the

assembled keg which incorporates a further modification.

DETAILED DESCRIPTION OF THE DRAWINGS

[0010] Referring firstly to **Fig.** 1, a known form of keg for holding beverages such as beer includes a container 1 which is formed from plastics by blow moulding. An injection moulded top chime 2 is fixed to the top end of the container and an injection moulded bottom chime 3 fixed to the opposite end. The container 1 has a cylindrical side wall 4, a top wall 5 formed with a central neck 6 containing a valve fitting 7 provided with a dip tube 8. The dip tube terminates at the lowest part of a bottom wall 9 which is of plain rounded shape. The bottom chime 3 is fixed to the bottom wall of the container using a hot melt adhesive as the primary means of attachment.

[0011] Sometimes, for example if the kegs are stored at elevated temperatures when the kegs are tightly wrapped on a pallet, the adhesive can soften. The container 1 can then become tilted over within the bottom chime 3, as shown in **Fig.** 2, so that the container no longer stands upright. This means that the dip tube 8, which is used to withdraw the contents of the keg, is no longer at the lowest part of the container and a small residual volume of liquid may remain in the keg.

[0012] In the modified keg shown in **Fig.** 3, during blow moulding the bottom wall 9 of the container 1 is formed with a circular central projection or boss 10 which defines an internal well 11 inside the container (see **Fig. 5**). The bottom chime 3 has an inner hub 12 with a central opening 13 and a plurality of legs 14 which extend outwardly from the inner hub. An outer skirt 15 fits over the side wall 4 of the container, with a bottom rim 16 upon which the container stands, and an inner rim 17 which is joined to the outer ends of the legs 14. The central opening 13 of the inner hub 12 has the same internal profile as the outer profile of the central projection 10. When the bottom chime 3 is received on the bottom of the container 1 as shown in **Fig. 4,** the central opening 13 receives the central projection 10, without fixation or interference, to locate the inner hub against lateral movement. Referring to **Fig. 5,** the bottom chime 3 is fixed to the bottom end of the container using a hot melt adhesive as the primary means of attachment which is applied to areas 20 of the bottom chime adjacent to the inner rim 17 of the outer skirt 12 and spaced from the central projection 10. As can also be seen in **Fig. 5,** the bottom end of the dip tube 8 extends into the internal well 11 formed by central projection 10, which acts as a kind of sump. The lateral location provided by the central projection 10 thus prevents the container 1 from tilting over within the bottom chime 3 and, even if no tilting has occurred, enables a greater quantity of liquid to be withdrawn via the dip tube 8 with little or no residual volume remaining, e.g. if the container is not stood on a level surface.

[0013] Due to manufacturing tolerances, or variations in pressure within the container, there may be axial variations between the positions of the central projection 10 and the inner hub 12. In order to accommodate these variations and ensure that the central projection 10 is always fully located within the inner hub, the central opening 13 may be modified as shown in **Fig. 6.** The central opening 13 incorporates a plurality of slots 21 which radiate outwardly from the central projection 10, so that the slots define a plurality of flexible inwardly-directed fingers 22 which again locate the inner hub against lateral movement without fixation or interference. During assembly and adhesive fixation of the chime 3, the bottom wall 9 of the container may deform the fingers 22 in a downward direction to maintain a slight upward pressure on the bottom wall 9, thus ensuring that the central projection 10 is always properly located within the central opening 13.

[0014] It will be appreciated that the modified container retains the advantages of adhesive fixation whilst ensuring that the keg remains stable and upright under all conditions. The modification also enables a greater volume of liquid to be withdrawn under a wider range of conditions leaving a smaller residual volume.

Claims

1. A container assembly including a container (1) and a chime (2) fixed to each other;
the container having:

- a peripheral side wall (4),
- a top wall (5) formed with a central neck (6) containing a valve fitting (7) provided with a dip tube (8) which extends into the container, and
- a bottom wall formed with a central projection (10), said central projection defining an internal well (11) inside the container;

and
the chime having:

- an inner hub (12) with a central opening (13),
- a plurality of legs (14) extending outwardly from the inner hub, and
- an outer skirt (15) joined to outer ends of the plurality of legs;

in which the central opening (13) of the inner hub (12) receives the central projection (10) to locate the inner hub against lateral movement ***characterised in that***

- there is no fixation between the inner hub and the central projection;
- the container (1) and the chime (2) are fixed to each other by means of an adhesive; and
- a bottom end of the dip tube (8) extends into the internal well (11) of the central projection.

2. A container assembly according to Claim 1 in which the central opening (13) of the inner hub has the same internal profile as the outer profile of the central projection (10) to locate the inner hub against lateral movement without fixation between the inner hub and the central projection.

3. A container assembly according to Claim 1 in which the central opening (13) of the inner hub incorporates a plurality of slots (21) which radiate outwardly from the central projection (10) and the plurality of slots define a plurality of flexible inwardly-directed fingers (22) which locate the inner hub against lateral movement without fixation between the inner hub and the central projection.

Patentansprüche

1. Behälteranordnung mit einem Behälter (1) und einer Glocke (2), die aneinander befestigt sind;
wobei der Behälter aufweist:

- eine periphere Seitenwand (4),
- eine obere Wand (5), die mit einem zentralen Hals (6) gebildet ist, der einen Ventilanschluss (7) hat, der mit einem Tauchrohr (8) versehen ist, das sich in den Behälter erstreckt, und
- eine Bodenwand, die mit einem zentralen Vorsprung (10) gebildet ist, wobei durch den zentralen Vorsprung eine innere Vertiefung (11) innerhalb des Behälters definiert ist;

und
wobei die Glocke aufweist:

- eine innere Nabe (12) mit einer zentralen Öffnung (13),
- eine Mehrzahl von Schenkeln (14), die sich von der inneren Nabe nach außen erstrecken, und
- eine äußere Schürze (15), die mit den äußeren Enden der Mehrzahl von Schenkeln verbunden ist;

wobei die zentrale Öffnung (13) der inneren Nabe (12) den zentralen Vorsprung (10) aufnimmt, um die innere Nabe gegen eine seitliche Bewegung zu positionieren,
dadurch gekennzeichnet, dass

- zwischen der inneren Nabe und dem zentralen Vorsprung keine Fixierung vorhanden ist;
- der Behälter (1) und die Glocke (2) mit Hilfe eines Klebstoffs aneinander befestigt sind; und
- sich ein unteres Ende des Tauchrohrs (8) in die innere Vertiefung (11) des zentralen Vorsprungs erstreckt.

2. Behälteranordnung nach Anspruch 1, wobei die zentrale Öffnung (13) der inneren Nabe das gleiche innere Profil wie das äußere Profil des zentralen Vorsprungs (10) hat, um die innere Nabe gegen eine seitliche Bewegung ohne Fixierung zwischen der inneren Nabe und dem zentrale Vorsprung zu positionieren.

3. Behälteranordnung nach Anspruch 1, wobei die zentrale Öffnung (13) der inneren Nabe eine Mehrzahl von Schlitzen (21) aufweist, die von dem zentralen Vorsprung (10) nach außen verlaufen, und durch die Mehrzahl von Schlitzen eine Mehrzahl von flexiblen, nach innen gerichteten Fingern (22) definiert ist, die die innere Nabe gegen eine seitliche Bewegung ohne Fixierung zwischen der inneren Nabe und dem zentralen Vorsprung positionieren.

Revendications

1. Ensemble récipient comprenant un récipient (1) et une base (2) fixés l'un à l'autre ;
le récipient ayant :

- une paroi latérale périphérique (4),
- une paroi supérieure (5) formée avec un goulot central (6) contenant un raccord de valve (7) comportant un tube plongeur (8) qui s'étend dans le récipient, et
- une paroi inférieure formée avec une saillie centrale (10), ladite saillie centrale définissant un puits interne (11) à l'intérieur du récipient ;

et
la base ayant :

- un emboîtement interne (12) avec une ouverture centrale (13),
- une pluralité de branches (14) s'étendant vers l'extérieur à partir de l'emboîtement interne, et
- une jupe externe (15) reliée à des extrémités externes de la pluralité de branches ;

dans lequel l'ouverture centrale (13) de l'emboîtement interne (12) reçoit la saillie centrale (10) pour positionner l'emboîtement interne vis-à-vis d'un mouvement latéral,
caractérisé par le fait que

- il n'y a aucune fixation entre l'emboîtement interne et la saillie centrale ;
- le récipient (1) et la base (2) sont fixés l'un à l'autre au moyen d'un adhésif ; et
- une extrémité inférieure du tube plongeur (8) s'étend dans le puits interne (11) de la saillie centrale.

2. Ensemble récipient selon la revendication 1, dans lequel l'ouverture centrale (13) de l'emboîtement interne a le même profil interne que le profil externe de la saillie centrale (10) pour positionner l'emboîtement interne vis-à-vis d'un mouvement latéral sans fixation entre l'emboîtement interne et la saillie centrale.

3. Ensemble récipient selon la revendication 1, dans lequel l'ouverture centrale (13) de l'emboîtement interne incorpore une pluralité de fentes (21) qui s'étendent de manière radiale vers l'extérieur à partir de la saillie centrale (10), et la pluralité de fentes définissent une pluralité de doigts souples dirigés vers l'intérieur (22) qui positionnent l'emboîtement interne vis-à-vis d'un mouvement latéral sans fixation entre l'emboîtement interne et la saillie centrale.

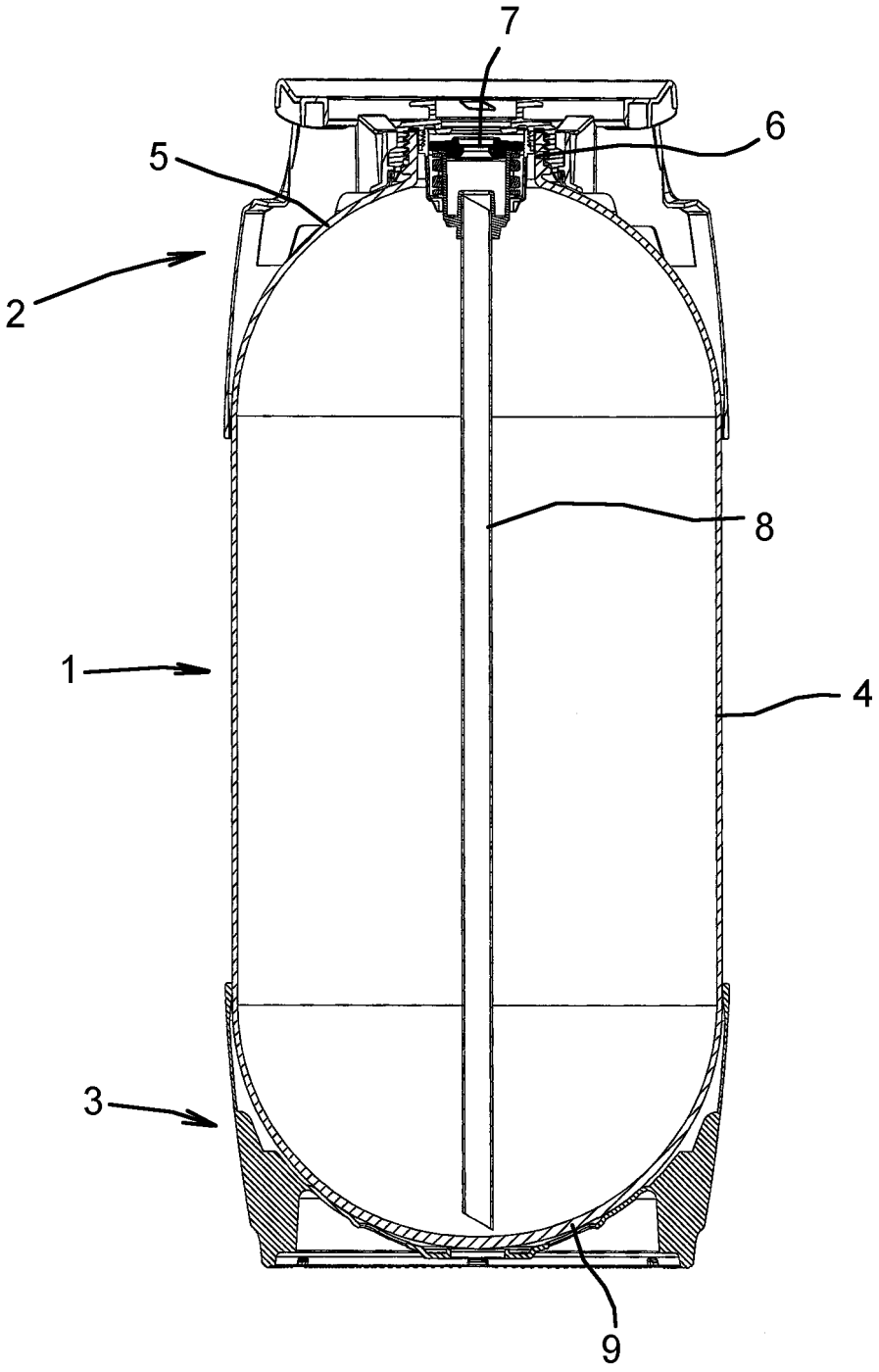

Fig. 1

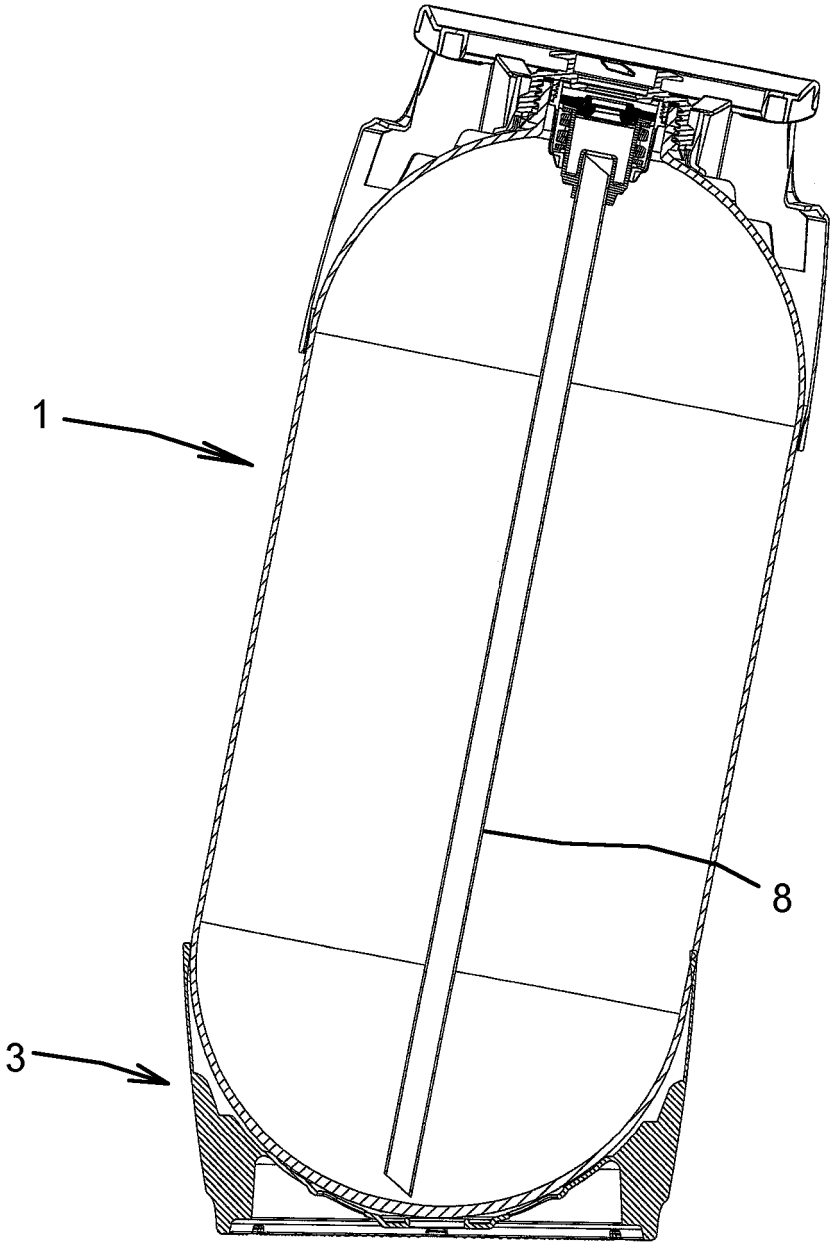

Fig. 2

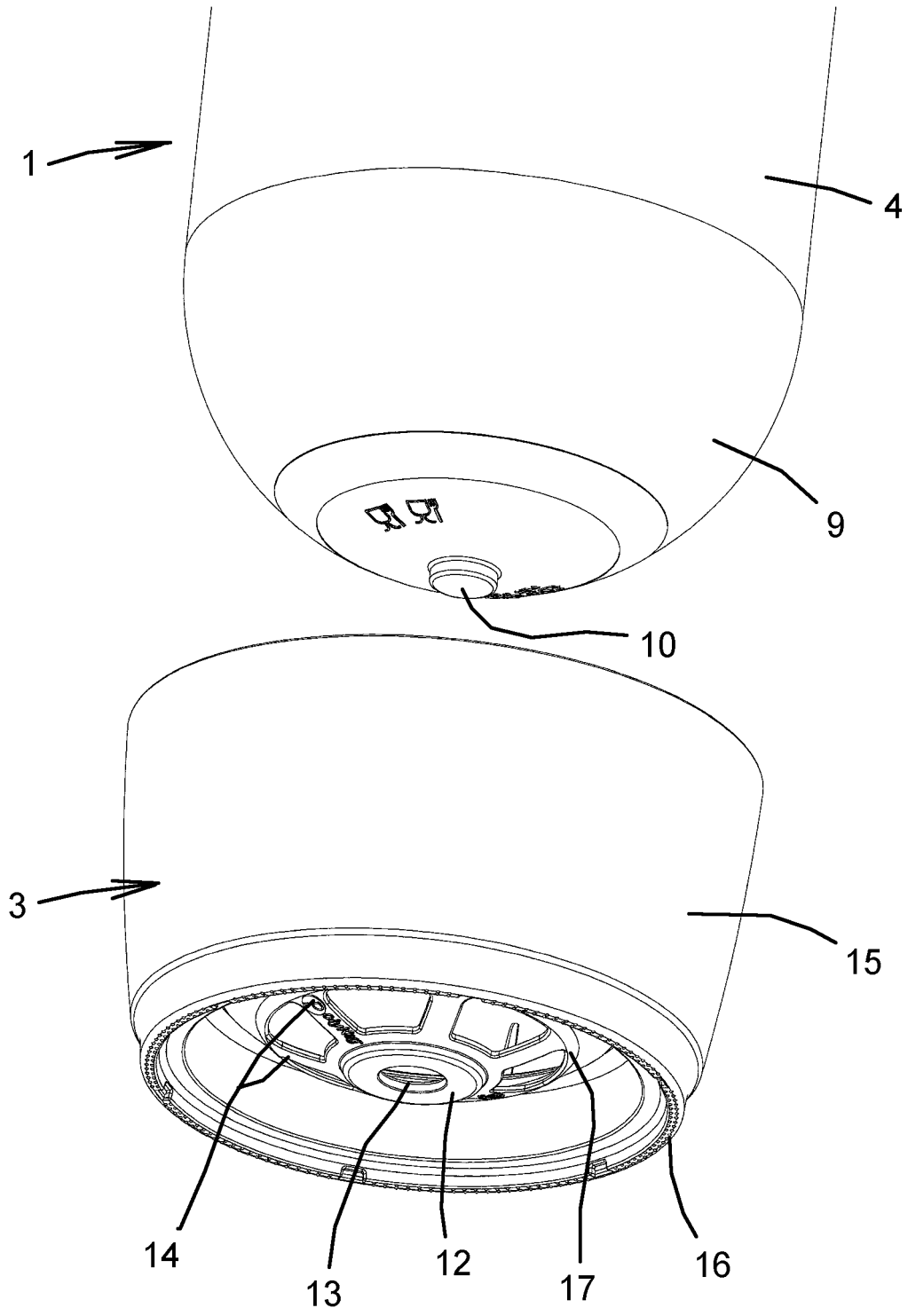

Fig. 3

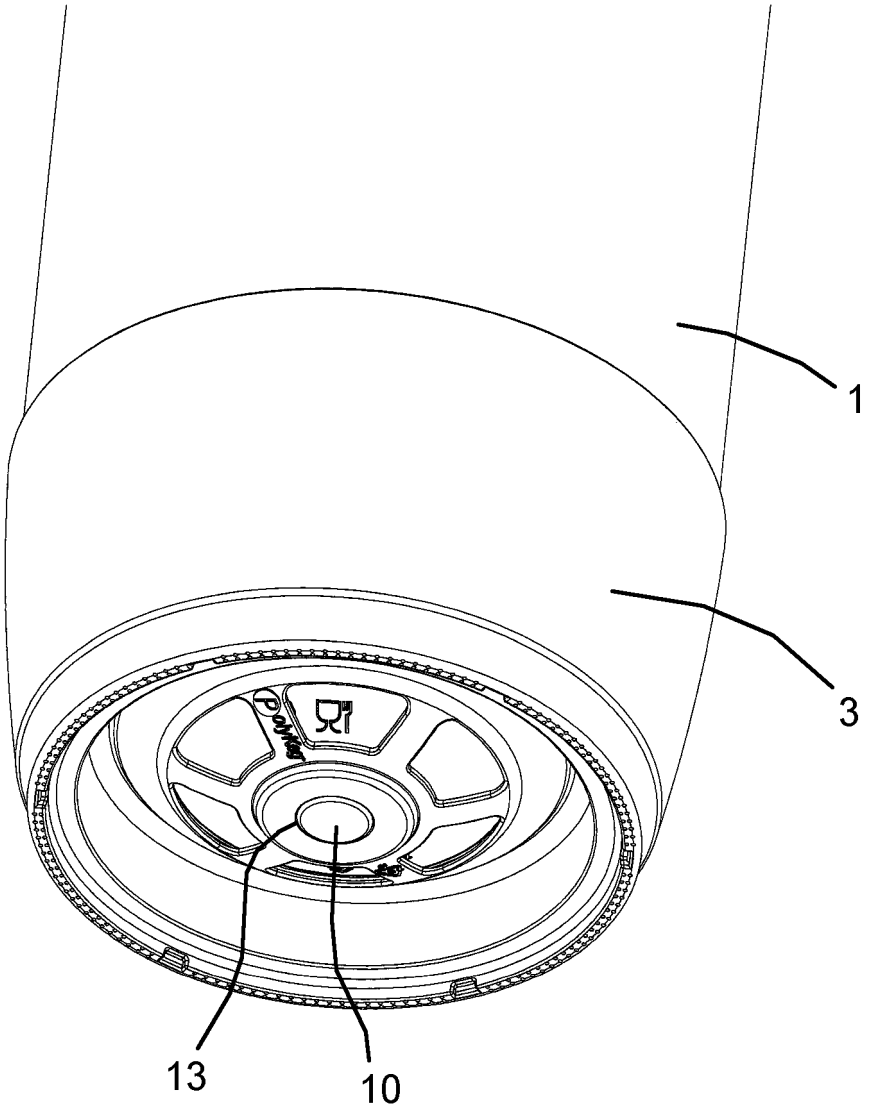

Fig. 4

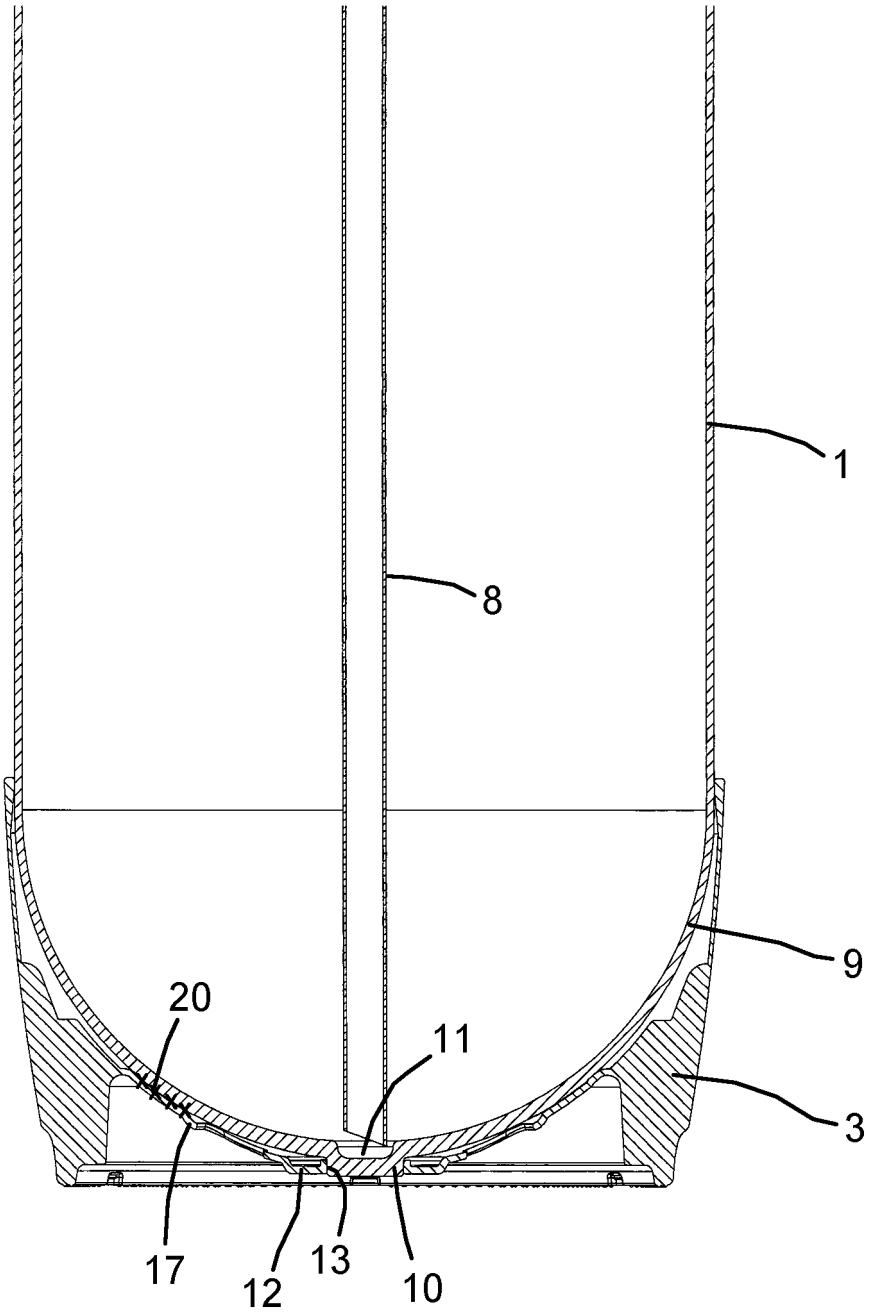

Fig. 5

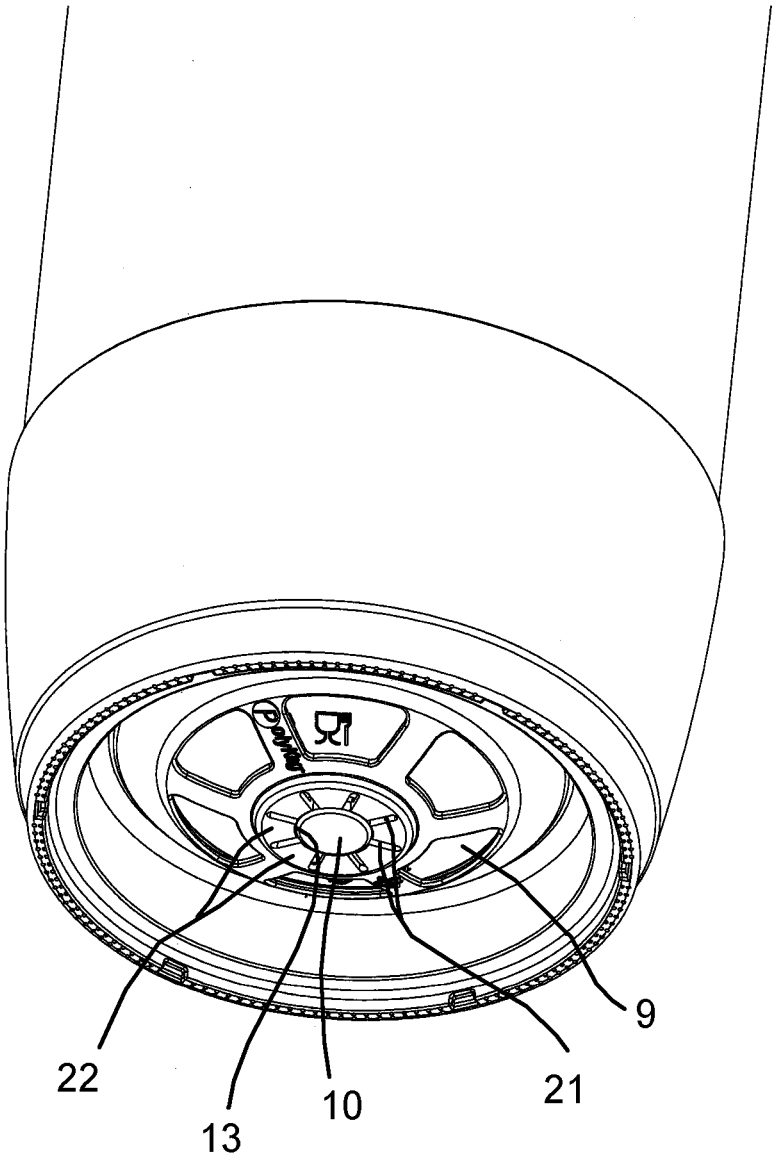

Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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- WO 2009024940 A1 **[0003]**