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- (71) Applicant and  
(72) Inventor: BERG, Gunnar [NO/NO]; Torridalsveien 51,  
N-4630 Kristiansand (NO).
- (74) Agent: HÅMSØ PATENTBYRÅ ANS; P.O. Box 171,  
N-4302 Sandnes (NO).
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(54) Title: DRINKING CUP DEVICE

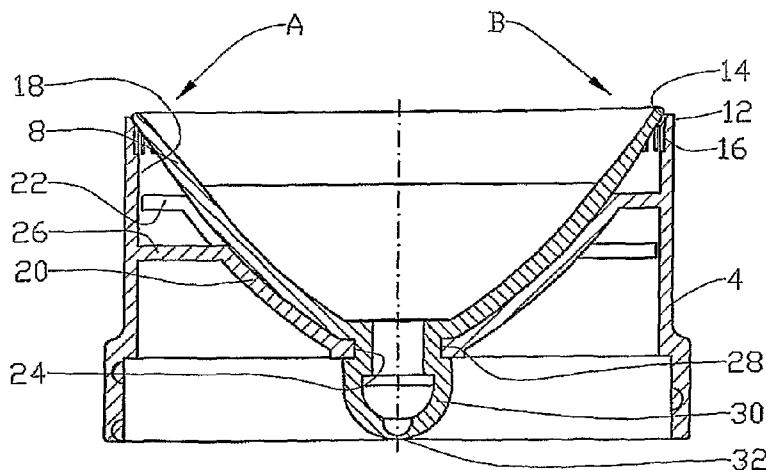


Fig. 4

(57) Abstract: A device by a drinking cup (1) comprising a container (2) and a valve element (4), the valve element (4) being provided with, on at least a portion of its free edge portion (12), an abutment (14) for a sealing, actuatable gasket (8), and wherein a user's lip is resting against the gasket (8) when the drinking cup (1) is in its operating position.

WO 2009/126042 A1

## DRINKING CUP DEVICE

A drinking cup device is provided. More specifically, the present invention relates to a drinking cup comprising a container and a valve element, the valve element being  
5 provided with, on at least in a portion of its free edge portion, a mechanism for a sealing, actuatable gasket.

In this context a drinking cup means a cup, a vessel or a glass, that is equipped with a remedy for avoiding or reduction of the risk of spilling.

10 Young children and the elderly may find it difficult to drink from ordinary cups without spilling. This might be due to a lack of control over the cup or reduced mobility.

It is known that cups which are provided with a drinking spout can provide considerable help. It is also known to  
15 provide the cup with a valve in order to prevent liquid from flowing out if the cup tips.

Thus WO 00/48491 discloses a drinking cup, where the spout of the cup is equipped with a valve element. The valve is activated by pulling a sealing elastic cover away from the  
20 valve element by means of underpressure, thereby opening the valve.

Adults might be uncomfortable using a drinking cup with a spout, since this is indicating reduced mobility to the

surroundings.

Drinking cups provided with openings along the periphery of the cover are also known. Thus US patent 5890619 discloses a drinking cup with a relatively large number of openings being  
5 arranged along the circumference for the lid. The drinking cup is provided with a suction actuatable valve inside the lid.

WO 03/061438 relates to a drinking cup where an aperture is arranged along the circumference of the lid, between an outer member and an inner member. A cylindrical sealing element,  
10 placed between the two members, is actuatable by suction by being lifted off the abutment against the first member. A drinking cup according to this document has inadequate functionality.

The object of the invention is to remedy or to reduce at  
15 least one of the disadvantages of the prior art.

The object is achieved according to the invention by virtue of the features disclosed in the following description and in the subsequent claims.

A drinking cup is provided which comprises a container and a  
20 valve element, the valve element being provided with, on at least a portion of its free edge portion, an abutment for a sealing, actuatable gasket, the drinking cup being characterized in that a user's lip abuts the gasket when the drinking cup is in an operating position.

25 The meaning of "operating position" in this context is the position of the drinking cup when a user is drinking from the drinking cup.

One aspect by the drinking cup is that the gasket displaceable from the abutment. In its sealing position the

gasket rests partly pretensioned against the abutment. The pretension usually occurs by a partial deformation of the gasket when it is installed on the valve element.

Another aspect of the drinking cup is that the gasket is  
5 designed to be displaced from the structure by the application of external suction from outside the gasket. The suction is created by a user placing his or her lips against the gasket and sucking liquid from the cup.

Still another aspect by the drinking cup is that the gasket  
10 is arranged to be displaced from the abutment through deformation being applied to the gasket from the outside of the gasket. A user's lip will, for example, press a portion of the gasket inward creating a leverage effect, causing another portion of the gasket being displaced outwardly from  
15 the abutment.

Still another aspect by the drinking cup is that the gasket is constituting a lid over at least the valve element or the container. Thus the gasket will cover the upper portion of the drinking cup.

20 Still another aspect of the drinking cup is that the elastic gasket is connected to the valve element by a fastening groove. Thus the gasket can easily be removed from and fitted to the drinking cup, for example when cleaning or filling the drinking cup.

25 Till another aspect by the drinking cup is that the valve element comprises a splash guard provided with through openings. The splash guard has proved to be advantageous by being designed to suppress the mass forces from the liquid in the container, for example if the drinking cup tips or is  
30 shaken. The openings can be shielded.

The provided drinking cup has proved to overcome several of the deficiencies of prior art drinking cups. The drinking cup comprises relatively few components and is therefore fairly easy to keep clean, inexpensive to produce and simple to use.

5 An example of a preferred embodiment is described in the following and is depicted in the accompanying drawings, in which:

An example of a preferred embodiment is described in the following and is depicted in the accompanying figures, in  
10 which:

Fig. 1 shows a perspective view of the drinking cup;

Fig. 2 shows a partial sectional view of the drinking cup in figure 1, where the gasket of the drinking cup has been removed;

15 Fig. 3 shows a partial sectional view of the drinking cup in figure 1, where the gasket of the drinking cup has been removed and where the splash guard for the drinking cup has an alternative design;

20 Fig. 4 shows a cross sectional view on a larger scale, of the valve in figure 3, also showing the gasket;

Fig. 5 shows a partial cross sectional perspective view of a drinking cup in an alternate embodiment, where the gasket for the drinking cup is removed;

25 Fig. 6 shows the same illustration as figure 5, but where the splash guard is designed in the same manner as in figure 3;

Fig. 7 shows a cross sectional view on a larger scale, of the valve in figure 5, also showing the gasket; and

Figure 8 shows an alternative embodiment of the valve element for the drinking cup, on a larger scale.

In the figures, reference numeral 1 is a drinking cup comprising a container 2 and a valve element 4. The drinking cup 1 is provided with handles 6. A gasket 8 is arranged to prevent liquid from unintentionally pouring out of the drinking cup 1. In this embodiment, the valve element 4 constitutes a removable part of the container 2. When in use, a user's lip is resting against the gasket 8.

The valve element 4 is, along its free edge portion 12, provided with an abutment 14 in the form of a conical surface, see figures 2, 3 and 4. The gasket 8 is designed to lie sealingly against the abutment 14. A number of evenly spaced indentations 16 on the inner cylindrical surface of the valve element end in the abutment 14.

The valve element 4 is further provided with a splash guard 20 with through openings 22. The splash guard 20 is also provided with a centric through fastening opening 24 for the gasket 8. The splash guard 20 is designed to reduce the mass forces exerted on the gasket 8 from the liquid in the drinking cup 1, for example if the drinking cup 1 is shaken.

In figures 3 and 4 the openings 22 in the splash guard 20 are shielded by respective covers 26 that are located at a certain distance from their respective openings 22.

The gasket 8, which is designed from an elastic, rubberlike material, is provided with a surrounding fastening groove 28, which complementary fits into the fastening opening 24 in the splash guard 20. The gasket is fitted onto the valve element 4 by displacing the mid-section 30 of the gasket 8 into the fastening opening 24 until the fastening groove 28 grips the

material around the fastening opening 24. The mid-section 30 is designed with a relatively small vent 32.

Detail A in figure 4 shows the gasket 8 laying sealingly against the abutment 14, the shape of the gasket 8 causing it to lay slightly pretensioned against the abutment 14. Detail B in figure 4 shows the gasket 8, a portion of the gasket 8, due to external suction, being displaced slightly off the abutment 14. The distance between the gasket 8 and the abutment 14 in detail B allows liquid to flow through the opening 22, the indentations 16 and out between the gasket and the abutment 14.

When the underpressure against the outside of the gasket 8 is removed, the gasket 8 will again lay sealingly against the abutment 14.

In one alternative, and somewhat simplified, embodiment, the valve element 4 is substantially positioned inside the container 2; see figures 5, 6 and 7.

Similarly to the exemplary embodiments presented above, the drinking cup 1, in figure 6, is also designed with a splash guard 20, the openings 22 being shielded by covers 24.

Detail C in figure 7 shows the gasket 8 resting against the abutment 14, which in this embodiment consists of a flange-like radial surface.

When a force is applied to the gasket 8, such as is indicated by an arrow d in detail D in figure 7, a portion of the gasket 8 tilts around the inner edge portion 34 of the abutment 14 and outwardly from the abutment 14. thus liquid can flow from the container 2 through the openings 22, the indentations 16 and out between the gasket 8 and the abutment 14.

Figure 8 shows two additional, simplified, exemplary embodiments, where the valve element 4 constitutes a portion of the container 2. Detail E shows an embodiment where the gasket 8 is positioned to be displaced outwardly from the abutment 14 by an external underpressure and/or through a force applied from the outside, as indicated by arrow e.

In detail F, the gasket 8 rests against the abutment 14 such that the abutment 14 faces inward towards the container 2. An outside force, here indicated by arrow f, will deform the gasket 8, by tilting a portion of the gasket 8 around the edge portion 36 of a support ring, sufficiently to allow a liquid flow between the gasket 8 and the abutment 14 and further out through borings 38.

## C l a i m s

1. Drinking cup device (1) comprising a container (2) and a valve element (4), wherein at least a portion of a free portion of the edge (12) is provided with an abutment (14) for a sealing, actuatable gasket (8), and where the gasket (8) is arranged to be displaced from the abutment (14) by underpressure on the outside of the gasket (8), characterised in that the valve element (4) is provided with a splash guard (20).
2. Device according to claim 1, characterised in that the splash guard (20) is provided with through openings (22).
3. Device according to claim 2, characterised in that the openings (22) are shielded.
4. Device according to claim 1, characterised in that the gasket (8) is tiltable resting against an edge portion (34, 36), whereby the application of an external pressure onto the gasket is intending to tilt the gasket off the abutment (14) about the edge portion (34, 36).
5. Device according to claim 1, characterised in that the edge portion (34) is divided by indentations (16).
6. Device according to claim 1, characterised in that the gasket (8) constitutes a lid over at least the valve element (4) or the container (2).

7. Device according to claim 1, characterised in that the gasket (8) is connected to the valve element (4) by a fastening groove (28).

1/4

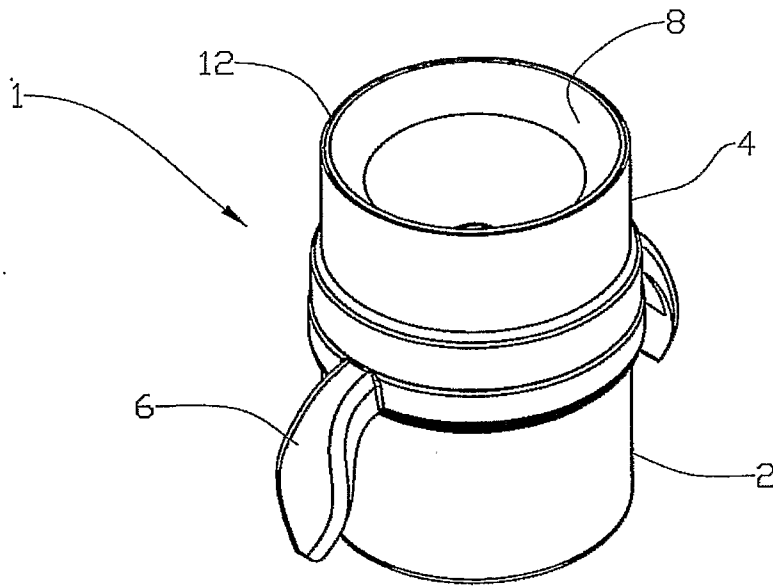


Fig. 1

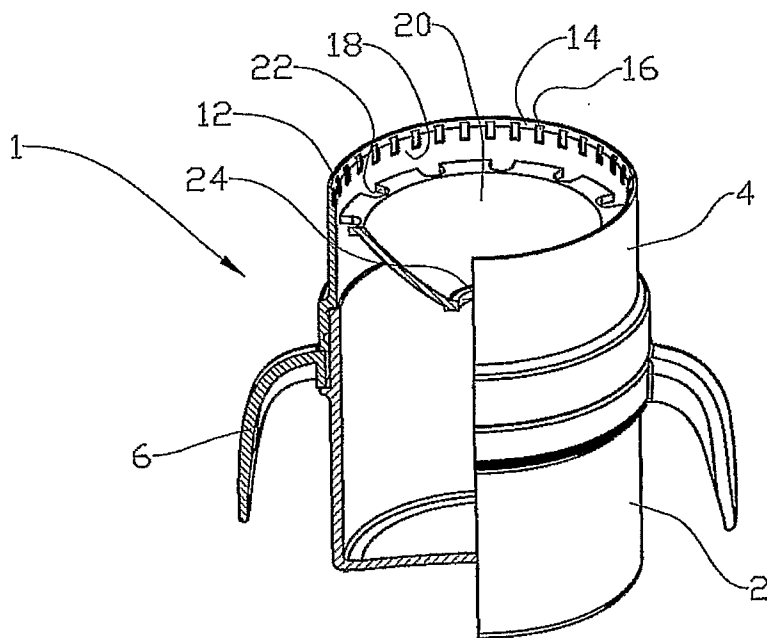


Fig. 2

2/4

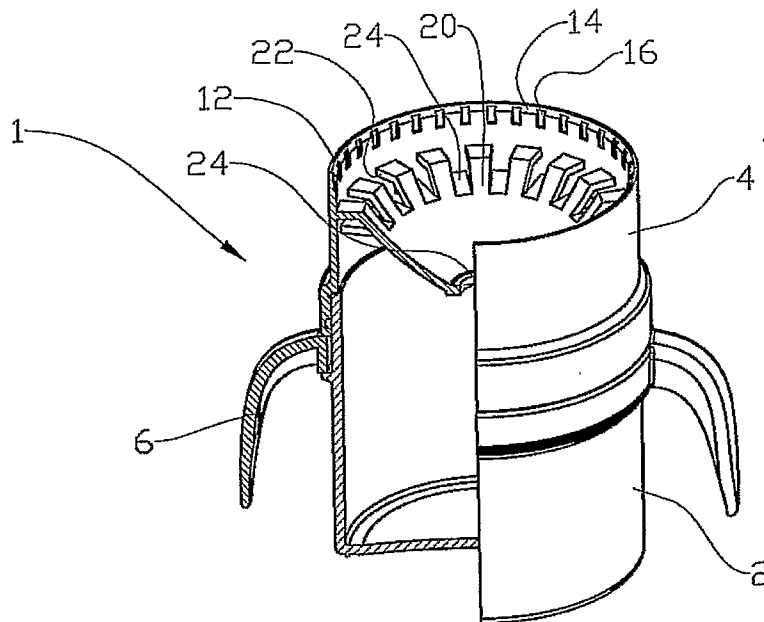


Fig. 3

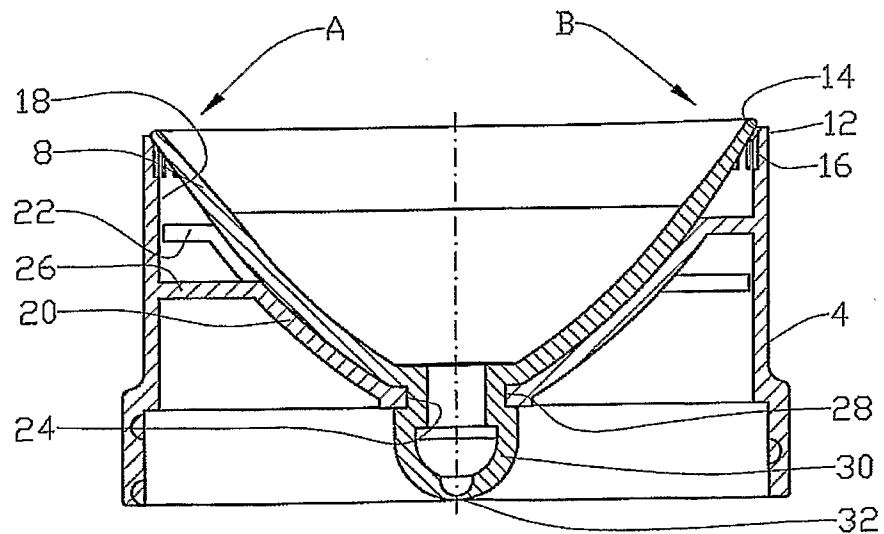


Fig. 4

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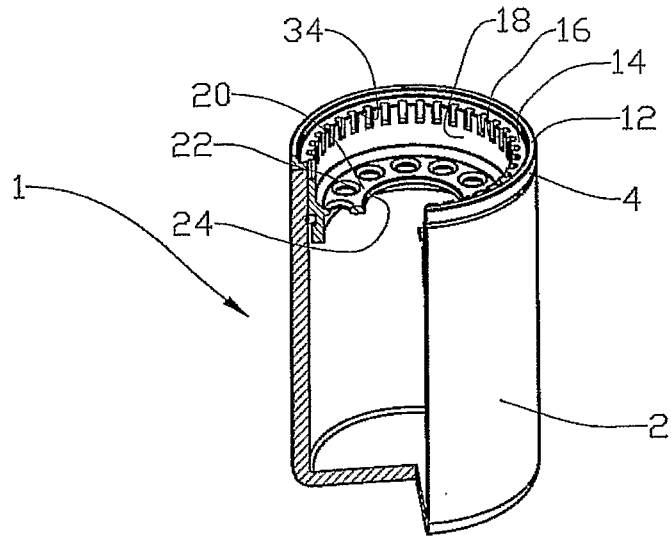


Fig. 5

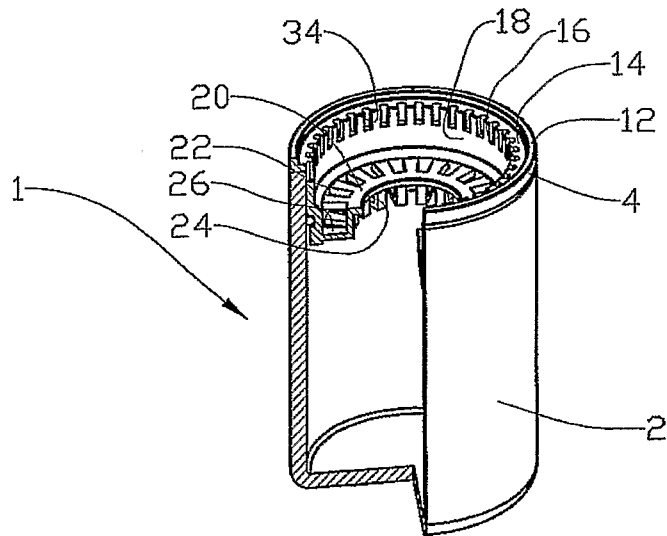


Fig. 6

4/4

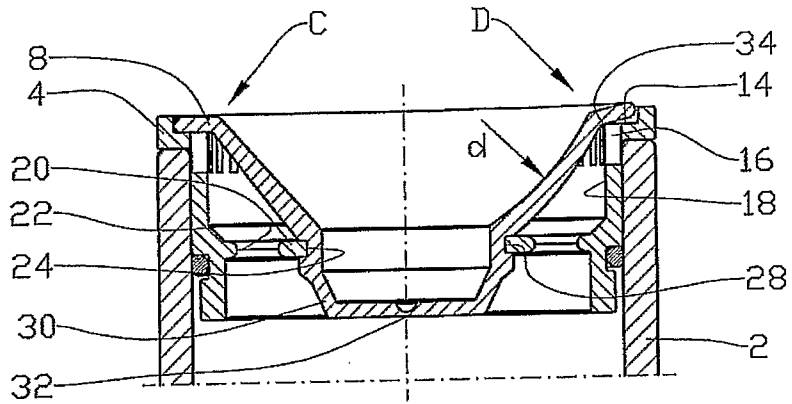


Fig. 7

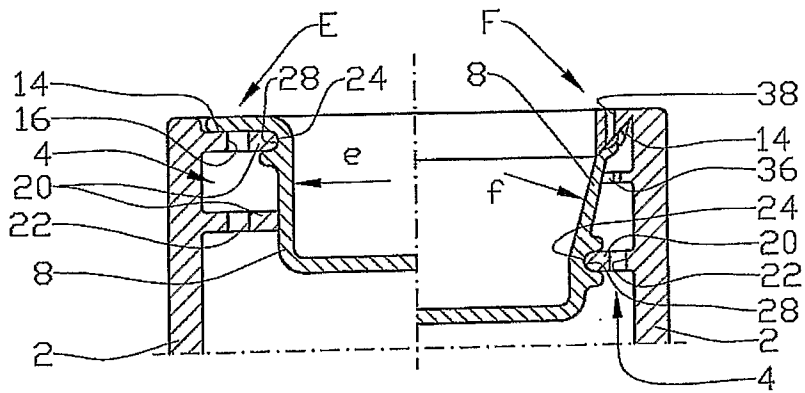


Fig. 8

## INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER  
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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)  
IPC: A47G, B65DDocumentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
DK, NO, FI, SEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Epodoc, WPI, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/11587 A1 (PLAYTEX PRODUCTS INC) 2004.02.14 Page 4 lines 20-34, page 5 lines 1-2, abstract and Fig. 3	1-7
A, D	WO 03/061438 A1 (3FORMDESIGN ; MILLER AUSTEN CHARLES) 2003.07.31. Abstract and Fig. 3.	1-7
A	US 2005/224495 A1 (KARTINIAN ALFRED) 2005.10.13 [0011], [0012] and Fig. 2.	1, 3

 Further documents are listed in the continuation of Box C.
  See patent family annex.

* Special categories of cited documents:	"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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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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Name and mailing address of the ISA/  
Nordic Patent Institute  
Helgeshoj Allé 81, DK-2630 Taastrup, Denmark

Authorized officer

Tatiana P. Mortensen

Facsimile No. (+45) 53 50 80 08

Telephone No. (+47) 22 38 74 28

INTERNATIONAL SEARCH REPORT  
Information on patent family members

International application No.  
PCT/NO2009/000118

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