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(54) **MULTI-COMPARTMENT CARTRIDGE WITH FILTRATION CAPABILITIES**

(57) The present invention provides a multi-compartment cartridge for enclosing at least one substance, wherein such multi-compartment cartridge has filtration capabilities. The multi-compartment cartridge of the present invention comprises a first housing; a first filter member; and a cover, wherein said first housing comprises a tapered cylindrical body with an upper edge, a lower edge, an opening, a bottom wall with a plurality of through-apertures. Said second housing comprises a tapered cylindrical body with an upper edge, a lower edge, an opening, a bottom wall having a substantially convex portion with a plurality of through-apertures. Said second housing and said first filter member are inserted in the opening of the first cylindrical body. The multi-compartment cartridge of the present invention optionally comprises a second filter member.

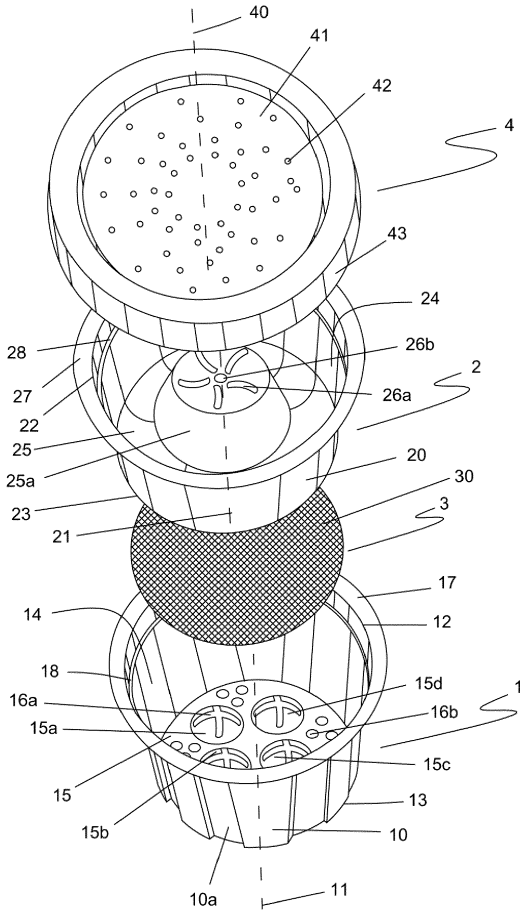

Fig.2

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Description

Background of the invention

[0001] The present invention relates to cartridges used for enclosing substances, particularly to cartridges with filtration capabilities.

Description of the known art

[0002] The use of cartridges or capsules for enclosing substances has increased over the past few years. These substances include edible materials, ink, smokable materials, etc.

[0003] For this reason, numerous patents and patent applications have disclosed various designs and uses of containers for enclosing the said type of substances. For instance, the United States patent application no. 14/221,064 discloses a beverage filter cartridge comprising a cup portion; a lid portion coupled to the cup portion to define an interior; and a filter member provided within the interior; wherein the cup portion, the lid portion, and/or the filter member define three separate compartments with the interior.

[0004] The European patent no. EP2298671 discloses a disposable capsule for beverage dispensing machines for preparing a beverage from a food product housed within it, comprising a plurality of walls, means for dispensing said beverage, and at least an element for partitioning the internal volume of the capsule into two or more volumes to house at least said food product, said partition element being spaced with respect to the wall of the capsule provided with said beverage dispensing means, wherein the means for dispensing said beverage comprises a trap or an opening sealed by a film that are pierceable by a piercing element, and wherein said partitioning element has a supporting surface that is substantially abutting said piercing element, in order to be supported by said piercing element during dispensing of beverage.

[0005] The European patent no. EP1980501 pertains to a capsule for preparing drinks by passing a liquid through a powdered substance contained in a chamber made inside the capsule, the capsule comprises a cup-shaped structure having a lower wall; the chamber being delimited on at least one side by at least one filter element having a plurality of through-holes extending from a first face of the filter element facing the inside of the chamber, to a second face of the filter element facing the lower wall of the cup-shaped structure, the through-holes have inlet sections extending according to a main trajectory of extension and each having a length, measured along the main trajectory of extension, greater than their width, measured transversally to the main trajectory of extension.

[0006] The United States patent application no. 12/700,717 discloses a cartridge for containing smoking materials, the cartridge comprises a container formed from one or more foils; a smoking material within the container; a top joined to the outer container to capture the smoking material within the outer container; and at least one thermally conductive panel between the smoking material and the top, wherein the panel is spaced from the top.

[0007] The European patent no. EP1702525 discloses a tobacco cartridge for use with a narghile or other smoking appliance having a tobacco bowl for receiving tobacco, comprising: a quantity of tobacco enclosed within an enclosure, said enclosure having a lower end configured for applying the cartridge to the tobacco bowl of the smoking appliance, and an upper end which is openable to provide access to the tobacco for igniting same, the enclosure further includes a body of a combustible material capable, when ignited, to produce a glowing ember for igniting the quantity of tobacco within the cartridge.

[0008] The prior art conventional solutions do not allow for even distribution of heat to the ingredients enclosed in the cartridge, and do not allow for an internal fluid vortex within the cartridge.

Summary of the invention

[0009] Therefore, it is an object of the present invention to have a multi-compartment cartridge that for enclosing at least one substance, wherein such cartridge allows for even distribution of heat to the ingredients enclosed in the cartridge, and allows for a creation of an internal fluid vortex within the cartridge.

[0010] As an aspect of the present invention, there is provided a multi-compartment cartridge for enclosing at least one substance, comprising a first housing; a first filter member; and a cover, wherein said first housing comprises a tapered cylindrical body with an upper edge, a lower edge, an opening, a bottom wall with a plurality of through-apertures. Said second housing comprises a tapered cylindrical body with an upper edge, a lower edge, an opening, a bottom wall having a substantially convex portion with a plurality of through-apertures. Said second housing and said first filter member are inserted in the opening of the first cylindrical body.

[0011] As an aspect of the present invention, said multi-compartment cartridge further comprises a second filter member.

[0012] As an aspect of the present invention, said first housing encloses said second housing, said first filter member, and said second filter member.

Brief description of the drawings

[0013] The invention will now be described with reference to the accompanying drawings, which illustrate a preferred embodiment of the present invention, and in which:

FIG.1 illustrates a perspective view of a multi-compartment cartridge configured in accordance with a

preferred embodiment of the present invention.

FIG. 2 illustrates an exploded view of a multi-compartment cartridge configured in accordance with a preferred embodiment of the present invention.

FIG.3 illustrates a cross-section view of a multi-compartment cartridge configured in accordance with a preferred embodiment of the present invention, wherein such section is taken along line A-A of FIG.1.

FIG.4 illustrates a cross-section view of a multi-compartment cartridge configured in accordance with a preferred embodiment of the present invention, wherein such cartridge is adapted to be filled with milk and coffee, and wherein the section is taken along line A-A of FIG.1.

FIG.5 illustrates a cross-section view of a multi-compartment cartridge configured in accordance with a preferred embodiment of the present invention, wherein such cartridge is adapted to be filled with smoking material, and wherein the section is taken along line A-A of FIG.1.

Detailed description of the preferred embodiment

[0014] FIGs 1-3 illustrate a multi-compartment cartridge for enclosing at least one substance with filtration capabilities configured in accordance with a preferred embodiment of the present invention, wherein such cartridge comprises a first housing 1, a second housing 2, a first filter member 3, and a cover 4.

[0015] In the preferred embodiment of the present invention, said first housing 1 comprises a tapered cylindrical body 10 with a plurality of longitudinal grooves 10a and a central axis 11, wherein such cylindrical body 10 comprises an upper edge 12, a lower edge 13, an opening 14, a bottom wall 15 with a plurality of substantially convex areas 15a, 15b, 15c, and 15d and a plurality of through-apertures 16a, and 16b. Said cylindrical body 10 further comprises a lip 17 extending radially outwardly from said central axis 11 at said upper edge 12, and at least one flanged collar 18 approximate to said upper edge 12.

[0016] Said opening 14 comprises a tapered opening having a same central axis 11 of said cylindrical body 10, wherein such opening 14 extends from said upper edge 12 to said bottom wall 15.

[0017] In the preferred embodiment of the present invention, the radius of said opening 14 increases when moving away from the lower edge 13 towards said upper edge 12 of said body 10.

[0018] Said second housing 2 comprises a tapered cylindrical body 20 with a central axis 21, wherein such cylindrical body 20 comprises an upper edge 22, a lower edge 23, an opening 24, a substantially concave bottom wall 25 with a substantially convex portion 25a and a plurality of through-apertures 26a and 26b. The bottom wall 25 has an upper surface 25b and a lower surface 25c. Said cylindrical body 20 further comprises a lip 27 extending radially outwardly from said central axis 21 at said upper edge 22, and a flanged collar 28 approximate to said upper edge 22. A receptacle 25d is defined as the area in said bottom wall 25 trapped between said tapered body 20 and said substantially convex portion 25a.

[0019] Said opening 24 comprises a tapered opening having a same central axis 21 of said body 20, wherein such opening 24 extends from said upper edge 22 to said bottom wall 25.

[0020] In the preferred embodiment of the present invention, said lips 17 and 27 have similar radii.

[0021] In the preferred embodiment of the present invention, said first filter member 3 has an upper surface 30 and a lower surface 31, wherein the radius of such first filter member 3 is greater than the radius of said bottom wall 15 but less that the radius of said upper edge 12.

[0022] In the preferred embodiment of the present invention, the radius of said bottom wall 25 is similar to the radius of said first filter member 3.

[0023] The ratio of increase in the radii of said cylindrical bodies 10 and 20 is similar.

[0024] In the preferred embodiment of the present invention, said first filter member 3 is inserted in said opening 14 with the lower surface 31 facing and parallel to said bottom wall 15, defining a first compartment 5.

[0025] Said second housing 2 is inserted in said opening 14 such that the central axes 11 and 21 are collinear, wherein the cylindrical body 20 is in contact with a substantial part of said first cylindrical body 10.

[0026] Said lips 17 and 27, and said flanged collars 18 and 28 prevents linear movement of said second housing 2 towards the said bottom wall 15.

[0027] In the preferred embodiment of the present invention, said opening 14 is adapted to receive said first filter member 3 and said second housing 2.

[0028] Said lower surface 25c of said bottom wall 25 is in contact with said upper surface 31 of said first filter member 3.

[0029] In the preferred embodiment of the present invention, a second compartment 6 is defined by said opening 24.

[0030] In the preferred embodiment of the present invention, said cover 4 comprises a disc-shaped body with a central axis 40, an opening 41 with a plurality of arced through-apertures 42 extending inwardly toward said central axis 40, and an edge 43 extending from the circumference of said cover 4 downwardly around said central axis 40 towards the bottom walls 15 and 25.

[0031] The radius of said opening 41 of the cover 4 is similar to the radius of said opening 24 of said cylindrical body 20 of the second housing 2, and the radius of said cover 4 is similar to the radius of said lips 17 and 27 of the cylindrical bodies 10 and 20, respectively.

[0032] Said cover 4 covers said opening 24 of second cylindrical body 20, wherein said lip 27 is fit in a space defined by said opening 40 and said edge 43.

[0033] The preferred embodiment of the present invention optionally comprises a second filter member 7 (Figure 5) lining a substantial part of said opening 24, wherein such second filter member partitions said second compartment 6 into a first portion 6a and a second portion 6b.

[0034] Said second filter member 7 comprises a porous heat conductor to provide even heating capabilities to the ingredients enclosed in the cartridge of the present invention.

Example 1

[0035] Reference is now made to Fig. 4, which illustrates a multi-compartment cartridge with filtration capabilities configured according to the preferred embodiment of the present invention and adapted for use in beverage-preparing machines for preparing espresso coffee, chocolate, Choco chino or tea and milk or other hot double drinks, wherein milk 8a is enclosed in said first compartment 5 and coffee or tea 8b is enclosed in said second compartment 6.

[0036] Water flows through said apertures 42 to the second compartment 6 where it is mixed with coffee and the mixture passes through said apertures 26 to reach said first filter member 30 to be filtered. The filtrate is mixed with milk in the second chamber before leaving the cartridge of the present invention through said apertures 16.

[0037] Said first filter member 3 comprises a micro porous paper mesh.

[0038] Said first housing 1, said second housing 2, and said cover 4 are made of stainless steel, ceramic, aluminum, or terra cotta.

End of Example 1

Example 2

[0039] Reference is now made to Fig. 5, which illustrates a multi-compartment cartridge with filtration capabilities configured according to the preferred embodiment of the present invention and adapted for enclosing a smokable material for use with water smoking articles such as shisha, wherein smoking material is enclosed in said second compartment 6 and filtering minerals are enclosed in said first compartment 5. Said bottom wall 15 is lined with a material, such as cotton aluminum, that traps said filtering minerals in said first compartment 5 and prevents such minerals or any of the enclosed ingredients in said cartridge from escaping through said apertures 16a and 16b.

[0040] Heat is applied, by a heat source such as coal, to said cover and a pure smoke leaves the cartridge of the present invention through said apertures 16, wherein tar and nicotine are trapped in said second part 6b of said second compartment 6.

[0041] Said first filter member 3 comprises an aluminum mesh.

[0042] Said second filter member 7 comprises a micro porous aluminum mesh.

[0043] Said first housing 1, said second housing 2, and said cover 4 are made of Polyethylene, Polypropylene, Polyphenylene Ether, silicone, or ceramic.

End of Example 2

[0044] Although the above description of the present invention has disclosed the features of the invention as applied to the preferred embodiment; additions, omissions and modifications applied to the details of the embodiment illustrated may be made by those skilled in the art without departing from the essential characteristic of the present invention. As an example, obvious modifications include changes to the shape of any of the first housing, second housing, cover and filter members.

Claims

1. A multi-compartment cartridge for enclosing at least one substance, the cartridge comprises:

- a first housing (1);
- a second housing (2);
- a first filter member (3); and
- a cover (4);

characterized in that

- said first housing (1) comprises a tapered cylindrical body (10) with a plurality of longitudinal grooves (10a) and a central axis (11), wherein said cylindrical body (10) comprises an upper edge (12), a lower edge (13), an opening (14), a bottom wall (15) with a plurality of substantially convex portions (15a, 15b, 15c, 15d) and a plurality of through-apertures (16a, 16b);
- said second housing (2) comprises a tapered cylindrical body (20) with a central axis (21), wherein said cylindrical body (20) comprises an upper edge (22), a lower edge (23), an opening (24), a bottom wall (25) having a substantially convex portion (25a) with a plurality of through-apertures (26a, 26b), and wherein said bottom wall (25) has an upper surface (25b) and a lower surface (25c);
- said first filter member (3) has a disc shape with an upper surface (30) and a lower surface (31), wherein a radius of said first filter member (3) is greater than a radius of said bottom wall (15) but less that a radius of said upper edge (12);
- said cover (4) comprises a disc-shaped body

with a central axis (40), an opening (41) with a plurality of through-apertures (42), and an edge (43) extending from a circumference of cover downwardly around said central axis (40) towards said bottom walls (15, 25), wherein a radius of said opening (41) is similar to a radius of said opening (24).

2. The multi-compartment cartridge of Claim 1, further **characterized in that** said cylindrical body (10) further comprises a lip (17) extending radially outwardly from said central axis (11) at said upper edge (12), and a flanged collar (18) approximate to said upper edge (12).

3. The multi-compartment cartridge of Claim 1, further **characterized in that** said opening (14) comprises a tapered cylindrical opening extending from said upper edge (12) to said bottom wall (15).

4. The multi-compartment cartridge of Claim 3, further **characterized in that** a radius of said opening (14) increases when moving away from said lower edge (13) towards said upper edge (12).

5. The multi-compartment cartridge of Claim 1, further **characterized in that** said cylindrical body (20) further comprises a lip (27) extending radially outwardly from said central axis (21) at said upper edge (22), and a flanged collar (28) approximate to said upper edge (22).

6. The multi-compartment cartridge of Claim 1, further **characterized in that** said opening (24) comprises a tapered cylindrical opening extending from said upper edge (22) to said bottom wall (25).

7. The multi-compartment cartridge of Claim 1, further **characterized in that** said lips (17, 27) have similar radii.

8. The multi-compartment cartridge of Claim 1, further **characterized in that** a radius of said bottom wall (25) is similar to a radius of said first filter member (3).

9. The multi-compartment cartridge of Claim 1, further **characterized in that** the ratio of increase in radii of said cylindrical bodies (10, 20) is similar.

10. The multi-compartment cartridge of Claim 1, further **characterized in that** said first filter member (3) is inserted in said opening (14) with said lower surface (31) facing and parallel to said bottom wall (15), defining a first compartment (5).

11. The multi-compartment cartridge of Claim 1, further **characterized in that** said second housing (2) is inserted in said opening (14) such that said central axes (11, 21) are collinear, wherein said cylindrical body (20) is in contact with a substantial part of said first cylindrical body (10).

12. The multi-compartment cartridge of Claim 1, further **characterized in that** said bottom wall (15) is lined with a material that prevents ingredients enclosed in said cartridge from escaping through said apertures (16a,16b).

13. The multi-compartment cartridge of Claim 1, further **characterized in that**

- a second compartment (6) is defined by said opening (24); and
- a second filter member (7) lines a substantial part of said opening (24),

wherein

- said second filter member (7) partitions said second compartment (6) into a first portion (6a) and a second portion (6b); and
- said second filter member (7) provides heat conducting capabilities.

14. The multi-compartment cartridge of Claim 1, further **characterized in that** said cover (4) covers said opening (24), wherein said lip (27) is fit in a space defined by said opening (40) and said edge (43).

15. The multi-compartment cartridge of Claim 1, further **characterized in that** said plurality of apertures (42, 26a, 26b) are shaped and distributed to allow a creation of an internal fluid vortex within said cartridge.

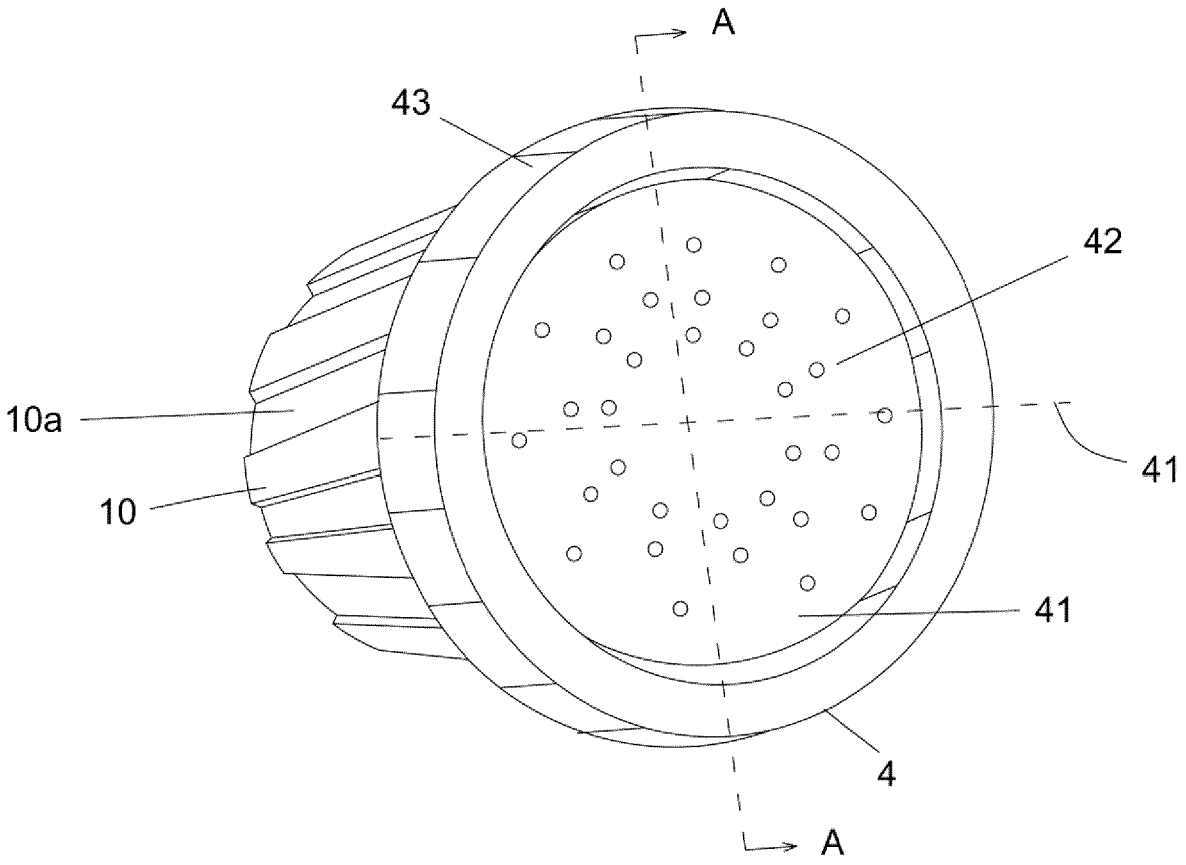

Fig.1

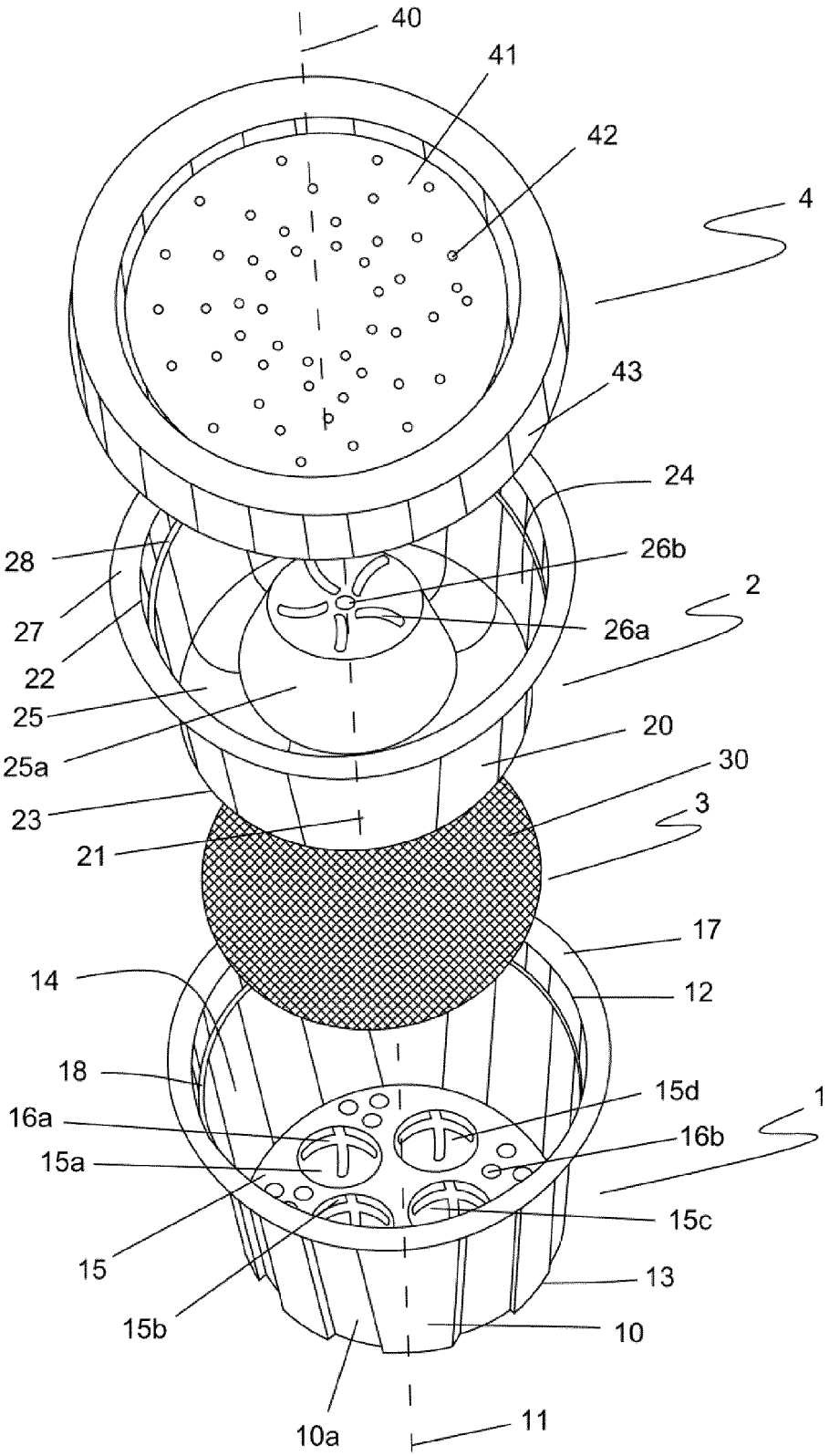
40
41
42
4
43
24
28
26b
2
27
26a
22
25
20
25a
30
23
3
21
17
14
12
18
15d
1
16a
16b
15a
15c
15
13
15b
10
10a
11

Fig.2

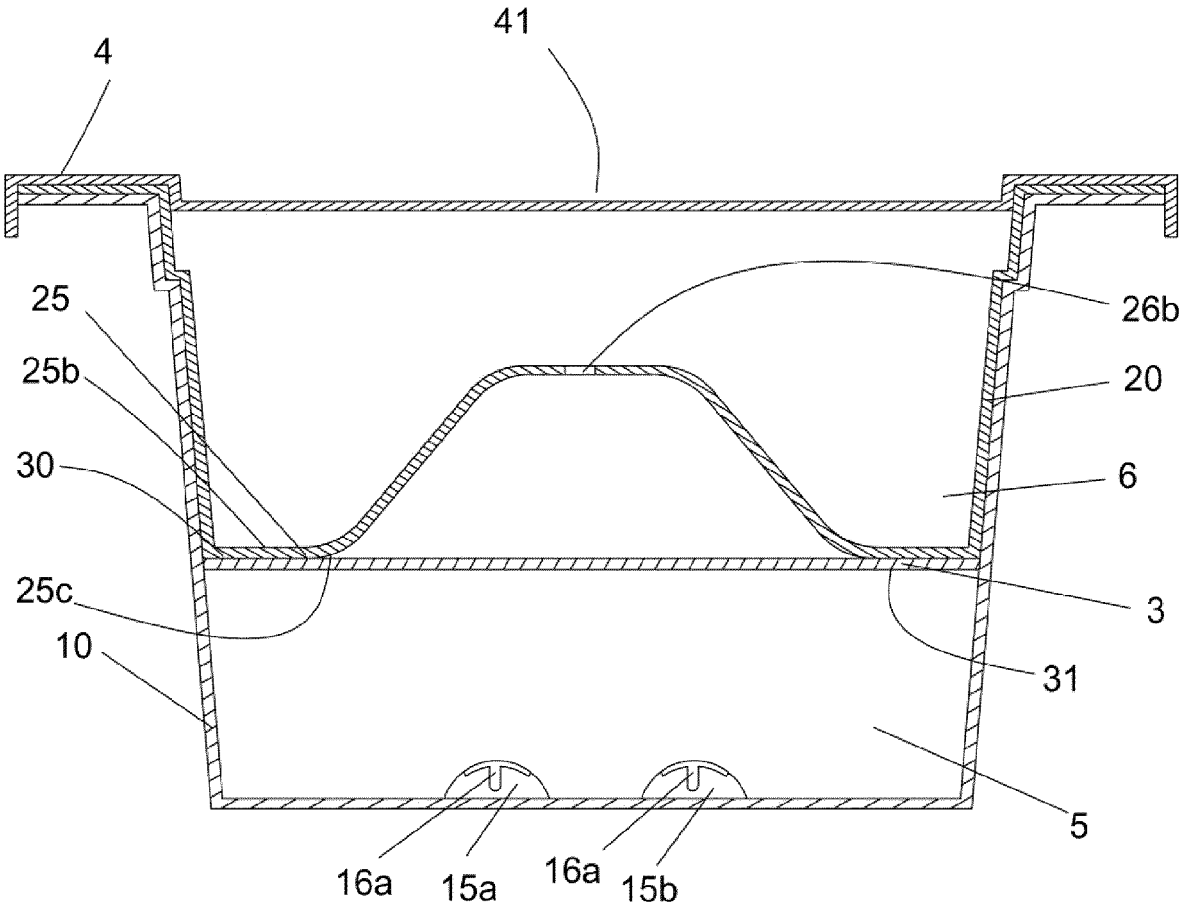

Fig.3

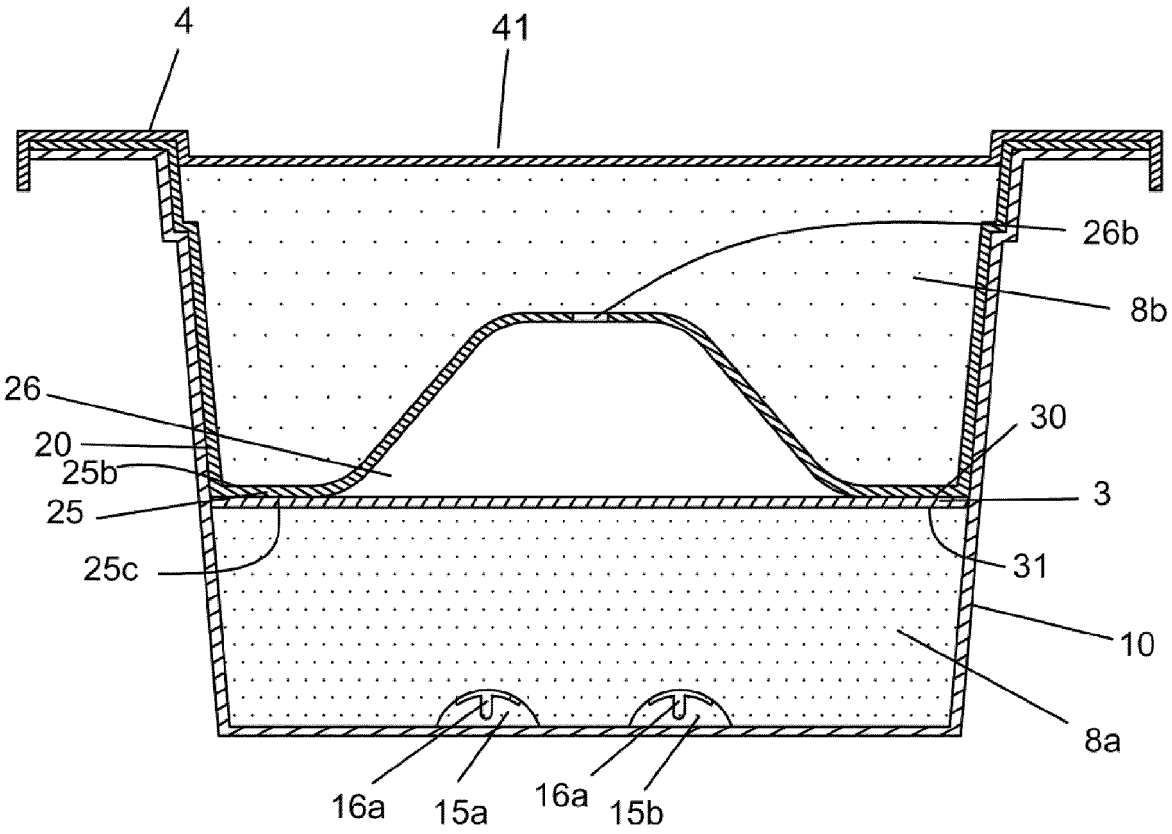

Fig.4

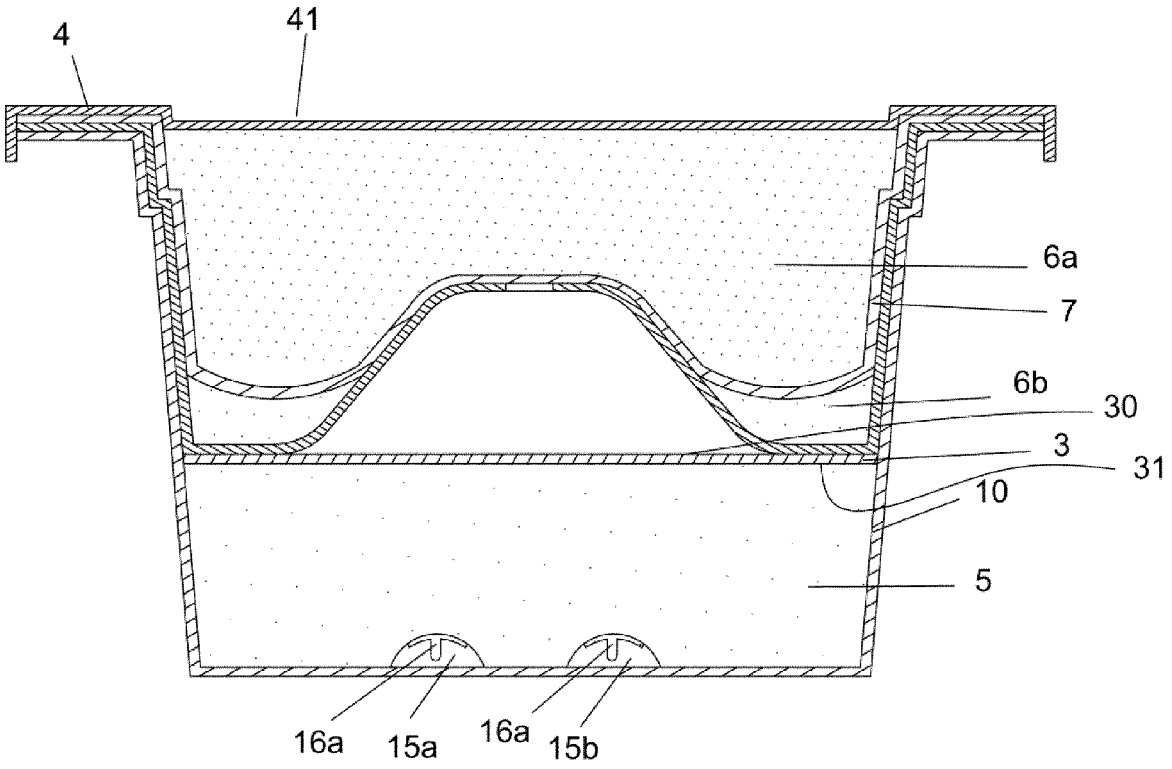

Fig.5

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EUROPEAN SEARCH REPORT

Application Number
EP 15 19 5305

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2010/077928 A1 (SCHMED ARTHUR [CH] ET AL) 1 April 2010 (2010-04-01) * the whole document *	1-15	INV. B65D85/804
A	WO 2006/030461 A1 (TUTTOESPRESSO SPA [IT]; DOGLIONI MAJER LUCA [IT]) 23 March 2006 (2006-03-23) * the whole document *	1-15	
A	WO 2008/126045 A1 (CAFFITA SYSTEM SPA [IT]; DEGLI ESPOSTI VENTURI ROBERTO [IT]) 23 October 2008 (2008-10-23) * the whole document *	1-15	
A	US 2003/172813 A1 (SCHIFFERLE RENE [CH]) 18 September 2003 (2003-09-18) * the whole document *	1-15	
A	WO 2009/006374 A2 (APPLIANCE DEV CORP [US]) 8 January 2009 (2009-01-08) * the whole document *	1-15	TECHNICAL FIELDS SEARCHED (IPC)
A	EP 1 702 525 A1 (SHRAIBER MICKEY [IL]) 20 September 2006 (2006-09-20) * the whole document *	1-15	B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	27 April 2016	Brochado Garganta, M

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27-04-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010077928 A1	01-04-2010	AR 047418 A1	18-01-2006
		AT 514639 T	15-07-2011
		AU 2005200115 A1	28-07-2005
		AU 2010227121 A1	04-11-2010
		BR PI0500074 A	06-09-2005
		CA 2492304 A1	14-07-2005
		CN 1640350 A	20-07-2005
		DE 102004002005 A1	11-08-2005
		DE 202005021160 U1	05-04-2007
		EP 1555219 A1	20-07-2005
		EP 2384997 A1	09-11-2011
		ES 2368150 T3	14-11-2011
		ES 2431808 T3	28-11-2013
		JP 2005199071 A	28-07-2005
		KR 20050074909 A	19-07-2005
		MX PA05000543 A	15-07-2005
		NO 331753 B1	19-03-2012
		NZ 537675 A	30-06-2006
		PT 1555219 E	07-09-2011
		PT 2384997 E	28-10-2013
		RU 2287977 C2	27-11-2006
		SG 113573 A1	29-08-2005
		TW 200531665 A	01-10-2005
		UA 87098 C2	25-06-2009
		US 2005150390 A1	14-07-2005
		US 2010077928 A1	01-04-2010
		ZA 200500320 A	19-07-2005
WO 2006030461 A1	23-03-2006	AR 055256 A1	15-08-2007
		AU 2004323285 A1	23-03-2006
		BR PI0419063 A	11-12-2007
		CN 101056802 A	17-10-2007
		EP 1807318 A1	18-07-2007
		EP 2298671 A1	23-03-2011
		ES 2394373 T3	31-01-2013
		ES 2398190 T3	14-03-2013
		IL 181496 A	30-06-2014
		PE 09452006 A1	20-10-2006
		US 2008216666 A1	11-09-2008
		WO 2006030461 A1	23-03-2006
WO 2008126045 A1	23-10-2008	AT 455058 T	15-01-2010
		AU 2008238915 A1	23-10-2008
		BR PI0810903 A2	29-10-2014
		CA 2683722 A1	23-10-2008
		CN 101715417 A	26-05-2010

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 19 5305

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The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

27-04-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		CN 105035561 A	11-11-2015
		EP 1980501 A1	15-10-2008
		ES 2339815 T3	25-05-2010
		JP 5616215 B2	29-10-2014
		JP 2010523255 A	15-07-2010
		PT 1980501 E	19-04-2010
		RU 2009137773 A	20-04-2011
		TW 200916382 A	16-04-2009
		UA 96793 C2	12-12-2011
		US 2010108541 A1	06-05-2010
		WO 2008126045 A1	23-10-2008
US 2003172813 A1	18-09-2003	AR 038960 A1	02-02-2005
		AT 307769 T	15-11-2005
		AU 2003200627 A1	02-10-2003
		BR 0300554 A	10-08-2004
		CA 2419015 A1	14-09-2003
		CN 1444894 A	01-10-2003
		DE 10211327 A1	25-09-2003
		DE 20221780 U1	18-10-2007
		DE 50301450 D1	15-11-2007
		DK 1344722 T3	12-03-2007
		EP 1344722 A1	17-09-2003
		ES 2275031 T3	01-06-2007
		HK 1059203 A1	25-08-2006
		IL 154721 A	31-10-2007
		JP 3765795 B2	12-04-2006
		JP 2003265320 A	24-09-2003
		KR 20030074403 A	19-09-2003
		MX PA03002239 A	22-09-2003
		NZ 524241 A	30-05-2003
		PL 359142 A1	22-09-2003
		PT 1344722 E	31-01-2007
		RU 2243934 C2	10-01-2005
		SG 102708 A1	26-03-2004
		SI 1344722 T1	30-04-2007
		TW I291863 B	01-01-2008
		US 2003172813 A1	18-09-2003
WO 2009006374 A2	08-01-2009	AT 551933 T	15-04-2012
		CA 2701826 A1	08-01-2009
		CA 2701888 A1	08-01-2009
		CN 101801248 A	11-08-2010
		CN 101808554 A	18-08-2010
		EP 2166903 A2	31-03-2010
		EP 2166904 A2	31-03-2010

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 19 5305

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27-04-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 2009006374 A2	08-01-2009
		WO 2009006379 A2	08-01-2009
EP 1702525 A1	20-09-2006	AT 446689 T	15-11-2009
		EP 1702525 A1	20-09-2006
		JO 2839 B	05-09-2010
		US 2006207621 A1	21-09-2006

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 14221064 B **[0003]**
- EP 2298671 A **[0004]**
- EP 1980501 A **[0005]**
- US 12700717 B **[0006]**
- EP 1702525 A **[0007]**