

(19)



(11)

**EP 3 623 318 B1**

(12)

**EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:  
**19.07.2023 Bulletin 2023/29**

(51) International Patent Classification (IPC):  
**B65D 85/804<sup>(2006.01)</sup>**

(21) Application number: **18734312.4**

(52) Cooperative Patent Classification (CPC):  
**B65D 85/8061**

(22) Date of filing: **03.05.2018**

(86) International application number:  
**PCT/PT2018/000007**

(87) International publication number:  
**WO 2018/208182 (15.11.2018 Gazette 2018/46)**

**(54) CAPSULE WITH FILTER AND CAPSULE SYSTEM FOR PREPARING EDIBLE PRODUCTS**

KAPSEL MIT FILTER UND KAPSELSYSTEM FÜR DIE ZUBEREITUNG VON ESSBAREN PRODUKTEN

CAPSULE AVEC FILTRE ET SYSTÈME À CAPSULE POUR LA PRÉPARATION DE PRODUITS COMESTIBLES

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

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(30) Priority: **12.05.2017 PT 2017110072**

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(43) Date of publication of application:  
**18.03.2020 Bulletin 2020/12**

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## Description

### Field of the technique

[0001] The present invention refers to the field of the capsules adapted for collecting an edible substance precursor of an edible product, such as for example an aromatic beverage.

[0002] The present invention further refers to a system for preparing edible products comprising a capsule of the type of the present invention.

### Prior art

[0003] The prior art includes several solutions relating to capsules adapted for preparing edible products, in particular of aromatic beverages such as for example espresso type coffee and similar beverages. In general, said capsules provide an oxygen-sealed collection space so as to preserve the organoleptic properties of the edible substance, and are adapted so that can be used in machines for preparing edible products, for example in a respective brewing device of aromatic beverage, where they are crossed by a pressurized flow. In particular in the case of roasted ground coffee beans used for preparing espresso coffee type, the brewing flow can carry with it non-dissoluble particles that can thereby negatively change the beverage taste.

[0004] It is therefore further known that said capsules further present filter elements provided so as to retain non-soluble particles of said edible substance.

[0005] Document WO 2006/008243 A1 discloses a capsule of the type of the present invention comprising a filter element that is provided downstream of the collection space of edible substance. However, said collection space is not provided oxygen-sealed. Moreover, the capsule presents, in the respective beverage discharge region, a part in form of cupule or rounded with a cross-section decreasing along the prevailing flow direction, whereby said filter is provided upstream of said discharge region.

[0006] Document WO 2011/080022 A1 discloses a capsule of the type of the present invention that presents a container part with grooves in the interior surface presenting a smaller dimension than the average dimension of grain of the substance contained in the capsule. Moreover, the base part of said capsule presents a projection along the prevailing flow direction of characteristic dimension smaller than the characteristic dimension of the sidewall of container. In this case, the downstream edge of said projection is initially covered by a removable sealing element, and the upstream edge of said projection presents a plurality of flow passageways.

[0007] Document EP 2683625 B1 discloses a capsule with a general configuration similar to the one disclosed by the present invention, including a filter element that confines the collection space of edible substance downstream thereof, and is provided upstream of a discharge

opening provided in the base wall.

[0008] Document EP 2861508 B1 discloses a capsule that comprises a filter in a fibrous non-woven material, formed plastically, preferentially thermoformed, whereby said filter presents a filtering region and a fixation region that is fixed to a peripheral collar inside of the capsule.

[0009] Document WO 2015/087180 A1 discloses a capsule that confines a chamber and comprises a filter positioned downstream of the edible substance and supported by, not fixed to, the base portion of the capsule, so that can be moved to the interior of the chamber expect by the resistance exerted by the edible substance. However, said capsule further presents an oxygen-sealing element provided downstream of said filter, so that the filter is inside of the oxygen-sealed collection space.

[0010] Document EP 2995577 A1 discloses another capsule with a general configuration similar to the one disclosed by the present invention and that presents a projecting element in the base wall and an opening area that is opened by opening devices of the machine for preparing beverages, whereby there is provided a filter of non-woven structure within the capsule and next to the base, the specific weight of which is between 40 and 200 gr/ m<sup>2</sup>, and the thickness of which is between 0,1 and 0,9 mm, whereby said filter is distanced apart from the base by means of several spacing element spaced apart in uniform manner.

[0011] Document EP 2616367 B1 discloses a cartridge of the type of the present invention, whereby a folio-like and oxygen-sealing element presents incisions adapted so that can break under the hydraulic pressure of upstream pressurized flow.

[0012] There is a need of improving the filtering efficacy and construction simplicity of filtering dispositions in capsules of this type, in particular as a result of the position and relative dimension of the filter element.

### General description of the invention

[0013] A first objective of the present invention is to provide a single portion package, notably of the capsule type or similar, adapted so that can collect and edible substance in oxygen-sealed manner, so that provides better beverage filtering conditions in the exit region of the capsule, as well as construction simplicity of the capsule.

[0014] This objective is solved according to claim 1.

[0015] Preferred embodiments are disclosed in the dependent claims.

[0016] In particular, the objective is solved by a capsule that comprises a first part of container type comprising a base wall and a sidewall developing along a circular alignment around a central longitudinal axis thereby defining a general shape of frusto-conic type or similar, a second part of lid type provided as a folio like element and adapted so that confines a collection space (A) upstream thereof in a oxygen-sealing manner, and a retention disposition provided as a folio-like element and adapted so that

confines said collection space downstream thereof in oxygen-sealing manner, and adapted so that provides filtering of the beverage flow downstream of said collection space provided oxygen-sealed.

**[0017]** It is preferred when said filter element is further provided upstream, supported in at least most part of the its surface in direct contact with a wall like disposition presenting at least one, preferentially a plurality of flow passageways with a characteristic dimension, for example diameter, different from the characteristic dimension of the flux through said filter element.

**[0018]** It is in particular preferred when said capsule presents a beverage discharge disposition including a filter element disposed downstream and upstream of flow passageways with a characteristic dimension of at least one or two orders of magnitude bigger than the characteristic dimension of the flux through said filter element.

**[0019]** It is preferred when said capsule presents a beverage discharge disposition including a filter element disposed downstream and upstream of flow passageways with a characteristic dimension comprised between 1 and 10 mm, preferentially between 3 and 7 mm.

**[0020]** A second objective of the present invention is to provide a system for preparing edible products based upon a plurality of types of single portion package, in particular in the form of capsules, that provides greater flexibility of operation according to the type of edible substance and of respective product to be prepared.

**[0021]** This objective is solved according to claim 14.

#### List of Figures

**[0022]** The present invention shall now be described in greater detail based upon preferred embodiments and in the attached figures that present schematic representations thereof.

**[0023]** The Figures show:

Figure 1: side and top view of a capsule (1) of the type of the present invention;

Figure 2: side and bottom view of a capsule (1) of the type of the present invention;

Figure 3: side-cut view of a first embodiment of a capsule (1) according to the present invention;

Figure 4: side-cut view of a second embodiment of a capsule (1) according to the present invention;

Figure 5: side-cut view of a third embodiment of a capsule (1) according to the present invention;

Figure 6: bottom view of the preferred embodiment of capsule (1) according to Figure 5.

#### Detailed description of preferred embodiments of the invention

**[0024]** Figures 1 and 2 show side (on the left-side) and top and bottom views, respectively, of a portion package, in particular of a single portion, or capsule (1) adapted for preparing edible products, such as for example aromatic beverages and similar, of the type capsule (1) according to the present invention.

**[0025]** Said capsule (1) presents a container part (2) with a general shape of frusto-conic type or similar, that comprises a part of container type presenting a base wall (21) and a sidewall (22), and a part of lid type (3) adapted for confining a collection space (A) adapted for collecting an edible substance.

**[0026]** Moreover, said part of lid type (3) is adapted for entry of a pressurized flow, in particular through a flow passageway provided by means of an opening device external to said capsule (1), or by means of the action of upstream flow pressure upon a weakened material part of said part of lid type (3), so that a pressurized flow flows through said collection space (A) along a prevailing flow direction of said part of lid type (3) upstream, to said base wall (21) of the part of container type (2) downstream.

**[0027]** Figures 3 and 4 represent preferred embodiments of a first and second types of capsule (1, 1') according to the present invention.

**[0028]** As represented, said capsules (1, 1') present a retention disposition (4) provided as a folio-like element and adapted so that confines said collection space (A) downstream thereof in oxygen-sealing manner.

**[0029]** According to a preferred embodiment, said retention disposition (4) is fixed in surface on said first base portion (211) and is preferentially provided as a sheet of aluminium, aluminium composite, or similar.

**[0030]** Moreover, said base wall (21) comprises a first base portion (211) that develops from said sidewall (22) inwards and along a direction non parallel with relation to said longitudinal central axis (B), and a second base portion (212) that projects in the central region of said base wall (21) downstream, with a shape of tubular type or of frusto-conic type of circular cross-section, and is adapted for flow discharge of the beverage that flows through said retention wall (4) out of the capsule (1).

**[0031]** It is preferred when said second base portion (212) presents a characteristic dimension of cross-section that is smaller than half the characteristic dimension of cross-section of said first base portion (211).

**[0032]** According to a first inventive aspect, the capsules (1, 1') further present a filter element (5) provided downstream of said retention disposition (4), so that said filter element (5) provides filtering of the beverage flow downstream of said collection space (A) provided oxygen-sealed.

**[0033]** In fact, according to results obtained in several tests, this position of the filter element (5), downstream of the exit region of beverage flow out of said collection space (A) provided in oxygen-sealed manner, presents

several advantages including in terms of distribution of energy loss and turbulence in the discharge flow, as well as effectiveness of filtering of said discharge flow.

**[0034]** In particular, it is preferred when said filter element (5) is provided adjacent upstream with relation to the furthest downstream region of said second base portion (212), whereby in said furthest downstream region there is provided a beverage discharge disposition (213) that presents a plurality of passageways.

**[0035]** It is preferred when said discharge disposition (213) presents a plurality of passageways with a characteristic dimension that is at least one order of magnitude bigger than the characteristic dimension of the passageways provided by said filter element (5).

**[0036]** It is preferred when said beverage discharge disposition (213) is provided in a single piece with the remaining parts of said first part of container type (2).

**[0037]** Alternatively, said base wall (21) is provided in a single piece including said beverage discharge disposition (213), and adapted so that can be united to said sidewall (22).

**[0038]** In terms of type of retention of said filter element (5), it is preferred when said filter element (5) is provided fixed along an interior perimeter region of said second base portion (212), preferentially is provided fixed to said discharge disposition (213).

**[0039]** It is preferred when said filter element (5) is provided as a mesh-like structure with a plurality of fluid passageways presenting a characteristic dimension of filtering adapted for retention of solid particles non dissolved in the beverage flow upstream, whereby said characteristic dimension of filtering is previously defined according to the type of edible substance contained in said collection space (A).

**[0040]** It is preferred when said filter element (5) is provided as a structure of rigid type, for example in a synthetic material, or as a structure of tissue type, of non-woven type, preferentially in a recyclable or biodegradable material.

**[0041]** According to an inventive aspect, in a system for preparing edible products according to the present invention, comprising at least two types of capsules (1, 1'), said at least two types of capsule (1, 1') present a filter element (5) provided downstream of respective collection space (A) along the prevailing flow direction, preferentially retained in said second base part (212) of characteristic dimension smaller than the characteristic dimension of said collection space (A).

**[0042]** It is preferred when said at least two types of capsule (1, 1') present filter elements (5) provided in at least one of: a different position with relation to said collection space (A), a different characteristic dimension of filtering.

**[0043]** As one can observe by comparing Figures 3 and 4, it is further preferred when said at least two types of capsule (1, 1') present a dimension of base (213) that differs in at least one of: number and dimension of respective flow passageways (214). In the represented

case, the second type of capsule (1') represented in Figure 4 comprises a base disposition (213') that presents a smaller number of flow passageways (214), in relation to the base disposition (213) of the first type of capsule (1) represented in Figure 3.

**[0044]** It is preferred when said filter element (5, 5') is retained, preferentially fixed, in the upstream-oriented side of said base disposition (213, 213'), so that results adjacent to respective flow passageways (214).

**[0045]** It is herewith provide in advantageous manner, the possibility of adapted said capsule (1) to different types of beverage, such as for example espresso type coffee and soluble type coffee, by means of only changing said base disposition (213).

**[0046]** Figures 5 and 6 represent a third embodiment of capsule (1) according to the present invention, whereby said second base portion (212) presents a projection portion (215) that extends downstream of said base disposition (213), with a shape of tubular type or of frusto-conic type of circular cross-section.

**[0047]** It is preferred when said projection portion (215) presents a central element (216) configured as an element of cylindrical form, or similar, and provided in a central region with relation to said flow passageways (214).

## Claims

1. **Capsule (1)** adapted for collecting an edible substance in an oxygen-sealed collection space (A), and comprising:

- a first part of container type (2) comprising a base wall (21) and a sidewall (22) developing along a circular alignment around a longitudinal central axis (B) thereby defining a general shape of frusto-conic type or similar,
  - a second part of lid type (3) provided as a folio-like element and adapted so that confines said collection space (A) upstream thereof in oxygen-sealing manner,
  - a retention disposition (4) provided as a folio-like element and adapted so that confines said collection space (A) downstream thereof in oxygen-sealing manner,
- whereby said base wall (21) comprises:

- a first base portion (211) that develops from said sidewall (22) inwards and along a direction non parallel with relation to said longitudinal central axis (B), and
- a second base portion (212) that projects in the central region of said base wall (21) downstream, with a shape of tubular type or of frusto-conic type of circular cross-section, and is adapted for discharge of beverage flow that flows through said retention wall (4) outwards of said capsule (1),

- characterized**  
**in that** presents a filter element (5) provided downstream of said retention disposition (4) so that provides filtering of beverage flow downstream of said collection space (A) provided oxygen-sealed.
2. Capsule (1) according to claim 1, **characterized in that** said filter element (5) is provided at a downstream distance of said retention disposition (4), at a distance similar to the extension of said second base portion (212) along the prevailing flow direction, preferentially at a distance similar to the dimension of the cross-section of said second base portion (212).
  3. Capsule (1) according to claim 1 or 2, **characterized in that** said filter element (5) is provided adjacent upstream with relation to the furthest downstream region of said second base portion (212), whereby said filter element (5) is preferentially retained fixed to a region of said second base portion (212).
  4. Capsule (1) according to any one of previous claims 1 to 3, **characterized in that** said second base portion (212) comprises a discharge disposition (213) that is provided in the downstream edge of said second base portion (212), developing in all of the cross-section of said second base portion (212) and preferentially along an orthogonal direction relative to said longitudinal central axis (B), whereby said discharge disposition (213) presents a plurality of flow passageways (214) that are open before the pressurized flow exits from said collection space (A) provided oxygen-sealed, and said filter element (5) is provided upstream of said discharge disposition (213), preferentially retained on the upstream-oriented side of said discharge disposition (213), so that results adjacent to said flow passageways (214).
  5. Capsule (1) according to any one of previous claims 1 to 4, **characterized in that** said second base portion (212) presents a characteristic dimension of cross-section that is smaller than half the characteristic dimension of said first base portion (211).
  6. Capsule (1) according to any one of previous claims 1 to 5, **characterized in that** said filter element (5) is provided fixed along an interior perimeter region of said second base portion (212), preferentially is provided fixed to said discharge disposition (213).
  7. Capsule (1) according to any one of previous claims 1 to 6, **characterized in that** said filter element (5) is provided as a mesh-like structure with a plurality of fluid passageways presenting a characteristic dimension of filtering adapted for retention of solid particles undiluted in the upstream beverage flow, whereby said characteristic dimension of filtering is previously defined according to the type of edible substance contained in said collection space (A).
  8. Capsule (1) according to any one of previous claims 1 to 7, **characterized in that** said filter element (5) is provided as a structure of rigid type, for example in a synthetic material, or as a structure of tissue type, of non-woven type, preferentially in a biodegradable material.
  9. Capsule (1) according to any one of previous claims 4 to 8, **characterized in that** said discharge disposition (213) presents a plurality of passageways (214) with a characteristic dimension that is at least one order of magnitude bigger than the characteristic dimension of filtering of the passageways provided by said filter element (5).
  10. Capsule (1) according to any one of previous claims 1 to 9, **characterized in that** said first base portion (211) develops inwards with relation to said longitudinal central axis (B), along an extension until said second base part (212), so that forms a substantially orthogonal plane in relation to said longitudinal central axis (B), whereby said retention disposition (4) is fixed in at least part of the extension provided by said first base portion (211).
  11. Capsule (1) according to any one of previous claims 1 to 10, **characterized in that** said second base portion (212) presents a projection portion (215) that extends downstream of said base disposition (213), with a shape of tubular type or of frusto-conic type of circular cross-section, and preferentially presenting a central element (216) configured as an element of cylindrical shape, or similar, and provided in a central region with relation to said flow passageways (214).
  12. Capsule (1) according to any one of previous claims 1 to 11, **characterized in that** said first part of container type (2) is provided as single piece in synthetic material, in particular a piece that can be obtained by injection moulding.
  13. Capsule (1) according to any one of previous claims, **characterized in that** said retention disposition (4) is fixed in surface on said first base portion (211) and is preferentially provided as an aluminium sheet, aluminium composition, or similar.
  14. **System** for preparing an edible product, such as for example an aromatic beverage, and comprising at least two types of capsule (1, 1') adapted for collecting an edible substance in a collection space (A),

whereby said at least two types of capsules (1, 1') present a first part of container type (2) of similar shape and dimension, comprising a base wall (21) and a sidewall (22),  
 whereby said base wall (21) comprises:

- a first base portion (211) that develops from said sidewall (22) inwards and along a direction non-parallel with relation to said longitudinal central axis (B), and
- a second base portion (212) that projects downstream in the central region of said base wall (21), with a shape of tubular type or of frusto-conic type of circular cross-section, and is adapted for discharge of the beverage flow that flows through said retention wall (4) out of the capsule (1)

in particular of a capsule (1) according to any one of claims 1 to 13,

**characterized**

**in that** said at least two types of capsule (1, 1') present a filter element (5) provided downstream of respective collection space (A) along the prevailing flow direction, preferentially retained on said second base part (212), of smaller characteristic dimension than the characteristic dimension of said collection space (A).

15. System according to claim 14, **characterized in that** said at least two types of capsule (1, 1') present filter elements (5) provided in at least one of: a different position with relation to said collection space (A), and a different characteristic dimension of filtering.
16. System according to claim 14 or 15, **characterized in that** said at least two types of capsule (1, 1') present a respective base disposition (213, 213') that differs in at least one of: number and dimension of respective flow passageways (214).

**Patentansprüche**

1. **Kapsel (1)**, die zum Sammeln einer essbaren Substanz in einem sauerstoffdichten Sammelraum (A) angepasst ist, und umfassend:

- einen ersten behälterartigen Teil (2), umfassend eine Bodenwand (21) und eine Seitenwand (22), die sich entlang einer kreisförmigen Ausrichtung um eine Längsmittelachse (B) herum erstreckt, wodurch eine allgemeine kegelförmige Form oder ähnliches definiert wird,
- einen zweiten deckelartigen Teil (3), der als folienähnliches Element vorgesehen und so angepasst ist, dass er den Sammelraum (A) stromaufwärts davon sauerstoffdicht begrenzt,

- eine Halteanordnung (4), die als folienähnliches Element vorgesehen und so angepasst ist, dass sie den Sammelraum (A) stromabwärts davon sauerstoffdicht begrenzt,  
 wobei die Bodenwand (21) umfasst:

- einen ersten Bodenabschnitt (211), der sich von der Seitenwand (22) nach innen und entlang einer Richtung erstreckt, die in Bezug auf die Längsmittelachse (B) nicht parallel ist, und
- einen zweiten Bodenabschnitt (212), der in dem mittleren Bereich der Bodenwand (21) stromabwärts vorsteht, mit einer röhrenartigen oder kegelförmigen Form mit kreisförmigem Querschnitt, und der zum Ablassen des Getränkestroms angepasst ist, der durch die Haltewand (4) nach außen aus der Kapsel (1) fließt,

**dadurch gekennzeichnet, dass** sie ein Filterelement (5) aufweist, das stromabwärts der Halteanordnung (4) vorgesehen ist, so dass eine Filterung des Getränkestroms stromabwärts des Sammelraums (A) bereitgestellt wird, der sauerstoffdicht vorgesehen ist.

2. Kapsel (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Filterelement (5) in einem stromabwärtigen Abstand von der Halteanordnung (4) vorgesehen ist, und zwar in einem Abstand, der ähnlich der Erstreckung des zweiten Bodenabschnitts (212) entlang der vorherrschenden Strömungsrichtung ist, vorzugsweise in einem Abstand, der ähnlich der Abmessung des Querschnitts des zweiten Bodenabschnitts (212) ist.
3. Kapsel (1) nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Filterelement (5) in Bezug auf den am weitesten stromabwärts gelegenen Bereich des zweiten Bodenabschnitts (212) stromaufwärts angrenzend vorgesehen ist, wodurch das Filterelement (5) vorzugsweise fest an einem Bereich des zweiten Bodenabschnitts (212) gehalten wird.
4. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** der zweite Bodenabschnitt (212) eine Ablassanordnung (213) umfasst, die in der stromabwärtigen Kante des zweiten Bodenabschnitts (212) vorgesehen ist und sich über den gesamten Querschnitt des zweiten Bodenabschnitts (212) und vorzugsweise entlang einer orthogonalen Richtung relativ zu der Längsmittelachse (B) erstreckt, wodurch die Ablassanordnung (213) eine Vielzahl von Strömungsdurchgängen (214) aufweist, die offen sind, bevor die unter Druck stehende Strömung aus dem Sammelraum (A) austritt, der sauerstoffdicht vorgesehen ist, und das Fil-

- terelement (5) stromaufwärts von der Ablassanordnung (213) vorgesehen ist, vorzugsweise auf der stromaufwärts gerichteten Seite der Ablassanordnung (213) gehalten wird, so dass es sich benachbart zu den Strömungsdurchgängen (214) ergibt.
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5. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** der zweite Bodenabschnitt (212) eine charakteristische Querschnittsabmessung aufweist, die kleiner ist als die Hälfte der charakteristischen Abmessung des ersten Bodenabschnitts (211).
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6. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** das Filterelement (5) fest entlang eines inneren Umfangsbereichs des zweiten Bodenabschnitts (212) vorgesehen ist, vorzugsweise fest an der Ablassanordnung (213) vorgesehen ist.
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7. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** das Filterelement (5) als eine maschenähnliche Struktur mit einer Vielzahl von Fluiddurchgängen vorgesehen ist, die eine charakteristische Filterabmessung aufweisen, die zum Zurückhalten von festen Partikeln angepasst ist, die in den stromaufwärtigen Getränkestrom unverdünnt sind, wodurch die charakteristische Filterabmessung vorher gemäß der Art der essbaren Substanz definiert wird, die in dem Sammelraum (A) enthalten ist.
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8. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** das Filterelement (5) als eine starrartige Struktur, beispielsweise aus einem synthetischen Material, oder als eine gewebeartige, vliesartige Struktur, vorzugsweise aus einem biologisch abbaubaren Material, vorgesehen ist.
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9. Kapsel (1) nach einem der vorhergehenden Ansprüche 4 bis 8, **dadurch gekennzeichnet, dass** die Ablassanordnung (213) eine Vielzahl von Durchgängen (214) mit einer charakteristischen Abmessung aufweist, die mindestens eine Größenordnung größer ist als die charakteristische Filterabmessung der von dem Filterelement (5) vorgesehenen Durchgänge.
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10. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 9, **dadurch gekennzeichnet, dass** sich der erste Bodenabschnitt (211) in Bezug auf die Längsmittelachse (B) entlang einer Erstreckung bis zum zweiten Bodenabschnitt (212) nach innen erstreckt, so dass er eine im Wesentlichen orthogonale Ebene in Bezug auf die Längsmittelachse (B) bildet, wodurch die Halteanordnung (4) in zumindest einem Teil der von dem ersten Bodenabschnitt (211) vor-
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- gesehenen Erstreckung befestigt ist.
11. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 10, **dadurch gekennzeichnet, dass** der zweite Bodenabschnitt (212) einen Vorsprungsabschnitt (215) aufweist, der sich stromabwärts von der Bodenordnung (213) erstreckt, mit einer röhrenartigen oder kegelstumpffartigen Form mit kreisförmigem Querschnitt, und vorzugsweise ein zentrales Element (216) aufweist, das als ein Element mit zylindrischer Form oder ähnlichem konfiguriert ist und in einem zentralen Bereich in Bezug auf die Strömungsdurchgänge (214) vorgesehen ist.
12. Kapsel (1) nach einem der vorhergehenden Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** der erste behälterartige Teil (2) als einzelnes Stück aus synthetischem Material vorgesehen ist, insbesondere als ein Stück, das durch Spritzgießen erhalten werden kann.
13. Kapsel (1) nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Halteanordnung (4) oberflächlich an dem ersten Bodenabschnitt (211) befestigt ist und vorzugsweise als Aluminiumblech, Aluminiumzusammensetzung oder ähnliches vorgesehen ist.
14. **System** zur Herstellung eines essbaren Produkts, wie zum Beispiel eines aromatischen Getränks, und umfassend mindestens zwei Arten von Kapseln (1, 1'), die zum Sammeln einer essbaren Substanz in einem Sammelraum (A) angepasst sind,
- wodurch die mindestens zwei Arten von Kapseln (1, 1') einen ersten behälterartigen Teil (2) mit ähnlicher Form und Abmessung aufweisen, der eine Bodenwand (21) und eine Seitenwand (22) umfasst,
- wobei die Bodenwand (21) umfasst:
- einen ersten Bodenabschnitt (211), der sich von der Seitenwand (22) nach innen und entlang einer Richtung erstreckt, die in Bezug auf die Längsmittelachse (B) nicht parallel ist, und
  - einen zweiten Bodenabschnitt (212), der in dem mittleren Bereich der Bodenwand (21) stromabwärts vorsteht, mit einer röhrenartigen oder kegelstumpffartigen Form mit kreisförmigem Querschnitt, und der zum Ablassen des Getränkestroms angepasst ist, der durch die Haltewand (4) nach außen aus der Kapsel (1) fließt,
- insbesondere einer Kapsel (1) nach einem der Ansprüche 1 bis 13,
- dadurch gekennzeichnet, dass** die mindes-

tens zwei Arten von Kapseln (1, 1') ein Filterelement (5) aufweisen, das stromabwärts des jeweiligen Sammelraums (A) entlang der vorherrschenden Strömungsrichtung vorgesehen ist, vorzugsweise auf dem zweiten Bodenteil (212) gehalten wird, mit einer kleineren charakteristischen Abmessung als die charakteristische Abmessung des Sammelraums (A).

15. System nach Anspruch 14, **dadurch gekennzeichnet, dass** die mindestens zwei Arten von Kapseln (1, 1') Filterelemente (5) aufweisen, die in mindestens einem der Folgenden vorgesehen sind: eine unterschiedliche Position in Bezug auf den Sammelraum (A), und eine unterschiedliche charakteristische Filterabmessung.
16. System nach Anspruch 14 oder 15, **dadurch gekennzeichnet, dass** die mindestens zwei Arten von Kapseln (1, 1') eine jeweilige Bodenordnung (213, 213') aufweisen, die sich in mindestens einem der Folgenden unterscheidet: Anzahl und Abmessung der jeweiligen Strömungsdurchgänge (214).

#### Revendications

1. Capsule (1) adaptée pour collecter une substance comestible dans un espace de collecte (A) étanche à l'oxygène, et comprenant :

- une première partie de type contenant (2) comprenant une paroi de base (21) et une paroi latérale (22) se développant le long d'un alignement circulaire autour d'un axe médian longitudinal (B) définissant de ce fait une forme générale de type tronconique ou similaire,
- une seconde partie de type couvercle (3) fournie en guise d'élément de type folio et adaptée de sorte qu'elle confine ledit espace de collecte (A) en amont de celle-ci de manière étanche à l'oxygène,
- une disposition de rétention (4) fournie en guise d'élément de type folio et adaptée de sorte qu'elle confine ledit espace de collecte (A) en aval de celle-ci de manière étanche à l'oxygène, moyennant quoi ladite paroi de base (21) comprend :

- une première partie de base (211) qui se développe depuis ladite paroi latérale (22) vers l'intérieur et le long d'une direction non parallèle par rapport audit axe central longitudinal (B), et
- une seconde partie de base (212) qui fait saillie dans la région centrale de ladite paroi de base (21) en aval, avec une forme de type tubulaire ou de type tronconique de

section transversale circulaire, et est adapté pour l'évacuation d'un écoulement de boisson qui s'écoule à travers ladite paroi de rétention (4) vers l'extérieur de ladite capsule (1),

#### caractérisée

**en ce qu'elle** présente un élément filtrant (5) fourni en aval de ladite disposition de rétention (4) de sorte qu'il fournisse la filtration de l'écoulement de boisson en aval dudit espace de collecte (A) fourni étanche à l'oxygène.

2. Capsule (1) selon la revendication 1, **caractérisée en ce que** ledit élément filtrant (5) est fourni à une distance en aval de ladite disposition de rétention (4), à une distance similaire à l'extension de ladite seconde partie de base (212) le long de la direction d'écoulement prévalente, préférentiellement à une distance similaire à la dimension de la section transversale de ladite seconde partie de base (212).
3. Capsule (1) selon la revendication 1 ou 2, **caractérisée en ce que** ledit élément filtrant (5) est fourni adjacent en amont par rapport à la région la plus en aval de ladite seconde partie de base (212), moyennant quoi ledit élément filtrant (5) est préférentiellement retenu fixé à une région de ladite seconde partie de base (212).
4. Capsule (1) selon l'une quelconque des revendications 1 à 3 précédentes, **caractérisée en ce que** ladite seconde partie de base (212) comprend une disposition d'évacuation (213) qui est fournie dans le bord en aval de ladite seconde partie de base (212), se développant dans toute la section transversale de ladite seconde partie de base (212) et préférentiellement le long d'une direction orthogonale par rapport audit axe central longitudinal (B), moyennant quoi ladite disposition d'évacuation (213) présente une pluralité de passages d'écoulement (214) qui sont ouverts avant que l'écoulement sous pression ne sorte dudit espace de collecte (A) fourni étanche à l'oxygène, et ledit élément filtrant (5) est fourni en amont de ladite disposition d'évacuation (213), préférentiellement retenu sur le côté orienté vers l'amont dudit dispositif d'évacuation (213), de sorte qu'il en résulte adjacent auxdits passages d'écoulement (214).
5. Capsule (1) selon l'une quelconque des revendications 1 à 4 précédentes, **caractérisée en ce que** ladite seconde partie de base (212) présente une dimension caractéristique de section transversale qui est inférieure à la moitié de la dimension caractéristique de ladite première partie de base (211).
6. Capsule (1) selon l'une quelconque des revendica-

- tions 1 à 5 précédentes, **caractérisée en ce que** ledit élément filtrant (5) est fourni fixé le long d'une région de périmètre intérieure de ladite seconde partie de base (212), est préférentiellement fourni fixé à ladite disposition d'évacuation (213).
7. Capsule (1) selon l'une quelconque des revendications 1 à 6 précédentes, **caractérisée en ce que** ledit élément filtrant (5) est fourni en guise de structure de type maille avec une pluralité de passages de fluide présentant une dimension caractéristique de filtration adaptée pour la rétention de particules solides non diluées dans l'écoulement de boisson en amont, moyennant quoi ladite dimension caractéristique de filtration est préalablement définie selon le type de substance comestible contenue dans ledit espace de collecte (A).
8. Capsule (1) selon l'une quelconque des revendications 1 à 7 précédentes, **caractérisée en ce que** ledit élément filtrant (5) est fourni en guise de structure de type rigide, par exemple en matériau synthétique, ou en guise de structure de type tissu, de type non tissé, préférentiellement en matériau biodégradable.
9. Capsule (1) selon l'une quelconque des revendications 4 à 8 précédentes, **caractérisée en ce que** ladite disposition d'évacuation (213) présente une pluralité de passages (214) avec une dimension caractéristique qui est au moins d'un ordre de grandeur supérieur à la dimension caractéristique de filtration des passages fournis par ledit élément filtrant (5).
10. Capsule (1) selon l'une quelconque des revendications 1 à 9 précédentes, **caractérisée en ce que** ladite première partie de base (211) se développe vers l'intérieur par rapport audit axe central longitudinal (B), le long d'une extension jusqu'à ladite seconde partie de base (212), de sorte qu'elle forme un plan sensiblement orthogonal par rapport audit axe central longitudinal (B), moyennant quoi ladite disposition de rétention (4) est fixée dans au moins une partie de l'extension fournie par ladite première partie de base (211).
11. Capsule (1) selon l'une quelconque des revendications 1 à 10 précédentes, **caractérisée en ce que** ladite seconde partie de base (212) présente une partie en saillie (215) qui s'étend en aval de ladite disposition de base (213), avec une forme de type tubulaire ou de type tronconique de section transversale circulaire, et présentant préférentiellement un élément central (216) conçu en guise d'élément de forme cylindrique, ou similaire, et fourni dans une région centrale par rapport auxdits passages d'écoulement (214).
12. Capsule (1) selon l'une quelconque des revendications 1 à 11 précédentes, **caractérisée en ce que** ladite première partie de type contenant (2) est fournie en guise de pièce unique en matériau synthétique, en particulier de pièce qui peut être obtenue par moulage par injection.
13. Capsule (1) selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ladite disposition de rétention (4) est fixée en surface sur ladite première partie de base (211) et est préférentiellement fournie en guise de feuille d'aluminium, de composition d'aluminium, ou similaire.
14. **Système** pour préparer un produit comestible, tel que par exemple une boisson aromatique, et comprenant au moins deux types de capsule (1, 1') adaptés pour collecter une substance comestible dans un espace de collecte (A), moyennant quoi lesdits au moins deux types de capsules (1, 1') présentent une première partie de type contenant (2) de forme et de dimension similaires, comprenant une paroi de base (21) et une paroi latérale (22), moyennant quoi ladite paroi de base (21) comprend :
- une première partie de base (211) qui se développe depuis ladite paroi latérale (22) vers l'intérieur et le long d'une direction non parallèle par rapport audit axe central longitudinal (B), et
  - une seconde partie de base (212) qui fait saillie en aval dans la région centrale de ladite paroi de base (21), avec une forme de type tubulaire ou de type tronconique de section transversale circulaire, et est adapté pour l'évacuation de l'écoulement de boisson qui s'écoule à travers ladite paroi de rétention (4) hors de la capsule (1)
- en particulier d'une capsule (1) selon l'une quelconque des revendications 1 à 13, **caractérisé en ce que** lesdits au moins deux types de capsule (1, 1') présentent un élément filtrant (5) fourni en aval de l'espace de collecte (A) respectif le long de la direction d'écoulement prévalente, retenu préférentiellement sur ladite seconde partie de base (212), de dimension caractéristique inférieure à la dimension caractéristique dudit espace de collecte (A).
15. Système selon la revendication 14, **caractérisé en ce que** lesdits au moins deux types de capsule (1, 1') présentent des éléments filtrants (5) fournis dans au moins l'une de : une position différente par rapport audit espace de collecte (A), et une dimension

caractéristique de filtration différente.

16. Système selon la revendication 14 ou 15, **caracté-**  
**risé en ce que** lesdits au moins deux types de cap- 5  
sule (1, 1') présentent une disposition de base (213,  
213') respective qui diffère par au moins l'un de : le  
nombre et la dimension des passages d'écoulement  
(214) respectifs.

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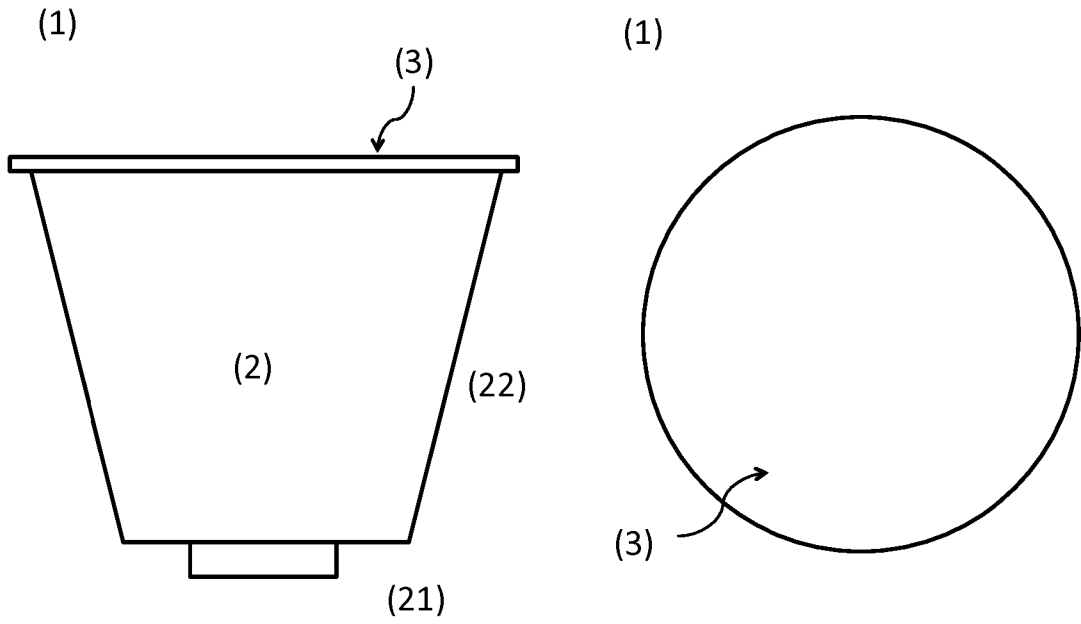


FIGURE 1

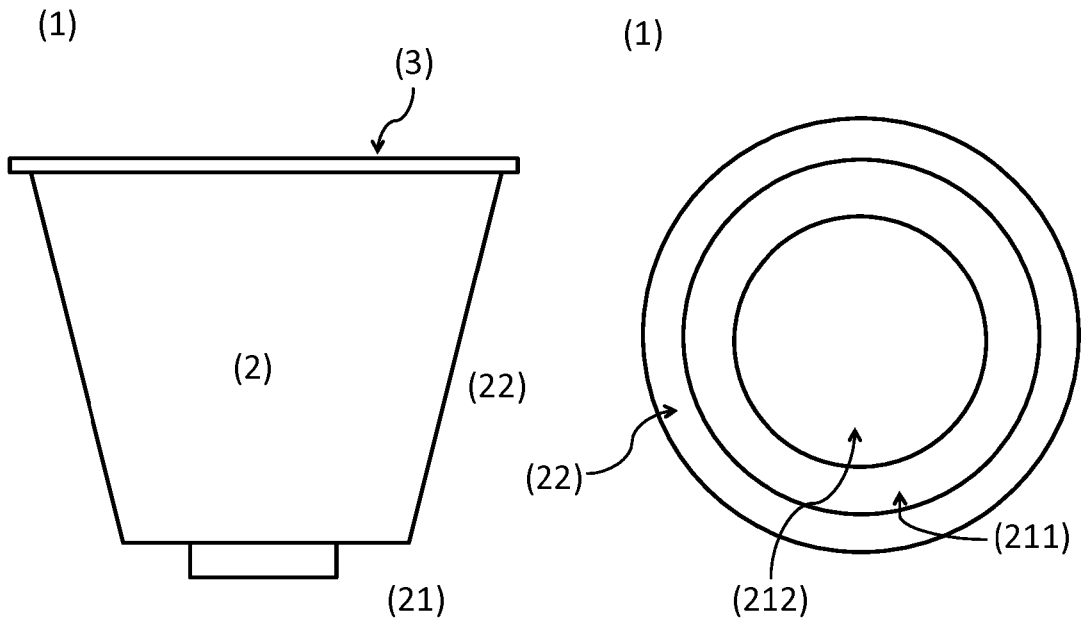


FIGURE 2

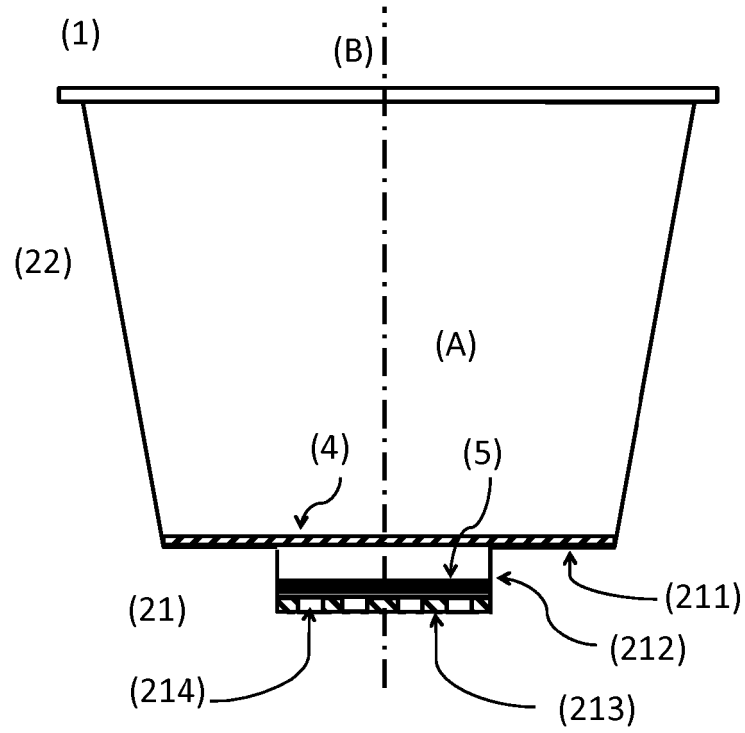


FIGURE 3

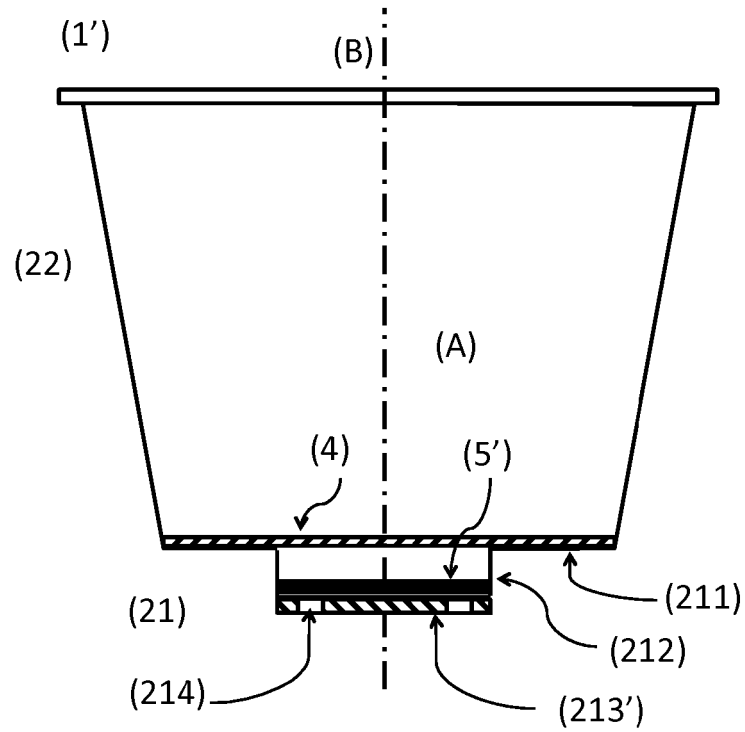


FIGURE 4

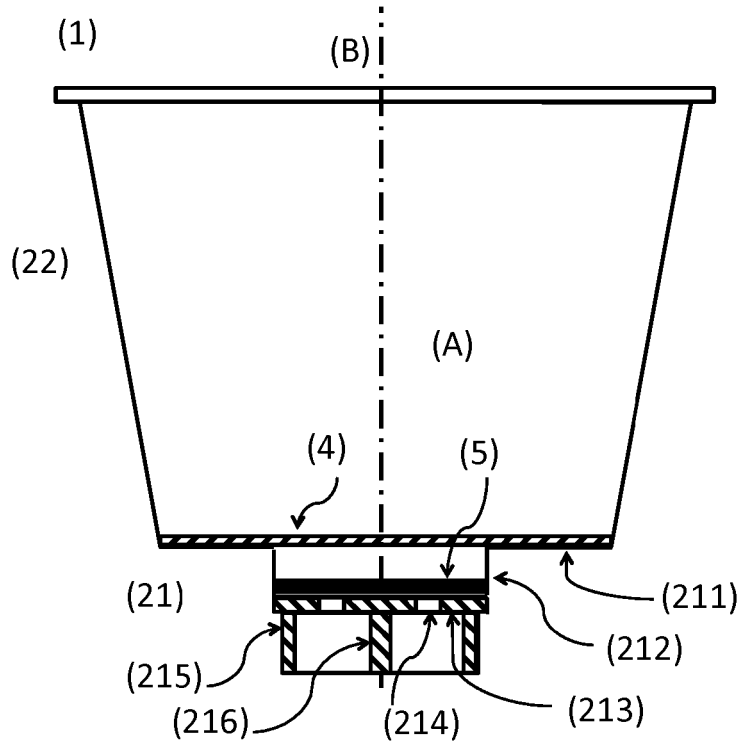


FIGURE 5

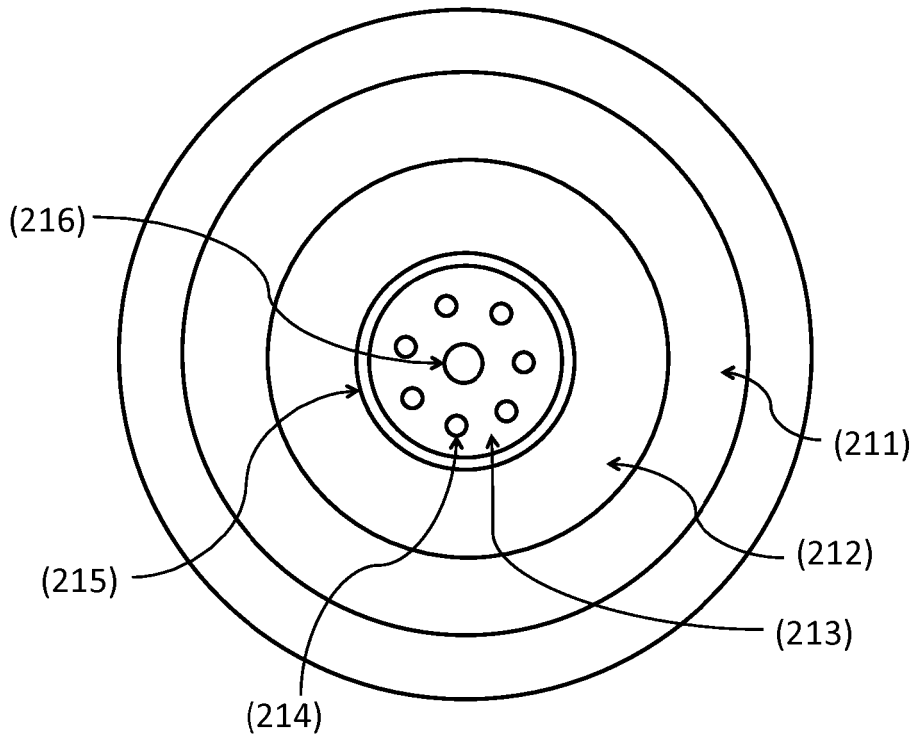


FIGURE 6

**REFERENCES CITED IN THE DESCRIPTION**

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