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(54) **WASTE COLLECTION BAG**

ABFALLSAMMELBEUTEL

SAC DE COLLECTE DES DÉCHETS

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Description

[0001] The present invention relates to a waste collection bag and to a container for waste collection configured to contain such bag.

[0002] As it is known, when waste, and in particular organic waste, comes into contact with the air, it tends to decompose and give off unpleasant odours.

[0003] For most of the organic waste generally produced in private homes and commercial shops, the decomposition process starts in a very short period of time, at times also in the order of a few hours, and therefore there is a need to dispose of the waste quickly and frequently, with subsequent difficulty, especially for older persons who often live alone.

[0004] Moreover, separate waste collection provides for the organic waste to be separated from the non-organic waste and collected in specific biodegradable bags. However, the decomposition and exhalation of unpleasant odours often imposes the disposal of the waste before the bag is sufficiently filled, with an apparent waste of material, especially in the case of single individuals with a relatively limited production of waste.

[0005] Document GB2470379 discloses a waste bag according to the preamble of claim 1.

[0006] The aim of the present invention is to provide a waste collection bag that obviates the drawbacks outlined above while allowing waste decomposition, and in particular organic waste decomposition, to be significantly slowed down.

[0007] Within the scope of this aim, it is an object of the present invention to provide a waste collection bag that also allows preventing the exhalation of unpleasant odours.

[0008] Another object of the invention is to provide a waste collection bag that allows optimizing the filling thereof.

[0009] A further object of the invention is to provide a waste collection bag that is capable of providing the broadest guarantees of reliability and safety when used.

[0010] Another object of the invention is to provide a waste collection bag that is easy to make and is economically competitive when compared with the known technique.

[0011] The aim set forth above, as well as the mentioned objects and others that will appear more clearly hereinafter, are achieved by a waste collection bag as set forth in claim 1.

[0012] Further features are provided in the dependent claims.

[0013] Additional features and advantages will become more apparent from the description of a preferred, but non-exclusive, embodiment of a waste collection bag, illustrated by way of non-limiting example with the aid of the accompanying drawings, in which:

figure 1 is a perspective view of an embodiment of a waste collection bag according to the invention, arranged in a container for waste collection, of which a partial sectional view is illustrated;

figure 2 is a perspective view of the container of figure 1, according to the invention;

figure 3 is a perspective view of the bag of figure 1, according to the invention, illustrated with a closed longitudinal section thereof;

figures 4 and 5 illustrate two variants of a waste collection bag, according to the invention.

[0014] With reference to the accompanying drawings, a waste collection bag, indicated as a whole with reference number 1, has a tubular structure 3 comprising a first closed end 5 and a second open end 7.

[0015] According to the invention, the tubular structure 3 comprises a plurality of chock closure < devices 9, 11, 13 arranged mutually spaced apart from one another along the longitudinal extension of the tubular structure 3 between the first closed end 5 and the second open end 7 so as to divide the tubular structure 3 into a plurality of longitudinal sections 15, 17, 19 that can be closed by means of such chock closure devices 9, 11, 13.

[0016] Advantageously, one of the chock closure devices 13 is arranged at the second open end 7 of the tubular structure 3 so as to close such open end 7.

[0017] Advantageously, the chock closure devices 9, 11, 13 allow closing the corresponding longitudinal section 15, 17, 19 of the bag 1, thus significantly limiting the entry of air into the section itself.

[0018] In this manner it is possible to delay the waste decomposition process, therefore preventing the formation and escape of unpleasant odours. Accordingly, the time the bag 1 itself is used and the stay thereof in the place of use also are extended.

[0019] Preferably, the chock closure devices 9, 11, 13 are configured to seal the corresponding longitudinal section 15, 17, 19 of the bag 1, thus preventing the entry of air into the section itself.

[0020] Advantageously, the chock closure devices 9, 11, 13 comprise a perimeter tie 25 associated with the tubular structure 3 and adapted to be pulled to tighten and close the portion of the tubular structure 3 with which it is associated.

[0021] As illustrated in the two variants of the bag 1 that are respectively illustrated in figures 4 and 5, the perimeter tie 25 may internally and externally cross the tubular structure 3 through suitable eyelets, or it may be associated with the outer surface of the tubular structure 3 through a plurality of through elements 27 that retain the tie 25 about the tubular structure 3, thus allowing the sliding with respect thereto.

[0022] Alternatively, the chock closure devices may comprise a tie 29 slideable inside a perimeter band 31 arranged about the tubular structure 3.

[0023] An example of such chock closure device is illustrated in figure 5 with reference number 13.

[0024] In one variant of the bag not shown in the accompanying figures, the bag may comprise a single

chock closure device arranged substantially at half the length of the bag. In this case, the bag can be divided into a lower longitudinal section, which can be closed through said single chock closure device, and an upper longitudinal section, which can be closed by manually tying a knot in the upper open edge of the bag itself.

[0025] Advantageously, a substance 21 inhibiting the decomposition of the waste may be associated with the tubular structure 3 at at least one of the longitudinal sections 15, 17, 19, or preferably at all the longitudinal sections 15, 17, 19.

[0026] Advantageously, such substance 21 inhibiting the decomposition of the waste may be a suitable mineral, such as for example, a zeolite mineral.

[0027] The presence of a substance 21 inhibiting the decomposition of said waste, combined with the reduction of the air in the closed longitudinal section 15, 17, 19 of the bag 1 due to the closure that can be performed by means of the chock closure devices 9, 11, 13, allows to significantly delay the waste decomposition process, thus allowing just as significantly to prevent the escape of unpleasant odours.

[0028] In this manner, the time the bag 1 itself is used and the stay thereof in the place of use are further extended.

[0029] Advantageously, it is possible to provide for the substance 21 inhibiting the decomposition to be arranged only at the lower longitudinal sections 15, which are intended to contain the waste for a greater period of time with respect to the upper longitudinal sections 19.

[0030] Alternatively, it is also possible to vary the quantity of substance 21 inhibiting the decomposition present in the various longitudinal sections 15, 17, 19 of the bag 1 so as to schedule the decomposition rate as a function of the time provided for the waste to remain in the bag 1.

[0031] Advantageously, a sensor 23 adapted to detect the gas produced by the waste decomposition may be associated with the tubular structure 3 at at least one of the longitudinal sections 15, 17, 19, or preferably at all the longitudinal sections 15, 17, 19.

[0032] Advantageously, the sensor 23 comprises a wireless transmission module of the data detected by the sensor 23 itself.

[0033] In particular, the sensor 23 may be capable of detecting the saturation of the air in the longitudinal sections 15, 17, 19 and transmitting the data detected by means of NFC (Near Field Communication) or Bluetooth protocols or similar, to a receiver module present for example, in a smartphone or a personal computer or a tablet or an automation station in order to inform the user on the state of his/her waste by also indicating for example, the action to be taken.

[0034] Advantageously, the data detected by means of the sensors 23 present in a bag 1 in the home or at a store of a given user may be collected by an external server or integrated with data originating from the bags 1 of other users in order to populate a database that may provide information in real time to the public administration on the state of the waste of a given residential and/or commercial area.

[0035] Advantageously, the chock closure devices 9, 11, 13 may be equally spaced from one another so as to divide the tubular structure 3 into longitudinal sections 15, 17, 19 having substantially the same containment volume.

[0036] Alternatively, it is possible to provide for the chock closure devices 9, 11, 13 to be spaced apart from one another so as to define longitudinal sections 15, 17, 19 having different sizes from one another.

[0037] The present invention also relates to a container 100 for waste collection configured to contain a bag 1 as described above.

[0038] Advantageously, the container 100 comprises at least one access opening 101 to the at least one chock closure device 9, 11, 13.

[0039] As illustrated in particular in figure 2, indeed the container 100 may comprise a longitudinal slit made in the body 103 of the container itself, which defines said access opening 101. The ties 25 come out of such slit. The ties 25 are therefore accessible by the user to choke close the relative longitudinal section 15, 17, 19 of the bag 1 without having to remove the bag 1 from the container 100.

[0040] Advantageously, the container 100 is also provided with a cover 105.

[0041] The container 100 may have a cylindrical, parallelepiped shape, or other shape that is functional for the purpose.

[0042] The container 100 may be provided with a handle in the upper part thereof.

[0043] The container 100 may have an openable bottom, for example by means of an upper handle, in order to empty the bag 1 directly into the bulk waste containers without the user having to grip and extract the bag 1 itself from above.

[0044] The container 100 may be provided with wheels to facilitate the transport thereof.

[0045] In practice, it has been observed that the waste collection bag according to the present invention performs its task and achieves the set objects because it allows slowing down or preventing the waste decomposition while reducing or preventing the exhalation of unpleasant odours and therefore also increasing the length the bag containing the waste stays in the place of use.

[0046] Another advantage of the bag according to the invention consists in avoiding wasting material, which occurs in the frequent cases in which the waste decomposition starts when the waste bag is still practically empty.

[0047] Such problem is particularly felt by persons living alone.

[0048] Another advantage again of particular significance for older persons consists of the fact that waste management becomes plannable over time because it is no longer necessary to dispose of the waste daily. Indeed, waste may remain in the place of use for a greater period of time without creating unpleasant drawbacks,

thanks to the bag according to the invention.

[0049] The above-indicated advantages also relate to persons who spend much time out of the house and therefore produce a reduced quantity of organic waste.

[0050] The waste collection bag thus conceived is susceptible to several modifications and variations, all falling within the scope of the inventive < concept which is solely defined by the appended claims In practice, the materials used, as well as their dimensions, can be of any type according to the technical requirements.

Claims

1. Waste collection bag (1), having a tubular structure (3), comprising a first closed end (5) and a second open end (7), said tubular structure (3) comprising at least one chock closure device (9, 11, 13) arranged along the longitudinal direction of said tubular structure (3), in an intermediate region between said first closed end (5) and said second open end (7) so as to divide said tubular structure (3) in at least two longitudinal sections (15, 17), at least one first longitudinal section (15) of said tubular structure (3) being closable by means of said at least one chock closure device (9, 11, 13) said waste collection bag (1) being **characterized in that** it comprises a plurality of chock closure devices (9, 11, 13), arranged mutually spaced along said longitudinal direction of said tubular structure (3) between said first closed end (5) and said second open end (7) so as to divide said tubular structure (3) into a plurality of longitudinal sections (15, 17, 19).

2. Waste collection bag (1) according to claim 1, **characterized in that** one of said chock closure devices (13) is provided at said second open end (7) of said tubular structure (3) so as to close said open end (7).

3. Waste collection bag (1) according to one or more of the preceding claims, **characterized in that** a substance (21) inhibiting the decomposition of said waste is associated to said tubular structure (3), at at least one of said longitudinal sections (15, 17, 19) .

4. Waste collection bag (1) according to one or more of the previous claims, **characterized in that** a substance inhibiting the decomposition of said waste (21) is associated with said tubular structure (3), at each of said longitudinal sections (15, 17, 19).

5. Waste collection bag (1) for the collection of waste according to one or more of the previous claims, **characterized in that** a sensor (23) suitable for detecting the gas produced by the waste decomposition is associated with said tubular structure (3), at at least one of said longitudinal sections (15, 17, 19).

6. Waste collection bag (1) according to one or more of the previous claims, **characterized in that** a sensor (23) suitable for detecting the gas produced by the waste decomposition is associated with said tubular structure (3) at each of said longitudinal sections (15, 17, 19).

7. Waste collection bag (1) according to claim 5 or 6, **characterized in that** said sensor (23) comprises a wireless transmission module of the data detected by said sensor (23).

8. Waste collection container (100), **characterized in that** it is configured to contain a bag (1) according to one or more of the previous claims.

9. Waste collection container (100) according to claim 8, **characterized in that** it comprises at least one access opening (101) to said at least one chock closure device (9, 11, 13).

Patentansprüche

1. Abfallsammelsack (1) mit einer röhrenförmigen Struktur (3), die ein erstes geschlossenes Ende (5) und ein zweites offenes Ende (7) umfasst, wobei die röhrenförmige Struktur (3) mindestens eine Keilverschlussvorrichtung (9, 11, 13) umfasst, die entlang der Längsrichtung der röhrenförmigen Struktur (3) in einem Zwischenbereich zwischen dem ersten geschlossenen Ende (5) und dem zweiten offenen Ende (7) angeordnet ist, um die röhrenförmige Struktur (3) in mindestens zwei Längsabschnitte (15, 17) zu unterteilen, mindestens ein erster Längsabschnitt (15) der röhrenförmigen Struktur (3) mittels der mindestens einen Keilverschlussvorrichtung (9, 11, 13) verschliessbar ist, wobei der Abfallsammelsack (1) **dadurch gekennzeichnet ist, dass** er eine Vielzahl von Keilverschlussvorrichtungen (9, 11, 13) umfasst, die entlang der Längsrichtung der röhrenförmigen Struktur (3) zwischen dem ersten geschlossenen Ende (5) und dem zweiten offenen Ende (7) in einem Abstand zueinander angeordnet sind, um die röhrenförmige Struktur (3) in eine Vielzahl von Längsabschnitten (15, 17, 19) zu unterteilen.

2. Abfallsammelsack (1) nach Anspruch 1, **dadurch gekennzeichnet dass** eine der Keilverschlussvorrichtungen (13) an dem zweiten offenen Ende (7) der rohrförmigen Struktur (3) vorgesehen ist, um das offene Ende (7) zu schliessen.

3. Abfallsammelsack (1) nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der röhrenförmigen Struktur (3) an mindestens einem der Längsabschnitte (15, 17, 19) eine Substanz (21) zugeordnet ist, welche die Zer-

setzung des Abfalls hemmt.

4. Abfallsammelsack (1) nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der röhrenförmigen Struktur (3) an jedem der Längsabschnitte (15, 17, 19) eine Substanz (21) zugeordnet ist, welche die Zersetzung des Abfalls hemmt.

5. Abfallsammelsack (1) zum Sammeln von Abfällen nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der röhrenförmigen Struktur (3) an mindestens einem der Längsabschnitte (15, 17, 19) ein Sensor (23) zugeordnet ist, der geeignet ist, das durch die Abfallzersetzung erzeugte Gas zu erfassen

6. Abfallsammelsack (1) nach einem oder mehreren der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der röhrenförmigen Struktur (3) an jedem der Längsabschnitte (15, 17, 19) ein Sensor (23) zugeordnet ist, der geeignet ist, das durch die Abfallzersetzung erzeugte Gas zu erfassen.

7. Abfallsammelsack (1) nach Anspruch 5 oder 6, **dadurch gekennzeichnet, dass** der Sensor (23) ein Modul zur drahtlosen Übertragung der vom Sensor (23) erfassten Daten umfasst.

8. Abfallsammelbehälter (100), **dadurch gekennzeichnet, dass** er zur Aufnahme eines Beutels (1) nach einem oder mehreren der vorhergehenden Ansprüche konfiguriert ist.

9. Abfallsammelbehälter (100) nach Anspruch 8, **dadurch gekennzeichnet, dass** er mindestens eine Zugangsöffnung (101) zu dem mindestens einen Verschlusskeil (9, 11, 13) aufweist

Revendications

1. Sac de collecte des déchets (1), ayant une structure tubulaire (3), comprenant une première extrémité fermée (5) et une seconde extrémité ouverte (7), ladite structure tubulaire (3) comprenant au moins un dispositif de fermeture de cale (9, 11, 13) disposé le long de la direction longitudinale de ladite structure tubulaire (3), dans une zone intermédiaire entre ladite première extrémité fermée (5) et ladite seconde extrémité ouverte (7) de manière à diviser ladite structure tubulaire (3) en au moins deux sections longitudinales (15, 17), au moins une première section longitudinale (15) de ladite structure tubulaire (3) étant refermable au moyen dudit au moins un dispositif de fermeture de cale (9, 11, 13) ledit sac de collecte des déchets (1) étant **caractérisé en ce qu'**il comprend une pluralité de dispositifs de fermeture de cale (9, 11, 13), disposés mutuellement espacés le long de ladite direction longitudinale de ladite structure tubulaire (3) entre ladite première extrémité fermée (5) et ladite seconde extrémité ouverte (7) de manière à diviser ladite structure tubulaire (3) en une pluralité de sections longitudinales (15, 17, 19).

2. Sac de collecte des déchets (1) selon la revendication 1, **caractérisé en ce qu'**un desdits dispositifs de fermeture de cale (13) est prévu au niveau de ladite seconde extrémité ouverte (7) de ladite structure tubulaire (3) de manière à fermer ladite extrémité ouverte (7).

3. Sac de collecte des déchets (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**une substance (21) inhibant la décomposition desdits déchets est associée à ladite structure tubulaire (3), au niveau d'au moins une desdites sections longitudinales (15, 17, 19).

4. Sac de collecte des déchets (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**une substance inhibant la décomposition desdits déchets (21) est associée à ladite structure tubulaire (3), au niveau de chacune desdites sections longitudinales (15, 17, 19).

5. Sac de collecte des déchets (1) pour la collecte des déchets selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**un capteur (23) approprié pour détecter le gaz produit par la décomposition des déchets est associé à ladite structure tubulaire (3), au niveau d'au moins une desdites sections longitudinales (15, 17, 19).

6. Sac de collecte des déchets (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**un capteur (23) approprié pour détecter le gaz produit par la décomposition des déchets est associé à ladite structure tubulaire (3), au niveau de chacune desdites sections longitudinales (15, 17, 19).

7. Sac de collecte des déchets (1) selon la revendication 5 ou 6, **caractérisé en ce que** ledit capteur (23) comprend un module de transmission sans fil des données détectées par ledit capteur (23).

8. Conteneur de collecte des déchets (100), **caractérisé en ce qu'**il est configuré pour contenir un sac (1) selon l'une ou plusieurs des revendications précédentes.

9. Conteneur de collecte des déchets (100) selon la revendication 8, **caractérisé en ce qu'**il comprend au moins une ouverture d'accès (101) audit au moins

un dispositif de fermeture de cale (9, 11, 13).

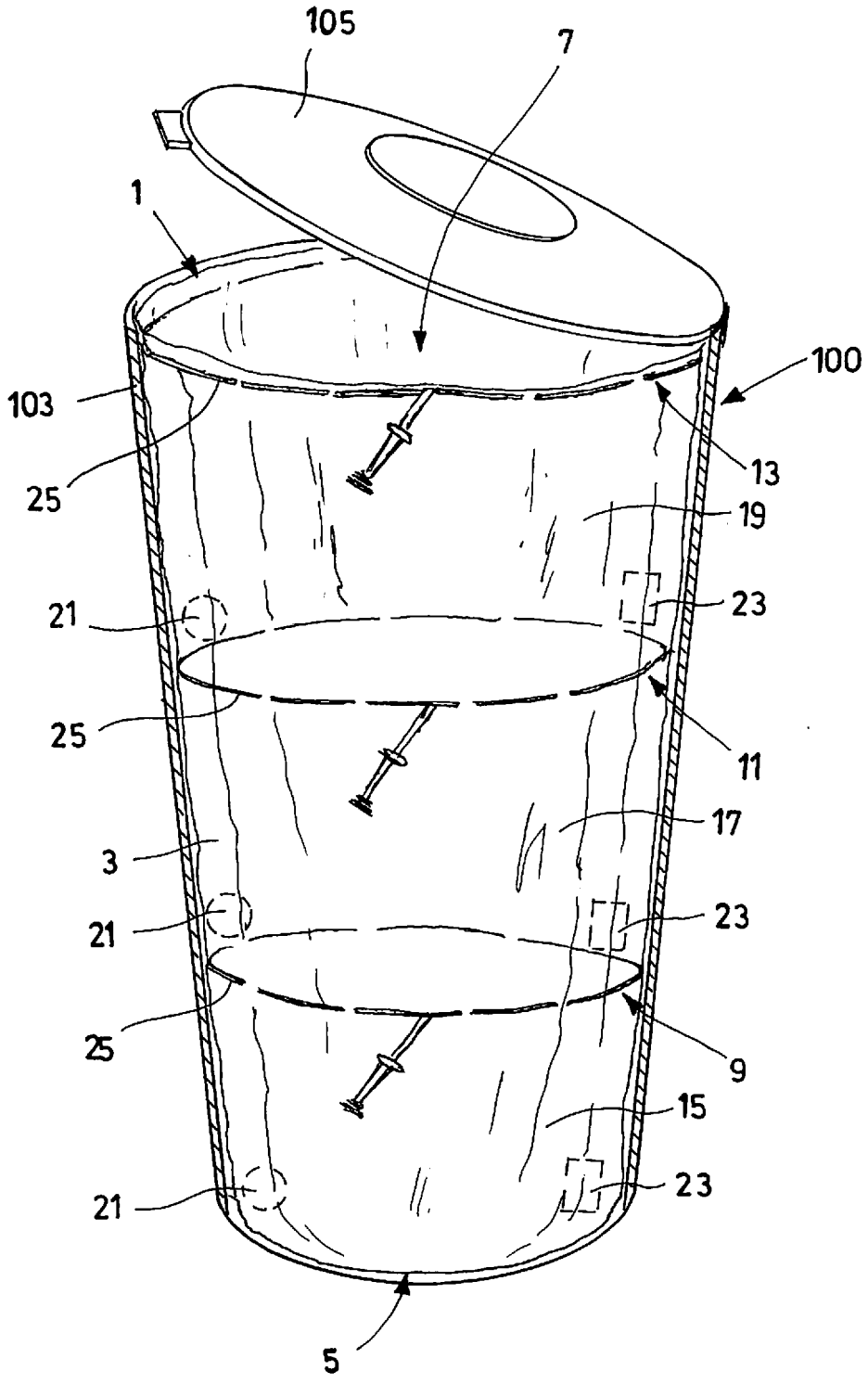

Fig.1

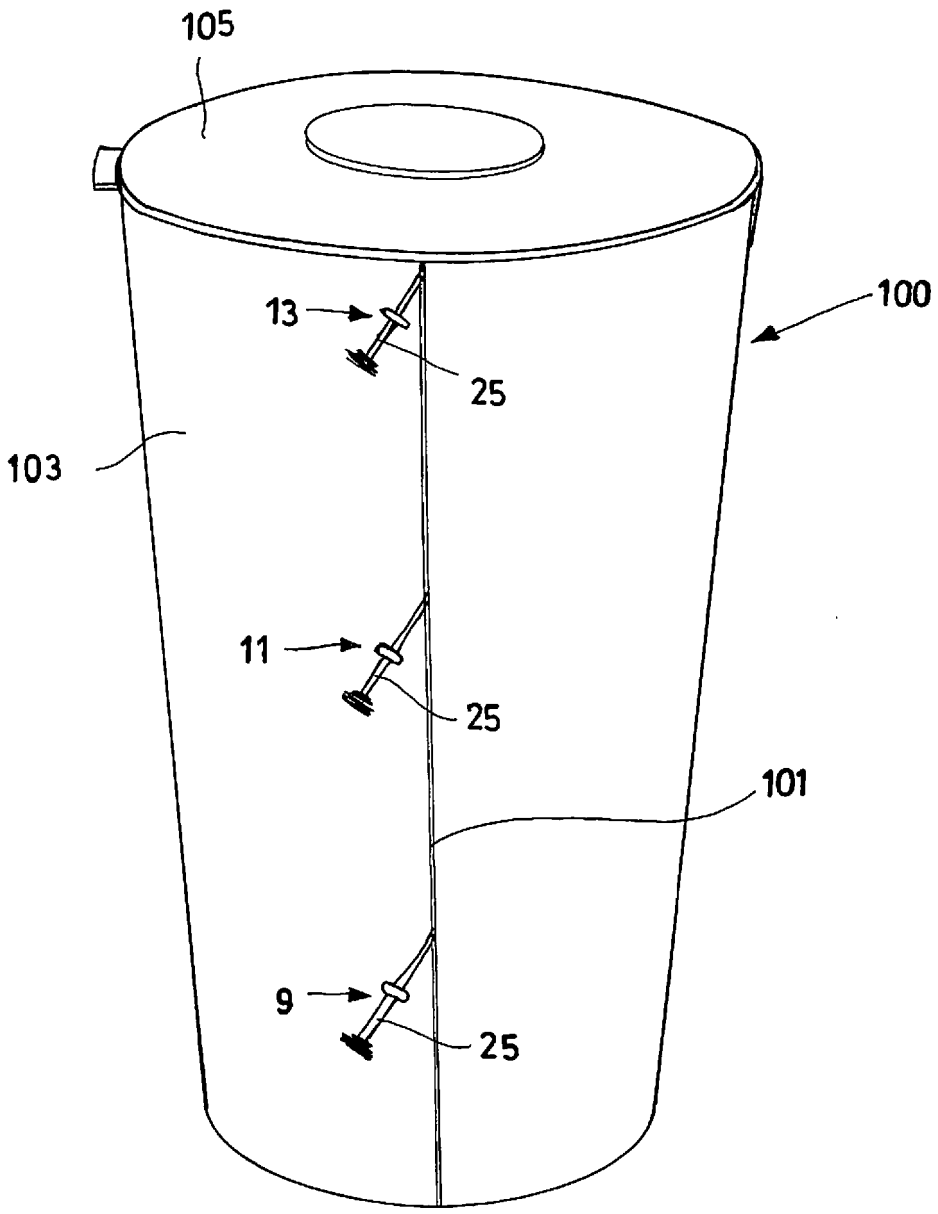

Fig.2

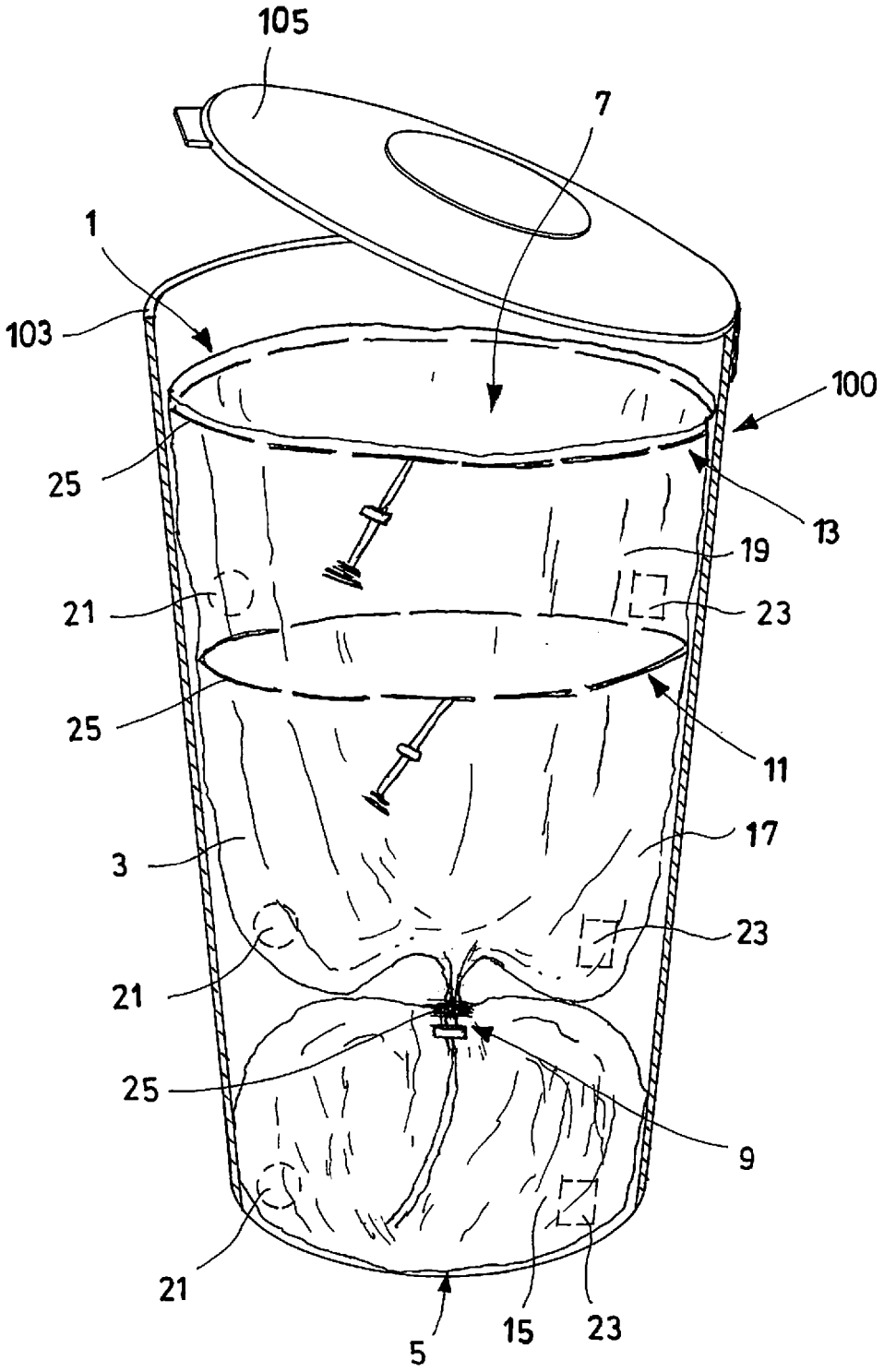

Fig.3

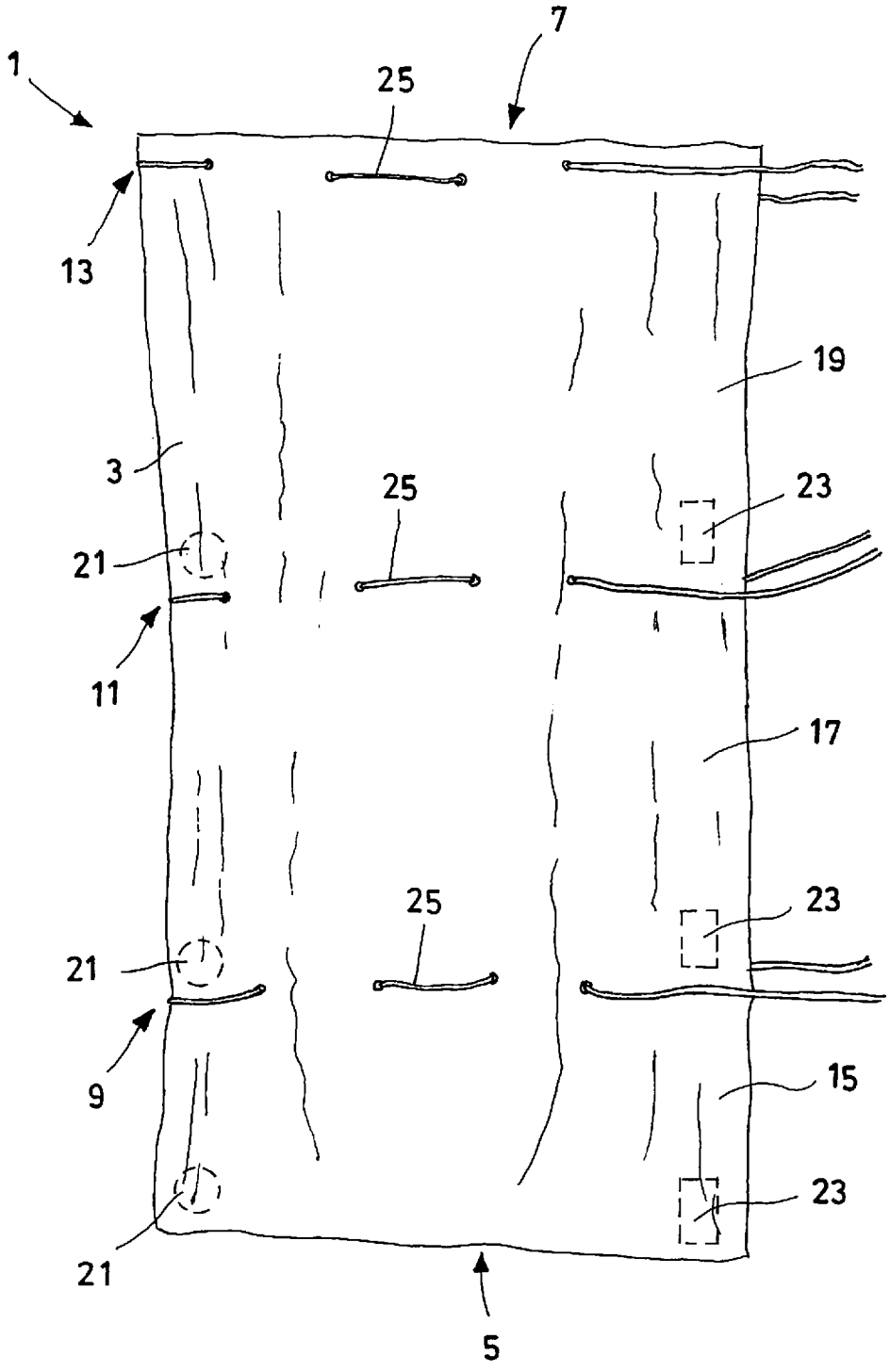

Fig.4

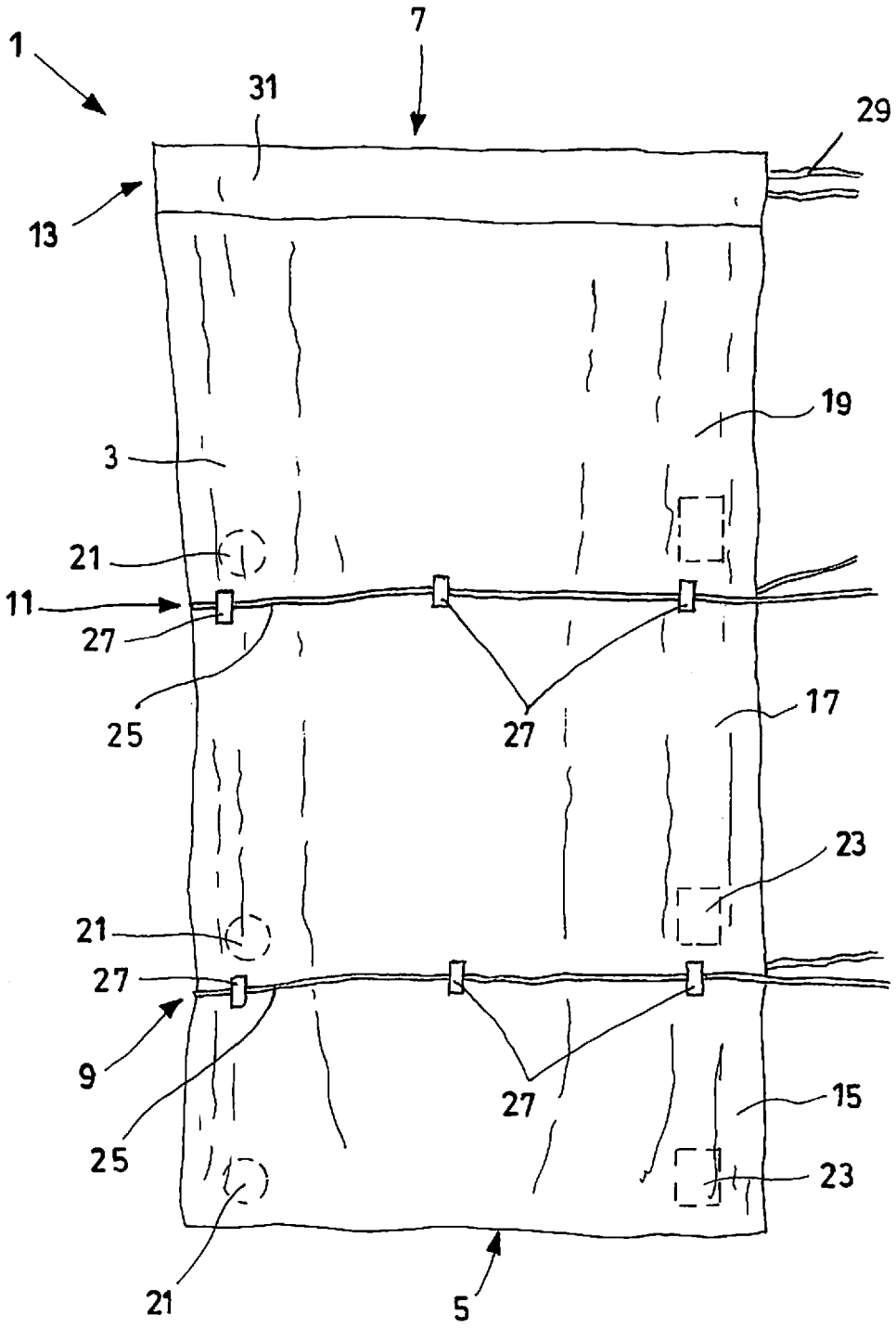

Fig.5

REFERENCES CITED IN THE DESCRIPTION

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