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(54) **WATER CHANNEL FOR FLEXIBLE CONTAINER**

WASSERKANAL FÜR FLEXIBLEN BEHÄLTER

CANAL D'EAU POUR RÉCIPIENT SOUPLE

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(56) References cited:

FR-A3- 2 630 409 KR-Y1- 200 471 205

US-A- 3 486 679 US-A- 4 893 731

US-A- 5 566 851 US-A- 5 749 493

US-A- 6 073 807 US-A1- 2003 015 556

US-A1- 2013 247 271 US-A1- 2014 231 453

US-B1- 7 392 916 US-B1- 7 806 300

US-B2- 8 020 730

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Description

PRIORITY CLAIM

[0001] This application claims priority to U.S. Provisional Pat. Appl. No. 62/502,866 filed May 8, 2017.

BACKGROUND OF THE INVENTION

[0002] Flexible, re-sealable containers and systems for hydration can include a drink tube connected to the bottom section of a flexible container where the tubing is loosely bundled in order to manage extra length of tubing. When packed inside a wearer's bag or backpack the drink tube can become kinked closing off the ability of the wearer to ingest fluid in the container. Typically, there is a detachable coupling between the tubing and container, which is difficult to access and sometimes not properly installed thereby causing fluid to leak as a result of gravity. Sometimes it is not possible to separate the coupling in this location without removing the entire system from the backpack.

[0003] Examples of drinking containers are known, for example, from US 7 392 916 B1 and US 2013/247271 A1. Each of these documents discloses a container with a channel component allowing to drink the liquid from the container.

BRIEF DESCRIPTION OF THE DRAWING

[0004] Preferred and alternative embodiments of the present invention are described in detail below with reference to the following drawing figures in which:

FIG. 1 illustrates a front view of a container according to an embodiment of the invention;

FIG. 2 illustrates a rear view of the container illustrated in FIG. 1;

FIG. 3 illustrates a side perspective view of the container illustrated in FIG. 1;

FIG. 4 illustrates a side view of a channel component and coupling element according to an embodiment of the invention; and

FIG. 5 illustrates a cross-sectional view of a channel component according to an embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0005] The present invention relates to a liquid-dispensing apparatus as defined by the appended claims. This patent application is intended to describe one or more embodiments of the present invention. It is to be understood that the use of absolute terms, such as "must," "will," and the like, as well as specific quantities, is to be construed as being applicable to one or more of such embodiments, but not necessarily to all such embodiments. As such, embodiments of the invention may

omit, or include a modification of, one or more features or functionalities described in the context of such absolute terms.

[0006] In an embodiment of the invention, a liquid-dispensing apparatus 1 includes a flexible and translucent or semi-translucent container 20 having first and second opposing walls 21, 22 and a bottom surface 23. The walls 21, 22 and bottom surface 23 define an interior chamber 24 configured to contain liquid. A detachable coupling element 30 is coupled to the first opposing wall 21 and provides fluid communication between the chamber 24 and the exterior (*i.e.*, ambient) of the container 20.

[0007] A channel component 10 disposed within the chamber 24 includes a proximal end 11 in fluid communication with the coupling element 30 and a terminal end 12 extending toward the bottom surface 23 of the container 20. As best illustrated in FIG. 5, the channel component 10 further includes a raised portion 13 configured to prevent the first and second walls 21, 22 from completely contacting each other as liquid is expelled from container 20. The channel component 10 may include a spine 14 that may be coupled along its entire length to the first opposing wall 21. The channel component 10 is configured such that liquid may pass through the entirety of the length of raised portion 13.

[0008] Suction may be applied to the coupling element 30, typically by a drink tube (not shown) that can be fluidly coupled to the coupling element 30, such that liquid is removed from the container 20 via channel component 10 and coupling element 30. As suction is applied to the coupling element 30, the opposing walls 21, 22 of container 20, beginning from the top of container 20, collapse into each other and, as the liquid continues to be removed from container 20, continue to collapse into each other toward the bottom surface of the container 20. When all of the liquid is extracted from the container 20, the container 20 is essentially flat with almost the entireties of each opposing wall 21, 22 contacting the other.

[0009] However, the channel component 10 provides a path similar to closed channel flow for liquid to flow along the length of the collapsed portion of the container 20. The specific design of the channel component 10, which, as best illustrated in FIG. 5, may be roughly T-shaped in cross-section, prevents the flexible container 20 from sealing off the water flow to the coupling element 30 and allows the full liquid volume to discharge through the coupling element 30.

[0010] According to the invention, the first wall 21 includes a storage compartment 31 and the coupling element 30 is rotatable to be in a stored position within the compartment 31 when, for example, not attached to a drinking tube.

[0011] Channel component 10 can be flexible but rigid enough to prevent the sides of container 20 to completely mate together creating the closed channel flow. Channel component 10 is designed and attached in a manner to reduce or eliminate the chance of harboring bacteria and can be easily cleaned without having to remove compo-

nents from within the container 20. Additionally, coupling element 30 and channel component 10 are designed to reduce or remove all air, so no residual air bubbles are introduced when extracting fluid out of the container 20.

[0012] One or more alternative embodiments may include the following features:

Channel component 10 can include one channel or multiple channels (e.g., raised portion(s)) oriented in various directions.

[0013] Channel component 10 is shaped or component added to alter flow rate in order to indicate to user when fluid level is low.

[0014] Channel component 10 can be integrated into or operate in conjunction with a baffle 40 disposed within the chamber 24 and coupled to at least one of the first and second opposing walls 21, 22.

[0015] Instead of being a separate element, channel component 10 can be integrally formed from and within first opposing wall 21 such that raised portion 13 does not require spine 14 for attachment to wall 21.

[0016] Channel component 10 can have cross-sectional shapes such as but not limited to C-Shape, L-Shape and/or tubular.

[0017] Channel component 10 may not be linear in configuration.

[0018] While the preferred embodiment of the invention has been illustrated and described, as noted above, many changes can be made without departing from the scope of the invention. Accordingly, the scope of the invention is not limited by the disclosure of the preferred embodiment. Instead, the invention should be determined entirely by reference to the claims that follow.

Claims

1. A liquid-dispensing apparatus (1), comprising:

a flexible container (20) comprising first (21) and second (22) opposing walls and a bottom surface (23), the walls and bottom surface defining an interior chamber (24) configured to contain liquid;

a drink tube exterior to the container;

a detachable coupling element (30) coupled to the first opposing wall and providing fluid communication between the chamber (24) and the drink tube when the drink tube is attached to the coupling element, wherein the first wall (21) comprises a storage compartment (31) and the coupling element (30) is rotatable to be in a stored position within the compartment (31) when the coupling element (30) is not attached to the drink tube; and

a channel component (10) disposed within the chamber, the channel component having a proximal end (11) in fluid communication with the coupling element and a terminal end (12) extending toward the bottom surface, the channel component having a raised portion (13) including a length, the raised portion being configured to prevent the first and second opposing walls from completely contacting each other as liquid is expelled from the container, wherein the channel component has a T-shaped, C-shaped, L-shaped, or tubular cross-section, the channel component (10) being configured such that liquid may pass through the entirety of the length of the raised portion.

tending toward the bottom surface, the channel component having a raised portion (13) including a length, the raised portion being configured to prevent the first and second opposing walls from completely contacting each other as liquid is expelled from the container, the channel component having a spine (14) coupled along its entire length to the first opposing wall, wherein the channel component has a T-shaped, C-shaped, L-shaped, or tubular cross-section, the channel component (10) being configured such that liquid may pass through the entirety of the length of the raised portion.

2. The apparatus of claim 1, further comprising a baffle (40) disposed within the chamber (24) and coupled to at least one of the first (21) and second (22) opposing walls.

3. A liquid-dispensing apparatus (1), comprising:

a flexible container (20) comprising first (21) and second (22) opposing walls, and a bottom surface (23), the walls, and bottom surface (23) defining an interior chamber (24) configured to contain liquid;

a drink tube exterior to the container;

a detachable coupling element (30) coupled to the first opposing wall (21) and providing fluid communication between the chamber (24) and the drink tube when the drink tube is attached to the coupling element, wherein the first wall (21) comprises a storage compartment (31) and the coupling element (30) is rotatable to be in a stored position within the compartment (31) when the coupling element (30) is not attached to the drink tube; and

a channel component (10) having a proximal end (11) in fluid communication with the coupling element and a terminal end (12) extending toward the bottom surface, the channel component formed within the first opposing wall (21), the channel component having a raised portion having a length and being configured to prevent the first and second opposing walls from completely contacting each other as liquid is expelled from the container, wherein the channel component has a T-shaped, C-shaped, L-shaped, or tubular cross-section, the channel component (10) being configured such that liquid may pass through the entirety of the length of the raised portion.

4. The apparatus of claim 3, further comprising a baffle (40) coupled to at least one of the first (21) and second (22) opposing walls.

Patentansprüche

1. Flüssigkeitsabgabeeinrichtung (1), die Folgendes umfasst:

einen flexiblen Behälter (20), umfassend erste (21) und zweite (22) einander gegenüberliegende Wände und eine untere Oberfläche (23), wobei die Wände und die untere Oberfläche eine innere Kammer (24) definieren, die ausgelegt ist zum Enthalten von Flüssigkeit;
 ein Trinkrohr außerhalb des Behälters;
 ein lösbares Kopplungselement (30), gekoppelt mit der ersten gegenüberliegenden Wand und Fluidverbindung zwischen der Kammer (24) und dem Trinkrohr bereitstellend, wenn das Trinkrohr an dem Kopplungselement befestigt ist, wobei die erste Wand (21) ein Staufach (31) umfasst und das Kopplungselement (30) drehbar ist, um in einer verstaute Position innerhalb des Faches (31) zu sein, wenn das Kopplungselement (30) nicht an dem Trinkrohr befestigt ist; und
 eine Kanalkomponente (10), angeordnet innerhalb der Kammer, wobei die Kanalkomponente ein proximales Ende (11) in Fluidverbindung mit dem Kopplungselement und ein Abschlusssende (12), das sich in Richtung der unteren Oberfläche erstreckt, aufweist, wobei die Kanalkomponente einen erhöhten Teil (13) aufweist, der eine Länge umfasst, wobei der erhöhte Teil dazu ausgelegt ist, die ersten und zweiten einander gegenüberliegenden Wände daran zu hindern, vollständig miteinander in Kontakt zu kommen, wenn Flüssigkeit aus dem Behälter ausgetrieben wird, wobei die Kanalkomponente einen Rücken (14) aufweist, der entlang seiner gesamten Länge mit der ersten gegenüberliegenden Wand gekoppelt ist, wobei die Kanalkomponente einen T-förmigen, C-förmigen, L-förmigen oder rohrförmigen Querschnitt aufweist, wobei die Kanalkomponente (10) so ausgelegt ist, dass eine Flüssigkeit durch die Gesamtheit der Länge des erhöhten Teils hindurchlaufen kann.

2. Einrichtung nach Anspruch 1, ferner umfassend ein Leitblech (40), das innerhalb der Kammer (24) angeordnet und mit zumindest einer der ersten (21) und zweiten (22) einander gegenüberliegenden Wände gekoppelt ist.

3. Flüssigkeitsabgabeeinrichtung (1), die Folgendes umfasst:

einen flexiblen Behälter (20), umfassend erste (21) und zweite (22) einander gegenüberliegende Wände und eine untere Oberfläche (23), wo-

bei die Wände und die untere Oberfläche (23) eine innere Kammer (24) definieren, die ausgelegt ist zum Enthalten von Flüssigkeit;
 ein Trinkrohr außerhalb des Behälters;
 ein lösbares Kopplungselement (30), gekoppelt mit der ersten gegenüberliegenden Wand (21) und Fluidverbindung zwischen der Kammer (24) und dem Trinkrohr bereitstellend, wenn das Trinkrohr an dem Kopplungselement befestigt ist, wobei die erste Wand (21) ein Staufach (31) umfasst und das Kopplungselement (30) drehbar ist, um in einer verstaute Position innerhalb des Faches (31) zu sein, wenn das Kopplungselement (30) nicht an dem Trinkrohr befestigt ist; und
 eine Kanalkomponente (10), die ein proximales Ende (11) in Fluidverbindung mit dem Kopplungselement und ein Abschlusssende (12), das sich in Richtung der unteren Oberfläche erstreckt, aufweist, wobei die Kanalkomponente innerhalb der ersten gegenüberliegenden Wand (21) gebildet ist, wobei die Kanalkomponente einen erhöhten Teil aufweist, der eine Länge aufweist und dazu ausgelegt ist, die ersten und zweiten einander gegenüberliegenden Wände daran zu hindern, vollständig miteinander in Kontakt zu kommen, wenn Flüssigkeit aus dem Behälter ausgetrieben wird, wobei die Kanalkomponente einen T-förmigen, C-förmigen, L-förmigen oder rohrförmigen Querschnitt aufweist, wobei die Kanalkomponente (10) so ausgelegt ist, dass eine Flüssigkeit durch die Gesamtheit der Länge des erhöhten Teils hindurchlaufen kann.

4. Einrichtung nach Anspruch 3, ferner umfassend ein Leitblech (40), das mit zumindest einer der ersten (21) und zweiten (22) einander gegenüberliegenden Wände gekoppelt ist.

Revendications

1. Appareil de distribution de liquide (1), comprenant :

un contenant flexible (20) comprenant des première (21) et seconde (22) parois opposées et une surface inférieure (23), les parois et surface inférieure définissant une chambre intérieure (24) configurée pour contenir un liquide ;
 un tube de boisson extérieur au contenant ;
 un élément de couplage détachable (30) couplé à la première paroi opposée et fournissant une communication fluide entre la chambre (24) et le tube de boisson lorsque le tube de boisson est attaché à l'élément de couplage, dans lequel la première paroi (21) comprend un compartiment de rangement (31) et l'élément de coupla-

- ge (30) est rotatif pour être dans une position rangée à l'intérieur du compartiment (31) lorsque l'élément de couplage (30) n'est pas attaché au tube de boisson ; et
- un composant canal (10) disposé à l'intérieur de la chambre, le composant canal ayant une extrémité proximale (11) en communication fluide avec l'élément de couplage et une extrémité terminale (12) s'étendant vers la surface inférieure, le composant canal ayant une partie surélevée (13) incluant une longueur, la partie surélevée étant configurée pour empêcher les première et seconde parois opposées d'entrer complètement en contact l'une avec l'autre quand du liquide est expulsé du contenant, le composant canal ayant un dos (14) couplé le long de sa longueur entière à la première paroi opposée, dans lequel le composant canal a une section transversale en forme de T, en forme de C, en forme de L, ou tubulaire, le composant canal (10) étant configuré de telle sorte que liquide puisse passer à travers l'intégralité de la longueur de la partie surélevée.
2. Appareil selon la revendication 1, comprenant en outre un déflecteur (40) disposé à l'intérieur de la chambre (24) et couplé à au moins une des première (21) et seconde (22) parois opposées.
3. Appareil de distribution de liquide (1), comprenant :
- un contenant flexible (20) comprenant des première (21) et seconde (22) parois opposées, et une surface inférieure (23), les parois, et surface inférieure (23) définissant une chambre intérieure (24) configurée pour contenir un liquide ;
- un tube de boisson extérieur au contenant ;
- un élément de couplage détachable (30) couplé à la première paroi opposée (21) et fournissant une communication fluide entre la chambre (24) et le tube de boisson lorsque le tube de boisson est attaché à l'élément de couplage, dans lequel la première paroi (21) comprend un compartiment de rangement (31) et l'élément de couplage (30) est rotatif pour être dans une position rangée à l'intérieur du compartiment (31) lorsque l'élément de couplage (30) n'est pas attaché au tube de boisson ; et
- un composant canal (10) ayant une extrémité proximale (11) en communication fluide avec l'élément de couplage et une extrémité terminale (12) s'étendant vers la surface inférieure, le composant canal étant formé à l'intérieur de la première paroi opposée (21), le composant canal ayant une partie surélevée ayant une longueur et étant configurée pour empêcher les première et seconde parois opposées d'entrer complètement en contact l'une avec l'autre quand du liquide est expulsé du contenant, dans lequel le composant canal a une section transversale en forme de T, en forme de C, en forme de L, ou tubulaire, le composant canal (10) étant configuré de telle sorte que liquide puisse passer à travers l'intégralité de la longueur de la partie surélevée.
4. Appareil selon la revendication 3, comprenant en outre une cloison (40) couplée à au moins une des première (21) et seconde (22) parois opposées.

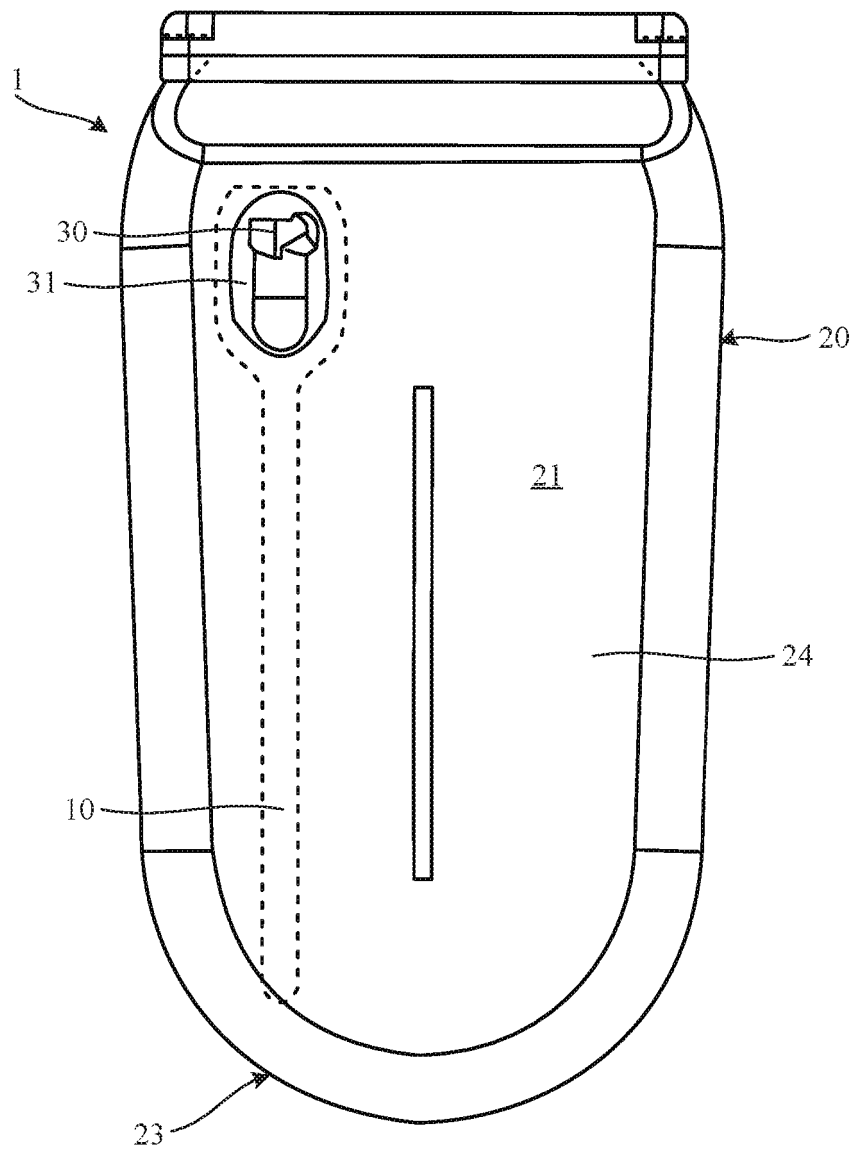


Fig. 1

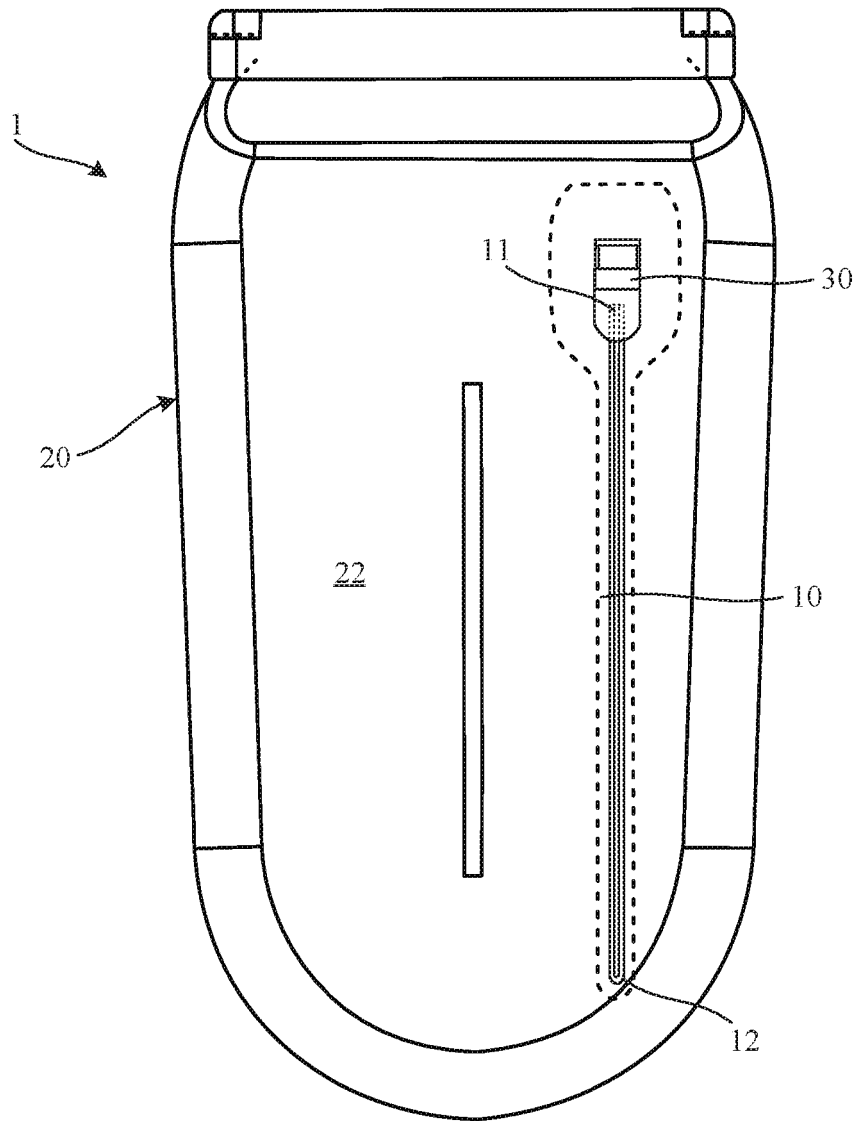


Fig. 2

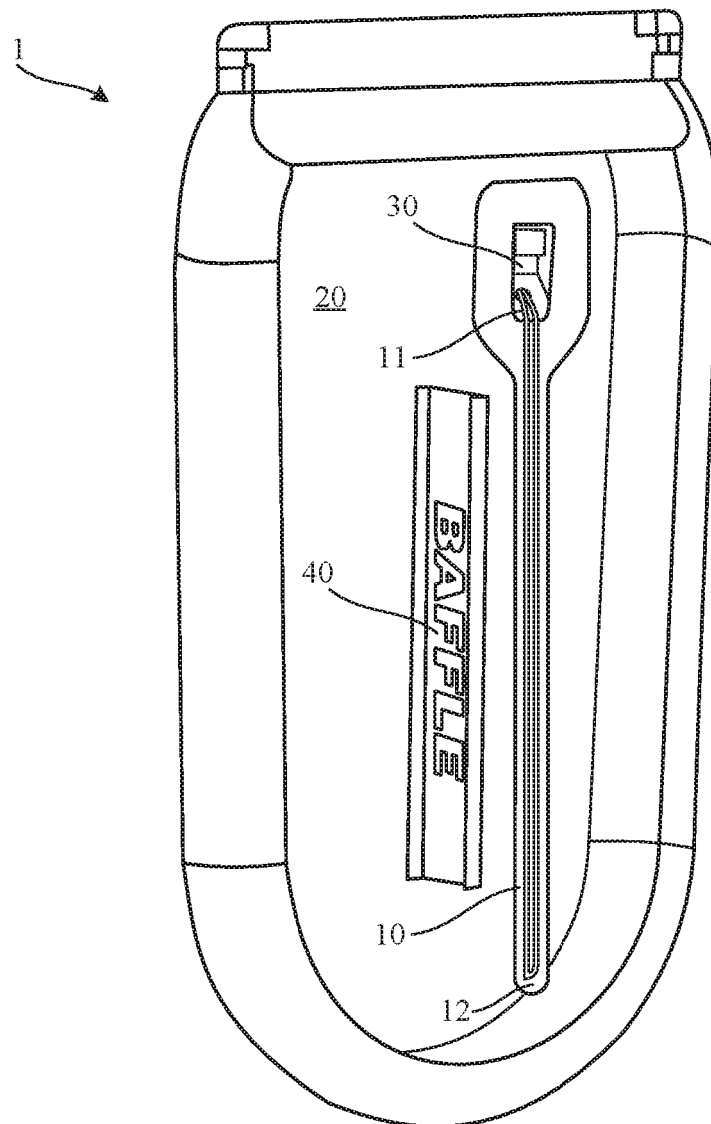


Fig. 3

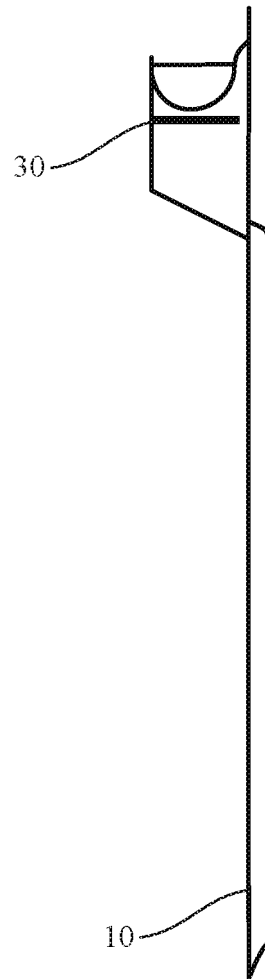


Fig. 4

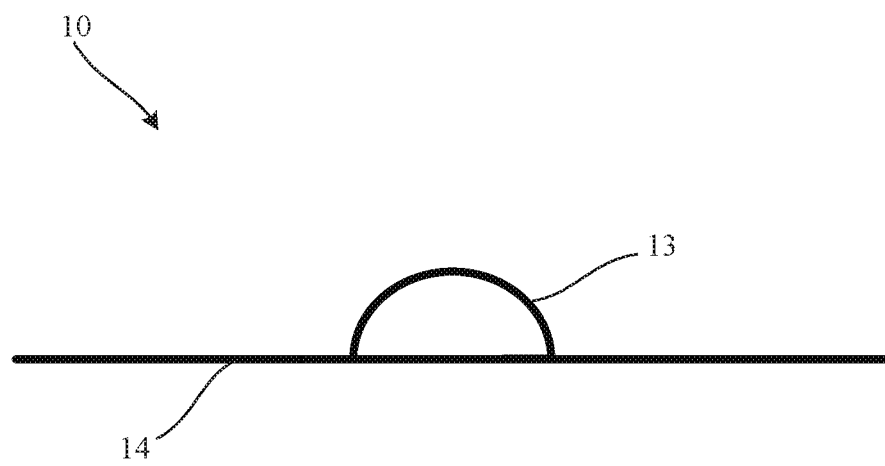


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 62502866 [0001]
- US 7392916 B1 [0003]
- US 2013247271 A1 [0003]