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(54) **IMPROVEMENTS IN CONTAINERS**

VERBESSERUNGEN AN BEHÄLTERN

AMELIORATIONS APPORTEES A DES CONTENANTS

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Description

[0001] The invention relates to improvements in containers, and in particular to improvements in containers for preparing and dispensing foamable beverage and food products.

BACKGROUND

[0002] Over the past few decades, there has been an erosion of traditional eating habits and this has led to a growth in the snack food market. Snacks are no longer confined to grazing between meals, but also are taking the place of meals, for example, as workers eat lunch at their desks.

[0003] Whilst consumers are demanding products which may be indulgent, more affordable, playful or overall more interesting, the success of any snack product is still highly dependent on its convenience.

[0004] Alongside the development of snack food products, there is a greater demand for a greater range of beverages and in particular there has been a rapid rise in packaged coffee products which have developed from a basic drink to a wide range of drinks designed to appeal to different consumer tastes. In particular some of these drinks use premium coffees, which are leading to the development of indulgent treats in the form of foamed food and beverage products.

[0005] Once process for serving a ready-to-drink cappuccino is described in DE-A-4332387. This describes an extraction method using coffee powder which is mixed with liquid and stored in a container with an air space of a quarter to a twentieth of the container volume. Prior to opening and consumption, the containers are shaken until foam has formed in the air space. The container is then opened and the beverage drunk from the container or emptied into a separate drinking receptacle.

[0006] The Douwe Egberts Café Switch ^(TM) product launched in 2006 is described in US-A-2007/0031545 and comprises a package which can be used for preparing a coffee beverage from a foamable liquid and a gas. The package comprises two chambers which are connected, between which the liquid and gas are displaceable by squeezing each chamber consecutively. A flow disrupter placed in the connecting passage assists the mixing and foam formation. After pumping the package can be opened and the contents poured into a drinking vessel and topped up with hot or cold water.

[0007] Both of these prior art solutions, however, require rigorous shaking or some form of manual manipulation. It is therefore desirable to provide an improved package for preparing a foamable beverage or food product.

[0008] GB-A-2298180 describes a container having two compartments separated by a seal in the form of a thin flexible membrane. When the can is opened, pressure in the second compartment causes the membrane to break, thereby allowing the components in the first and

second compartments to mix.

SUMMARY

[0009] The disclosure therefore provides a method of preparing a foamed beverage or a food product from a filled package from a liquid primary ingredient and air, said package comprising at least one wall defining a chamber for receiving the primary ingredient, an outlet for dispensing the prepared product and air inlet means for selectively enabling the ingress of air into the chamber, wherein the package is resiliently deformable between an initial compressed position in which air is substantially evacuated from the package and an expanded position, such that when the ingress of air is enabled the package recovers from the compressed position to its normal position sucking air into the chamber thereby mixing with the primary ingredient; characterised in that the method comprises the steps of opening the air inlet means (15) to allow the ingress of air into the chamber (12) such that the package (10) expands and sucks air into the chamber (12), wherein the air mixes with the primary ingredient (17) and effects foaming thereof, opening the outlet (13) and squeezing the package (10) to dispense the prepared product via the outlet (13).

[0010] The package preferably comprises means for selectively opening and closing the outlet.

[0011] The air inlet means may comprise a one way valve in the at least one wall.

[0012] The air inlet means may also comprise a plurality of apertures in the at least one wall of a size which allows the ingress of air into the chamber but substantially prevents the egress of liquid from the chamber.

[0013] The package preferably further comprises removable cover means for sealing the air inlet means.

[0014] The outlet may provide the air inlet means.

[0015] Preferably the package further comprises a device which assists foam generation, which may be a mesh web, ball or disc.

[0016] The device may be located in the chamber or in the outlet.

[0017] The device is preferably a nozzle, which is preferably located in the outlet.

[0018] There is further provided a method of manufacturing a package for the preparation of a beverage or a food product from a liquid primary ingredient and air, said package comprising at least one wall defining a chamber for receiving the primary ingredient, an outlet for dispensing the prepared product and air inlet means for selectively enabling the ingress of air into the chamber, wherein the package is resiliently deformable between a normal expanded position and a compressed position, the method comprising the steps of partially filling the chamber with a primary ingredient, evacuating any air from the chamber by compressing the package such that air escapes from the outlet, and sealing the package.

[0019] The packages can be used to prepare a finished foamed product, such as a frothy milk shake. Alternative-

ly they can be used to prepare a foamed product, such as foamed milk, which may be mixed with another ingredient or another beverage, such as coffee, to create a cappuccino. In particular it is envisaged that these packages may be used to replace the currently used coffee mix and soft pod powder adjunct which contains powdered creamer and a foam booster ingredient. Typically a roast and ground (R & G) coffee or a liquid coffee solution made from a small sachet of soluble coffee will be poured onto this to provide a coffee beverage with a white foam. The packages described herein allow a liquid concentrated milk/creamer to be used to provide the milkiness and the foam.

[0020] In another application the package contains a milk/creamer which replaces the two step pod approach (i.e. a creamer pod and an R&G pod) which are separately prepared and then combined to provide the white foam on the coffee. Using the new package, only one brewing step is required (e.g. just the coffee) and the foamed milk may be added directly to the coffee or vice versa.

[0021] Using the packages described herein it is easy to produce a final drink of approximately 300 ml, of which 50ml is foam, 50ml is coffee and 200ml is milk.

[0022] The foam produced may be aerated foam or a mousse similar to those that can be dispensed from a can for desserts. The latter may be used in combination with espresso to create an espresso macchiato drink. For this type of drink one might produce 50ml of concentrated creamer (2-4 times concentrated) which is foamed with minimal dilution and added on top of a separately brewed espresso.

[0023] Another suitable application is for producing foamed chocolate (white, milk or dark chocolate) which may be used on top of an espresso or a cappuccino, or just diluted to create a foaming hot chocolate beverage. A suitable recipe for the former would be 100ml of coffee plus 20g of foamed dark chocolate paste or 25g of milk chocolate paste. Another would be 200ml coffee plus 20g of foamed dark chocolate paste or 25g of foamed milk chocolate paste.

DETAILED DESCRIPTION

[0024] The packages will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 is a cross sectional side elevation of a first package prior to filling;

Figure 2 is a cross sectional side elevation of the package of Figure 1 filled with a product;

Figure 3 is a cross sectional side elevation of the package of Figure 1 with the air evacuated;

Figure 4 is a cross sectional side elevation of a filled

and sealed package;

Figure 5 is a cross sectional side elevation of the filled package of Figure 4, showing the opening of the inlet valve;

Figure 6 is a cross sectional side elevation of the package with gas inducted;

Figure 7 is a cross sectional side elevation of the package with the foamed product ready for dispensing;

Figure 8 is a cross sectional side elevation of a filled alternative package to that of Figures 1 to 7;

Figure 9 is a cross sectional side elevation of the package of Figure 8 with the foamed product ready for dispensing;

Figure 10 is a plan view of yet another filled package;

Figure 11 is a cross sectional end elevation of the package of figure 10;

Figure 12 is a plan view of the package of Figure 10 with the foamed product ready for dispensing;

Figure 13 is a modification of the package of Figure 10 with the secondary ingredient capsule held in a side chamber;

Figure 14 is a cross sectional front elevation of another package with the foamed product ready for dispensing; and

Figure 15 is a plan view of another filled package.

[0025] The packages described below enable a foamed (frothy) food or beverage product to be prepared by mixing a primary ingredient, which is in liquid form, with a secondary ingredient, which may be air, a gas, a powder containing air or gas, or another liquid. It should be noted that, in the context of this specification the reference to "ingredient" may refer to a composition of formed from a plurality of ingredients. The primary and secondary ingredients are separated until the preparation process commences. This can be achieved in a number of ways.

[0026] The primary ingredient may be a liquid coffee solution, concentrated liquid milk or creamer, a flavoured milk and chocolate (white, milk or dark). Although it is intended that the package effects the foaming of a foamable primary ingredient, the primary ingredient may also contain a foaming agent. Alternatively the secondary ingredient may include a foaming agent. The foaming agent may be one of those described in US-A-2006/0040038, EP-A-1627572 and EP-A- 1627568 or

any other suitable agent.

[0027] One package 10, illustrated in Figures 1 to 7, is a deformable package which is filled with the primary ingredient. The secondary ingredient is air, which is drawn into the package 10 upon opening.

[0028] The package 10 is preferably made from a semi-rigid liquid impermeable material, for example high density polyethylene, polypropylene, polystyrene, polyester, or a laminate of two or more of these materials. The addition of a layer of ethylene-vinyl alcohol polymer is desirable as it renders the package 10 fully gas impermeable. The preferred thickness of the walls lies in the range of 50 to 300 microns. The material, shape and makeup of the package 10, however, must be selected so that the package 10 is resiliently deformable when pressure is applied, but which will return to its original shape configuration when the pressure is removed. A convenient shape for the package 10 is a sphere or a compressed sphere.

[0029] The package 10 may be opaque, transparent or translucent and a suitable manufacturing process its infection moulding.

[0030] The walls 11 of the package 10 define a mixing chamber 12. It should be noted that the reference to "walls" herein should be considered to incorporate a single continuous wall or multiple walls depending on the design of the package 10. The walls 11 include an outlet 13 which is preferably selectively opened and closed by sealing means 14. The outlet 13 may be a simple orifice or a nozzle and the sealing means 14 may be a screw on cap, stopper, peelable adhesive foil or label or other suitable means depending on the nature of the outlet 13. Air inlet means 15, preferably in the form of a one-way valve, are provided in one of the walls 11, preferably at a distance from the outlet 13, for selectively allowing the ingress of air into the chamber 12. A removable cover 16 may be used to seal the air inlet means 15, which is removed when the product is to be prepared. The removable cover 16 may also be a peelable adhesive foil or label.

[0031] Prior to filling the empty package retains a normal expanded shape and configuration, as shown in Figure 1, and is filled with air. The chamber 12 is partially filled with the primary ingredient 17 via outlet 13 (Figure 2) and air escapes via the outlet 13. The package 10 is compressed to evacuate any remaining air via the outlet 13 and, when all the air has been evacuated, the outlet 13 is sealed with the sealing means 14 (Figure 4).

[0032] When the food or beverage product is to be consumed, the consumer opens the air inlet means 15 by removing the cover 16 (Figure 5). The resilient nature of the package 10 causes it to expand to its original shape, sucking air (the secondary ingredient) back in through the air inlet means 15 (Figure 6) as it does so. The in-rush of air at least partially mixes with the primary ingredient 17. Depending on the nature of the primary ingredient 17 the in-rush of air may be sufficient to effect at least some foaming of the primary ingredient 17. How-

ever the consumer may need to shake the package 10 to complete the foaming action. The outlet sealing means 14 is then removed so that the prepared foamed product can be poured or squeezed out through the outlet 13.

[0033] The ratio of primary ingredient to air in the chamber 12 varies according to the nature of the primary ingredient and the desired quantity of foamed ingredient. If a typical cappuccino is considered to comprise one third foam, one third espresso and one third milk, for 180ml of cappuccino around 50-60 ml of foam is expected. For mousse type applications the air to liquid ratio may be around 50:50.

[0034] In a modification of the package 10, the air inlet means are provided by the outlet 13. To effect the beverage preparation, the sealing means 14 is removed from the outlet 13 to allow air to enter the chamber 12. Once the package 10 has recovered its normal pre-formed shape the product may be dispensed or sealing means 14 may be reapplied to prevent the product from leaking during shaking.

[0035] In a further modified version of this package 10, the air inlet means 15 comprise small apertures or perforations in the wall 11, the perforations being small enough to allow air in, but minimal liquid out.

[0036] As a further modification still, an insert may be located inside the package 10 in the form of a mesh web, ball, disc or another device, which assists the foam generation and reduces or eliminates the need for additional shaking. As yet a further alternative a mesh, duct, or suitably shaped nozzle may be provided at the outlet 13 to aid foam generation as the product exits the package 10.

[0037] A second package 20 is illustrated in Figures 8 and 9. This package 20 is made from a suitable resiliently deformable semi-rigid material, such as are described above, which is liquid, and preferably air, impermeable. The walls 21 of the package 20 define a mixing chamber 22 and include an outlet 23 with sealing means 24 for sealing the outlet 23, which may have a similar configuration to that described above.

[0038] The package 20 is filled with the primary ingredient 17, and air evacuated. A capsule 25 containing the secondary ingredient 26 is located in the chamber 22. The capsule 25 is made from a relatively frangible material, which is at least liquid impermeable. The capsule 25 is attached to the insides of opposing walls 21 of the package 20. The primary ingredient 17 is therefore unable to mix with the secondary ingredient 26, which is enclosed within the capsule 25.

[0039] When the package 20 is opened by removal of the sealing means, air is sucked in via the outlet 23 and the package 20 expanding to its normal position causing the capsule 25 to rupture and release its contents (secondary ingredient 26) to mix with the primary ingredient 17 (Figure 9). The sealing means 24 may be replaced if shaking of the package is required.

[0040] In this, and other versions of the package which include a capsule, the secondary ingredient may be or include a foaming agent (such as those described in US-

A-2006/0040038, EP-A-1627572 and EP-A-1627568 or a bubble of compressed gas.

[0041] This package 20 may also incorporate similar air inlet means as described in relation to the first package 10 to allow the ingress of air during the product preparation process. This package 20 may also incorporate any of the other modifications described in relation to package 10.

[0042] A third package 30 is illustrated in Figures 10 to 12. This package 30 is preferably made from a flexible material and is not required to be resiliently deformable. The materials described above may be suitable if sufficiently thin to be flexible. The walls 31 of the package 30 gain define the mixing chamber 32.

[0043] The package 30 may have a preformed outlet as described above. Alternatively, and as illustrated, the walls 31 may be sealed at opposing ends of the package 30 by end seals 33 in one of which is located a line of weakening 34, such as a laser score line, and tear initiation point 35 such as a notch. This enables the package 30 to be torn open in a controlled manner leaving an outlet 37 through which the foamed product can be dispensed.

[0044] Air inlet means 36, such as a one-way valve, may be provided in one of the walls 31, preferably at a distance from the outlet 37, to allow the ingress of air into the chamber 32. A removable cover 36a seals the air inlet means 36, which is removed when the product is to be prepared. The removable cover 36a may also be a peelable adhesive foil or label.

[0045] Located in the chamber 32 is a capsule 38 which contains the secondary ingredient 26, which may be a foaming agent, compressed air or/gas. The capsule may be unrestrained and therefore able to move freely within the chamber or it may be restrained in a predetermined location. Some air may need to be left in the headspace of the chamber 32 to enable expansion of the foam to take place. In one example the capsule 38 has a volume of 10 to 15cm³ and the primary ingredient takes up a volume of 50 to 100cm³ with a preferred headspace of 25 to 50 % of the total volume of the package.

[0046] The capsule 38 is made from a material which can be broken when the consumer squeezes the capsule 38 (through the package walls 31) between their fingers, thereby bursting the capsule 38. The capsule 38 is at least liquid impermeable and, if the secondary ingredient 26 is gas or air, also gas impermeable. The primary ingredient 17 is therefore unable to mix with the secondary ingredient 26, which is enclosed within the capsule 38.

[0047] To prepare the foamed product, the consumer squeezes the capsule 38 within the package 30 until it bursts, releasing the secondary ingredient 26 to mix with the primary ingredient 17 so that the foaming reaction is activated. If the package 30 includes air inlet means 36, this must also be opened to allow air to enter the chamber 32.

[0048] The outlet 36 is opened and the foamed product is squeezed out of the outlet 36. Preferably the outlet 36

is designed to provide a narrow and/or torturous path which further aids the generation of foam as the product 18 is dispensed. The outlet 36 may also be provided with an eductor which enables air to be drawn in from the atmosphere and incorporated in the product as it is dispensed.

[0049] In a modification of this package 30, shown in Figure 13, the capsule 38 is restrained in a side chamber 39 formed by creating a weak seal 40 between opposing walls 31 of the package. This makes it easier for the consumer to locate the capsule 38 for bursting. Alternatively the capsule 38 may be restrained in a desired location by a loose fibrous web or other suitable means.

[0050] A fourth package 40 is illustrated in Figure 14. This package 40 incorporates a cap 41 to which is attached the capsule 42 containing the secondary ingredient 26. This is held at the top of the chamber 43, in the bottom of which is the primary ingredient 17.

[0051] In order to prepare the product 18 the cap 41 is pushed or squeezed in order to burst the capsule 42 and release the secondary ingredient 26. As the secondary ingredient 26 comes into contact with the primary ingredient 17 foam is generated. Once the foaming reaction has finished, an outlet 44 is opened in the base 45 of the package 40 to dispense the foamed product into a cup 46 or other receptacle.

[0052] A further alternative embodiment of the package has a similar general construction to those described above, and additionally comprises an activatable lever, which is moved by the action of opening the package or removing a layer, to burst the capsule containing the secondary ingredient.

[0053] In yet another version of the package 50, which has a similar general construction to those described above and is shown in Figure 15, instead of using a capsule located in the mixing chamber 32, the outlet is provided by a nozzle 51 which is filled with the secondary ingredient 26. The nozzle 51 is provided with a closure 53, such as a cap or a removable seal. A breakable barrier 52 such as a membrane, separates the secondary ingredient from the primary ingredient 17 held in the chamber 32. The barrier 52 is broken by squeezing the package 50 to allow the primary and secondary ingredients to mix and the foaming action to take place. The closure 53 is removed from the nozzle 51 and the foamed product is then squeezed out through the nozzle 51. In a further modification the primary and secondary ingredients 17, 26 can be held separate until the point of dispensation so that the primary ingredient only comes into contact with the secondary ingredient as it passes through the nozzle 53.

Claims

1. A method of preparing a foamed beverage or a food product from a filled package (10) from a liquid primary ingredient (17) and air; said package (10) com-

- prising at least one wall (11) defining a chamber (12) for receiving the primary ingredient (17), an outlet (13) for dispensing the prepared product and air inlet (15) means for selectively enabling the ingress of air into the chamber (12), wherein the package (10) is resiliently deformable between an initial compressed position in which air is substantially evacuated from the package (10) and an expanded position, such that when the ingress of air is enabled the package (10) recovers from the compressed position to its normal position sucking air into the chamber (12) thereby mixing with the primary ingredient; **characterised in that** the method comprises the steps of opening the air inlet means (15) to allow the ingress of air into the chamber (12) such that the package (10) expands and sucks air into the chamber (12), wherein the air mixes with the primary ingredient (17) and effects foaming thereof, opening the outlet (13) and squeezing the package (10) to dispense the prepared product via the outlet (13).
2. A method as claimed in claim 1 in which the package (10) further comprises means (14) for selectively opening and closing the outlet (13).
 3. A method as claimed in claim 1 or claim 2 in which the air inlet means (15) of the package (10) comprise a one way valve in the at least one wall (11).
 4. A method as claimed in claim 1 or claim 2 in which the air inlet means (15) of the package (10) comprise a plurality of apertures in the at least one wall (11) of a size which allows the ingress of air into the chamber (12) but substantially prevents the egress of liquid from the chamber (12).
 5. A method as claimed in any one of the preceding claims in which the package (10) further comprises removable cover means for sealing the air inlet means (15).
 6. A method as claimed in claim 1 or claim 2 in which the outlet of the package (10) provides the air inlet means (15).
 7. A method as claimed in any one of the preceding claims in which the package (10) further comprises a device which assists foam generation.
 8. A method as claimed in claim 7 in which the device comprises a mesh web, ball or disc.
 9. A method as claimed in claim 7 or claim 8 in which the device is located in the chamber (12).
 10. A method as claimed in claim 7 or claim 8 in which the device is located in the outlet (13).

11. A method as claimed in claim 7 in which the device is a nozzle.
12. A method as claimed in claim 11 in which the nozzle is located in the outlet (13).
13. A method of manufacturing a package (10) for the preparation of a beverage or a food product from a liquid primary ingredient (17) and air, said package (10) comprising at least one wall defining a chamber (12) for receiving the primary ingredient (17), an outlet (13) for dispensing the prepared product and air inlet means (15) for selectively enabling the ingress of air into the chamber (12), wherein the package (10) is resiliently deformable between a normal expanded position and a compressed position, **characterised in that** the method comprises the steps of partially filling the chamber (12) with a primary ingredient (17), evacuating any air from the chamber (12) by compressing the package (10) such that air escapes from the outlet (13), and sealing the package (10).

25 Patentansprüche

1. Verfahren zum Zubereiten eines aufgeschäumten Getränks oder eines Lebensmittelprodukts aus einem gefüllten Behälter (10) aus einer flüssigen primären Zutat (17) und Luft; wobei der Behälter (10) wenigstens eine eine Kammer (12) zum Aufnehmen der primären Zutat (17) definierende Wand (11), einen Auslass (13) zum Abgeben des zubereiteten Produkts und Lufteinlassmittel (15) zum selektiven Erlauben des Eintretens von Luft in die Kammer (12) umfasst, wobei der Behälter (10) elastisch zwischen einer komprimierten Anfangs-Position, in welcher Luft im Wesentlichen aus dem Behälter (10) evakuiert ist, und einer ausgedehnten Position verformbar ist, so dass, wenn das Eintreten von Luft erlaubt ist, der Behälter (10) von der komprimierten Position in seine normale Position zurückkehrt, wobei Luft in die Kammer (12) eingesaugt wird, wobei sie mit der primären Zutat gemischt wird; **dadurch gekennzeichnet, dass** das Verfahren die Schritte eines Öffnens der Lufteinlassmittel (15) zum Erlauben des Eintretens von Luft in die Kammer (12), so dass der Behälter (10) sich ausdehnt und Luft in die Kammer (12) saugt, wobei sich die Luft mit der primären Zutat (17) mischt und ein Aufschäumen davon hervorruft, eines Öffnens des Auslasses (13) und eines Zusammenquetschens des Behälters (10) umfasst, um das zubereitete Produkt über den Auslass (13) abzugeben.
2. Verfahren nach Anspruch 1, wobei der Behälter (10) ferner Mittel (14) zum selektiven Öffnen und Schließen des Auslasses (13) umfasst.

3. Verfahren nach Anspruch 1 oder Anspruch 2, wobei die Lufteinlassmittel (15) des Behälters (10) ein Einweg-Ventil in der wenigstens einen Wand (11) umfassen.
4. Verfahren nach Anspruch 1 oder Anspruch 2, wobei die Lufteinlassmittel (15) des Behälters (10) eine Mehrzahl von Öffnungen in der wenigstens einen Wand (11) von einer Größe umfassen, welche das Eintreten von Luft in die Kammer (12) erlaubt, jedoch im Wesentlichen den Austritt von Flüssigkeit aus der Kammer (12) verhindert.
5. Verfahren nach einem der vorhergehenden Ansprüche, wobei der Behälter (10) ferner entfernbare Abdeckmittel zum Versiegeln der Lufteinlassmittel (15) umfasst.
6. Verfahren nach Anspruch 1 oder Anspruch 2, wobei der Auslass des Behälters (10) die Lufteinlassmittel (15) bereitstellt.
7. Verfahren nach einem der vorhergehenden Ansprüche, wobei der Behälter (10) ferner eine Vorrichtung umfasst, welche eine Schaumerzeugung unterstützt.
8. Verfahren nach Anspruch 7, wobei die Vorrichtung ein Maschengewebe, eine Kugel oder eine Scheibe umfasst.
9. Verfahren nach Anspruch 7 oder Anspruch 8, wobei die Vorrichtung in der Kammer (12) angeordnet ist.
10. Verfahren nach Anspruch 7 oder Anspruch 8, wobei die Vorrichtung in dem Auslass (13) angeordnet ist.
11. Verfahren nach Anspruch 7, wobei die Vorrichtung eine Düse ist.
12. Verfahren nach Anspruch 11, wobei die Düse in dem Auslass (13) angeordnet ist.
13. Verfahren zur Herstellung eines Behälters (10) zur Zubereitung eines Getränks oder eines Lebensmittelprodukts aus einer flüssigen primären Zutat (17) und Luft, wobei der Behälter (10) wenigstens eine eine Kammer (12) zum Aufnehmen der primären Zutat (17) definierende Wand, einen Auslass (13) zum Abgeben des zubereiteten Produkts und Lufteinlassmittel (15) zum selektiven Erlauben des Eintretens von Luft in in die Kammer (12) umfasst, wobei der Behälter (10) elastisch zwischen einer normalen ausgedehnten Position und einer komprimierten Position verformbar ist, **dadurch gekennzeichnet, dass** das Verfahren die Schritte eines teilweisen Füllens der Kammer (12) mit einer primären Zutat (17), ein Evakuieren von sämtlicher Luft aus der Kammer

(12) durch Komprimieren des Behälters (10), derart, dass Luft aus dem Auslass (13) entweicht und ein Versiegeln des Behälters (10) umfasst.

5

Revendications

1. Procédé de préparation d'une boisson mousseuse ou d'un produit alimentaire contenu(e) dans un emballage rempli (10) à partir d'un ingrédient primaire liquide (17) et de l'air ; ledit emballage (10) comprenant au moins une paroi (11) définissant une chambre (12) pour recevoir l'ingrédient primaire (17), une sortie (13) pour distribuer le produit préparé et un moyen d'admission d'air (15) pour permettre sélectivement l'entrée d'air dans la chambre (12), où l'emballage (10) est élastiquement déformable entre une position comprimée initiale dans laquelle l'air est essentiellement évacué de l'emballage (10) et une position déployée, de sorte que, lorsque l'entrée d'air est permise, l'emballage (10) reprenne sa position normale à partir de la position comprimée, aspirant de l'air dans la chambre (12) le mélangeant ainsi avec l'ingrédient primaire ;
caractérisé en ce que le procédé comprend les étapes consistant à ouvrir le moyen d'admission d'air (15) pour permettre l'entrée d'air dans la chambre (12) de sorte que l'emballage (10) se déploie et aspire de l'air dans la chambre (12), où l'air se mélange avec l'ingrédient primaire (17) et entraîne le mousage de celui-ci, à ouvrir la sortie (13) et à presser l'emballage (10) pour distribuer le produit préparé via la sortie (13).
2. Procédé tel que revendiqué dans la revendication 1, dans lequel l'emballage (10) comprend en outre un moyen (14) pour ouvrir et fermer sélectivement la sortie (13).
3. Procédé tel que revendiqué dans la revendication 1 ou 2, dans lequel le moyen d'admission d'air (15) de l'emballage (10) comprend un clapet de non-retour dans l'au moins une paroi (11).
4. Procédé tel que revendiqué dans la revendication 1 ou 2, dans lequel le moyen d'admission d'air (15) de l'emballage (10) comprend une pluralité d'ouvertures dans l'au moins une paroi (11) d'une taille qui permet l'entrée d'air dans la chambre (12) mais qui empêche essentiellement la sortie de liquide de la chambre (12).
5. Procédé tel que revendiqué dans l'une quelconque des revendications précédentes, dans lequel l'emballage (10) comprend en outre un moyen formant couvercle amovible pour sceller le moyen d'admission d'air (15).

6. Procédé tel que revendiqué dans la revendication 1 ou 2, dans lequel la sortie de l'emballage (10) fournit le moyen d'admission d'air (15).
7. Procédé tel que revendiqué dans l'une quelconque des revendications précédentes, dans lequel l'emballage (10) comprend en outre un dispositif qui facilite la génération de mousse. 5
8. Procédé tel que revendiqué dans la revendication 7, dans lequel le dispositif comprend une toile à mailles, une bille ou un disque. 10
9. Procédé tel que revendiqué dans la revendication 7 ou 8, dans lequel le dispositif est situé dans la chambre (12). 15
10. Procédé tel que revendiqué dans la revendication 7 ou 8, dans lequel le dispositif est situé dans la sortie (13). 20
11. Procédé tel que revendiqué dans la revendication 7, dans lequel le dispositif est une buse.
12. Procédé tel que revendiqué dans la revendication 11, dans lequel la buse est située dans la sortie (13). 25
13. Procédé de fabrication d'un emballage (10) pour la préparation d'une boisson ou d'un produit alimentaire à partir d'un ingrédient primaire liquide (17) et de l'air, ledit emballage (10) comprenant au moins une paroi définissant une chambre (12) pour recevoir l'ingrédient primaire (17), une sortie (13) pour distribuer le produit préparé et un moyen d'admission d'air (15) pour permettre sélectivement l'entrée d'air dans la chambre (12), où l'emballage (10) est élastiquement déformable entre une position déployée normale et une position comprimée, **caractérisé en ce que** le procédé comprend les étapes consistant à remplir partiellement la chambre (12) avec un ingrédient primaire (17), à évacuer tout l'air de la chambre (12) en comprimant l'emballage (10) de sorte que l'air s'échappe de la sortie (13), et à sceller l'emballage (10). 30
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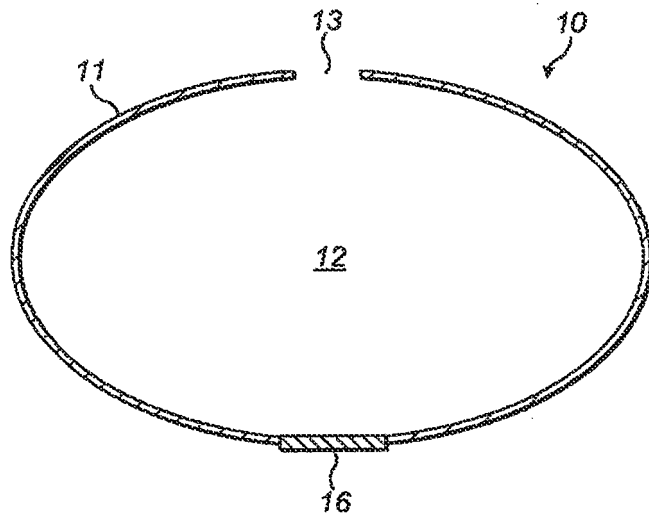


FIG. 1

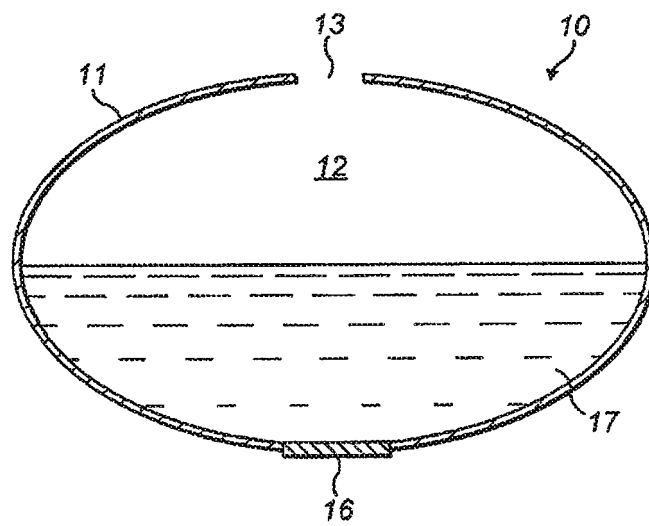


FIG. 2

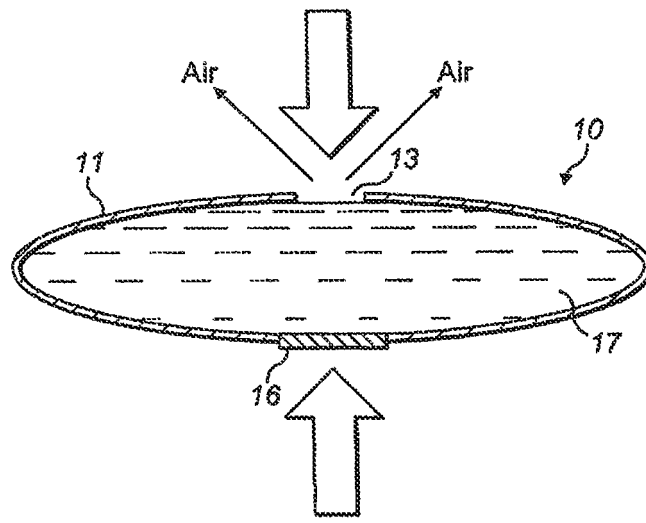


FIG. 3

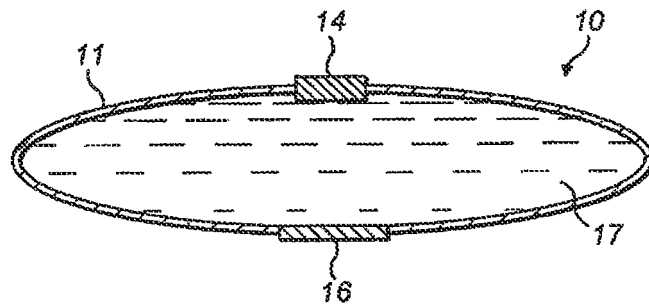


FIG. 4

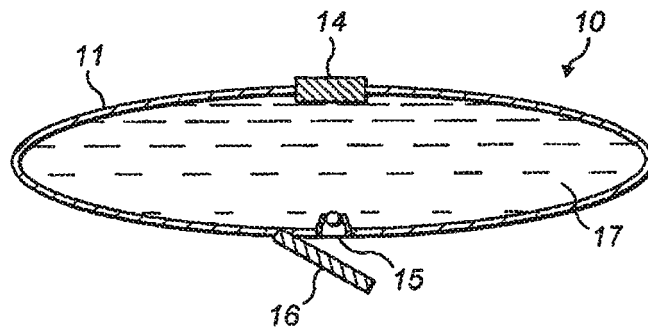


FIG. 5

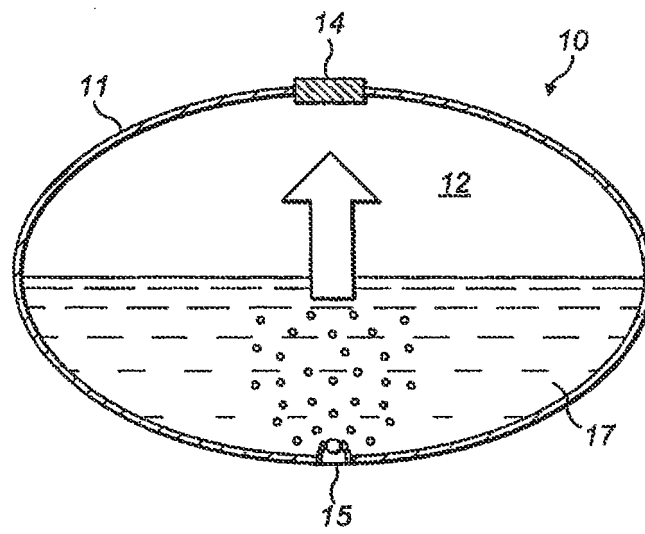


FIG. 6

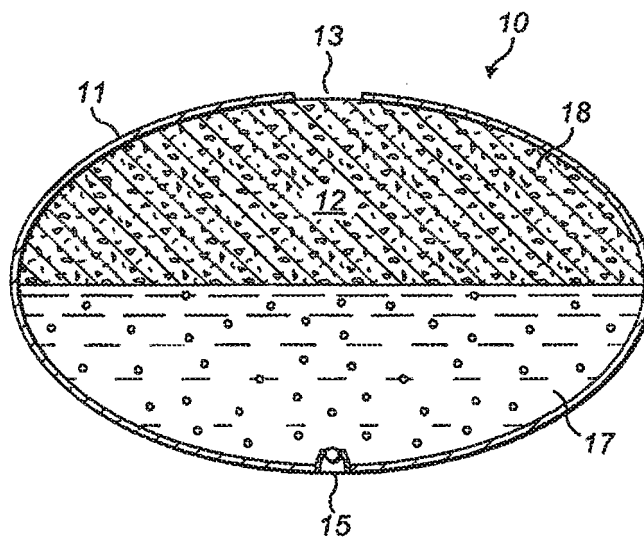


FIG. 7

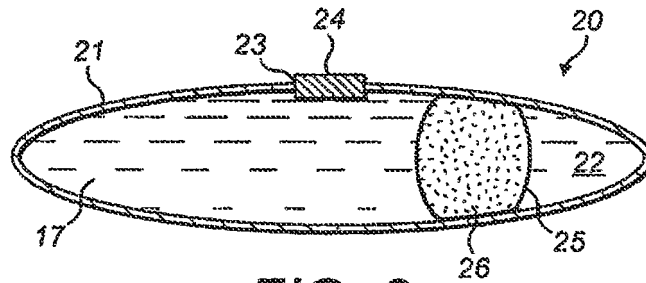


FIG. 8

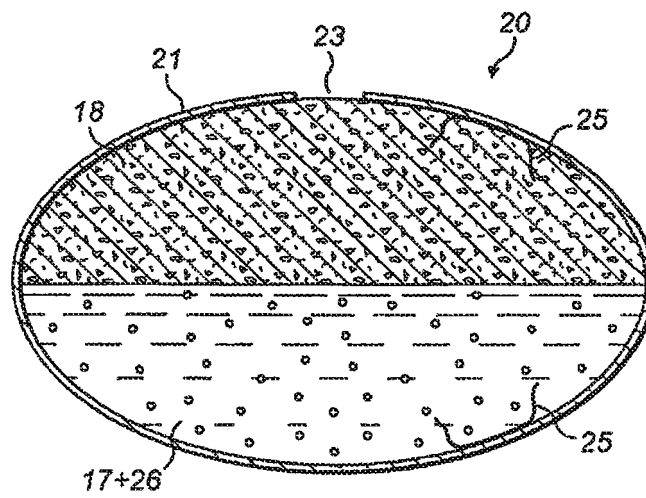


FIG. 9

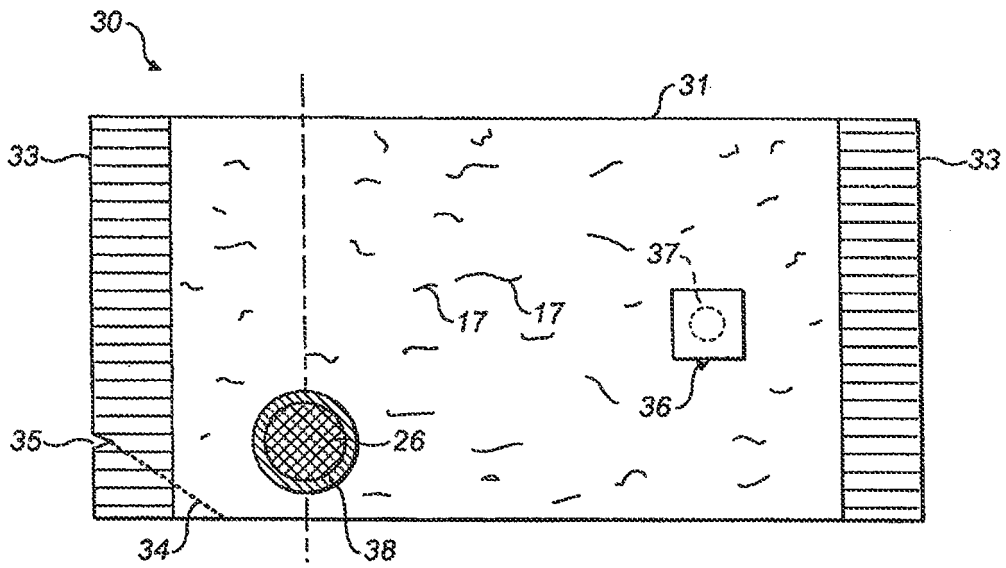


FIG. 10

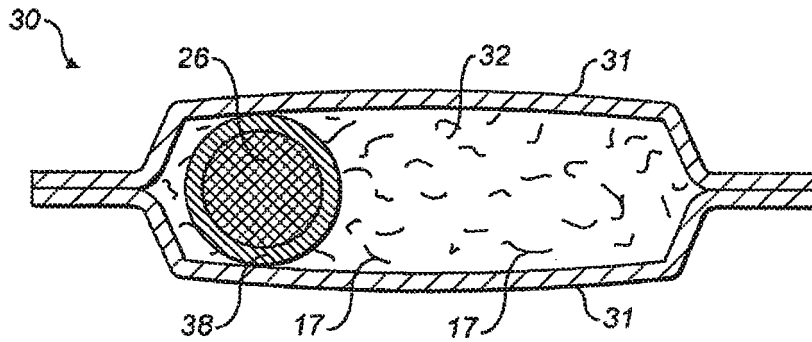


FIG. 11

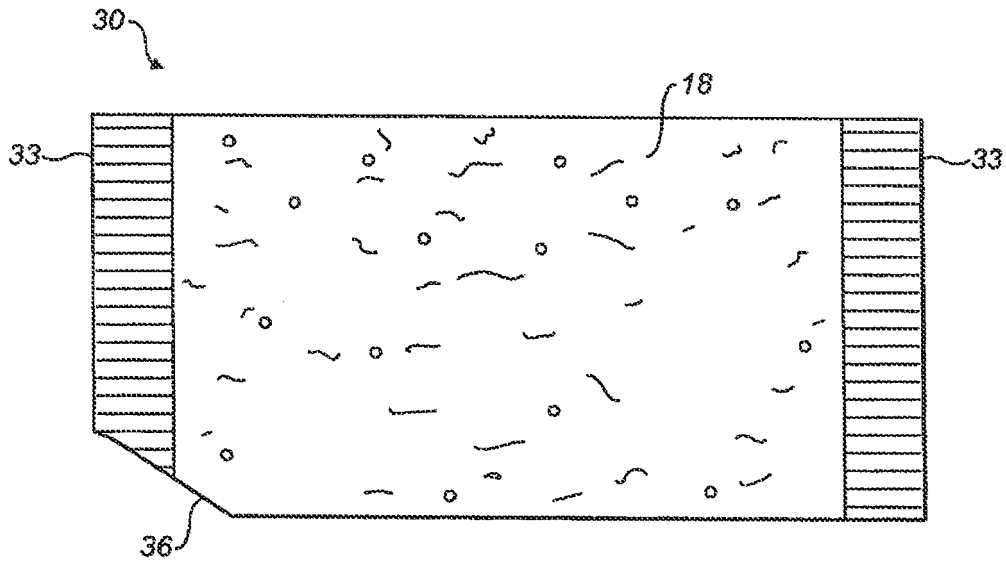


FIG. 12

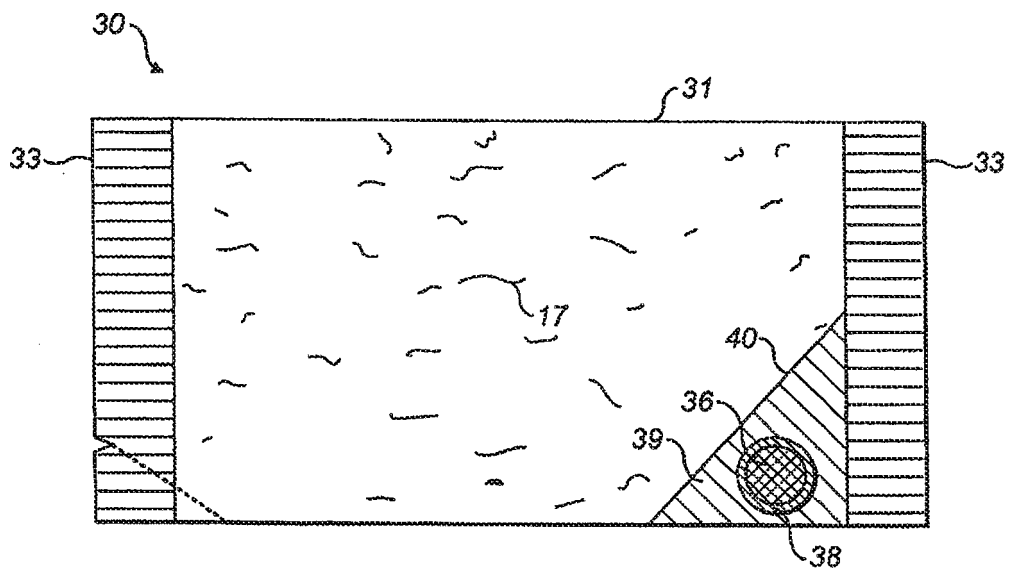


FIG. 13

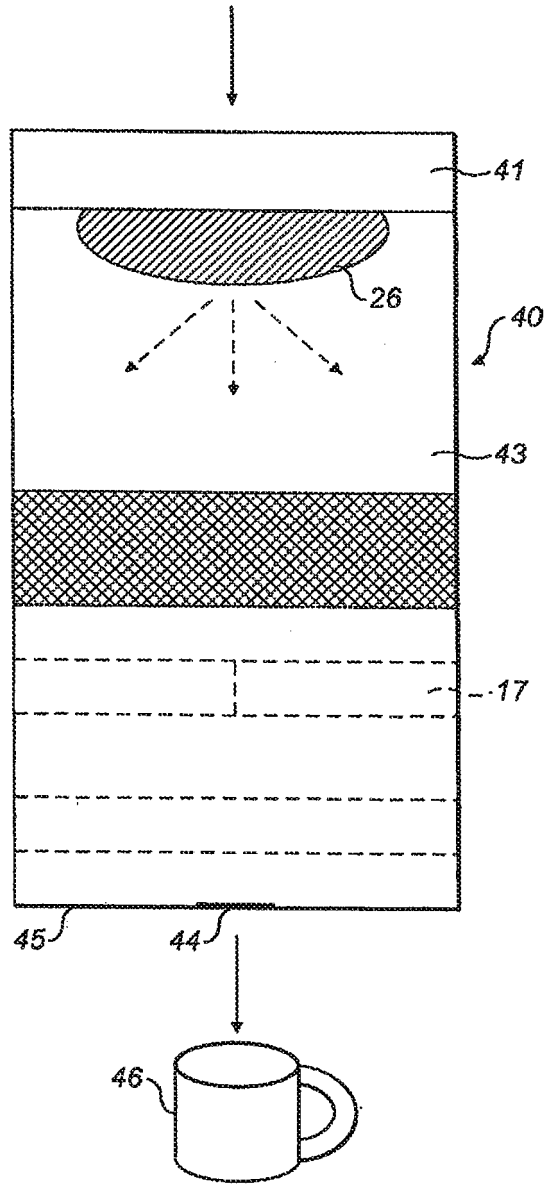


FIG. 14

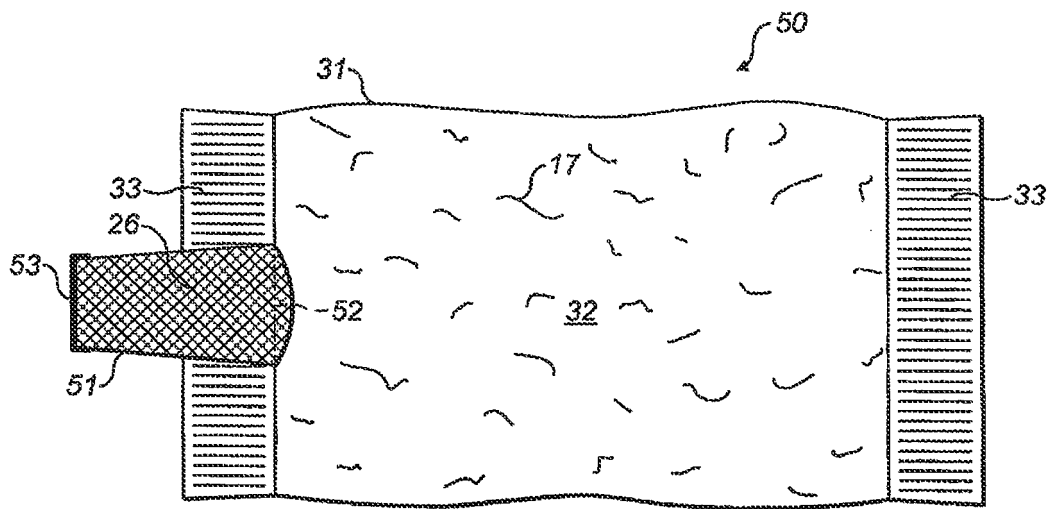


FIG. 15

REFERENCES CITED IN THE DESCRIPTION

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