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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

— *with international search report (Art. 21(3))*

(54) Title: KIT FOR CONTAINING AND DOSING A LIQUID

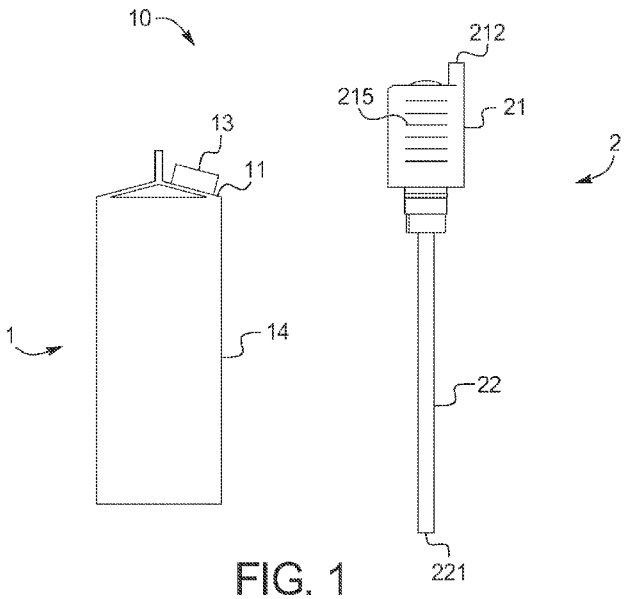


FIG. 1

(57) Abstract: Kit for containing and dosing a liquid, the kit comprising : - a container (1) for containing a liquid, said container comprising :. walls made of flexible material so as to be squeezable,. a top upper surface (11) presenting an opening (12),. a pour spout (13) having an annular flange, the bore of said spout being aligned with the opening (12), - a dosing device (2) for dosing the liquid, the dosing device comprising :. a measuring chamber (21) having a longitudinal upward wall, a transverse *top* wall presenting an opening (212) for dispensing measured liquid, and a transverse bottom wall,. a tube (22) extending through the transverse bottom wall of the measuring chamber, said tube having a lower end (221) extending out of the measuring chamber and an upper end (222) extending into the measuring chamber,. a member (23) for attaching the dosing device to the pour spout (13) of the container.

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KIT FOR CONTAINING AND DOSING A LIQUID

Field

The present invention relates to the manual dosing and dispensing of liquids in particular the manual dosing and dispensing of beverage concentrates for preparing beverages by dilution.

Background

It is known to prepare beverages by mixing a beverage concentrate with a diluent, usually water. In the area of out of home, the person in charge of the reparation of the beverage has to face the preparation of a large number of beverages, rapidly and with consistency. Yet the manual dosing does not satisfy the consistency criteria as the operator may vary the dose of concentrate from one dosing to another.

Beverage concentrates are often contained in gable top containers. Gable top containers are well known for use in containing flowable compositions and products. Perhaps the most well known gable top container is the common milk carton. Such containers are commonly used to contain and dispense all manner of liquids, powders and granulated products.

The use of a dosing or dispensing device in association with a flowable product for measuring an appropriate or desired amount of a given composition is also known. Further still, there are many examples in the container and packaging arts where threaded caps and closures have been specially designed to provide a dosing capability in addition to their closure function.

However, the only dosing device specifically designed for use in association with or storage on a gable top container is WO 03/004364 related to a kit including a dosing device and a gable top container, the dosing device comprising means for affixing the dosing device to a gable top container such that the device rests on an angled upper surface of the gable top container. This kit is not convenient for preparing a large number of beverages, rapidly and with consistency. The operator may drop the dosing device and dirty the bar or he may use the same dosing device for different beverage concentrates and cross-contaminate the beverages.

The object of the present invention is to propose a gable top container for preparing beverages that enable the rapid and consistent dosing of beverage concentrate.

Summary

According to a first aspect, the invention concerns a kit for containing and dosing a liquid, the kit comprising :

- a container for containing a liquid, said container comprising :
  . walls made of flexible material so as to be squeezable,
  . a top upper surface, said top upper surface presenting an opening,
  . a pour spout having an annular flange and the bore of said spout being aligned with the opening,
- a dosing device for dosing the liquid, the dosing device comprising :
  . a measuring chamber said chamber having a longitudinal upward wall, a transverse *top* wall presenting an opening for dispensing measured liquid and a transverse bottom wall,
  . a tube extending through the transverse bottom wall of the measuring chamber, said tube having a lower end extending out of the measuring chamber and an upper end extending into the measuring chamber,
  . a member for attaching the dosing device to the pour spout of the gable top container.

According to the preferred embodiment the container is a gable top container.

According to a second aspect, the invention concerns a method for assembling the elements of the hereabove described kit comprising the steps of :

- introducing the tube lower end extending out of the measuring chamber inside the annular flange of the pour spout of the container
- pushing the dosing device into the pour spout until the member for attaching the dosing device to the pour spout cooperates with the pour spout.

According to a third aspect, the invention concerns a metering dispensing assembly comprising :

- a container for containing a liquid, said container comprising walls made of flexible material so as to be squeezable and a top upper surface, said surface comprising a pour spout having an annular flange,
- a measuring chamber said chamber having a longitudinal upward wall, a transverse top wall presenting an opening for dispensing measured liquid and a transverse bottom wall,
- a tube extending through the transverse bottom wall of the chamber, said tube having a lower end extending in the container and an upper end extending into the measuring chamber.

According to the preferred embodiment the container is a gable top container.

According to a fourth aspect, the invention concerns a method for measuring and dispensing predetermined amounts of liquid by means of a metering dispensing assembly such as described hereabove, the method comprising :

- squeezing the container such that liquid in the container moves upwardly through the tube into the measuring chamber,
- continuing to squeeze the container until a desired amount of liquid is inside the measuring chamber,
- then turning the assembly upside down and dispensing the desired measured amount of liquid.

The dependent claims further define the difference aspects of the invention.

Brief description of the drawings

The characteristics and advantages of the invention will be better understood in relation to the following figures.

- Figure 1 is a view of the kit for containing and dosing a liquid according to the present invention.
- Figures 2a and 2b are front and side views of dosing device of the kit according to the present invention,
- Figure 2c is a section view of the dosing device of Figure 2b according to Section A-A.
- Figure 3a is a view of the kit during the first step of assembly of the gable top container and the dosing device.
- Figure 3b is a magnified view of the cooperation between the gable top container and the dosing device such as illustrated in Figure 3a.
- Figure 4a is a view of the metering dispensing assembly according to the present invention.
- Figure 4b is a side section view of the assembly of Figure 4a incorporating magnified views of particular details.
- Figure 5 illustrates the metering dispensing assembly during dispensing.

Detailed description of the drawings

Figure 1 illustrates a kit 10 for containing and dosing a liquid. The kit 10 firstly comprises a gable top container 1 for containing a liquid. The gable top container has at least

one angled top upper surface 11 said surface presenting an opening 12 (not illustrated in Figure 1 but identified in Figure 4b. This opening 12 is usually closed by a frangible seal. This frangible seal can be a frangible laminate material welded to the underside of the upper surface 11. The opening can also be closed by a removal cap. The container comprises a pour spout 13 having an annular flange and the bore of said spout is aligned with the opening 12. According to the preferred embodiment the gable top container 1 presents walls made of flexible material so as to be squeezable, preferably manually squeezable. For example the material is generally a paper carton w/ liner. Preferably the gable top container 1 presents a parallepiped core shape 14.

The kit 10 secondly comprises a dosing device 2 for dosing a liquid. As illustrated in Figures 1, 2a-2c, the dosing device comprises a measuring chamber 21 said chamber having a longitudinal upward wall, a transverse top wall presenting an opening 212 for dispensing measured liquid and a transverse bottom wall.

The dosing device also comprises a tube 22 extending through the transverse bottom wall 211 of the measuring chamber. This tube has a lower end 221 extending out of the measuring chamber and an upper end 222 extending into the measuring chamber 21.

The dosing device also comprises a member 23, 24 for attaching the dosing device to the pour spout 13 of the gable top container.

According to the preferred embodiment :

- the height H of the container 1,
- the slope (α in Figure 4b) of the gable top upper surface 11 and
- the length L of the tube

are set so that, when the dosing device is attached to the gable top container, the lower end 221 of the tube in the gable top container substantially reaches the corner 15 between the bottom wall 16 of the gable top container and the lateral wall 17 of the of the gable top container as illustrated in Figure 4b.

According to a particular embodiment the tube can be bent in the gable top container with its lower end still touching the corner 15 of the gable top container.

Preferably the member for attaching the dosing device 2 to the pour spout 13 of the gable top container is configured for preventing the removal of the dosing device from the gable top container once attached together. This feature avoids that, once the container is empty, the operator removes the measuring chamber from the container and uses it for another full container creating cross-contamination and contamination issues.

The member for attaching the dosing device 2 to the pour spout 13 of the gable top container comprises :

- a ring 23 surrounding the tube 22 under the transverse bottom wall 211 of the measuring chamber,
- at least two flexible tabs 24 attached to the ring 23 and configured for being slid in the annular flange of the pour spout 13.

The measuring chamber 21 can be provided with a plurality of markings 215 which correspond to volume of liquid to be dispensed.

Preferably the measuring chamber can comprise a vent hole 213 in its transverse top wall. This hole helps for evacuating air from the chamber during the dispensing of liquid.

According to a preferred embodiment the transverse top wall of the measuring chamber 21 of the dosing device comprises a dome portion 214 facing the upper end 222 of the tube. Preferably the distance between the dome portion 214 and the tube upper end 222 is at least equal to the internal diameter of the tube 22. This dome portion 214 avoids splashing and ejection of the liquid through the measuring chamber opening 212 when liquid is measured.

Preferably the measuring chamber opening 212 for dispensing measured liquid has a wide spout so that the liquid can be rapidly dispensed from the measuring chamber. In particular the section surface of the wide spout is greater than the section surface of the tube 22.

According to the preferred embodiment the liquid contained in the gable top container is a beverage concentrate.

The invention also concerns the method for assembling the elements of the hereabove kit and comprising the steps of :

- introducing the tube lower end 221 extending out of the measuring chamber inside the annular flange of the pour spout 13 of the gable top container,
- pushing the dosing device into the pour spout, as illustrated in Figures 3a and 3b, until the member for attaching the dosing device to the pour spout cooperates with the pour spout as illustrated in Figures 4a and 4b.

When the dosing device is pushed, the tube lower end 221 can break the frangible seal of the gable top container if such a seal is present.

For the kit illustrated in the figures when the ring 23 is introduced in the pour spout 13, the flexible tabs are compressed so as to fit in the spout and, when totally introduced inside, expand and avoid the removal of the dosing device from the gable top container.

The invention also concerns the metering dispensing assembly such as illustrated in Figures 4a, 4b and 5 and that can results from the assembly of the different elements of the kit such as described hereabove. comprises :

- a gable top container 1 for containing a liquid, said container having at least one angled top upper surface 11, said surface comprising a pour spout 13 having an annular flange,
- a measuring chamber 21 said chamber having a longitudinal upward wall, a transverse top wall presenting an opening 212 for dispensing measured liquid and a transverse bottom wall,
- a tube 22 extending through the transverse bottom wall of the chamber 21, said tube having a lower end 221 extending in the gable top container and an upper end 222 extending into the measuring chamber.

The gable top container, the tube and the measuring chamber of the metering dispensing assembly can present the same preferred embodiments as the corresponding element of the kit described hereabove. In particular :

- the height H of the container 1,
- the slope (α in Figure 4b) of the gable top upper surface 11 and
- the length L of the tube

are set so that, when the dosing device is attached to the gable top container, the lower end 221 of the tube in the gable top container reaches the corner 15 between the bottom wall 16 of the gable top container and the lateral wall 17 of the of the gable top container as illustrated in Figure 4b.

Preferably the liquid contained in the gable top container is a beverage concentrate.

Figure 5 illustrates the method for measuring and dispensing predetermined amounts of liquid by means of a metering dispensing assembly such as described in Figures 4a and 4b. The method consists first in squeezing the gable top container such that liquid in the container moves upwardly through the tube into the measuring chamber 21. This squeezing is usually made manually. During this squeezing step the assembly is substantially vertically hold that is such as illustrated in Figures 4a and 4b. The action of squeezing the gable top container is maintained until a desired amount of liquid is inside the measuring chamber 21, then squeezing is stopped. At this stage air is sucked in the tube and the squeezed gable top container comes back to its original shape. Finally the assembly is turned upside down so that the desired measured amount of liquid moved in the measuring chamber 21 is dispensed from the opening 212. As illustrates in Figure 5, due to the fact that the lower end 221 of the tube

reaches the corner 15 of the gable top container, no concentrate can flow through the tube during the step of emptying the measuring chamber.

The present invention presents the advantage of increasing operator's accuracy and speed of drink delivery. The profit margin is improved.

Another advantage of the invention is that it provides tamper proof properties and reduces the possibility of reuse of the measuring chamber in other gable top container.

Another advantage of the present invention is that the consumer is able to get a safer, consistent tasting drink while not having to wait.

CLAIMS

1. A kit (10) for containing and dosing a liquid, the kit comprising :

- a container (1) for containing a liquid, said container comprising :
  . walls made of flexible material so as to be squeezable,
  . a top upper surface (11), said top upper surface presenting an opening (12),
  . a pour spout (13) having an annular flange and the bore of said spout being aligned with the opening (12),
- a dosing device (2) for dosing the liquid, the dosing device comprising :
  . a measuring chamber (21) said chamber having a longitudinal upward wall, a transverse top wall presenting an opening (212) for dispensing measured liquid and a transverse bottom wall,
  . a tube (22) extending through the transverse bottom wall of the measuring chamber, said tube having a lower end (221) extending out of the measuring chamber and an upper end (222) extending into the measuring chamber,
  . a member () for attaching the dosing device to the pour spout (13) of the container.

2. A kit according to Claim 1, wherein the opening (12) is closed by a frangible seal.

3. A kit according to Claim 1 or 2, wherein the container is a gable top container (1) having at least one angled top upper surface (11), said surface comprising the opening (12).

4. A kit according to Claim 3, wherein the gable top container (1) presents a parallepiped core shape (14).

5. A kit according to Claim 3 or 4, wherein the height (H) of the container 1, the slope of the at least one gable top upper surface (11) and the length (L) of the tube are set/determined so that, when the dosing device is attached to the gable top container, the lower end (221) of the tube in the gable top container almost reaches the corner (15) between the bottom wall (16) of the gable top container and the lateral wall (17) of the of the gable top container.

6. A kit according to any one of the precedent claims, wherein the member for attaching the dosing device (2) to the pour spout (13) of the container is configured for preventing the removal of the dosing device from the container once attached together.

7. A kit according to any one of the precedent claims, wherein the member for attaching the dosing device (2) to the pour spout (13) of the container comprises :
- a ring (23) surrounding the tube (22) under the transverse bottom wall (211) of the measuring chamber,
- at least two flexible tabs (24) attached to the ring (23) and configured for being slid in the annular flange of the pour spout (13).

8. A kit according to any one of the precedent claims, wherein the measuring chamber (21) of the dosing device provides a plurality of markings which correspond to volume of liquid to be dispensed.

9. A kit according to any one of the precedent claims, wherein the measuring chamber (21) of the dosing device comprises a vent hole (213) in its transverse top wall.

10. A kit according to any one of the precedent claims, wherein the transverse top wall of the measuring chamber (21) of the dosing device comprises a dome portion (214) facing the upper end (222) of the tube.

11. A kit according to any one of the precedent claims, wherein the measuring chamber opening (212) for dispensing measured liquid has a wide spout.

12. A kit according to any one of the precedent claims, wherein the liquid contained in the container is a beverage concentrate.

13. A method for assembling the elements of the kit according to any one of Claims 1 to 12 comprising the steps of :
- introducing the tube lower end (221) extending out of the measuring chamber inside the annular flange of the pour spout (13) of the container,
- pushing the dosing device into the pour spout until the member for attaching the dosing device to the pour spout cooperates with the pour spout.

14. A metering dispensing assembly comprising :

- a container (1) for containing a liquid, said container comprising walls made of flexible material so as to be squeezable and a top upper surface (11) said top upper surface comprising a pour spout (13) having an annular flange,
- a measuring chamber (21) said chamber having a longitudinal upward wall, a transverse top wall presenting an opening (212) for dispensing measured liquid and a transverse bottom wall,
- a tube (22) extending through the transverse bottom wall of the chamber (21), said tube having a lower end (221) extending in the container and an upper end (222) extending into the measuring chamber.

15. A metering dispensing assembly according to the precedent claim, wherein the container is a gable top container (1) having at least one angled top upper surface (11), said surface comprising the opening (12).

16. A metering dispensing assembly according to the precedent claim, wherein the slope of the at least one gable top upper surface (11) and the length (L) of the tube are set/determined so that, when the dosing device is attached to the gable top container, the lower end (221) of the tube in the gable top container reaches the corner (15) between the bottom wall of the gable top container and the lateral wall of the of the gable top container.

17. A metering dispensing assembly according to any one of Claims 14 to 16, wherein the liquid contained in the gable top container is a beverage concentrate.

18. A method for measuring and dispensing predetermined amounts of liquid by means of a metering dispensing assembly according to any one of Claims 14 to 16, the method comprising :

- squeezing the container such that liquid in the container moves upwardly through the tube into the measuring chamber (21),
- continuing to squeeze the container until a desired amount of liquid is inside the measuring chamber (21), then
- turning the assembly upside down and dispensing the desired measured amount of liquid.

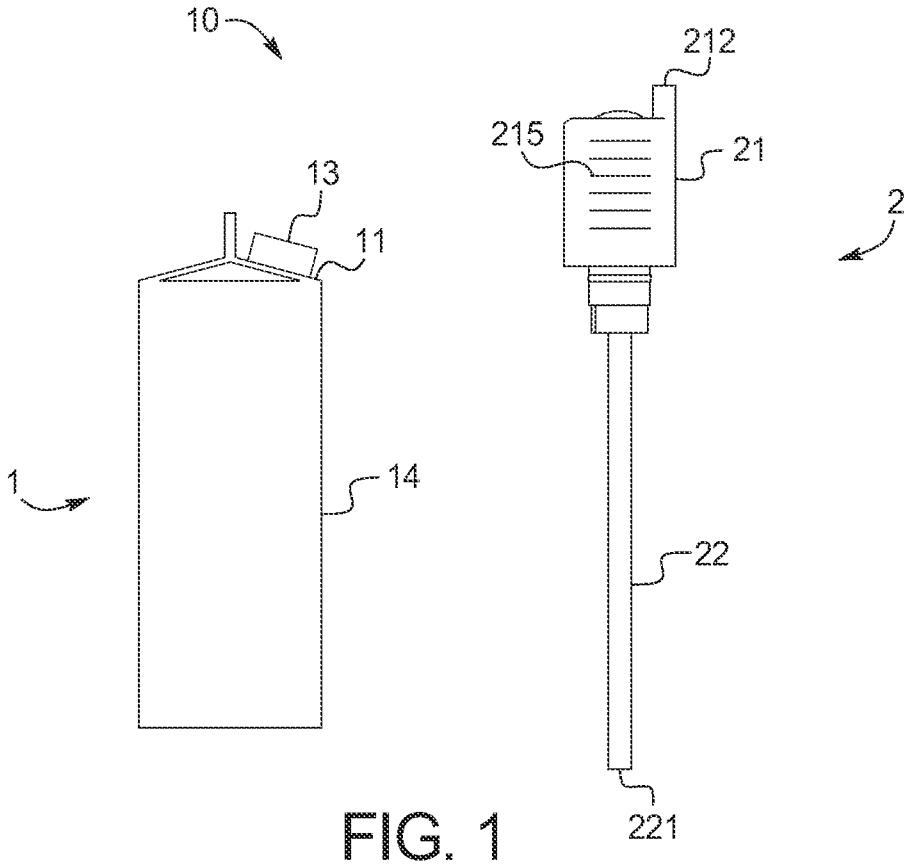


FIG. 1

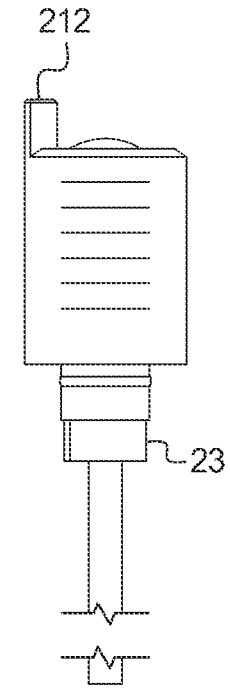


FIG. 2a

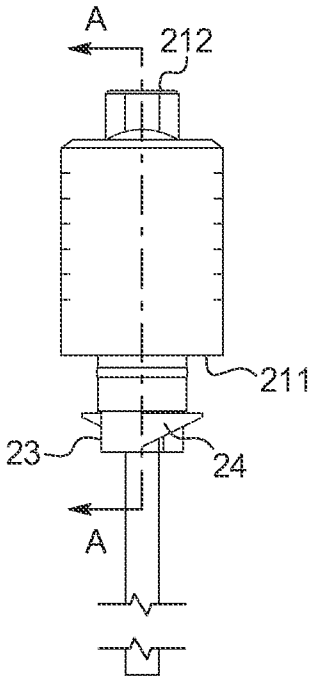


FIG. 2b

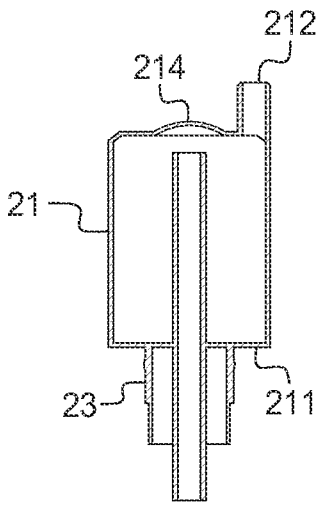


FIG. 2c

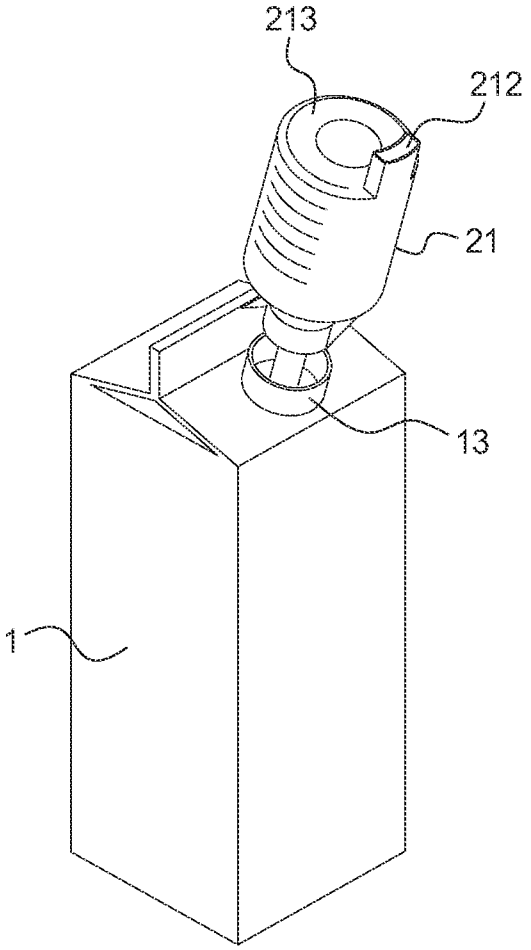


FIG. 3a

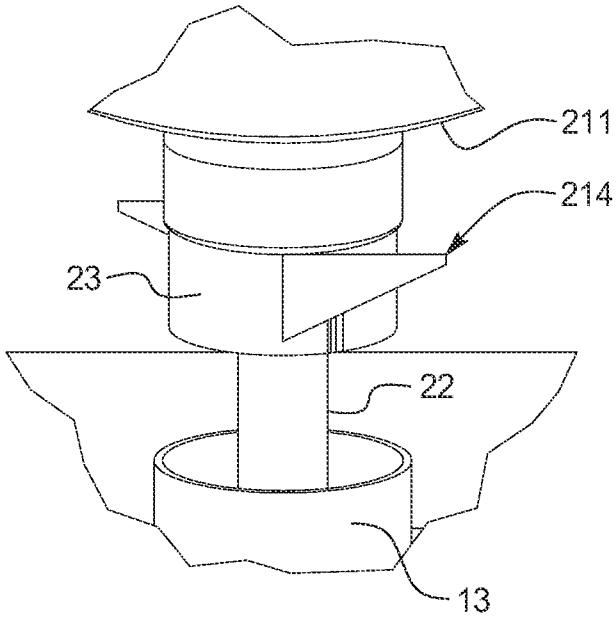


FIG. 3b

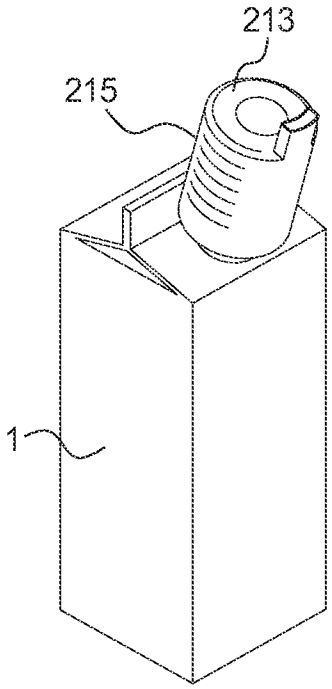


FIG. 4a

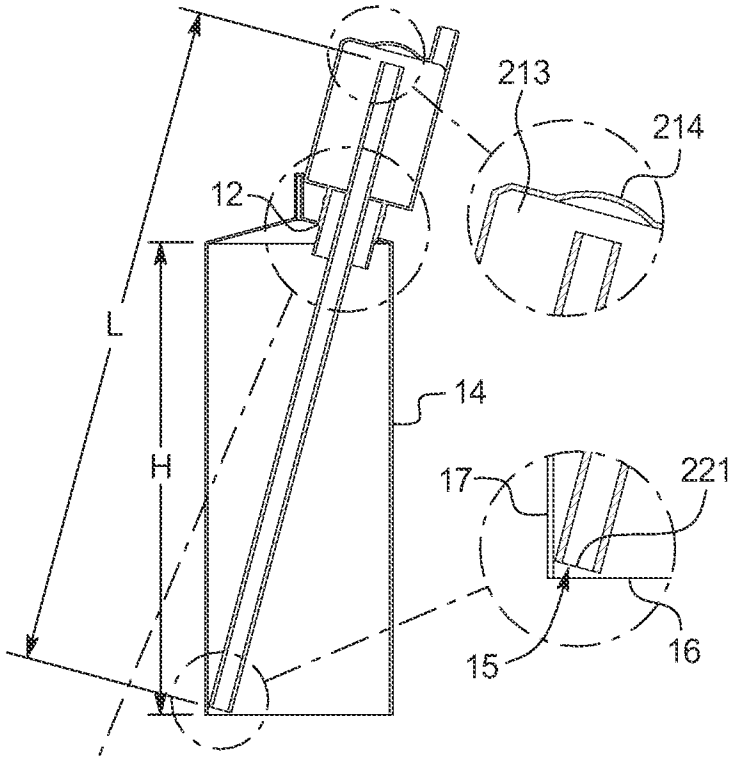
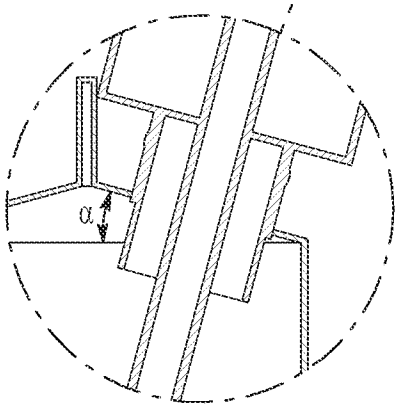


FIG. 4b



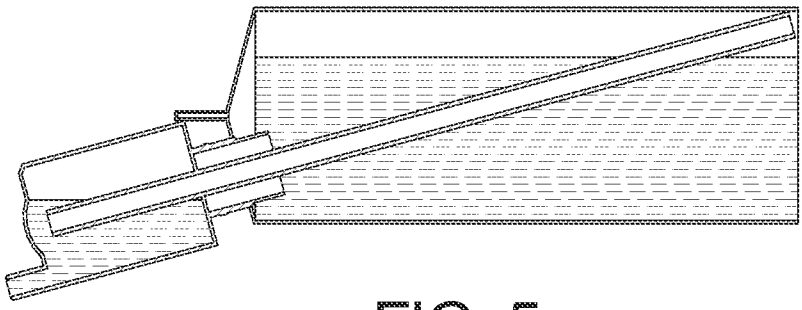


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/042662

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D5/06 B65D5/76 B65D41/26 G01F11/28
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D G01F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2005/056660 A1 (ANDERSON MARK L [US] ET AL) 17 March 2005 (2005-03-17) paragraph [0013] - paragraph [0056] figures 1-12	1,2, 8-14,18 3-5, 15-17

X Y	WO 99/60348 A1 (BACKER JAN DE [BE]) 25 November 1999 (1999-11-25) page 13, line 22 - page 16, line 33 figures 4-7,10-12	1,2, 8-14,18 3-5, 15-17

X	EP 0 087 016 A2 (WELLA AG [DE]) 31 August 1983 (1983-08-31) page 4 - page 8 figures 1-10	1,8-14, 18

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search	Date of mailing of the international search report
18 February 2013	24/04/2013

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Duc, Emmanuel

3

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/042662

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 03/004364 A1 (PROCTER & GAMBLE [US]) 16 January 2003 (2003-01-16) cited in the application the whole document	3-5, 15-17
Y	WO 2009/141389 A2 (ELOPAK SYSTEMS [CH]; FRANIC IVICA [AT]) 26 November 2009 (2009-11-26) the whole document	3-5, 15-17
Y	US 2006/237521 A1 (FLYNN ANNELIE [US]) 26 October 2006 (2006-10-26) figure 4	3-5, 15-17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/042662

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-5, 8-18

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5, 8-18

A kit wherein the container is a gable top container having at least one angled top upper surface, said surface comprising the opening

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2. claims: 6, 7

A kit wherein the member for attaching the dosing device to the pour spout of the container is configured for preventing the removal of the dosing device from the container once attached together, the member for attaching the dosing device to the pour spout of the container comprising :
- a ring surrounding the tube under the transverse bottom wall of the measuring chamber,
- at least two flexible tabs attached to the ring and configured for being slid in the annular flange of the pour spout.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2012/042662

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