

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 April 2006 (27.04.2006)

PCT

(10) International Publication Number
WO 2006/043247 A1

(51) International Patent Classification:
B67D 3/04 (2006.01)

(21) International Application Number:
PCT/IB2005/053429

(22) International Filing Date: 19 October 2005 (19.10.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2004/5624 21 October 2004 (21.10.2004) ZA

(71) Applicant and

(72) Inventor: **BEUKES, Johannes** [ZA/ZA]; 213 Oak Avenue, Ferndale, 2194 Randburg (ZA).

(74) Agent: **D M KISCH INC**; P O Box 781218, 2146 SANDTON (ZA).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

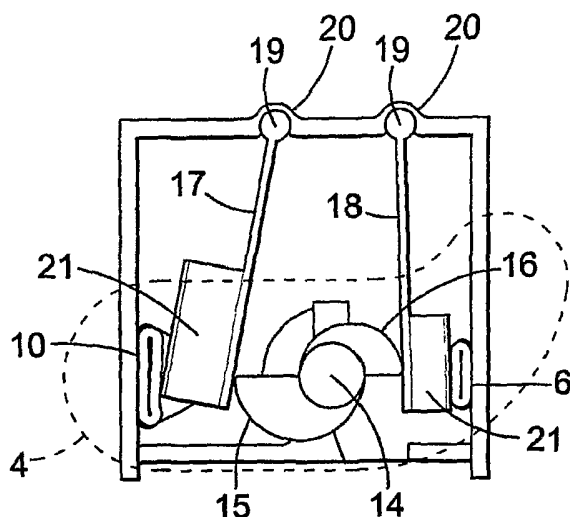
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TAP MECHANISM FOR A BEVERAGE DISPENSER



(57) Abstract: This invention relates to a tap mechanism for a beverage dispenser and more particularly, but not exclusively, to a soda dispenser. The tap mechanism for a beverage dispenser comprises at least one substantially elongate closure member hingedly connected to a first support of the tap mechanism at one end and terminating in a closure protrusion at a free end, the free end of the closure member being movable on a cam on a tap shaft towards a second support of the tap mechanism to close a pipe between the second support and the closure protrusion and movable to a second position in which the cam is turned so that the protrusion is further away from the second support than in the first position.

WO 2006/043247 A1

TAP MECHANISM FOR A BEVERAGE DISPENSER

FIELD OF THE INVENTION

- 5 This invention relates to a tap mechanism for a beverage dispenser and more particularly, but not exclusively, to a soda dispenser.

BACKGROUND TO THE INVENTION

- 10 Beverage dispensers are well known and widely used.

- United States patent number 5,791,517 entitled "BEVERAGE DISPENSER DEVICE" discloses a refrigerator door mounted beverage dispenser device for use with bottled beverages to control beverage flow during dispensing from a bottle. The device comprises a generally cylindrical housing engaging the mouth of the bottle, an operating lever pivotally attached to the housing and moveable between upper and lower positions, a self-closing flow valve and valve actuator operable with the operating lever to open the flow valve by applying pressure thereto while it is in either in the upper or lower positions, to enable controlled beverage flow. In a preferred embodiment, the beverage dispenser device itself is threaded onto the beverage bottle, sealing it closed. A retractable lever is arranged to displace a ball valve and enable liquid beverage flow into a cup. When combined with a bottle holder mounted on a refrigerator door, the bottle is inverted and the beverage dispenser device becomes a self-service bar providing a door-mounted beverage dispensing system, offering quick and easy access without opening the door. The advantage of the inventive design over conventional beverage dispenser is a significant savings in electrical energy, since the refrigerator door need not be opened, and escape of cool air from the refrigerator is prevented.

30 OBJECT OF THE INVENTION

It is an object of this invention to provide a tap mechanism for a beverage dispenser.

SUMMARY OF THE INVENTION

In accordance with this invention there is provided a tap mechanism for a beverage dispenser including at least one substantially elongate closure member hingedly
5 connected to a first support of the tap mechanism at one end and terminating in a closure protrusion at a free end, the free end of the closure member being movable on a cam on a tap shaft towards a second support of the tap mechanism to close a pipe between the second support and the closure protrusion and movable to a second position in which the cam is turned so that the protrusion is further away from
10 the second support than in the first position.

The protrusion is moved to the second position under force of gravity when the cam is turned away from the closure member.

15 The protrusion is alternatively moved to the second position under force from resilience of the pipe when the cam is turned away from the closure member.

The first support is a top wall of a housing for the tap mechanism.

20 The second support is a side wall of a housing for the tap mechanism.

The closure member terminates in an elongate cylindrical rod at its top end and which rod is located in a complementary slot in the first support to provide free hinged connection.

25

The slot is parallel to a side wall of a housing of the tap mechanism.

The protrusion on the closure member is tapered towards a free end thereof.

The tap shaft includes a tap handle to facilitate rotation of the shaft.

5 This invention extends to a beverage dispenser comprising a base unit having at least one recess for receiving a bottle holder therein, the bottle holder having a screw threaded socket at an operatively lower end thereof for receiving a screw threaded bottle top therein and a removable cover for closing the bottle in the bottle holder.

10 There is provided for the base unit to be a plastics molded unit.

A further feature of the invention provides for the base unit to be stand alone unit.

15 The bottle holder is cylindrical in cross-section and the bottle holder cover is complementary shaped to fit on an upper open end of the bottle holder to close a bottle in the bottle holder.

Further features of the invention provide for the socket to include at least one opening in an operatively bottom wall thereof through which beverage in the bottle may be dispensed; for a dispensing pipe to be secured over the opening; for the
20 dispenser pipe to terminate in a dispenser opening operatively underneath a dispenser protrusion at a lower end of the bottle holder.

25 A tap mechanism is provided to control the dispensing of a beverage from the bottle.

Further features of the invention provide for the tap mechanism to include a tap handle on the lower end of the bottle holder; the tap handle to be attached to a shaft extending through an opening on the dispenser protrusion into a tap mechanism housing.

30 A breather pipe extends from the dispenser opening of the dispenser protrusion through the tap mechanism housing and through a second opening at the bottom wall of the socket into a bottle secured in the bottle holder so that the breather pipe terminates above a body of liquid in the bottle.

35

The tap mechanism housing includes two closure members, each closure member is an elongate shaft hingedly attached to an operatively upper wall of the tap mechanism housing and each shaft terminates in a closure protrusion which protrudes towards opposite side walls of the tap mechanism housing.

5

The breather pipe and the dispenser pipe extend through the tap mechanism housing so that they are located between a sidewall and a closure protrusion.

Two cams on the tap shaft are located between the lower ends of the closure shafts to that rotation of the shafts forces the closure protrusions onto breather and dispenser pipes respectively thereby closing them against the side walls of the tap mechanism housing.

10

These and other features of the invention are described in more detail below.

15 BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention is described below by way of example only and with reference to the accompanying drawings in which:

20

Figure 1 shows a perspective view of the beverage dispenser;

25

Figure 2 shows an exploded view of a bottle holder, a bottle holder cover, a tap handle, a tap mechanism, a bottle and part of a breather pipe of the beverage dispenser;

Figure 3 shows a under side perspective view of the components of figure 2 when they are put together;

30

Figure 4 shows a cross sectional side view of the beverage dispenser;

Figure 5 shows part of the cross sectional side view of figure 4;

35

Figure 6 shows a cross sectional end view of the tap mechanism with the tap mechanism in a closed position; and

Figure 7 shows the same view as figure 6 but with the tap mechanism in an open position.

5

DETAILED DESCRIPTION OF THE DRAWINGS

10

With reference to the drawings, a beverage dispenser is generally indicated by reference number 1.

The beverage dispenser includes a base unit 2 having 3 recesses for receiving bottle holders 8 therein. Each recess defines an elongate open topped cylinder having an open side that forms a slot to receive a dispensing protrusion on each bottle holder 8. Each bottle holder 8 includes a socket 11 which has an internal screw thread for receiving a screw headed bottle top therein. The socket 11 is located towards a lower end inside the bottle holder 8. A complementary shaped cover 3 is locatable on the bottle holder 8 and is used to cover the bottle received in the bottle holder 8.

The base unit 2 is made of a moulded plastics material as is the bottle holder 8 and bottle holder cover 3. The base unit forms a stand-alone unit which can be moved to a convenient location where a beverage dispenser is required.

25

The bottle holder 8 and bottle holder cover 3 are cylindrical in cross section. The socket 11 includes a first opening in a bottom wall thereof over which the dispenser pipe 10 is located. The dispenser pipe 10 terminates in a dispensing opening of the dispensing protrusion 12 located at the lower end of the bottle holder 8. The dispenser pipe passes through a tap mechanism as is more fully described below.

30

A breather pipe extends from the dispensing opening 13 of the dispensing protrusion 12 through the tap mechanism 7 and through a second opening in the bottom wall of the socket 11 and terminates inside the bottle above a top surface of a body of beverage in the bottle.

35

The tap mechanism is provided to control the dispensing of beverage from the bottle. The tap mechanism consists of a tap handle 4 attached to a tap shaft 14 which extends through an opening in the dispensing protrusion 12 so that the tap handle 4 is located outside the bottle holder on the dispensing protrusion 12. The shaft
5 extends into a tap mechanism housing which, in this embodiment, is a hollow cubical housing with the tap shaft extending through a front end-wall of the housing and terminating in a blind bore in the back end-wall of the housing 7.

Two closure members 17 and 18 are located inside the tap housing and are freely
10 hingedly connected to a first support in the form of a top wall of the tap mechanism housing. The closure members are elongate shafts terminating in rounded elongate end portions or rods 19 at their top ends which are located in complementary shaped slots 20 in the top wall of the tap mechanism housing. The slots are spaced apart and parallel to each other as well as parallel to the second supports of the tap
15 mechanism or side walls of the housing. At their lower or free ends, the shafts 17 and 18 terminate in side-way extending protrusions 21 which extend in opposite directions towards the side walls of the tap mechanism housing 7. The protrusions are tapered towards their outer ends so that they terminate in sharp edges. Two
20 cams, 15 and 16, on the shaft 14 push the closure shafts 17 and 18 outwards towards the sidewalls of the tap mechanism housing 7 when the shaft 14 is rotated in a first direction.

The dispenser pipe 10 and breather pipe 6 extend through the tap mechanism housing 7 so that they are located inside the sidewalls and between the sidewalls of
25 the tap mechanism housing and the protrusions 21 on the shafts 17 and 18. Rotation of the tap handle in the first direction thus forces the protrusions 21 against the pipes 10 and 6 thus closing the pipes as is shown in figure 5.

When the handle is rotated in the opposite second direction, the resilience of pipes
30 10 and 6 and/or force of gravity cause them to open against the closure shafts 17 and 18 which are now free to move away from the pipes in that the cams are no longer pushing against them.

In use, a beverage bottle full of beverage is placed upright on a surface and the
35 bottle holder is placed upside down over the beverage bottle and screwed onto the beverage bottle so that the screw thread of the bottle top engages with the screw thread in the socket 11. The breather pipe 6 now extends into the bottle and the tap

handle 4 is turned to close off the breather and dispenser pipes 6 and 10. The bottle holder can now be turned right side up and inserted in the base unit 2 so that the bottle is located upside down in the base unit 2. The bottle holder cover 3 is placed over the bottle and onto the bottle holder 8 to cover the bottle.

5

The tap may now be opened to dispense beverage from the bottle to be collected in a receptacle such as a glass held under the dispensing opening of the dispenser protrusion 12. The breather pipe 6 prevents air locks in the bottle and allows ambient air to move from the dispenser opening through the pipe and into the bottle above the top level of the body of beverage inside the bottle. The breather pipe 6 extends high into the bottle to prevent any beverage from escaping through the breather pipe.

It is envisaged that the beverage dispenser described herein will be convenient to use in any convenient location for the dispensing of beverage such as soft or any other drinks container in a bottle having a complementary screw-threaded top to that of the screw thread in the socket 11. Ice may also be included inbetween the walls of the bottle holder and bottle cover and the outside of the bottle to cool the beverage inside the bottle.

The invention is not limited to the precise details as described herein and it will be appreciated by those skilled in the art that various other embodiments are possible without departing from the scope of the invention.

CLAIMS

1. A tap mechanism for a beverage dispenser including at least one substantially elongate closure member hingedly connected to a first support of the tap mechanism at one end and terminating in a closure protrusion at a free end, the free end of the closure member being movable on a cam on a tap shaft towards a second support of the tap mechanism to close a pipe between the second support and the closure protrusion and movable to a second position in which the cam is turned so that the protrusion is further away from the second support than in the first position.
2. A tap mechanism as claimed in claim 1 in which the protrusion is moved to the second position under force of gravity when the cam is turned away from the closure member.
3. A tap mechanism as claimed in claim 1 in which the protrusion is moved to the second position under force from resilience of the pipe when the cam is turned away from the closure member.
4. A tap mechanism as claimed in any one of the preceding claims in which the first support is a top wall of a housing for the tap mechanism.
5. A tap mechanism as claimed in any one of the preceding claims in which the second support is a side wall of a housing for the tap mechanism.
6. A tap mechanism as claimed in any one of the preceding claims in which the closure member terminates in an elongate cylindrical rod at its top end and which rod is located in a complementary slot in the first support to provide free hinged connection.

7. A tap mechanism as claimed in claim 6 in which the slot is parallel to a side wall of a housing of the tap mechanism.
8. A tap mechanism as claimed in any one of the preceding claims in which the protrusion is tapered towards a free end thereof.
9. A tap mechanism as claimed in any one of the preceding claims in which the tap shaft includes a tap handle to facilitate rotation of the shaft.

1/6

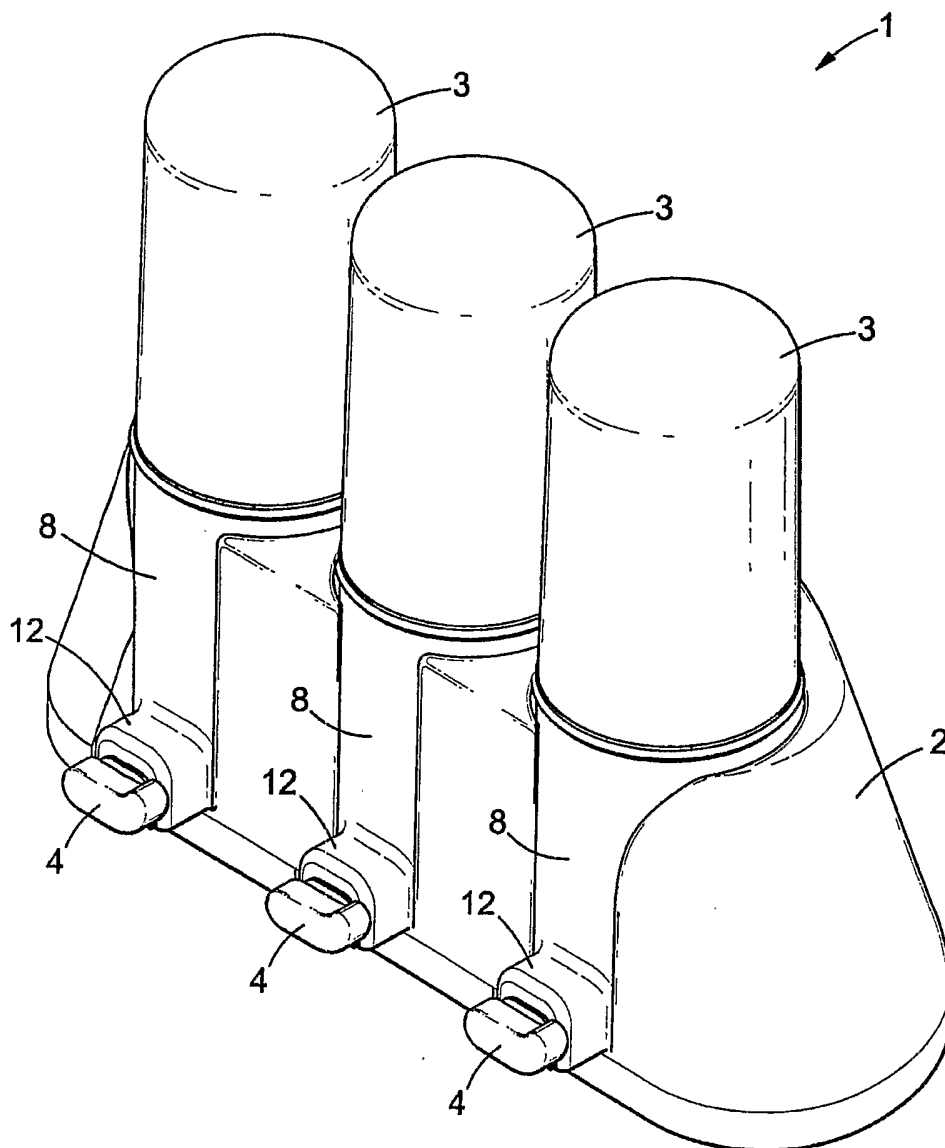
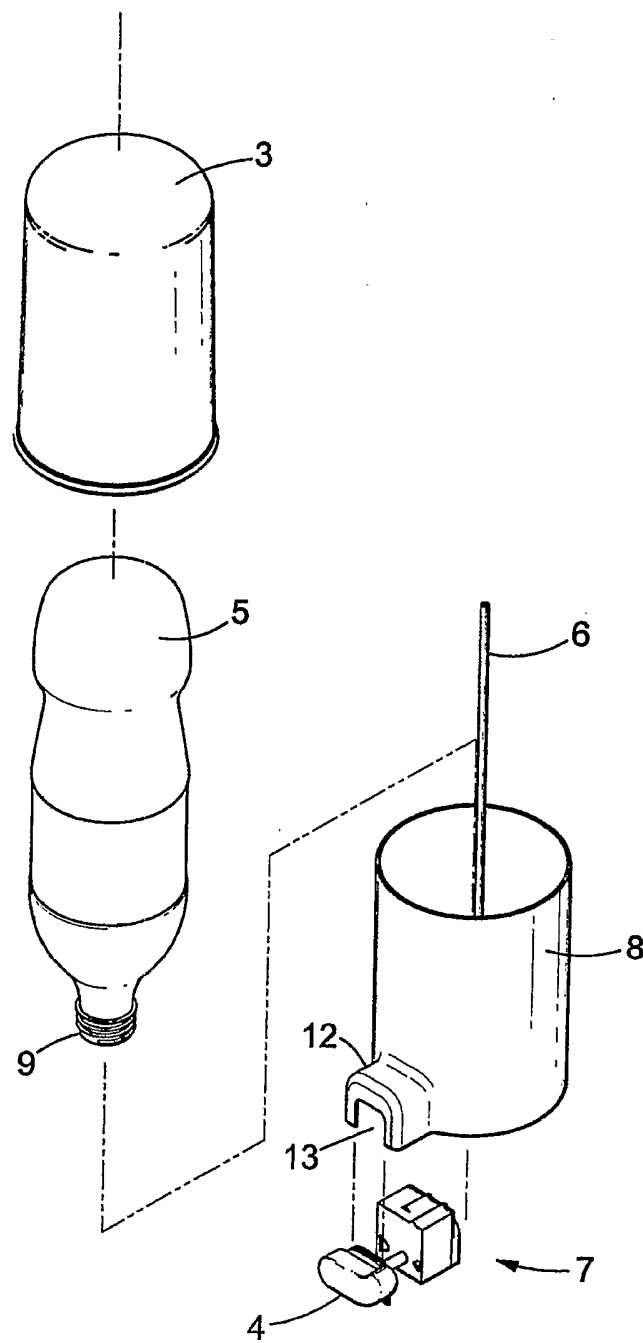


FIGURE 1

2/6

FIGURE 2

3/6

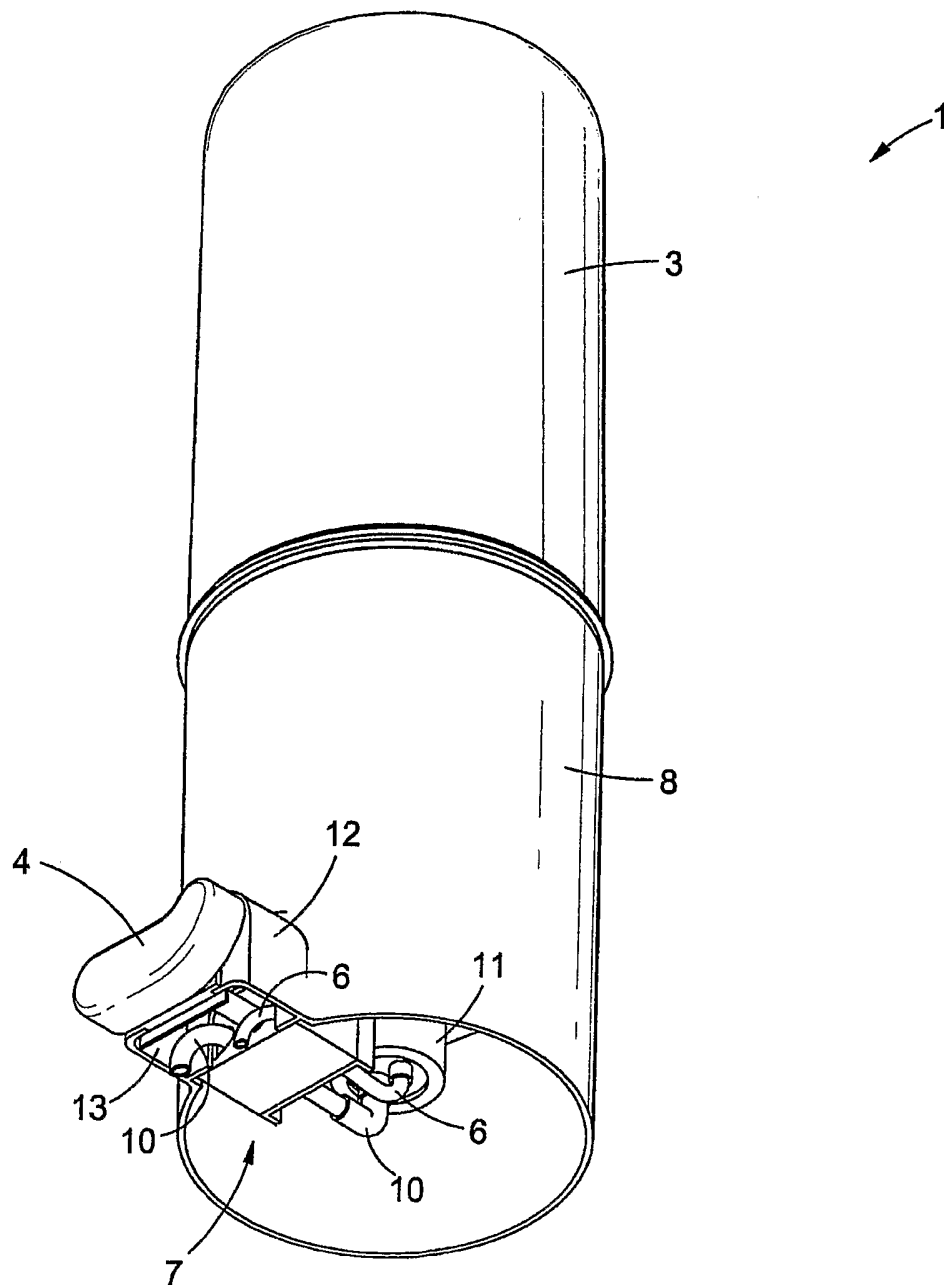


FIGURE 3

4/6

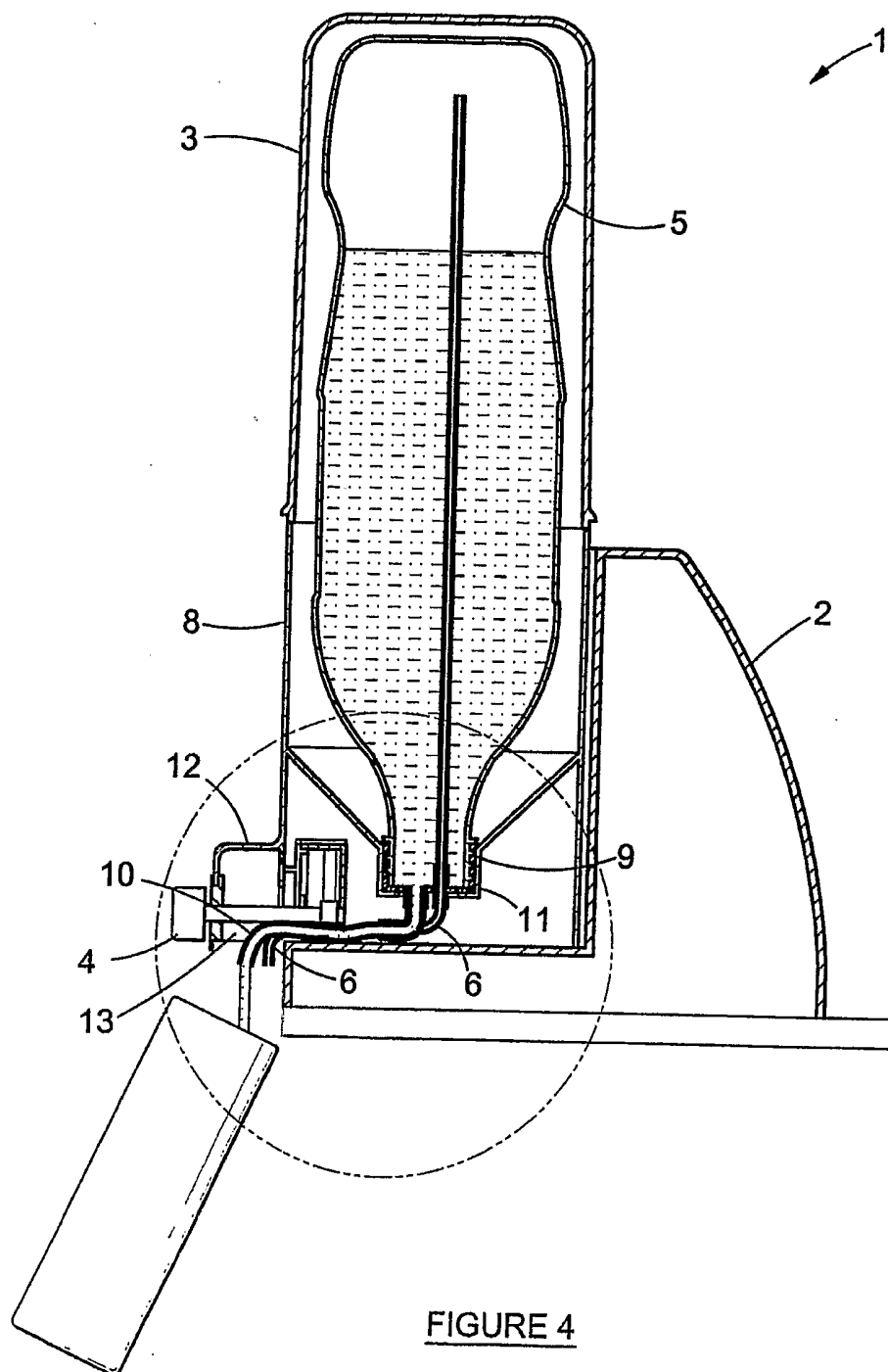


FIGURE 4

6/6

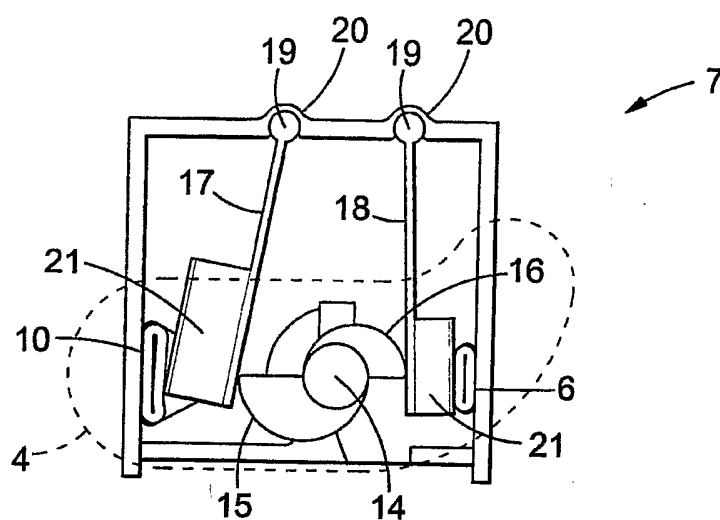


FIGURE 6

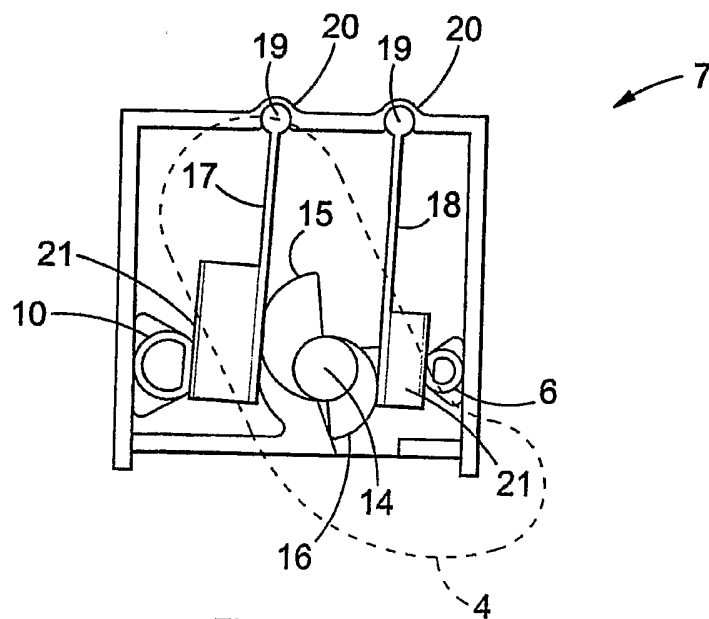


FIGURE 7

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2005/053429

A. CLASSIFICATION OF SUBJECT MATTER
B67D3/04

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)
B67D F16K

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 770 606 A (LESAGE PHILIPPE) 7 May 1999 (1999-05-07) page 11, line 4 - line 20; figure 7 -----	1
A	CA 974 145 A1 (EMCO LIMITED) 9 September 1975 (1975-09-09) column 4, line 21 - line 50; figures 2,3 -----	1
A	US 4 269 333 A (NAKAI ET AL) 26 May 1981 (1981-05-26) -----	
A	US 4 061 142 A (TUTTLE ET AL) 6 December 1977 (1977-12-06) -----	

☐ Further documents are listed in the continuation of Box C.

☒ 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
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

6 February 2006

Date of mailing of the international search report

17/02/2006

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Mueller, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2005/053429

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2770606	A	07-05-1999	AU 9355098 A	24-05-1999
			CA 2311289 A1	14-05-1999
			DE 69802711 D1	10-01-2002
			DE 69802711 T2	10-04-2003
			EP 1027278 A1	16-08-2000
			ES 2169556 T3	01-07-2002
			WO 9923029 A1	14-05-1999
			PT 1027278 T	31-05-2002
CA 974145	A1	09-09-1975	DE 2452680 A1	28-05-1975
US 4269333	A	26-05-1981	AU 521043 B2	11-03-1982
			AU 3841978 A	31-01-1980
			CA 1093515 A1	13-01-1981
			DE 2834074 A1	01-03-1979
			GB 2001933 A	14-02-1979
US 4061142	A	06-12-1977	NONE	