(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 325 134 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
25.05.2011 Bulletin 2011/21

(51) Int Cl.:
B67D 3/00 *(2006.01)* ***B67D 3/02*** *(2006.01)*

(21) Application number: **09176857.2**

(22) Date of filing: **24.11.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(71) Applicants:
- **Ancher, Charles Jacques**
  2351 CS Leiderdorp (NL)
- **Ancher, Gilbert Alexander**
  2353 EM Leiderdorp (NL)

(72) Inventors:
- **Ancher, Charles Jacques**
  2351 CS Leiderdorp (NL)
- **Ancher, Gilbert Alexander**
  2353 EM Leiderdorp (NL)

(74) Representative: **Feenstra, Louw et al**
De Vries & Metman
Overschietstraat 180
1062 XK Amsterdam (NL)

(54) **Beverage dispenser**

(57) An apparatus (1) for dispensing chilled beverage is disclosed comprising: a display cabinet (2) defining an enclosed volume (3); at least one holder (14, 16) for holding at least one bottle (13) containing a beverage within the enclosed volume; a refrigerator (19) for chilling the enclosed volume of the cabinet and the at least one bottle received therein; and at least one dispenser (20) for dispensing beverage from a bottle, individually connectable to individual ones of the at least one bottle. The at least one holder is configured to hold the at least one bottle in an inverted position. The at least one dispenser is configured to dispense beverage on demand from a bottle connected to said dispenser under the influence of gravity.

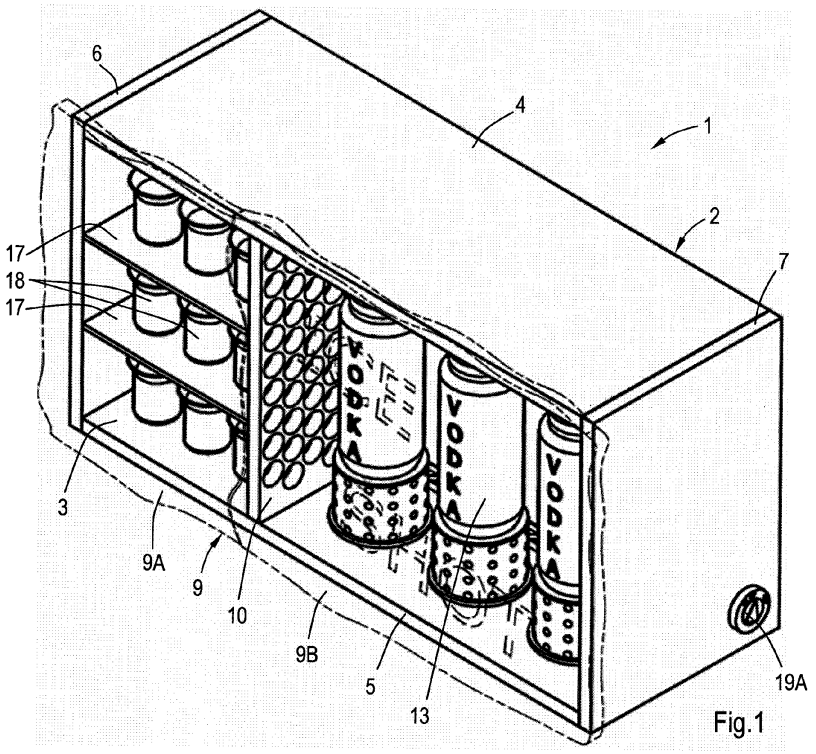


Fig.1

EP 2 325 134 A1

Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of dispensing chilled beverages.

BACKGROUND

[0002] Certain beverages, in particular alcoholic beverages such as vodka, gin, liquors and herb liquors are commonly served chilled with serving temperatures near or preferably significantly below zero degrees Celsius. To achieve low temperatures the beverages may be served with water ice cubes, which dilute the beverage, preventing their use with beverages to be consumed pure, and which tend to bring the temperature of the beverage at or close to zero degrees Celsius, preventing their use with beverages to be consumed colder. Further, the beverages tend be stored in containers in a refrigerator or freezer, to be taken out thereof for serving. This hinders advertising the product by employing its distinctive visual characteristics such as colour, brand name, logo, original bottle shape, etc. Displaying a bottle or an advertisement at room temperature for a beverage that is to be consumed chilled reduces the efficiency of the advertisement, and serving the beverage from another source (e.g. a chilled container or bottle) than the one that is put on display may be objected to by some consumers and/or producers.

[0003] For serving a beverage under controlled conditions, US 6,557,369 relates to an apparatus for preserving and dispensing wine or champagne. The apparatus provides a housing having a container support for holding wine or champagne bottles, a plurality of removable stoppers for insertion in the bottles, a nitrogen generator for generating a nitrogen rich gas from air, a cooling system for cooling certain bottles and dispensers for providing wine or champagne from the bottles to a user. The stoppers include a nitrogen line and a supply line. The nitrogen line communicates nitrogen rich gas into the bottles and the supply line communicates wine or champagne from the bottles to the dispensers.

[0004] Such apparatus is highly complex with a large number of parts. The apparatus provides a long path for the liquid between each bottle and the associated dispenser, which causes losses and is difficult to clean. Further, the machinery affects the appearance of the bottles, reducing their advertising value. Since the moving parts in the stoppers may get frozen stuck, the apparatus is unsuitable for sub-zero temperatures.

[0005] US 5,494,195 provides a machine for dispensing a chilled alcoholic beverage which provides cooling to the beverage while using a thermoelectric cooling means enclosed within a housing. Beverage is received in a manifold within the housing and a beverage faucet is mounted on the outer surface of the housing. The housing is of a size to be placed on a countertop or bar. Beverage is supplied to the cooling tank from bottles invertibly and visibly mounted on the housing.

[0006] Such device is complex and takes up valuable countertop space. Further, the contents of the bottles are mixed in the manifold. If the machine is to be operated for serving a pure product, a plurality of bottles (three in the shown embodiments) of the product should be opened at the same time.

[0007] WO 2007/135243 relates to a dispenser for dispensing cooled alcoholic drinks. The dispenser comprises a alcoholic drink container, a cooler for cooling the alcoholic drink, a display container for displaying the served alcoholic drink, a pump for circulating alcoholic drink from the alcoholic drink container through the cooler to the display container and back to the alcoholic drink container, and a dispensing device connected to alcoholic drink circulation for dispensing a drink. The display container may have the shape of, or be, an original bottle of the drink.

[0008] In use, the display container may become ice-covered from the atmosphere. This may cause water spills and obscure distinctive marks or advertisements of, on or in the display container. Further, the circulation of the drink requires a complex system holding a significant volume of the drink and reduces the effect of the cooling effort.

[0009] There is thus a desire for an improved apparatus for dispensing cooled beverages.

SUMMARY

[0010] An apparatus for dispensing chilled beverage is provided herein. The apparatus comprises a display cabinet defining an enclosed volume, at least one holder for holding at least one bottle containing a beverage within the enclosed volume, a refrigerator for chilling the enclosed volume of the cabinet and the at least one bottle received therein, and at least one dispenser for dispensing beverage from a bottle, individually connectable to individual ones of the at least one bottle. The at least one holder is configured to hold the at least one bottle in an inverted position. The at least one dispenser is configured to dispense beverage on demand from a bottle connected to it under the influence of gravity.

[0011] In the apparatus, at least one bottle may be held and its contents chilled, to provide a supply of chilled beverage. The bottle(s) being held in inverted position and the dispensers being configured to dispense beverage under the influence of gravity obviates complex supply systems and facilitates operation. Individually connecting the dispensers and the bottles allows serving pure drinks from a single bottle. An apparatus comprising plural dispensers configured to hold plural bottles facilitates serving different beverages at chilled temperatures.

[0012] In an aspect at least one dispenser may be configured to dispense a metered quantity of the beverage to be dispensed, so as to prevent too large measures or short-serving the consumer.

[0013] The dispenser may comprise a valved metering chamber which is arranged at least one of within and in direct thermal contact with the enclosed volume of the cabinet. A metering chamber provides a reliable measure of the quantity to be dispensed. If the metering chamber is visible to the consumer a sense of reliability and value for money may be conveyed. Thermal contact of the metering chambering to the enclosed volume ensures providing a supply of chilled beverage at the desired temperature.

[0014] The dispenser may at least one of receive and hold the bottle for additional stability. The dispenser and the holder may form an integrated whole. Other holding portions and/or means may be provided as well.

[0015] For increasing advertisement value, at least one dispenser and/or at least one holder may comprise at least one light source configured to couple light into a bottle connected with the dispenser such that said bottle and/or the beverage contained therein acts as a light guide for at least a portion of the light from said one or more light sources.

[0016] The cabinet may comprise at least one holder for one or more serving utensils, e.g. glasses, within at least a portion of the enclosed volume, to allow serving the beverage at a desired temperature without risking it to be heated or further chilled by the serving utensils.

[0017] At least a portion of the cabinet may be shaped for an advertisement function, e.g. as an ice block or ice cube.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The invention will hereafter be more fully explained with reference to the drawings showing an embodiment of the invention by way of example.

[0019] It is noted that the drawings are schematic, not necessarily to scale and that details that are not required for understanding the present invention may have been omitted. Further, elements that are at least substantially identical or that perform an at least substantially identical function are denoted by the same numeral.

Fig. 1 is a perspective view of an apparatus for dispensing chilled beverage;

Fig. 2 is a front view, partially broken away, of the apparatus of Fig. 1;

Fig. 3 is a schematic cross-sectional view of the apparatus of Figs. 1 and 2 in the plane III-III indicated in Fig. 2.

DETAILED DESCRIPTION OF EMBODIMENTS

[0020] The figures show an apparatus 1 for dispensing chilled beverages, e.g. vodka. The apparatus 1 comprises a display cabinet 2 defining an enclosed volume 3. Here, the cabinet comprises a top wall 4, a bottom wall 5, a left side wall 6, a right side wall 7, an optional rear wall 8 and a front wall 9, which is divided in a plurality of doors 9A, 9B. Within the volume 3 of the cabinet 2 optional walls 10 and 11 are arranged, dividing the volume 3 in a first portion 3A, a second portion 3B and third portion 3C. More or less (partial) walls to sub-divide the volume into portions may also be provided. One or more walls 4-11 may be thermally insulated, e.g. double walled and/or comprise double glass, and different portions of the interior volume may be maintained at different temperatures. In the shown embodiment, the wall 10 is not insulated and comprises a plurality of optional holes 12 so that the first and second portions 3A, 3B are in direct communication and may maintain the same temperature.

[0021] In the first volume 3A a plurality of holders for holding a bottle 13 containing a beverage are provided. The shown holders comprise as a first portion a sleeve 14 with apertures 15 and as an optional second portion a mushroom-shaped stopper 16, but different holders may be provided. The holders are configured to hold the bottles 13 in an inverted position; the sleeve 14 is configured to receive and hold the neck portion of the bottle 13 and the stopper 16 is resilient or springloaded to press down onto the bottom of the bottle 13 and to press it into the sleeve 14. In stead of a stopper 16 no second portion, a clamp at least partially around the bottle 13, or any other holding device may be provided.

[0022] In the second volume 3B several optional shelves 17 are provided between the walls 6 and 10 to serve as holders for serving utensils such as the shown glasses 18, stirrers, chilling utensils, etc.

[0023] In the third volume 3C, hidden from view by the wall 11, a refrigerator 19 is provided for chilling the enclosed volume 3 of the cabinet 2 with the bottles 13 and other objects received in the volume 3 (in particular volumes 3A, 3B). The refrigerator 19 is configured to chill the interior volume 3A, 3B of the cabinet 2 to a desired temperature close to or below zero degrees Celsius, e.g. controllable with a thermostat 19A coupled with the refrigerator, which thermostat 19A may carry a number of preferred settings such as 7 °C, 0 °C, -5 °C, -10 °C and/or -17 °C or markings like "whisky", "herb liquor" and/or "vodka".

[0024] The apparatus 1 may be provided with a refrigerator any suitable type and the refrigerator may chill the volume 3 in any way. In an embodiment (not shown), one or more refrigerators 19 may be arranged partly or entirely outside of the enclosed volume 3 of the cabinet 2. Rear wall 8 may then be partially or entirely absent.

[0025] The apparatus 1 comprises dispensers 20 individually connectable to an individual bottle 13 for dispensing from a spout 21 beverage from that bottle 13. The dispensers 20 are arranged partially within the sleeves 14 and extend through the bottom wall 5 of the cabinet 2, enveloped by a deformable portion 22, 22A here a resilient folded cuff 22, 22A (the cuff 22 is shown in full and two cuffs 22A are indicated in phantom in Fig. 2; in Fig. 3 only cuff 22 is shown). Thus, the dispensers 20 are arranged partially within and, inter alia by virtue of the holes 15 in the sleeves 14, in direct thermal contact

with the enclosed volume 3 of the cabinet 2. The cuff 22, 22A serves to insulate the dispenser 20 from the atmosphere (in particular thermal and humidity insulation) outside the cabinet 2. A cuff 22, 22A may be at least partially insulated and/or multilayered.

[0026] The dispensers 20 comprise a connector for connecting to the opening of the bottle 13 in a liquid tight, preferably also gas tight manner. The connector may comprise a screw connection and/or a tight-fitting at least partially resilient cap, e.g. a metal or plastic cap with a sleeve or O-ring of natural or synthetic rubber or the like. The connector or the entire dispenser 20 may be separable from the apparatus 1 and connectable to a bottle 13 outside and/or away from of the apparatus. Once connected, a bottle 13 and a dispenser (connector) may then be arranged as one assembly into the apparatus 1 for use. The cuff 22, 22A is preferably configured to tightly fit the spout 21, e.g. by having a resilient or flexible orifice of slightly smaller inner size or diameter than the outer size or diameter of the spout 21, so as to prevent condensed or leaked liquid collected in the cuff 22, 22A from dripping along the spout 21. A connection of the spout 21 and the cuff 22, 22A may also be fixed.

[0027] The dispensers 20 are configured to dispense beverage on demand from the bottle 13 connected to the dispenser 20. For operating a dispenser 20, one or more couplers may be provided inside or outside the cuff 22, 22A. In the shown embodiment a number of (here: four) rods 23 are provided extending inside the cuff 22 substantially symmetrically from a portion of the dispenser 20 so far that (the rim of) a glass 18 or other container can abut one or more of these rods 23 while said glass 18 is arrangeable with respect to the spout 21 to receive at least part of the liquid to be dispensed. Upon pressing the rods 23 upwards, e.g. with a glass 18 a valve is opened within the dispenser 20 and the liquid flows from the bottle 13 under the influence of gravity from the spout 21. Dispensers of such type are commonly referred to as non-drip dispensers. The stopper 16 may be configured to withstand the force to operate the dispenser 20 and assist maintaining the bottle 13 in place.

[0028] A dispenser 20 may be configured to dispense a metered quantity of the beverage, for which it may comprise a valved metering chamber (not shown). The apparatus may comprise one or more counters for counting dispenses or more in general the amount of beverage dispensed, e.g. for administrative or fiscal reasons. A counter is preferably provided per dispenser 20. In case a portion of the dispenser 20 is arranged within the interior volume 3 of the cabinet 2 and is desired to be visible, a portion of the cuff 22, 22A may be substantially transparent. Alternatively, a metering chamber and/or a counter may be arranged outside of the enclosed volume 3, in which case it is advantageously provided with one or more multi-layered portions, e.g. comprising double walls and/or double glass, for thermal insulation of its contents.

[0029] One or more walls 4-8 and/or the front wall 9 of the cabinet 2 may be formed and/or marked for advertisement purposes. In the shown embodiment, the front wall 9 extends beyond the perimeter of the cabinet 2 defined by the top, bottom and side walls 4-7 to allow a free-form shape. The front wall 9 may be wholly or partially transparent or translucent to show at least a portion of the interior of the cabinet 2 and the objects (13, 18) therein. Preferably at least a portion of the wall 9 is or looks like frosted glass or ice, possibly by using of a sticker or other means, such that the apparatus 1 resembles an ice cube or iceberg from at least one viewing angle to convey the message that the beverages stored within and to be dispensed from the apparatus 1 are chilled. One or more walls 4-8 may also be partially or wholly translucent or transparent and/or formed, e.g. marked, coloured, embossed and/or otherwise partially or wholly structured for advertisement purposes. In an embodiment the apparatus 1 may be configured to resemble an ice cube from substantially all viewing angles. The apparatus 1 may further carry a brand name, logo or other image or message 24.

[0030] The interior volume 3A, 3B of the cabinet may be accessed via the doors 9A, 9B in the front wall 9, e.g. for taking, storing or exchanging a bottle 13 and/or a serving utensil such as a glass 18.

[0031] The apparatus may comprise at least one draining system for collecting and draining liquid such as spilled beverage and/or water which has condensed on an interior surface of the cabinet 2 or a bottle 13, e.g. as a consequence of opening a door 9A, 9B. In the shown embodiment, a draining system comprises a receptacle portion such as a funnel 25 in the sleeve 14, a tube 26 and a gutter 27, which may exit in a storage receptacle for intermediate storage (not shown) and/or conveniently in a further drainage or sewer system otherwise present. Further and/or other drainage systems may be provided. The funnel 25 may comprise or be a resilient part, to fit closely and/or substantially liquid tight around the neck portion of the bottle 13. In appropriate embodiments, the funnel 25 may be configured to allow a separable (connector of) the dispenser 20 to pass

[0032] One or more portions of the cabinet 2, including inside the interior volume 3, may comprise one or more light sources for attracting attention and/or advertisement. One or more light sources may be directed lights, e.g. spot lights, so as to highlight one or more particular bottles.

[0033] In an embodiment, the sleeve 14 and/or stopper 16 may comprise one or more light sources 28, e.g. LEDs. Such light source may be configured to direct light predominantly into an at least partly translucent or transparent bottle 13 and/or the contents thereof, which may give the bottle 13 and/or its contents a glowing appearance. This may be facilitated by providing the sleeve 14 and/or the stopper 16 with one or more light sources 28 arranged at or near a position where the bottle 13 is (expected to be) in close contact with the sleeve 14 or the stopper 16.

[0034] A suitable arrangement for illuminating a bottle 13 and/or its contents comprises a lens and may be pro-

vided with a deformable or resilient portion, e.g. a natural or synthetic rubber O-ring, for maintaining a predetermined separation and/or orientation of (a lens of) the light source 28 and a surface portion of the bottle 13. Also the dispenser 20 may comprise a light source, possibly as described before, configured to couple light into a bottle 13 connected with the dispenser 20 such that the light from said light source is guided by and through said bottle 13 and/or the beverage contained therein such that the bottle and/or the contents thereof act as a light guide, e.g. by using total internal reflection within at least a portion of the bottle 13 and/or its contents. A thus illuminated bottle will emit light itself, providing a pleasing and dramatic display. Markings on the bottle 13, e.g. an embossed or engraved brand name or logo on the bottle 13, may enhance the outcoupling of light from the bottle 13 and thus be made to stand out extra crisply. The illumination effect depends inter alia on the colour of the liquid, the colour of the light, the level of the liquid within the bottle 13 and the clarity of the liquid, e.g. sugar crystals and/or other particles in a liquid may provide a playful effect, ultra-violet illumination may cause luminescence of the beverage and/or the bottle and enhance a notion of coldness of the beverage. Visible blue light may also indicate a low temperature or coldness. Red light may convey a notion of hot, strong and/or spicy.

[0035] One or more light sources 28 and a dispenser 20 may be operably coupled such that with operation of the dispenser 20 the light source 28 is operated. Thus, additional visible indications may be provided when a particular beverage is dispensed. This may ascertain a consumer that his/her order is being processed and it may draw additional attention of others to the product. It is a well recognised fact of psychology that if one person selects a particular product, other persons are urged (subconsciously) to select that particular product also, so that sales of the product may be increased. Suitably, a dispenser 20 may comprise at least a portion of a switch or a contact to close an electrical circuit, and/or trigger a sensor for operation of such light source. E.g. a rod 23 may be configured to close an electrical circuit with a countercontact arranged within the sleeve 14 or on the bottom wall 5 or trip an optical switch upon operating the dispenser 20.

[0036] An alternative or further light source may be arranged to illuminate the interior of a cuff 22, 22A, e.g. be mounted at least partially in a cuff 22, 22A.

[0037] The invention is not restricted to the above described embodiments which can be varied in a number of ways within the scope of the claims. For instance the apparatus may be configured for use with more or less bottles 13.

[0038] In stead of or in addition to the shelves 17, clamps, racks or other holders for glasses and serving utensils may be provided. Such shelves or such holders in general are optional and may be left out. The separated volume 3B may be used for other purposes e.g. storage of beverage containers and/or advertisement. A separated volume 3B is optional in its entirety and may be left out; this allows reducing the size of the cabinet.

[0039] One or more portions of a dispenser 20 and a holder, e.g. a sleeve 14, may be or form an integrated assembly for holding a bottle 13 and dispensing from it. One or more cuffs 22, 22A may be separably attached to the apparatus 1 to facilitate access to (a portion of) the dispenser 20, cleaning and/or repair, e.g. by resiliently fitting about a protruding rim or fitting inside a recessed groove.

[0040] The apparatus may be provided with devices for hanging it, e.g. for placement against a wall.

[0041] The apparatus may further be provided with additional advertising instruments, such as one or more light boxes, a (dynamic) text bars, sound generators etc. A dispenser may be coin-operable.

[0042] One or more dispensers 20 may be automated, button operated and/or remotely controllable or controlled.

[0043] Elements and aspects discussed for or in relation with a particular embodiment may be suitably combined with elements and aspects of other embodiments, unless explicitly stated otherwise.

Claims

1. An apparatus (1) for dispensing chilled beverage comprising:

   a display cabinet (2) defining an enclosed volume (3) ;
   at least one holder (14, 16) for holding at least one bottle (13) containing a beverage within the enclosed volume;
   a refrigerator (19) for chilling the enclosed volume of the cabinet and the at least one bottle received therein; and
   at least one dispenser (20) for dispensing beverage from a bottle, individually connectable to individual ones of the at least one bottle;
   wherein the at least one holder is configured to hold the at least one bottle in an inverted position and
   wherein the at least one dispenser is configured to dispense beverage on demand from a bottle connected to said dispenser under the influence of gravity.

2. The apparatus (1) of claim 1, wherein the at least one dispenser (20) is configured to dispense a metered quantity of the beverage.

3. The apparatus (1) of claim 2 wherein the at least one dispenser (20) comprises a valved metering chamber and wherein the metering chamber is arranged at least one of within and in direct thermal contact with the enclosed volume (3) of the cabinet (2).

4. The apparatus (1) of any preceding claim, wherein the at least one dispenser (20) is configured for at least one of receiving and holding the bottle (13).

5. The apparatus (1) of any preceding claim, wherein the refrigerator (19) is configured to chill the enclosed volume (3) to a temperature of below about +7 °C, preferably to a temperature of below about 0 °C, more preferably to a temperature of below about -5 °C, most preferably to a temperature of well below about -10 °C, e.g. about -17 °C.

6. The apparatus (1) of any preceding claim, wherein the apparatus, in particular at least one of the holder (14, 16) and the dispenser (20), comprises at least one light source (28) for illuminating at least one bottle (13).

7. The apparatus (1) of claim 6, wherein at least one dispenser (20) comprises at least one light source (28) configured to couple light into a bottle (13) connected with the dispenser such that at least one of said bottle and the beverage contained in said bottle acts as a light guide for at least a portion of the light from said at least one light sources.

8. The apparatus (1) of claim 6 or 7, wherein the at least one light source (28) and the at least one dispenser (20) are operably coupled such that with operation of the dispenser the at least one light source is operated.

9. The apparatus (1) of any preceding claim, wherein the cabinet (2) comprises at least one holder (14, 16) for at least one serving utensil (18) within at least a portion (3B) of the enclosed volume (3).

10. The apparatus (1) of any preceding claim, wherein at least a portion (9, 24) of the cabinet (2) is shaped for an advertisement function.

11. The apparatus (1) of any preceding claim, wherein the enclosed volume (3) comprises a plurality of portions which are at least one of maintained and maintainable at different temperatures.

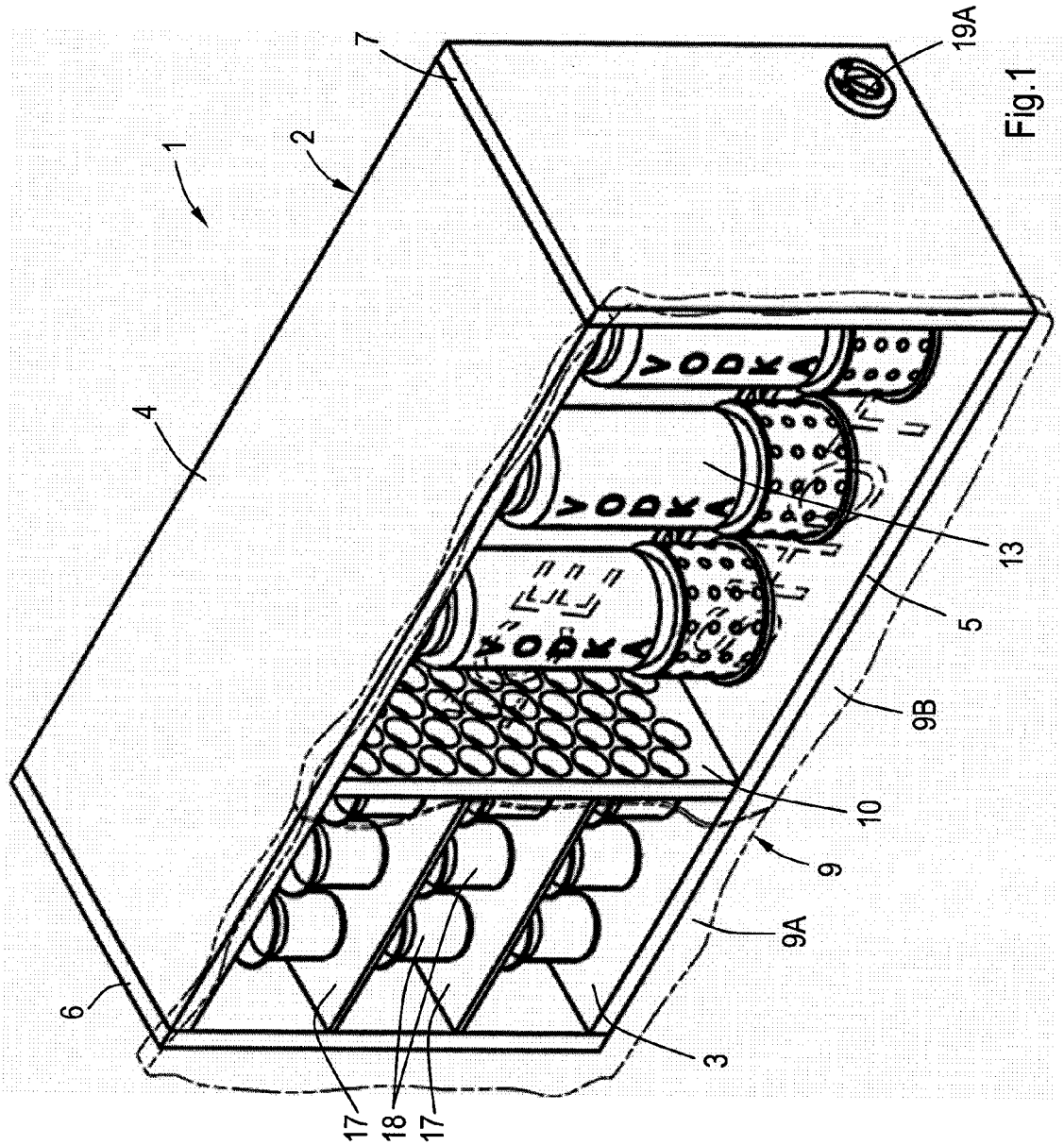


Fig.1

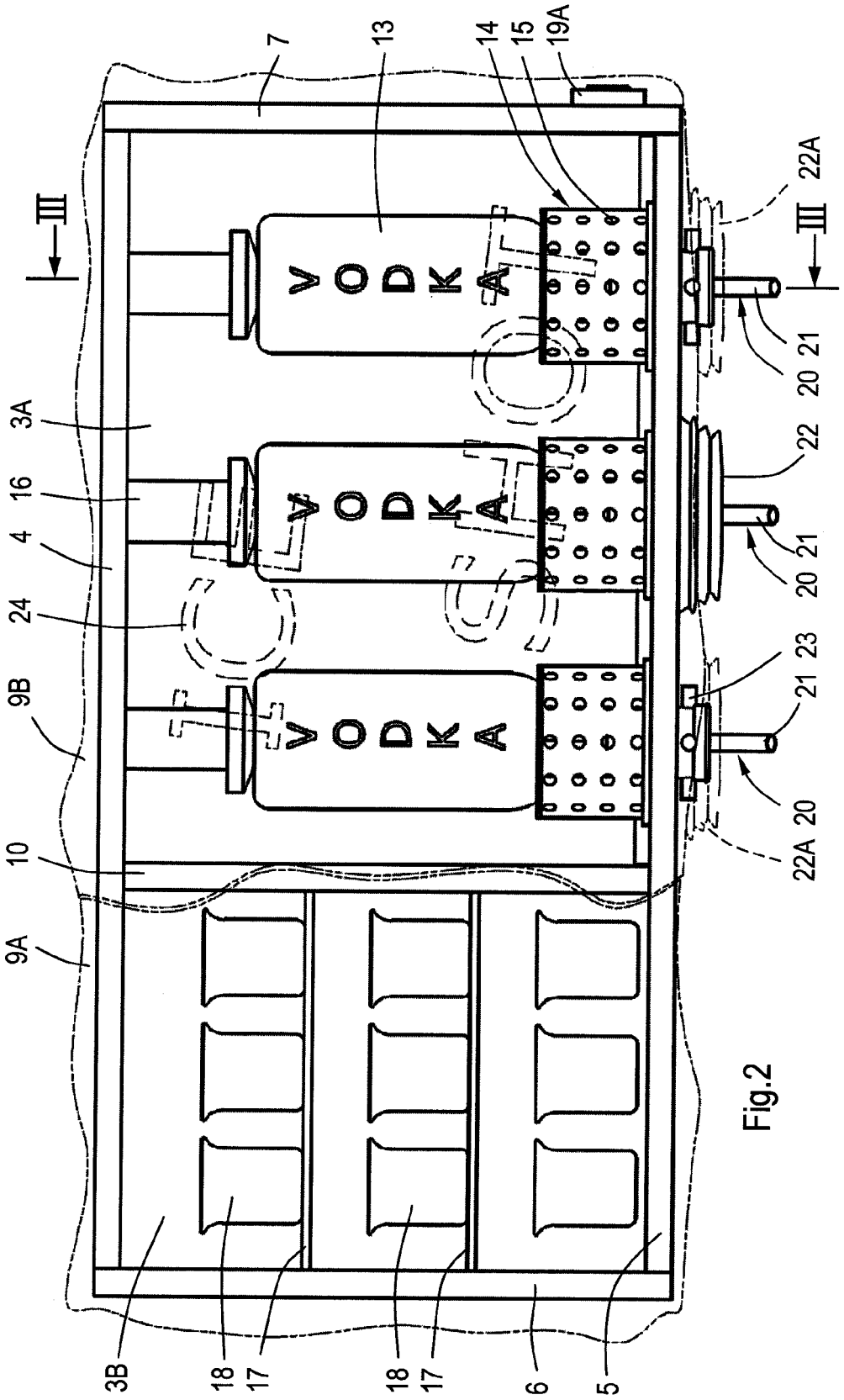

7
13
14
15
19A
22A
III
III
VODKA
VODKA
VODKA
3A
16
4
24
9B
10
9A
3B
18
17
18
17
6
5
20
21
22
21
20
21
23
20
22A

Fig.2

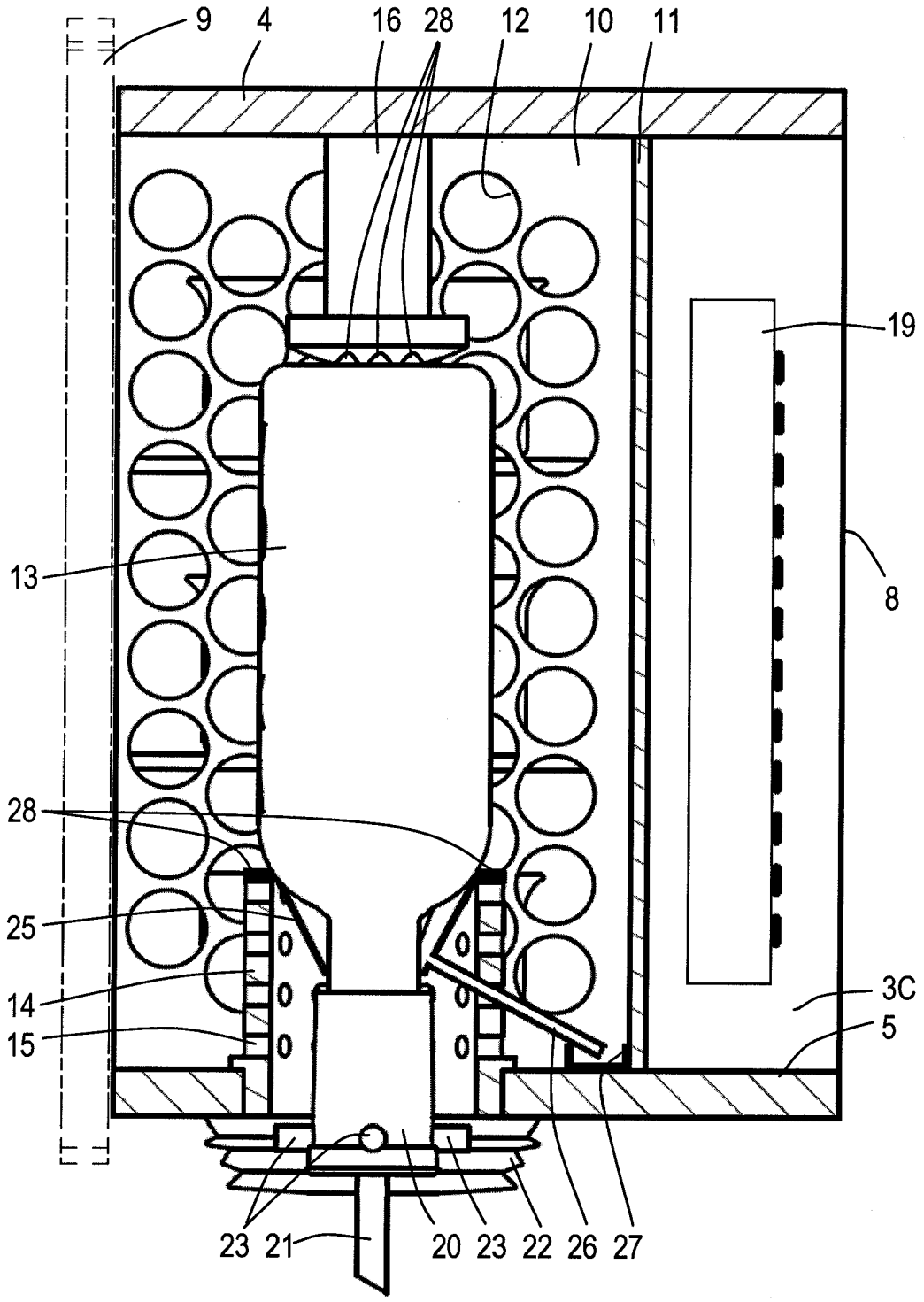


Fig.3

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 09 17 6857

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 1 464 613 A (CALZALS, LEON) 6 January 1967 (1967-01-06) * the whole document *	1-11	INV. B67D3/00 B67D3/02
X	FR 2 170 038 A1 (WIESNER ALFREDO [IT]) 14 September 1973 (1973-09-14) * page 3, line 13 - page 5, line 26; figures *	1-11	
A	EP 1 688 390 A1 (ZAPP ACHIM PHILIPPE [FR]) 9 August 2006 (2006-08-09) * paragraph [0008]; claim 1; figures *	6-8	
A	US 2006/250784 A1 (LANGONE MICHAEL [US]) 9 November 2006 (2006-11-09) * paragraph [0009]; figures *	6-8	
A	DE 203 02 949 U1 (KRETZSCHMAR HANS [DE]) 5 June 2003 (2003-06-05) * the whole document *	1	
A	DE 298 05 813 U1 (HILDEBRANDT HARTMUT [DE]) 9 July 1998 (1998-07-09) * the whole document *	1	TECHNICAL FIELDS SEARCHED (IPC) B67D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	21 September 2010	Müller, Claus

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 17 6857

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-09-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 1464613 A	06-01-1967	NONE	
FR 2170038 A1	14-09-1973	DE 7303461 U	20-06-1973
		GB 1407117 A	24-09-1975
		IT 948378 B	30-05-1973
		US 3827256 A	06-08-1974
EP 1688390 A1	09-08-2006	FR 2881415 A1	04-08-2006
US 2006250784 A1	09-11-2006	NONE	
DE 20302949 U1	05-06-2003	NONE	
DE 29805813 U1	09-07-1998	DE 19814213 A1	07-10-1999

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 6557369 B **[0003]**
- US 5494195 A **[0005]**
- WO 2007135243 A **[0007]**