



(51) International Patent Classification:

B67D 1/04 (2006.01) B67D 1/06 (2006.01)

(21) International Application Number:

PCT/IT2019/050026

(22) International Filing Date:

01 February 2019 (01.02.2019)

(25) Filing Language:

Italian

(26) Publication Language:

English

(30) Priority Data:

102018000002421 05 February 2018 (05.02.2018) IT

(71) Applicant: **BEEXLAB S.R.L.** [IT/IT]; Via Collelungo, 20, 06073 Corciano (IT).

(72) Inventor: **PEPINI, Diego.**

(74) Agent: **PALESTRINI, Mauro**; Via Piemonte, 55, 60019 Senigallia (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,

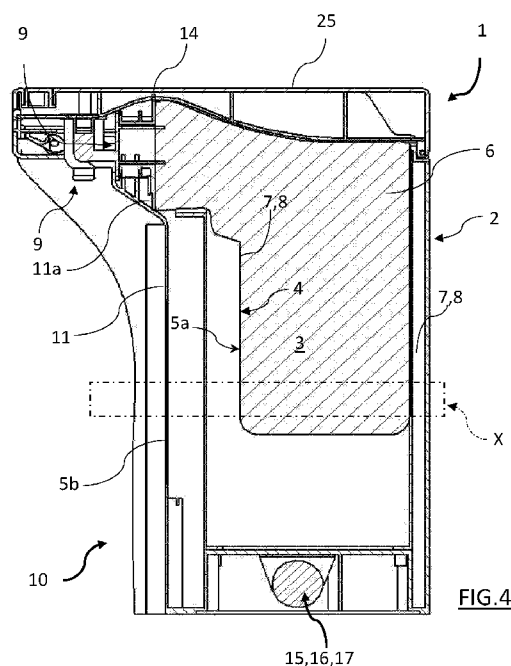
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

(54) Title: FLUID DISPENSER



(57) Abstract: A fluid dispenser (1) comprises a containing case (2) having an inner containment cavity (3) for containing a first fluid (6) to be dispensed, which is delimited by at least one pair of walls (4, 5a) which have a membrane-like structure, at least one first wall (4) of which is placed in contact with the fluid (6) to be dispensed, a second wall (5a) of said pair at least partly surrounding the first wall (4). The dispenser (1) further comprises a closable hollow space (7), positioned between the first wall (4) and the second wall (5a); and a second fluid (8) which, introduced in the hollow space (7) and interacting with the first wall (4), imparts to the fluid (6) to be dispensed a movement towards an outlet (9) of the case (2) and a simultaneous action at least of expelling to the outside of the case (2) the gases present in the containment cavity (3).



FLUID DISPENSER

Technical field

This invention relates to a fluid dispenser,
5 specifically a dispenser for liquid foods, such as wine,
oil, beer, cocktails and the like.

Background art

Some liquid foods, and particularly wine, once the
relative container has first been opened, after contact
10 with air tend to quite rapidly oxidise and change, which
significantly deteriorates them and their original
organoleptic properties.

For example, wine in a bottle, once opened for the first
time degrades by oxidising in around 3 to 5 days.

15 Wine in a bottle which is subsequently stoppered again
including use of a vacuum, has a perishability period of
around one week.

If the bottle is stoppered again following the
introduction of an inert gas (e.g.: argon), the wine
20 contained in it retains its properties for 3 to 4 weeks;
however, that period is reduced faster the higher the
number of times the bottle is re-opened and further
amounts of wine are taken out.

That state of affairs causes quite considerable
25 problems, in both domestic and professional settings.

In fact, in a domestic setting, consumers often open a
bottle of wine - which may be of very high quality - and
having only consumed one or two glasses of it, must throw
away the remaining contents of the bottle after just a
30 few days, because oxidation from contact with the air
has changed it.

There are many negative consequences from that
behaviour, particularly the obvious waste of material
and economic resources, as well as environmental harm.

Similar problems arise at a professional level, for example, in catering establishments which serve wine by the glass and in which, in order to avoid throwing away wine which can no longer be served due to degrading, the business must equip itself with complex and expensive machinery able to systematically replace the air that has entered the bottle, after each opening, until all of the contents have been consumed.

A prior art technology, called "bag in box" sees the wine contained and preserved in a bag which can be repeatedly stoppered, which is provided with thin but strong composite walls, formed by several layers of suitable film material which are laminated and if necessary metallised. A box-shaped body contains the bag, supporting it in a vertical position to allow the contents to be emptied from it under the action of gravity and through a special tap which is located in the lower part of the box-shaped body.

A further prior art technology is described in document US 8763857. According to that document the air, having come into a bag containing the wine, is expelled by mechanical compression of the bag performed by means of a complex articulated rod mechanism operating under the action of a spring and which is fitted to a related dispenser.

A further prior art solution in the sector is a dispenser which evacuates the air in contact with the wine by means of a device integrated in the dispenser itself and equipped with a vacuum pump which, operating in a suitable hydraulic circuit, extracts the air using the known Venturi tube operating principle.

Disclosure of the invention

The aim of this invention is to eliminate the disadvantages of the prior art by devising a dispenser

which combines one of the highest levels of efficiency in terms of preservation of the integrity of the organoleptic properties of the fluid contained with a simpler, less expensive and more reliable construction.

5 Accordingly, the invention achieves those aims with a dispenser as defined in the following claims.

Brief description of drawings

The features and further advantages of the invention will become apparent below with reference to an example
10 embodiment of the invention described with reference to the accompanying drawings in which:

- Figure 1 is a perspective view of a prior art containing bag;
- Figure 2 is a schematic view explaining a known method
15 of use of the bag of Figure 1;
- Figure 3 is a perspective assembly view of the invention shown with some parts cut away to better illustrate others;
- Figure 4 is a cross-section of another embodiment of
20 the invention;
- Figure 5 is a greatly enlarged detail view of a detail whose line "X" is indicated in Figure 4;
- Figure 6 is a partial cross-section of a detail of the invention;
- 25 - Figure 7 is a top plan view of the detail of Figure 6;
- Figure 8 is a perspective view of a component intended to be fitted to a dispenser according to the invention;
- Figure 9 is a cross-section of the detail of Figure
30 7 explaining a functional aspect of it.

Detailed description of preferred embodiment of the invention

With reference to the figures of the accompanying drawings, Figure 1 shows a prior art case for containing

liquid foods, which comprises a containing bag intended to operate in combination with a box-shaped body, being placed and contained in the latter, as shown in Figure 2.

5 The bag - which is equipped with a lateral surface, defined by several layers of thin, membrane-structure material having high strength and micrometric thickness which are superposed and monolithically welded to each other - substantially defines a containing case suitable
10 for supplying, by falling, that is to say under the effect of gravity, a fluid to be dispensed through a suitable tap which can be switched between two states, respectively open and closed, which is located in the lower part of the box-shaped body.

15 Figures 3 and 4 respectively show two examples - by way of example only and without limiting the scope of the invention - of a fluid dispenser 1 according to the invention and basically comprising a containing case labelled 2 as a whole, which has an inner containment
20 cavity 3 for a first fluid 6 to be dispensed, said first fluid 6 being in particular, preferably, a liquid food, selected for example from the families of wines, beers, oils and the like.

The containment cavity 3 is delimited by a first
25 enclosing wall 4 which: is substantially bag-shaped; is placed in direct contact with the fluid 6 to be dispensed; and is provided with its own membrane-like structure, made in a multilayer form and with micrometric thickness.

30 A second wall 5a externally covers, by at least partly surrounding, the first wall 4 which contains the fluid 6 and, in combination with the latter, delimits a closed hollow space 7 interposed between the two walls 4, 5a. A second fluid 8 is introduced into the hollow space in

such a way that it is forced to interact with the first wall 4, on the outer side of the containment cavity 3, compressing it against the fluid 6 behind it.

5 With the open state of a supplying outlet 9 of a tap located at the top of the case 2 and communicating with the containment cavity 3, under the thrust applied by the second fluid 8 against the wall 4, the fluid 6 to be dispensed is subjected to a movement towards the outlet 9 which causes a primary expulsion action towards the
10 outside of the case 2 of the gases which are present in the containment cavity 3.

When that thrust is further continued - beyond what is necessary for completely expelling the gases - the second fluid 8 causes the subsequent supplying of the fluid 6
15 forcedly and, as already indicated, from the top zone of the case 2 as shown in Figures 3 and 4.

Figures 3 and 5 show, in particular, that preferably the hollow space 7 is made between two walls 4, 5a which both have micrometric thicknesses and a membrane-like
20 structure. In this context, the walls 4, 5a may either have stiffnesses which are similar to each other, or different stiffnesses. In the latter case it is preferable that the greater stiffness is offered by the outermost wall 5a, in such a way as to give the
25 containing case 2 an anisotropic behaviour (and if necessary having self-supporting properties) so as to accentuate the effectiveness of the thrust applied by the wall 4 against the fluid 6 to be dispensed, behind and contained in the containment cavity 3.

30 Figures 4 and 5 also show how - in one possible variant of the invention - the hollow space 7 could even be a physical space simply geometrically interposed between the first wall 4 and a second wall 5b, which is stiffer and thicker, identifiable as a perimeter wall of a hollow

containing body 10 with relative lid 25, which is part of the containing case 2 and which houses inside it, surrounding it and if necessary in a sealed way, a bag defined by the first wall 4 and by the relative inner cavity 3 intended to receive the first fluid 6 to be dispensed.

Figures 6, 7 and 8 show that the dispenser 1 also comprises a flange 12 which is interconnected with a pair of walls 4 and 5a which both have a membrane-like structure and which are superposed on each other (Figure 6, on the right).

The flange 12, as is clearly shown in Figure 8, has a flat plate 14 shaped like an annulus, which supports cantilever-style a tubular collar 20, which at its end distal from the plate 14 terminates with the supplying outlet 9.

At a locally thickened zone of its lateral wall, the collar 20 is provided with a basically prismatic projection 13, having smoothed edges, which projects radially from the collar 20 and which projects away from it, partly covering a corresponding underlying local surface of the plate 14.

The projection 13 has, facing the plate 14, a groove with substantially prismatic shape.

Therefore, extending between the projection 13 and the plate 14, at the groove and along the thickened part of the lateral wall of the collar 20, there is a stretch 11a of duct which at one end communicates, inside the collar 20, with a hole 21 facing the outside of the case 2 and which at the opposite end abuts a further duct 11, finally arriving in communication with the hollow space 7.

Figures 6 and 7 show that the operative interconnection between the projection 13 (which communicates with the

environment outside the containing case 2) and the hollow space 7 (however it is made, and placed adjacent to the first wall 4) is obtained by means of a local and special connection between the membrane-like walls 4 and 5a and the projection 13.

In fact, unlike what is visible on the right-hand side in Figure 6 - where the projection 13 is not present and the first membrane-like wall 4 and the second membrane-like wall 5a are perfectly superposed on each other, welded together and in turn monolithically welded to the underlying annular plate 14 - on the left-hand side of said Figure 6, that is to say, at the location relating to the presence of the projection 13, only the first wall 4 is welded to the plate 14, whilst the second wall 5a, locally detached from the first wall 4, is welded directly to the projection 13 there.

In conclusion, if the second flow 8 is gaseous and is the external air, then by positioning on the duct 11 suitable pressing means 15 - schematically illustrated in the lower part of the dispensing body 10 in Figure 4 - it is possible to pressurise the hollow space 7, which is suitably closed, in such a way as to completely evacuate through the outlet 9 the air contained in the containment cavity 3 for the first fluid 6 to be dispensed, and it is also possible to supply the first fluid 6 to be dispensed.

It is clear that the positioning of the pressing means 15, which in the example in Figure 4 are integrated in the structure of the dispenser 1, is particularly useful and advantageous in a portable construction solution of the dispenser 1. However, that should not be considered limiting, since, for example the pressing means 15 could even be positioned outside the case 2 and if necessary could even be independent of it, it being enough for

them to be able to send pressurised air, for example through the inlet hole 21 of the duct 11.

Sensor means 16 for detecting a threshold value, which is the limit of the pressure of the second fluid 8 contained in the hollow space 7, relative to which the pressing means 15 must be activated/deactivated, may consist for example of a pressure regulator which, suitably integrated in the pressing means 15, acts as an automatic start/stop switch for the pressing means 15.

The invention achieves the proposed aims by allowing the simple, inexpensive and highly effective achievement of a high degree of expulsion of the air from the containment chamber 3: which results in optimum protection against atmospheric oxidation for the fluids contained. That is particularly advantageous for many fluid foods in which oxidation may cause significant modification of the organoleptic properties of the substance, as is the case for example with wine, beer, oil, cocktails, fruit juices and the like.

The invention also brings further advantages, including not requiring any external action in order to completely empty the contents of its containment cavity 3. In fact, unlike what happens in the prior art, for example that shown in Figures 1 and 2, the dispenser 1 solution according to this invention and which, as is clearly illustrated in Figures 3 and 4, has the supplying tap positioned at the top, allows total emptying of the containment chamber 3 without requiring any tilting of the containing case 2.

The invention advantageously is also suitable for further useful developments, for example the integration of refrigerating means 17 for the fluid 6 to be dispensed, symbolically represented in Figure 4 which, for example, could also be particularly useful for

allowing supplying of the fluid food 6 at optimum preservation and serving temperature conditions, it being known that this is generally required for wines and in particular white wines.

5 The invention described above is susceptible of evident industrial application. It may also be modified and adapted in several ways without thereby departing from the scope of the following claims.

Moreover, all details of the invention may be substituted
10 by technically equivalent elements.

CLAIMS

1. A fluid dispenser comprising a containing case (2)
5 having an inner containment cavity (3) for containing a
first fluid (6) to be dispensed, which is delimited by
at least one pair of walls (4, 5a) which have a membrane-
like structure, at least one first wall (4) of which is
placed in contact with the fluid (6) to be dispensed, a
10 second wall (5a) of said pair at least partly surrounding
said first wall (4); said dispenser (1) being
characterised in that it comprises a closable hollow
space (7), positioned between said first wall (4) and
second wall (5a); and a second fluid (8) which being
15 introduced into the hollow space (7) and interacting
with said first wall (4) imparts to the fluid (6) to be
dispensed a movement towards an outlet (9) of said case
(2) and a simultaneous action at least of expelling to
the outside of said case (2) the gases present in the
20 containment cavity (3).

2. The dispenser according to claim 1, **characterised
in that** said first wall (4) and said second wall (5a)
are affected by a duct (11) for conveying said second
fluid (8) inside said case (2).

25 3. The dispenser according to claim 2, **characterised
in that** at least one part (11a) of said duct (11) is on
a flange (12), which is joined to at least one of the
walls (4; 5a) of said pair of walls (4; 5a), and connects
said hollow space (7) with the environment outside the
30 containing case (2).

4. The dispenser according to claim 3, **characterised
in that** said duct (11) is at least partly joined to a
projection (13) of said flange (12), at least one part
of said second wall (5a) being joined to said projection

(13), at least one detached part of said first wall (4) in contrast being connected to a plate (14) of said flange (12).

5 5. The dispenser according to claim 1, **characterised in that** it comprises pressing means (15) for pressurising said second fluid (8) inside said hollow space (7).

6. The dispenser according to any of the preceding claims, **characterised in that** said second fluid (8) introduced into the hollow space (7) is a gaseous fluid.

10 7. The dispenser according to claim 1, **characterised in that** it comprises sensor means (16) for detecting when a threshold value is reached, that value representing the limit of the pressure of the second fluid (8) contained in the hollow space (7) relative to which said
15 pressing means (15) must be activated/deactivated.

8. The dispenser according to claim 1, **characterised in that** it comprises refrigerating means (17) for said first fluid (6) to be dispensed.

20 9. The dispenser according to claim 1, **characterised in that** said fluid (6) to be dispensed contains at least one liquid food.

10. The dispenser according to claim 9, **characterised in that** said liquid food is selected in the families of wines, oils, beers, cocktails.

PRIOR ART

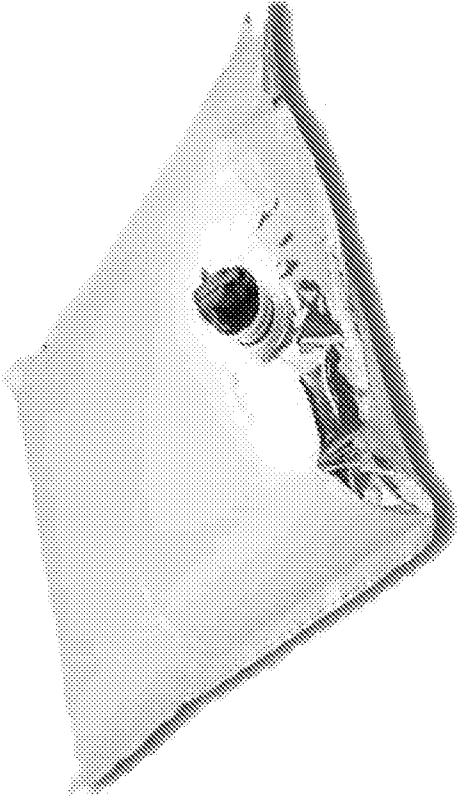


FIG.1

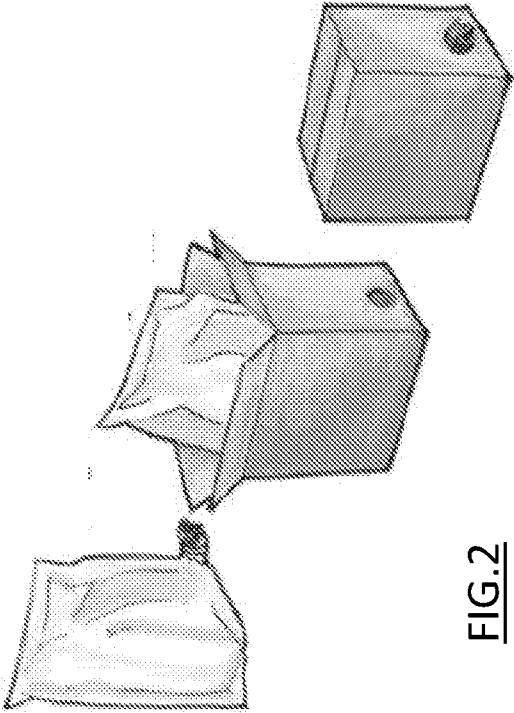
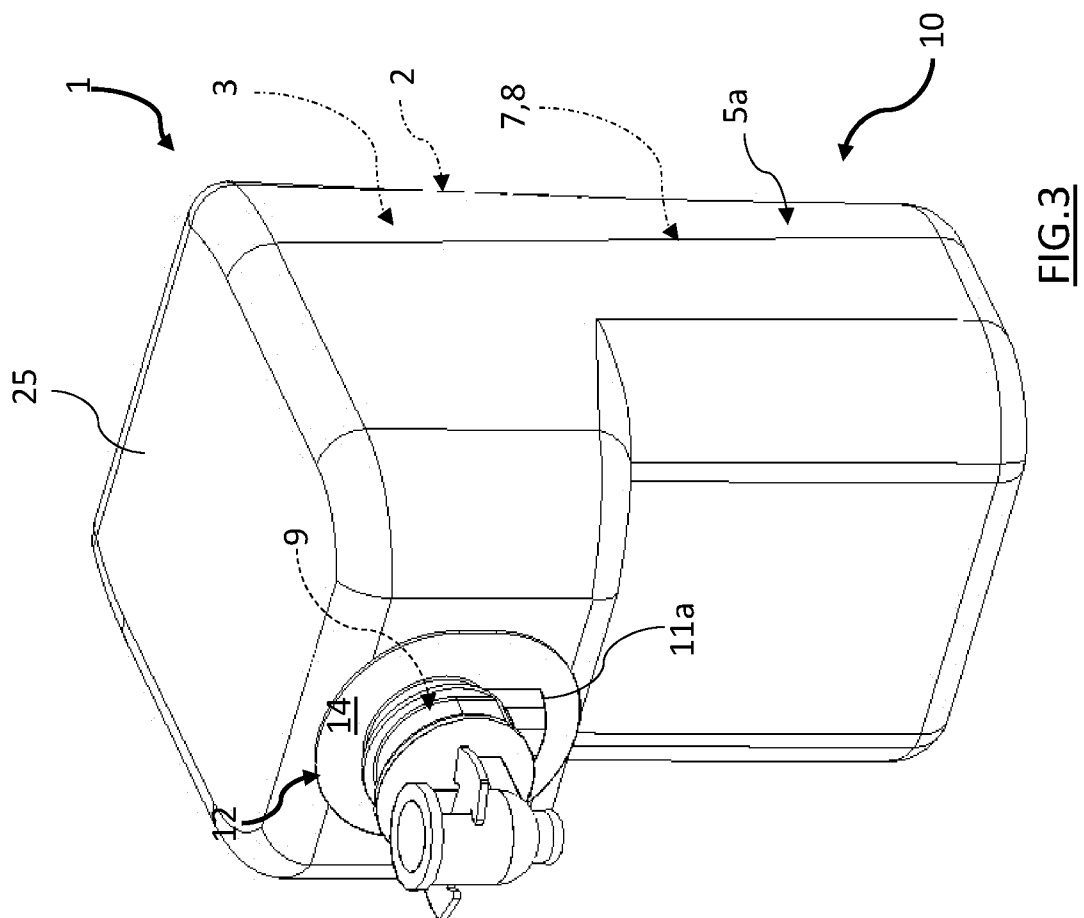
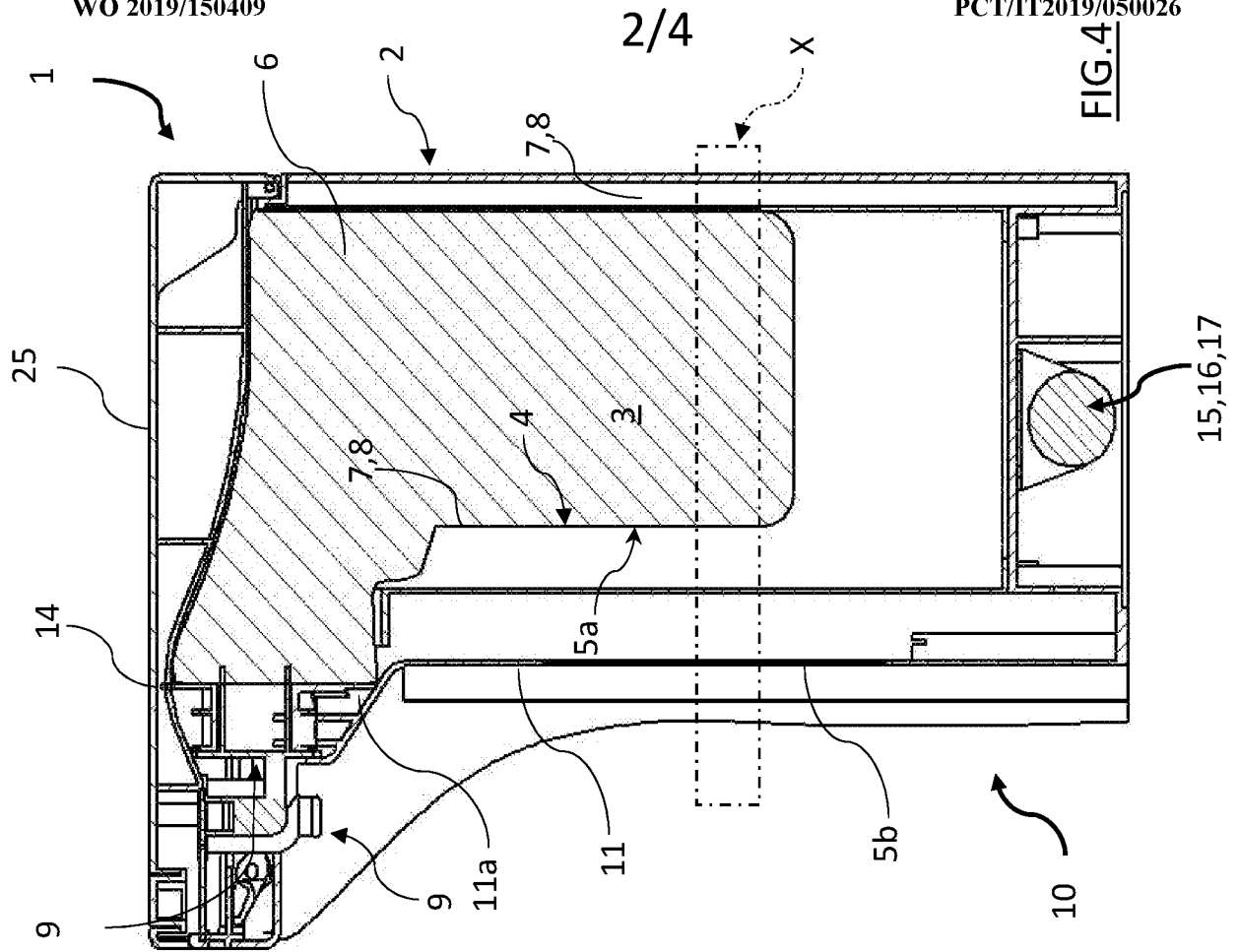


FIG.2



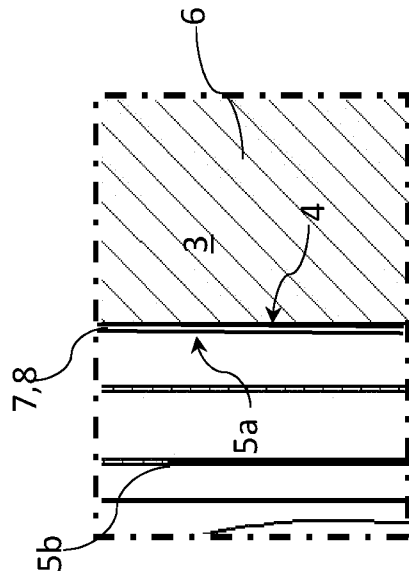


FIG. 5

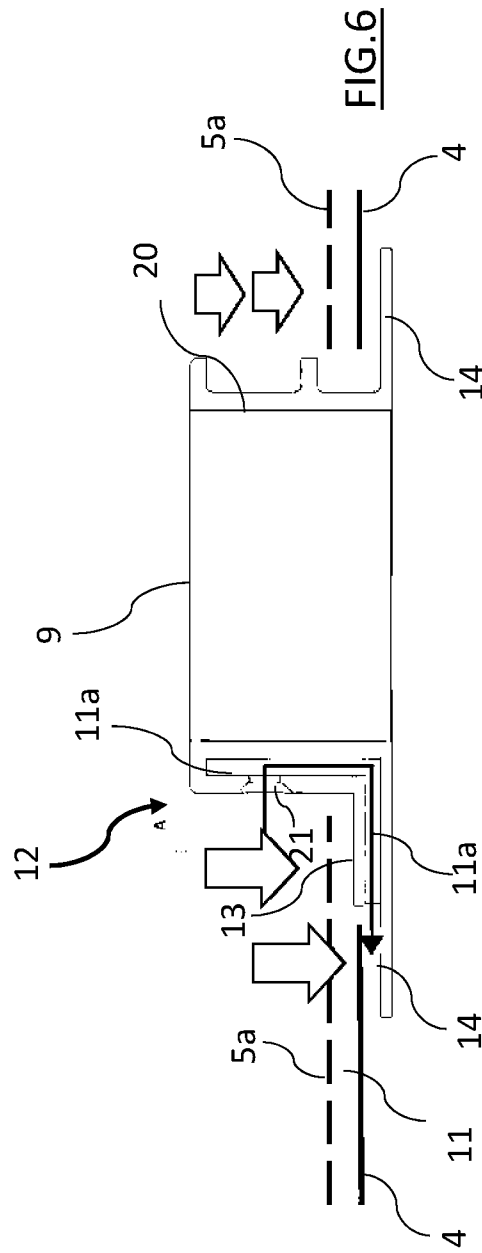


FIG. 6

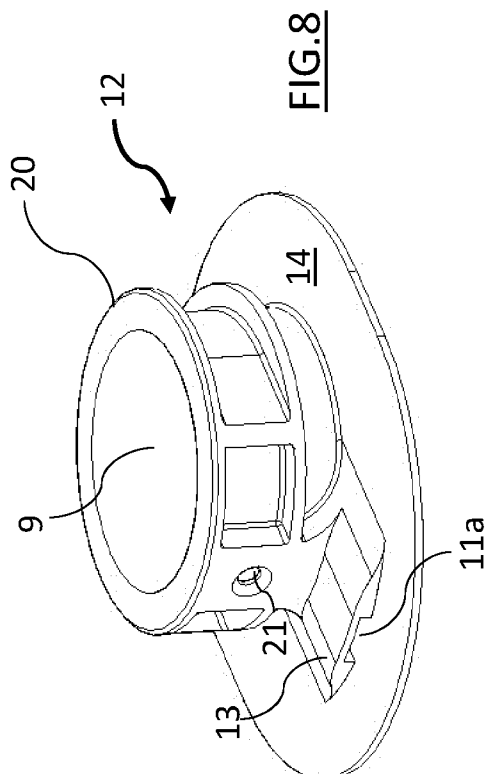


FIG. 8

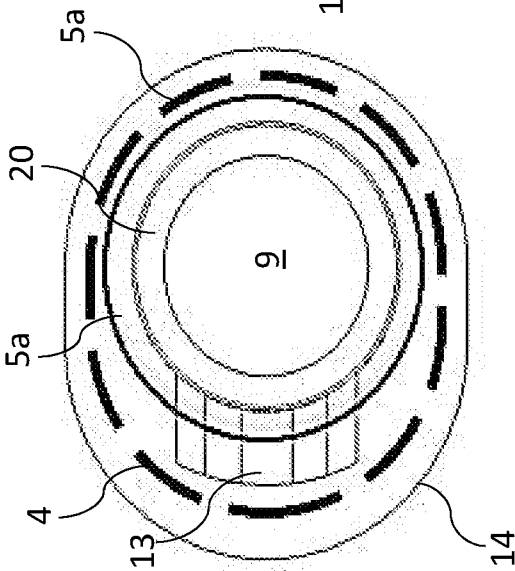


FIG. 7

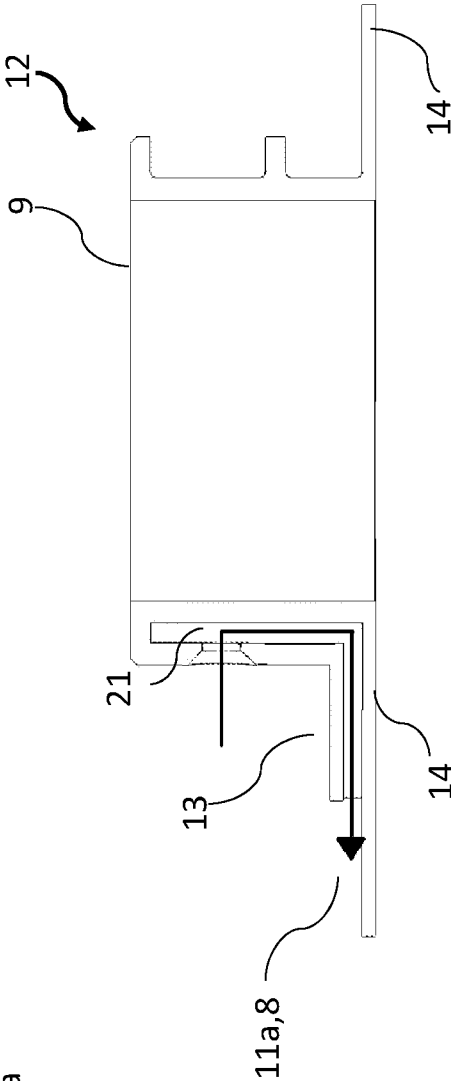


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/IT2019/050026

A. CLASSIFICATION OF SUBJECT MATTER
INV. B67D1/04 B67D1/06
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)
B67D

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	WO 91/12196 A1 (AG PATENTS LTD [GB]) 22 August 1991 (1991-08-22)	1-6,8-10
Y	page 8, line 7 - line 28 page 9, line 10 - page 11, line 7; figure 2 page 1, line 5 - line 9 -----	7
Y	US 5 251 787 A (SIMSON ANTON K [US]) 12 October 1993 (1993-10-12)	7
A	column 2, line 41 - line 47; figures 1, 3 -----	1
X	WO 01/92145 A1 (HEINEKEN TECH SERVICES [NL]; KLAUW GUIDO PETRUS JOHANNES V [NL]; BAX) 6 December 2001 (2001-12-06) page 4, line 15 - page 5, line 24; figure 1 ----- -/--	1



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 application or patent 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

"&" document member of the same patent family

Date of the actual completion of the international search

26 March 2019

Date of mailing of the international search report

04/04/2019

Name and mailing address of the ISA/

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

Authorized officer

Schultz, Tom

INTERNATIONAL SEARCH REPORT

International application No
PCT/IT2019/050026

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2015/040146 A1 (CARLSBERG BREWERIES AS [DK]) 26 March 2015 (2015-03-26) page 17, line 1 - page 18, line 11; figures 1A, 1B, 1C, 1D, 1E -----	1
X	EP 2 336 077 A1 (ANHEUSER BUSCH INBEV SA [BE]) 22 June 2011 (2011-06-22) paragraph [0016] - paragraph [0017]; figure 1b -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IT2019/050026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9112196	A1	22-08-1991	AU 655411 B2 22-12-1994
		AU 7740594 A 22-12-1994	
		CA 2075374 A1 07-08-1991	
		EP 0513205 A1 19-11-1992	
		GB 2256680 A 16-12-1992	
		IE 910374 A1 14-08-1991	
		NZ 237027 A 25-11-1993	
		WO 9112196 A1 22-08-1991	
		ZA 9100889 B 30-10-1991	

US 5251787	A	12-10-1993	NONE

WO 0192145	A1	06-12-2001	AR 028656 A1 21-05-2003
		AT 309959 T 15-12-2005	
		AT 399143 T 15-07-2008	
		AT 404492 T 15-08-2008	
		AT 455075 T 15-01-2010	
		AT 466817 T 15-05-2010	
		AU 6440301 A 11-12-2001	
		AU 6440401 A 11-12-2001	
		AU 2001264403 B2 16-02-2006	
		AU 2006201657 A1 11-05-2006	
		BR 0111374 A 13-05-2003	
		CA 2411026 A1 06-12-2001	
		CN 1440366 A 03-09-2003	
		CN 1440367 A 03-09-2003	
		CN 1559881 A 05-01-2005	
		CR 7669 A 18-07-2005	
		CY 1110183 T1 14-01-2015	
		CZ 20023941 A3 18-06-2003	
		DE 60115023 T2 27-07-2006	
		DK 1284918 T3 27-03-2006	
		DK 1284920 T3 08-12-2008	
		DK 1473271 T3 02-08-2010	
		DK 1555240 T3 29-09-2008	
		DK 1600421 T3 12-04-2010	
		DZ 3372 A1 06-12-2001	
		EA 200201302 A1 24-04-2003	
		EC SP024395 A 25-07-2003	
		EE 200200661 A 15-06-2004	
		EG 22484 A 26-02-2003	
		EP 1284918 A1 26-02-2003	
		EP 1284920 A1 26-02-2003	
		EP 1473271 A2 03-11-2004	
		EP 1555240 A2 20-07-2005	
		EP 1600421 A1 30-11-2005	
		ES 2253386 T3 01-06-2006	
		ES 2309649 T3 16-12-2008	
		ES 2311520 T3 16-02-2009	
		ES 2339675 T3 24-05-2010	
		ES 2345613 T3 28-09-2010	
		GE P20053493 B 25-04-2005	
		GT 200100100 A 22-03-2002	
		HK 1053821 A1 24-02-2006	
		HK 1053822 A1 24-10-2008	
		HK 1078558 A1 29-08-2008	
		HK 1083825 A1 12-03-2010	
		HR P20020949 A2 28-02-2005	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IT2019/050026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
		HU 0302354 A2	28-10-2003	
		IL 153161 A	03-12-2007	
		IS 6641 A	29-11-2002	
		JO 2368 B1	12-12-2006	
		JP 5179691 B2	10-04-2013	
		JP 5362163 B2	11-12-2013	
		JP 2003534997 A	25-11-2003	
		JP 2003535000 A	25-11-2003	
		KR 20030015261 A	20-02-2003	
		KR 20030015262 A	20-02-2003	
		MA 25752 A1	01-04-2003	
		MX PA02011847 A	14-05-2003	
		MY 134777 A	31-12-2007	
		NL 1015368 C2	12-12-2001	
		NO 20025752 A	31-01-2003	
		NZ 523136 A	24-09-2004	
		OA 12280 A	11-05-2006	
		PE 02022002 A1	03-04-2002	
		PL 358921 A1	23-08-2004	
		PT 1284920 E	20-11-2008	
		PT 1473271 E	02-08-2010	
		PT 1555240 E	13-11-2008	
		PT 1600421 E	20-04-2010	
		SI 1284918 T1	28-02-2006	
		SI 1473271 T1	30-07-2010	
		SI 1555240 T1	31-12-2008	
		SI 1600421 T1	31-03-2010	
		SK 16962002 A3	03-06-2003	
		SV 2002000470 A	24-10-2002	
		UA 73180 C2	17-02-2003	
		US 2004011828 A1	22-01-2004	
		US 2004069805 A1	15-04-2004	
		US 2004226967 A1	18-11-2004	
		UY 26737 A1	31-07-2001	
		WO 0192142 A1	06-12-2001	
		WO 0192145 A1	06-12-2001	
		YU 90402 A	31-12-2003	
		ZA 200209765 B	02-03-2004	

WO 2015040146	A1	26-03-2015	DK 3046866 T3	20-11-2017
			EP 3046866 A1	27-07-2016
			ES 2645428 T3	05-12-2017
			HR P20171700 T1	12-01-2018
			HU E037014 T2	28-08-2018
			PL 3046866 T3	28-02-2018
			PT 3046866 T	06-11-2017
			WO 2015040146 A1	26-03-2015

EP 2336077	A1	22-06-2011	AU 2010332815 A1	12-07-2012
			CA 2784691 A1	23-06-2011
			CN 102741152 A	17-10-2012
			DK 2512974 T3	16-06-2014
			EP 2336077 A1	22-06-2011
			EP 2512974 A1	24-10-2012
			ES 2469097 T3	17-06-2014
			RU 2012126400 A	27-01-2014
			US 2012285998 A1	15-11-2012
			WO 2011073343 A1	23-06-2011

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IT2019/050026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date