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(54) **RECIPIENT WITH SLIDING LID AND VACUUM TOP**

(57) Recipient with sliding cover and vacuum plug characterised in that the recipient is provided with a spout that incorporates a graduated scale, in that the cover has a through-opening and in that the venting plug has a tab with ring and shutter. It is characterised in that the product can be poured using the spout by simply moving the cover to the upper part of the recipient and it is also characterised in that the invention applies to recipients with transparent, translucent or opaque walls, isothermal recipients or any other type of recipient and also to any type of section.

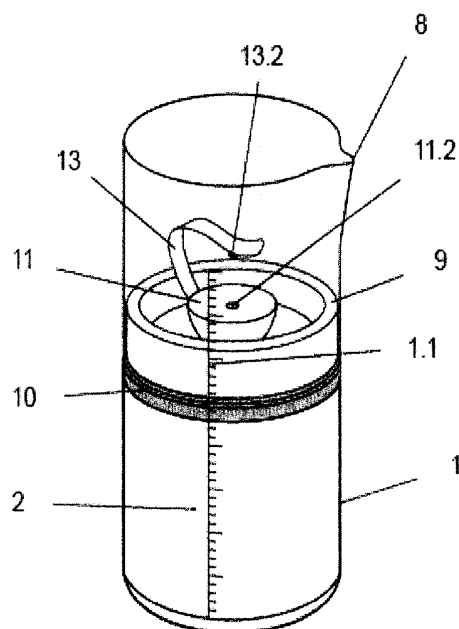


Figura 6

Description

[0001] The present invention relates to a vacuum preservation device that enables the user to keep, preserve and transport, both food and any other chemical element (in liquid, solid or gaseous state), as well as organic or inert solutions, which require being vacuum packaged to be subsequently used both at home or in industry environment.

BACKGROUND OF THE INVENTION

[0002] This invention appears in response to the growing use of vacuum packaging devices at home, since many foods, once we open their packaging, are likely to end up in the rubbish because of oxidation, and degradation of their properties.

[0003] Also in the food industry, there is an increasingly greater proliferation of different types of packaging for keeping and preserving food, without said food losing its beneficial properties.

[0004] There are many fields where it is really necessary to keep and preserve products that can be altered by being in contact with the air and/or humidity: cosmetics, chemistry, laboratories, astronautics, botany, etc.

[0005] This invention solves and resolves all problems, as it enables the user to keep and preserve different products both simply and effectively, as no vacuum pump is needed. And it is easy to use for anyone with hands, both for transporting and handling.

SUMMARY OF THE INVENTION

[0006] These and other characteristics will be understood further in the detailed description provided below. To facilitate this understanding, a sheet of explanatory drawings is attached, illustrating a practical embodiment that is described as an illustrative, not limiting, example of the scope of this invention.

DRAWINGS

[0007] Figures 1, 2, 3, 4 and 5 illustrate a general arrangement of the device of the present invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0008] According to the object of this invention, the container with sliding cover and vacuum plug is designed to enable the user to keep, preserve, transport and gradually consume a plurality of products, used both at home and in the industry.

[0009] As can be appreciated in the drawings, the device comprises a container (Figure 2), and a sliding cover with vacuum plug, (Figure 1).

[0010] The container -1- is prepared to house in the inside thereof, safely, simply and effectively, any product

-2- likely to be altered by being in contact with the air and/or humidity.

[0011] Container -1- must have a closed, flat base with an equal geometrical shape along its full length, and open at the top. Also a handle -3- can be added to the outside for better handling and transport.

[0012] The sliding cover with vacuum plug (Figure 1) comprises an emptying mouthpiece with handle -6- that is joined to the cover by a removable rigid disc -4-, to allow the volume of air to be emptied through the centre (Figure 3) since the flexible, airtight piston -5- that acts like a syringe, sliding inside container -1-, is fully airtight. Once all the air has been removed, a closure or plug (preferably threaded) system -7- is to be used in mouthpiece -6- to isolate product -2- from the air and/or humidity (Figure 3).

[0013] Parts -4-, -5-, -6-, and -7- make up the isolating cover.

[0014] This cover can be removed by removing plug -7- to allow air to enter container 1, and pulling the handle included on mouthpiece -6-.

[0015] Or, if product -2- is a liquid, by simply removing plug -7- and tilting container -1- and holding it by handle -3-, to pour its contents (Figure 5).

[0016] To protect product -2- from other external agents like light or thermal factors, a suitable container -1- is to be used: opaque or thermos type.

[0017] The container device with sliding cover and vacuum plug of this invention can also include advertising elements thereon.

[0018] The illustrated invention can have the most appropriate shape and components for these functions. The components described, or any other suitable components, can be used for carrying out the same type of task.

[0019] The invention, within the essentiality thereof, can be implemented in other embodiments that only differ in details from the embodiment explained as an example, which will also be conferred the scope of protection sought with the application. Therefore, this invention could be implemented with the most appropriate means, components, materials and accessories, with it being possible to replace the component elements with other technical equivalents, all included within the scope of the claims.

IMPROVEMENTS MADE TO PATENT APPLICATION P201000195 "CONTAINER WITH SLIDING COVER AND VACUUM PLUG"

INTRODUCTION

[0020] The present invention relates to a series of improvements that the inventor has made to Patent P201000195 entitled "Container with sliding cover and vacuum plug", relating to a vacuum preservation device that enables keeping, preserving and transporting food, chemical elements or any organic or inert solution which require being vacuum packaged to be subsequently used

both at home or in industry environment.

TECHNICAL SECTOR TO WHICH THE INVENTION RELATES

[0021] This invention belongs to the sector of diverse industrial techniques, and particularly to the chapter on packaging, storing and transporting different food or chemical products, with a direct effect on the industrial sector of manufacturing articles for vacuum packaging.

BACKGROUND OF THE INVENTION

[0022] As cited in the original document, this invention appears to provide a simple solution to the growing need to vacuum pack and preserve food, not only in the actual production chain, but also in private homes where, in many occasions, food in recently opened containers has to be thrown away because not all the contents are eaten.

[0023] The device according to the invention provides for preserving foods by obtaining vacuum conditions without the need for pumps or complex mechanisms, as it can be used easily by anyone.

[0024] In the development of prototypes, it has been seen that the original device is susceptible to certain improvements that simplify and perfect the initial idea, and therefore the inventor of this device has considered it interesting to expound these improvements in this document which constitutes the object of the first addition to Patent P201000195.

DESCRIPTION OF THE INVENTION

[0025] The most important details of this invention are included in the section herein that describes an embodiment preferred by the inventor, and for which a series of drawings listed below has been included to facilitate understanding.

[0026] To summarise, it can be indicated that the improvements that are the object of this addition to the patent, are focused both on the container and on the closure components. As for the container, it includes a graduated scale which shows its content level at all times. Another possible improvement is that the container be made in opaque material to protect its content from light, in which case the graduated scale is not included. As for the closure components, the improvements are focused on the arrangement of a unique, specially designed cover with a series of parts that can be easily disassembled for regular cleaning. The parts are embodied in the actual cover with a seal made of neoprene material or the like, a hollow venting plug inside which a small spherical, hollow buoy can freely move, said venting plug having a double function as it is also used as a knob for sliding the cover in both directions along the container. Lastly, it includes a tongue having also a double function, since one of its ends, it ends in a ring which, coupled to the venting plug, guarantees that it closes well on the cover. Near the other

extremity it has a shutter that is intended to close, when necessary, the top hole of the venting plug.

DISCRIPTION OF THE DRAWINGS

[0027] To further facilitate the understanding of the improvements made to Patent of Invention P201000195, some drawings are attached, showing a graphic representation of a practical embodiment, with the indication that given the essentially informative character of the drawings in question, the figures shown therein must be examined in the broadest sense and on a non-limiting basis. Nine diagrams are included with the following meaning:

Figure 1

[0028] Represents a perspective view of the invention as included in the original document, which will facilitate the comparison between the initial device and the improved one that is presented in this document. The following indications are made:

- 1.- container
- 2.- product
- 3.- handle
- 4.- removable rigid disc
- 5.- flexible airtight piston
- 6.- emptying mouthpiece with handle
- 7.- plug

Figure 2

[0029] Represents a perspective view of the invention including the improvements corresponding to this first addition to the patent. The plug is shown in section to facilitate the view inside of its structure and components. The following indications are made:

- 1.- container
- 1.1- graduated scale
- 2.- product
- 8.- pouring spout
- 9.- cover
- 10. sealing ring
- 11.- venting plug
- 11.1.- cavity
- 11.2 venting hole
- 11.3.- through opening
- 12.- buoy
- 13.- tongue
- 13.1.- ring
- 13.2.- shutter

Figure 3

[0030] Is a perspective view of the cover with all its associated elements. The sealing ring is drawn assem-

bled on the cover. It includes a detail of the cross section of the venting plug.

Figure 4

[0031] These are plane views of the cover from above and below.

Figure 5

[0032] This figure represents the beginning of the closing process wherein the cover is inserted into the top part of the container partially full of a liquid product.

Figure 6

[0033] In this figure the cover reaches a position where it cannot go down any further because it has reached the top level of the liquid product contained in the container, consequently expelling all the air that was inside it.

Figure 7

[0034] This figure illustrates how the system works in the closing process in order to obtain the desired vacuum.

Figure 8

[0035] It is similar to the previous figure, but represents how the system operates when the vacuum is released by operating the through opening to pour the liquid product so that it can be used.

Figure 9

[0036] Represents the moment in the pouring process when the cover has been removed to the edge of the container.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0037] Improvements made to patent application P201000195 "Container with sliding cover and vacuum plug" (Figures 1 to 9) which in one embodiment preferred by the inventor consists of a container (1), with or without a handle (3), that contains a product (2) which container (1) is shaped like a revolving straight cylinder wherein the closure elements indicated (Figure 1) with the marks of removable rigid disc (4), flexible airtight piston (5), mouthpiece (6) and plug (7), are replaced by a new element called cover (9) which is shaped like a revolving straight cylinder whose outer diameter is slightly smaller than the inner diameter of container (1), adjusting with full accuracy container (1) and cover (9) thanks to the presence of a sealing ring (10) assembled on cover (9) on which a venting plug (11) is screwed to, said plug, in addition to a venting function, having also the function of

acting as a puller or knob for cover (9).

[0038] Venting plug (11) has inside a cavity (11.1) that is open at the bottom along its section and open at the top via a venting hole (11.2). Cavity (11.1) is designed very precisely with its lower part in the shape of a revolving straight cylinder whose vertical axis coincides with the vertical symmetry axis of venting plug (11). This cylinder, with a slight gentle transition curve, connects with another one above that has a smaller diameter and ends in its highest part in a semi-spherical dome open to the outside via said venting hole (11.2). (Figures 2 and 3).

[0039] Cover (9) (Figures 2, 3 and 4) is provided with the corresponding thread for receiving venting plug (11) has, at the bottom, a through opening (11.3) that has been illustrated with a cross section in the shape of a two armed cross, although it could have three arms or other star shapes.

[0040] If we suppose that venting plug (11) is assembled on cover (9), it is understood that cavity (11.1) and the actual cover (9) form a chamber which, according to the invention, is intended to house a hollow buoy (12), sphere-shaped whose diameter is slightly smaller than that of the above-mentioned semi-spherical dome. In these conditions, buoy (12), which logically must be inserted into cavity (11) before screwing on venting plug (11), can move with complete freedom in the above-mentioned chamber, it being well understood that, due to the gravitational force, it will be deposited on the lower part of venting plug (11) resting on cover (9), and more particularly on through opening (11.3), with the particular feature that due to the design of the parts, it is possible for a liquid to pass through the escape holes that are formed. On the contrary, if hollow buoy (12) that can float on a liquid product (2), it is projected upwards obeying the principle of Archimedes, it will end up coupling perfectly with the top part of cavity (11.1) in the shape of a semi-spherical dome, fulfilling the function of a valve that will completely close venting hole (11.2).

[0041] As indicated in the beginning, sealing ring (10) made of flexible material, has the function of accurately closing the clearance between the inner part of container (1) and the outer part of cover (9) along the whole trajectory that cover (9) can cover lengthways inside container (1), with the exception of the section corresponding to the highest part of container (1) where it expands to form pouring spout (8), this situation being illustrated in the figures (Figure 5 and 9).

[0042] The design of container (1) and cover (9), thus conceived, causes that when pressure is applied on venting plug (11) moving cover (9) downwards, the air contained in container (1) is expelled and exits outside, first via through opening (11.3), then via cavity (11.1) and, finally, via venting hole (11.2).

[0043] The descending process of cover (9) is limited as illustrated in detail in (Figure 7) where it can be observed that product (2) has completely filled cavity (11.1) of cover (9) with the particular feature that hollow buoy (12) which, as already mentioned, can freely move in

inside cavity (11.1), ascends by floating on product (2) shutting off venting hole (11.2). Once the air is completely exhausted and as a consequence of the airtight closure produced by sealing ring (10) and buoy (12), a vacuum state is obtained enabling product (2) to be preserved for an indefinite period of time without danger of oxidising. This vacuum situation is assured, irrespective of the position of container (1), by adjusting on venting hole (11.2) the shutter (13.2) provided on tongue (13).

[0044] When product (2) is to be consumed, the procedure is reversed, as shown in the figures (Figure 8), wherein, once shutter (13.2) on tongue (13) has been removed, venting plug (13) is actuated moving cover (9) upwards and undoing the valve effect exercised by buoy (12) on venting hole (11.2), which triggers the entry of air into cavity (11.1) and into container (1) via through opening (11.3) with buoy (12) dropping simultaneously to the bottom of cavity (11.1).

[0045] The process of acting on cover (9) by pulling venting plug (11) must continue until cover (9) reaches the top part of container (1) so that sealing ring (10) is no longer in contact with container (1) in the area of pouring spout (8). Having arrived at this situation, product (2) can be poured without any problems, (Figure 8), with air entering via venting hole (11.2), cavity (11.1) and via through opening (11.3).

[0046] The design of this device, as described herein, allows all its elements to be cleaned regularly, even the most delicate, since this only requires disassembling the unit by removing cover (9), then unscrewing venting plug (11) and removing buoy (12).

[0047] It is worth indicating that not only the airtight closure of cover (9) on container (1) via sealing ring (10) is important, but also the perfect adjustment of venting plug (11) on cover (9) for which it is foreseen that tongue (13) has at one end thereof a ring (13.1) that acts as a washer, thus ensuring the closure, since the unit made up of tongue (13), ring (13.1) and shutter (13.2) is made of neoprene material, silicone or the like.

[0048] The own container (1) includes an improvement that consists in including a graduated scale (1.1) when it is made with transparent or translucent walls. If container (1) is made in opaque material, which is convenient when it is desired to protect product (2) from the effects of light, graduated scale (1.1) will not be provided.

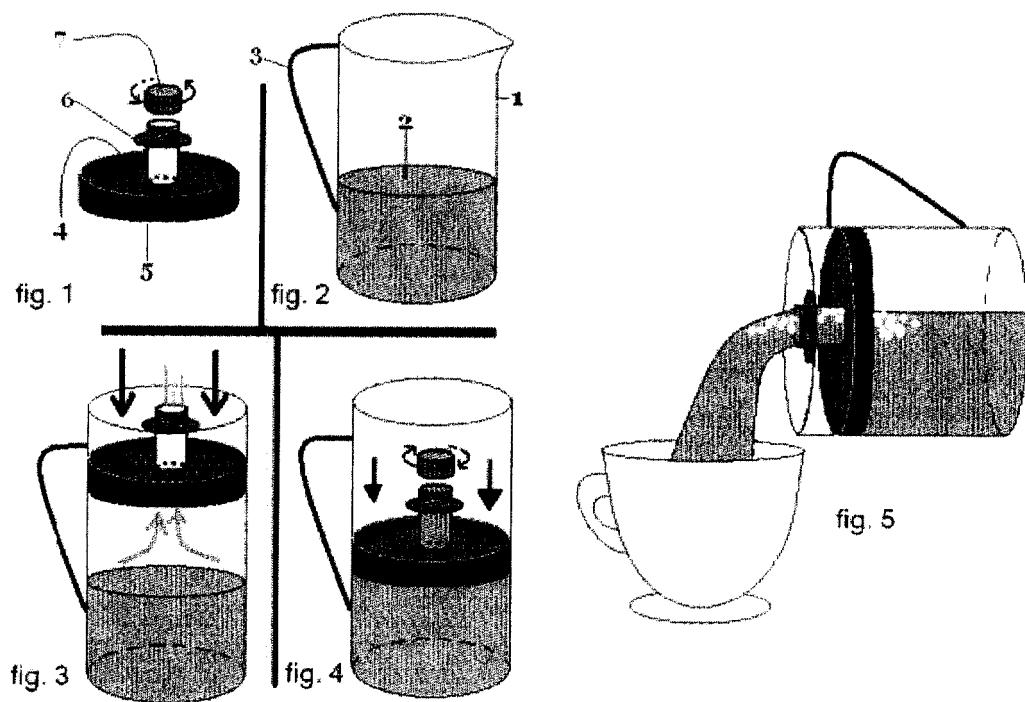
[0049] The inventor conceives the application of this device in any kind of container (1) like isothermal containers, cake containers or large containers. Equally, the invention can be applied to containers (1) of any section (circular, elliptic, square, rectangular, etc.) on which it is guaranteed that a sliding cover (9) can be adapted to with its corresponding airtight seal. It is not considered necessary to extend the contents of this description so that a person skilled in the art can understand its scope and the advantages derived from the invention, and develop and implement the object thereof, where it must be understood that the invention has been described according to a preferred embodiment thereof, and therefore

it may be subject to modifications without this altering in any way the fundamental nature of said invention, with said modifications altering the shape, size and/or manufacturing materials; in other words, the terms used to expound this preferred description of the invention, must always be understood in their broadest, non limiting sense.

10 Claims

1. Container with sliding cover and vacuum plug **characterized in that** it comprises a container -1-, and a sliding cover with a vacuum plug (Figure 1). The cover is made up of a removable rigid disc -4-, a flexible, airtight piston -5-, a removal mouthpiece with handle -6-, and a closure system or plug preferably threaded -7-. This way the container -1- is suitable to allow the user to keep and preserve in the inside thereof, any product -2-, that is likely to be altered by being in contact with air and/or humidity, by means of the isolating cover (Figure 1) comprising a mouthpiece joined to disc -4-, and it is enabled to allow the volume of air to be removed via the centre (Figure 3), since piston -5-, which acts like a syringe, sliding inside container -1-, is completely airtight. Once all the air is removed, plug -7- is prepared to close mouthpiece -6-, which therefore makes it possible to isolate product -2- from the air and/or humidity (Figure 4), for its perfect preservation, keeping and transport.
2. Container with sliding cover and vacuum plug according to claim 1, **characterized in that** it enables obtaining the absolute air vacuum in the airtight container, without the need for a vacuum pump.
3. Container with sliding cover and vacuum plug according to claim 1 and 2, **characterized in that** it enables the device to be reused as the product is consumed, reducing the volume.
4. Container with sliding cover and vacuum plug according to claim 1, 2 and 3, **characterized in that** for other external agents that can alter product -2- like light and other thermal factors, it will be necessary to use a container -1- suitable for this purpose, that is opaque or a thermos type.
5. Container with sliding cover and vacuum plug according to claim 1, 2, 3 and 4, **characterized in that** it offers the possibility of incorporating therein a handle -3- for better transporting and handling of the device.
6. Container with sliding cover and vacuum plug according to claim 1, 2, 3, 4 and 5, **characterized in that** it can incorporate advertising elements therein.

7. Container with sliding cover and vacuum plug according to claim 1, 2, 3, 4, 5 and 6, **characterized in that** the materials, shapes, accessories and components used for carrying out this invention, will depend on the most appropriate sanitary, commercial and industrial requirements of the end user. 5
8. Improvements made to patent application P201000195 "Container with sliding cover and vacuum plug" which in the corresponding document is described as a container (1), with or without handle, intended for preserving products (2) by means of a vacuum, made out of the actual container (1) and a series of closure elements making up the said sliding cover with vacuum plug, removable rigid disc (4), flexible airtight piston (5), emptying mouthpiece with handle (6), and plug preferably threaded (7), the improvements being **characterized in that** the container (1) provided with a pouring spout (8) includes a graduated scale (1.1) when it is made in transparent or translucent material, and all the above-mentioned closure elements are replaced by a cover (9) being externally shaped like a straight revolving cylinder whose external diameter is slightly smaller than the inner diameter of container (1), comprising an sealing ring (10), a threaded venting plug (11) having a cavity (11.1) with a semi-spherical dome that has a venting hole (11.2), in which cavity (11.1) a hollow, spherical buoy (12) is housed, with a diameter slightly smaller than that of the dome. 10 15 20 25 30
9. Improvements made to patent application P201000195 "Container with sliding cover and vacuum plug" according to claim one, **characterized in that** cover (9) has a through opening (11.3) and **in that** the venting plug (11) includes a tongue (13) with ring (13.1) and shutter (13.2). 35
10. Improvements made to patent application P201000195 "Container with sliding cover and vacuum plug" according to preceding claims, **characterized in that** product (2) can be poured through pouring spout (8) by just sliding cover (9) towards the top of container (1). 40 45
11. Improvements made to patent application P201000195 "Container with sliding cover and vacuum plug" according to preceding claims, **characterized in that** the invention is applicable to containers (1) having transparent, translucent or opaque walls, isothermic walls or of any other kind and with any kind of section. 50 55



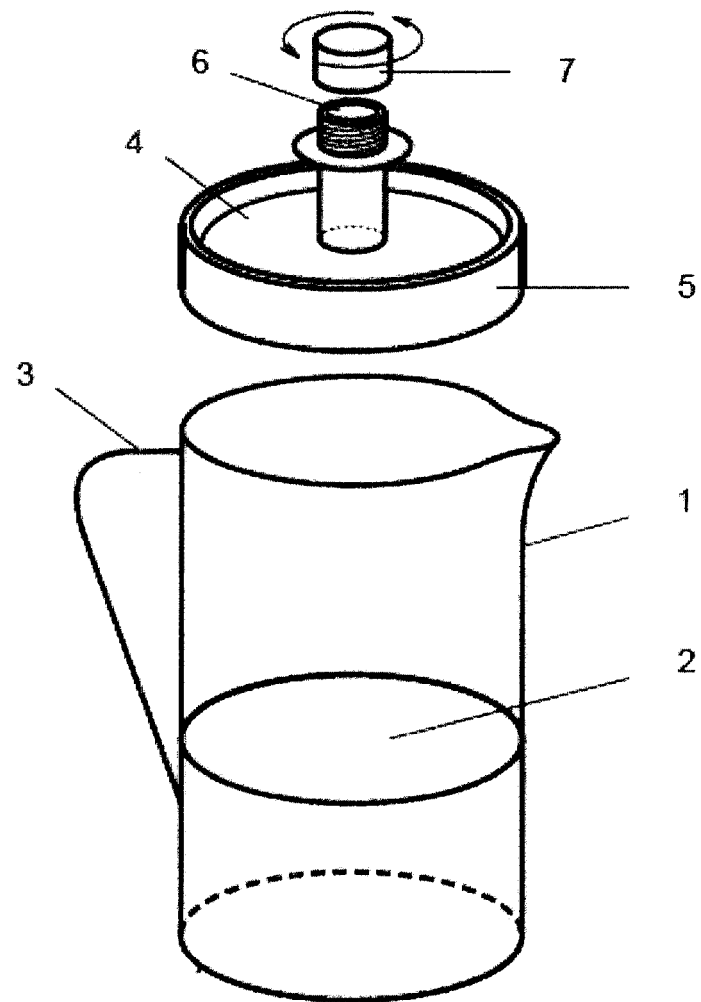


Figura 1

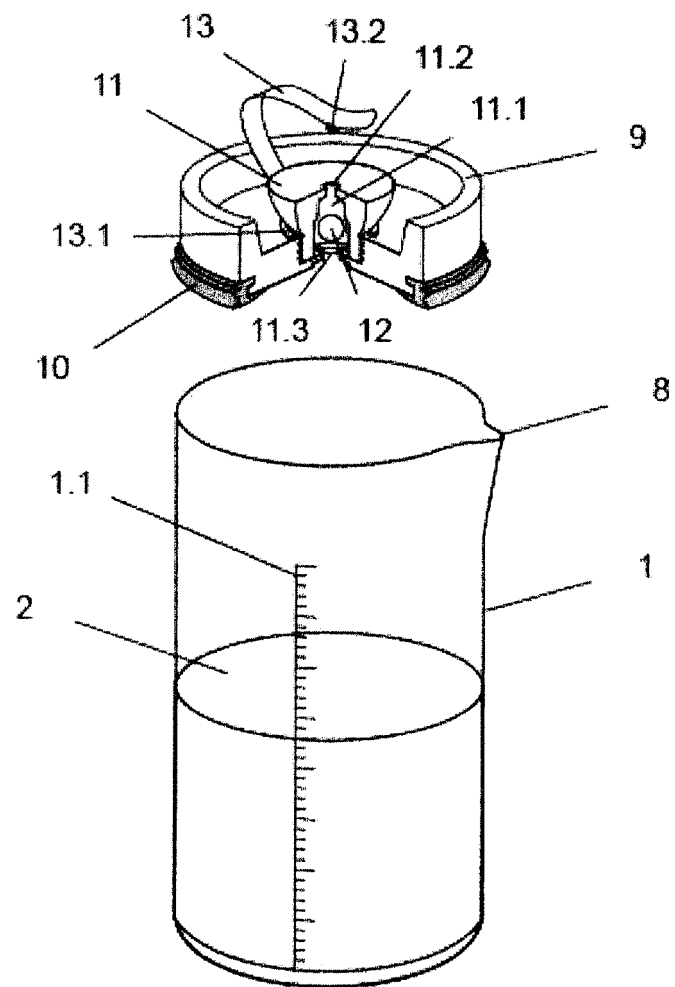


Figura 2

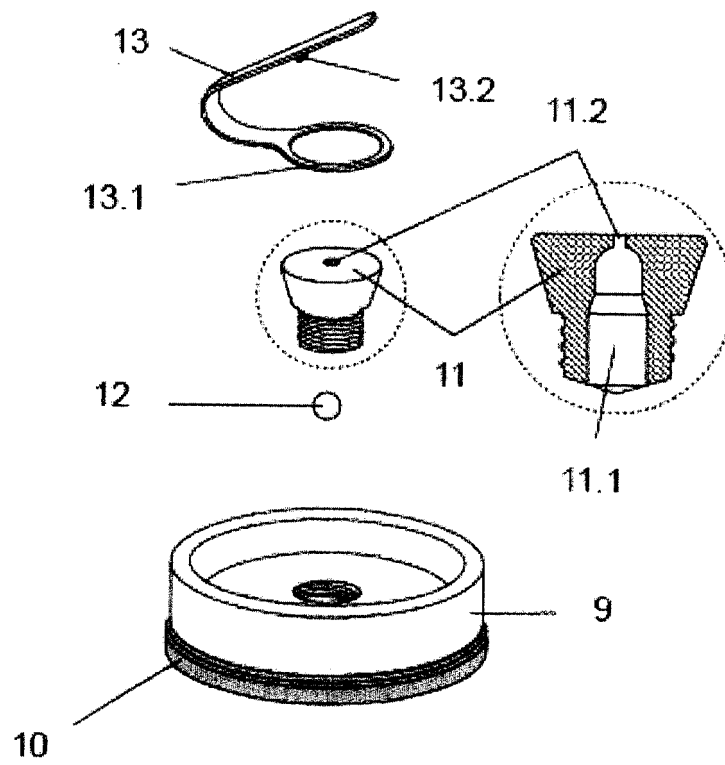


Figura 3

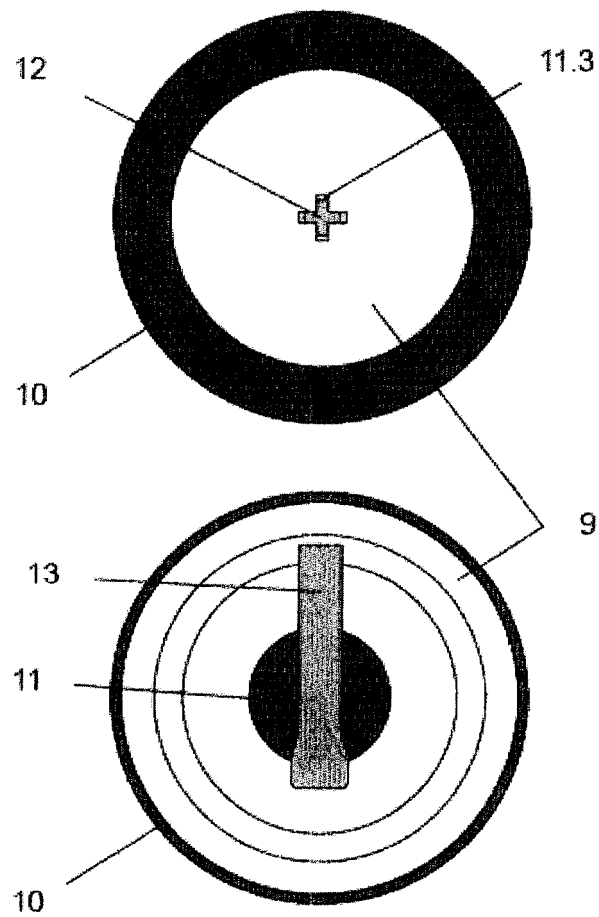


Figura 4

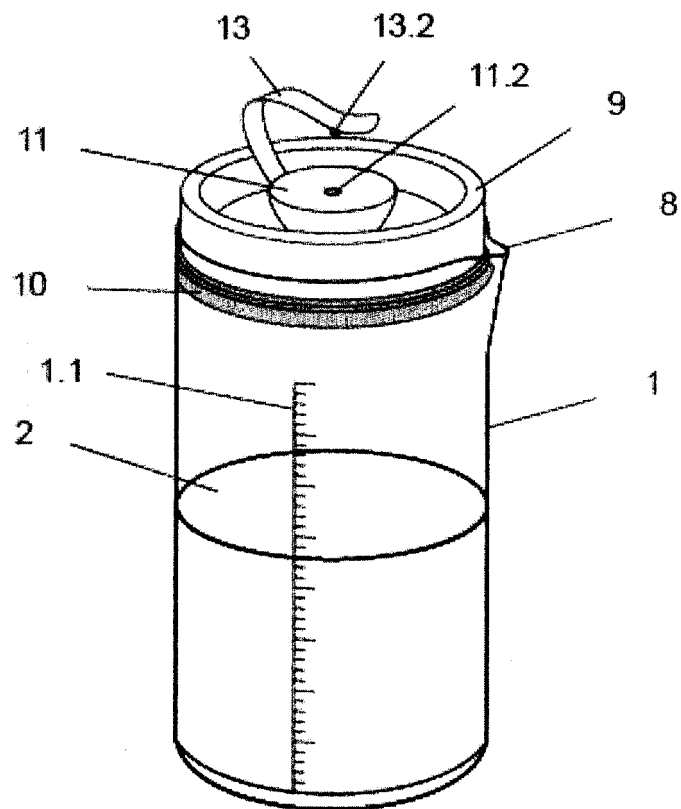


Figura 5

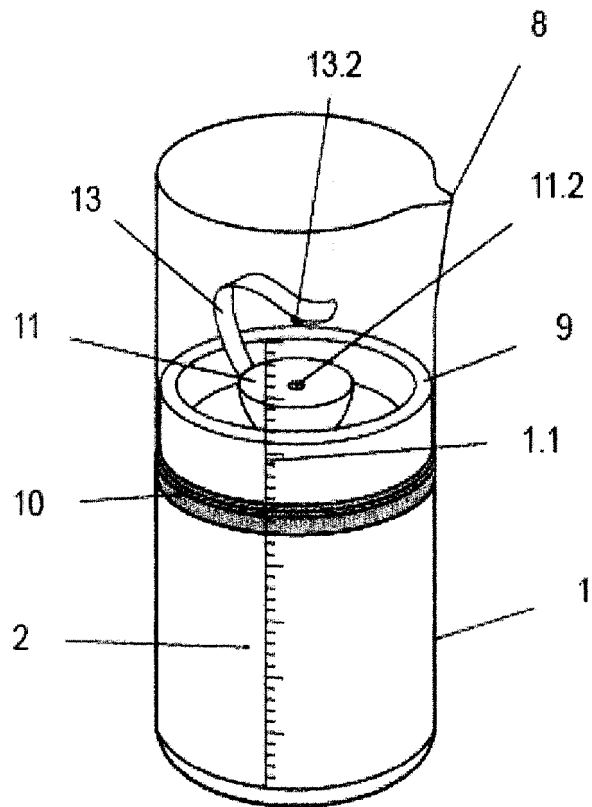


Figura 6

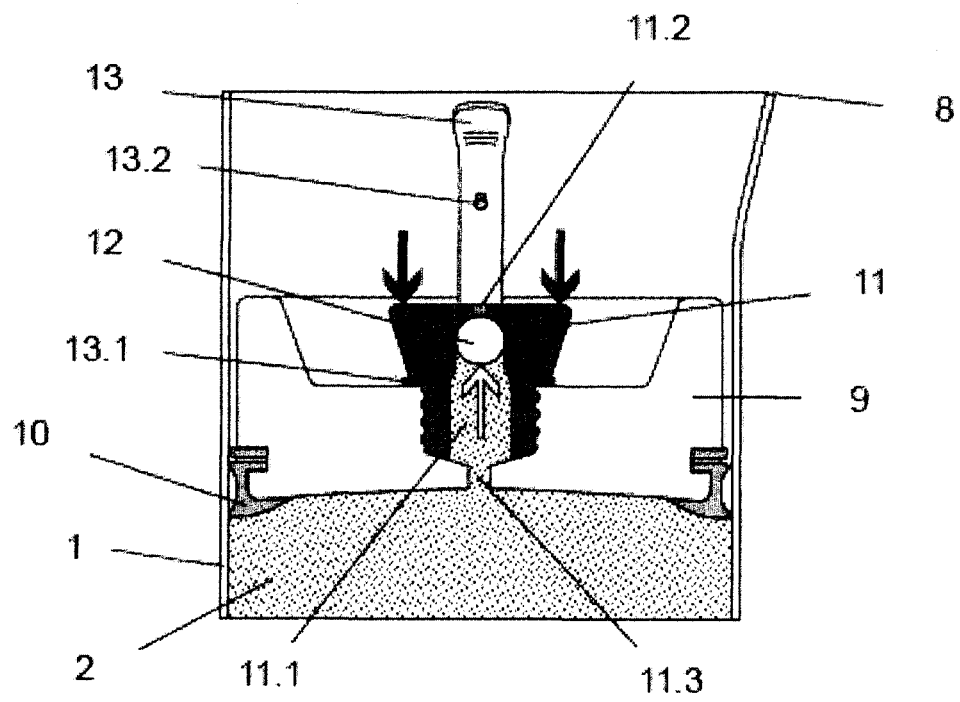


Figura 7

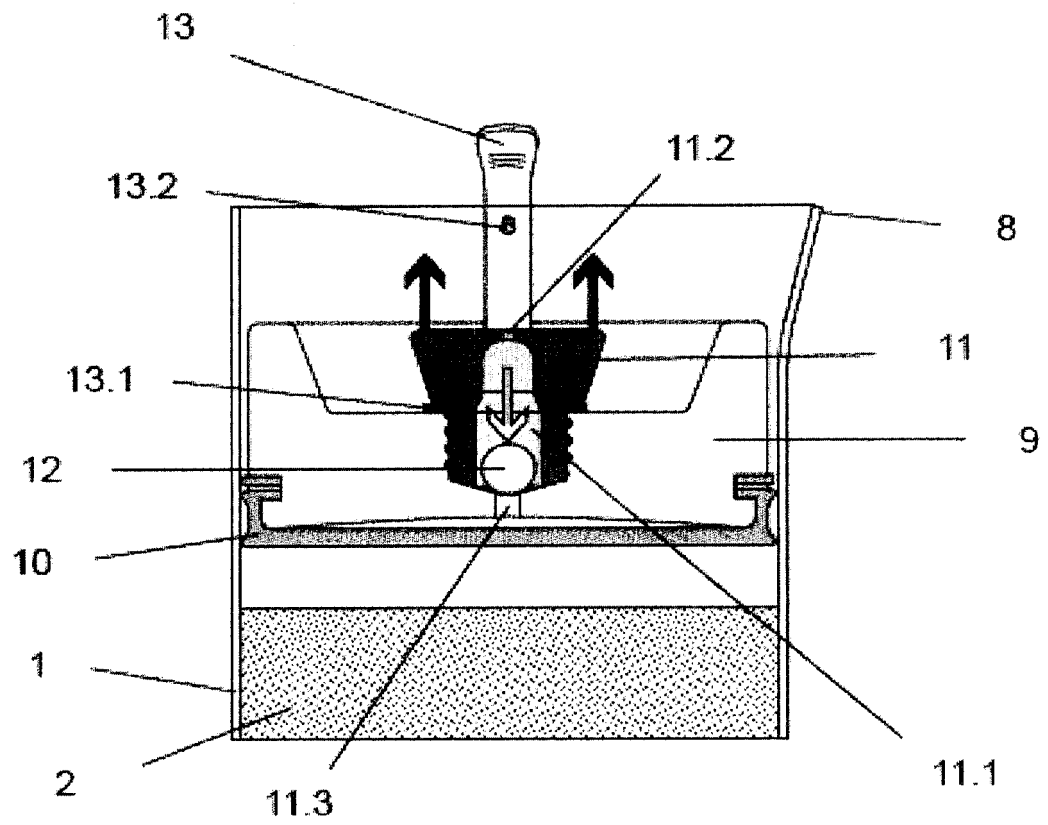


Figura 8

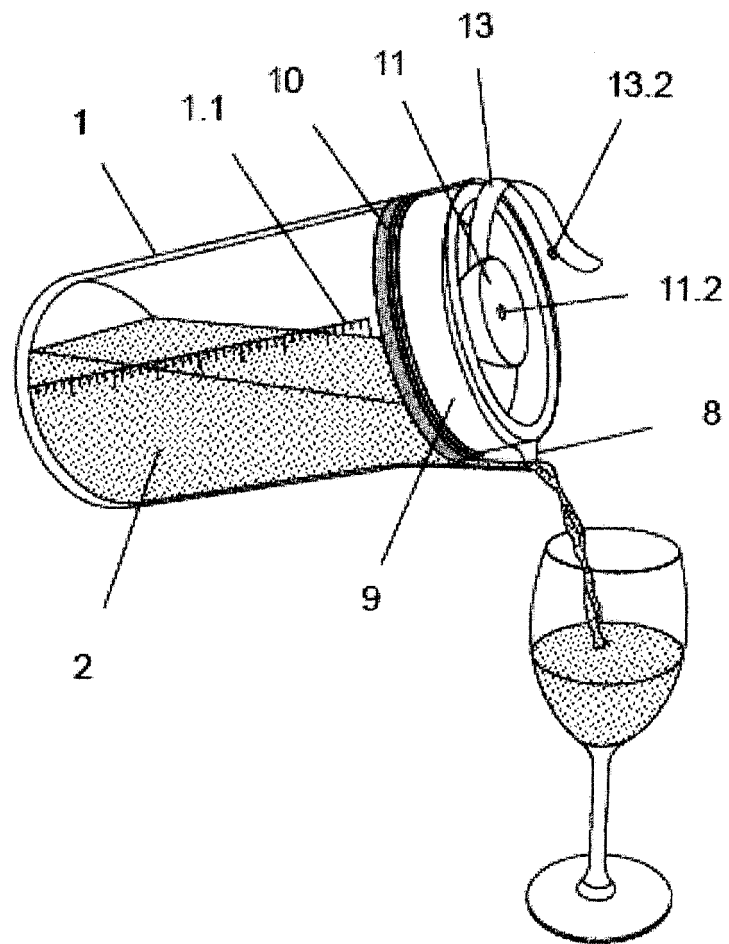


Figura 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2011/000039

A. CLASSIFICATION OF SUBJECT MATTER

See extra sheet

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, A47J

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)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6945014 B1 (QUANN) 20.09.2005, column 2, line 51 – column 4, line 50; figures 1-5.	1-7
Y		8-11
Y	US 589965 A (GONOROVSKY) 14.09.1897, page 1, lines 29 – 56; figure 2.	8-11
X	ES 2100627 T3 (LAFFY RAOUL; LAFFY PIERRE ALAIN) 16.06.1997, column 7, line 55 - column 8, line 61; figure 4.	1-7
A	WO 201003258 A1 (PI DESIGN AG; BODUM JORGEN) 14.01.2010, abstract; figure 3.	1-11
A	DE 9203171 U1 (MELITTA HAUSHALTSPRODUKTE GMBH) 23.04.1992, page 3, line 16 - page 5, line 10; figure.	1-11

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

☒ See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance.	
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"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)	"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
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Date of the actual completion of the international search
06/06/2011

Date of mailing of the international search report
(16/06/2011)

Name and mailing address of the ISA/

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Form PCT/ISA/210 (second sheet) (July 2009)

EP 2 537 775 A1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2011/000039

Information on patent family members

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US6945014 B	20.09.2005	NONE	
US589965 A		NONE	
ES2100627 T	16.06.1997	FR2656854 AB EP0437119 A EP19900402239 US5373971 A EP0639514 AB EP19940203002 DE69029750 T	12.07.1991 17.07.1991 03.08.1990 20.12.1994 22.02.1995 03.08.1990 14.08.1997
WO2010003258 A	14.01.2010	CA2735186 A AU2009267719 A CH699504 A	14.01.2010 14.01.2010 15.03.2010
DE9203171 U	23.04.1992	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2011/000039

CLASSIFICATION OF SUBJECT MATTER

B65D83/00 (2006.01)

B65D47/26 (2006.01)

A47J31/00 (2006.01)

A47J31/44 (2006.01)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO P201000195 A [0020] [0024] [0027] [0037]