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APPARATUS FOR PREVENTING FRAUDULENT REFILLING OF LIQUID RECEPTACLES.

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1,047,446. Patented Dec. 17, 1912.

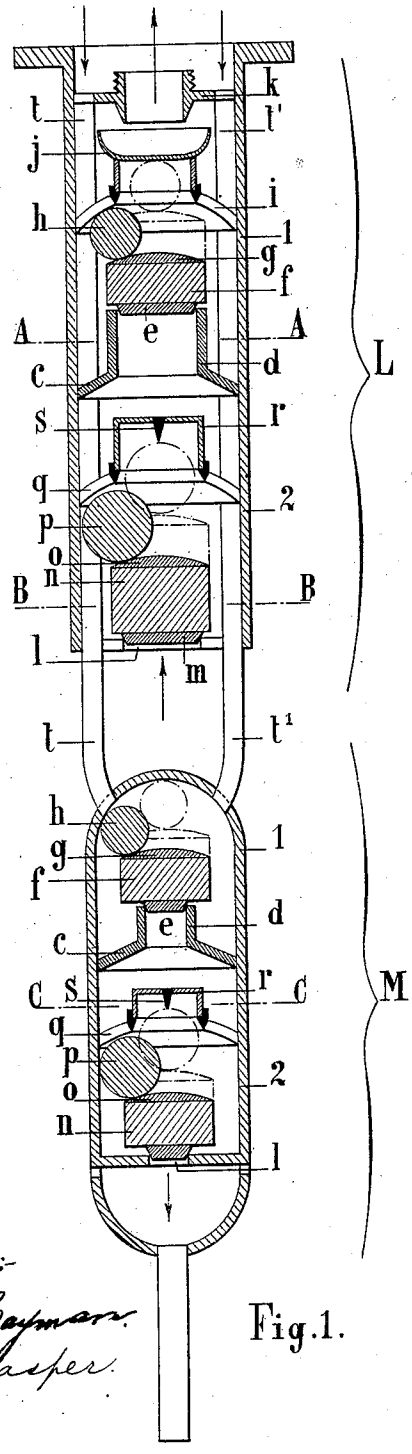


Fig.1.

Fig.2.

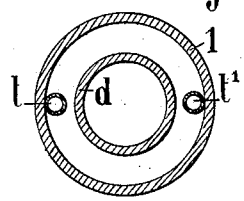


Fig.3.

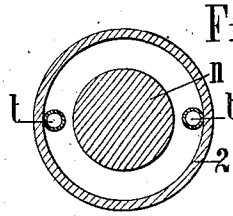
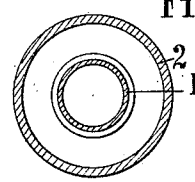


Fig.4.



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APPARATUS FOR PREVENTING FRAUDULENT REFILLING OF LIQUID-RECEPTACLES.

1,047,446. Specification of Letters Patent. Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that I, MARCELLIN MARIUS RÉ, of 24 Rue Lacharrière, Paris, France, have invented Improvements in or Relating to Apparatus for Preventing Fraudulent Refilling of Liquid-Receptacles, and do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

This invention relates to improvements in safety apparatus for preventing fraudulent refilling of bottles and other liquid receptacles.

The improved apparatus which is placed in the neck of the bottle, is constituted by two similar parts of unequal dimensions, each working in a distinct manner.

The accompanying drawing shows the complete apparatus in Figure 1, which is a vertical section, while Figs. 2, 3 and 4 are cross-sections made respectively on the lines A—A; B—B; C—C.

The largest apparatus L arranged above, is intended to afford passage to the liquid escaping from the bottle. The other apparatus M which is smaller, arranged below the first one, is intended for admitting into the bottle the air replacing the liquid at the same moment as the liquid is discharged. By means of these two apparatus affording passage, one to the liquid, and the other to the air, a continuous jet is obtained, so that the inevitable clucking noise which is due to an intermittent jet is done away with.

The two apparatus are constructed in the same manner. There is only a difference of dimensions of the parts, as the apparatus L is larger than the apparatus M. Their description is given hereinafter, the same letters of reference indicating the same parts in each of them throughout. Each of these apparatus is divided into two parts 1 and 2, separated by a partition (*c*) which is absolutely watertight and which has the shape of a truncated cone, having a cylindrical upwardly projecting portion (*d*) by means of which communication is established between the two parts 1 and 2. On the orifice of the said cylindrical part is mounted a small metal valve (*e*) of special shape. The said valve establishes or cuts off communication between the two parts of the apparatus, according to the position given to the latter. The said valve is provided with a cylinder (*f*) made of cork so that it can float on the liquid. The dimension of the said cork cylinder varies of course according to the density of the liquid to be protected. Above the said cork cylinder and forming one body with the same, is a metal part (*g*) having in section the shape of a spherical segment. A solid ball (*h*) rests on the said part (*g*) and is held in position for weighing it down (except when the bottle is turned over) in the apparatus L by means of a guide (*i*) having the shape of a concave crown provided with radial openings, and in the apparatus M by means of the upper partition which has the form of a dome. Moreover, in the apparatus L is mounted on the guide (*i*) a hollow part (*j*) which, with the edges of the opening of the plate (*k*), forms a baffle plate, so as to prevent the introduction, for instance of an iron wire with the object of reaching the valve and keeping it raised for trying to introduce liquid fraudulently. In the part 2 is also arranged a valve (*m*) fitting the edges of the opening (*l*), by means of which communication is established between the said part of the apparatus and the interior of the bottle, so that the valve (*m*) in question establishes or cuts off communication. The said valve (*m*) similar in every way to the valve (*e*), is also provided for the same purpose with a cylinder (*n*) surmounted by a metal part (*o*) similar also to the part (*g*). On the said part rests a solid ball (*p*) which, by means of a concave crown (*q*) provided with radial openings, keeps it always weighing down on the valve (*m*), so that the latter is always forced against the edge of the opening (*l*) to close the communication.

On the central portion of the concave crown (*q*) is mounted a small bracket or brace (*r*) supporting and keeping at a suitable distance a small rod (*s*), the object of which is to stop the solid ball (*p*) which, when the apparatus is turned over, comes to rest in the said recessed portion of the crown (*q*), when the valve falls down and uncovers the opening, a communication thus being established. The ball which in this position has only two points of contact, one on the spindle (*s*) and the other on a portion of the circumference of the recessed portion of the crown (*q*), runs no risk of becoming stuck, even if the liquid protected is more or less syrupy or viscous.

The arrangement according to this inven-

tion is preferable to the use of any other systems, rubber or cork valves, etc., as the division of the apparatus into two parts 1 and 2 separated by a water tight partition and communicating only through the opening on which rest the valves (*f*), has been specially designed for preventing introduction of glue or other viscous liquid by means of which an attempt might be made to prevent the apparatus from working by causing the parts to stick. For the sake of greater clearness, the guides holding the valves in the center of the apparatus are not shown, and may be of any suitable kind. Two small tubes (*t*) and (*t'*) are mounted in the diametrical direction on the top of the part 1 of the apparatus M. These two tubes pass entirely through the apparatus L and terminate at the level of the plate (*k*) of the apparatus. It is through the tubes in question that air passes into the bottle after having passed through the apparatus M whence it escapes through the opening (*l*). In order to avoid eddies at the level of the neck of the bottle, due to the air passing in bubbles, another tube can be mounted either on the bottom portion of the apparatus M or simply on the opening (*l*). This tube would then have for its purpose to prevent the said eddying by carrying further the air bubbles escaping from the apparatus M.

The tubes (*t*) and (*t'*) are provided for the purpose of admitting air into the apparatus M instead of one only, for the reason that whatever be the construction of this apparatus, it frequently happens that a small quantity of liquid is introduced into the tube, and interferes with its good working, so that it is then necessary to give the apparatus a sharp blow in order to get rid of the liquid, which is inconvenient. By means of these two tubes arranged as described in the diametrical direction of the apparatus, if the above should take place when the apparatus is reversed, the liquid accidentally introduced escapes through that of the two tubes which is in a lower position, while air enters through the other. The working thus takes place smoothly. The upper edge of the opening of the plate (*k*) of the apparatus affording passage to the liquid, is provided with a screw-thread for enabling a small metal or other plug to be screwed into the upper space, for avoiding waste of liquid during the transport.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. In an apparatus for preventing fraudulent refilling of liquid receptacles, the combination of two casings arranged longitudinally one above the other to fit within the receptacle opening and provided with openings to the interior and exterior of the receptacle, checking devices within each of said casings for preventing ingress of fluid from the exterior of to the interior of the receptacle, and a plurality of independent tubes open to the exterior of the receptacle, leading past the uppermost of said casings and communicating with the lowermost of said casings, for ingress of air to within said receptacle to compensate for the out-going fluid when the receptacle is inverted.

2. In an apparatus for preventing fraudulent refilling of liquid receptacles, the combination of two casings arranged longitudinally, one above the other, to fit within the receptacle opening, and provided with openings to the interior and exterior of the receptacle, checking devices within each of the casings for preventing the ingress of fluid from the exterior to the interior of the receptacle, and two independent tubes, open to the exterior of the receptacle at opposite sides of the opening thereof, leading past the uppermost of said casings and communicating with the lowermost of said casings, for ingress of air to within said receptacle to compensate for the out-going fluid when the receptacle is inverted.

3. In an apparatus for preventing fraudulent refilling of liquid receptacles, the combination of a cylindrical casing provided with openings to the interior and exterior of said receptacle, a frusto-conical shell disposed with its wall receding toward the exterior openings of said casing and disposed with its periphery in fluid tight engagement with the interior of the wall thereof, to divide the casing into two compartments, a valve seat surmounted upon said frusto-conical shell, an axially movable valve carried by said casing for coöperation with said valve seat and disposed to establish or interrupt communication between said compartment of said casing according to the position given to the apparatus, a member provided with a concave peripheral portion and a centrally disposed recess, situated superjacent to said frusto-conical shell, and a ball interposed between the valve and member, engaging the concave portion thereof to prevent movement of the valve when the apparatus is in a non-delivering position, or to enter the said recess in said member permitting movement of said valve when the apparatus is in a delivering position.

4. An apparatus for preventing fraudulent refilling of liquid receptacles, comprising in combination, two parts L, M of uniform construction, but non-uniform dimensions in superposition, each of said parts comprising truncated cones *c*, *d*, valves *e* forming seats for metal capped cork floats *f*, *n*, balls adapted to rest upon said valves and to close the same during the vertical position of the bottle, dome-shaped guides *i* having radial openings, the uppermost of

said guides provided with a bowl *j*, brackets *r* upon said guides, prongs *s* depending from said brackets and coöperating with the crowns *q* of said guides, tubes *t*, *t'* connecting the parts L, M and adapted to insure the admission of air into part M, and a screw-threaded plate *k* within part L cooperating with bowl *j* and preventing the introduction of wires, and adapted to receive the threaded lower end of a closing cap.

In testimony whereof I affix my signature.

MARCELLIN MARIUS RÉ.

In the presence of—
VICTOR PRÉVOST,
DEAN B. MASON.