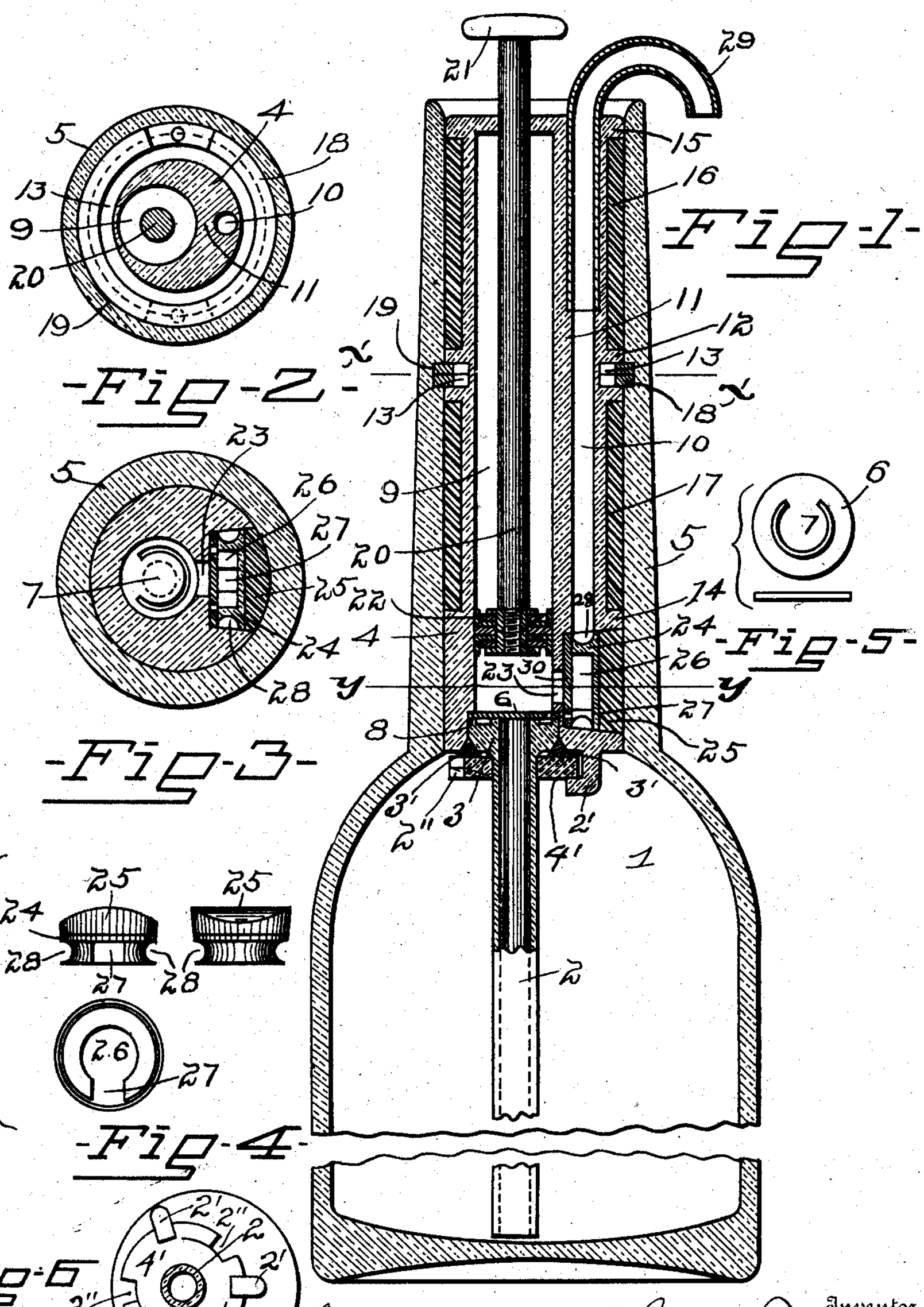
No. 864,212. PATENTED AUG. 27, 1907.

C. TAMPLIN.

BOTTLE STOPPER.

APPLICATION FILED JAN. 29, 1906.



-Fig-1-

-Fig-2-

-Fig-3-

-Fig-4-

-Fig-5-

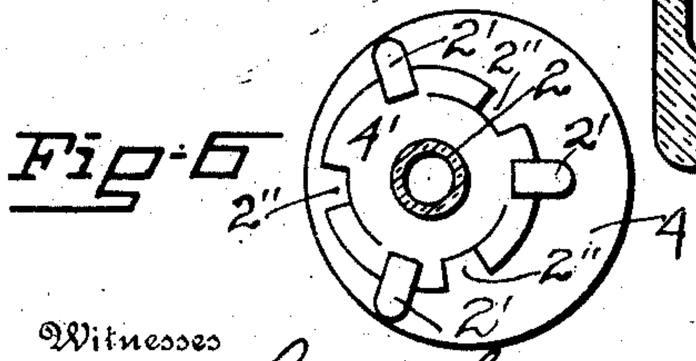


Fig-6

Witnesses

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UNITED STATES PATENT OFFICE.

CLARENCE TAMPLIN, OF DAYTON, OHIO.

BOTTLE-STOPPER.

No. 864,212. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed January 29, 1906. Serial No. 298,473.

To all whom it may concern:

Be it known that I, CLARENCE TAMPLIN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Bottle-Stoppers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in bottle stoppers or devices that are adapted for an insertion in the necks of bottles to prevent the improper usage of bottles after they have been emptied of their original contents.

The improvements have for their object the production of a device which permits of a free discharge of the contents of the bottle but provides a positive obstruction to the passage into the bottle, all as will be hereinafter more fully described and pointed out in the claims.

Preceding a detail description of the invention, reference is made to the accompanying drawings, of which—

Figure 1, is a vertical longitudinal section of a bottle having my improvements applied. Fig. 2, is a cross section on the line x x of Fig. 1 the packing rings being shown full. Fig. 3, is a cross section on the line y y of Fig. 1. Fig. 4, are detached views of the valve plug. Fig. 5, detached views of the suction or flap valves. Fig. 6, is a plan view of the lower end of the stopper and parts associated therewith.

In a detail description of the invention, similar reference characters indicate corresponding parts.

Within the body 1 of the bottle there is placed an outlet suction tube 2 extending down within proper distance of the bottom of the bottle in order that all of the contents may be removed. The bottom of the bottle is of a concave form and the end of the suction tube projects in proximity to the center of the concavity. The upper end of the suction tube terminates in a head 3, the periphery of which is tapered and fits in the lower end of the stopper 4, the said stopper being inserted in the neck 5 of the bottle.

4′ is a washer which incloses the suction tube 2 immediately below the head 3 and holds said head in close contact with the lower end of the stopper 4. The washer 4′ is locked in such position by a series of three fingers 2′ which extend down from the lower end of the stopper. The washer has a similar number of recesses 2″ in its edge which enable it to receive the fingers 2′ after which, said washer is turned to bring the recessed portions away from the fingers—see Fig. 6. The surfaces on one side of the recesses 2″ are inclined to act as cams to bind the washer in contact with the packing gland 3′; the gland 3′ fits in the annular recess formed between the head 3 and the surrounding part of the bottle stopper. On the top of the head 3 there is placed a disk 6 made of leather or other suitable material and having a flap valve 7 formed therein by cutting a semicircular slit therein. This disk 6 is secured in position on top of the head 3 by being inclosed between said head and a shoulder 8 on the interior of the lower end of the bottle stopper 4.

The bottle stopper 4 it will be seen occupies the entire length of the neck 5 and has two compartments 9 and 10 which are separated by a partition 11. The outer surface of the stopper has a central annular off-set 12 which provides an annular recess 13, a lower annular off-set 14 and an upper annular off-set 15. Between these annular off-sets there are packing rings 16 and 17 which effectually seal the stopper in the neck of the bottle. The stopper is locked within the neck of the bottle by means consisting of metallic expansion rings or gaskets 18 which are compressed within the annular groove 13 in inserting the stopper, until they reach the annular recess 19 on the interior of the bottle neck, at which time said rings 18 expand into said recess and thus lock the bottle stopper within the neck in a manner which prevents access to said expansion rings. Within the larger chamber 9 of the stopper there is a plunger 20 projecting up beyond the neck of the bottle and having a finger-piece 21 by which said plunger is operated in discharging the contents of the bottle. The lower end of said plunger is fitted with suction disks and packing 22 above and in line with the flap valve 7 in disk 6. The space within the stopper between the head 3 of the suction tube, and the head of the plunger has egress through a side port 23 to a valve plug 24 which intersects the side passage 23 from the suction tube 2 to the exit passage 10 in the bottle stopper. This valve plug 24 is seated in the side of the stopper 4 near the lower end thereof and immediately at the entrance to the outlet passage 10, and is inclosed by a suitable packing plug 25 which fits between the outer side of said valve plug and the inner side of the neck of the bottle. The valve plug 24 has a central opening 26 with a side outlet 27 therefrom that communicates with a peripheral groove 28, said peripheral groove communicating with the outlet passage 10, from which the contents of the bottle is ejected through a goose neck or spout 29 which is inserted in the opening 10 in the stopper 4. The opening 26 in the plug 24 is closed on its inner face by a flap valve 30 which is similar to the valve shown in Fig. 5, and through which the liquid contents are forced when the plunger is moved downwardly. It will be understood that in the upward movement of the plunger the liquid is drawn from the tube 2

by the suction thus created, such suction being instrumental in raising the flap valve 7; upon the downward movement of the piston the pressure exerted thereby closes the valve 7, and opens the valve 30 controlling the outlet through the valve plug 24.

Having described my invention, I claim:

1. The combination with a bottle, of means for preventing the refilling of said bottle, consisting of a stopper which occupies the length of the neck of the bottle and has two longitudinal compartments therein, means for securing said stopper from withdrawal, packing rings interposed between the exterior surface of the stopper and the interior surface of the neck of the bottle, a plunger arranged in one of the compartments in the stopper, a suction tube projected into the stopper in line with the plunger, a valve controlling the outlet from said suction tube, and having a port at one side thereof and between said valve and the plunger, and a valve plug arranged within the passage-way between said port and the outlet compartment of the stopper, said valve plug having an axial opening and a peripheral groove communicating with said axial opening, said peripheral groove being in line with the outlet compartment in the stopper, and a valve controlling the communication between the axial opening in the valve plug and the port leading from the valve above the suction tube.

2. The combination with a bottle, of a stopper occupying the length of the bottle neck and having a plunger compartment and an outlet compartment with a port forming a communication at the lower ends of said compartments, a plunger within said plunger compartment, a suction tube connected with the lower end of the stopper in line with the plunger, a valve above said suction tube, a valve plug interposed between the outlet compartment and the port communicating with the plunger compartment said valve plug having a passage therein, and a valve controlling the passage through said valve plug.

3. The combination with a bottle, of a stopper occupying the length of the neck of said bottle, and having a plunger compartment and a parallel outlet compartment therein, said compartments communicating at their lower ends, a valve controlling such communication, a suction tube projected into the bottle and extending into the lower end of the stopper, a valve controlling the inlet through said suction tube to the plunger compartment, and a piston adapted to unseat the valve controlling the inlet from the suction tube in its upward movement, and to unseat the valve controlling the communication with the outlet passage in its downward movement.

4. The combination with a bottle, of a stopper occupying the length of the neck of said bottle and having a plunger chamber and a parallel outlet chamber, said chambers communicating at their lower ends, a valve controlling said communication, a suction tube having a valve plug lying within the lower end of the plunger chamber below the valve which controls the communication between the plunger chamber and the outlet chamber, and a plunger adapted to open the valve of the suction tube by the suction created in the upward movement of said plunger, and to open the valve controlling the communication between the plunger chamber and the outlet chamber in its downward movement.

5. In a non-refilling bottle, a stopper having a suction chamber and an adjacent outlet chamber communicating at their lower ends, a suction tube having a head engaging the lower end of the suction chamber, a washer holding said head in position, means projected from the stopper and engaging said washer to hold it, a valve on said head, and a side valve controlling the communication between the suction and outlet chambers.

In testimony whereof I affix my signature, in presence of two witnesses.

CLARENCE TAMPLIN.

Witnesses:
CAROLYN M. THEOBALD,
R. J. MCCARTY.