

(No Model.)

4 Sheets—Sheet 1.

O. R. VAN VECHTEN.
BOTTLE, JUG, OR JAR.

No. 585,543.

Patented June 29, 1897.

Fig. 1.

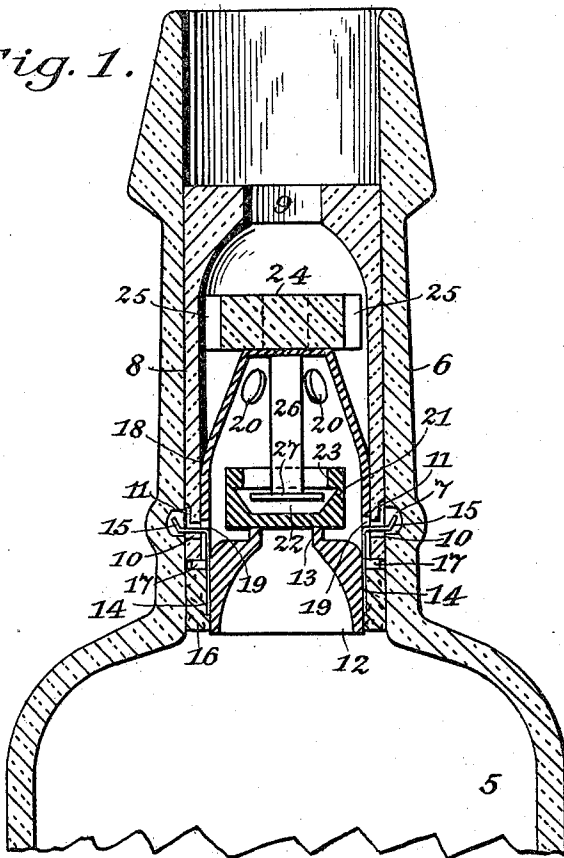
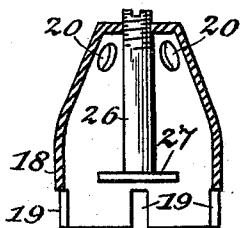


Fig. 7.



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[Signature]

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Fig. 2.

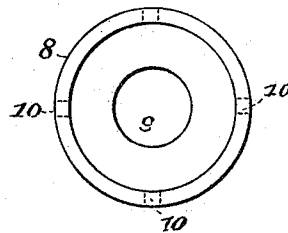


Fig. 3.

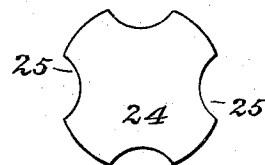


Fig. 4.

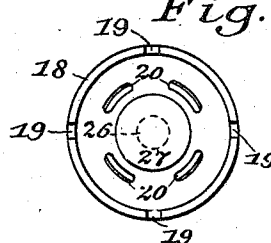


Fig. 5.

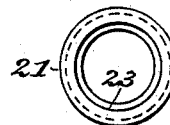
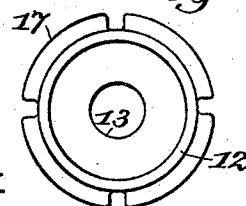


Fig. 6.



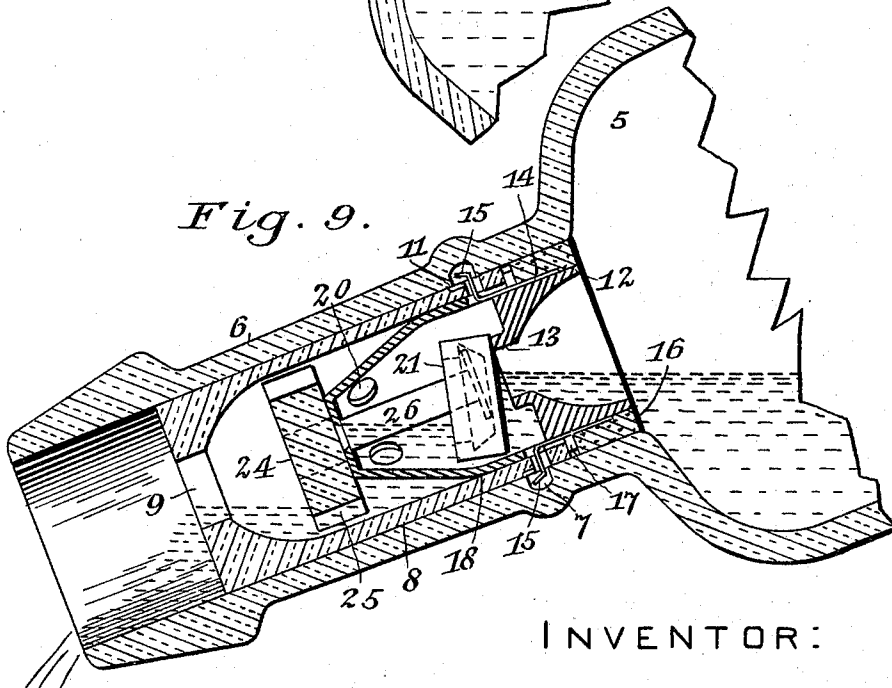
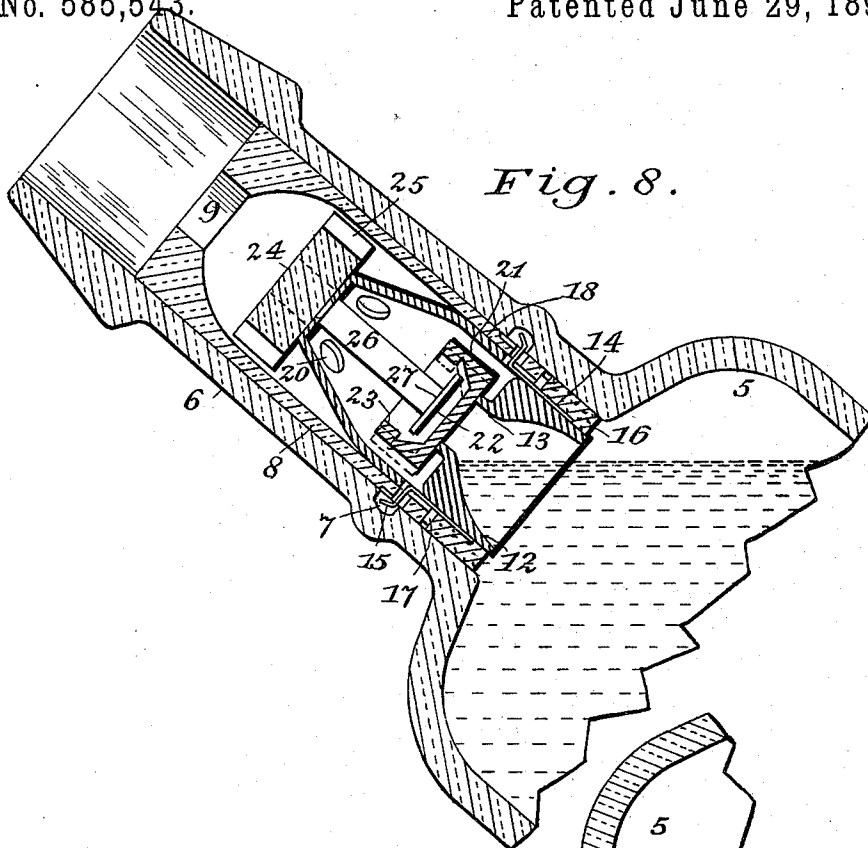
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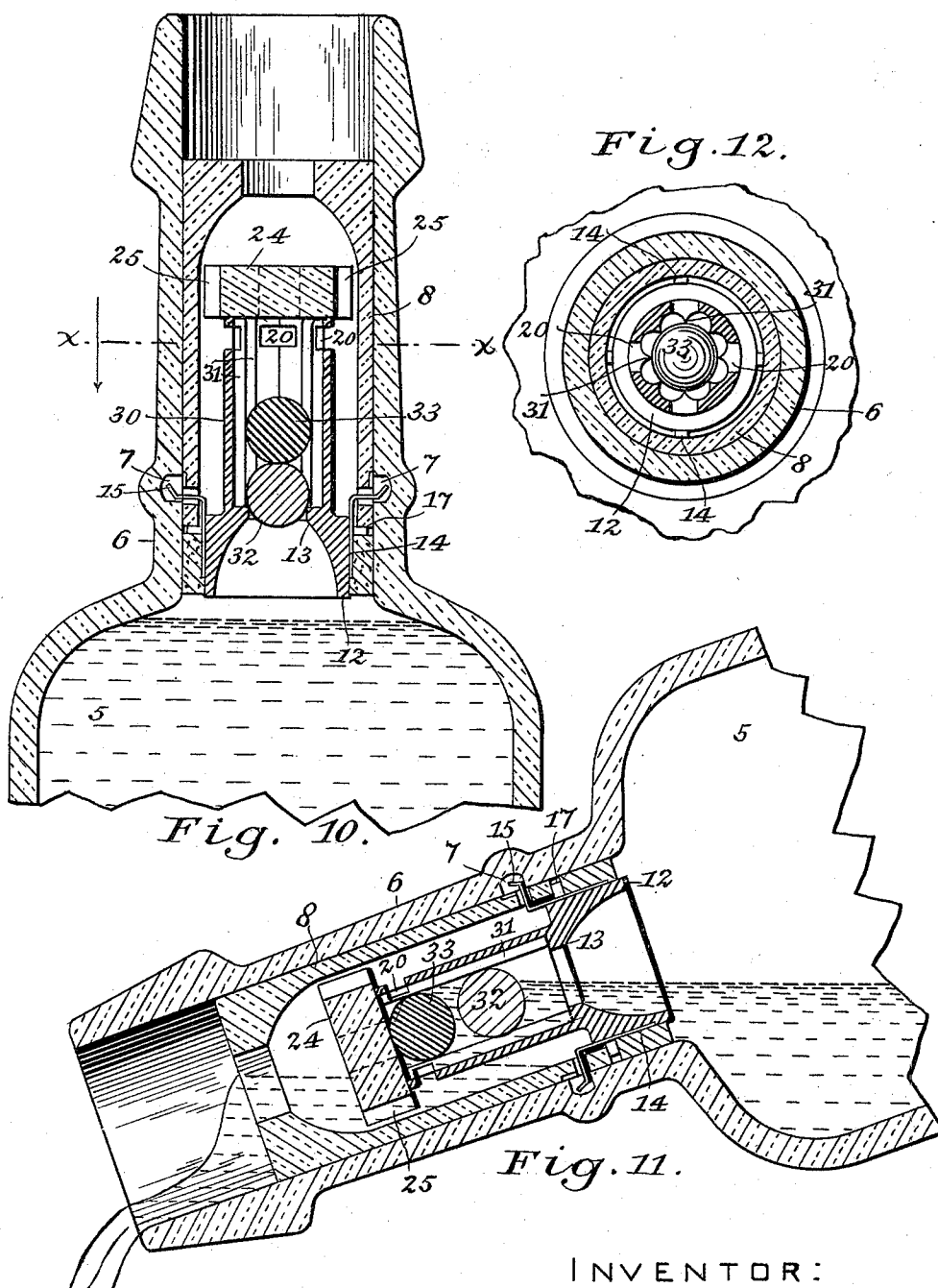
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O. R. VAN VECHTEN.
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No. 585,543.

Patented June 29, 1897.



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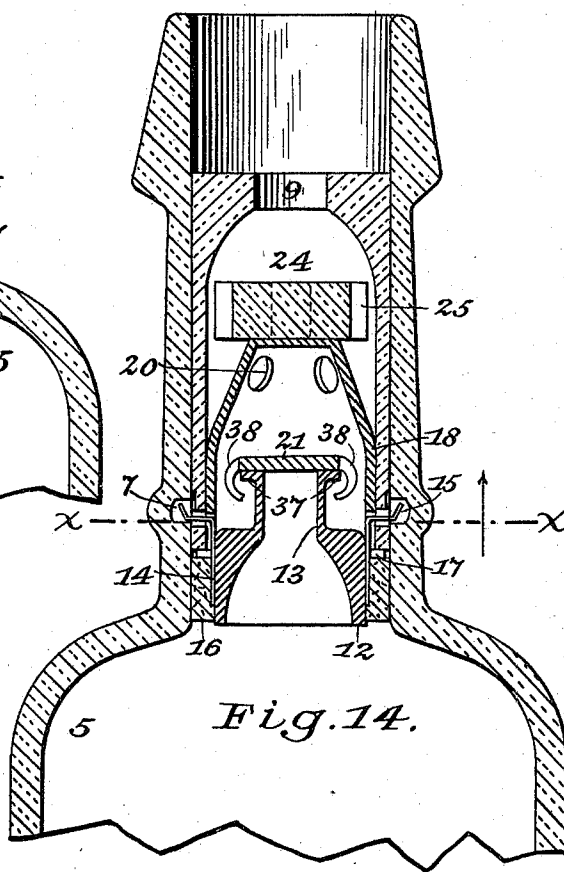
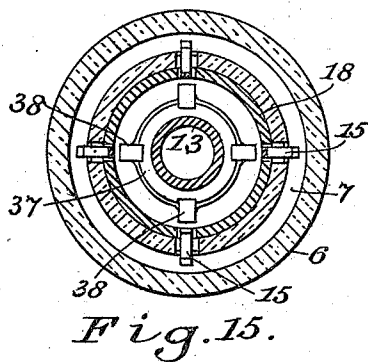
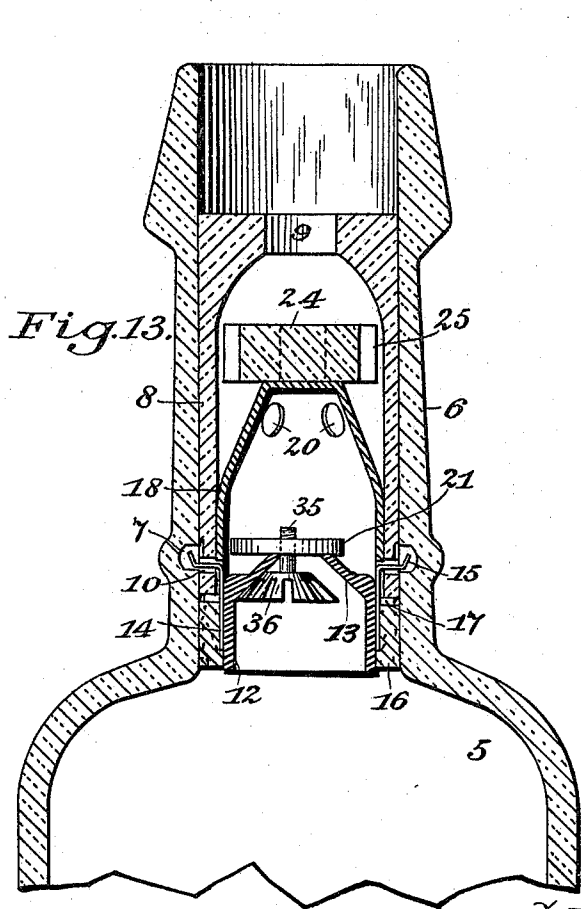
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UNITED STATES PATENT OFFICE.

ORVILLE R. VAN VECHTEN, OF NEW YORK, N. Y.

BOTTLE, JUG, OR JAR.

SPECIFICATION forming part of Letters Patent No. 585,543, dated June 29, 1897.

Application filed June 17, 1896. Serial No. 595,920. (No model.) Patented in Belgium July 15, 1896, No. 122,385.

To all whom it may concern:

Be it known that I, ORVILLE R. VAN VECHTEN, a citizen of the United States of America, residing at 367 West Twenty-third street, in the city, county, and State of New York, have invented certain new and useful Improvements in Bottles, Jugs, Jars, &c., of which the following is a full, clear, and exact description.

This invention has been patented to me in Belgium under date of July 15, 1896, No. 122,385.

This invention relates to bottles, jugs, jars, and similar vessels; and the object thereof is to provide a vessel of this class with a neck attachment or seal which is so constructed and arranged that when the vessel has been filled and the neck attachment or seal applied the vessel may be emptied of its contents, but cannot be refilled or reused.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which I have shown my invention applied to a bottle, and in which—

Figure 1 is a central vertical section of the upper part of the bottle and the neck thereof provided with my improved attachment or seal, said attachment or seal or the various parts thereof being shown in section. Figs. 2, 3, 4, 5, and 6 are plan views of parts of the seal or attachment; Fig. 7, a central vertical section of one part of the seal or attachment; Fig. 8, a view similar to Fig. 1, showing the bottle tilted; Fig. 9, a similar view showing the bottle partly inverted and showing also the position which a valve which forms a part of the attachment or seal assumes when the bottle is inverted or partly inverted; Fig. 10, a view similar to Fig. 1, showing a modified form of construction; Fig. 11, a view similar to Fig. 10, showing the bottle tilted or partly inverted; Fig. 12, a section on the line xx of Fig. 10; Fig. 13, a view similar to Fig. 1, showing another modification; Fig. 14, a similar view showing another modified form of construction, and Fig. 15 a cross-section on the line xx of Fig. 14.

In the practice of my invention, reference being made to Figs 1 to 9, inclusive, I provide a bottle which is designated by the reference-number 5 and provided with a neck 6, in which, near the bottom thereof, is an annular groove

7, and I also provide a stopper or seal consisting of a tubular casing 8, which is adapted to closely fit within the neck and the lower end of which is open and the upper end provided with a central port or passage 9.

In Fig. 2 I have shown a bottom plan view of the tubular casing 9, and formed therein, near the bottom thereof, are diametrically opposite openings 10, which are adapted to register with the annular groove 7, and said openings are provided at the upper sides thereof with short vertical recesses 11, which communicate therewith. I also provide a hollow or tubular plug 12, a bottom plan view of which is given in Fig. 6 and which is provided at its upper end with a neck or collar 13, which forms a valve-seat, and secured to the sides of this plug, which may be composed of glass or any preferred material, are springs 14, which are provided at their upper ends with outwardly and upwardly curved arms 15, which pass through the openings 10 in the lower end of the casing 8, and the upwardly-curved parts of which are adapted to enter the recesses 11 when the device or stopper is forced into the neck.

Around the lower part of plug 12 is placed a cork or other packing ring or band 16, and said plug is provided with segmental flanges 17, which rest thereon and between which the springs 14 pass, and mounted on said flanges is a tubular attachment 18, a bottom plan view of which is given in Fig. 4, and said attachment is provided with vertical slots 19 in its lower end, through which the springs 14 pass, and the upper end thereof is slightly conical in form and closed, and formed in the sides thereof are ports or passages 20, and the lower end thereof closely fits the inner wall of the casing 8. Mounted on the neck or collar 13 of the plug 12 is a cylindrical valve 21, which is shown in plan in Fig. 5, and in the upper part of which is formed a circular chamber 22, around which is an annular inwardly-directed rim or flange 23, and secured within the casing 8 above the conical and tubular attachment 18 and resting thereon is a partition plate or block 24, (shown in plan in Fig. 3,) and which is provided at its opposite sides with vertical grooves or passages 25 which are not in the same vertical line with the ports or passages

20 in the conical upper end of the tubular attachment 18.

The tubular and conical attachment 18 is shown in central vertical section in Fig. 7, and passing vertically therethrough and through the closed upper end thereof and into the partition plate or block 24 is a screw-threaded rod 26, by which said attachment and said plate or block are secured together, and mounted on the lower end of said rod is a disk 27, which enters the circular chamber 22 in the valve 21 and by which said valve is guided and retained in proper position, as hereinafter described. The operation of this form of construction will be readily understood from the foregoing description and accompanying drawings when taken in connection with the following statement thereof: In practice the bottle or vessel is first filled with the desired liquid, after which the stopper or seal, with all the parts connected as herein described, is forced downwardly into the neck until the spring-arms 15 of the springs 14 reach and enter the annular groove 7, when it will be impossible to remove said seal or stopper, and the upper part of the neck may then be closed by an ordinary cork in the usual manner. The operation of this form of construction will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof: When the bottle or vessel has been filled with the desired contents, the attachment or seal, with the various parts thereof connected as shown and described, is forced into the neck of the bottle until the spring-arms 15 enter the annular groove 7 in said neck. The attachment or seal will be securely held in this position and cannot be removed without breaking off the neck, and the annular packing 16, of cork or similar material, prevents the contents of the bottle from reaching the springs 14. The upper end of the neck of the bottle may then be closed by cork or stopper in the usual manner, and whenever it is desired to empty the bottle or discharge a portion of its contents it is only necessary to remove said cork or stopper and then invert or tilt the bottle, in which operation the valve 21 will leave its seat, as shown in Fig. 9, and the contents of the bottle will flow out around said valve through the tubular and conical attachment 18, around the partition plate or disk 24, and out through the port or passage, and this operation may be continued or repeated until the bottle is entirely emptied.

It will be observed that the disk or plate 27 on the rod 26 prevents the displacement of the valve 21, or while permitting it to leave its seat holds it in such position that it will immediately be resealed when the bottle is held in an upright position, and if an attempt be made to refill the bottle by pouring liquids into the neck thereof said valve will immediately be resealed and the passage through the neck or through the casing 8 and the tu-

bular plug 12 will be closed, and this operation of the valve will be the same in any position in which the bottle can be held in an attempt to pour liquids thereinto.

I may also construct the valve 21 so that it will serve as a float-valve, in which event no liquids can be forced into the bottle for the reason that if an attempt be made to force liquids into the bottle or vessel said valve would rise to its seat and thus close the passage through the hollow or tubular plug 12, as hereinbefore described.

In Figs. 10 to 12, inclusive, I have shown a modified form of construction in which the hollow plug 12 is provided with a valve-seat 13, as in Fig. 1, but in this form of construction an upwardly-directed tubular extension 30 is formed on said plug and placed thereon in the partition plate or block 24, and said tubular extension 30 is of much less diameter than the casing 8, and formed in the upper end thereof are the ports or passages 20, and said tube is provided with vertical ribs 31 on its inner wall, and placed therein is a ball-valve 32, of cork or similar material, and above the valve 32 is placed a ball 33, of glass or similar material. In this form of construction the operation will be substantially the same as that of the construction hereinbefore described, and shown in Figs. 1 to 9, inclusive, with the exception that the ball 33, which is made of glass or other heavy material, is designed to keep the valve 32, which is made of cork or similar material, seated, and said valve 32 is intended to serve as a float-valve and to prevent the filling of the bottle or vessel by forcing liquids thereinto, and if an attempt be made to pour liquids thereinto after the bottle has been once emptied of its contents the valve 32 will at once be seated and will be held in place by the valve 33.

Although I have described the partition plate or disk 24 as being secured to and as closely fitting the tubular casing 8 this is not absolutely necessary and said disk may be secured to the top of the tubular and conical attachment 18 in any desired manner, and the object of forming the passages 25 in the sides thereof in a different vertical line from the ports or passages 20 in the attachment 18 is to prevent the insertion of a wire, tool, or other instrument in an attempt to interfere with the operation of the valve.

The various parts of the attachment or seal may be made of any desired material, but I prefer to employ such material as will not corrode or be affected by fluids or acids, and the springs 14 may also be made of such material, if desired.

In Fig. 13 I have shown another modification in which the collar or valve-seat 13 at the upper end of the plug 12 is conical in form, the apex thereof being directed upwardly, and in this form of construction the tubular and conical attachment 18 is the same as in the other forms hereinbefore described;

but the valve 21 is flat in form and placed over said plug and is provided with a rod 35, which passes downwardly, and to the end of which is secured a weight 36, while in the construction shown in Fig. 14 the neck or collar 13 of the tubular plug 12 is extended upwardly and provided with an outwardly-directed flange or rim 37, and placed thereon is the valve 21, which is disk-shaped in form and provided around its perimeter with downwardly and inwardly curved fingers 38, which operate, in connection with said flange or rim 37, to hold the valve in proper position to operate, while permitting it to leave its seat when the contents of the bottle are being discharged. The operation of this form of construction will be substantially similar to that hereinbefore described with reference to the construction shown in Figs. 1 to 12, inclusive.

In the construction shown in Fig. 13 the valve 21 will be seated when the bottle is held in an upright position, and if an attempt be made to pour liquids thereinto the said valve will leave its seat when it is desired to empty the bottle or discharge a portion of its contents, the weight 36 moving forward or upward, so as to permit of this operation, but not so as to close the port or passage through the tubular plug 12, and this weight 36 and the valve 21 may also be made to act as a float, and in this event this form of construction would also prevent the filling of the bottle in an attempt to force liquids thereinto.

The operation of the construction shown in Fig. 14 will be apparent from what has already been said. The valve 21 will leave its seat when the bottle is inverted or tilted, but the arms or hooks 38 will prevent its displacement, and said valve will again be seated when the bottle is held in an upright position or an attempt is made to pour liquids thereinto, and this valve may also be made to serve as a float-valve, if desired.

It will thus be seen that I accomplish the object of my invention by means of a device which is simple in construction and operation and which is well adapted to produce the result for which it is intended, and it is evident that changes in and modifications of the

constructions herein described may be made without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with a bottle-neck, a tubular casing, a valve-seat within the same around an exit-opening, a valve fitted to said seat and a flanged valve-retainer, substantially as described.

2. In combination with a bottle-neck, a tubular casing, a valve-seat within the same around an exit-opening, a valve fitted to said seat, and a vertical rod or stem in the path of said valve and adapted to retain the same in relation to its valve-seat, substantially as described.

3. The combination with a bottle or other vessel provided with a neck, in which is formed an annular groove, of a seal consisting of a tubular casing which is open at its lower end and provided with a port or passage at its upper end, a tubular plug mounted within the lower end of said casing and provided with spring-arms, which project outwardly through side openings formed in said tubular casing and which are adapted to enter said annular groove, and means for closing the passage through said plug, consisting of a valve which is mounted in a tubular attachment connected with said plug, and which is provided with means for holding it in position relative to the valve-seat, said tubular attachment being provided with ports or openings at its upper end and said tubular casing being provided with a partition-plate having side passages or openings, and said tubular plug being provided with an annular ring or band of cork or similar material which is mounted thereon below the lower end of said tubular casing, substantially as shown and described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ORVILLE R. VAN VECHTEN.

Witnesses:

WILLIAM WALLACE WHITE,
H. L. BEIL.