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PATENTED JUNE 26, 1906.

H. B. JONES.
BOTTLE STOPPER.
APPLICATION FILED APR. 21, 1905.

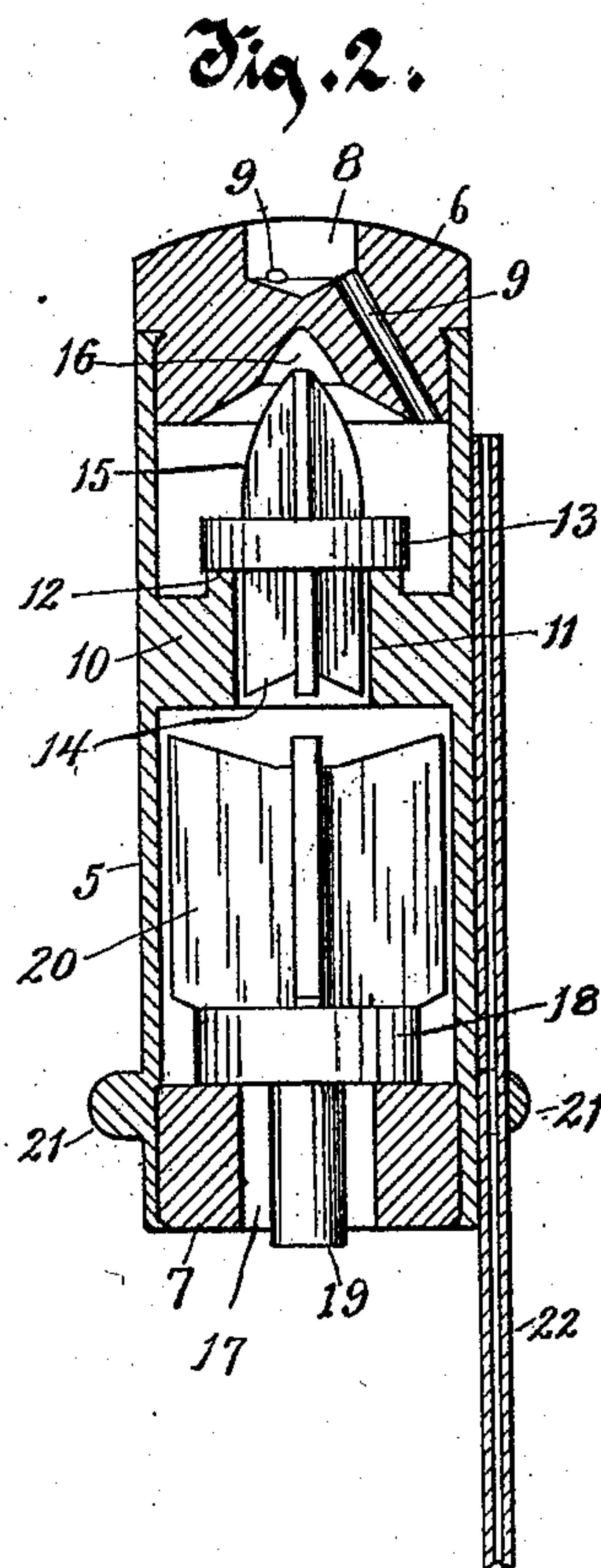
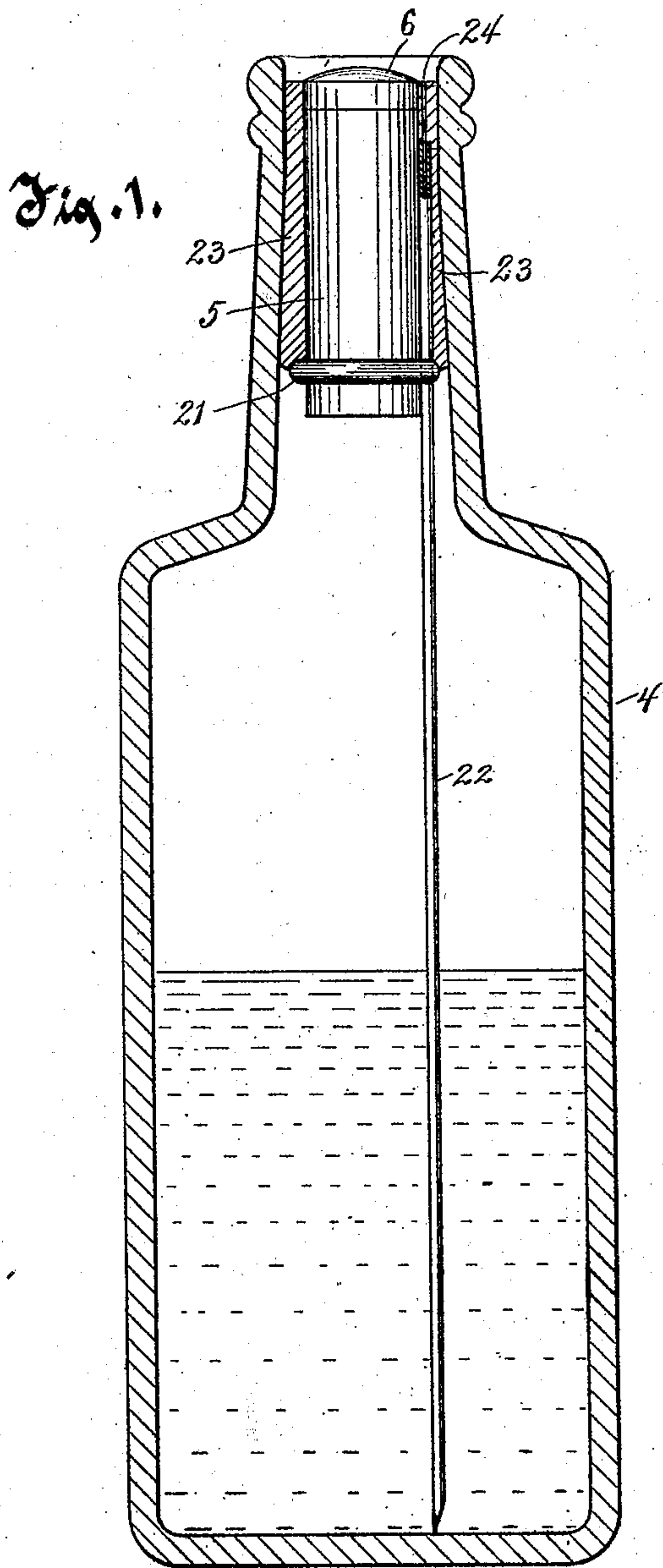
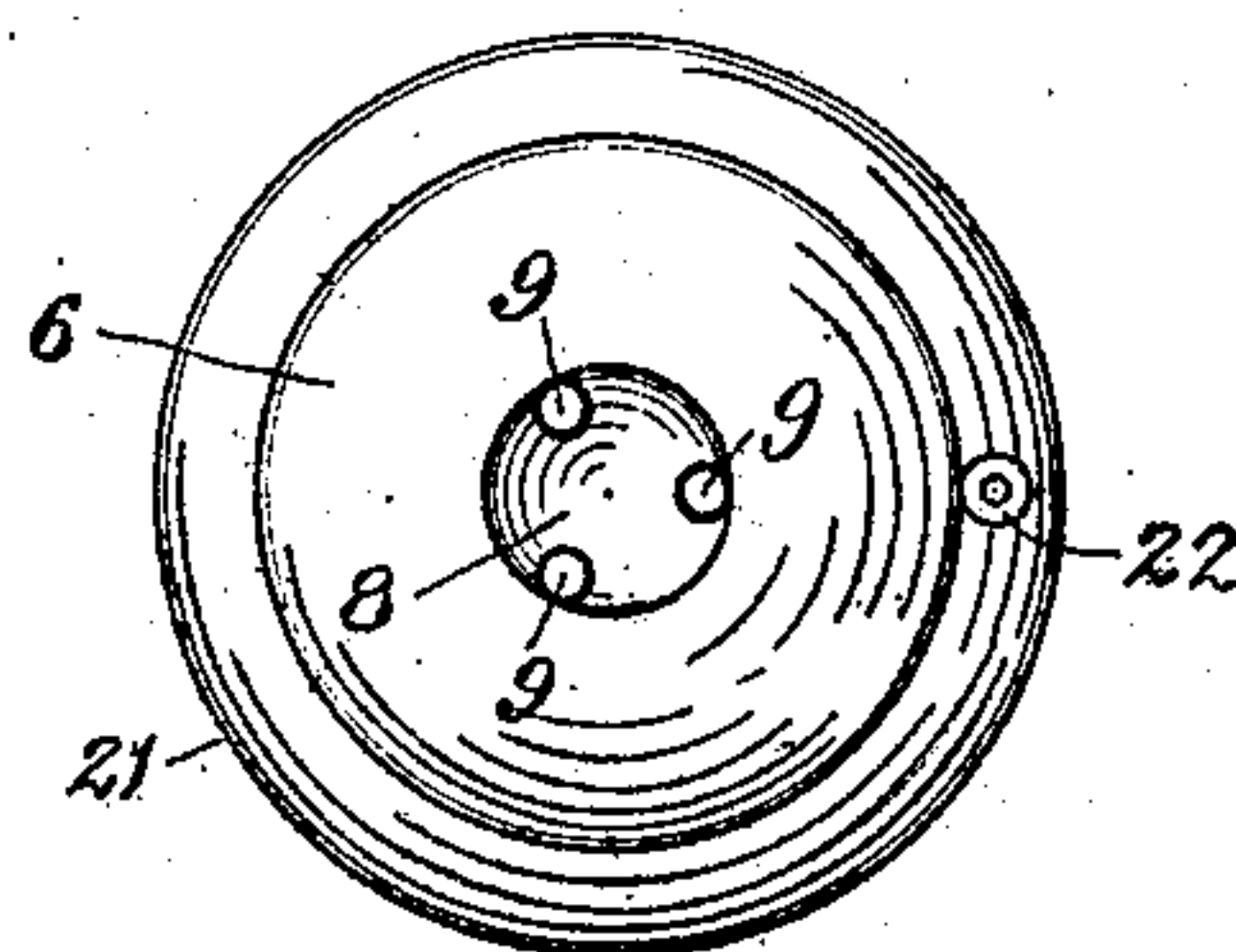


Fig. 3.



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UNITED STATES PATENT OFFICE.

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BOTTLE-STOPPER.

No. 824,122.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY B. JONES, residing in Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Bottle-Stoppers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in bottle-stoppers.

The object of the invention is to provide a bottle-stopper of such construction as to be proof against its removal from the bottle except by breaking the neck of the bottle and which while in place in the bottle-neck will permit the contents of the bottle to be poured out, but yet will provide an effective means against the refilling of the bottle with a liquid other than the particular liquid originally contained therein.

With the above primary object and other incidental objects in view the invention consists of the devices and parts or the equivalents thereof, as herein more fully pointed out.

In the accompanying drawings, Figure 1 is a longitudinal section of a bottle equipped with my improvements. Fig. 2 is a vertical longitudinal sectional view of the stopper removed from the bottle, and Fig. 3 is a plan view of the stopper.

Referring to the drawings, the numeral 4 indicates the bottle to which my stopper is applied. The stopper is of any desired form in cross-section, preferably cylindrical. The main portion of the stopper (indicated by the numeral 5) is provided with top and bottom pieces 6 and 7, respectively. The upper surface of the top piece 6 is provided centrally with a depression or recess 8, and leading from this recess downwardly through said top piece are a series of short passages 9. I have shown in the drawings three of these short passages; but it is obvious that any desired number may be provided. Three passages, however, have been found in practice to give satisfactory results. The main portion 5 of the stopper is tubular, except where interrupted by a horizontal partition 10. This partition is provided with an opening 11, and extending upwardly from the bordering edge of the opening is a tubular lug or projection 12, which forms a valve-seat. A valve 13 is adapted normally to rest on this seat, and

said valve is provided with depending wings 14, which extend into the opening 11. Guide-wings 15 also extend from the top surface of the valve. These latter wings when the valve is moved away from its seat pass into a conically-shaped guiding-recess 16 on the under side of the top piece of the stopper.

The bottom piece 7 is provided with an opening 17, and the upper surface of this bottom piece forms a seat for a lower valve 18. Depending from the under side of the valve 18 and extending into the opening 17 of the bottom piece is a stem 19. Projecting upwardly from the upper surface of valve 18 are a series of guiding-wings 20.

The exterior surface of the main portion 5 of the stopper, near the lower end thereof, is preferably provided therearound with a shoulder 21. Secured to the outer surface of the stopper and extending downwardly therefrom for some distance is a vent-tube 22. The transverse area of the stopper should be less than the circumference of the bottle-mouth, so that when the stopper is inserted into said mouth a space is left between the stopper and the wall of the bottle-mouth. This space is adapted to be filled with a suitable cement 23, such as plaster-of-paris, and the shoulder 21, near the lower end of the stopper, forms a seat and support for the tubular wall of cement and also acts to prevent the paste-like cement when applied from entering the bottle and mixing with the liquid contents thereof. By preference the upper end of the stopper and the upper end of the cement filling are below the plane of the upper end of the bottle-mouth.

The vent-tube is shown in the drawings as terminating below the upper end of the stopper, and the cement filling 23 is shown as provided with a passage 24 in line with the vent-tube and forming a continuation thereof. Of course, if preferred, instead of this arrangement the vent-tube could extend upwardly flush with the upper surface of the top piece 6 of the stopper.

In the use of my device after the bottle is filled with the liquid the stopper is inserted in place and held in proper position in the bottle-mouth during the operation of applying the cement filling 23 between the stopper and the wall of the bottle-mouth. It is preferred that the vent-tube 22 be made long enough to reach to the bottom of the bottle, as shown

in the drawings, and in this way the said tube is made to support the stopper at the proper height in the bottle-mouth during the operation of applying the cement. The lower

5 end of the vent-tube is cut off diagonally, so that the end of the tube may rest on the bottom of the bottle, and yet the air is not prevented from escaping into the bottle through the lower end of the tube.

10 After the cement filling has hardened the bottle is ready for use, and from the construction of the invention as described it will be obvious that when it is desired to empty a quantity of the liquid from the bottle

15 all that is necessary to be done is to tilt the bottle, and this will cause the unseating of the two valves, permitting a quantity of the liquid to flow to the portion of the stopper above the partition 10 and thence out through

20 the ports or passages 9.

It will be evident that my invention provides a construction whereby it is impossible to refill the bottle without breaking and thereby mutilating the said bottle, inasmuch

25 as if liquid is poured through the ports or passages in the top of the stopper it cannot enter the interior of the bottle, inasmuch as the upper valve will effectually close off the passage through the stopper, and even though

30 by any means this upper valve could be engaged and held in an open position yet the liquid is prevented from entering the main portion of the bottle in view of the barrier interposed by the lower valve. If the bottle

35 is turned so as to rest on its side, the valves are so weighted and guided as to still remain closed when the bottle is in this position. It follows, therefore, that it is impossible to refill the bottle either in an upright position or

40 when resting on one of its sides. By the provision of the recess 8 in the top closure or cover 6, with the passages 9 diverging downwardly therefrom, the engagement of a tool inserted through the top closure or cover

45 with the upper valve is rendered impossible.

The vent-tube 22 need not necessarily be employed in connection with my invention, as it would be possible without said tube to empty the contents in quantities by tilting

50 and rettiling the bottle. However, the vent-tube is preferred, inasmuch as by the employment thereof a continuous flow of the liquid can be obtained when the bottle is held in a tilted position, by reason of the fact

55 that the air entering the bottle through the vent-tube counteracts the pressure of the external air through the ports or passages 9.

While I prefer to employ within the stopper a plurality of valves, (preferably two,) inasmuch as in practice a plurality of said

60 valves is found to act as more effectual preventives against the refilling of the bottle, yet I do not wish to be understood as limiting myself to the use of a plurality of valves,

65 inasmuch as only one valve located to con-

trol the opening through the lower end of the stopper or located to control the opening of the internal partition may be employed without departing from the spirit and scope of my invention.

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What I claim as my invention is—

1. A bottle-stopper, comprising a main tubular body portion having an open lower end and provided exteriorly, at or near its lower end with a shoulder, and interiorly with a

75 valve-seat, a top closure or cover, said closure or cover provided with an outlet passage or passages, and an internal valve mechanism, said valve mechanism adapted, when the bottle is in a normal upright position, to

80 seat itself on the valve-seat and thereby close the passage through the main body portion, but, when the bottle is tilted, adapted to move away from the valve-seat and thereby open the passage through the main body por-

85 tion.

2. The combination with a bottle, of a stopper inserted in the neck of the bottle and of less transverse area than the said neck, the said stopper comprising a main tubular body

90 portion having an open lower end, and provided exteriorly, at or near its lower end, with a shoulder, and interiorly with a valve-seat, a top closure or cover, said closure or

95 cover provided with an outlet passage or passages, an internal valve mechanism, said valve mechanism adapted, when the bottle is in a normal upright position, to seat itself on the valve-seat and thereby close the passage

100 through the main body portion, but, when the bottle is tilted, adapted to move away from the valve-seat, and open the passage through the main body portion, and an adhesive filling between the bottle-neck and the

105 stopper and extending to the external shoulder at or near the lower end of the main body portion, the said shoulder forming a seat for the lower end of the adhesive filling.

3. A bottle-stopper, comprising a main tubular body portion having a bottom piece

110 with an opening therethrough, a top closure or cover, said closure or cover provided with an outlet passage or passages, and a valve within the body portion for regulating the opening through the bottom piece, said valve

115 adapted, when the bottle is in a normal upright position, to seat itself on top of the bottom piece, and thereby close the opening through said bottom piece, but, when the bottle is tilted, adapted to move away from the

120 bottom piece and uncover the opening thereof, the said valve having a stem depending from its under side and entering the opening in the bottom piece, and also having guiding-wings extending upwardly from its upper side

125 and freely but closely fitting the interior of the body portion.

4. A bottle-stopper, comprising a main tubular body portion having an open lower end and an internal partition having an opening

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therethrough, a top closure or cover, said closure or cover provided with an outlet passage or passages, and also provided on its under side with a recess, and a valve within the body portion and adapted, when the bottle is in a normal upright position, to seat itself on the upper side of the internal partition and thereby close the opening through said partition, but, when the bottle is tilted, adapted to move away from the partition and uncover the opening thereof, the said valve having wings depending from its under side and freely but closely fitting the wall of the opening of the partition, and also having wings extending upwardly from its upper side to and into the recess on the under side of the top piece.

5. A bottle-stopper, comprising a main tubular body portion having an open lower end and an interior valve-seat, a top closure or cover, said closure or cover provided in its top with a recess having a passage or passages extending downwardly therefrom in a divergent line, or in divergent lines, and through the bottom of the top closure or cover, and an internal downwardly-closing valve mechanism, said valve mechanism adapted, when the bottle is in a normal upright position, to seat itself on the valve-seat and thereby close the passage through the body portion, but, when the bottle is tilted, adapted to move away from the valve-seat and open the passage through the body portion.

6. The combination of a bottle, a stopper inserted in the neck of the bottle and of less transverse area than said neck, the said stopper comprising a main tubular body portion having an open lower end and provided interiorly with a valve-seat, a top closure or cover, said closure or cover provided with an outlet passage or passages, and internal downwardly-closing valve mechanism said valve mechanism adapted, when the bottle is in a normal upright position, to seat itself on the valve-seat and thereby close the passage through the main body portion, but, when the bottle is tilted, adapted to move away from the valve-seat and thereby open the passage through the main body portion, and an adhesive filling between the bottle-neck and the stopper.

7. The combination of a bottle, a stopper

inserted in the neck of the bottle and of less transverse area than said neck, the said stopper comprising a main tubular body portion having an open lower end and provided interiorly with a valve-seat, a top closure or cover, said closure or cover provided with an outlet passage or passages, and internal downwardly-closing valve mechanism said valve mechanism adapted, when the bottle is in a normal upright position, to seat itself on the valve-seat and thereby close the passage through the main body portion, but, when the bottle is tilted, adapted to move away from the valve-seat and thereby open the passage through the main body portion, an adhesive filling between the bottle-neck and the stopper, and a vent-tube open at opposite ends and secured to and extending downwardly from the stopper to extend into the bottle for a desired distance, the upper portion of said tube being surrounded by the adhesive filling, and its upper open end communicating with the external air.

8. The combination with a bottle, of a stopper inserted and secured in the neck thereof, said stopper comprising a main tubular body portion having an open lower end and provided interiorly with a valve-seat, a top closure or cover, said closure or cover provided with an outlet passage or passages, internal downwardly-closing valve mechanism said valve mechanism adapted, when the bottle is in a normal upright position, to seat itself on the valve-seat and thereby close the passage through the main body portion, but, when the bottle is tilted, adapted to move away from the valve-seat, and thereby open the passage through the main body portion, and a vent-tube open at its opposite ends and secured to the exterior of the stopper, the upper open end thereof communicating with the external air, and the lower end thereof being cut off diagonally, and extending such a distance below the stopper as to rest on the bottom of the bottle.

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

HARRY B. JONES.

Witnesses:

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ALBERT M. KEARNS.