

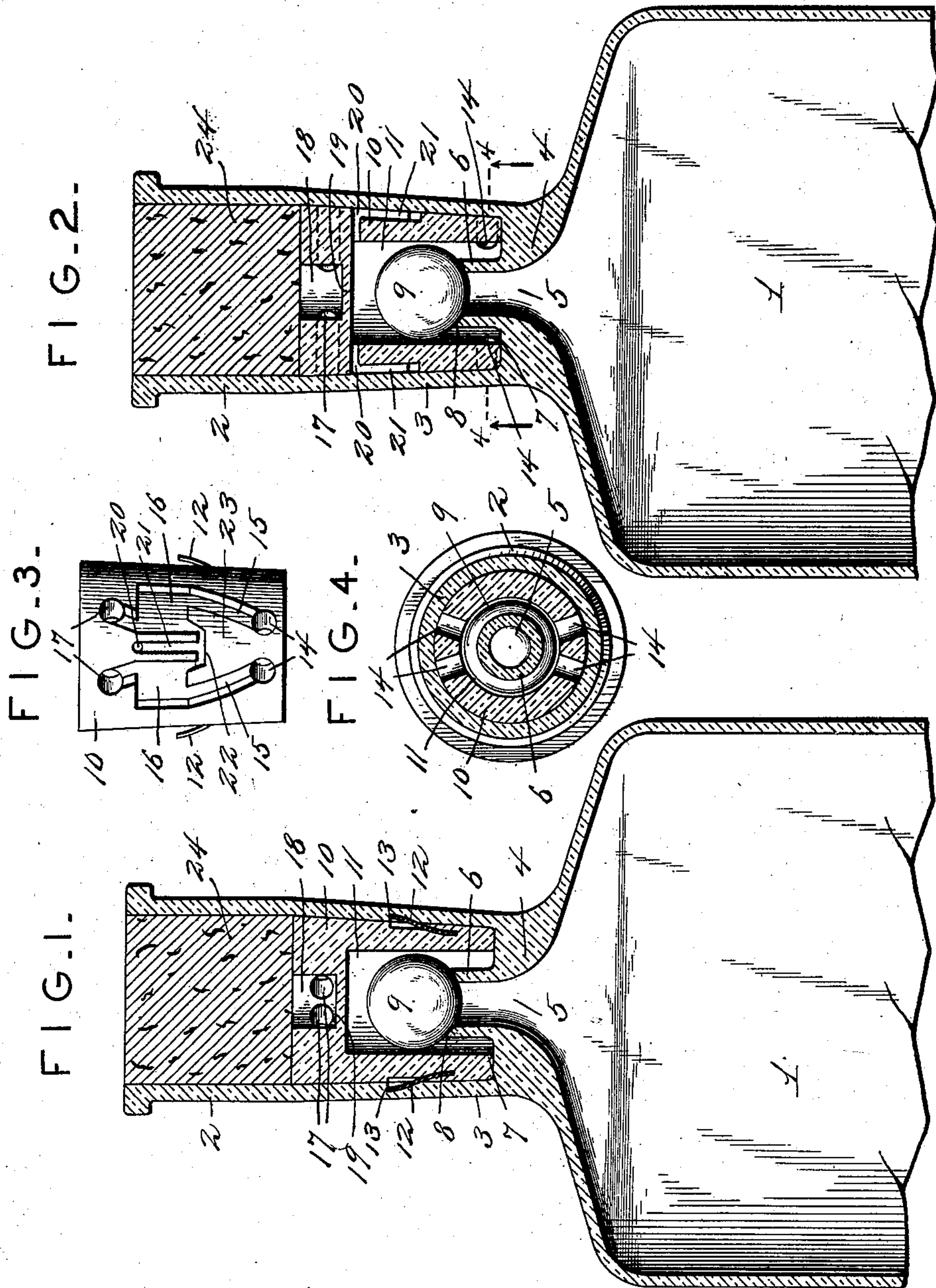
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PATENTED NOV. 17, 1903.

J. H. DIERINGER & C. L. DU ROCHER.  
BOTTLE VALVE.

APPLICATION FILED JUNE 20, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## BOTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 744,504, dated November 17, 1903.

Application filed June 20, 1903. Serial No. 162,427. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH H. DIERINGER, residing at Bridgeport, in the State of Connecticut, and CHARLES L. DU ROCHER, residing at Baltimore, in the State of Maryland, citizens of the United States, have invented new and useful Improvements in Bottle-Valves, of which the following is a specification.

This invention has relation to new and useful improvements in bottle-valves, and more especially those employed for the purpose of preventing the refilling of a bottle after the original contents have been removed.

The object of the invention is to provide a valve which is extremely simple in construction and efficient in use and which may readily be placed in operative position and when in such position prevent refilling of the bottle and which cannot be removed without so mutilating the bottle as to impair its usefulness.

The invention consists in the novel construction of the elements and their arrangement and aggroupment in operative combination, the novel features of which will be particularly described hereinafter and distinctly claimed.

We have fully and clearly illustrated our invention in the accompanying drawings, forming a part of this specification, and wherein—

Figure 1 is a vertical central section through a bottle and improved valve embodying our invention. Fig. 2 is a vertical central section through the bottle and valve at right angles to that shown in Fig. 1. Fig. 3 is a view in elevation of our improved guard removed from its operative position within the bottle. Fig. 4 is a section taken on the line 4 4 of Fig. 2.

Referring to the drawings, 1 designates a bottle the body of which may be of any approved form and material, and 2 designates the neck of the bottle, which for a portion of its length is interiorly tapered from top to its juncture with the body of the bottle, as at 3. At the point at which the body and the neck 2 merge the interior of the bottle is provided with an enlarged or thickened portion 4, constituting an annular horizontally-disposed flange within the neck of the bottle

surrounding a central opening 5, through which the bottle is filled or its contents withdrawn. Upon its upper face within the neck 2 the flange 4 is formed with a vertically-extending annular flange 6, which extends upwardly into the neck 2 and completely surrounds the opening 5, an annular channel 7 being formed between the flange 6 and the neck of the bottle. This vertical annular flange 6 is formed with an inwardly-inclined upper edge which constitutes a valve-seat 8, upon which is seated a valve-ball 9, which is adapted to assume a position on its seat by its own weight whenever the bottle is in a position to be filled—that is, when the bottle stands upright upon its base.

10 designates a stopper or guard which is placed in the neck of the bottle over the valve-ball in order to limit the movement of the valve from its seat when the contents of the bottle are poured therefrom and also to prevent the valve being forced from its seat to permit a refilling of the bottle. This guard or stopper 10 consists of a substantially cylindrical device, the sides of which are slightly tapered from top to bottom to provide for the stopper snugly fitting within the tapered portion of the neck of the bottle. For a greater portion of its length this guard is formed with an interior central chamber 11, which when the guard is in operative position in the bottle sets over the valve-ball 9, the lower edge of the guard being seated in the channel 7, said guard being held in position by outwardly-spreading spring members 12, which are secured on the outer face thereof and adapted to spring outwardly to engage shouldered recesses 13 in the bottle-neck to prevent withdrawal of the stopper. This chamber 11 is of such length as to provide for the free movement of the ball 9 toward and away from its seat 8 and is of such diameter as to compel the ball to be seated when the bottle is in upright position. In its base portion and upon opposite sides thereof the cylinder is provided with pairs of lateral openings 14, which at their inner ends communicate with the chamber 11 and at their outer ends open into diverging channels 15 upon opposite sides of the guard, which extend upwardly for a portion of the length of



the guard, where they are directed inwardly toward each other, as at 16, for a short distance and are then carried upwardly again in diverged relation, the upper ends of said  
5 channels opening into transverse ports 17, which extend through the guard and open into a chamber 18, formed in the upper portion of the guard and separated from the chamber 11 by means of an intermediate partition 19, as shown in Figs. 1 and 2 of the  
10 drawings.

In order that the ball 9 will have free movement in the chamber 11 to and from its seat and that any air-pressure upon the upper portion of the ball may be permitted to escape,  
15 we provide ports 20, which open outwardly from the chamber 11 into a channel 21, which is directed downwardly through the portion of the guard between the upper diverged ends of the exterior channels, said channels 21 terminating at their lower ends in a recess 22,  
20 formed in that raised portion of the guard between the channels 16 16, as shown at 23, which portion 23 is of a sufficient width at its upper terminal to extend below the ports 17 and between them and the ports 14 in order that an instrument inserted through said openings will engage the portion 23 and the progress of the instrument arrested.

30 The manner in which the invention is employed and its operation is as follows: After the bottle has been filled the ball 9 is dropped into place and seated upon the valve-seat 8, and the guard 10 is inserted in the neck of the bottle and pushed downwardly until its  
35 lower edge rests in the channel 7, said guard being adjusted so that the spring members 12 will be permitted to engage the shouldered recess 13 to prevent its removal. A stopper or cork 24 of well-known form is then inserted in the neck of the bottle above the guard and the bottle is sealed. When it is desired to dispense the contents of the bottle, the stopper 24 is removed, and the bottle is  
40 inverted in the usual manner, which will throw the ball 9 from its seat 8, permitting the contents to flow from the bottle through the opening 5 into the chamber 11, through the openings 14, the channels 15 16, and ports 17

into the chamber 18, and thence through the  
50 open mouth of the bottle-neck.

It will be seen that the peculiar manner in which the guard or stopper 10 is constructed will effectually prevent the insertion of any instrument for the purpose of dislodging the  
55 ball from its seat in view of the fact that the tortuous direction of the grooves or channels in connection with the chamber 18 will impede the progress of the instrument and prevent it from reaching the chamber 11.  
60

Having thus fully described the invention, what is claimed as new is—

1. In a bottle-valve, the combination with a bottle-neck, provided with a valve-seat and a valve coacting with the seat to control the  
65 opening to the bottle, a guard provided with upper and lower chambers, in the lower of which the valve moves, pairs of ports opening from the chambers on the outside of the guard, and channels connecting said ports, 70 said channels diverging upwardly to a point intermediate their length, where they are directed toward each other and then diverged to communicate with the upper set of ports.

2. In a bottle-valve, the combination with  
75 a bottle-neck provided with a valve-seat and a valve coacting with the seat to control the opening to the bottle, a guard provided with upper and lower channels, in the lower of which the valve works, pairs of ports on opposite sides of the chambers opening on the  
80 outside of the guard, and oppositely-arranged sets of channels connecting said pairs of openings, said channels diverging upwardly to a point intermediate their length, where they  
85 are directed toward each other and then diverged to communicate with the upper pairs of ports, and air-vents leading from the lower chamber to channels on the guard, which channels terminate in recesses formed in the  
90 guard between the first-named channels.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH H. DIERINGER.

CHAS. L. DU ROCHER.

Witnesses:

F. G. COOLEY,

J. A. SOMMERVILLE.