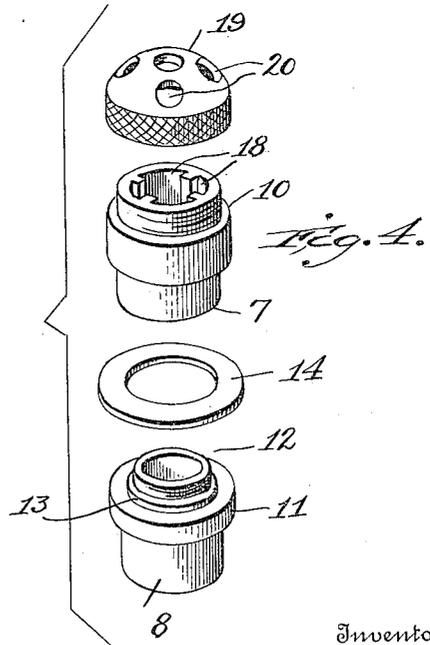
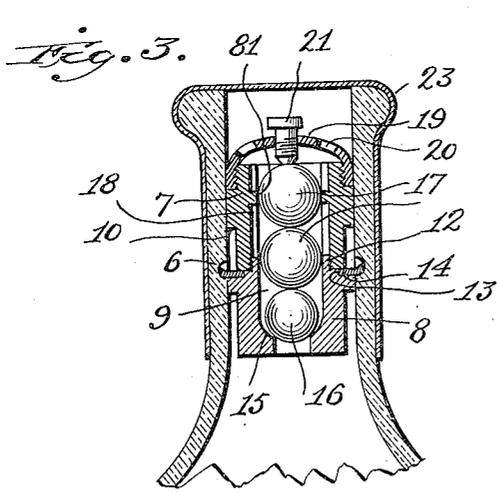
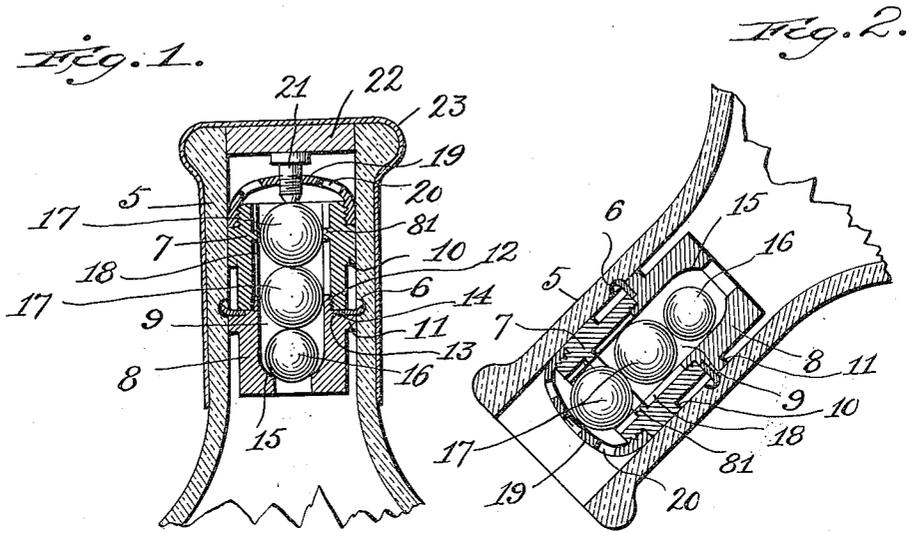


C. F. LENG.  
 BOTTLE VALVE.  
 APPLICATION FILED DEC. 26, 1912.

1,069,443.

Patented Aug. 5, 1913.



Witnesses  
*Edwin L. Jewell*  
*Henry B. Hill*

Inventor  
*Christian F. Leng*  
 By *Grant Burroughs*  
 Attorney

# UNITED STATES PATENT OFFICE.

CHRISTIAN F. LENG, OF NEW YORK, N. Y.

## BOTTLE-VALVE.

1,069,443.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed December 26, 1912. Serial No. 738,684.

*To all whom it may concern:*

Be it known that I, CHRISTIAN F. LENG, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Bottle-Valves, of which the following is a specification.

The invention relates to improvements in valve-mechanism such as is employed in bottles to prevent the refilling of the latter after the withdrawal of the original contents.

It has for its object the provision of a device that not only will prevent the refilling of the bottle, but also one that will permit an easy and smooth decanting of the original contents.

It further has for its object the provision of a device that will be of inexpensive construction and of such a design that it can be practically manufactured of glass or similar material, and also a device that can be adapted to the ordinary bottle-neck with but little change in the structure of the bottle.

The invention consists in the novel construction, combination and arrangement of parts, hereinafter described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the drawings, in which similar reference characters designate corresponding parts, Figure 1 is a vertical sectional view of the bottle-neck and the valve-mechanism in place therein. Fig. 2 is a similar view showing the bottle-neck inclined for decanting purposes. Fig. 3 is a vertical sectional view showing a modification. Fig. 4 shows perspective views of the different members separated from each other.

The bottle-neck 5 is of the ordinary formation, except that in its inner face is the annular groove 6, the purpose of which will be explained further on.

The body of the valve-mechanism consists of a cylindrical casing comprising the upper member 7 and the lower member 8. This casing has a longitudinal bore 9 that is concentric with the longitudinal axis of the bottle-neck when the casing is in place, and this bore forms the passage for the discharge of the contents of the bottle. On the periphery of the upper member 7, intermediate of its ends, is the collar 10; and on the periphery of the lower member 8, adjacent to its upper end, is the collar 11. These collars fit the interior diameter of the bottle-

neck and position the casing within the bottle-neck.

The two members 7 and 8 of the casing are united by a screw-threaded connection. On the upper end of the lower member 8 is the threaded projection 12, which fits a similarly shaped recess in the lower end of the upper member. At this joint the two members are cemented together or otherwise firmly united so that the two members will be inseparable. On the upper end of the lower member 8, below the threaded projection 12, is the annular seat 13. The diameter of this seat 13 is slightly greater than the threaded projection 12 so as to slightly separate the lower end of the upper member 7 and the top of the collar 11 of the lower member. On this annular seat 13 is the flexible washer 14 clamped between the collar 11 and the adjacent end of the member 7. Normally this washer lies flat against the collar 11 and projects beyond the same. When the casing is inserted in the neck of the bottle and shoved into the same, the flexible washer folds back into the space between the two collars 10 and 11 until it reaches the annular groove 6 in the inner face of the bottle-neck, into which it springs and locks the casing in place. After the engagement of the washer with the groove, the casing cannot be withdrawn, for the collar 11 forms a backing for the washer so that the latter cannot bend downward to clear the groove. The groove 6 is so located that when it is engaged by the washer the valve-casing will be so positioned within the bottle-neck as to leave considerable space between its outer end and the mouth of the bottle.

The lower end of the bore 9 is contracted to form the valve-seat 15, adapted to be closed by the globular valve 16. In the bore above the valve 16 are the balls 17, the weight of which serves to seat the valve in place and also to prevent access to the valve for tampering purposes. The valve 16 has a diameter considerably less than that of the bore, so that the liquid passing through the valve-seat can flow through the bore past the valve. The balls 17 have diameters approximately the same as that of the bore, so as to be freely movable back and forth therein. In the upper part of the wall of the bore 9 are the longitudinal passages 18 that permit the liquid that has

passed the valve 16 to flow past the balls 17. These passages 18 extend the length of the upper member 7 of the valve casing, which is coextensive with the length of travel of the balls within the casing. On the inner face of the upper member 7 is the collar 81 flush with the edges of the passages 18. When the bottle is in an upright position, as shown in Fig. 1, the upper ball 17 registers with the collar 81 and thereby closes the bore against the introduction of liquid through the mouth of the bottle. When the bottle is in a decanting position the upper ball 17 drops away from the collar 81, as shown in Fig. 2, and opens the passage through the bore.

The upper end of the cylindrical casing is closed by the cap 19, which limits the outward movements of the balls 17 and the valve 16. The cap is perforated, as at 20, to permit the outflow of the liquid that has passed through the bore. This cap is screwed onto the casing and is cemented in place to prevent its removal. As the cap closes the upper end of the casing, the valve and balls are introduced into the casing by separating the two members comprising the same.

After the parts have been assembled and placed within the bottle-neck, the mechanism will render it impractical to refill the bottle. When the bottle is turned to decant its contents, the balls 17 and the valve 16 fall away from the valve 15, as shown in Fig. 2, and the contents pass through the valve-seat into the bore around the valve 16 and the balls 17, through the longitudinal passages 18 and escapes through the perforations 20 in the cap 19 to the mouth of the bottle.

In practice this device has been found to be very efficient in its purpose. It is not only difficult to manipulate the same so as to refill the bottle, but the valve mechanism permits a steady and regular flow of the liquid without gurgling or splashing. All the parts, except the flexible washer, can be readily made of glass or porcelain, and the design is such as to adapt the device to be readily made of such material. The parts can also be made of aluminum or other non-corrosive metal.

When the bottle is filled, means are provided to hold the valve-mechanism closed to prevent leakage during transportation. Turned into the cap 19, through one of the perforations 20 therein, is the wooden plug 21 bearing on the upper ball 17. The plug bearing on the upper ball 17, through the intermediate ball, forces the valve 16 against its seat, and thereby closes the passage through the bore. In the mouth of the bottle outside of the plug 21 is the disk 22 held in place by the usual metal foil 23. The foil

and disk prevent accidental displacement of the plug. For some purposes the metal foil would be sufficient protection to the plug, and the disk could be omitted, as shown in Fig. 3.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In valve-mechanism for bottles, a bottle-neck provided with an annular groove in its inner face, a cylindrical valve casing divided transversely to form two members abutting at their inner ends and adapted to be seated within the bottle-neck, collars on the upper and lower ends of the valve casing to fit the interior diameter of the bottle-neck, said collars being spaced apart to form between them an annular space around the valve casing, and a flexible washer clamped between the abutting inner ends of the two members of the valve casing adjacent to and normally resting against the lower collar with the edge of the washer projecting beyond the periphery of such collar, said washer operating to fold back into the annular space between the collars while the valve casing is being forced into the bottle-neck and springing into the groove in the inner face of the bottle-neck against the adjacent collar on the seating of the valve casing within the bottle-neck.

2. In valve-mechanism for bottles, a bottle-neck, a cylindrical valve casing to fit the bottle-neck having a longitudinal bore to form a passage through the bottle-neck, said casing having an apertured closure at its upper end and a valve seat in its lower end, a globular valve of less diameter than the bore of the casing to close said seat inside of the bore, balls movable in the bore of the casing above the globular valve adapted to rest on the valve when the bottle is in an upright position and to seat the valve on its seat, said balls having a diameter approximately the same as the diameter of the bore to close the main cross-area of the bore, said casing comprising upper and lower separable members to admit the valve and balls within the casing, the upper member of the valve casing having in its inner wall a plurality of passages extending past said balls, and an annular collar on the inner face of the upper member of the valve casing flush with the edges of the passages to register with the upper ball to close said passages when the bottle is in an upright position.

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

CHRISTIAN F. LENG.

Witnesses:

OLIVE B. HILL,  
J. L. LEITHEAD.