

No. 879,529.

PATENTED FEB. 18, 1908.

J. W. & H. C. DOWNING.

BOTTLE CLOSURE.

APPLICATION FILED FEB. 25, 1907.

Fig. 1.

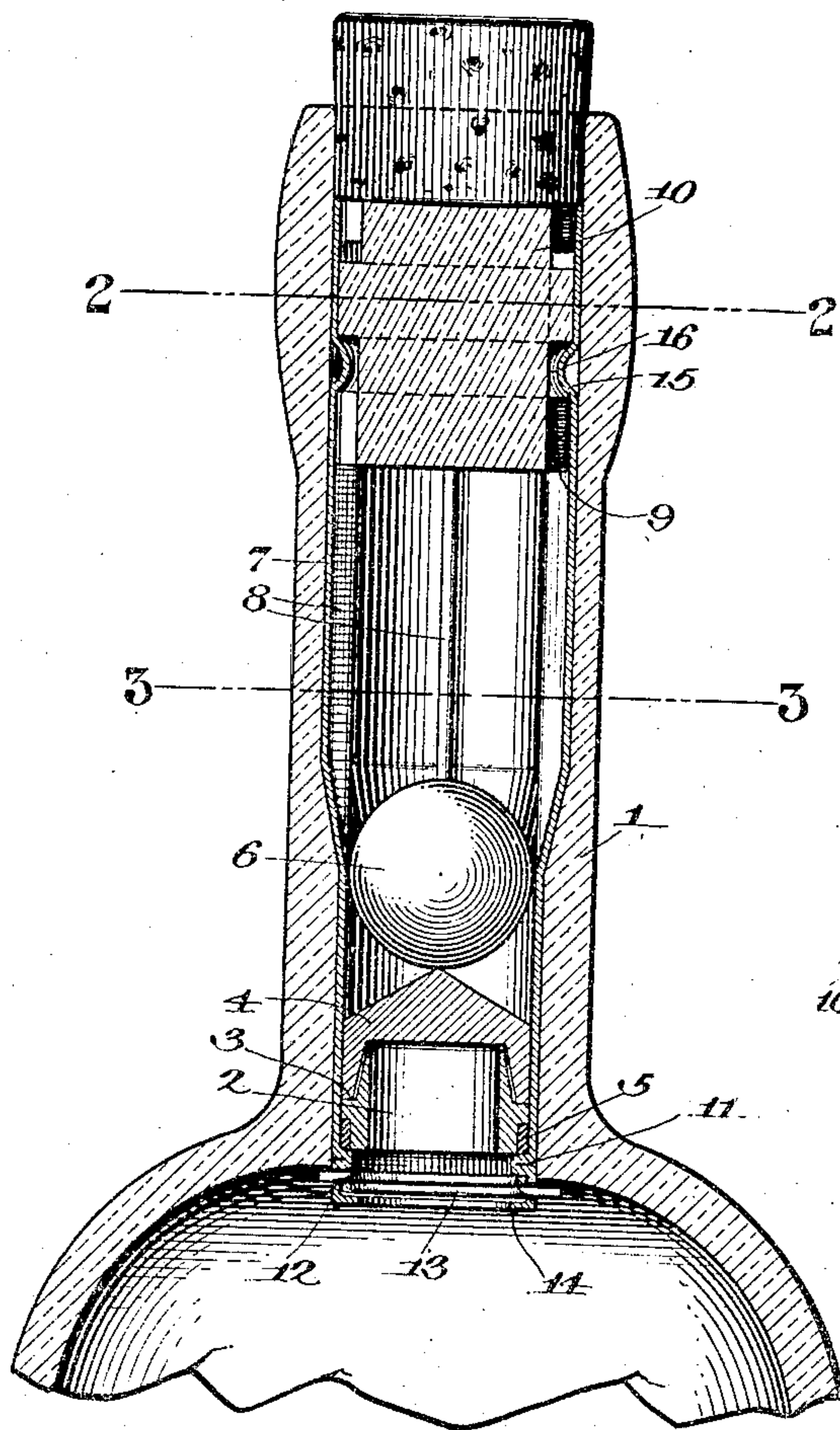


Fig. 4.

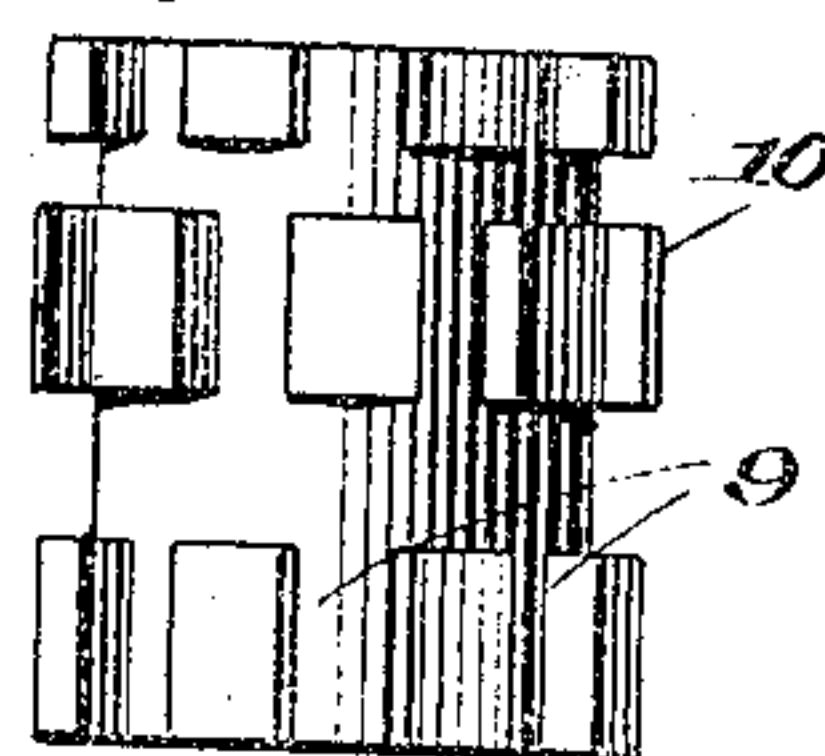


Fig. 2.

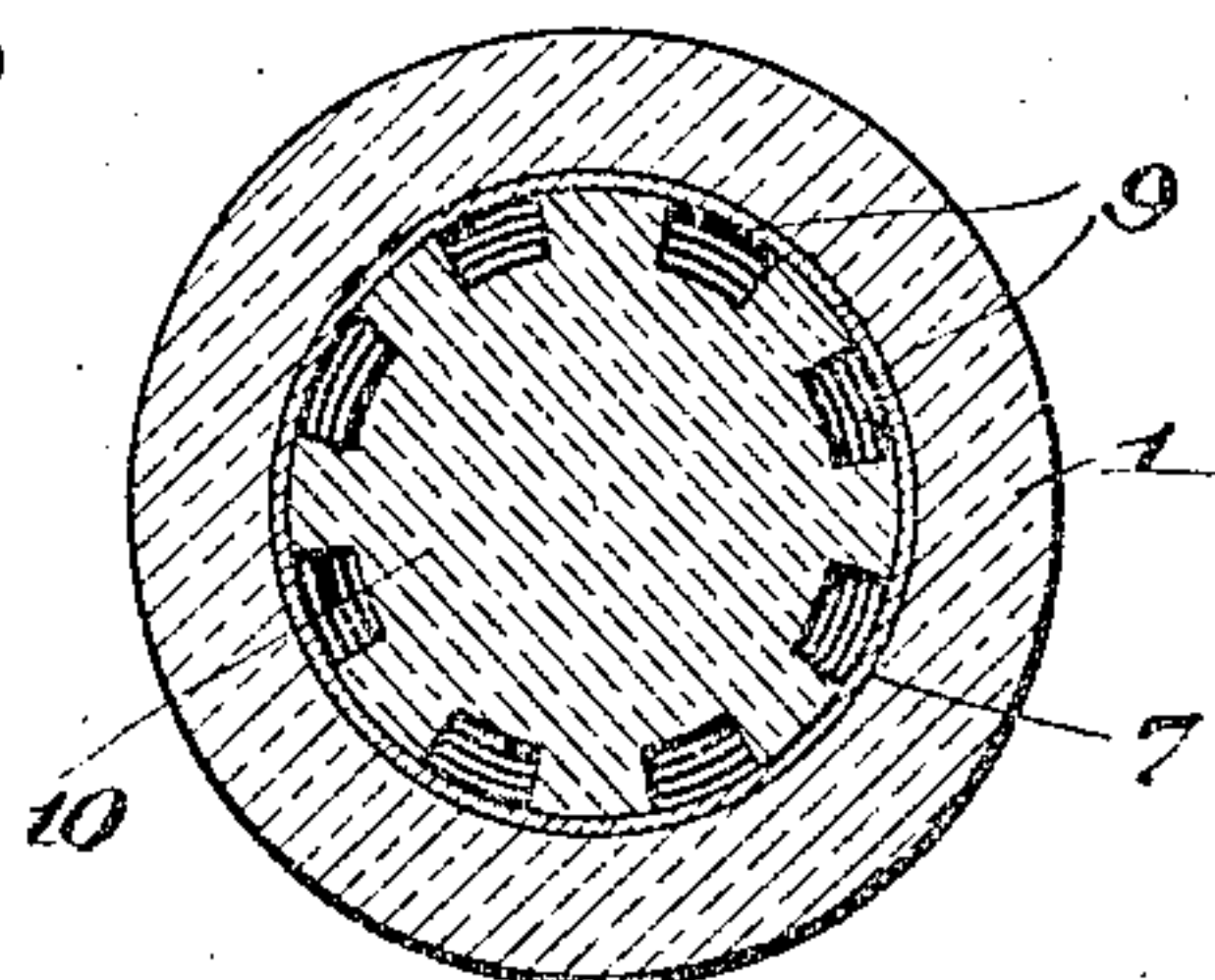


Fig. 5.

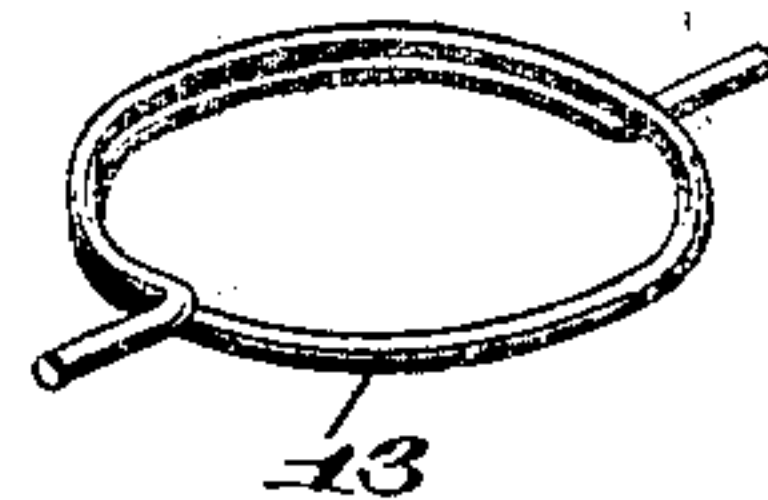
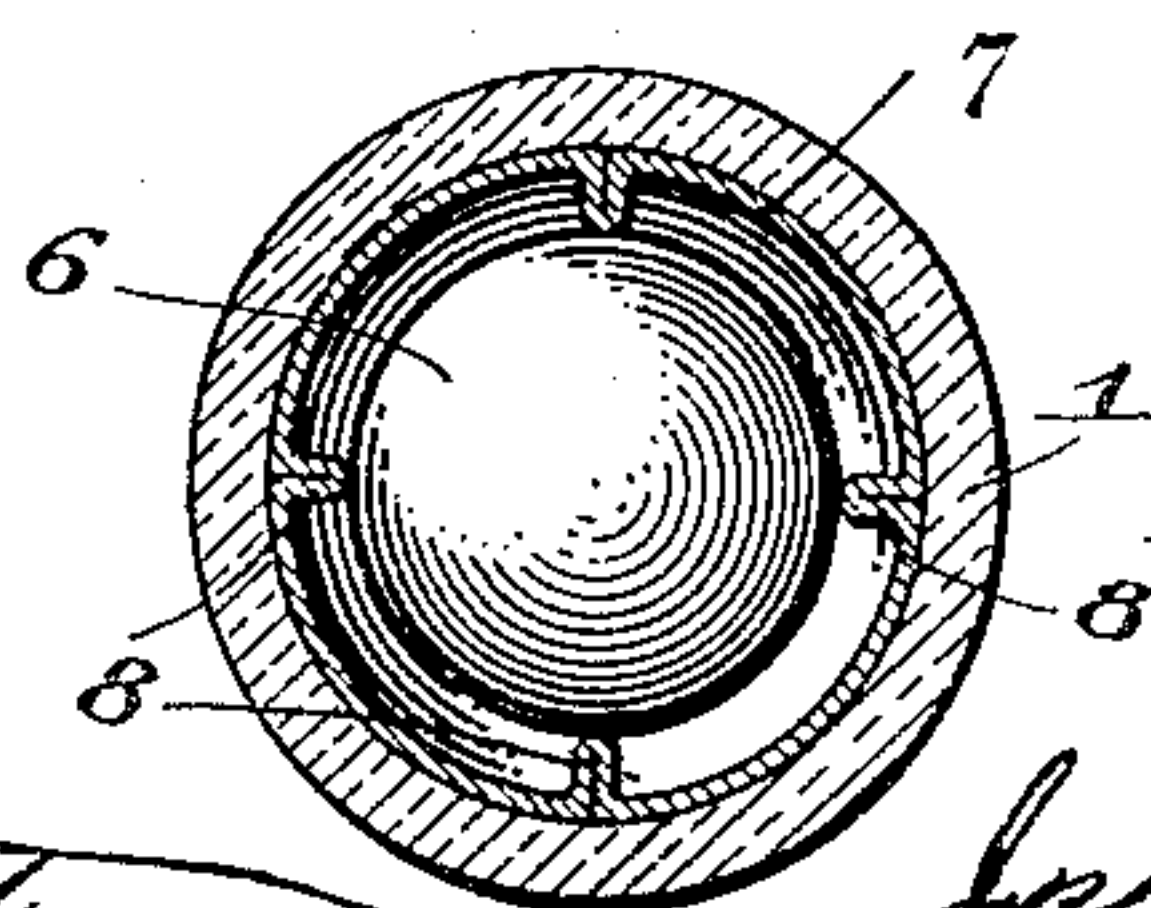


Fig. 3.



Witnesses:

Dr. Charles H. Drath
Thos. Sargent

Inventors

Joseph William Downing
Henry C. Downing

UNITED STATES PATENT OFFICE.

JOSEPH WILLIAM DOWNING AND HENRY C. DOWNING, OF WASHINGTON, DISTRICT OF COLUMBIA.

BOTTLE-CLOSURE.

No. 878,529.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed February 25, 1907. Serial No. 359,221.

To all whom it may concern:

Be it known that we, JOSEPH WILLIAM DOWNING and HENRY C. DOWNING, citizens of the United States, residing at Washington, District of Columbia, have invented a new and useful Bottle-Closure, of which the following is a specification.

This invention relates to bottle-closures and has for its object to provide a closure adapted to be seated in a bottle neck and to permit the free discharge of liquid from the bottle, but to prevent refilling the bottle when once empty.

A further object of the invention is to provide a closure which can only be removed from the bottle by breaking the neck of the bottle, yet leaving the closure intact and capable of being re-used again if desirable.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1, is a vertical sectional view of the improved bottle-closure mounted in the neck of a bottle. Fig. 2, is a horizontal sectional view of the glass guard as taken at 2--2 viewed from above. Fig. 3, is a horizontal sectional view of the casing taken at 3--3 viewed from above. Fig. 4, is a perspective view of the glass guard showing the arrangement of grooves. Fig. 5, is a perspective view of the wire spring.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The improved bottle-closure forming the subject matter of this application is adapted for use in connection with a bottle having a neck provided with an opening the lower part somewhat smaller than the upper, so as to conform with shape of closure. The closure comprises a valve seat member 3 in which is formed a valve seat 2 with a valve-cap 4 thereon mounted. Adjacent its lower end the valve seat member is provided with a band of pliable material 5. Above and resting on valve-cap 4 is a solid ball 6.

The casing 7 is proportioned to fit the bottle neck 1, and is provided for a certain portion of its length with longitudinally running grooves and ribs, 8; the grooves forming communication with the grooves as at 9 in the glass guard 10.

To prevent valve seat 3 from being disengaged in any way, indentures 11 are made in casing below and upon which valve-seat member 3 rests. Directly beneath these indentures and adjacent its lower end, the casing is provided with a transverse bore 12 in which is placed the ends of a wire spring, the spring 13, so formed as to follow around the interior of casing 7 and rests upon a small ledge 14 at base of casing.

In the upper end of the casing is placed the glass guard 10, the two being securely fastened together by impression of the metal casing into the annular groove 16. The glass guard is provided with a series of longitudinal and annular grooves so arranged as to form staggered communication with the grooves in the casing.

For transportation, storage and sealing purposes, the bottle neck is proportioned to extend upwardly beyond the top of the bottle casing and guard for the reception of a cork or other stopper.

It will be understood that when the bottle is in an upright position, the valve-cap 4 will be seated on the valve seat 3 to prevent evaporation of contents and also to prevent refilling the bottles; but when the bottle is inverted the valve-cap 4 together with the solid ball 6 will gravitate to the upper end of casing 7 and against the glass guard 10, leaving a continuous opening through the valve-seat, the grooves in the casing and the grooves in the top guard 10, for the liquid to pass from the bottle outward through the neck.

Having thus described the invention, what is claimed is,

1. A bottle closure, comprising a casing having a contracted lower end and having a series of longitudinal inwardly projecting ribs above said contracted lower end, means for positively locking said casing within the neck of a bottle, a seat attached to the contracted lower end of the casing, a valve movable in said contracted lower end of the casing, a guard secured within the upper portion of the casing, and a movable body between said guard and valve and normally resting upon the valve.

2. A bottle closure comprising a casing provided with inwardly projecting longitudinal ribs terminating above the lower end of the casing, a valve seat attached to the lower end of the casing, a valve over said seat, a guard in the upper portion of the casing, and a movable body in the casing between the guard and valve said movable body being normally disposed at the lower end of the ribbed portion of the casing and resting on the valve below said ribbed portion of the casing.

3. A bottle closure comprising a casing, a tubular valve seat attached to the lower end of the casing and having a tapering outer face, a concave valve over said seat and having a tapering inner wall to fit over the tapering portion of the valve seat, a guard in the upper portion of the casing and a movable body between said valve and guard.

4. A bottle closure, comprising a casing, a valve seat attached to the lower end thereof, a valve in the casing over said seat, a guard having a circumferential groove and staggered lugs on its periphery, said guard within the casing and the latter having a circumferential bead entering the circumferential groove in the guard and securing the latter in place within the casing.

5. The combination with a bottle having the bore of its neck of less diameter in its lower than in its upper portion, of a casing located within the neck of the bottle and conforming to the interior conformation thereof, a valve seat attached to the lower end of the contracted lower portion of the casing, a valve movable within said contracted portion of the casing, a guard secured in the larger upper portion of the casing, and a ball to enter said contracted lower portion of the casing and movable in the

upper larger portion thereof between said valve and guard.

6. A closure for a bottle comprising a casing having its lower portion cylindrical and of less diameter than its upper portion, longitudinal ribs in the upper portion of the casing having their inner edges approximately in line with the inner face of the lower contracted portion of the casing, a valve seat in the contracted lower portion of the casing, a valve normally disposed within the contracted portion of the casing, a ball normally disposed at the juncture of the larger and smaller portions of the casing, and a guard secured in the larger portion of the casing.

7. A closure for a bottle comprising a casing adapted to fit within the neck of a bottle, a valve seat attached to the casing near its lower end, a valve to engage said seat, a series of ribs in the casing terminating at their lower ends above the valve, a guard secured within the upper portion of the casing and a ball within the casing intermediate of the valve and guard.

8. A closure for a bottle comprising a casing provided throughout a portion of its length with longitudinal ribs and with a valve seat at its lower end, a valve in the casing below the longitudinal ribs and co-operating with said seat, and a sphere within the casing above the valve and normally resting upon the top of the latter.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JOSEPH WILLIAM DOWNING.
HENRY C. DOWNING.

Witnesses:

CHESTER H. BEATTIE,
THOS. B. SARGEANT.