C. F. LENG.

BOTTLE VALVE.

APPLICATION FILED APR. 17, 1915.

1,167,189.

Patented Jan. 4, 1916.

Fig. 1.

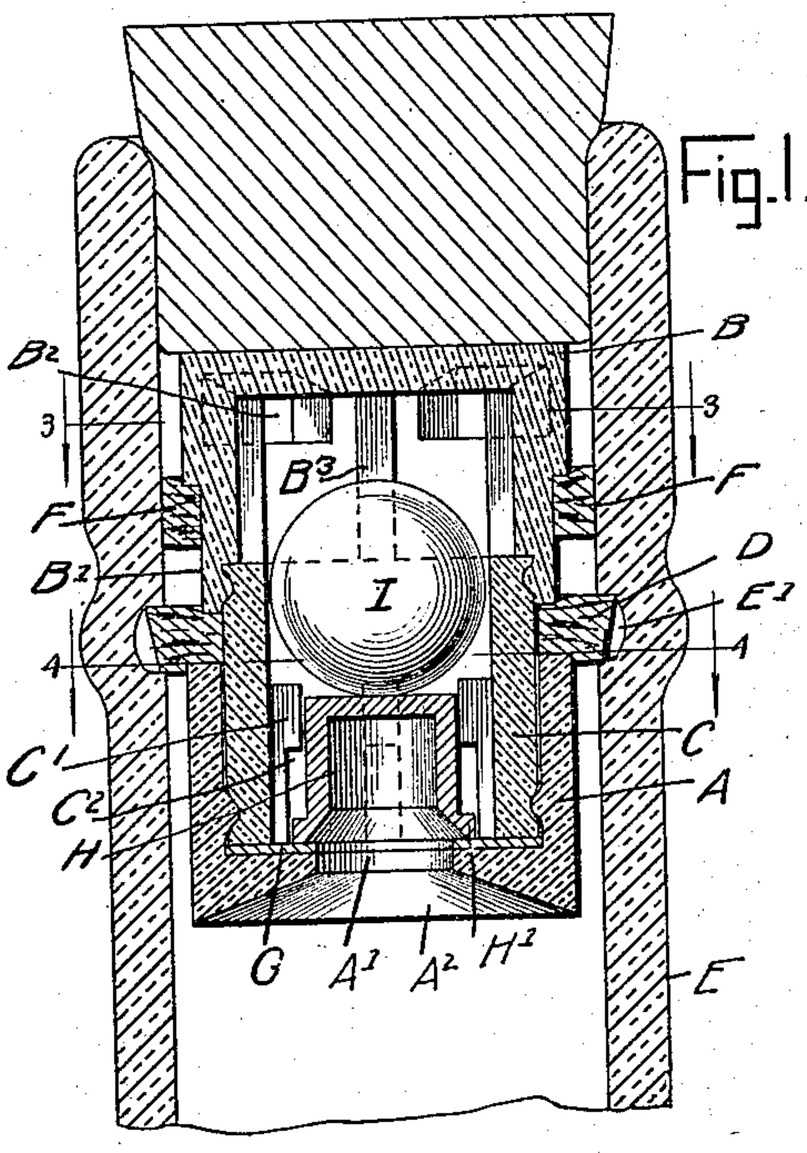


Fig. 3.

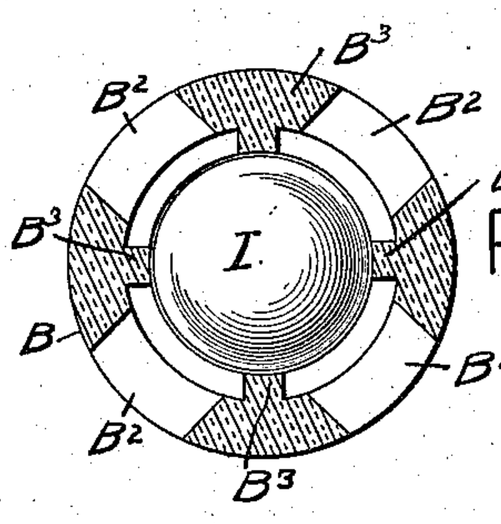


Fig. 4.

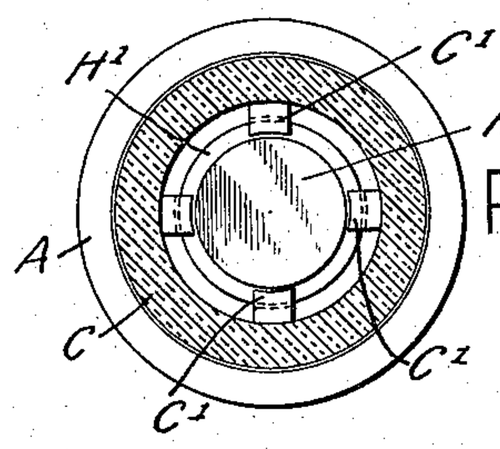
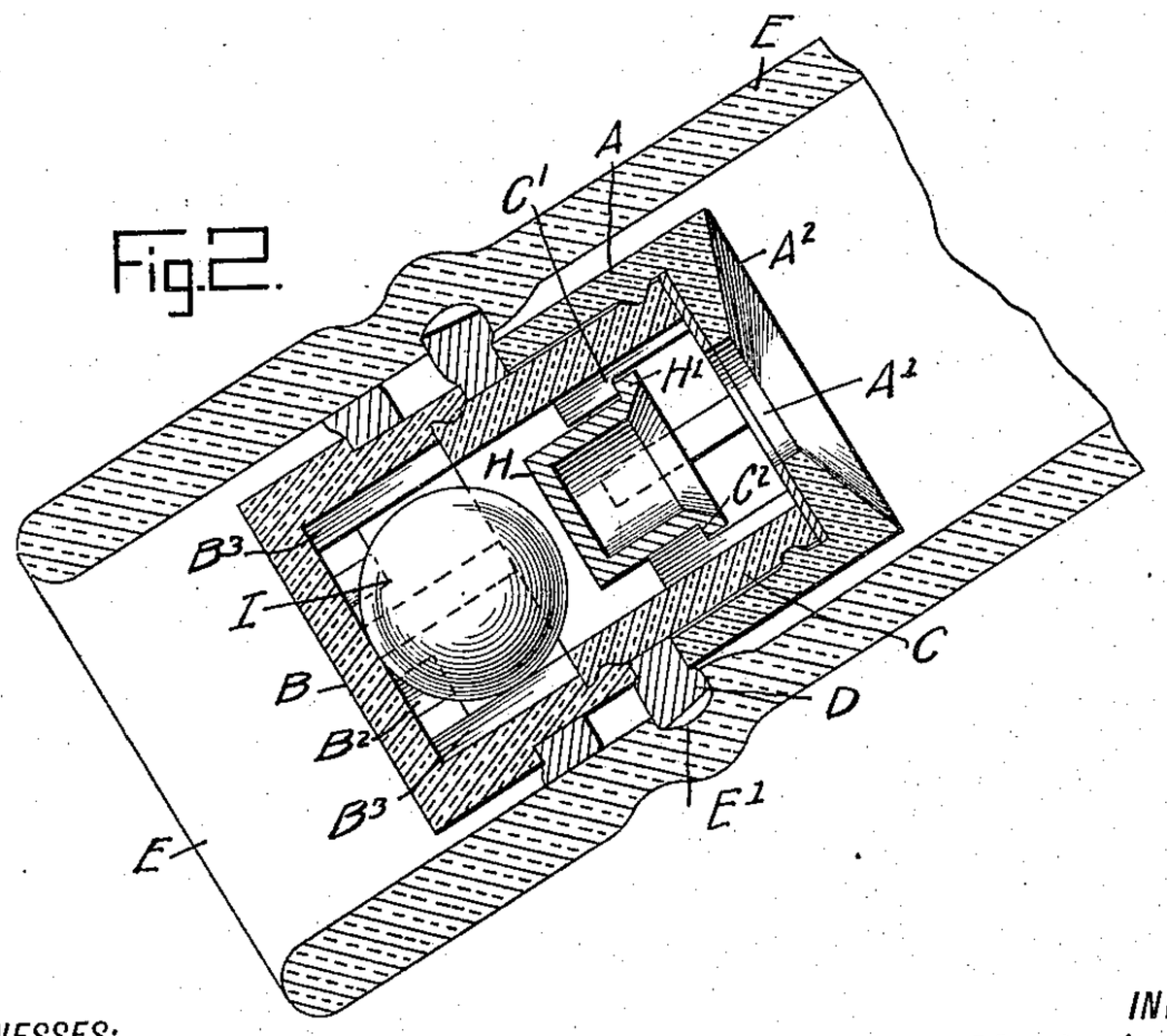


Fig. 2.



WITNESSES:

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BOTTLE-VALVE.

1,167,189. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed April 17, 1915. Serial No. 22,044.

To all whom it may concern:

Be it known that I, CHRISTIAN F. LENG, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Bottle-Valve, of which the following is a full, clear, and exact description.

The invention relates to bottle valves, such as shown and described in the Letters Patent of the United States, No. 1,069,443, granted to me on August 5, 1913.

The object of the present invention is to provide a new and improved bottle valve more especially designed to prevent refilling of the bottle by force or by the use of a vacuum, to allow easy and smooth decanting of the contents of the bottle, and to prevent the valve from being forced down into the bottle or being removed therefrom after it is once inserted in the neck of the bottle.

In order to produce the desired result, use is made of a casing provided at its bottom with a valve seat and at its upper end with an outlet, an inverted cup-shaped valve normally seated on the said seat, guiding ribs on the inner side of the casing and on which the said valve is mounted to slide, the said valve and the said ribs having limiting means to limit the sliding movement of the valve on the ribs, and a weight freely movable in the upper portion of the casing and normally resting on the top of the said valve.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an enlarged sectional side elevation of the bottle valve as applied to the neck of a bottle disposed in upright position; Fig. 2 is a similar view of the same with the parts in position when the bottle is tilted; Fig. 3 is a sectional plan view of the bottle valve on the line 3—3 of Fig. 1; and Fig. 4 is a similar view of the same on the line 4—4 of Fig. 1.

The valve casing is formed of a lower section A, a top section B and a connecting section C screwing with its lower end in the bottom section A and screwing with its upper end into the top section B. Between the adjacent edges of the bottom and top sections A and B is arranged a washer D fitting around the middle section C and extending into an annular groove E′ formed in the inner face of the neck E of the bottle on which the valve mechanism is used. The lower portion B′ of the top section B is somewhat reduced and on this reduced portion fits a washer F resting against the shoulder between the reduced lower portion and the upper portion of the section B. The peripheral face of the washer F fits snugly against the inner face of the neck E of the bottle. By reference to Figs. 1 and 2, it will be noticed that the peripheral face of the washer D is beveled in an upward and outward direction, and the bottom of the groove E′ is somewhat extended inwardly to prevent easy pulling the valve casing out of the neck E of the bottle after the valve casing is once inserted in the neck E. By reference to Figs. 1 and 2, it will be noticed that the diameter of the casing section A and that of the upper portion of the top section B are less than the interior diameter of the neck E, to prevent the casing from direct contact with the neck E of the bottle, the casing being held suspended in the neck by the washers D and F. The washers D and F are preferably made of cork but other suitable material may be used.

On the bottom of the lower section A rests a backing G of oil paper or other suitable material and held in place by the bottom edge of the middle section C. In the bottom of the lower section A and in the backing G is formed a valve seat A′ and a valve H is mounted to slide on ribs C′ formed integrally on the inner face of the middle section C. The ribs C′ are somewhat reduced at their lower portions to form shoulders or stops C^2 against which is adapted to abut an angular flange H′ formed on the lower end of the valve H. Thus when the bottle is tilted as shown in Fig. 2 the valve H is free to slide outward on the ribs C′, and this outward sliding movement is limited by the flange H′ abutting against the shoulders C^2. The backing G forms a cushion for the valve H and also insures a firm seating of the valve at the time the bottle is in upright position, thus practically sealing the valve seat A′.

On the top of the valve H rests a weight I, preferably in the form of a ball, fitting into the upper end of the connecting section C of the valve casing thereby providing a second valve as long as the bottle is in up-

right position. The weight I is adapted to roll into the upper section B on tilting the bottle, as shown in Fig. 2, and the inner surface of the upper section B is provided with ribs B^3 for the weight to roll on when tilting the bottle. The inner faces of the ribs B^3 are in alinement with the inner surface of the middle section C so that the weight rolls easily outward on tilting the bottle or back into the middle section on returning the bottle to upright position. The upper section B is provided near its upper end with sidewise extending outlet openings B^2 intermediate adjacent ribs B^3 so that when the bottle is tilted and the valve H moved into open position the weight I rolls outward in the top section B then the liquid in the bottle can readily pass through the open valve seat A′ between the ribs C′ into the middle section C and then between the ribs B^3 to the outlets B^2 to pass into the annular space formed between the upper end of the section B and the inner face of the neck E to finally pass out of the said neck into a glass or other receptacle.

The under side A^2 of the lower section A is made concave or flaring to readily direct the liquid into the seat A′ on tilting the bottle, and thus insuring a positive and quick opening of the valve H for pouring the liquid, as previously explained. It will be noticed that by the arrangement described the valve H is firmly held to its seat by its own weight and that of the weight I and is not liable to be dislodged either by force or vacuum that may be employed by unauthorized persons for refilling the bottle with spurious goods. By extending the bottom of the annular groove E′ inward the valve mechanism cannot be forced downward into the bottle. When the bottle is tilted and the liquid flows through the middle section C, as previously explained, the spherical weight I tends to break air currents ahead of the liquid thus insuring an easy flow of the liquid out of the bottle. By arranging the outlets B^2 at the side of the top section B tampering with the weight I and valve H is prevented as wire or like means cannot be readily forced into and through the outlets B^2.

The bottle valve shown and described is very simple and durable in construction and the sections of the valve casing being preferably made of glass or porcelain render the device sanitary.

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

1. A valve mechanism for bottles, comprising a casing having a bottom section provided with a valve seat, a top section having outlet openings, and a connecting section secured to the top and bottom sections and extending to the valve seat of the latter section, said connecting section having shouldered ribs, a washer held between the inner ends of the top and bottom sections and projecting beyond the face of the casing for the engagement with a groove of a bottle neck, and a valve mounted to slide on the said ribs and having a flange for engaging the shoulders of the ribs.

2. In a valve mechanism for bottles, a bottle neck provided in its inner face with an annular groove, the bottom of which projects inward beyond the said inner face, a cylindrical valve casing having a bottom section provided with a valve seat, an upper section provided with outlets, and a connecting section connecting the bottom and top sections with each other, a valve adapted to be seated on the said valve seat and having a limited sliding movement in the said connecting section, a weight adapted to rest on top of the said valve and freely movable in the upper portion of the said connecting section and in the said top section, and a washer held on the said connecting section between the adjacent ends of the said bottom and top section, the said washer projecting into the said groove.

3. In a valve mechanism for bottles, a bottle neck provided in its inner face with an annular groove, the bottom of which projects inward beyond the inner face, a cylindrical valve casing having a bottom section provided with a valve seat, an upper section provided with outlets, and a connecting section connecting the bottom and top sections with each other, a valve adapted to be seated on the said valve seat having a limited sliding movement in the said connecting section, a weight adapted to rest on top of the said valve and freely movable in the upper portion of the said connecting section and in the said top section, and a washer held on the said connecting section between the adjacent ends of the bottom and top section, the said washer projecting into the said groove and the peripheral face of the washer being beveled upwardly and outwardly.

4. In a valve mechanism for bottles, a bottle neck provided in its inner face with an annular groove, the bottom of which projects beyond the inner face, a cylindrical valve casing having a bottom section provided with a valve seat, an upper section provided with outlets and a connecting section connecting the bottom and top sections with each other, a valve adapted to be seated on the said valve seat and having a limited sliding movement in the said connecting section, a weight adapted to rest on top of the said valve and freely movable in the upper portion of the said connecting section and in the said top section, a washer held on the said connecting section between the adjacent ends of the said bottom and top section, the said washer projecting into the said

groove, the lower portion of the top section being reduced, and a second washer held on the said reduced portion and fitting against the inner face of the bottle neck above the groove therein.

5. A valve mechanism for bottles, comprising a casing having a bottom section provided at its lower end with a valve seat and having its under side concave, a top section provided with side openings and a connecting section screwing at its lower end into the said bottom section and at its upper end into the said top section, the said connecting section being provided at its inner face with vertical ribs having shoulders, and an inverted cup-shaped valve having a flange at its lower end, the valve controlling the said valve seat and being mounted to slide on the said ribs, the flange of the valve being adapted to abut against the said shoulders to limit the outward sliding movement of the valve.

6. A valve mechanism for bottles, comprising a casing having a bottom section provided at its lower end with a valve seat and having its under side concave, a top section provided with side openings and a connecting section screwing at its lower end into the said bottom section and at its upper end into the said top section, the said connecting section being provided at its inner face with vertical ribs having shoulders, an inverted cup-shaped valve having a flange at its lower end, the valve controlling the said valve seat and being mounted to slide on the said ribs, the flange of the valve being adapted to abut against the said shoulders to limit the outward sliding movement of the valve, and a ball weight adapted to rest on top of the said valve and freely movable in the upper portion of the connecting section and the said top section.

7. A valve mechanism for bottles, comprising a casing having a bottom section provided at its lower end with a valve seat and having its under side concave, a connecting section screwing at its lower end into the said bottom section and at its upper end into the said top section, the said connecting section being provided at its inner face with vertical ribs having shoulders, an inverted cup-shaped valve having a flange at its lower end, the valve controlling the said valve seat and being mounted to slide on the said ribs, the flange of the valve being adapted to abut against the said shoulders to limit the outward sliding movement of the valve, a ball weight adapted to rest on top of the said valve and freely movable in the upper portion of the connecting section and the said top section, a washer on the said connecting section intermediate the adjacent ends of the said bottom and top sections, the lower portion of the top section being reduced, and a washer held on the said reduced portion.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN F. LENG.

Witnesses:
THEO. G. HOSTER,
PHILIP D. ROLLHAUS.