No. 731,357. PATENTED JUNE 16, 1903.

E. T. GRIFFITH.

NON-REFILLABLE BOTTLE.

APPLICATION FILED MAY 27, 1902.

NO MODEL.

Fig. 1.

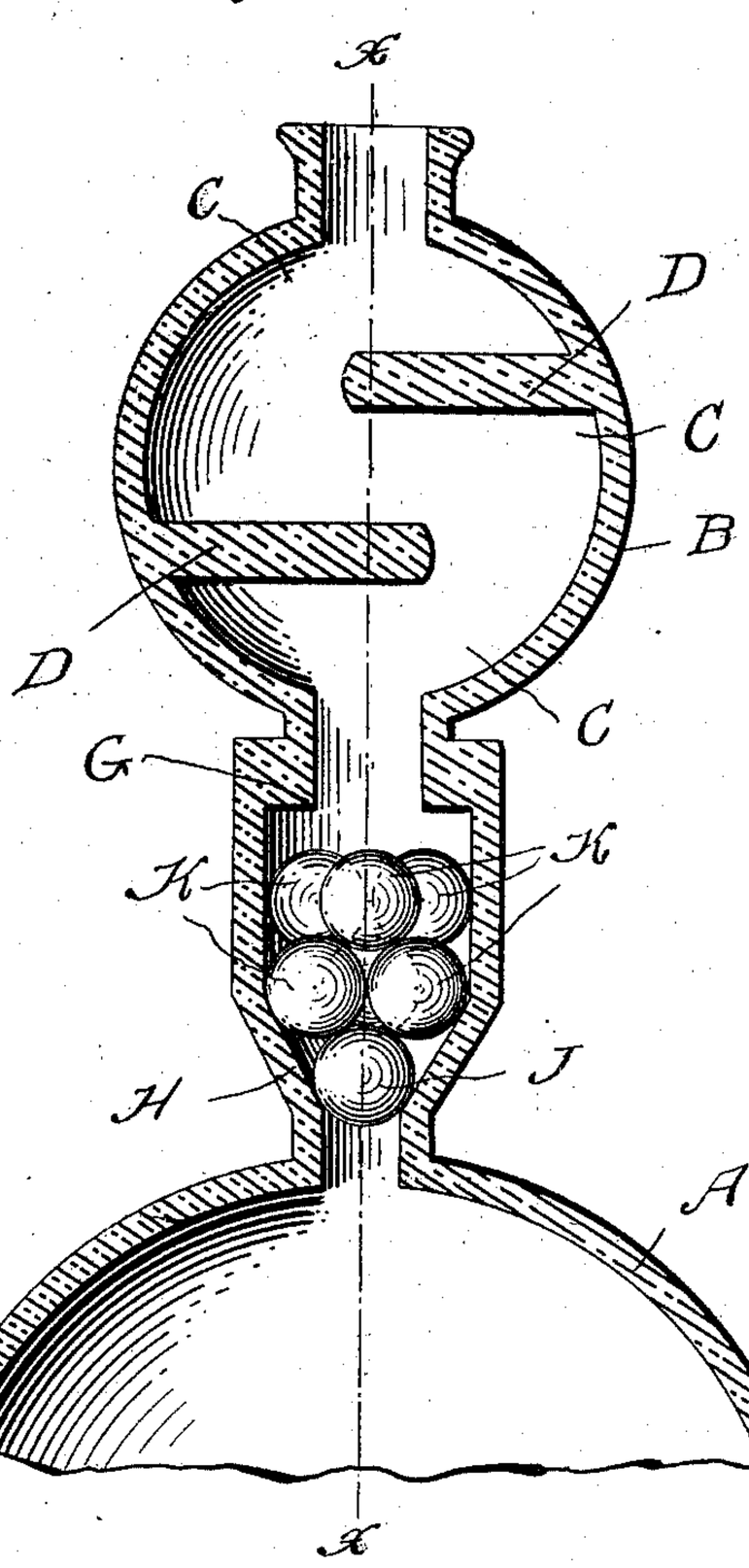
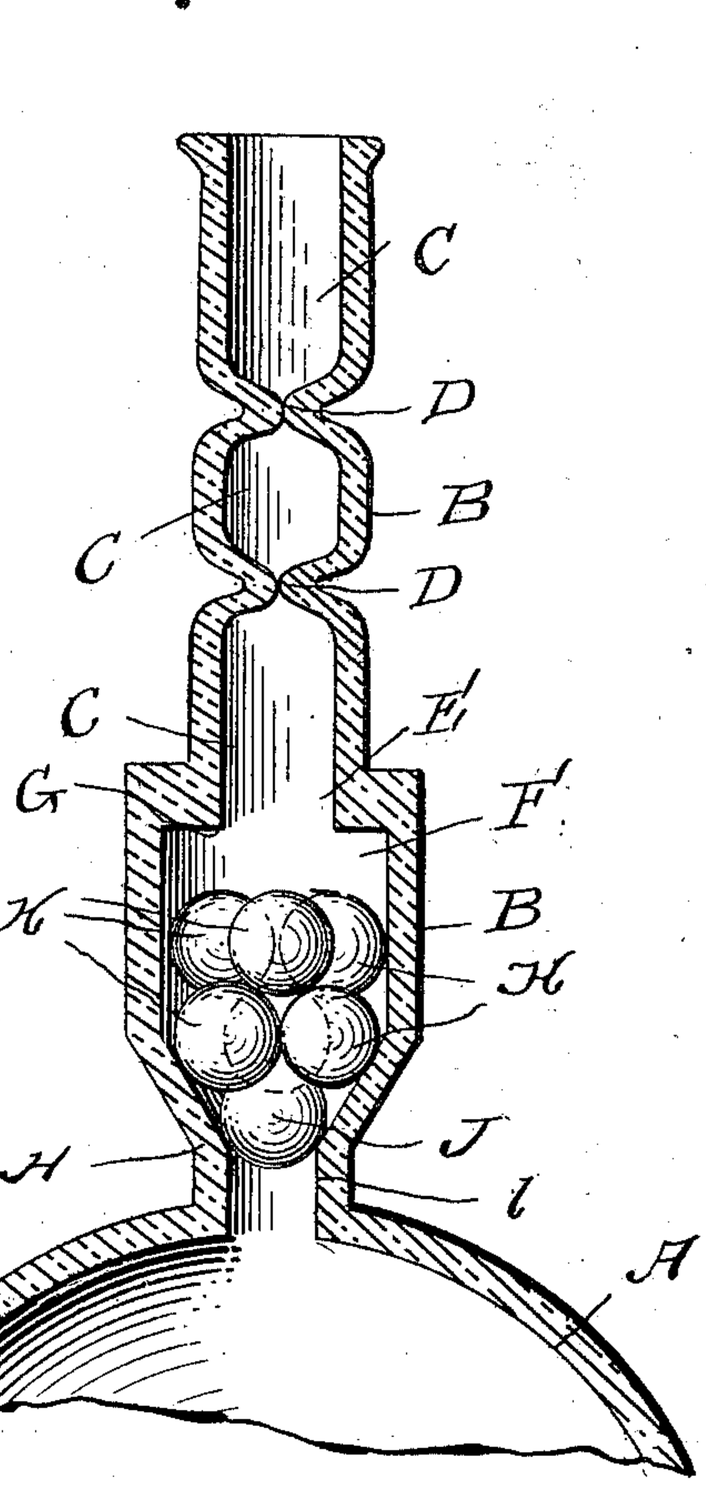


Fig. 2.



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No. 731,357. Patented June 16, 1903.

UNITED STATES PATENT OFFICE.

EDWARD T. GRIFFITH, OF MUNCIE, INDIANA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 731,357, dated June 16, 1903.

Application filed May 27, 1902. Serial No. 109,254. (No model.)

To all whom it may concern:

Be it known that I, EDWARD T. GRIFFITH, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented certain new and useful Improvements in Non-Refillable Bottles; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to bottles, and has for its object the prevention of fraudulent refilling of bottles, making it impossible to fill the bottle a second time. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a bottle embodying my invention, part of the body being broken away. Fig. 2 is a vertical section through the line X X.

Referring to the drawings by letter, A is the body of a bottle. B B is the neck. C C C is the neck-channel or outlet. D D are partitions within the neck-channel formed by the indentation of the walls of the neck till they meet thus, so that no fluids can pass except around their free border L L. E is a constriction of the channel C C C. F is the valve-cavity. G is a shoulder at top of valve-cavity. H is a conical valve-seat. I is a narrow constriction of channel C C C, leading into the body of the bottle. J is a valve closing the opening I. K K K K K K is a set of balls within the valve-cavity F, which are to be introduced one at a time through the channel C C C and constriction E into the valve-cavity F immediately following the introduction of valve J.

Having now described the parts and their relations, I will now give their combined operation.

Suppose now the valve J and the set of balls K K K K K K, Fig. 1, to be removed from the bottle, the body A to be filled with fluid, then the valve J is introduced into the neck-channel C C C, when it passes downward, taking its place in the valve-seat H, where it fits snugly, closing opening I. Now let balls K K K K K K fall one at a time through the same channel, when they will be found to take their positions in layers of three within the valve-cavity F, as shown, the last ball having just sufficient space to permit it to fall through opening E, taking its place beside its fellows. If it be now desired to pour from the bottle, it will be found that the set of balls K when the bottle is tipped will fall downward against the shoulder G, closely followed by valve J, thus allowing a free flow through the opening I, the interspaces between the balls K, and out through channel C C C. A return of the bottle to its sitting posture causes valve J and balls K to assume their former position. Thus it is evident from the foregoing that both a ready outflow and an effective stoppage against inflow is secured; but if it be desired to refill the bottle it will be found that valve J so closely fits the opening I that no fluid can pass and being held in position by balls K, so that if any pressure from without be exerted upon it, as when fluid is poured in, valve J instantly responds, effectually closing opening I against the passage inward of same; nor can the bottle be refilled if immersed, for the empty bottle contains air which must be removed in equal volume with the substance entering and because any inclination of the bottle upward from the horizontal plane to allow the escape of air causes valve J, reinforced by balls K and the weight of the fluid entering, to quickly and firmly close opening I. Therefore it is impossible to refill the bottle even when immersed. Again, it is impossible to refill the bottle by any manipulation of the valve J or the balls K, as follows: First, the balls K and valve J cannot be recovered from valve-cavity F by force of gravity. This is so because in the introduction of balls K but one ball can pass the opening E at a time and the last ball introduced had just sufficient space left it to accommodate its entrance within the valve-cavity F and because in the tipping of the bottle all the balls K and valve J simultaneously roll toward the opening E, each maintaining its respective position to its fellows. It follows that balls K will surround the opening E at every effort and cannot be recovered by force of gravity. Second, the balls K and valve J cannot be recovered by any force, barring the breaking of the bottle, because of the pecu-

liar tortuous channel leading from the valve-cavity F outward any communication desired, as by inserting a wire or other instrument through the channel C C C in the effort to touch and manipulate balls K and valve J is impossible, for let a wire be passed into the mouth of channel C C C it must pass over the free ends L L of partitions D D, and hence is bent at right angles to the opening E, which it must enter to be effective, and because the shaft of said instrument is bent two or more times upon itself at right angles it will be held from further progression by the obstruction offered by partitions D D, and it therefore follows that since said balls K and valve J lie far below the point at which it is possible to insert said instrument it is impossible to manipulate the same by any force from without. Third, if, therefore, the said balls and valve cannot be recovered by gravity nor manipulated by any force from without it is plain that the normal function of same cannot be interferred with by any manipulation whatsoever and the bottle cannot be refilled.

I am aware that prior to my invention bottles have been made embodying the use of valves and valve-seats as herein set forth; but I am not aware that the ball self-locking device as herein set forth by me has ever been used before, nor am I aware that all of the parts of my invention have been so combined and used together.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A bottle having a tortuous filling and emptying channel, including a chamber of enlarged diameter, as compared with the channel, and a valve-seat between the latter and the interior of the bottle, in combination with a valve in the valve-seat, and a plurality of weight-balls on said valve, and in said chamber, the latter being reduced in diameter at the point of its communication with the channel to correspond with the diameter of the balls, and having stops to limit the movement of the balls to such an extent as to prevent the entire removal of the valve from its seat, substantially as described.

2. A bottle having a valve-seat, a spherical valve therein, a plurality of spherical weights disposed in circular series on said valve, a chamber in which said weights are located, of such diameter as to prevent radial or circumferential separation of the weights, and of such length as to prevent exchange of positions between either of them and the valve, and a tortuous channel, communicating with said chamber, having its diameter, at its junction with the chamber, restricted to that of the weights, substantially as described.

EDWARD T. GRIFFITH.

Witnesses:
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