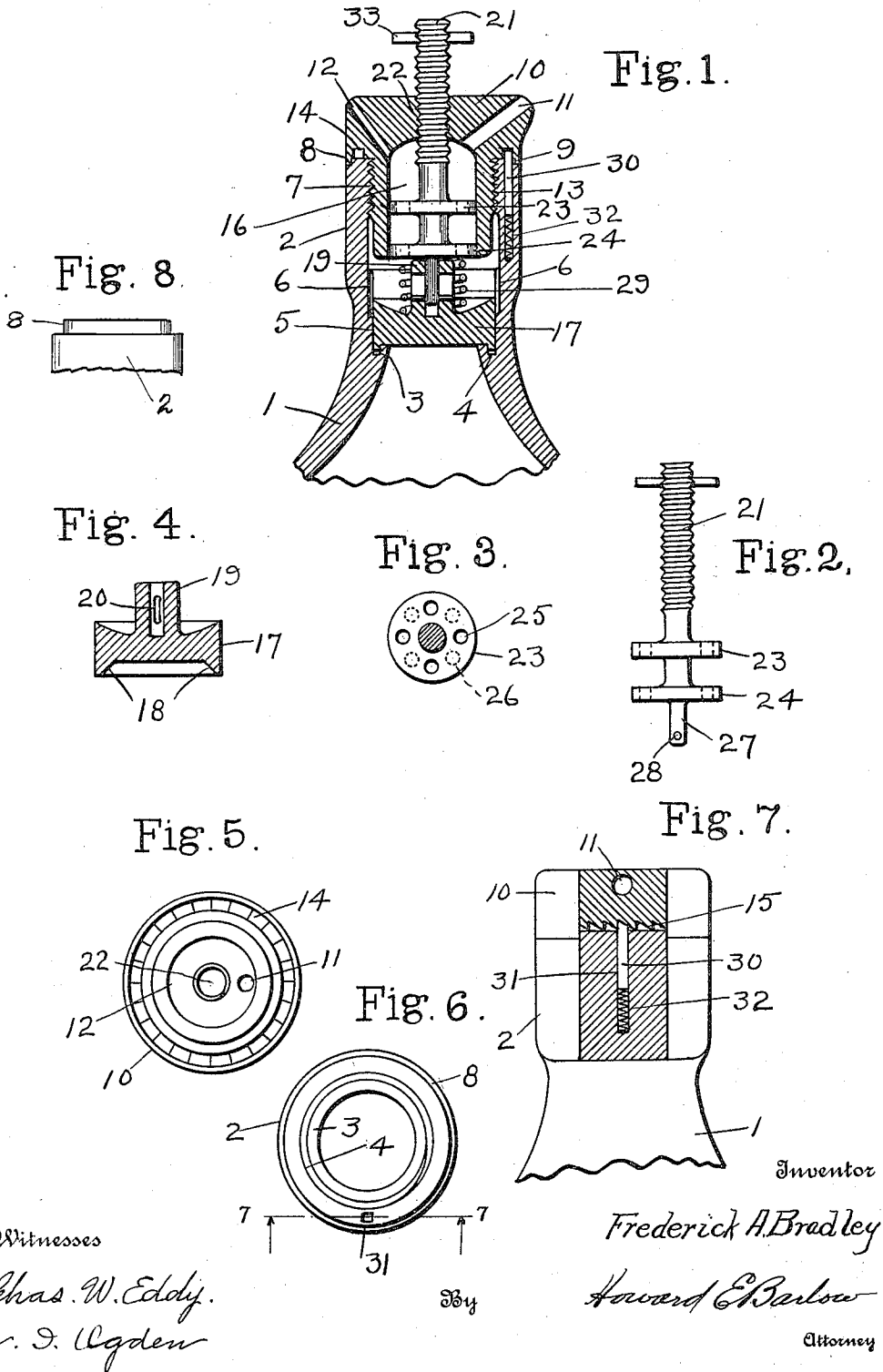


F. A. BRADLEY.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JAN. 3, 1912.

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UNITED STATES PATENT OFFICE.

FREDERICK A. BRADLEY, OF PROVIDENCE, RHODE ISLAND.

NON-REFILLABLE BOTTLE.

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Specification of Letters Patent.

Patented Oct. 22, 1912.

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To all whom it may concern:

Be it known that I, FREDERICK A. BRADLEY, a citizen of the United States, and resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to improvements in non-refillable bottles, and has for its object to provide a simple, practical and effective stopper adapted to be readily applied to a bottle having an especially constructed neck portion whereby when the bottle has been emptied it will be impossible to be refilled without detection.

A further object of the invention is to provide a simple and effective lock comprising a set of ratchet teeth and a spring pressed pin to engage said teeth whereby when the stopper has been positioned in the neck of the bottle it will be impossible to remove it without first breaking or destroying the same.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

Of the accompanying drawing: Figure 1— is a central sectional elevation illustrating the neck portion of my improved non-refillable bottle with the stopper in position therein. Fig. 2— is a detail side elevation of the threaded locking stem. Fig. 3— is a sectional plan view illustrating the holes through the stem flanges as being out of alinement with each other. Fig. 4— is a sectional view of the sealing member. Fig. 5— is an underneath view of the stopper showing the ratchet teeth therein. Fig. 6— is a plan view of the end of the bottle neck showing the square shaped locking pin therein. Fig. 7— is a sectional elevation on line 7—7 of Fig. 6 showing the spring pressed locking pin as engaging the teeth of the stopper. Fig. 8— is a detail showing the annular lip receiving cut away portion on the end of the neck.

Referring to the drawings, 1 designates a

bottle or other suitable package for containing liquids, which may be constructed of glass, or other suitable material, which package or bottle is provided with a neck portion 2 having an annular seat 3 near the inner end of the neck where it commences to open outward into the body of the bottle, said seat being scored as at 4 to receive the lips of the seal hereinafter described. Just above this seat 3 the neck is provided with a short plain annular bearing surface 5 and just above this bearing surface the neck is provided with longitudinal grooves 6—6 through which the liquid passes on its way out of the bottle when the seal is raised. The neck is internally threaded near its outer end at 7 and turned down around its upper outer edge as at 8 to receive the overhanging lip 9 of the stopper 10. This stopper may also be made of glass or of any other suitable material and is provided with a discharge opening 11 and inlet air opening 12 on its opposite side. The body of the stopper is threaded as at 13 to be screwed into the correspondingly threaded portion of the neck. The underside of the head of this stopper is grooved as at 14 and the groove is provided with a set of ratchet teeth 15, see Figs. 5 and 7. The interior of this stopper is provided with a hollow portion 16. This so-called stopper forms sort of a cage or casing in which is carried and controlled the operating mechanism for preventing the refilling of the bottle. The valve or seal member 17, as it is herein termed, comprises a small cylindrical shaped member having a tapering base portion 18 adapted to engage the seat 3 in the neck of the bottle, which base portion may be ground into said seat portion making the same absolutely tight, or a suitable cork face may be inserted into the base portion if desired. As a precaution against shaking or otherwise surreptitiously removing this seal from its seat, the periphery of this cylindrical seal is made to enter the bearing portion 5 of the neck with a sliding fit thereby cooperating with the seat to further prevent leakage when the bottle is turned bottom side up. This seal is provided with an upwardly

extending bearing 19 longitudinally slotted at 20. In order to control the operation of this seal I have provided a stem 21 having a threaded body portion adapted to be screwed into a corresponding opening 22 through the head of the stopper. This stem has two spaced apart flanges 23 and 24, each being provided with holes 25 and 26 set out of alinement one with the other, whereby it is impossible for a wire or other instrument to be passed down therethrough to manipulate the sealing member. The end of this stem is provided with a finger 27 extending into the bearing portion 19 of the seal member, said finger having a laterally extending controlling pin 28 which works in the slot 20 of the seal, whereby the seal is attached to the stem to be properly positioned thereby and yet be permitted to move up and down independent of the movement of the stem.

A feature of my invention is the provision of a light spring 29 interposed between the lower flange 24 and the upper face of the seal whereby when the stem is withdrawn from the seal and the latter is free to move, this spring will serve to counterbalance its weight when the bottle is turned up side down.

Another feature of my invention is the simple and effective means for locking the stopper in position on the neck of the bottle, which is that of providing a little pin 30, preferably square, set endwise in a corresponding slot 31, see Fig. 6, in the wall of the bottle neck, said slot being deep enough to receive a small spring 32 to engage the bottom of this pin and press the same outward into engagement with the ratchet teeth above described.

In the operation of my improved bottle stopper, after the original filling of the bottle, the stopper, including the seal 17 and the adjusting stem 21, is placed in position in the neck of the bottle and the stopper screwed into the threaded portion in the neck the end of the little spring pressed pin 30 engages the ratchet teeth 15 in the groove 14 so that when the stopper is seated it is effectually prevented from ever again being unscrewed without destroying the neck of the bottle. As a further protection against tampering with the spring pin I have provided an overhanging lip 9 shutting down over a portion of the neck of the bottle thereby effectually preventing the possibility of any instrument being entered to surreptitiously withdraw the locking pin. The stem 21 is now screwed downward pressing the seal 17 securely into its seat closing the bottle ready for shipment. When it is required to withdraw the liquid from the bottle the stem 21 is unscrewed by means of the little handle 33 withdrawing the flange 24 from engagement with the end of the

bearing portion 19 whereby when the neck of the bottle is turned downward the spring 29 yields to the weight of the liquid in the bottle and permits the seal to slide downward until its lower edge is beyond the lower edge of the longitudinal slot 6 when the liquid runs out through said slots the chamber 16 and discharge port 11 into any suitable receptacle. In order that the discharge may be uninterrupted air is permitted to enter the port 12 to replace the liquid in the bottle as fast as the same is discharged therefrom. It will now be seen that after the liquid has been thus drawn from the bottle that even though the neck of the bottle be immersed in a large receptacle filled with liquid that the spring 29, aided by the buoyant effect of the liquid upon the sealing member, would cause the latter to rise and effectually close the apertures, and further by providing the annular side bearing wall 5 about the periphery of the cylindrical sealing member, it is impossible for any shaking or side motion of the bottle to dislodge the seal from its seat in order to work another liquid into the bottle for the purpose of refilling the same.

I claim:

1. In a non-refillable bottle, the combination with a bottle provided with a valve seat, of a stopper permanently secured to said neck and having an air vent and discharge opening, a sealing member having an extension, a locking stem for said sealing member extending through said stopper, guards carried by said locking member, a spring including said extension and interposed between said seal and one of said guards, and means for connecting the extension of said seal to said stem, said connection being constructed to permit relative play of said stem and said seal.

2. In a non-refillable bottle, the combination with a bottle provided with a valve seat in its neck, of a stopper permanently secured to said neck and having an air vent and a discharge opening, a sealing member constructed to engage said seat and provided with a bore, a locking stem engaging said stopper and provided with a finger extending into the bore of said sealing member, means for connecting said finger and said sealing member, said connecting means being constructed to permit relative movement of said finger and said sealing member, and a spring interposed between said locking stem and said sealing member.

3. In a non-refillable bottle, the combination with a bottle provided with a valve seat in its neck, of a stopper permanently secured to said neck and having an air vent and discharge opening, a sealing member constructed to engage said seat, and provided with a bore, a locking stem engaging

said stopper and provided with a finger extending into the bore of said sealing member, a cross pin secured to said finger, said sealing member being provided with an enlarged transverse slot to receive said pin, and a spring interposed between said locking stem and said sealing member.

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

FREDERICK A. BRADLEY.

Witnesses:

HOWARD E. BARLOW,
E. I. OGDEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."