

P. B. JAGGER.  
NON-REFILLABLE BOTTLE OR LIKE VESSEL.

APPLICATION FILED APR. 7, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

FIG 1

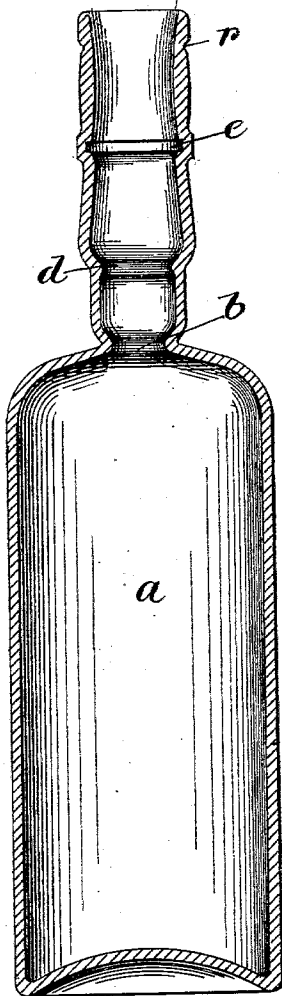


FIG 2

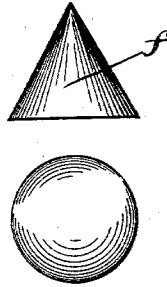


FIG 5

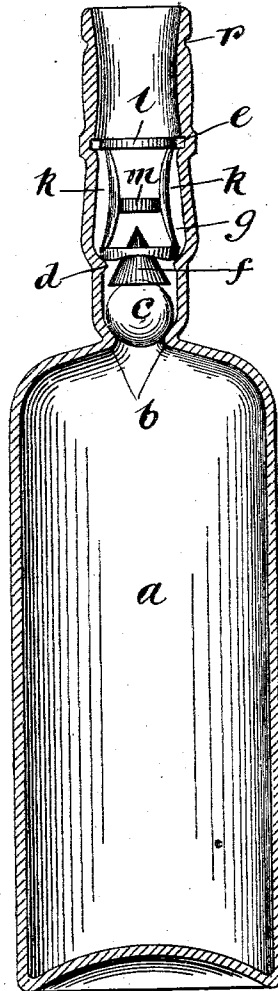
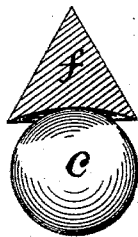


FIG 3



WITNESSES

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ATTORNEYS

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3 SHEETS—SHEET 2.

FIG 6

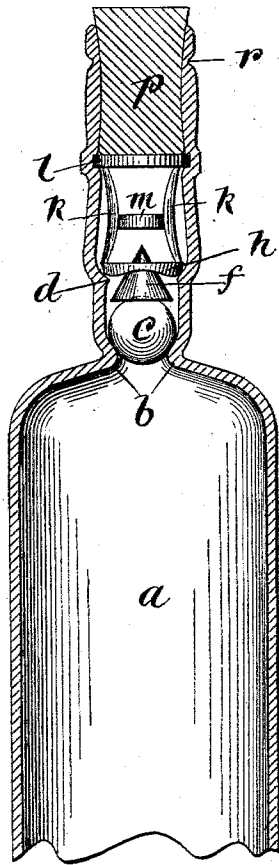


FIG 4

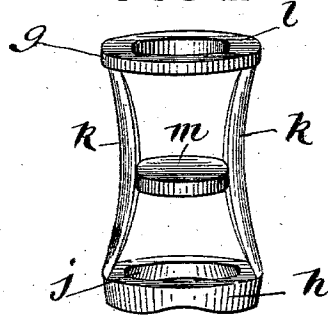
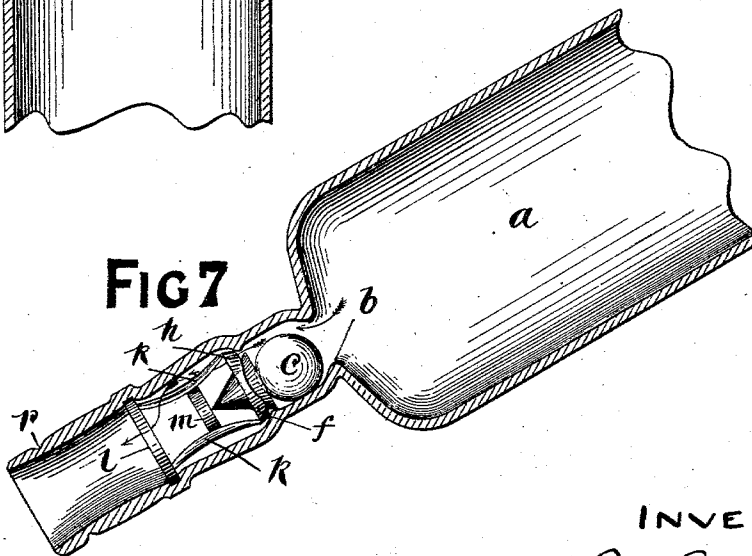


FIG 7



WITNESSES

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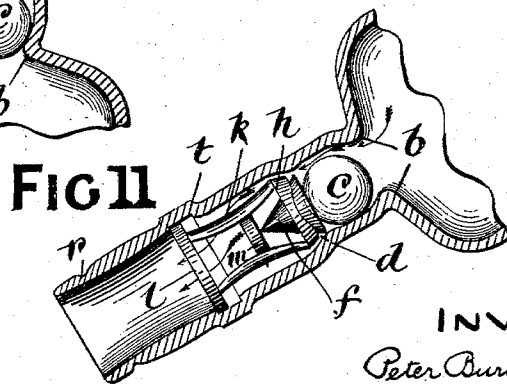
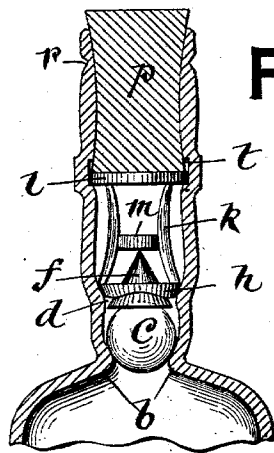
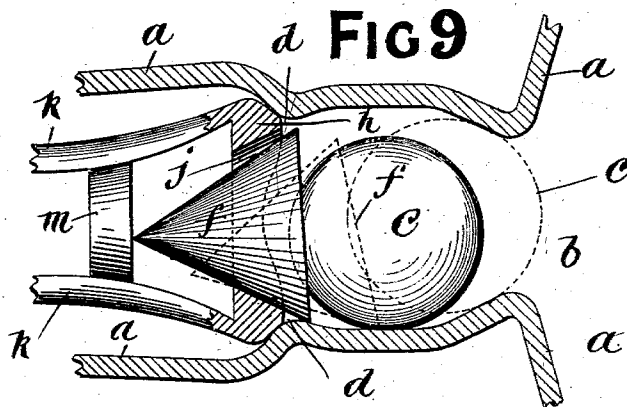
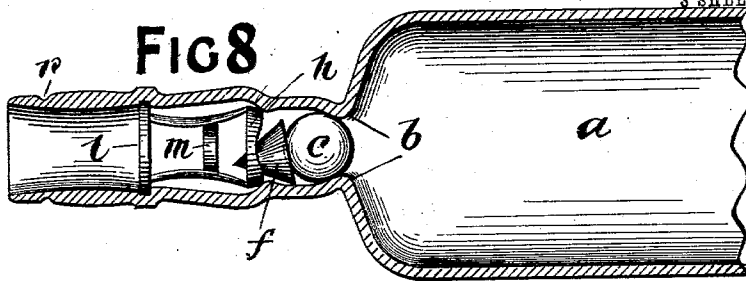
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3 SHEETS—SHEET 3.



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*J. M. Kuehne*  
*John A. Percival*

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# UNITED STATES PATENT OFFICE.

PETER BURD JAGGER, OF LONDON, ENGLAND, ASSIGNOR TO THE  
SOUTTERS PATENT BOTTLE SYNDICATE, LIMITED, OF BULA-  
WAYO, SOUTH AFRICA.

## NON-REFILLABLE BOTTLE OR LIKE VESSEL.

SPECIFICATION forming part of Letters Patent No. 740,363, dated September 29, 1903.

Application filed April 7, 1903. Serial No. 151,521. (No model.)

*To all whom it may concern:*

Be it known that I, PETER BURD JAGGER, a subject of His Majesty the King of Great Britain, and a resident of 5 Warrington Gardens, Maida Vale, London, W., England, have invented certain new and useful Improvements in Non-Refillable Bottles or Like Vessels, (for which I have made application for Patent in Belgium, Serial No. 134,867, dated March 13, 1903,) of which the following is a specification.

My invention relates to such vessels as are used for containing liquid and have mouths adapted to be closed by a cork or the like, but more particularly to bottles as used for containing spirits, wines, and like liquors, my said invention consisting of certain improvements in such vessels having for their object to provide means whereby the vessel when once emptied of its original contents cannot possibly be refilled in fraud of the original packer.

Of the most favored of the alleged non-refillable vessels hitherto devised these have generally been discarded as impracticable, for the reason that it has been found that such vessels (unless arranged to be filled through an aperture in the side or bottom) could be refilled either by liquor forced in the mouth under pressure or that the valve of the vessel permitted the mouth to be raised above the horizontal level before closing the passage in the neck, so that the bottle by care could be refilled; but according to this invention neither of these objections obtain, since the pressure needed to force the liquid into the vessel when in a horizontal position would also operate to force the valve back into its seat, and so close the neck of the vessel, while the particular angle at which the cone stopper is made and the particular angle of the mouth of the hole in the cage through which it moves cause the said cone stopper to operate in such a manner that the ball-valve closes the passage in the neck of the vessel directly the mouth end thereof is raised sufficiently to place the vessel in the slightest degree out of a horizontal position with the body of same, and by these improvements it is contended that this invention attains a

new and technical effect over the bottles or vessels hitherto designed for a like purpose.

In order that my invention and the manner in which the several parts thereof operate, singly and collectively, may be fully understood, I have hereunto appended three sheets of drawings and in which I have chosen to illustrate my invention as employed in connection with the manufacture and use of spirit, wine, and like bottles, and of which—

Figure 1, Sheet 1, is a vertical central section of a spirit or wine bottle substantially as constructed for the purposes of this invention. Fig. 2 comprises the outside view of the cone stopper and ball-valve employed in this invention, while Fig. 3 illustrates the manner in which the said cone stopper sits upon the said ball-valve, to further illustrate which the said stopper in this view is shown in section. Fig. 4, Sheet 2, is an enlarged perspective view of the metallic cage or frame employed in conjunction with the said stopper and valve for the purposes of this invention. Fig. 5, Sheet 1, is a reproduction of Fig. 1, but showing the position of Figs. 3 and 4 when first placed therein. Fig. 6, Sheet 2, is a reproduction of Fig. 5, but illustrating the position and formation of the cage or frame, Fig. 4, when expanded to fit the groove in the neck of the bottle, and the mouth of the bottle is closed by a cork resting upon the said cage or frame. Fig. 7 illustrates the position the stopper and ball-valve take when the bottle is more or less inverted to empty the contents thereof. Fig. 8, Sheet 3, is a view similar to Fig. 7, but illustrating the manner in which the stopper causes the valve to close the passage in the neck of the vessel directly the latter is returned to a horizontal position. Fig. 9 is an enlarged diagrammatic view illustrating more graphically the action of the said stopper and ball-valve as in Fig. 8 and hereinafter fully explained. Figs. 10 and 11 are views similar to Figs. 6 and 7, but illustrating a slight deviation from the form of construction shown in the said latter figures and hereinafter explained.

In carrying my invention into effect I produce, of any suitable material, but preferably of molded or blown glass, a bottle or vessel a

of any desired shape or configuration externally, the neck of which is so formed internally as to provide an annular ridge *b* of such suitable formation as to form a seating for a glass or other ball-valve *c*, which when in position entirely and perfectly closes the passage in the said neck. At a convenient distance above the said seating *b* the neck of the vessel is constructed to form an annular ridge *d*, while at a suitable distance above *d* is provided an annular groove *e*, the rest of the neck of the vessel being constructed for the reception of a cork or stopper in the usual way, while the outside of the said neck may be of any formation consistent with the internal formation and adapted for holding a capsule and wire in the usual way.

The inner surface of the neck of the vessel between *b* and *d* is shown parallel, this being found to be the most convenient form; but this part may be constructed at any desired angle most suitable under varying circumstances; but of whatever formation this part may be the internal diameter of all the parts of the neck above *b* must be such as to provide a clearance for the ball-valve *c*, so that this if dropped into the mouth of the vessel would fall unretardedly down onto its seating *b*.

Upon the ball-valve *c* is placed a coned glass or other stopper *f* of any desired or convenient formation, but for preference such that if divided centrally each half internally would describe an equilateral triangle, substantially as at Fig. 3.

For the purposes of this invention the vessel *a* is provided with a frame or cage *g*, cast or otherwise constructed of any suitable soft and pliable or easily-expandible metal not likely to be acted upon by the liquid contents to be placed in the vessel. The said frame or cage is constructed substantially as at Fig. 4, and consists of a base-ring *h* of such diameter and formation externally as to pass freely down the neck of the vessel and rest upon the annular ridge *d*, the internal formation of the said base-ring being such as to provide a sloping surface *j* (shown more graphically in Fig. 9) of any suitable angle, preferably not less than that of the external surface of the sides of the stopper *f*. The said base-ring *h* is connected by two or more uprights *k k* with a crown-ring *l*, and intermediately between *h* and *l* the said uprights are connected by a table-like entire partition *m*, the distance between the rings *h* and *l* being such that when *h* is resting upon the annular ridge *d* the ring *m* may be immediately level with the annular groove *e* in the vessel *a* or substantially as at Fig. 5.

The manner in which the invention is used and operates is as follows: The vessel *a* would be first charged with the spirits, wine, or other liquid, preferably to such an extent as to be level but not to overflow the seating *b*, and when placed into a perfectly upright position the ball-valve *c* would be dropped into the

neck and would rest upon the seating *b*, when the stopper *f* would follow until arrested by the ball-valve *c*, the surface of the base of *f* being of concave formation, so as to automatically centralize its position upon the ball-valve *c* and be retained in that position. The metallic cage or frame, Fig. 4, would then be dropped into the neck of the vessel and would fall until arrested by the base-ring *h* thereof coming in contact with the annular ridge *d* when the crown-ring *l* would be facing and level with the annular groove *e*. If now a suitable instrument or tool—such, for instance, as a pair of round-nosed pliers—be inserted within the crown-ring *l* and opened with force, the said ring *l* may be expanded in diameter, so as to fit and fully and firmly occupy the said groove *e*, substantially as at Fig. 6, from which it cannot be removed without in some way rupturing the said frame or the bottle *a*. The mouth of the vessel *a* may now be closed by a cork or stopper *p* in the usual way and may be secured by wire or string, if desired, the outer formation of the neck of the vessel at *r* being arranged to facilitate this.

It has been found in practice that when driving home the cork or stopper *p* the air between this and the ball-valve *c* becomes compressed and operates to keep the said valve in its seating even when the bottle or vessel *a* is placed in a horizontal position.

To remove the contents of the vessel, the cork or stopper *p* would be first withdrawn and the compressed air in the neck of the vessel thereby released, when by tilting and more or less inverting the vessel the weight of the liquid would remove from its seating the ball-valve *c*, which in turn would push the coned stopper farther into the frame or cage until arrested by its apex abutting against the under surface of the table portion *m* of the said cage or frame, when the liquid contents of the vessel would flow out past the ball-valve *c*, through the base-ring *h*, between the uprights *k k*, around and over the table, partition *m*, and out through the crown-ring *l* and the mouth of the vessel, substantially as indicated by the arrows in Fig. 7, and if it is desired that only a portion of the contents of the vessel is to be withdrawn the balance may be sealed by merely returning the vessel gradually to an upright position, during which such small quantity of liquor as may be in the neck of the vessel would flow back into the body of same during the motion of returning the vessel to a horizontal position, and directly the vessel had passed this position the ball-valve *c* would return to its seating *b* and so seal the contents of the vessel without the need of inserting the cork or stopper *p*, thus rendering the invention particularly useful to publicans and others who may be serving or retailing such liquor in small quantities.

The vessel when eventually emptied of the whole of its contents cannot possibly be refilled, hence the object and purpose of my in-

vention; but if any attempt be made to refill the vessel in fraud of the original packers the mere placing of the vessel in any position in which the mouth thereof is in any degree above horizontal level with the body of same would cause the coned stopper *f* to slide outwardly from the base-ring *h* of the cage or frame and push the ball-valve *c* into its seating *b*, substantially as at Fig. 8, thus closing the neck of the vessel and rendering it impossible to pass any liquid down into the body of the vessel. The enlarged diagram Fig. 9 is intended to make the action of the coned stopper and ball-valve more clear. It has hereinbefore been stated that for preference the vertical cross-sectional formation of the said stopper *f* approximates to that of an equilateral triangle, or, in other words, that the length of the sides may be equal to but not in excess of the diameter of the base. This is essential for the purposes of this invention and which provides that, as stated, the apex of said stopper abuts against the table *m*, when the vessel *a* is inverted for emptying the same would remain in this position until its center of gravity was changed by the returning of the vessel to a horizontal position or substantially as shown by full lines in Fig. 9; but directly the vessel returns to a horizontal position the cone stopper would by the action of gravity (arising from the fact that its base is heavier than its apex) slide down the sloping lower portion of the inner surface of the ring *h* and along the neck of the vessel toward the valve-seating *b*, pushing and taking with it the ball-valve *c* until the latter becomes arrested by its seating *b*, when both the stopper *f* and ball-valve *c* would be in the position shown by dotted outline in Fig. 9, thus closing the neck of the vessel against the possibility of refilling the same. It may be said that it would be possible to refill the vessel with liquor under pressure without raising the mouth of the vessel above the horizontal level of the body of same; but by careful experiments in this direction it has been found that the force needed to insert the liquor would also operate upon the stopper *f* and ball-valve *c* and force these into the positions shown by dotted outline in Fig. 9 and so close the neck of the vessel. It is therefore contended that by this invention a new and useful technical effect is attained, since it is impossible to refill the vessel in fraud of the original packers. Hence the attainment of the object of this invention.

As a slight modification of the foregoing form of construction the arrangement illustrated by Figs. 10 and 11 may be employed, which said figures are similar to Figs. 6 and 7, but embodying the said modification. In this arrangement the distance between the seating *b* and the annular ridge *d* is somewhat less than the distance between these in the construction previously described, which has the effect of permitting the metallic cage or frame to sink lower into the neck of the

vessel, or, in other words, so that its base-ring *h* is nearer to the seating *b*, and this has for its object to allow the said cage to be low enough in the neck of the vessel that the table *m* of the frame or cage may always rest upon the apex of the stopper *f* and keep the ball-valve *c* always on its seating *b* whatever may be the position of the vessel *a*. To permit this and allow the said ball-valve to leave its seating when the contents of the vessel is to be withdrawn, the annular groove in the neck of the vessel may be made broader than that shown by *e* in the previous figures or about twice or more the thickness of the crown-ring *l* of the cage or frame, substantially as shown by *t* in Figs. 10 and 11, the object of this extra height of the said groove being that when the crown-ring *l* of the frame or cage is expanded into the said groove *t* in the manner previously described in connection with the groove *e* the said cage or frame would have a certain vertical play equal to the breadth of the said groove in excess of the thickness of the crown-ring *l*, which provides that when the said cage or frame is dropped into the neck of the vessel in the manner stated its progress would not only be arrested by the annular ridge *d*, but also by its table *m* colliding with the apex of the coned stopper *f*, and the driving home of the cork or stopper *p* (the length of which would be arranged to attain this end) would by pressing upon the crown-ring *l* retain the said cage or frame in this position with its crown-ring *l* resting on the lower edge of the groove *t*, substantially as in Fig. 10, and by this means the ball-valve *c* is prevented from leaving its seating *b* so long as the cork or stopper *p* remains in the mouth of the vessel irrespective of whatever may be the position of the vessel *a*; but when the said cork or stopper is withdrawn and the vessel is tilted or inverted for pouring out its contents the ball-valve *c* would leave its seating *b* and push forward the coned stopper *f* and the cage or frame until arrested by the upper edge of the crown-ring *l* of the latter abutting against the upper edge of the groove *t*, or substantially as shown in Fig. 11, the liquor then flowing out in the direction of the arrows therein shown and as hereinbefore described. Although this latter arrangement provides that the ball-valve *c* cannot leave its seating while the cork or stopper *p* is in position, it does not in any way lessen the impossibility of refilling the bottle or vessel when once emptied of its original contents; but it provides that by reason of the ball-valve *c* being kept, as described, firmly seated upon its seating *b* none of the liquor in the vessel can at any time come in contact with the cork *p*, thus permitting corks of cheap quality to be used and preventing contamination of the contents of the vessel by touching the cork.

It may appear possible that the ball-valve *c* might be tampered with from the mouth of the vessel by a wire or the like, so as to hold it from its seating while the vessel was re-

filled; but this is impossible, since the cage or frame *h k l m* cannot be disengaged from the groove *e* or *t* without rupture to the crown-ring *l*, and while the said cage or frame remains in position any attempt to pass a wire down inside the crown-ring *l* would result in the latter colliding with the table or partition *m*, and if such wire be bent so as to pass down outside the said table *m* it could not pass between the base-ring *h* and annular ridge *d*, and if it were possible to pass the said wire through the base-ring *h* it must collide with and be arrested by the coned stopper *f*. Hence the entire failure of such an attempt.

15 Referring again to the form of construction illustrated by Figs. 1 to 9, inclusive, the internal diameter of the base-ring *h* of the said frame or cage would be only so much larger than the diameter of that part  
20 of the coned stopper *f* which it would surround while the said base-ring is resting upon the annular ridge *d* as would be necessary to maintain the substantially vertical position of the said coned stopper, as at Fig. 6, and yet allow the said stopper to fall  
25 toward the mouth of the vessel (when inverted) a distance sufficient to allow the ball-valve *c* to leave its seating and permit the outward flow of the liquid, as at Fig. 7; but in so  
30 far as regards the form of construction illustrated by Figs. 10 and 11 the internal diameter of the base-ring *h* may be such as to fit closely upon the cone stopper *f* when the cage or frame is in its lowest position, as at  
35 Fig. 10, as the upward movement of the said cage or frame permitted by the groove *t* would also allow the forward movement of the coned stopper *f* to release the ball-valve *c* from its seating *b* to allow the liquor to flow,  
40 substantially as shown in Fig. 11.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The improved non-refillable bottle or  
45 vessel *a*, for containing liquid, a seating *b*, formed in the neck or shoulder of the said vessel, with a ball-valve *c*, adapted to fit onto the said seating *b*, and surmounted by a coned stopper *f*, having a concave base rest-

ing upon the ball-stopper *c*, a frame or cage 50 surmounting the said coned stopper *f*, the base-ring *h*, of which rests upon an annular ridge *d*, formed in the neck of the vessel *a*, the said base-ring being formed integrally or otherwise with two or more uprights *k k*, con- 55 nected to a crown-ring *l*, and a central table or partition *m*, the said crown-ring being adapted for expansion radially to fit into an annular groove formed in the neck of the vessel *a*, the said frame or cage, when in posi- 60 tion, being surmounted by a cork or stopper *p*, substantially as and for the purposes herein set forth and shown by the appended drawings.

2. The improved non-refillable bottle or 65 vessel *a*, for containing liquids, a seating *b*, formed in the neck or shoulder of said vessel, a ball-valve *c*, adapted to fit onto the said seating *b*, and surmounted by a coned stopper *f*, having a concave base resting upon the 70 ball-stopper *c*, a frame or cage surmounting the said stopper *f*, the base-ring *h*, whereof rests upon an annular ridge *d*, formed in the neck of the vessel *a*, the said base-ring being formed integrally or otherwise with uprights 75 *k k*, connected to a crown-ring *l*, and a central table or partition *m*, the said crown-ring being adapted for expansion radially to fit into an annular groove of sufficient width to allow the frame or cage to move, formed in 80 the neck of the vessel *a*, the said frame or cage, when in position being surmounted by a cork or stopper *p*, substantially as and for the purposes herein described and shown by the appended drawings, more particularly by 85 Figs. 10 and 11.

3. In a non-refillable prepared bottle or vessel such as *a*, the combination therewith of a ball-valve *c*, coned stopper *f*, and metallic frame such as *h, k, l, m*, substantially as here- 90 in set forth and shown.

In witness whereof I have hereunto set my hand in presence of two witnesses.

PETER BURD JAGGER.

Witnesses:

GEORGE THOMAS HYDE,  
HENRY CONRAD HEIDE.